

**RESPONSE TO COMMENTS RECEIVED CONCERNING
THE DALLAS-FORT WORTH (DFW) ATTAINMENT
DEMONSTRATION (AD) STATE IMPLEMENTATION
PLAN (SIP) REVISION FOR THE 1997 EIGHT-HOUR
OZONE STANDARD**

PROPOSED JUNE 8, 2011

The commission conducted public hearings in Arlington on July 14, 2011, at 10:00 a.m. and 6:30 p.m., and in Austin on July 22, 2011, at 2:00 p.m. During the comment period, which closed on August 8, 2011, the commission received comments from the American Coatings Association (ACA), the Barnett Shale Energy Education Council (BSEEC), COPPs for Clean Air (COPPs), the Commissioners Court of Denton County (Denton), Downwinders at Risk (Downwinders), Earthworks Oil and Gas Accountability (Earthworks), Flexographic Technical Association (FTA), Fort Worth Regional Concerned Citizens, KIDS for Clean Air (KIDS), the Lone Star Chapter of the Sierra Club (Sierra Club), Mayor Calvin Tillman (Mayor Tillman), the National Aeronautics and Space Administration (NASA), the North Central Texas Council of Governments (NCTCOG), the North Texas Clean Air Steering Committee (NTCASC), Public Citizen, the Regional Transportation Council of the NCTCOG (RTC), State Representative Lon Burnham (Representative Burnham), the Texas Chemical Council (TCC), the Texas Pipeline Association (TPA), the United States Environmental Protection Agency (EPA), The United States Navy (US Navy), and 393 individuals.

Comments more directly related to the concurrent rulemaking in 30 Texas Administrative Code (TAC) Chapter 115 Volatile Organic Compounds (VOC) Storage Rule Revisions (Rule Project No. 2010-025-115-EN) and 30 TAC Chapter 115 Control Technique Guideline (CTG) Reasonably Available Control Technology (RACT) Rule Revisions (Rule Project No. 2010-016-115-EN), which were incorporated by reference into the AD SIP revision, are responded to in the Response to Comments sections of the preambles to those rulemakings. Those comments are included in this AD SIP revision through the adoption of those rules. Some changes were made to the proposed version of this AD SIP revision in response to those comments.

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GENERAL COMMENTS

Air Quality Concerns

Four individuals expressed concern about poor air quality in the DFW nonattainment area, one of whom commented that the pall that falls over the metroplex frightens citizens. An individual stated that the DFW area has been a nonattainment area for the ozone standard for decades, and another individual commented that DFW area air quality has worsened over time. Two individuals commented that improvements in DFW air quality have taken too long to achieve, and an individual questioned how long school children will be forced to have recess indoors due to the unhealthy air quality outside. An individual expressed considering moving from the DFW area if air quality does not improve.

Four individuals commented that a significant amount of progress is needed to restore healthy air to the citizens of the DFW area, and an individual commented that the Texas Commission on Environmental Quality (TCEQ) should take the lead in improving DFW area air quality and other cities would follow. Three individuals recommended that the TCEQ do more to reduce DFW area ozone and clean the air. An individual commented that the commission is not doing its job to protect clean air and water. Three individuals commented that more stringent standards should be applied to polluting businesses in order to improve air and water quality.

An individual expressed concern that the TCEQ was protecting the entities it was supposed to regulate at the cost of public health, public safety, and environmental protection. An individual commented that the TCEQ should do more to protect the environment and not allow itself to be influenced by industry. Three individuals commented that the TCEQ and other policy makers should protect the citizens of the DFW area and not protect the industries that are polluting the environment.

The commission strives to protect our state's human and natural resources consistent with sustainable economic development. The commission is committed to attaining the 1997 eight-hour ozone standard as expeditiously as practicable. The purpose of this plan is to demonstrate attainment of the 1997 eight-hour ozone standard by June 15, 2013, in accordance with the EPA's guidance and Federal Clean Air Act (FCAA) requirements. The DFW area has made considerable improvement in air quality. For example, between 2005 and 2010 the eight-hour ozone design value has trended downward 10 ppb. The number of DFW eight-hour ozone exceedance days has also decreased from 30 to 8 over the same period.

The commission appreciates the comments related to health effects of ozone and economic welfare and is committed to working with area stakeholders to attain the 1997 eight-hour ozone standard, which is a health-based standard, as expeditiously as practicable to adequately protect public health in accordance with the EPA's 1997 eight-hour ozone implementation rule, EPA guidance, and the FCAA. The primary National Ambient Air Quality Standards (NAAQS) are those that the EPA determines are necessary, with an adequate margin of safety, to protect the public health, including sensitive members of the population such as children, the elderly, and those with existing lung or cardiovascular conditions. It is well known that some air pollutants, including ozone, can aggravate existing respiratory diseases. The primary health concerns for ozone are effects to the lungs and respiratory system. Health effects from ozone generally can resolve quickly once an individual is no longer exposed to high levels. By demonstrating attainment of the 1997 eight-hour ozone standard in the DFW area, in accordance with the EPA's

1997 eight-hour ozone implementation rule, the EPA's guidance, and the FCAA, the commission is ensuring that public health will be adequately protected.

The rules associated with this AD SIP revision include achievable and cost-effective emissions standards for sources in and around the DFW nonattainment area. An achievable and cost-effective level of control for a particular source category depends on the current levels of emissions, available control technologies for the source category, and other technical and economic factors that may be specific to a source or to a region. The commission determined the appropriate level of control for sources in the DFW nonattainment area considering all appropriate factors, including information obtained during the public comment period. Discussion regarding the level of control required on specific source categories is provided in the preambles to the rules associated with this AD SIP revision. The DFW area has made considerable improvement in air quality. For example, between 2005 and 2010 the eight-hour ozone design value has trended downward 10 ppb. The number of DFW eight-hour ozone exceedance days has also decreased from 30 to 8 over the same period.

An individual who expressed concern about DFW area air quality also commented that the largest polluter of benzene, xylene, and formaldehyde is new homes.

The commission is charged with developing plans that will help nonattainment areas meet federal ambient air quality standards for ozone and other pollutants. The DFW AD SIP revision is designed to demonstrate attainment of the 1997 eight-hour ozone standard. Comments concerning new home pollutants or indoor air quality are beyond the scope of this AD SIP revision. No changes were made as a result of these comments.

Health Effects

An individual commented that when ozone is high it is dangerous for those who suffer from asthma to go outside. An individual commented that air quality has considerably decreased and is to blame for a lot of asthma problems. Fourteen individuals commented that the air quality of the DFW area has had an adverse effect on human health on its citizens. An individual was concerned about being subjected to pollutants from coal fired plants, cement kilns, and natural gas wells.

Fort Worth Regional Concerned Citizens also expressed concerns regarding an area citizen who had been hospitalized recently and that emissions from the oil and gas industry are killing sensitive members of the population.

Earthworks stated that citizens would have fewer nosebleeds, fewer rashes, fewer headaches, and other health impacts if the natural gas industry would cut 114 tons of VOC emissions per day. Earthworks also discussed, in general, air sampling results from studies conducted in Colorado and New Mexico and compared chemicals detected in those studies to chemicals detected in the Barnett Shale area. The commenter mentioned testing the TCEQ conducted on a high school band practice lot where 65 of 84 VOC were detected.

An individual expressed concerns that the TCEQ is not being proactive in protecting human health and that emissions from the natural gas industry will cause cancer.

An individual commented that benzene and carbon disulfide have been detected at high levels in Flower Mound and that Flower Mound has unexpectedly high levels of breast cancer and childhood leukemia cases. The commenter mentioned a friend's dog with leukemia and two neighbors who have recently been diagnosed with cancer (one with breast cancer and one with lymphoma). The commenter also commented that there is a clear scientific linkage between VOC exposures and serious health effects.

An individual commented that emissions from a nearby well site affected air quality on the individual's property, at times to the point at which leaving the property was required. The individual commented that fumes from diesel trucks idling at the well site can cause air quality to become so poor that it becomes difficult to breathe. The commenter also asked what level of exposure to carcinogenic materials was safe and described the health effects experienced by people in the neighborhood, perceiving a correlation between those drilling activities and adverse health effects.

The commission has conducted extensive air monitoring for chemicals associated with oil and gas operations in the DFW area (including Flower Mound), and staff has not monitored any off-site, short-term concentrations that would be expected to cause adverse health effects after short-term exposure. Additionally, staff has not monitored any concentrations at stationary monitors that would be expected to cause adverse health effects after long-term (i.e., lifetime) exposure. In some instances, staff has measured short-term concentrations of some chemicals that would be expected to cause odors, consistent with citizen odor complaints and staff investigator reports.

To help address concerns about potential health risks (including cancer) from long-term exposure to emissions from oil and gas operations, the TCEQ has increased the stationary VOC monitoring network in the DFW area from six monitors in 2009 to 12 monitors as of August 2011.

The commission uses long-term air monitoring comparison values (AMCVs) to help determine the potential for chronic adverse health effects to occur from long-term exposure to monitored concentrations of chemicals in air. Long-term AMCVs are protective of cancer and non-cancer health effects as well as adverse effects on vegetation. Based on long-term air monitoring data collected to date in the Barnett Shale area, the commission would not expect an increased risk of cancer to result from long-term exposure to the monitored concentrations.

In response to community concerns about possible cancer clusters in the town of Flower Mound, the Texas Department of State Health Services analyzed the occurrence of childhood and overall leukemia, non-Hodgkin's lymphoma, childhood brain cancer, and female breast cancer in the 75022 and 75028 ZIP codes, using Texas Cancer Registry data from 1998 to 2007. The study concluded that the number of childhood leukemia subtypes, childhood brain/CNS cancer subtypes, all-age leukemia subtypes, and all-age non-Hodgkin's lymphoma were within the expected ranges both for males and females. The number of female breast cancer cases reported for these zip codes was statistically greater than what was expected, but the report concluded that the increase could be explained by the rapid increase in the Flower Mound population during the times in which the data were collected or the likelihood that women in these zip codes are more frequently screened for breast cancer. Please refer to the complete report for more

information:

http://www.dshs.state.tx.us/epitox/consults/flower_mound32010.pdf.

The TCEQ Region 4 office investigates complaints concerning emissions from oil and gas facilities in the Barnett Shale area. Citizens may contact the Region 4 office at 817-588-5800 to report an environmental complaint and are encouraged to report conditions thought to contribute to adverse health and/or welfare effects.

Air monitoring data and associated toxicological evaluations addressing oil and gas-related air quality issues in the DFW area are publicly available on the TCEQ's [Barnett Shale Web page](#) at:

**<http://www.tceq.texas.gov/airquality/barnettshale/bshale-main>. Toxicological evaluations of Region 4 ambient air network monitoring data are publicly available on the TCEQ's [Toxicology Division Web page](#) at:
<http://www.tceq.texas.gov/toxicology/regmemo/AirMain.html>.**

Fort Worth Regional Concerned Citizens commented about an air sample collected near a compression station where chemicals were detected above and below sample detection limits (SDLs).

The SDL is the sample detection limit which is the concentration at which modern technology can say for certain that a chemical is definitely present in the sample. It is not appropriate to compare a reported chemical concentration to its SDL to determine if it is present at an “elevated” level. Detection of a chemical in an air sample does not necessarily indicate that the concentration is above a level that could cause a health risk. Staff compares reported chemical concentrations in an air sample to AMCVs to help determine the potential for adverse health or welfare effects to occur from exposure to the reported concentrations.

An individual expressed concerns about breathing emissions from the Midstream Pipeline Compression Station. The commenter mentioned a written report in which some chemicals were over the limit and commented about how difficult it is to prove a correlation between adverse health effects and air contaminants.

Based on the information provided, it is not possible to specifically address the report mentioned by the commenter.

An individual expressed concern that carbon disulfide was found in high levels near Fort Worth schools. Another individual commented about carbon disulfide concentrations reported in a Fort Worth League of Neighborhoods report and was concerned that the TCEQ is not monitoring for carbon disulfide. The commenter also expressed concerns about carbon disulfide and formaldehyde concentrations near the Lake Arlington Compressor Station and potential impacts to Lake Arlington.

The commission has conducted air monitoring for carbon disulfide and formaldehyde, and none of the concentrations detected in any sample to date would be expected to cause adverse health effects. Air monitoring data and associated toxicological evaluations addressing oil and gas-related air quality issues in the DFW area are publicly available on the TCEQ's <http://www.tceq.texas.gov/airquality/barnettshale/bshale-main>. The potential impacts to water quality are beyond the scope of the DFW AD SIP revision. Citizens

may contact the Region 4 office at 817-588-5800 to report an environmental complaint and are encouraged to report conditions thought to contribute to adverse health and/or welfare effects.

An individual commented about an incident in which a strong, pungent odor emanated from a hydraulic fracturing operation. The commenter mentioned that conditions were very windy during the hour-and-a-half of exposure (winds were at 46 miles per hour (mph), with gusts up to 53 mph). The individual described a severe sore throat and the sensation of being hit in the face due to the episode.

Such conditions are generally not conducive to ozone formation and the commission notes that individual complaints are beyond the scope of this SIP revision. The TCEQ Region 4 office investigates complaints concerning emissions from oil and gas facilities in the Barnett Shale area. Citizens may contact the Region 4 office at 817-588-5800 to report an environmental complaint and are encouraged to report conditions thought to contribute to adverse health and/or welfare effects.

Two individuals commented about the increased sensitivity of some members of the population to the effects of ozone. One commenter expressed concerns for children who will develop asthma and other chronic illnesses and another individual commented about the cost of asthma medication. An individual commented about children not being able to enjoy outdoor activities because of their pulmonary ailments.

Some members of the population are more sensitive to the effects of ozone than others. The EPA has classified ozone as a criteria pollutant and has set the 1997 eight-hour ozone standard at a level which includes a margin of safety to be protective of sensitive members of the population. The TCEQ takes steps to notify citizens, including sensitive members of the population, of conditions that might impact their health using the ozone warning system. For example, the TCEQ issues an “Air Pollution Watch” when conditions appear to be favorable for high ozone to occur and issues an “Air Pollution Warning” when high one-hour levels of ozone have been measured.

There are many environmental triggers for asthma, including weather changes and exposure to environmental substances such as smoke, powders, sprays, chemical fumes, and air pollutants including ozone, nitrogen oxides (NO_x), and particulates. In addition, asthma can be caused by genetic factors, cold air, respiratory infections, and triggered by exposures to allergens such as dander, dust mites, and cockroaches. For additional information on asthma, please contact the Texas Department of State Health Services at 512-458-7111.

This SIP revision and the rules associated with it are intended to continue to reduce ozone concentrations. Significant reductions in ozone concentration have resulted under the state’s implementation of the FCAA and those reductions are expected to continue.

An individual commented about some of the chemicals associated with emissions from coal-fired power plants and was concerned about adverse health effects associated with exposure to those chemicals. The individual stated that the TCEQ should implement and/or comply with the MACT rule, which would prevent thousands of adverse health effects.

Coal-fired power plants are required to obtain new source review air permits through the TCEQ air permitting process. The TCEQ's air permitting process has stringent, health-protective requirements such as best available control technology (BACT) and health effects reviews to ensure air emissions are protective of public health and welfare. The EPA's recently proposed MACT rule regarding utilities is a federal requirement. States may receive delegation of National Emission Standards for Hazardous Air Pollutants (NESHAP) rules, such as the utility MACT rule, to have direct enforcement authority for the rule. However, once finalized, NESHAP rules are implemented regardless of whether a state does or does not receive delegation.

An individual commented about the association between benzene exposure and leukemia and lymphomas.

The TCEQ benzene long-term air monitoring comparison value (AMCV) is 1.4 ppb, which corresponds to a cumulative lifetime exposure level that is 86 times less than that identified by USEPA as confidently being associated with elevated leukemia risk (40 ppm-yrs).

TCEQ ambient air network monitoring data for Region 4/DFW show that annual monitored values at multiple sites in 2010 were well (5.6-9.5 times) below the long-term AMCV, with annual averages of 0.147 to 0.248 ppb. Lifetime exposure to these levels would result in cumulative exposure approximately 480-810 times less than that identified by USEPA as being associated with elevated leukemia risk. Please refer to benzene air data and the annual toxicological evaluations of air data for Region 4 available on the web for additional information.

The commission has conducted extensive air monitoring in the DFW area and has not monitored benzene at levels of concern. Please refer to the [TCEQ Benzene Development Support Document](#) for detailed health effects information and information on the derivation of the commission's health protective AMCVs for benzene:

(http://www.tceq.state.tx.us/assets/public/implementation/tox/dsd/final/benzene_71-43-2_final_10-15-07.pdf).

Air monitoring data and associated toxicological evaluations addressing oil and gas-related air quality issues in the DFW area are publicly available on the TCEQ's [Barnett Shale Web page](#)

(<http://www.tceq.texas.gov/airquality/barnettshale/bshale-main>). Toxicological evaluations of Region 4 ambient air network monitoring data are publicly available on the TCEQ's [Toxicology Division Web page](#) at: <http://www.tceq.texas.gov/toxicology/regmemo/AirMain.html>.

Economic Effects

Fort Worth Regional Concerned Citizens commented that they were concerned that state leadership is not adequate to protect air quality in the DFW area and that the local economy (jobs) would suffer unless environmental conditions improve. An individual commented that the TCEQ should consider the long-term environmental effects of aggressive drilling and not the short-term economic benefit.

A commenter stated that the development of the natural gas industry, specifically the Barnett Shale, is essential to the economy and to public health since a withering economy produces health problems.

The commission is charged with developing plans that will help nonattainment areas meet federal air quality standards for ozone and other pollutants. The DFW AD SIP revision is designed to demonstrate attainment of the 1997 eight-hour ozone standard in the DFW area by June 15, 2013. The commission is balancing improved air quality in the DFW area with continued economic growth and development by demonstrating attainment of the 1997 eight-hour ozone standard in accordance with the EPA's 1997 Eight-Hour Ozone Implementation Rule, EPA guidance, and the FCAA. The commission has made no changes in response to these comments.

Public Review and Recommendations

General Support

The NTCASC supported the decision to utilize the EPA's Motor Vehicle Emission Simulator (MOVES)-based on-road emission inventories in both the AD and reasonable further progress (RFP) SIP revisions. An individual thanked the TCEQ for extending the SIP comment period. An individual indicated their appreciation to the TCEQ for considering how to improve DFW area air quality.

The commission appreciates the support and is committed to working with local entities and keeping interested parties updated on SIP developments and informed about technical issues related to air quality.

Inadequacies of the SIP

COPPs, KIDS, and 361 individuals commented that the proposed AD and RFP SIP revisions are misguided and do not constitute sufficient progress in meeting minimum FCAA requirements or the new standard currently being considered by the EPA. An individual expressed concern about the effectiveness of the DFW AD SIP revision. The Sierra Club commented that the proposed SIP revisions do not constitute sufficient progress toward bringing the DFW area into compliance with the new standard currently being considered by the EPA. Public Citizen commented that the TCEQ should postpone the DFW AD SIP revision until the EPA finalizes the revised ozone standard. The Sierra Club recommended that the TCEQ take additional measures to cut ozone in order to meet existing and future ozone standards in the DFW area.

The commission is committed to attaining the 1997 eight-hour ozone standard in the DFW area as expeditiously as practicable. Through photochemical modeling, this AD SIP revision demonstrates that the DFW area will attain the 1997 eight-hour ozone standard by the June 15, 2013, attainment date. Since the comment period closed, the EPA has withdrawn their reconsideration of the 2008 ozone standard. The commission has made no changes in response to these comments.

An individual commented that AD and RFP SIP revisions are designed to try to clean up the air but have failed to achieve the standards set by the federal government to protect the public health from ozone and air pollution. An individual commented that the current DFW AD SIP revision is written to achieve only the existing ozone standard and that the TCEQ should consider that the EPA will be issuing an even stronger ozone standard that shows how ozone levels need to be lowered further to protect public health. An individual commented that the TCEQ is charged with protecting citizens and cannot continue submitting air quality plans that fail. An individual commented that DFW SIP revisions submitted over the past twenty years have not solved air quality problems or met federal air quality standards.

The purpose of this DFW AD SIP revision is to demonstrate attainment of the 1997 eight-hour ozone standard by June 15, 2013, in accordance with EPA guidance and FCAA requirements. As part of this AD SIP revision, the TCEQ uses photochemical modeling, which is a predictive tool that simulates the changes of ozone precursor concentrations in the atmosphere using a set of mathematical equations characterizing the chemical and physical processes in the atmosphere. The TCEQ has analyzed the appropriate reductions necessary for attainment of the 1997 eight-hour ozone standard as described in this AD SIP revision. The commission has made no changes in response to these comments.

SIP Recommendations

Public Citizen commented that measures associated with the urban heat island effect, such as changing pavement characteristics and color, should have been considered for the DFW AD SIP revision as options for emissions reductions. Public Citizen indicated that those measures were considered in the Houston-Galveston-Brazoria (HGB) 1997 eight-hour ozone standard nonattainment area.

The role of temperature in ozone formation is primarily one of controlling the rate of reaction, not in creating additional ozone. Though black asphalt and black roofing may change the urban heat island effect, that change does not translate into more ozone. In the HGB Eight-Hour Ozone SIP Revision adopted by the commission on May 23, 2007, urban heat island measures were discussed as one of many locally implemented, voluntary measures. As indicated in that SIP revision, modeling is not capable of quantifying the effect of urban heat island measures. The commission has made no changes in response to these comments.

The Sierra Club commented that it would be easier for the public to analyze the SIP revision if the commission made all the numbers and anticipated reductions available publicly, specifically spreadsheets.

The commission appreciates that there are members of the public who spend time to evaluate the detailed AD SIP revisions posted for public comment. Due to workload concerns, staff does not always create “spreadsheets” for use in evaluating specific control strategies or other information. The commission strives to make as much information as possible available to the public and will provide specific information, if available, upon request.

The NTCASC and Denton commented that the commission should formalize the best practices of the oil and gas industry that are already employed by a large percentage of the industry: green completions; vapor recovery units; plunger lifts; and low-bleed pneumatic valves.

The commission acknowledges that some oil and gas companies have voluntarily implemented controls and practices to reduce VOC emissions, such as those recommended by the EPA in the Natural Gas Star Program. However, the commission cannot formally adopt such voluntary practices as enforceable control measures for the DFW AD SIP revision when these measures were not proposed for public comment. The TCEQ has revised Chapter 5: *Weight of Evidence* of the DFW AD SIP revision to include discussion about the voluntary practices being employed by the oil and gas industry. Additionally, the adopted revisions to 30 TAC Chapter 115, Subchapter B, Division 1 implement control requirements for storage tanks in the oil and gas industry. Additional discussion regarding the

revisions to the Chapter 115 storage tank rules is provided in the preamble of the adopted rule (Rule Project No. 2010-025-115-EN) and in Chapter 4: *Control Strategies and Required Elements* of the DFW AD SIP revision.

The NTCASC advocated that the TCEQ review existing regulations to ensure they are adequate to achieve their intended purpose to meet the 1997 eight-hour ozone standard.

The commission maintains these regulations adequately address the FCAA obligations. The effectiveness of air quality regulations is largely evaluated by monitoring air quality and the subsequent review of this and other information through the application of sound science. The TCEQ does periodically make updates to existing rules outside of the SIP development process for attainment demonstrations. Projects to update rulemaking are typically done on an as-needed basis when specific issues have been identified or changes are needed to reflect advances in technology.

Downwinders commented that the DFW AD SIP revision is designed to fail and that the commission always starts too late. Downwinders went on to recommend that the TCEQ begin planning as soon as the revised eight-hour ozone standard is announced.

Downwinders commented that the commission has not been correct in the past 20 years about anything concerning air quality in the DFW area and should do more. Downwinders also commented that the 2007 DFW Eight-Hour Ozone AD SIP Revision (SIP Project No. 2006-031-SIP-NR) made an impact but that with this plan the TCEQ is not making any progress.

Downwinders commented that the TCEQ relies on people buying new cars to reduce ozone levels, not on reducing emissions from cement kilns and power plants. Downwinders also commented that the TCEQ criticizes the EPA yet relies on the controls they put in new cars to reduce ozone in the DFW area.

This AD SIP revision incorporates a rulemaking (Rule Project 2010-016-115-EN) to update control requirements for certain coatings operations to meet recommended RACT requirements in CTG documents issued by the EPA from 2006 through 2008. This revision provides a summary of the TCEQ's determinations regarding these eight CTG documents. In addition, the VOC storage tank rule revisions being adopted with this AD SIP revision (Rule Project Number 2010-025-115-EN) includes a combination of updates to existing and new control measures that the TCEQ has determined are RACT for the DFW area.

Since the early 1990s, a broad range of control measures have been implemented for each emission source category for ozone planning in the DFW area. Chapter 4: *Control Strategies and Required Elements*, Table 4-1: *Existing Ozone Control Measures Applicable to the DFW Nine-County Nonattainment Area* lists the existing ozone control strategies that have been implemented for the one-hour and 1997 eight-hour ozone standards in the DFW area.

As discussed in Chapter 3: *Photochemical Modeling* of this AD SIP revision, modeling shows that the DFW area will be substantially below the 1997 eight-hour ozone standard and additional control measures are not necessary for the area to demonstrate attainment by the attainment date. Furthermore, a control measure would have to be in place by March 1, 2012, in order for the measure to advance the attainment date; therefore, it is not possible for the TCEQ to implement any

control measures that would provide for earlier attainment of the standard. The complete list of stationary source potential control measures and additional information and specific details regarding the reasonably available control measure (RACM) analysis for the DFW area are provided in Appendix G: *Reasonably Available Control Measure Analysis*.

An individual commented that the TCEQ and state government officials falsified records regarding radiation levels in the water in Houston.

The comment is outside the scope of this AD SIP revision.

Downwinders commented that the exclusion of consideration of gas industry emissions for this SIP revision is inexcusable because there is a need to reduce this pollution. Downwinders stated that city councils and county governments representing three million residents have voted for the TCEQ to do more about it and yet the TCEQ ignores controlling gas industry emissions in the DFW area.

The VOC storage tank rule revisions associated with the DFW AD SIP revision (Rule Project No. 2010-025-115-EN) include achievable and cost-effective ozone emissions standards for natural gas sources in and around the DFW nonattainment area. An achievable and cost-effective level of control for a particular source category depends on the current levels of emissions, available control technologies for the source category, and other technical and economic factors that may be specific to a source or to a region. The commission determined the appropriate level of control for sources in the DFW nonattainment area considering all appropriate factors, including information obtained during the public comment period. Discussion regarding the level of control required on specific source categories is provided in the adopted rule associated with this AD SIP revision.

The commission is committed to working with area stakeholders to attain the 1997 eight-hour ozone standard as expeditiously as practicable to adequately protect public health in accordance with the EPA's 1997 eight-hour implementation rule, EPA guidance, and the FCAA.

Comments Concerning the TCEQ

Fort Worth Regional Concerned Citizens commented that decision-makers at the TCEQ are corrupt and "fighting against the EPA" and the welfare of Texas citizens. Fort Worth Regional Concerned Citizens further commented that cleaning up the environment can benefit the economy and that if the environment is not cleaned, there will be no jobs and people will not buy property in the state.

The commission agrees that a clean, healthy environment is beneficial to the economy and the citizens of Texas. The commission strongly disagrees, however, that either individual Commissioners or the commission generally is corrupt and works against the welfare of Texas citizens. The commission takes its duties to Texas citizens very seriously and endeavors to protect the public interest in every action it takes. With regard to "fighting against the EPA," the commission acknowledges that there are currently several disagreements between the commission and the EPA regarding legal and policy issues. The commission continues to utilize all legal rights available to the commission to ensure that

environmental regulations comply with both state and federal law and are implemented fairly by the EPA.

Downwinders commented that the TCEQ and state officials do not believe that pollution is a threat to public health and are more interested in industry and jobs.

The commission appreciates the comments related to health effects of ozone and economic welfare. The commission is committed to working with area stakeholders to attain the 1997 eight-hour ozone standard, which is a health-based standard, as expeditiously as practicable to adequately protect public health in accordance with the EPA's 1997 eight-hour implementation rule, EPA guidance, and the FCAA. By demonstrating attainment of the 1997 eight-hour ozone standard in the DFW area, the commission is ensuring that public health will be adequately protected.

The commission strives to protect Texas' human and natural resources, including those in the DFW area, consistent with sustainable economic development. The commission is committed to attaining the 1997 eight-hour ozone standard as expeditiously as practicable in all of the state's ozone nonattainment areas. The purpose of this plan is to demonstrate attainment of the 1997 eight-hour ozone standard by June 15, 2013, in accordance with EPA guidance and FCAA requirements. By improving air quality in the DFW area, this plan will improve the quality of life for many residents of the DFW area.

Downwinders stated that the TCEQ is aware of how to reduce coal plant, cement kiln, and gas emissions but that the agency lacks leadership. Downwinders commented that if the TCEQ will not fulfill its duty, then Downwinders will educate citizens and empower them to have their own citizens' environmental police force with their own enforcement mechanism.

The commission does not agree with the comment that a lack of leadership is preventing control strategy development. State and federal law requires an opportunity for public review and comment for all rules, in addition to requiring reasoned justification for adopted rules; therefore, control strategy decisions must be predicated on the technical analysis supporting the AD and RFP SIP revisions. Additionally, any control strategy requiring implementation of emission reductions must allow a reasonable time for implementation of the control strategy. The commission must assess the technical support for required emission reductions in combination with potentially available emission reduction strategies. Lastly, with regard to the comment that citizens may create their own "citizen enforcement police force," the commission notes that both the Texas Clean Air Act (TCAA) and the FCAA contemplate a partnership with citizens to ensure air quality protection. The commission acknowledges that there are specific rights afforded to citizens under both state and federal law regarding permitting and enforcement, and the commission has created guidance regarding how citizens can participate in effective enforcement. This guidance is available on the TCEQ's [Gathering and Preserving Information and Evidence Showing a Violation Web page](http://www.tceq.texas.gov/complaints/protocols/evi_proto.html) (http://www.tceq.texas.gov/complaints/protocols/evi_proto.html).

Public Citizen commented that the TCEQ could commit additional money from the agency's budget to enable areas to meet attainment by investing in the Texas Emissions Reduction Plan (TERP) and other programs, in addition to accepting gifts and grants for the purpose of making

emission reductions in various communities. Public Citizen further commented that in not taking these actions, the TCEQ is “shying away from” their responsibilities to the state.

The commission does not agree that it is “shying away from” or negligent in any way in carrying out its duties to the State of Texas. The commission acknowledges that the commission can accept gifts of money or property from individuals, businesses and other entities, such as nonprofits. Gifts of \$500.00 or more are regulated by Chapter 575 of the Texas Government Code, and the commission considers gifts that are subject to these statutory provisions, when offered to the commission, at its regularly scheduled agenda meetings. The commission cannot, however, simply “move” money in its budget that was appropriated by the legislature for other specific purposes to provide additional funding for the TERP. The legislature appropriates money to state agencies to fund specific agency objectives, and state agencies may only “shift” appropriated funds in accordance with state law.

Public Citizen expressed concerns that the Commissioners had not been visible at the legislature in advocating for programs that make a difference to air quality, such as TERP, idling programs and energy efficiency.

The commission agrees that there was legislation regarding energy efficiency, TERP, and idling program issues during the last legislative session, which required certain local governmental entities to establish energy efficiency goals and report progress to the State Energy Conservation Office. However, under state law, neither Commissioners nor staff may lobby the legislature for any particular purpose or program. Agency staff and management did provide testimony or information on a variety of issues during the legislative session when requested.

Public Involvement

The NTCASC extended gratitude to TCEQ staff members who have participated in each of the meetings of the NTCASC, the Oil and Gas Task Force, and the Photochemical Modeling Technical Committee. The NTCASC expressed appreciation for the partnership with the TCEQ to improve air quality in North Texas.

The TCEQ appreciates the support and partnership to improve air quality in North Texas.

Representative Burnham and an individual expressed appreciation that the TCEQ held a public hearing concerning the DFW AD SIP revision.

The commission appreciates the support and will continue to encourage public participation in the development of AD SIP revisions.

An individual commented that the entire DFW attainment demonstration SIP revision package that will be submitted to the EPA was not made available to the public for review. The individual stated that the DFW attainment demonstration SIP revision package that will be submitted to the EPA should be available to the public.

The commission disagrees with this comment. All elements of the DFW AD SIP revision that will be submitted to the EPA were made available to the public through (1) the TCEQ’s [SIP Hot Topics Web page](#)

(<http://www.tceq.texas.gov/airquality/sip/Hottop.html>); (2) the TCEQ's [DFW: Ozone, Latest Planning Activities Web page](#) (<http://www.tceq.texas.gov/airquality/sip/dfw/dfw-latest-ozone>); and (3) by request.

The proposed DFW AD SIP revision package (including appendices), was made available to the public for review and comment on June 8, 2011, after it was approved by the commission. Additional information, which was provided to allow the public to review and comment on the MOVES2010a-based on-road mobile source emissions inventory and associated plan elements that were incorporated into the DFW AD SIP revision for adoption, was made available to the public on July 8, 2011. Finally, all public comments received concerning the DFW AD SIP revision were made available to the public on August 16, 2011, shortly after the close of the comment period.

The DFW AD SIP revision package that will be submitted to the EPA, if approved by the Commission, includes the following:

- the revised DFW AD SIP revision narrative (*changes from proposal may be made due to public comments, the incorporation into the AD SIP revision of the EPA's MOVES2010a model for on-road mobile source emissions inventory development, and any changes directed from the Commission at adoption*);
- the DFW Attainment Demonstration Response to Comments document (*changes to this document may be made based on direction from the Commission at adoption*);
- a revised set of DFW AD SIP revision appendices (*changes from proposal may be made due to public comments, the incorporation into the AD SIP revision of the EPA's MOVES2010a model for on-road mobile source emissions inventory development, and any changes directed from the Commission at adoption*); and
- all public comments received concerning the proposed DFW AD SIP revision and supplemental information.

All of the information that will be submitted to the EPA, if the DFW attainment demonstration is adopted by the commission, will be made available to the public on October 28, 2011, 19 days prior to agenda for adoption. Please note that any changes directed from the dais at agenda will not be part of the package made available on October 28, 2011; however, the Commissioners' Agenda is a matter of public record, and any changes made based on direction from the Commission would immediately be available to the public.

BARNETT SHALE AIR QUALITY ISSUES

Mayor Tillman commented that the natural gas industry should not be shut down, but should be held accountable. An individual commented that energy companies must be held accountable to upgrade their facilities to better control pollution. An individual commented that citizens help to improve air quality through inspection/maintenance regulations, but drillers do not do anything to improve air quality. An individual commented that the TCEQ allows Barnett Shale gas drilling

and hydraulic fracturing to go unregulated. An individual urged the commission to stand up to the gas industry and protect the air quality in the DFW metroplex. An individual commented that area oil and gas operations have had a significant impact on DFW area air quality. An individual commented that the DFW area still cannot meet the 1997 eight-hour ozone standard, and area air quality will not improve with the thousands of trucks and machinery that are needed to maintain the 17,000 gas wells in the area.

Oil and Gas drillers and producers are subject to rules established to meet and maintain air quality standards in Texas. Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) to implement RACT for VOC storage tanks. This rulemaking will add to the existing VOC regulations on the natural gas industry including Chapter 115, Subchapter D, Division 3 and federal rules such as 40 CFR Part 63, Subparts HH and HHH. The commission enforces its rules through various means, such as monitoring, recordkeeping, testing, and reporting requirements. In addition, the TCEQ conducts investigations of companies in all areas of the state, including the DFW area where six new compliance investigators have been added, in order to determine compliance with the rules and regulations.

In May 2007, in addition to NO_x control requirements on many other sources, the commission adopted stringent NO_x control requirements in 30 TAC Chapter 117 for gaseous fuel-fired stationary reciprocating internal combustion engines which includes compressor engines used in oil and natural gas industry. These rules for the DFW area include Chapter 117, Subchapter B, Division 4 for major sources and Chapter 117, Subchapter D, Division 2 for minor sources. The commission also adopted NO_x control requirements in Chapter 117, Subchapter E, Division 4 for rich-burn gaseous fuel-fired stationary reciprocating internal combustion engines in 33 attainment counties east and southeast of the DFW area. Additional discussion regarding these NO_x control rules is found in Chapter 4, Control Strategies and Required Elements, of this AD SIP revision.

The commission initiated a permit by rule (PBR) study and adopted the Oil and Gas Sites PBR, effective February 27, 2011. The PBR and standard permit were developed considering current emissions capture and control equipment and included specifications and limitations for typical equipment (facilities) during normal production operations as well as planned maintenance, startups and shutdowns.

An individual commented that gas drillers who say that they are drilling to free citizens from foreign energy independence are selling that gas to India and China, the two principle countries that are taking our jobs away from citizens in this country.

The commission's authority in SIP development is limited to air quality control. Oil and gas marketing and sales is beyond the scope of the commission's authority and this AD SIP revision.

An individual commented that the gas companies are spending their money in the wrong places.

Specifically, in this SIP revision, the commission interprets this comment as being focused on entities not spending money on emission controls. An oil and gas company operating under an air authorization from the commission is required to comply with the terms and conditions and emissions limits of that particular

authorization. If that company failed to comply with an authorization due to lack of capital spending, such non-compliance would potentially be subject to an enforcement action. Additionally, the Texas Health and Safety Code, §382.017, prohibits the commission from adopting rules that require specific types of control equipment or manufacturing processes unless required by federal law or regulation.

An individual commented that a state representative took money from the gas industry.

Regarding industry contributions to state legislators, such issues are not within the authority of this commission to regulate or consider when developing the SIP. Requirements for the SIP are spelled out in the FCAA and EPA rules and guidance.

Two individuals commented that the commission should regulate methane releases and not pass problems on to the next generation.

The regulation of methane would not result in a decrease in ozone concentrations, therefore, since this comment is outside the scope of the DFW AD SIP revision for the 1997 eight hour ozone standard, no changes have been made in response to this comment.

Earthworks recommended that the TCEQ download “*Natural Gas Flowback, How The Texas Natural Gas Boom Affects Health And Safety*,” April 2011. An individual submitted the presentation, *Mandate Vapor Recovery in Flower Mound*.

The TCEQ has included a copy of *Flowback, How The Texas Natural Gas Boom Affects Health And Safety* and *Mandate Vapor Recovery in Flower Mound* in the record.

An individual commented that the TCEQ has disseminated misinformation concerning Benzene levels from area oil and gas exploration.

The commission disagrees with this statement. Benzene emissions in the Barnett Shale have been monitored extensively by the commission and other entities. More information on the commission’s monitoring efforts, as well as audit reports of the monitoring program conducted by the University of Texas and the EPA, can be found on the TCEQ’s [Performance Evaluations of TCEQ Automated Gas Chromatograph Monitors Web page](http://www.tceq.texas.gov/airquality/monops/agc/agc_audits.html) (http://www.tceq.texas.gov/airquality/monops/agc/agc_audits.html). The commission makes every effort to provide emissions data to the general public as accurately and as efficiently as possible.

CONTROL STRATEGY COMMENTS

Stationary Sources

Cement Kilns

COPPs, KIDS, and 363 individuals commented that the DFW SIP should address emissions from cement kilns. The commenters suggested requiring pilot testing of selective catalytic reduction (SCR) technology on one or more of the cement kilns located in Midlothian, Ellis County, Texas, and asserted that SCR was proven to remove over 90% of the smog-forming pollutants from kilns. An individual commented that additional reductions were needed from

the Midlothian cement kilns and that SCR should be required on the kilns. Downwinders commented that the DFW AD SIP revision does not address cement kilns.

The commission does not agree with these comments. A pilot test is not a control strategy. Most pilot studies are small-scale tests that only control a slip-stream of the exhaust gases for evaluation purposes and would not result in any permanent emission reductions, which would be necessary for inclusion in the SIP as a control strategy. Additionally, while Downwinders is correct that this AD SIP revision does not require additional controls for cement kilns, emissions from cement kilns have already been addressed. The commission previously adopted control strategies to reduce NO_x emissions from the cement kilns in Midlothian, Texas, during the 2007 DFW AD SIP revision for the 1997 eight-hour ozone standard. The cement kiln rules in 30 TAC Chapter 117, §§117.3100 – 3145 are an EPA-approved component of the Texas SIP. The control level in the Chapter 117 cement kiln rules for the DFW area can be achieved using selective non-catalytic reduction (SNCR) technology, and the approved cement kiln rules address NO_x RACT for the DFW SIP.

While SCR has been proven to reduce NO_x emissions on many combustion source categories, the commission disagrees that SCR has been proven to remove 90% of NO_x emissions from cement kilns. A study of possible NO_x control technologies for cement kilns was performed before the 2007 DFW AD SIP revision. The commission's evaluation of that study's findings and comments submitted on the proposed rulemaking indicated that SCR had not yet been demonstrated on the types of cements kilns in Ellis County and that the control level achievable through SNCR was the appropriate control level to address NO_x emissions from cement kilns in the DFW area. Additional discussion regarding the commission's adopted Chapter 117 cement kiln rules for Ellis County may be found in the preamble of the adopted rule in the June 8, 2007, publication of the *Texas Register* (32 TexReg 3206 – 3356).

The commission is not aware of any new available information that would change its determination regarding the applicability of SCR technology on cement kilns. The commission is aware of the EPA consent decree with Lafarge North America, Inc. (Lafarge), which requires the company to install SCR on one kiln at the Lafarge facility in Joppa, Illinois; however, that SCR installation is not expected to be complete until July 2013. Should the EPA decide to make the results of the SCR installation at the Lafarge Joppa facility available to the public, states may be able to use the information for future SIP development activities. The commission has made no changes in response to these comments.

Energy Efficiency

COPPs, KIDS, Public Citizen, the Sierra Club, and 362 individuals commented that the TCEQ should use the new guidance from the EPA on using energy efficiency in the SIP to get credit from existing and additional energy efficiency measures. The Sierra Club and Public Citizen also commented that the TCEQ is not giving enough weight or credit in the SIP for energy efficiency measures. Public Citizen questioned whether the TCEQ believes energy efficiency works. One individual commented that more wind farms for wind energy should be built and that solar energy should be encouraged and used at both residential and business units.

The commission supports energy efficiency and renewable energy programs and recognizes the air quality benefits of these programs. The Texas legislature has implemented many energy efficiency and renewable energy programs, including mandates for installation of new capacity of wind and other renewable energy generation. Texas is a leader in energy efficiency programs and especially in renewable energy such as wind energy. Installation of new wind generation facilities has greatly exceeded the milestones mandated by the legislative.

The commission is aware of the EPA's updated guidance document for incorporating energy efficiency and renewable energy measures in the SIP. Staff has reviewed the draft guidance document entitled *Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State Implementation Plans/Tribal Implementation Plans*, dated March 30, 2011, and provided comments to the EPA. The commission's current policy is to acknowledge the benefits of energy efficiency, renewable energy, and similar measures as weight of evidence in SIP revisions.

In previous SIP revisions, the commission has claimed specific SIP credit reductions for legislatively mandated energy efficiency measures. Associating a specific amount of emissions reductions for nonattainment areas from energy efficiency or renewable energy as SIP creditable reductions raises certain technical and legal issues considering the EPA's requirements for claiming such SIP credit. As outlined in the EPA's 2004 guidance¹ and the draft new 2011 guidance², any SIP creditable emission reductions claimed for energy efficiency or renewable energy must meet the four standard criteria: enforceable, quantifiable, permanent, and surplus. Ensuring that SIP creditable reductions within a specific nonattainment area resulting from energy efficiency and renewable energy are permanent and surplus can be particularly problematic. The commission relies on projections from the Electric Reliability Council of Texas' (ERCOT) to model future expected operation of electrical generating utilities. Energy efficiency and renewable energy are accounted for in the SIP modeling to the extent that these measures are accounted for in ERCOT's projections. This could result in double counting potential reductions should the TCEQ claim additional reductions. Furthermore, whether the emission reductions from energy efficiency and renewable energy occur at certain power plants within a specified nonattainment area is dependent on many factors in the electrical grid system. The [Energy Systems Laboratory](#) at the Texas Engineering Experiment Station at Texas A&M University System uses the EPA's eGRID model to predict where emission reductions from energy efficiency and renewable energy programs, such as wind generation, will occur. However, electrical grid operations are subject to changes, such as shifts in transmission and distribution as well as units coming out of mothballed status to meet a reliability need. If changes in the electric grid system resulted in a shift in projected emission reductions outside of a nonattainment area that were relied upon as SIP creditable reductions, the state would face a short-fall in the SIP. The commission does not dispute that energy efficiency and renewable energy programs work or that such programs provide emissions

¹ [Guidance on SIP Credits from Emission Reductions from Electric-Sector Energy Efficiency and Renewable Energy Measures](http://www.epa.gov/ttncaaa1/t1/memoranda/ereserem_gd.pdf) (http://www.epa.gov/ttncaaa1/t1/memoranda/ereserem_gd.pdf)

² [Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State Implementation Plans/Tribal Implementation Plans](http://www.epa.gov/airquality/pdfs/20110418eeremmanual.pdf) (http://www.epa.gov/airquality/pdfs/20110418eeremmanual.pdf)

reductions and air quality benefits. The commission's concern is in being able to reliably predict for the future where those benefits will be realized to a degree that the commission can satisfy all of the EPA's criteria for SIP creditable reductions.

Based on current EPA guidance on claiming SIP credit for energy efficiency and renewable energy measures, the commission considers the weight of evidence discussion to be the most appropriate way to acknowledge the benefits of energy efficiency and renewable energy measures in the DFW AD SIP revision. Staff is actively discussing the EPA's draft new guidance with EPA staff, and the commission may reconsider the current policy regarding how energy efficiency and renewable energy measures are accounted for in the SIP in future SIP development activities. Additional discussion regarding the various energy efficiency and renewable energy programs in Texas is included in Chapter 5 Section 5.5: *Qualitative Corroborative Analysis*, of the DFW AD SIP revision. The commission has made no changes in response to these comments.

Public Citizen commented that there were many bills passed during the past legislative session regarding energy efficiency that were specifically to help meet air quality guidelines, many of the bills relying on local government entities to do more.

The commission agrees that there was legislation regarding energy efficiency issues during the last legislative session, which required certain local governmental entities to establish energy efficiency goals and report progress to the State Energy Conservation Office. The commission continues to support energy efficiency initiatives as one of many strategies to support air quality.

Energy Production Facilities

An individual commented that the TCEQ should create clean energy production only and begin the process of replacing plants with next generation production. An individual commented that natural gas can be better for the environment than other fuels.

While the commission acknowledges that some types of energy production are more efficient and produce less pollution for a given amount of energy produced, the commission does not have the authority to mandate that companies build specific types of energy production facilities or deny a permit based solely on the type of facility the company plans to build. The commission is required to grant permits for proposed facilities that meet specific criteria elaborated in the TCAA, Chapter 382, Tex. Health & Safety Code. Additionally, the commission is specifically prohibited from requiring particular control methods or equipment for air pollution control, except in specific circumstances.

Cross-State Air Pollution Rule (CSAPR)

COPPs, KIDS, and 361 individuals commented that because the EPA has recently adopted the Cross-State Air Pollution Rule (CSAPR), the TCEQ should, either as a part of the SIP or as a separate rulemaking, implement the EPA rule and require emissions reductions at major power plants such as Big Brown, Monticello, and Martin Lake. Public Citizen commented that the SIP revision should account for the new CSAPR and the revised ozone standard.

The CSAPR rule referenced to by the commenters is being implemented by the EPA as a Federal Implementation Plan and sources subject to the rule are required to comply beginning with the 2012 control periods. The commission has limited

authority allowed by the EPA to implement the rule. The commission made no changes in response to this comment.

Mobile Sources

Texas Emissions Reduction Plan (TERP)

Public Citizen, Sierra Club, and 361 individuals commented that the TCEQ must accurately assess the impact of budget cuts on TERP and Low Income Vehicle Repair Assistance, Retrofit, and Accelerated Vehicle Retirement Program (LIRAP), which provide grants to clean up emissions from trucks, construction equipment, and passenger cars in its weight of evidence section. Sierra Club suggested that a possible use of TERP money could be to fund idle reduction technology.

The commission agrees that consideration of future emissions reductions from the TERP and LIRAP programs must take into account the available funding for those programs. The amount of available funding will be considered in determining projections of future emissions reductions from these programs for planning purposes.

The commission also recognizes the importance of addressing vehicle idling in overall planning for reducing emissions from mobile sources. The TERP program is authorized to fund the purchase and installation of idle reduction technology and funding has been awarded for that purpose. The commission has made no changes in response to these comments.

Idling

The Clean Air Coalition (CAC), the EPA, and the NCTCOG suggested the commission should retain the prohibition for drivers using sleeper berths to idle in a school zone, within 1,000 feet of a hospital, or within 1,000 feet of a public school during its hours of operation to help reduce the amount of emissions from idling in these sensitive areas.

While the commission acknowledges the potential health benefits of prohibiting idling within 1,000 feet of a public school or hospital and appreciates the commenters' concerns, at this time the commission does not have sufficient technical analysis specific to idling near schools and hospitals to support such a regionally specific prohibition beyond the original legislative mandate. As discussed elsewhere the preamble to the Idling Rule (Rule Project No. 2009-054-114-EN), the commission is electing to retain the exemption in §114.517(12) regarding sleeper berths even though the statute has expired. The commission considers this exemption to be appropriate and necessary for driver safety and meeting federal requirements for mandatory rest periods. The commission has made no changes in response to these comments.

Clean Fuel Fleet

The EPA commented that regarding the discussion on the Clean Fuel Fleet (CFF) requirement, the state should review the CFF equivalency demonstration submitted by the TCEQ for the Beaumont-Port Arthur area, which was approved in the *Federal Register* on October 20, 2010 (75 FR 64675). Since the CFF requirement must be addressed in the DFW SIP, a similar equivalency demonstration is a reasonable option for consideration in the DFW area.

The commission updated the DFW AD SIP revision to address the EPA's comment to include a CFF equivalency demonstration. A section has been added to Chapter 4, Section 4.3.4: *Clean Fuel Fleet Requirement* of the DFW AD SIP revision, to address the equivalency demonstration requested.

Local Transportation Initiatives

The RTC requested that transportation initiatives be reallocated from their current placement in the DFW AD SIP revision to weight of evidence. The RTC also suggested that, if necessary, the TCEQ adjust the motor vehicle emissions budgets (MVEBs) to accurately reflect proper intent and reporting of these initiatives. The RTC requested that the DFW AD SIP revision clearly state that the transportation measures listed as weight of evidence are provided in good faith and identify significant investments and continued commitment by the RTC to reduce vehicular emissions. The RTC recommended that language be added in Chapter 1: *General*, Section 1.2.4: *Current SIP Revision* stating that transportation control measures (TCMs) are included in Chapter 5: *Weight of Evidence* and Appendix H: *Local Initiatives Submitted by the North Central Texas Council of Governments*.

The transportation initiatives referenced in the comment are already included as weight of evidence in Chapter 5 of the DFW AD SIP revision. Section 5.5.1.6: *Local Initiatives* of the proposal contains a brief description of local measures being taken in the DFW area that refers to Appendix H: *Local Initiatives Submitted by the North Central Texas Council of Governments* for more detail. SIP documentation already shows that no emission reduction credit was taken for these local initiatives against the 2012 attainment demonstration MVEB. Table 3-26: *Attainment Demonstration MVEB for the Nine-County DFW Area* Section 3.4: *Attainment Demonstration Motor Vehicle Emissions Budget* of Appendix B: *Emissions Modeling for the DFW Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard* shows no emission reduction credits from local measures applied to the 2012 summer weekday on-road mobile source emissions inventory developed by the NCTCOG using the MOBILE6.2 model.

The RTC expressed strong support for the use of the MOVES model in the adopted DFW AD SIP revision. The RTC referenced a letter that was sent in February 2011 to the TCEQ requesting inclusion of MOVES so that future MVEBs for conformity purposes would be based on this more recent version of the EPA's on-road mobile source emissions model. The RTC emphasized the benefits of MOVES with respect to the inclusion of more recently available technical information along with the improved base case photochemical modeling performance resulting from its use.

The commission concurs with this comment. MOVES-based on-road mobile source emission inventories have been incorporated into the DFW AD SIP revision. The 2012 AD MVEB for the nine-county DFW nonattainment area, which is included in the DFW AD SIP revision, is based on a MOVES2010a inventory development project conducted under a grant agreement between the commission and the NCTCOG. The 2012 MOVES2010a-based AD MVEB is 181.40 NO_x tons per day (tpd) and 80.48 VOC tpd. These figures match those provided by the NCTCOG to the TCEQ for the 2012 summer weekday on-road inventory calculated with MOVES2010a. No post-process emission reduction credit has been taken for local initiatives.

The NCTCOG recommended an addition to Appendix H: *Local Initiatives Submitted by the North Central Texas Council of Governments* with specific language to be included as a description for environmental speed limits (ESLs).

The commission appreciates the recommended language and has included it in Appendix H: *Local Initiatives Submitted by the North Central Texas Council of Governments*. The commission previously recommended, at NCTCOG's request, that ESLs be removed from the DFW SIP as a control strategy and remain instead as a TCM in the DFW SIP. The NCTCOG requested this action to provide flexibility for adjusting ESLs appropriately with Texas Department of Transportation (TxDOT) procedures. At this time, the request is pending the EPA's review and approval.

Stage II Vapor Recovery

The EPA commented that the Stage II refueling requirements apply in serious, severe, and extreme ozone nonattainment areas, provided that the EPA has not yet found that onboard refueling vapor recovery (ORVR) is in widespread use in the motor vehicle fleet and waived the §182(b)(3) requirement. The EPA further commented that should the rule as proposed at 76 FR 41731 be finalized, then Ellis, Johnson, Kaufman, Parker, and Rockwall Counties would not be required to implement Stage II vapor recovery, nor would the state have to submit a demonstration that ORVR is in widespread use in these counties.

The commission appreciates the comment from the EPA and staff is currently reviewing the Stage II refueling requirements and the ORVR federal rule. The commission understands the required Stage II SIP is due to the EPA in January 2013.

Reasonably Available Control Measure (RACM) Demonstration

Coal-Fired Power Plants

Three individuals suggested the TCEQ require SCR on all Texas coal plants. One individual stated the new TCEQ air quality plan needs to deal with the cumulative impact of major emitters, including older coal fired utility plants in the DFW area.

As discussed in the RACM analysis in Appendix G: *Reasonably Available Control Measure Analysis* of this SIP revision, the photochemical modeling indicates the DFW area will attain the 1997 eight-hour ozone standard in 2012 and additional control measures are not necessary for the area to demonstrate attainment by the attainment date. Furthermore, a control measure would have to be in place by March 1, 2011, in order for the measure to advance the attainment date; therefore, it is not possible for the TCEQ to implement any control measures that would provide for earlier attainment of the 1997 eight-hour ozone standard.

Oil and Gas Production

COPPs, KIDS, and 365 individuals requested that TCEQ adopt provisions of the EPA new source performance standard (NSPS) proposal for oil and gas sources including: green completions for all hydraulically fractured or refractured gas wells; emission limits on pneumatic controllers; strengthened leak detection and repair requirements for natural gas processing plants; replacement of rod packing systems on reciprocating compressors every 26,000 hours of operations; and dry seal systems on centrifugal compressors. One individual suggested the TCEQ require the gas industry to replace valves, require the installation of electric compressors,

and ban flaring during well completions by requiring green completions. One individual requested that the commission mandate the use of filters on glycol units at oil and gas production sites to reduce odorous emissions. One individual commented that TCEQ could reduce VOC pollution up to 90% by replacing valves that intentionally release gas pollution, cut down flaring by requiring green completions, and require the installation of electric gas compressors to improve air quality. Earthworks stated the TCEQ could cut 114 tons per day of VOC from the natural gas industry instead of the 14 tons per day of VOC reductions proposed in the VOC storage tank rule (Rule Project No. 2010-025-115-EN). The Sierra Club also recommends that other controls on other emission sources as required in the Oil and Gas PBR be included in this rulemaking. A commenter stated that emission controls can be installed on almost all emission sources at natural gas wells and processing equipment that would capture about 90 percent of the emissions. Two individuals stated the new TCEQ air quality plan must include aggressive actions to reduce VOC from gas operations. One individual commented that the gas industry has grown phenomenally because VOC emissions are virtually unabated and that must change.

The commission cannot adopt the suggested control measures for this SIP revision because these measures were not proposed for public comment. As discussed in the RACM analysis in Appendix G of this SIP revision, the photochemical modeling indicates the DFW area will attain the 1997 eight-hour ozone standard in 2012 and additional control measures are not necessary for the area to demonstrate attainment by the attainment date. Furthermore, a control measure would have to be in place by March 1, 2011, in order for the measure to advance the attainment date; therefore, it is not possible for the TCEQ to implement any control measures that would provide for earlier attainment of the 1997 eight-hour ozone standard.

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) to implement RACT for VOC storage tanks. This rulemaking will add to the existing VOC regulations on the natural gas industry including Chapter 115, Subchapter D, Division 3 and federal rules such as 40 CFR Part 63, Subparts HH and HHH. In this rulemaking, the commission has not proposed control requirements for natural gas well completions or recompletions, specified seal requirements for centrifugal compressors, maintenance requirements for rod packing on reciprocating compressors, emission limits for pneumatic valves, plunger lifts, the installation of electric compressors, the use of filters on glycol units at oil and gas production sites to reduce odorous emission, leak detection and repair requirements for natural gas processing plants, or other controls included in the TCEQ's standard permit for oil and gas production sites. These potential controls are beyond the scope of this rulemaking and cannot be added at this point in the rulemaking process since necessary notice has not been provided to potentially affected persons. The commission has noted in the fiscal note of this rulemaking proposal published in the June 24, 2011, edition of the *Texas Register* (36 TexReg 3817), that some controls such as vapor recovery units may generate additional revenue for owners or operators. The commission continues to study the amount and effects of VOC emission from these activities and may address these ideas in future rulemakings. The Texas Health and Safety Code, §382.017, prohibits the commission from adopting rules that require specific types of control equipment or manufacturing processes unless required by federal law or regulation.

The NTCASC and Denton recommended formalizing controls on natural gas well completions to recover emissions; control requirements specifying that all pneumatic valves regulating gas flow and pressure meet a low-bleed definition; and require the plunger lifts that use gas pressure buildup in a well to lift a column of accumulated fluid out of a well. One individual stated the EPA's Natural Gas Star Program has repeatedly demonstrated that when industry implements best management practices, they not only improve the quality of air and the quality of our lives, but they also generate additional profits by capturing and bringing to market the stuff that is going into the atmosphere now. The individual added that the TCEQ routinely goes out and does assistance visits to natural gas activities and demonstrates how a little bit of money can change the dynamic so much and increase profits, and we get better air. The individual commented that despite the availability of lots of cost effective emission reduction opportunities, gas drilling activities continue to emit harmful VOC.

The TCEQ acknowledges that some oil and gas companies have voluntarily implemented controls and practices to reduce VOC emissions, such as those recommended by the EPA in the Natural Gas Star Program. The TCEQ has revised Chapter 5 of this attainment demonstration SIP revision to formalize use of these practices by including discussion about the voluntary practices being employed by the oil and gas industry. Additionally, the adopted revisions to 30 TAC Chapter 115, Subchapter B, Division 1 implement control requirements for storage tanks in the oil and gas industry and additional discussion regarding the revisions to the Chapter 115 storage tank rules is provided in the preamble of the adopted rule and in Chapter 4 of this attainment demonstration SIP revision.

Reasonably Available Control Technology (RACT) Demonstration

General RACT

The ACA commented that the EPA's CTG should be consistent with other EPA rulemakings for this industrial sector. The ACA commented that coatings manufacturers have provided the EPA product information to assist in the evaluation of the National Emission Standard for Hazardous Air Pollutants for Shipbuilding and Ship Repair Operations and that the industry supports rulemaking that will provide a consistent approach to reduce emissions of both VOC and hazardous air pollutants in this industry sector.

The commission appreciates the comment. However, ensuring consistency among future federal rulemakings for this coating category is beyond the scope of this SIP revision. The commission makes no change in response to this comment.

An individual commented that the one thing no successful businessman can handle is the constant changing of regulations that potentially put any equipment and increased employment to support such equipment when one never knows if he or she will be allowed to operate the purchased equipment. The individual commented that a reasonable and prudent businessman needs to be able to plan and that has been impossible with the ever-changing regulations that the EPA has come forth with.

The commission appreciates the comment and acknowledges that the changing regulations can be challenging. The purpose of this SIP revision is to fulfill the state's obligation under FCAA, §172(c)(1) and §182(b)(2), to submit a SIP revision that implements RACT for VOC emission sources located in nonattainment areas classified as moderate and above, addressed in a CTG issued between November 15, 1990, and an area's attainment date. When enacting rules, the commission

considers the appropriate implementation deadlines. The commission makes no change in response to this comment.

The EPA commented that approval of the portions of the control requirements in §115.453 for the surface coating of large appliances, metal furniture, and miscellaneous metal and plastic parts and products of the proposed rules that replace emissions limits previously adopted as RACT with less stringent emissions limits would not be possible without a demonstration from the state showing that the SIP-approved limits are no longer RACT. On March 17, 2011, the EPA issued a memorandum entitled *Approving SIP Revisions Addressing VOC RACT Requirements for Certain Coatings Categories* indicating that "for situations in which a State has previously determined that more stringent applicability thresholds and/or control levels are RACT for one or more sources in a source category and the sources have complied with those requirements, then those existing controls should be considered RACT for such sources. If a state chooses to revise more stringent rules that are already in the approved SIP, so that those rules reflect the less-stringent recommended limits in the new CTGs, there are additional considerations. The state would need to first demonstrate that the SIP-approved control requirements are not reasonably available considering technological and economic feasibility, consistent with the EPA's definition of RACT." The EPA requested the commission explain how the existing limits are no longer RACT for these sources that in some cases have been complying with these limits for 20 years or more.

By letter dated December 8, 2008, the TCEQ requested the EPA clarify several issues related to the recommendations in the following three CTG documents: *Control Techniques Guidelines for Large Appliance Coatings* (EPA 453/R-07-004), issued in 2007; *Control Techniques Guidelines for Metal Furniture Coatings* (EPA 453/R-07-005), issued in 2007; and *Control Techniques Guidelines for Miscellaneous Metal and Plastic Parts Coatings* (EPA 453/R-08-003), issued in 2008. A number of the recommended VOC content limits for specific coatings categories in these 2007 and 2008 CTG documents are less stringent than the more general VOC content limits specified in the following EPA guideline series recommendations: *Control of Volatile Organic Emissions from Existing Stationary Sources Volume V: Surface Coating of Large Appliances* (EPA-450/2-77-034), issued in 1977; *Control of Volatile Organic Emissions from Existing Stationary Sources Volume III: Surface Coating of Metal Furniture* (EPA-450/2-77-032), issued in 1977; and *Control of Volatile Organic Emissions from Existing Stationary Sources Volume VI: Surface Coating of Miscellaneous Metal Parts and Products* (EPA-450/2-78-015), issued in 1978. The TCEQ requested clarification to ensure that implementing the new 2007 and 2008 CTG recommendations would not be considered backsliding and to be certain that the TCEQ has the appropriate information to determine whether the CTG recommendations actually represent RACT for Texas. On March 17, 2011, the EPA issued a guidance memorandum regarding these three CTG categories entitled *Approving SIP Revisions Addressing VOC RACT Requirements for Certain Coatings Categories*. The EPA stated in the memorandum that: "... if a state believes the volume usage distribution among the general and specialty categories in the docket is representative of the distribution in the nonattainment area, we believe that if a state undertakes wholesale adoption of the new categorical limits in a specific CTG, the state may rely on the assessments in the docket to demonstrate that the range of new limits will result in an overall reduction in emissions from the collection of covered coatings."

Consistent with this EPA memorandum, on June 8, 2011, the commission proposed rulemaking (Rule Project Number 2010-016-115-EN) concurrent with this SIP revision to implement the 2007 and 2008 CTG-recommended RACT limits for these three emission source categories. The proposed rulemaking provided discussion regarding the estimated percent reductions for these CTG categories that supported the EPA's position that applying the new 2007 and 2008 CTG-recommended limits as a whole will result in net VOC emissions reductions. Despite the state's demonstration that implementing the 2007 and 2008 CTG-recommended approach would not interfere with attainment of, or reasonable progress towards attainment of, the ozone standard for the DFW area, the EPA commented that in order for the proposed rules to be approved as RACT, the state must also demonstrate that the existing Chapter 115 limits for these CTG categories, which were based on the EPA's original 1977 and 1978 recommendations, are no longer technologically or economically feasible.

The commission contends that by promulgating higher CTG-recommended RACT limits for these source categories in 2007 and 2008, the EPA has established that the original 1977 and 1978 recommended limits, and thus the existing Chapter 115 limits, are no longer technologically or economically feasible. The EPA defines RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility (44 FR 53762, September 17, 1979). In the 2007 and 2008 CTG documents, the EPA provides recommendations for RACT for these source categories based on available information. The EPA claims the 2007 and 2008 CTG RACT recommendations were based on available information and a review of existing federal and state regulations, including the original 1977 and 1978 recommendations for these emission source categories. The EPA goes on to indicate that 21 states have adopted the EPA's 1977 recommendations for large appliance coating; 32 states have adopted the EPA's 1977 recommendations for metal furniture coating; and as many as 36 states have adopted the EPA's 1978 recommendations for metal parts surface coating. Given that Texas had previously adopted the EPA's 1977 and 1978 recommendations for these three source categories, the Chapter 115 rules should have been included in EPA's review of existing regulations. If upon review of the existing Chapter 115 regulations the EPA had determined that the limits recommended in 1977 and 1978 were technologically and economically feasible, then those limits presumably would have been included in the final 2007 and 2008 CTG recommendations for these source categories.

In accordance with FCAA, §183(e)(3)(C), the EPA determined the 2007 and 2008 CTG documents issued for these three source categories would be substantially as effective as national regulations in reducing VOC emissions (72 FR 57215, October 9, 2007; 73 FR 40230, July 14, 2008). FCAA, §183(e)(3)(A) requires any regulations issued under FCAA, §183(e), including the 2007 and 2008 CTG documents, to be based on best available controls, which are defined under FCAA, §183(e)(1)(A) as the degree of emissions reduction that the EPA determines, on the basis of technological and economic feasibility, health, environment, and energy impacts, is achievable through the application of the most effective equipment, measures, processes, methods, systems or techniques, including chemical reformulation, product or feedstock substitution, repackaging, and directions for use, consumption, storage, or disposal. If the lower limits in the EPA's original

1977 and 1978 recommendations were in fact technologically or economically feasible for these specialty coating categories, the EPA presumably would have retained these limits in the 2007 and 2008 final CTG documents in accordance with FCAA, §183(e)(1)(A).

The Large Appliance Coatings and Metal Furniture Coatings draft CTG only recommended general coating limits for these source categories. However, in response to public comments (72 FR 57215, October 9, 2007), the EPA's final 2007 CTG recommendations for these two source categories also included higher limits for several specialty coatings. The specialty coating limits included in the 2007 CTG are higher than the EPA's 1977 recommendations for these two source categories. In the response to public comments, the EPA acknowledged that the higher specialty coating limits recommended in the final 2007 CTG were necessary to accommodate the range of coatings needed in these industries.

However, the EPA's 2007 and 2008 CTG documents do not specifically explain why the lower limits included in the EPA's original 1977 and 1978 recommendations for these source categories are no longer technologically or economically feasible. In absence of any specific information indicating that the existing Chapter 115 limits for these source categories are not technologically or economically feasible, and given the EPA's stated intention to disapprove the rules without such a demonstration, the commission is obligated under the FCAA to revise the proposed limits for these source categories. Therefore, in response to this comment, the commission is revising the proposed limits for these three source categories to only include the EPA's 2007 and 2008 CTG-recommended limits that are equivalent to or lower than the existing Chapter 115 limits. Where the EPA's 2007 and 2008 CTG-recommended limits are less stringent than the EPA's original 1977 and 1978 recommended limits, the commission is retaining the original emission limit in the current Chapter 115 rule, except for the high performance architectural coatings limit for the miscellaneous metal parts and products category.

The EPA only addressed the technological and economic feasibility issues associated with high performance architectural coatings in support of its presumptive RACT recommendations in the 2008 CTG for Miscellaneous Metal and Plastic Parts Coatings. The commission agrees with the EPA that the 6.2 pounds of VOC per gallon of coating (lb VOC/gal coating) constitutes RACT for this coating type and that promulgating a VOC limit less than 6.2 lb VOC/gal coating may restrict the application of liquid high performance architectural coatings that are currently available and in use today. The cost of converting to powder coatings or installing and operating add-on controls to meet a lower limit is not a reasonable alternative compared to the emission reduction that would be achieved. In light of this information, as provided in the EPA's 2008 CTG, the commission has determined a VOC limit of 6.2 lb VOC/gal coating for high performance architectural coatings to be RACT. The commission contends that the adoption of this coating VOC limit for high performance architectural coatings, which is higher than in the existing Chapter 115 rules, does not interfere with attainment of, or reasonable progress towards attainment of, the ozone standard for the DFW area. Therefore, the commission is making no change to the proposed VOC limit of 6.2 lb VOC/gal coating for high performance architectural coatings in the Chapter 115 miscellaneous metal parts and products coatings rules in response

to this comment; the commission is adopting to retain the EPA's 2008 Miscellaneous Metal and Plastic Parts CTG-recommended 6.2 lb VOC/gal coating limit for high performance architectural coatings in the adopted Chapter 115 miscellaneous metal parts and products coatings rules.

Flexible Package Printing

The FTA strongly disagreed with the requirement in §115.432(c)(1)(C) for flexible package printers to meet an 80% overall control efficiency regardless of the first installation date of the oxidizer. The FTA commented that this approach may require printers that installed oxidizers at an earlier date to replace equipment and would be a significant financial hardship, as new oxidizers start in the hundreds of thousands of dollars. The FTA commented that the EPA's Flexible Package Printing CTG recommends a more reasonable approach consistent with a RACT regulation, which allows add-on controls installed prior to specific dates to have lower overall control of VOC emissions. The FTA added that the commission's claim that the EPA's approach would create backsliding is not justified.

The commission maintains that the EPA's CTG-recommended approach for controlling VOC emissions from flexible package printing may encourage the installation of older, less efficient equipment and may create backsliding issues if a source becomes subject to a lower efficiency standard as a result of equipment replacement.

The commission has determined that an 80% overall control efficiency represents RACT for flexible package printing processes in the DFW area. Based on a review of permits for flexographic printing and rotogravure printing processes, the only two types of printing processes identified in the CTG as conducting flexible package printing, the majority of printers are using add-on control equipment that achieves at least an 80% overall control efficiency, demonstrating that this level of control is reasonably available considering technological and economic feasibility.

Flexible package printers with the potential to emit greater than or equal to 25 tons per year (tpy) of uncontrolled VOC emissions that choose to use a vapor control system to comply with the adopted rules, are not limited to operating at an 80% overall control efficiency. The adopted new control requirements in §115.432(c) provide different compliance options to provide flexibility for affected owners and operators. Flexible package printers can instead choose the compliance option that requires the use of coatings in conjunction with a vapor control system to meet the VOC limits. Under this compliance option, an owner or operator does not have to meet a certain VOC limit or meet a certain overall control efficiency; rather, the combined coating VOC content and the overall control efficiency must meet one of the VOC limits. The commission makes no change in response to this comment.

Industrial Cleaning Solvents

The ACA requested the commission exempt resin manufacturing from the Chapter 115, Subchapter E, Division 6, industrial cleaning solvents rules since the proposed VOC limits would not allow effective cleaning of resin manufacturing equipment. The ACA commented that both the Bay Area Air Quality Management District (BAAQMD) and South Coast Air Quality Management District (SCAQMD) rules, which the EPA relied on to develop the CTG recommendations, exempt resin manufacturing operations from solvent cleaning VOC limits as follows: SCAQMD Rule 1171(g)(2)(E) exempts cleaning operations subject to Rule 1141 - Control

of Volatile Organic Compound Emissions from Resin Manufacturing and Rule 1141.1 - Coatings and Ink Manufacturing; and BAAQMD Regulation 8, Rule 4, Section 113 exempts operations that are subject to the requirements of other rules of Regulation 8, or which comply with appropriate limitations of those rules prior to their effective dates. The ACA commented that since BAAQMD regulates resin manufacturing under Regulation 8, Rule 36, the BAAQMD solvent cleaning rule does not apply to resin manufacturing operations. As an alternative to completely exempting resin manufacturing operations from the Chapter 115 industrial cleaning solvents rules, the ACA suggested implementing a VOC limit of 1.67 pounds of VOC per gallon of solution (lb VOC/gal solution), work practices, and an overall control efficiency of at least 80% or 90% if incineration is used.

The commission agrees that requiring resin manufacturing operations to comply with the 0.42 lb VOC/gal solution VOC limit for cleaning solutions poses technical feasibility issues, as described in the ACA's formal comments and supporting documentation. The EPA's 2006 Industrial Cleaning Solvents CTG recommends excluding ink, adhesive, and coating manufacturing from the industrial cleaning solvents rule applicability because the 0.42 lb VOC/gal solution VOC content limit is not technologically and economically feasible for these manufacturing processes. The commission expects that the same technological and economic feasibility issues associated with manufacturing inks, coatings, and adhesives also exist for resin manufacturing. The VOC limit established in the industrial cleaning solvents rules prevent the use of adequate cleaning solutions, potentially causing cross contamination of manufactured products and poor product quality resulting in disposal of off-specification products. The 0.42 lb VOC/gal solution VOC content limit is not technologically feasible for resin manufacturing operations and therefore does not represent RACT for this industry. In response to this comment, the commission is revising §115.461(d)(13) to exempt resin manufacturing from the VOC content limits for industrial cleaning solvents.

The TCC commented that §115.461(b) should specifically exclude processes or operations that are subject to and complying with Chapter 115, Subchapter B, Division 2 or Division 6, including any qualifying exemptions. Specifically, the TCC suggested revising §115.461(b) to exempt a cleaning operation from the requirements in Division 6 if all of the VOC emissions from the cleaning operation originate from a source for which another division within Chapter 115 has established a control requirement, emission specification, or exemption that applies to that VOC source category in that county.

The commission agrees with TCC's suggestion to provide an exemption for cleaning operations that are controlled by emission specifications or control requirements established in another Chapter 115 division. As proposed, the rules for industrial cleaning solvents exempted cleaning operations subject to another division in Chapter 115 that establishes cleaning work practices or cleaning VOC limits used during a solvent cleaning operation. However, in light of this comment, the commission acknowledges that not all Chapter 115 rules contain cleaning requirements, but that owners and operators of some processes may consider cleaning activities to be a part of their production process or may find it to be more efficient to control emissions from cleaning activities in accordance with the process control requirements or emissions specifications.

However, the commission declines to incorporate the TCC's request to exempt a cleaning operation from this division if the cleaning VOC emissions originate from a source that qualifies for an exemption in another Chapter 115 division. Basing an

exemption for a cleaning operation on a process-specific exemption in another Chapter 115 division, is inconsistent with the EPA's stated purpose that the CTG recommendations are intended to apply to all industrial cleaning operations that are not already subject to or complying with other control requirements.

Therefore, in response to this comment, the commission is adopting new §115.461(c) to exempt from this division a solvent cleaning operation where the process the cleaning operation is associated with is subject to another division in Chapter 115 and the VOC emissions from the solvent cleaning operation are controlled in accordance with an emission specification or control requirement of the division that the process is subject to. This exemption is intended to provide affected owners and operators with the flexibility to comply with control requirements or emission specifications in another Chapter 115 rule to minimize compliance burden. The commission expects that an owner or operator choosing to comply with the control requirements or emission specifications for a cleaning operation is at least as effective as complying with the industrial cleaning solvent rule requirements.

Miscellaneous Industrial Adhesives

NASA commented that adhesives are applied to non-production mock-ups, prototypes, fixtures, and displays at manned spacecraft centers. NASA requested a complete exemption be added to §115.471 for adhesives or adhesive primers used onsite at installations owned or operated by the Armed Forces of the United States (including the Coast Guard and the Texas National Guard) and NASA. NASA requested the exemption because extensive field testing is required before adhesives can be approved for use and the proposed regulations would be impractical and extremely costly for NASA due to the complexity of adhesive operations, the number of adhesives used, and the number of different items and substrates bonded together.

The rules in Division 7 are necessary to implement RACT for miscellaneous industrial adhesives as required in FCAA, §172(c)(1) and §182(b)(2). The commission disagrees that a complete exemption for NASA is consistent with the EPA's recommendations for this CTG emission source category. Granting the categorical exemption requested for NASA and other military organizations could potentially result in EPA disapproval of the Chapter 115 RACT rules and corresponding SIP revisions. The commission does not consider the adopted rules any less technologically or economically feasible for NASA and the US Navy as the rules are for other affected entities, which includes some small businesses.

The EPA's 2008 CTG is intended to apply to adhesive and adhesive primer application processes at manufacturing operations that are not already regulated. For purposes of the rules, a manufacturing operation refers to a manufacturer that uses adhesives to join surfaces in the assembly or construction of a product involving the application processes listed in §115.473(a). Accordingly, the adopted rules in Division 7 do not apply to adhesives and adhesive primers used in the application processes specified in §115.473(a) that are subject to another division in Chapter 115. For example, owners and operators subject to the aerospace surface coating requirements in Division 2 qualify for the exemption in §115.471(c) because adhesives are regulated under the Division 2 aerospace rules. Additionally, the EPA's 2008 CTG explicitly states that the miscellaneous industrial adhesives rules are not intended to include adhesives that are addressed by CTG documents already issued for categories listed under FCAA, §183(e) or by

an earlier CTG, which includes aerospace coatings. The commission makes no change in response to this comment.

Miscellaneous Metal and Plastic Parts Coatings

Pleasure Craft Coatings

The ACA commented that it is imperative to work with the federal, state, and local agencies to develop RACT rules given that the pleasure craft industry was not afforded the usual opportunity to comment on the EPA's CTG RACT recommendations because the draft Miscellaneous Metal and Plastic Part Coatings CTG did not mention pleasure craft surface coating operations. The ACA commented that the EPA's final CTG-recommended pleasure craft coating limits do not represent RACT for the pleasure craft industry. The ACA commented that SCAQMD Rule 1106.1, which was the basis for the EPA's CTG recommendations, should not be identified as RACT for pleasure craft coating operations in other areas since these requirements were adopted to address the severe ozone nonattainment conditions in the South Coast air basin. The ACA commented that the CTG-recommended VOC limits and compliance dates are too restrictive to allow coating manufacturers to formulate products that meet the VOC limits, while also maintaining adequate technical performance and meeting customer's aesthetic requirements. The ACA requested several revisions to the proposed rules to establish appropriate RACT requirements for pleasure craft coating operations.

For *extreme high-gloss coatings*, the ACA suggested implementing a VOC limit of 5.0 lb VOC/gal coating and revising the definition to any coating that achieves greater than 90% reflectance on a 60 degree meter. The ACA commented that the controlled application conditions that make the use of high solids and water-based technologies possible in other industries are not available for the pleasure craft coating industry. The ACA also commented that the low-VOC technologies available at this time do not provide the aesthetic properties, functionality, and durability required from an extreme high-gloss coating.

For *finish primer/surfacer coatings*, the ACA suggested implementing a VOC limit of 5.0 lb VOC/gal coating. The ACA commented that a higher VOC solvent is required for both the topcoats and the primers that go beneath them to achieve the finish that is extremely smooth, glossy, and durable. In addition, high solids or low-VOC primers often require additional sanding to achieve the necessary smooth surface and the use of these coatings necessitates a change in traditional working practices in yards to overcome the increased health hazard associated with the increased dust levels.

For *other substrate antifoulant coatings*, the ACA suggested implementing a VOC limit of 3.34 lb VOC/gal coating. Antifoulant coating formulations are currently registered with the EPA based on the percentage weight of biocide in the wet paint. Reducing the VOC content of the coating reduces the percentage of biocide in the dry film with a concomitant reduction in performance of the coating and increase in recoating frequency. In addition, low-VOC antifoulant coatings often result in a rougher film; the roughness of the hull contributes directly to drag.

For *antifoulant sealer/tie coatings*, the ACA suggested introducing a VOC limit of 3.5 lb VOC/gal coating and the following definition: a coating applied over a biocidal antifoulant coating for the purpose of preventing release of biocides into the environment, or to promote adhesion between an antifoulant and a primer or other antifoulants. The 2007 International Maritime Organization Antifouling Systems convention prohibits the use of certain biocides in the antifoulant coatings applied to the hulls of any marine vessels entering the waters of countries that are signatories to the convention. A specialized coating, an antifoulant sealer/tie

coat, is required to seal in certain prohibited antifoulant coatings and to promote adhesion of biocide-free, non-stick foul release coatings when applied to vessels. As alternative compliance options, the ACA suggested implementing an averaging approach and extending the compliance date to allow the development, testing, and commercial introduction of low-VOC pleasure craft coatings.

In response to the ACA's request for reconsideration of the pleasure craft CTG VOC limits, the EPA issued a memorandum on June 1, 2010, entitled *Control Technique Guidelines for Miscellaneous Metal and Plastic Part Coatings-Industry Request for Reconsideration*, "recommending that the pleasure craft industry work with state agencies during their RACT rule development process to assess what is reasonable for the specific sources regulated because the CTG impose no legally binding requirements on any entity, including pleasure craft coating facilities."

Based on the information submitted by the ACA, and in accordance with the EPA's guidance to work with the pleasure craft industry on this issue, the commission agrees that some of the pleasure craft coating VOC limits included in the EPA's CTG recommendations are not technologically feasible at this time. The commission agrees that the coating VOC limits requested by the ACA are technologically and economically feasible and therefore constitute RACT for the pleasure craft industry in Texas. In response to this comment, the commission is revising §115.453(a)(1)(F) to reflect the ACA's recommended VOC limits for *extreme high-gloss coating, finish primer/surfacer coating, other substrate antifoulant coating, and antifoulant sealer/tie coating*. The commission is also revising §115.450(c)(8) to include the commenter's suggested definitions for *extreme high-gloss coating, pretreatment wash primer, and antifoulant sealer/tie coating*. Because the commission is revising the rules to incorporate the suggested VOC limits the commission does not agree it is also necessary to include the averaging approach and extended compliance period that were suggested as alternative compliance options.

The ACA requested a small container exemption for pleasure craft touch-up and repair coatings to allow minor repairs at the end of the painting line and avoid having to completely re-coat the pleasure craft.

In response to this comment, the commission is adopting new §115.451(n) to exempt touch-up and repair coatings from meeting the VOC limits in §115.453(a)(1)(F) if those coatings are supplied by the manufacturer in containers that do not exceed 1.0 quart and the use of those coatings at the site does not exceed 50 gallons per calendar year. The commenter did not suggest a quantity for the annual limit on touch-up and repair coatings. The 50-gallon limit is equivalent to the volume of coatings exempt in §115.451(i)(4) for miscellaneous plastic parts and products. In addition, the commission is including definitions for repair coatings and touch-up coatings in §115.450(c)(8)(I) and (K), respectively. The commission agrees that providing an exemption for touch-up and repair coatings used in small quantities eliminates the need to completely re-coat a pleasure craft and, as a result, reduces overall VOC emissions from pleasure craft coating. This exemption for coatings used in small quantities is also consistent with the EPA's recommended exemptions for other coating categories in the Miscellaneous Metal and Plastic Parts Coating CTG.

Miscellaneous Metal Parts and Products Coatings

NASA and the US Navy suggested the commission remove designated on-site maintenance shops from the rule applicability in Chapter 115, Subchapter E, Divisions 2 and 5 for the following reasons: there is no definition of this type of facility in the proposed rules; the frequency of what is considered routine is unclear; the federal maximum available control technology standards for miscellaneous metal parts and products excludes facility maintenance operations; industrial maintenance coatings are already covered by the national Architectural and Industrial Maintenance rule; and the EPA's Miscellaneous Metal and Plastic Parts Coatings CTG does not include designated on-site maintenance shops in the applicability.

The existing Chapter 115, Subchapter E, Division 2 rules were revised in July 2000 (25 TexReg 6754) to reflect a rule interpretation that determined the miscellaneous metal parts and products coatings rules should be applied to original equipment manufacturers, off-site job shops that coat new or used parts or products, and designated on-site maintenance shops that re-coat used parts or products. Because this rulemaking was submitted as a SIP revision and approved by the EPA, providing an exemption for designated on-site maintenance shops that are currently complying with the existing Chapter 115, Division 2 rules would be backsliding.

However, the commission has determined that it is not necessary to apply these RACT requirements to designated on-site maintenance shops that re-coat used parts or products in order to meet the mandates of the FCAA, §172(c)(1) and §182(b)(2). The EPA's 1978 CTG recommendations for this source category, which were the basis for the Division 2 rules, were clearly not intended to apply to designated on-site maintenance shops that re-coat used parts or products. The commission also agrees that the EPA's 2008 Miscellaneous Metal and Plastic Parts Coatings CTG recommendations do not apply to designated on-site maintenance shops.

Therefore, in response to this comment, the commission is adopting §115.427(a)(8) to limit the rule applicability to the designated on-site maintenance shops in the DFW area that were subject to §115.421(a)(9) prior to January 1, 2012. Only those designated on-site maintenance shops that re-coat used parts or products that were exempt from §115.421(a)(9) in Division 2 prior to January 1, 2012, the beginning of the calendar year immediately following the approximate effective date of these rules, or that begin operation on or after January 1, 2012, are exempt from all requirements in Division 2. Additionally, in response to this comment, the commission is revising §115.450(a) to exclude re-coating of used miscellaneous metal parts and products at designated on-site maintenance shops from the coatings rule applicability in Division 5. The adopted revisions prevent any potential backsliding concerns by requiring sources that are currently complying with these rules in Division 2 to continue to meet these VOC limits. The adopted revisions are consistent with the intent of the EPA's 1978 and 2008 CTG RACT recommendations for miscellaneous metal parts and products coatings and the commission maintains the rules continue to satisfy RACT requirements for this CTG emission source category.

NASA and the US Navy requested an exemption be added to §115.451 for miscellaneous metal or plastic parts and product surface coating processes performed at on-site installations owned or operated by the Armed Forces of the United States or NASA, or the surface coating of military

munitions manufactured by or for the Armed Forces of the United States. NASA and the US Navy requested the exemption because extensive field testing is required before reformulated coatings and solvents can be approved for use and because the proposed regulations would be impractical and extremely costly for NASA and the US Navy due to the complexity of coating operations, the number of coatings and solvents used, and the number of different items and substrates coated. NASA and the US Navy also requested exemption from the miscellaneous metal and plastic parts coatings rules because historically accurate coatings for these items must be used.

The rules in Division 5 are necessary to implement RACT requirements for miscellaneous metal and plastic parts coatings as required in FCAA, §172(c)(1) and §182(b)(2). The commission disagrees that a complete exemption for the Armed Forces of the United States or NASA is consistent with the EPA's recommendations for this CTG emission source category. Some of the specific coating categories recommended by the EPA for miscellaneous metal and plastic parts and products are specific to military application. Granting the categorical exemption requested for NASA, the US Navy, and other military organizations could potentially result in EPA disapproval of the Chapter 115 RACT rules and corresponding SIP revisions.

However, the miscellaneous metal and plastic parts coatings rules do not apply to the other coating categories specifically regulated in Divisions 2 or 5. The commission recognizes that an explicit exemption for those specific coating categories from the miscellaneous metal and plastic parts coatings rules in Division 5, similar to the exemption provided in Division 2, was not incorporated into the proposed rules and may have created confusion. In response to this comment, the commission is adding an exemption in §115.451(b)(4) to reflect the exclusion of all other coating categories in Divisions 2 and 5 from the miscellaneous metal and plastic parts coatings rules. Adopted new §115.451(b)(4) clearly indicates that any item characterized by the other coating categories specified in Division 2 and Division 5 is not considered miscellaneous metal or plastic parts and products and is therefore not subject to any of the corresponding requirements. Additionally, the commission does not consider the adopted rules any less technologically or economically feasible for NASA and the US Navy as the rules are for other affected entities, which includes some small businesses.

The EPA commented that the alternate control requirements proposed in §115.454(b) should be revised to make clear that any alternative requirements to §115.453(a)(1)(A), approved by the executive director, would need to be submitted as a site-specific SIP revision for approval by the EPA to ensure it meets the requirements for enforceability and public hearings.

The adopted alternate control requirement in §115.454(b) is identical to the existing SIP-approved requirement in §115.423(4), except that the rule citations reference the applicable process in the adopted new Division 5 rules. The commission notes that the rule citation in the proposed rules incorrectly referenced large appliance coating, and the commission is revising §115.454(b) to accurately reference miscellaneous metal parts and products surface coating processes in §115.453(a)(1)(C).

The commission agrees that any alternate control requirement approved by the executive director under §115.454(b) would need to be submitted as a site-specific SIP revision for EPA approval. However, the commission does not agree that revisions to adopted §115.454(b) are warranted to clarify that EPA approval of

alternate control requirements is necessary. The commission makes no change in response to this comment.

The TCC requested clarification on whether it is the commission's intent to regulate the coating of newly fabricated piping or other equipment at an on-site maintenance shop, which appears to fall outside of the miscellaneous metal parts and products definition, while the re-coating of some equipment at an on-site job shop appears to be included. In addition, TCC requested clarification on whether the coating of newly fabricated piping or other equipment at an on-site lay-down yard would be a regulated activity. The TCC stated that the EPA excludes the coating of new and existing support structures, piping, and equipment as part of routine maintenance activities, considered to be facility maintenance operations, from 40 Code of Federal Regulations, Part 63, Subpart Mmmm for Surface Coating of Miscellaneous Metal Parts and Products.

In response to other comments on this rulemaking, the commission is revising §115.450(a) to exclude designated on-site maintenance shops from the miscellaneous metal parts and products coatings rule applicability in Division 5. Additionally, the commission is adding §115.427(a)(8) to limit the Division 2 rule applicability to only those designated on-site maintenance shops that recoat used parts and products that were required to comply with the emission specifications in §115.421(a)(9) prior to January 1, 2012, which is the beginning of the calendar year immediately following the approximate effective date of this rulemaking. The re-coating of used miscellaneous metal parts and products at a designated on-site maintenance shop that was exempt from §115.421(a)(9) prior to January 1, 2012, or that begins operation on or after January 1, 2012, is exempt from all requirements in Division 2.

The coating of newly fabricated miscellaneous metal parts and products, including piping or other equipment, for a site's own use does not constitute coating at a designated on-site maintenance shop and does not meet the miscellaneous metal parts and products coatings rule applicability in Division 2. Only designated areas where the routine re-coating of miscellaneous metal parts and products takes place is considered a designated on-site maintenance shop. The location of the designated on-site maintenance shop is irrelevant for purposes of the Division 2 rules; the designated on-site maintenance shop may be an area reserved inside a site building or a location on the site's grounds outdoors.

The TCC requested clarification on whether extreme performance coatings applied to newly fabricated piping and equipment, which do not meet the corresponding definition in the Division 5 rules, would now be considered a general-use coating.

Coatings that do not meet a specific coating category definition in Division 5, are considered general-use coatings and are subject to the VOC content or emission limit for general-use coatings. This requirement is adopted directly from the EPA's 2008 Miscellaneous Metal and Plastic Parts Coatings CTG recommendations. Conversely, the commission recognizes that some coatings may meet more than one coating category definition. For these instances, the commission is revising the rules to indicate that the least stringent VOC limit applies.

VOC Storage

An individual expressed concern that the proposed revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) would place additional burdens on natural gas producers who are already attempting to minimize emissions.

The commission is adopting revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) to implement FCAA RACT requirements for the storage of VOC in the DFW area. As discussed in the preamble for the proposed rulemaking (36 TexReg 3817, June 24, 2011), the commission determined these requirements are economically feasible and will not place an undue burden on owners or operators of storage tanks storing condensate. In many cases, owners or operators can choose a control device that will generate additional revenue or offset operational expenses. The commission makes no change in response to this comment.

The TPA commented that regulatory efforts to attain the ozone NAAQS should not focus on VOC emissions. The TPA commented that the need for increased controls on VOC emissions has not been demonstrated through the use of reliable data. The HARC51C VOC emission factor of 33.3 lb/bbl of condensate is based on faulty data and is being applied by TCEQ for all condensate production regardless of the separator letdown pressure at the site or whether the flash emissions are being controlled. The November 2010 Eastern Research Group (ERG) study should not be the basis for any additional controls on VOC emissions because it greatly overstates statewide VOC emissions from oil and gas production sources by relying on the 33.3 lb/bbl emission factor and the unfounded assumption that emissions are not controlled by flares or vapor recovery units.

The commission is adopting amendments to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) to fulfill the FCAA requirement to implement RACT for major sources of VOC emissions in the DFW area. The commission's Point Source Emissions Inventory includes storage tanks with VOC emissions that exceed the 50 tpy major source threshold for areas classified as serious for the 1997 eight-hour ozone standard and therefore these rules are necessary to fulfill FCAA RACT requirements at these sites. The commission is not relying on information from the HARC 51C study or the 2010 ERG study to demonstrate the necessity of this rulemaking.

The commission is continuing to use the HARC51C emission factor of 33.3 lb/bbl of condensate in this rulemaking. The production-based applicability threshold (barrels per year) for the requirement to control flash emissions from condensate storage tanks in the DFW area is based on the HARC51C emission factor of 33.3 lb/bbl of condensate. This emission factor is an average of a wide range of test results and provides a conservative estimate of the production threshold below which a regulated entity is exempt from demonstrating that the uncontrolled VOC emissions from an affected storage tank or tank battery are below 50 tpy. Above this production threshold, the regulated entity must demonstrate that the uncontrolled VOC emissions from the affected storage tank or tank battery are below 50 tpy or install controls in accordance with the rule requirements. The commission acknowledges that, in some cases, the factor may overestimate VOC emissions, which is one reason why the rule provides the regulated entity with the alternative to use direct measurement or approved computer simulations to demonstrate that the VOC emissions from the condensate storage tank or tank

battery are less than 50 tpy. This process allows owners or operators the choice of using the most accurate data, which comes with additional expense, or the 33.3 lb/bbl emission factor. Direct measurements made for submission to the Barnett Shale Special Inventory may be used if the measurements were made with the measuring instruments and methods specified in §115.117. Likewise, other test methods or computer simulations approved by the executive director may be used. Computer simulations used to demonstrate compliance with the rule must account for differences in separator pressure. Regardless of the emission estimation method, the regulated entity must update the estimate of uncontrolled emissions if additional wells are connected to the storage tank or tank battery that increase throughput. The commission makes no change in response to this comment.

The BSEEC commented that the Texas Railroad Commission may inaccurately apportion condensate production to gas wells. This inaccuracy is because the Railroad Commission allocates condensate recovered by salt water injection operators back to the wells where the produced water was generated. Since salt water injection operators have no way to determine which of the many wells that they service produced the "skim" condensate, it is often allocated to all wells contracted for water disposal by a salt water disposal operator. The BSEEC and the TPA commented that for dry gas wells with little or no VOC, this produced water does not contain any significant amount of condensate. There can be some "skim" condensate in the water produced at a wet gas well such as those in Wise, western Denton, and Parker Counties.

The commission agrees there may be little condensate stored in some tank batteries, regardless of whether it is because condensate production has been inaccurately apportioned, or because dry gas contains little or no VOC. However, there are other tank batteries in the DFW area with appreciable amounts of stored condensate. The commission's Point Source Emissions Inventory includes storage tanks with VOC emissions that exceed the 50 tpy major source threshold for areas classified as serious for the 1997 eight-hour ozone standard. The adopted changes to Chapter 115, Subchapter B, Division 1 (rule project 2010-025-115-EN) apply to individual tanks and tank batteries. Controls are required for those tanks or tank batteries over the applicability threshold.

If a storage tank contains both produced water and condensate, it is a storage tank storing condensate. For such tanks storing condensate prior to custody transfer, §115.112(d)(4), (d)(5), (e)(4) and (e)(5) require vapors to be routed to a control device if uncontrolled VOC emissions from the individual storage tank or VOC emissions from the aggregate of all storage tanks in the tank battery exceed the applicability threshold. The commission makes no change in response to this comment.

The BSEEC and the TPA suggested that TCEQ evaluate if the proposed New Source Performance Standard (NSPS) from the EPA would make adoption of new requirements on condensate storage tanks in the DFW area a moot point. TPA suggested that TCEQ should ensure that regulated parties are not subject to conflicting federal and state rules on the subject of VOC storage emissions.

Because the NSPS is in the proposal stage and is not yet an enforceable regulation, the commission cannot rely on any emission reductions or control strategies in that rule to satisfy current obligations under this rule package. Additionally, the control requirements for storage tanks in the proposed NSPS rule would only apply to new or modified existing sources and not to all existing major sources.

Therefore, even if the EPA's proposed NSPS rule were adopted at this time, the commission could not rely upon the NSPS rule to satisfy RACT requirements, which must address all major sources. As discussed elsewhere in the preamble for revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN), the control requirements adopted with this rulemaking for crude oil and condensate tanks prior to custody transfer are necessary to fulfill RACT requirements of the FCAA for the 1997 eight-hour ozone standard DFW attainment demonstration SIP revision. The commission makes no change in response to this comment.

The TPA commented that the need to impose additional controls on minor sources has not been demonstrated. It is inappropriate to subject minor sources to the proposed requirements without a demonstrated need for the additional emissions reduction from sources below major source levels.

In response to comment and because additional reductions from revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) are not required for RFP purposes, the commission has raised the applicability threshold for storage tanks storing condensate and crude oil to the major source threshold. The DFW area is currently classified as a serious nonattainment area for the 1997 eight-hour ozone standard with a major source threshold of 50 tpy of uncontrolled VOC emissions. The FCAA requires that SIP revisions include application of RACT to major sources of VOC in the DFW area. If the DFW area is reclassified to severe nonattainment, the commission is including a provision §115.119(b)(1)(C) that adjusts the applicability threshold to match the lower 25 tpy major source threshold.

The EPA requested clarification of how emission reductions for this rulemaking were calculated, especially any lesser reductions from floating roof tanks not required to be in compliance by December 1, 2012.

The commission proposed to control flash emissions from crude oil and condensate storage tanks, prior to custody transfer, in the DFW area with uncontrolled VOC emissions that equal or exceed 25 tpy because preliminary analysis indicated that additional VOC reductions were necessary to help meet FCAA RFP requirements. The commission has since determined that these additional VOC emission reductions are not necessary to meet RFP requirements. The commission is adopting requirements for VOC storage tanks in the DFW area as necessary to implement FCAA RACT requirements but is not taking credit for any emission reductions associated with this rulemaking. The commission makes no change in response to this comment.

The EPA suggested additional recordkeeping is necessary for enforcement to show when a floating roof storage tank not in yet compliance with §115.112(e)(2) was last emptied and degassed in order to show that compliance was not necessary until an emptying and degassing event or December 1, 2021, whichever comes first.

The commission agrees that additional recordkeeping will improve enforceability. The commission is adding a requirement to record the most recent instance of emptying or degassing the storage tank to §115.118(a)(6)(C) for sources relying on §115.119(b)(1)(A) to delay compliance for floating roof storage tanks in the DFW area beyond March 1, 2013.

The NTCASC and Denton commented that VOC emissions from storage tanks storing condensate or crude oil in the DFW area should be controlled by 95% if their emissions exceed a 15 tpy threshold. COPPs, KIDS, and three individuals requested the TCEQ require crude oil and condensate storage tanks with a throughput of at least one barrel per day of condensate or 20 barrels per day of crude oil (equivalent to about 6 tpy of VOC emissions) to reduce VOC emissions by 95%. COPPs, KIDS, and 365 individuals also requested the TCEQ require VOC capture technology on all storage tanks that emit more than 5 or 10 tpy. One individual requested the TCEQ require vapor recovery units for all storage tanks emitting over 5 tpy of emissions. One individual commented that TCEQ could reduce VOC pollution up to 50 tons per day by requiring vapor recovery on tanks that release more than 5 tons of pollution annually. The Sierra Club requested that the applicability threshold for control requirements on oil and gas storage tanks be lowered to 5 or 10 tpy of VOC emissions because the City of Fort Worth's air quality study found few sites with emissions over 25 tpy. The commenter stated that the emission reductions from the rule would be much greater with controls at 5 tpy.

As discussed in the RACM analysis in Appendix G of this SIP revision, photochemical modeling indicates the DFW area will attain the 1997 eight-hour ozone standard in 2012 and additional control measures are not necessary for the area to demonstrate attainment by the attainment date. Furthermore, a control measure would have to be in place by March 1, 2011, in order for the measure to advance the attainment date; therefore, it is not possible for the TCEQ to implement any control measures that would provide for earlier attainment of the 1997 eight-hour ozone standard. Further, the commission cannot adopt the suggested control measures because these measures were not proposed for public comment.

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) to implement RACT for VOC storage tanks. The rules require 95% control of flash emissions from crude oil and condensate storage tanks in the DFW area with uncontrolled VOC emissions that equal or exceed 50 tpy. Additional discussion regarding these revisions is provided in the preamble of the adopted rule and in Chapter 4 of this SIP revision.

Three individuals requested that vapor recovery units be mandatory for all existing natural gas wells. One individual commented that the commission can control the exponential DFW area VOC emissions by mandating vapor recovery systems.

As discussed in the RACM analysis in Appendix G of this SIP revision, photochemical modeling indicates the DFW area will attain the 1997 eight-hour ozone standard in 2012 and additional control measures are not necessary for the area to demonstrate attainment by the attainment date. Furthermore, a control measure would have to be in place by March 1, 2011, in order for the measure to advance the attainment date; therefore, it is not possible for the TCEQ to implement any control measures that would provide for earlier attainment of the 1997 eight-hour ozone standard. Further, the commission cannot adopt the suggested control measures because these measures were not proposed for public comment.

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) to implement RACT for VOC storage tanks. The rules require 95% control of flash

emissions from crude oil and condensate storage tanks in the DFW area with uncontrolled VOC emissions that equal or exceed 50 tpy. Compliance with this requirement may be achieved through the use of vapor recovery units. Additional discussion regarding these revisions is provided in the preamble of the adopted rule and in Chapter 4 of this attainment demonstration SIP revision.

An individual commented that the commission has not, but should, conduct or require continuous monitoring and recording of actual VOC and hazardous air pollution emissions from all oil and natural gas sites and compare actual emissions with permit requirements, including permits by rule. Because the commission is not doing this, the individual asserts that the commission is encouraging these emissions by not enforcing and verifying compliance. The individual also requested that all copies of PBR submissions, test results, and everything that is done by the company should be publicly available and should be shared with local governments.

The commission did not propose to require continuous monitoring and recording of actual VOC emissions or vapor recovery units on all crude oil and natural gas production sites. The commission cannot adopt the suggested provisions because these measures were not proposed for public comment.

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) to implement RACT for VOC storage tanks. The rulemaking includes continuous monitoring and recording of appropriate operating parameters of control devices required on storage tanks. These devices are designed to be the emission point for storage tanks on which they are installed and the operating parameters are chosen to assure that the devices are operating sufficient to meet applicable control requirements. The TCEQ's compliance investigation staff perform inspections on oil and gas sites subject to this rule and check required records, as appropriate, to determine compliance with all applicable commission rules, including permits claimed by or granted to the site. The rulemaking includes requirements for owners or operators to maintain records of control device monitoring results, product throughput and emission estimates when claiming an exemption, and required testing conducted. Owners or operators must make these records available for review upon request by the EPA, state, and local air pollution control agencies with jurisdiction. The TCEQ has also discussed this rulemaking with local governments that are part of the North Texas Clean Air Steering Committee. In addition, the TCEQ maintains ambient air monitors located throughout the state and hourly results of monitored ozone, VOC, and hazardous air pollutants are available to the public on the TCEQ web site. Monitoring results in the Barnett Shale area can be found at <http://www.tceq.texas.gov/airquality/barnettshale/bshale-main>. The commenter's request to make all PBR submissions public is beyond the scope of this rulemaking. Documents describing the technical review of PBR submissions requiring registration are available on the TCEQ Web site at <http://www.tceq.texas.gov/permitting/air/remotedocs.html>. No changes have been made in response to this comment.

TECHNICAL ANALYSIS

Modeling

One individual commented that the fourth-high ozone concentration at the DFW Keller monitor is in non-compliance of the 1997 eight-hour ozone standard and that DFW ozone trends have been flat.

The commission agrees that the preliminary ozone design value ozone for 2011 is 90 parts per billion (ppb) although, the 2011 data have not been finalized.

The commission disagrees that ozone trends for the DFW area have been flat. The DFW area has made considerable improvement in air quality. For example, between 2005 and 2010 the eight-hour ozone design value has trended downward 10 ppb. The number of DFW eight-hour ozone exceedance days has also decreased from 30 to 8 over the same period.

The EPA commented that it is unlikely that the DFW nonattainment area will attain the 1997 eight-hour ozone standard by 2012 based on current monitoring data.

According to preliminary 2011 monitoring data, the 2012 fourth highest eight-hour ozone concentration will need to be 74 ppb or lower to attain the 1997 eight-hour ozone standard. The commission is committed to attaining the 1997 eight-hour ozone standard in the DFW area as expeditiously as practicable.

As with the commission's modeling for the DFW AD SIP revision, the EPA's own modeling analyses have concluded that the DFW area will attain the 1997 eight-hour ozone standard by 2012, even without the emission reductions of the EPA's CSAPR or CAIR

(<http://www.epa.gov/airtransport/pdfs/NonattainmentCountyTable.pdf>), which are scheduled to be in effect in 2012.

The EPA commented that wind speeds in 2008, 2009, and 2010 were higher than normal, resulting in less conducive conditions for ozone formation.

The commission agrees that compared to the previous decade's average, ozone season wind speed averages were higher in 2008 and slightly higher in 2009. However winds were slower than the decade average in 2010. The average wind speed for the ozone seasons from 2001 through 2010 was approximately 7.3 mph and the ozone season wind speed averages for 2008, 2009, and 2010 differ from the period average by at most 0.89 mph (Table 1: *2001-2010 Annual Ozone Season Wind Speed Averages for the DFW Area*). The TCEQ does not agree that this small difference in average wind speed can alone account for changes in annual ozone concentrations.

Table 1: 2001-2010 Annual Ozone Season Wind Speed Averages for the DFW Area

Year	Mean (mph)	Difference from 2001-2010 Mean (mph)
2001	8.03	0.69
2002	7.47	0.13
2003	6.85	-0.49
2004	7.09	-0.24

Year	Mean (mph)	Difference from 2001-2010 Mean (mph)
2005	6.87	-0.46
2006	7.69	0.36
2007	6.60	-0.74
2008	8.23	0.89
2009	7.52	0.18
2010	7.01	-0.33

In general, periods of high wind speeds tend to dilute pollutants. However only small periods of slow wind speeds, like wind reversals, can cause an accumulation of pollutants, thereby creating higher ozone concentrations. Moreover, there are many other meteorological variables other than wind speed that contribute to ozone formation.

The EPA publishes weather-adjusted ozone trends for many areas of the country, including the DFW area, that take into account many additional meteorological factors than just wind speed (<http://www.epa.gov/airtrends/weather.html>). *Figure 1: Weather adjusted Ozone Trend for DFW as Published by the EPA* shows that when meteorological factors are removed the adjusted annual ozone concentrations are lower than the observed, indicating that the ozone reductions are due to more than meteorology (e.g. emission reductions). Again, wind speed alone is not sufficient to characterize ozone-conducive conditions.

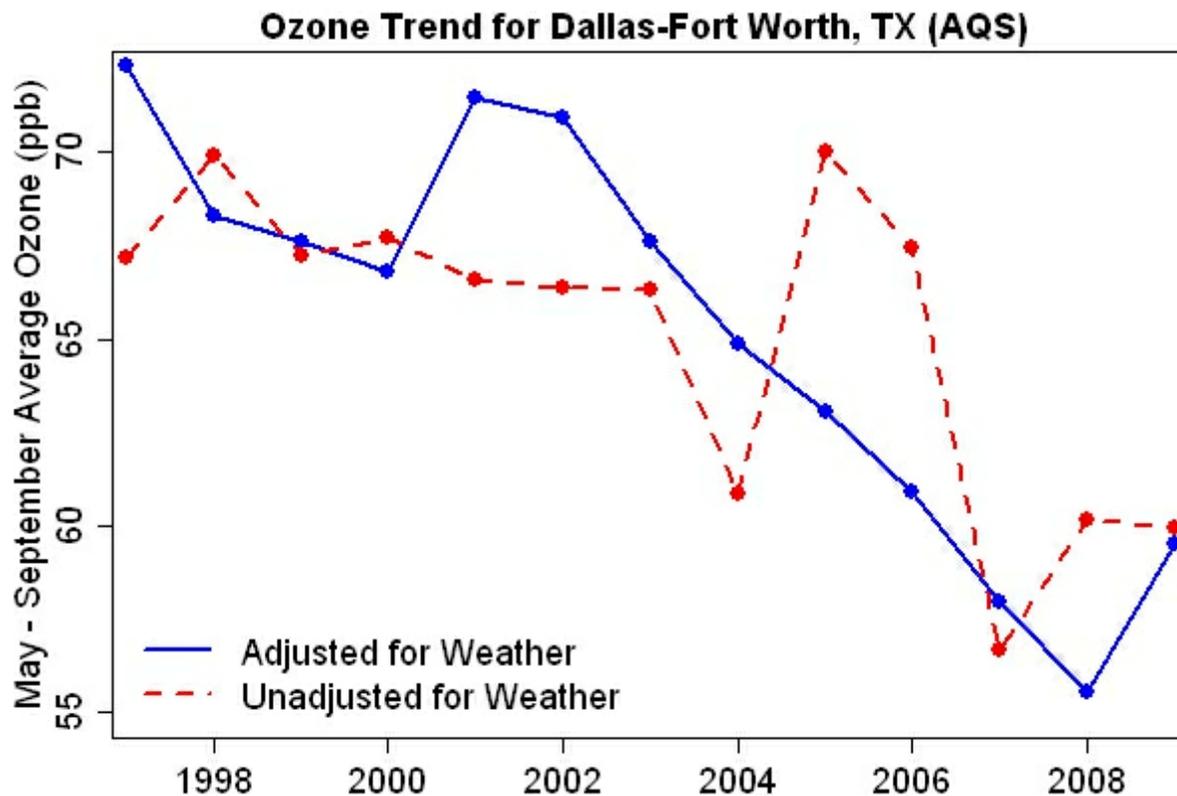


Figure 1: Weather adjusted Ozone Trend for DFW as Published by the EPA

The EPA stated that they believe the model is responding too strongly to changes in NO_x emissions, and they state that the model performance and diagnostic tests support this position.

The commission disagrees with the EPA’s assessment. The retrospective diagnostic test (Table 5-11: 1999 Projected DVs Compared with Calculated DVs) and the weekend effect diagnostic test (Figures 5-61: Mean Observed NO_x Concentrations at DFW Monitors as a Percentage of Wednesday Mean Values, May 15 through October 15, 2005 through 2009 and 5-62: Observed and Modeled Daily Peak Eight-Hour Ozone Concentrations as a Percentage of Wednesdays) in Appendix C yield opposite results. The retrospective test suggests that the modeling system is too sensitive to NO_x emission changes, whereas the weekend effect test suggests that the modeling system is not sensitive enough to NO_x emission changes. These diagnostic tests have their own inherent uncertainties, and the EPA has not sufficiently taken those into account in making their interpretation of the modeling results. The differing results from the two different diagnostic tests do not support the EPA’s statement that the model is responding too strongly to NO_x reductions.

COPPs, KIDS, and 358 individuals commented that the commission did not adequately take into account the impact of emissions from existing and newly permitted power plants outside the DFW area and Texas. The Sierra Club commented that the TCEQ is undercounting background emissions within the DFW area, such as power plants in northeast Texas. The Sierra Club commented that the photochemical modeling necessary to look at new proposed plants and their impact on nonattainment areas is not being done.

The commission disagrees with these comments. The specific sources identified by the commenters were accounted for in the AD SIP revision. Newly permitted Acid Rain Database sources were limited to the Texas Clean Air Interstate Rule (CAIR) 9.5% set-aside for growth as stated in Chapter 3, Section 3.5.4.1: *Point Sources* of the AD SIP revision. Section 2.3.1.1.1: *EGUs* of Appendix B expands upon that statement, explaining that newly-permitted electric generating units (EGUs) that were issued permits well in advance of final modeling were included in the 2012 future case modeling.

The units for which the commission issued air permits as of December 2010, which were included in the modeling, are specifically listed in Section 2.3: *2012 Future Year Point Source Modeling* of Appendix B. Emissions for newly-permitted units were derived from permit allowables and were subject to the CAIR cap. The list of EGUs provides the growth in the EGU sector for the entire state and includes those specifically identified by the commenters. Emissions for new units that were not included on the list were also accounted for in the CAIR cap, as CAIR applies to all large power plants in the state.

Units that have applied for but have not yet been granted a permit were excluded from the future modeling inventories. Historically, many units have withdrawn permit applications prior to permit issuance due to many issues including market changes. The commission does not speculate which of those permit applications will result in units being built, so only permitted units are included. Conversely, Texas units that were designated by the Electric Reliability Council of Texas or the Public Utility Commission as retired were not included in the future case modeling inventory. The commission made no changes in response to these comments.

Public Citizen commented that the choice of the June 2006 ozone episode was not appropriate for modeling power plants outside the DFW nonattainment area as it significantly reduced the impact of those sources.

The commission disagrees that the June 2006 episode was not appropriate. As detailed in the Episode Selection documentation (Section 3.3: *Episode Selection* of Chapter 3: *Photochemical Modeling* and Attachment 1: *Episode Selection for the DFW Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard* of Appendix E: *Protocol for the Eight-Hour Ozone Modeling of the Dallas-Fort Worth Area*), the decision process to model the June 2006 episode followed the EPA's *Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze*. The June 2006 episode was also shown to be representative of typical ozone-conducive conditions in the DFW area, including impacts from local and non-DFW source areas via wind directions from the east, southeast, and south.

COPPs, KIDS, and three individuals commented that the June 2006 episode chart in an August 31, 2010, presentation to the DFW Photochemical Modeling Technical Committee incorrectly counted the number of monitors measuring exceedances of the 1997 eight-hour ozone standard. The commenters also asserted that air monitoring data have been excluded from the DFW AD SIP revision.

The chart referenced by the commenters used incorrect totals of monitors exceeding the 1997 eight-hour ozone standard. The corrected chart is shown below in Figure 2: *June 2006 Episode Monitored Ozone Exceedances*. This error was

limited to presentation material only and did not impact the data used in the DFW AD SIP revision.

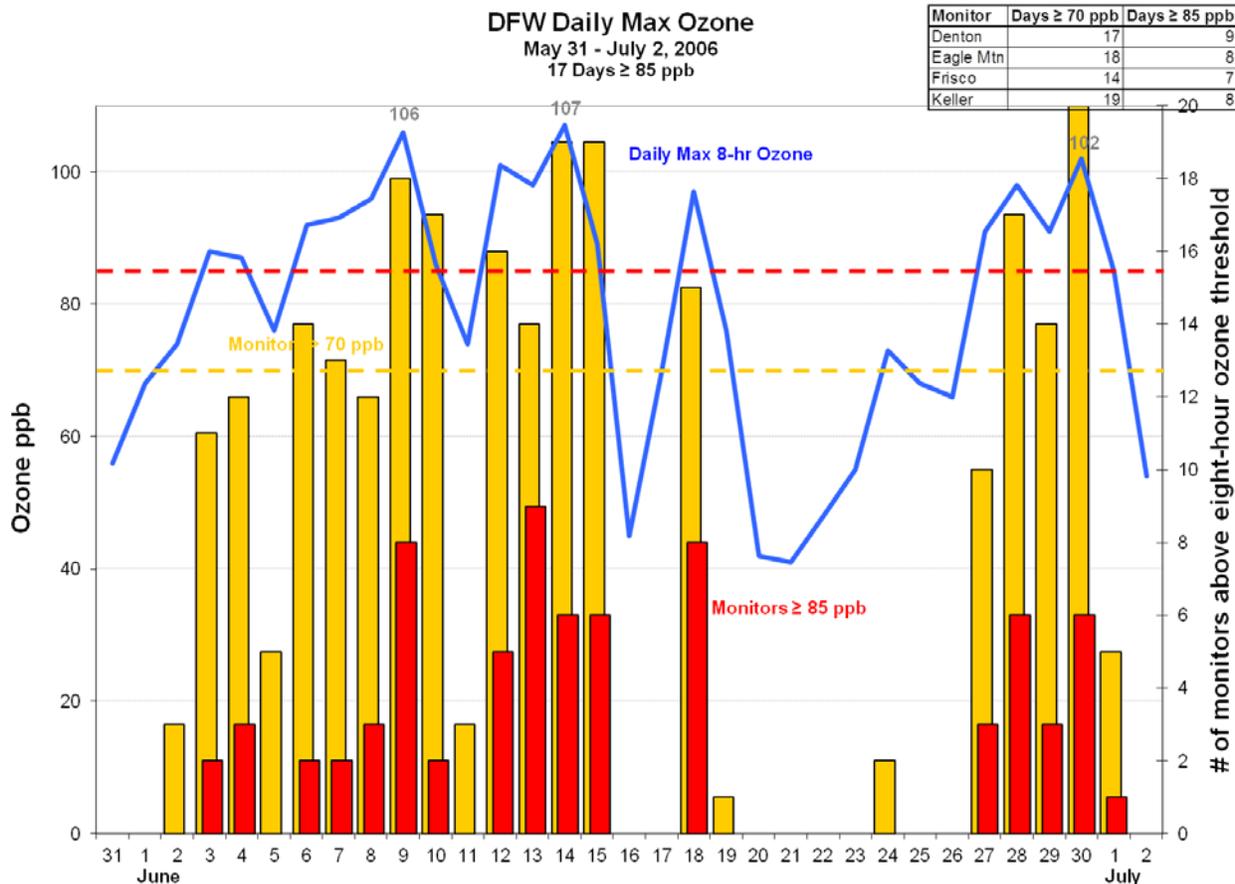


Figure 2: June 2006 Episode Monitored Ozone Exceedances

Public Citizen commented that the TCEQ is not taking temperature into account in the SIP.

The commission disagrees that temperature is not included in the DFW AD SIP revision as it is a necessary part of the modeling analysis. Meteorological modeling predicts temperature three dimensionally throughout the modeling domain for every hour of the episode. The predicted temperature is compared to observations, which is documented in Appendix A: *Meteorological Modeling for the DFW Attainment Demonstration SIP for the 1997 Eight-Hour Ozone Standard*. This temperature is passed to the photochemical model for use in chemical reactions. A temperature and humidity correction is applied to the heavy-duty diesel on-road mobile emissions (Section 3.2: *On-Road Mobile Source Emissions Processing of Appendix B*). Biogenic emissions are correlated to temperature. The biogenic emission model (GloBEIS3.1) incorporates measured temperature to estimate emissions (Section 5: *Biogenic Modeling Emissions of Appendix B*). Many other sources' emission rates are dependent on temperature, which is incorporated into their estimates and models.

The BSEEC commented that the 2012 VOC estimates used in photochemical modeling for the DFW AD SIP revision were overestimated and that the Barnett Shale Phase two special emission inventory contains the correct data.

The commission's basis and methodology for base and future case emissions development, which were based on the best information available at the time the modeling was developed, were briefed and offered for peer review through the DFW Photochemical Modeling Technical Committee (PMTTC) and the NTCASC. The Barnett Shale Phase Two emission inventory is expected to be an additional source of equipment counts and emissions data for the oil and gas production category. Unfortunately, Barnett Shale Phase Two data were still being collected and undergoing quality assurance review, so they were not available in time to process for photochemical modeling.

While preliminary VOC totals developed from the Barnett Shale Phase Two oil and gas production inventory indicate that the 2012 ozone season day emission totals may be less than the estimates used for SIP modeling, previous modeling sensitivities have shown that reducing 2012 VOC oil and gas production emissions would not increase ozone concentrations. Thus, the final prediction of attainment in 2012 would remain the same. The commission has made no changes in response to this comment.

COPPs, KIDS, and three individuals commented that truck trips involved in oil and natural gas production and emissions from evaporation sprayers and flowback pits may not be accounted for in the commission's modeling.

The on-road emission inventories developed for both the 2006 base case and the 2012 future case satisfactorily address the heavy-duty truck activity that occurs within the DFW area as a whole. TxDOT regularly collects roadside classification data, which are used to allocate total miles traveled estimates to individual vehicle categories for passenger fleet, heavy-duty trucks, buses, etc. This process is more commonly referred to as vehicle miles traveled (VMT) mix development. Sufficient data are available to have VMT mix vary by time-of-day, day-of-week, roadway type, and geographically throughout the DFW area. However, sufficient data are not available to track heavy-duty truck activity by fleet owner and/or specific industry. Obtaining high-quality micro-scale data is challenging and could require the use of global positioning system devices reporting in real time to a central electronic data repository. While such an approach may be technically feasible, it would be very expensive to, and the commission does not have the legal authority to require trucks to be equipped with such devices for real-time reporting to governmental agencies. The VMT mix development process itself is more fully addressed within the NCTCOG reports and data sets that are available on these FTP sites for 2006 (ftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/DFW/m62/2006/) and 2012 (ftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/DFW/m62/2012/). The reports are also available in PDF format.

Emissions from well completions, which include flow back after hydraulic fracturing, were included in the oil and gas production inventory (Section 4.1: *Texas Oil and Gas Production Emission Inventory Development* of Appendix B. The emissions from evaporation sprayers were not included in the oil and gas production inventory as the commission did not have data on their use. The

commission is always improving its emission estimates and will consider this as a potential source of emissions in future efforts.

The EPA requested that the commission confirm that emissions increases from recent revisions to §117.403 and §117.2110 have been captured in the attainment modeling.

The commission accounted for the NO_x emissions increases associated with revised §117.403 (Rule Project Number 2009-023-117-EN) in the March 10, 2010, DFW RACT Update, 30 TAC Chapter 117 Rule Revision Noninterference Demonstration, and Modified Failure-to-Attain Contingency Plan SIP Revision (SIP Project Number 2009-021-SIP-NR). The commission estimated revisions to §117.403 may result in the loss of up to 0.1 tpd of NO_x emission reductions previously included as part of the control strategy in the 2007 DFW 1997 Eight-Hour Ozone AD SIP Revision. The commission replaced these NO_x emissions with a 0.1 tpd NO_x allotment from surplus vehicle fleet turnover emission reductions predicted to occur in the one-year period beginning June 15, 2009.

The commission has not captured the anticipated 0.02 tpd NO_x emission increase from the revisions to §117.2110 adopted April 20, 2011 (Rule Project 2009-023-117-EN). The rule change was limited to a narrow category of stationary gas-fired engines with NO_x controls that were not relied upon in the 2007 DFW 1997 Eight-Hour Ozone AD SIP Revision. Emissions from lean-burn engines fired on biogas will be accounted for in future SIP revisions.

The EPA commented that the use of the Kv-200 patch may be making the model more sensitive to low-level NO_x emissions.

The Kv-200 patch was used to enhance vertical mixing near the surface (up to 200 meters above ground) by setting a minimum value for vertical diffusivities, depending on land use type. Over the rural areas that minimum was set equal to 0.1 m²/s while in urban areas it was 1.0 m²/s (more mixing). The only time the patch was applied was during night-time hours when the sun was not heating the surface of the Earth to induce vertical motion at the surface. If the patch was not applied, the model would overestimate NO_x concentrations in the urban area at night and in the early morning hours.

Figure 3: *Kv-100 Sensitivity* shows a time series during the episode of NO_x concentrations, comparing Dallas Hinton C401 NO_x observations with a model run not using a patch (green line) and one using a Kv-100 patch (blue line). Without a patch, the overnight NO_x concentrations are almost always overestimated. With a Kv-100 patch (minimum vertical diffusivities set through 100 meters above ground), the overnight concentrations represent the observations much better.

Figure 4: *Kv-200 Sensitivity* compares the Dallas Hinton C401 NO_x observations with model runs using the Kv-100 (green line) and Kv-200 (blue line) patches. Significant differences in hourly NO_x concentrations between the patched runs were not noticed, but eight-hour averaged overnight NO_x and ozone concentrations were slightly improved (not shown).

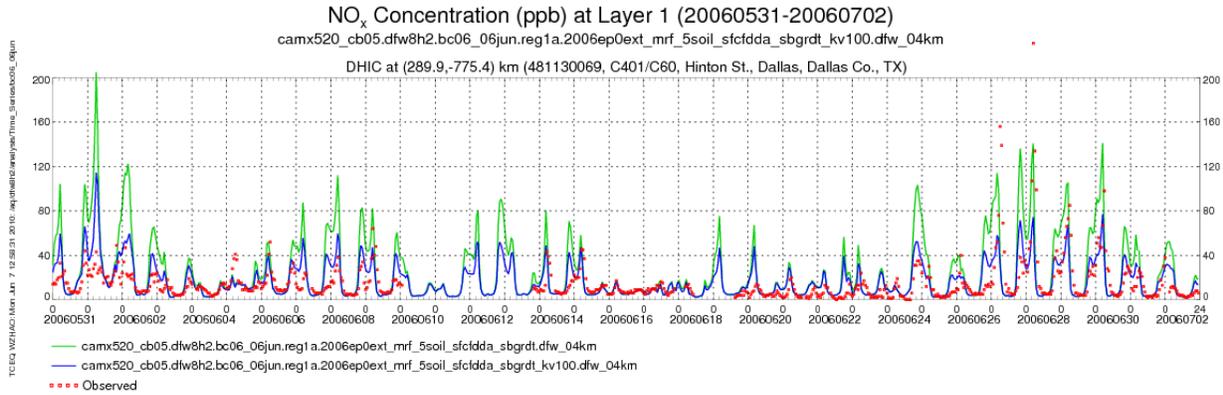


Figure 3: Kv-100 Sensitivity

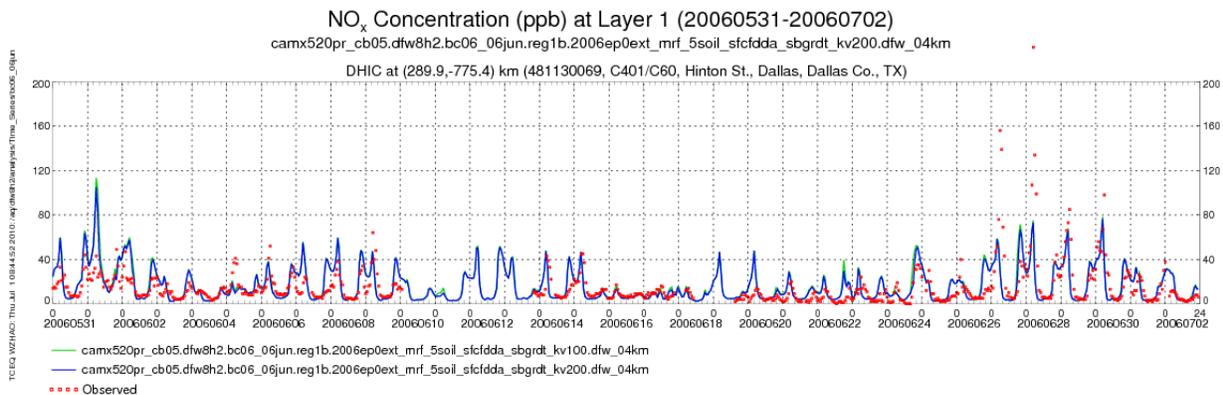


Figure 4: Kv-200 Sensitivity

During daylight hours the Kv-200 patch was not applied as the model's vertical diffusivities were greater than the defined minimums. Thus, the afternoon modeled ozone concentrations were not affected by the use of the patch. The use of the Kv patch improves the performance of modeling through vertical mixing of the nocturnal modeled atmosphere, not by changing the sensitivity of the photochemical model to NO_x concentrations.

As changes in vertical mixing can have significant impacts on the photochemical modeling results, the commission is continuing to dedicate resources to improving the model's vertical mixing. The commission funded Environ Corporation in 2011 to investigate improvements in vertical mixing to the photochemical model (CAMx) and its preprocessors³. Environ noted that the use of a Kv patch is beneficial or even essential to limiting ozone titration overnight in urban areas (the June 2006 DFW modeling episode was their test case). No changes were made based on this comment.

³ Environ, 2011. Improving the Representation of Vertical Mixing Processes in CAMx, Final Report to the Texas commission on Environmental Quality (TCEQ), Contract No. 582-11-10365-FY11-02, http://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/pm/5821110365FY1102-20110822-enviro-vertical_mixing_final_report.pdf, Environ International Corporation, Novato, CA.

The EPA stated that the future model responds too much to out-of-state emission changes and suggested modeling with CSAPR. The Sierra Club would like to see photochemical modeling address the EPA's new regulations.

The commission disagrees with this comment. DFW-area peak eight-hour ozone is highly correlated with regional background concentrations. Previous studies (Nielsen-Gammon et al. 2005; TCEQ DFW Conceptual Model, 2011) confirm that modeled DFW peak eight-hour ozone should be very sensitive to regional background ozone changes; the modeling would be incorrect if peak ozone were insensitive to background.

Regarding the accuracy of the non-Texas emissions inventories, which contribute to the modeled background, the commission uses the best available inventories at the time of modeling. For this effort non-Texas United States emissions were supplied by the EPA's Clean Air Interstate Rule (CAIR) Phase I allocations, the Central Regional Air Planning Association/Regional Planning Organization Revisions to the State Implementation Plan (SIP) Concerning Regional Haze, and specific states. The commission is always improving its emission estimates and would be interested in more representative data if it is available from the EPA or other sources.

CSAPR was released during the comment period so it was unavailable at the time of modeling and documentation for the proposal. The EPA suggests that modeling this rule will reduce the model's response to out-of-state emission changes, although CSAPR yields more emission reductions in 2012 than CAIR. Specifically, CSAPR reduces modeled Acid Rain Database NO_x emissions outside Texas by approximately 10% compared to the CAIR cap. In the three adjacent states of Louisiana, Arkansas and Oklahoma, modeled CSAPR ARD NO_x emissions total 24% less (Table 2: CSAPR versus CAIR ARD NO_x Emissions). Modeled Texas ARD sources are tabulated to receive an 18% reduction with CSAPR compared to CAIR.

Table 2: CSAPR versus CAIR ARD NO_x Emissions

Area	2012 CSAPR NO _x (tpd)	2012 CAIR NO _x (tpd)	Difference (tpd)	Difference (%)
DFW	11.00	18.95	-7.95	-41.97%
Texas	331.32	401.41	-70.09	-17.46%
Arkansas	97.60	71.51	26.09	36.49%
Louisiana	87.15	106.08	-18.93	-17.85%
Oklahoma	138.95	247.44	-108.49	-43.84%
Other States	3680.83	4109.11	-428.28	-10.42%

However, to address the EPA's comment, a 2012 modeling sensitivity was completed using CSAPR allocations for the entire country. Note that CSAPR allocations used for the modeling sensitivity were those published in the CSAPR final rule on August 8, 2011 (76 FR 48208). On October 6, 2011, the EPA signed proposed revisions to the CSAPR rule that would revise allowance allocations for several states, including Texas. Given the timing, it was not possible to complete a 2012 modeling sensitivity using those proposed, revised CSAPR allocations.

In general, ozone concentrations in the DFW area in 2012 with CSAPR were lower than with CAIR. Figure 5: June 29 Eight-Hour Ozone Max Difference Tile Plot Comparing CSAPR to CAIR below shows the difference of the maximum eight-hour ozone concentrations on June 29 with CSAPR versus CAIR allocations. The blue colors represent ozone reductions while yellow through red represent ozone increases due to CSAPR. Almost every grid cell had ozone reductions in the 4km DFW modeling domain and similar results occurred for all days during the June 2006 episode.

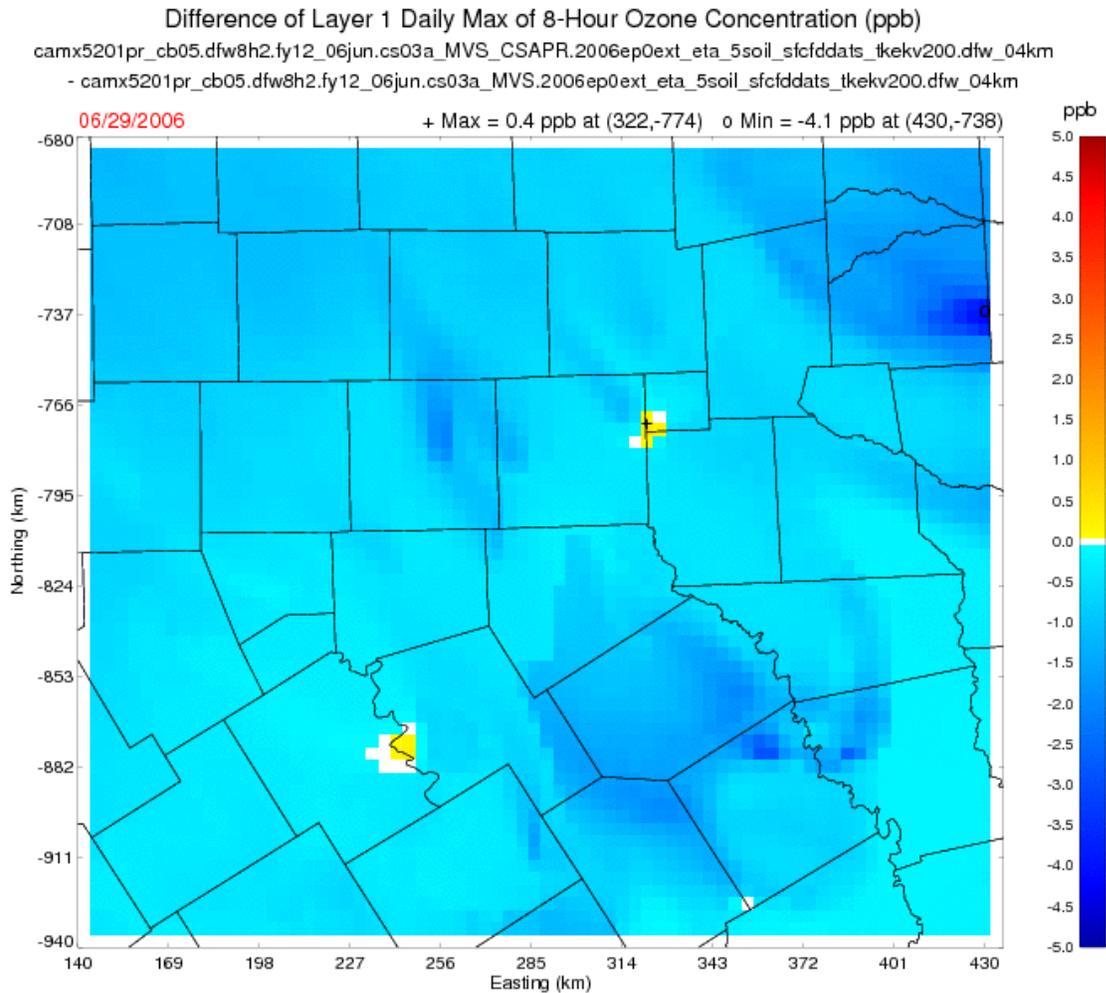


Figure 5: June 29 Eight-Hour Ozone Max Difference Tile Plot Comparing CSAPR to CAIR

The 2012 ozone design values were also reduced by modeling CSAPR instead of CAIR. Table 3: CSAPR versus CAIR 2012 Future Design Values shows that every monitor's DV_F was reduced by modeling CSAPR compared to CAIR.

Table 3: CSAPR versus CAIR 2012 Future Design Values

Monitor	2012 DVF w/ CAIR (ppb)	2012 DVF w/ CSAPR (ppb)	DVF Difference (ppb)
Denton C56	77.03	76.48	-0.55
Eagle Mountain Lake C75	78.06	77.12	-0.94
Keller C17	76.45	75.32	-1.13
Grapevine Fairway C70	76.17	75.55	-0.62
Fort Worth Northwest C13	75.36	74.29	-1.07
Frisco C31	74.45	73.82	-0.63
Weatherford Parker Co. C76	72.71	72.03	-0.68
Dallas North C63	71.15	70.55	-0.60
Dallas Exec Airport C402	70.58	69.80	-0.78
Cleburne C77	70.85	70.04	-0.81
Arlington C61	70.32	69.47	-0.85
Dallas Hinton C401	67.89	67.24	-0.65
Pilot Point C1032 [#]	67.35 [#]	66.73 [#]	-0.62 [#]
Midlothian Tower C94 [#]	66.63 [#]	65.92 [#]	-0.71 [#]
Rockwall Heath C69	63.27	62.74	-0.53
Midlothian OFW C52 [#]	62.24 [#]	61.57 [#]	-0.67 [#]
Kaufman C71	60.42	59.86	-0.56
Granbury C73*	69.66*	68.92*	-0.74*
Greenville C1006*	59.96*	59.23*	-0.73*

Pilot Point C1032, Midlothian Tower C94, and Midlothian OFW C52 did not measure enough data from 2004 through 2008 to calculate a complete baseline design value. A DV_B was calculated using all available data for the DV_Fs shown.

* Granbury C73 and Greenville C1006 are outside the 1997 eight-hour ozone standard DFW nonattainment area.

The results of the CSAPR sensitivity complement the commission’s modeling for the proposed DFW AD SIP revision. Both the SIP revision modeling and the EPA’s modeling for the CSAPR rule indicate the DFW area will attain the 1997 eight-hour ozone standard by June 2013.

The EPA commented that the minimum ozone threshold of 70 ppb may be too low for calculating the Relative Response Factors (RRFs) in the attainment test (future design value calculation). The EPA suggested that additional RRF calculation analyses be conducted by using a higher minimum threshold, choosing specific days, and/or expanding the grid cell array from 3x3 to 5x5 or 7x7 about the monitor.

The attainment test applied in the DFW AD SIP revision was based on the EPA’s recommended method from their guidance, which was documented in the modeling protocol supplied to the EPA. However, the calculation of RRFs using different methods may provide information about the sensitivity of the model.

Minimum Threshold Analysis:

The EPA’s guidance suggests calculating the RRF using at least 10 days when the baseline modeled peak eight-hour ozone concentration is 85 ppb or greater. Zero monitors during June 2006 episode observed 10 days at or above 85 ppb. If there are not 10 days above the 85 ppb threshold, the EPA’s modeling guidance suggests

lowering the threshold until 10 days are reached at the monitors. The minimum threshold in the proposed DFW AD SIP revision was dropped to 70 ppb so almost all DFW monitors would have 10 modeled days for the RRF calculation in accordance with the EPA's modeling guidance.

Table 4: *Minimum Threshold Analysis* exhibits the change in 2012 RRFs, future design values (DV_{FS}), and the number of applicable days using different minimum thresholds in the attainment test calculation (shown in parentheses in the table header). By raising the minimum threshold from 70 ppb, which was used in the proposed DFW AD SIP revision, the applicable days drop below the EPA-suggested 10 for many additional monitors. While the calculation then uses days that modeled higher baseline ozone concentrations, the calculation becomes less statistically robust. The maximum DV_F increases by one ppb to 79 ppb at Eagle Mountain Lake (EMTL) by raising the minimum threshold to 85 ppb, though only 6 days are included in the calculation. DV_{FS} at other sites, including Denton (DENT) decrease by raising the minimum threshold.

Table 4: Minimum Threshold Analysis

Site	2006 DV _B	RRF (70 ppb)	DV _F (70 ppb)	# Days (70 ppb)	RRF (75 ppb)	DV _F (75 ppb)	# Days (75 ppb)	RRF (80 ppb)	DV _F (80 ppb)	# Days (80 ppb)	RRF (85 ppb)	DV _F (85 ppb)	# Days (85 ppb)
DENT	93.33	0.825	77.03	10	0.825	77.03	10	0.825	77.03	10	0.809	75.55	6
EMTL	93.33	0.836	78.06	10	0.836	78.06	10	0.839	78.30	7	0.847	79.03	6
KELC	91.00	0.840	76.45	10	0.840	76.45	10	0.842	76.59	9	0.846	76.94	7
GRAP	90.67	0.840	76.17	10	0.840	76.17	10	0.840	76.17	10	0.832	75.46	7
FWMC	89.33	0.844	75.36	10	0.844	75.36	10	0.849	75.83	9	0.858	76.64	6
FRIC	87.67	0.849	74.45	10	0.849	74.45	10	0.841	73.70	7	0.805	70.57	2
WTFD	87.67	0.829	72.71	10	0.830	72.74	8	0.857	75.15	3	0.863	75.66	2
DALN	85.00	0.837	71.15	10	0.837	71.15	10	0.828	70.35	7	0.834	70.87	2
REDB	85.00	0.830	70.58	10	0.837	71.15	9	0.821	69.78	4	0.860	73.08	2
CLEB	85.00	0.834	70.85	9	0.842	71.57	7	0.858	72.90	3	0.879	74.69	2
ARLA	83.33	0.844	70.32	10	0.844	70.32	10	0.861	71.79	6	0.878	73.20	5
DHIC	81.67	0.831	67.89	10	0.831	67.89	10	0.843	68.87	5	0.901	73.57	1
PIPT [#]	81.00	0.831	67.35	10	0.830	67.25	9	0.823	66.66	8	0.812	65.78	4
MDLT [#]	80.50	0.828	66.63	10	0.828	66.68	8	0.876	70.55	3	0.841	67.68	1
RKWL	77.67	0.815	63.27	10	0.823	63.96	4	0.750	58.24	1	0.750	58.24	1
MDLO [#]	75.00	0.830	62.24	10	0.833	62.45	9	0.878	65.83	4	0.878	65.83	4
KAUF	74.67	0.809	60.42	7	0.786	58.69	2	0.765	57.10	1	0.765	57.10	1
GRAN*	83.00	0.839	69.66	10	0.851	70.63	6	0.870	72.19	4	0.881	73.14	2
GRVL*	75.00	0.799	59.96	9	0.794	59.58	3	0.741	55.56	1			0

[#] PIPT, MDLT, and MDLO did not measure enough data from 2004 through 2008 to calculate a complete DV_B. The DV_B was calculated using all available data for the RRFs and DV_Fs shown.

* Granbury C73 and Greenville C1006 are outside the 1997 eight-hour ozone standard DFW nonattainment area.

Daily RRF Analysis:

The EPA's guidance states to calculate the RRF by dividing the averaged future case concentrations by the averaged baseline concentrations over the same modeled days using the minimum threshold discussed above. An alternative calculation can be made by dividing the future by the baseline for each day and then averaging the resulting daily RRFs. Table 5: *June 2 through 14 Daily RRFs* and Table 6: *June 15 through July 1 Daily RRFs* below show the daily RRFs at each monitor throughout the episode (June 16 and 21 through 23 not shown or included in RRF calculation due to low observed ozone concentrations). Using the same days above 70 ppb as in the proposed DFW Attainment Demonstration SIP revision, the DV_{FS} are very similar.

In general, the highest daily RRFs occurred on low ozone days with strong winds and/or cloudy conditions. The highest mean daily RRFs occurred on June 17 and 18 (0.975 and 0.938 respectively), which featured a slow-moving front that the meteorological model had difficulty replicating.

June 15 (0.787), June 30 (0.775) and July 1 (0.771) had the lowest mean daily RRFs. June 15 was a high ozone day on the north side of the urban areas at six sites with south-southeast winds. June 30 was a high ozone day with Denton and Pilot Point measuring eight-hour exceedances over 100 ppb due to clear skies and slow south-southeast winds. On July 1 Denton was the only monitor to observe an exceedance at 85 ppb on a somewhat cloudy day with south to southeast winds. The photochemical modeling replicated June 15 and June 30 very well but over-predicted on July 1 due to the simulation of clear skies.

Table 5: June 2 through 14 Daily RRFs

Site	6/2	6/3	6/4	6/5	6/6	6/7	6/8	6/9	6/10	6/11	6/12	6/13	6/14
DENT	0.839	0.810	0.909	0.950	0.845	0.856	0.842	0.852	0.851	0.835	0.896	0.781	0.829
EMTL	0.839	0.825	0.900	0.949	0.827	0.850	0.842	0.878	0.834	0.858	0.893	0.819	0.841
KELC	0.837	0.838	0.905	0.934	0.846	0.869	0.875	0.874	0.840	0.854	0.896	0.816	0.840
GRAP	0.838	0.809	0.912	0.947	0.864	0.873	0.853	0.853	0.852	0.843	0.908	0.805	0.837
FWMC	0.821	0.846	0.904	0.935	0.850	0.886	0.875	0.887	0.837	0.858	0.898	0.833	0.839
FRIC	0.836	0.818	0.890	0.953	0.873	0.864	0.842	0.849	0.848	0.820	0.898	0.776	0.800
WTFD	0.838	0.834	0.906	0.906	0.867	0.847	0.841	0.862	0.818	0.857	0.885	0.839	0.843
DALN	0.850	0.814	0.900	0.962	0.864	0.874	0.850	0.862	0.851	0.825	0.898	0.812	0.826
REDB	0.857	0.812	0.898	0.929	0.851	0.893	0.853	0.859	0.839	0.829	0.887	0.834	0.808
CLEB	0.842	0.813	0.895	0.909	0.858	0.900	0.856	0.856	0.808	0.847	0.890	0.858	0.806
ARLA	0.848	0.839	0.906	0.920	0.865	0.892	0.869	0.860	0.831	0.848	0.893	0.844	0.811
DHIC	0.854	0.820	0.900	0.956	0.866	0.885	0.862	0.863	0.846	0.822	0.901	0.832	0.835
PIPT [#]	0.844	0.800	0.894	0.947	0.866	0.862	0.837	0.844	0.852	0.824	0.884	0.768	0.785
MDLT [#]	0.854	0.875	0.890	0.913	0.850	0.889	0.833	0.851	0.816	0.824	0.884	0.841	0.796
RKWL	0.851	0.815	0.879	0.930	0.819	0.863	0.836	0.835	0.846	0.829	0.887	0.783	0.790
MDLO [#]	0.853	0.854	0.891	0.913	0.850	0.884	0.839	0.854	0.815	0.835	0.886	0.841	0.800
KAUF	0.824	0.768	0.860	0.917	0.810	0.851	0.811	0.839	0.834	0.830	0.883	0.778	0.783
GRAN*	0.808	0.837	0.906	0.899	0.867	0.902	0.862	0.869	0.811	0.860	0.879	0.835	0.787
GRVL*	0.838	0.766	0.867	0.877	0.825	0.862	0.835	0.821	0.849	0.831	0.875	0.786	0.799
Mean	0.841	0.821	0.896	0.929	0.851	0.874	0.848	0.856	0.836	0.838	0.891	0.815	0.813

[#] PIPT, MDLT, and MDLO did not measure enough data from 2004 through 2008 to calculate a complete DV_B. A DV_B was calculated using all available data for the RRF and DV_F shown.

* Granbury C73 and Greenville C1006 are outside the 1997 eight-hour ozone standard DFW nonattainment area

Table 6: June 15 through July 1 Daily RRFs

Site	6/15	6/17	6/18	6/19	6/20	6/24	6/25	6/26	6/27	6/28	6/29	6/30	7/1	Mean RRF	DV _F
DENT	0.789	0.990	0.938	0.906	0.929	0.903	0.892	0.882	0.853	0.862	0.822	0.805	0.778	0.826	77.09
EMTL	0.804	0.978	0.950	0.932	0.954	0.884	0.901	0.900	0.913	0.851	0.798	0.787	0.794	0.835	77.93
KELC	0.787	0.989	0.963	0.952	0.936	0.896	0.868	0.869	0.887	0.867	0.825	0.805	0.780	0.839	76.32
GRAP	0.788	0.993	0.940	0.930	0.927	0.912	0.880	0.879	0.869	0.866	0.831	0.805	0.782	0.841	76.22
FWMC	0.790	0.999	0.968	0.961	0.951	0.917	0.863	0.882	0.913	0.868	0.812	0.785	0.793	0.841	75.15
FRIC	0.793	0.991	0.928	0.884	0.916	0.911	0.882	0.884	0.882	0.890	0.830	0.814	0.780	0.850	74.54
WTFD	0.813	0.972	0.905	0.920	0.894	0.894	0.900	0.884	0.840	0.860	0.797	0.762	0.777	0.827	72.53
DALN	0.787	1.002	0.949	0.920	0.919	0.926	0.869	0.899	0.928	0.882	0.835	0.797	0.768	0.837	71.17
REDB	0.793	0.982	0.938	0.914	0.905	0.923	0.866	0.903	0.922	0.837	0.803	0.764	0.763	0.830	70.52
CLEB	0.794	0.954	0.899	0.938	0.918	0.914	0.858	0.880	0.938	0.822	0.798	0.756	0.772	0.831	70.60
ARLA	0.783	0.952	0.962	0.938	0.913	0.918	0.872	0.900	0.897	0.846	0.807	0.784	0.770	0.842	70.19
DHIC	0.783	1.004	0.965	0.935	0.917	0.926	0.870	0.896	0.946	0.865	0.827	0.792	0.773	0.831	67.84
PIPT [#]	0.787	0.971	0.925	0.863	0.912	0.867	0.889	0.890	0.874	0.872	0.825	0.790	0.772	0.833	67.44
MDLT [#]	0.781	0.946	0.918	0.906	0.906	0.932	0.868	0.895	0.905	0.820	0.797	0.745	0.748	0.826	66.49
RKWL	0.779	0.980	0.943	0.863	0.911	0.918	0.867	0.881	0.873	0.837	0.821	0.757	0.750	0.815	63.30
MDLO [#]	0.780	0.945	0.979	0.882	0.906	0.921	0.865	0.897	0.904	0.834	0.803	0.754	0.766	0.827	62.03
KAUF	0.812	0.945	0.944	0.861	0.906	0.905	0.849	0.875	0.867	0.812	0.798	0.732	0.765	0.811	60.52
GRAN*	0.805	0.951	0.899	0.929	0.926	0.890	0.877	0.892	0.883	0.841	0.801	0.769	0.783	0.837	69.47
GRVL*	0.709	0.980	0.918	0.841	0.922	0.891	0.875	0.881	0.858	0.799	0.813	0.717	0.741	0.800	60.02
Mean	0.787	0.975	0.938	0.909	0.919	0.908	0.874	0.888	0.892	0.849	0.813	0.775	0.771	0.830	69.97

[#] PIPT, MDLT, and MDLO did not measure enough data from 2004 through 2008 to calculate a complete DV_B. A DV_B was calculated using all available data for the RRF and DV_F shown.

* Granbury C73 and Greenville C1006 are outside the 1997 eight-hour ozone standard DFW nonattainment area.

Grid Cell Array Size Analysis:

The grid cell array size is chosen as an area around a monitor to be spatially representative of that site. For the RRF calculation the maximum concentration in the grid cell array around a monitor from the baseline and future case modeling is used, which may not be at the cell where the monitor is located. The EPA guidance states that this method is beneficial for many reasons, including that the model may displace the peak around a monitor. For the proposed DFW Attainment Demonstration SIP revision a 3x3 grid cell array was chosen. As Figure 6: *Grid Cell Array Size around DFW Monitors* shows, a 5x5 or 7x7 grid cell array causes overlap among many DFW monitors. This contradicts the idea that the grid cell array should be representative of a specific monitoring site. Nevertheless, the RRFs and DV_{FS} for the 5x5 and 7x7 grid cell arrays are presented in Table 7: *RRFs and DV_{FS} using 3x3, 5x5, and 7x7 Grid Cell Arrays*. The maximum DV_{FS} are similar using the different grid cell arrays, although the maximum is predicted at Denton (DENT) using the 7x7 array rather than Eagle Mountain Lake (EMTL) with a 3x3 or 5x5 array.

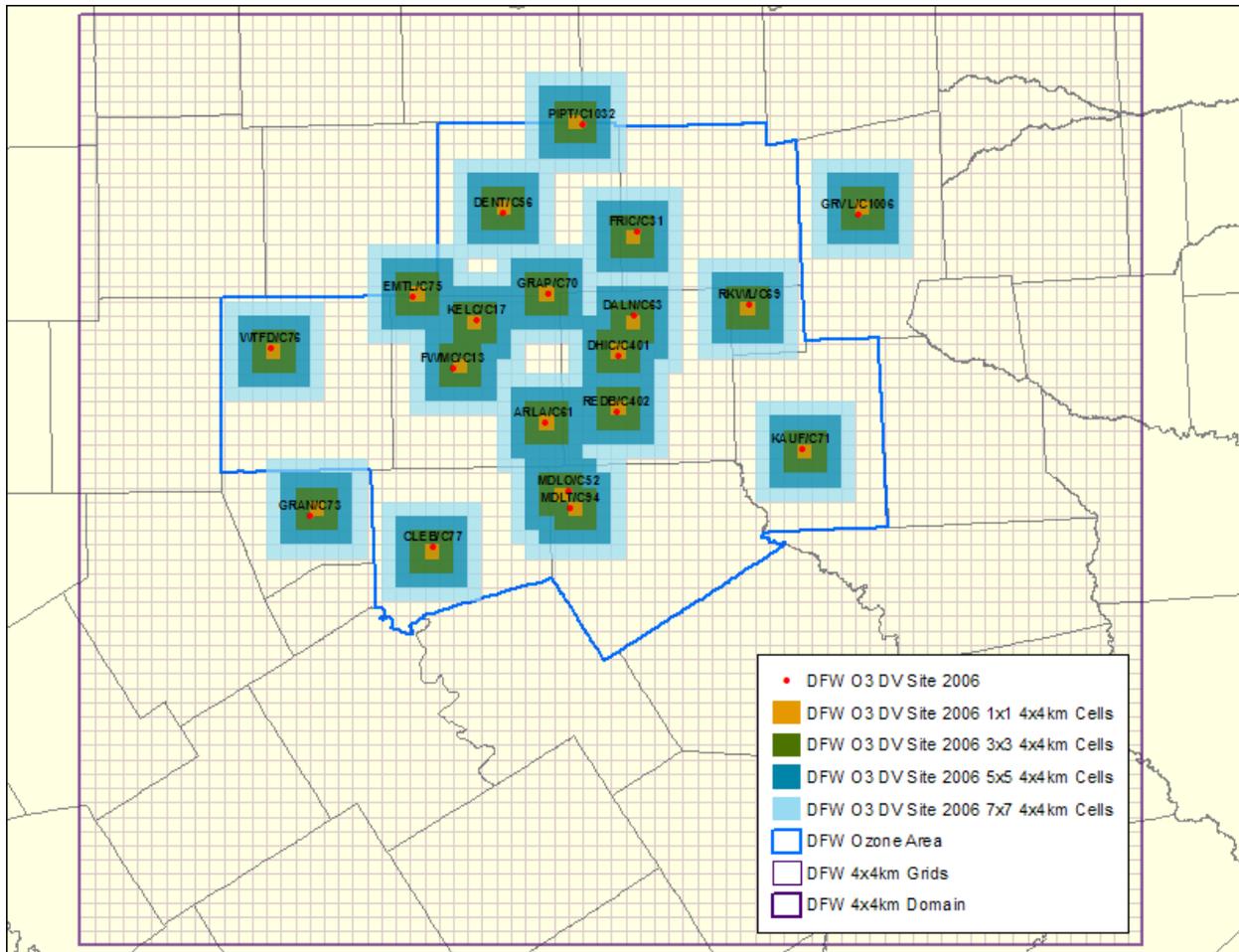


Figure 6: Grid Cell Array Size around DFW Monitors

Table 7: RRFs and DV_Fs using 3x3, 5x5, and 7x7 Grid Cell Arrays

Site	RRF (3x3)	DV _F (3x3)	RRF (5x5)	DV _F (5x5)	RRF (7x7)	DV _F (7x7)
Area Max	0.849	78.06	0.844	77.68	0.855	78.11
DENT	0.825	77.03	0.828	77.32	0.837	78.11
EMTL	0.836	78.06	0.832	77.68	0.835	77.97
KELC	0.840	76.45	0.840	76.46	0.841	76.52
GRAP	0.840	76.17	0.843	76.43	0.842	76.35
FWMC	0.844	75.36	0.843	75.33	0.844	75.42
FRIC	0.849	74.45	0.842	73.85	0.840	73.64
WTFD	0.829	72.71	0.830	72.77	0.833	73.05
DALN	0.837	71.15	0.840	71.39	0.839	71.33

Site	RRF (3x3)	DV _F (3x3)	RRF (5x5)	DV _F (5x5)	RRF (7x7)	DV _F (7x7)
REDB	0.830	70.58	0.834	70.90	0.835	70.95
CLEB	0.834	70.85	0.841	71.49	0.849	72.15
ARLA	0.844	70.32	0.844	70.33	0.855	71.23
DHIC	0.831	67.89	0.834	68.13	0.833	68.00
PIPT [#]	0.831	67.35	0.832	67.36	0.833	67.44
MDLT [#]	0.828	66.63	0.829	66.71	0.833	67.04
RKWL	0.815	63.27	0.815	63.34	0.819	63.61
MDLO [#]	0.830	62.24	0.833	62.48	0.841	63.05
KAUF	0.809	60.42	0.811	60.56	0.807	60.25
GRAN*	0.839	69.66	0.838	69.57	0.840	69.71
GRVL*	0.799	59.96	0.800	59.97	0.801	60.05

PIPT, MDLT, and MDLO did not measure enough data from 2004 through 2008 to calculate a complete DV_B. A DV_B was calculated using all available data for the RRFs and DV_Fs shown.

* Granbury C73 and Greenville C1006 are outside the 1997 eight-hour ozone standard DFW nonattainment area

Effects of Area Pollutants

One individual noted that reductions in NO_x are more efficient in controlling ozone formation than VOC. The individual also stated that the maximum incremental reactivity (MIR) rating of xylene made it a highly reactive VOC compared to methane and the xylene emissions from the General Motors facility and oil and gas production should be taken into account.

The commission agrees that reducing NO_x emissions in the DFW area is more effective in reducing ozone concentrations, especially for the monitors currently recording the highest ozone concentrations. The Process Analysis model results (Appendix C: Photochemical Modeling for the DFW Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard) and the Conceptual Model of Ozone Formation (Appendix D: Conceptual Model for the DFW Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard) show that NO_x-sensitive ozone formation is much greater than VOC-sensitive ozone formation in the DFW area. Controlling NO_x emissions is more likely to be effective at reducing ozone than controlling VOC emissions.

The commission also agrees that xylene is a more reactive compound than methane in terms of ozone forming potential. Xylene emissions from the General Motors facility and other sources are included in DFW AD modeling. The commission has made no changes in response to this comment.

An individual commented about a study of acrylonitrile emissions from oil and gas operations and expressed concern about that compound's possible impact on ozone formation.

The study the commenter cited was conducted in Colorado and New Mexico, not in the DFW area where there have been no acrylonitrile measurements made known to the commission. Thus, its concentrations in the DFW area are unknown. The

maximum incremental reactivity of acrylonitrile is estimated at 2.16 grams ozone per incremental gram of VOC, which places acrylonitrile between n-pentane and toluene in reactivity⁴. Compounds with reactivity as low as acrylonitrile are not considered highly reactive; therefore, acrylonitrile's impact upon ozone formation is relatively low, if it is present in the air. The commission has made no changes in response to this comment.

Availability of Data

COPPs, KIDS, and three individuals commented that data utilized in the modeling episode are not readily available for public review during the comment period and that data available from the TCEQ's Web site are not in a format readily accessible to the public.

The commission disagrees that the modeling data were not available for public review. The modeling files used in the Attainment Demonstration modeling are readily available on the commission's [DFW Eight-Hour Ozone SIP Modeling \(2006 Episode\) Web site](http://www.tceq.texas.gov/airquality/airmod/data/dfw8h2) (<http://www.tceq.texas.gov/airquality/airmod/data/dfw8h2>). The basis and methodology for base and future case emissions development and modeling were briefed and offered for peer review through the DFW PMTC.

The commission strives for transparency in its modeling process. The files presented on the referenced web site are photochemical modeling input and output. Details and summaries of the modeling input and performance were presented to the DFW PMTC and are available on the [DFW PMTC Web site](http://www.tceq.texas.gov/airquality/airmod/committee/pmtc_dfw.html) (http://www.tceq.texas.gov/airquality/airmod/committee/pmtc_dfw.html). Parties interested in additional information are encouraged to contact commission staff with specific requests. The DFW Eight-Hour Ozone SIP Modeling (2006 Episode) Web site also directs interested parties to an email address (amda@tceq.texas.gov) for questions regarding the DFW modeling. The commission will continue to strive to be as transparent as possible in its modeling process and is always available to respond to requests for additional information and clarification.

COPPs, KIDS, and three individuals stated that previous SIP revisions allowed the public to review emissions inventory input data, but this SIP revision did not. The commenters further stated that the TCEQ only provided the public with summary information.

Development of air quality state implementation plans is a complicated, detailed process. In order to provide information that is meaningful to all concerned parties (e.g., the general public, the EPA, regional partners, etc.), the commission provides summary information with appendices and references to other underlying data where appropriate. Modeling files used for this SIP revision are available on the [DFW Eight-Hour Ozone SIP Modeling \(2006 Episode\) Web page](http://www.tceq.texas.gov/airquality/airmod/data/dfw8h2) (<http://www.tceq.texas.gov/airquality/airmod/data/dfw8h2>). Detailed emissions inventory data used for DFW attainment demonstration SIP development are

⁴ Carter, 2009. Updated Maximum Incremental Reactivity Scale and Hydrocarbon Bin Reactivities for Regulatory Applications, Prepared for California Air Resources Board Contract 07-339, University of California, Riverside.

available upon request, and source data are referenced (with links provided when available) throughout the DFW attainment demonstration SIP revision and associated appendices. No change was made in the attainment demonstration SIP revision as a result of this comment.

Motor Vehicle Emission Simulator (MOVES)

The EPA supported the commission's efforts in developing MOVES-based on-road mobile source emissions for the DFW AD SIP revision. The EPA also suggested the commission update the DFW AD SIP revision with MOVES2010a-based emissions to establish an MVEB for the DFW area.

The commission appreciates the EPA's acknowledgement of the effort to develop and incorporate MOVES-based on-road emissions into DFW SIP modeling. The SIP is expected to be the first in the country to include MOVES results.

The commission updated the attainment demonstration SIP revision with on-road mobile source emissions inventories based on MOVES2010a both within the DFW area and for the remaining portions of the modeling domain. It is not only the EPA's requirement but also common practice in SIP inventory development to use the latest models and technical information available at the time the work needs to be done. The on-road sensitivity analysis presented in Chapter 3 of the proposal was based on MOVES2010, which was the first official version of the model released on March 2, 2010. The on-road analyses presented in the supplement to the DFW AD SIP revision that was released on July 8, 2011⁵, were based on MOVES2010a, which is the most current version of the EPA's on-road model. The commission's on-road file transfer protocol (FTP) site contains numerous MOVES2010a data sets for the DFW area (ftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/DFW/mvs/), the remaining portions of Texas (ftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/Statewide/mvs/), and the non-Texas portions of the modeling domain (ftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/USA/mvs/).

Emissions Inventory

VOC emissions from oil and gas sites

The BSEEC and the TPA commented that the Barnett Shale Area Special Inventory data are more accurate and should be used, and that the use of best management practices was not considered during inventory development. The BSEEC also commented that VOC emissions from pneumatic devices were overestimated because they were based on information that was not representative of the devices and gas composition in the Barnett Shale.

The emissions inventories used in this SIP revision were based on the best available information at the time of inventory development and reflect years of continuous emissions data improvement. Emissions inventory improvement research and related efforts are ongoing. Results from both phases of the Barnett Shale Area Special Inventory, which include the follow-up DFW Pneumatics

⁵ *On-Road Emissions Supplement to the Proposed Dallas-Fort Worth Attainment Demonstration State Implementation Plan Revision for the 1997 Eight-Hour Ozone Standard Nonattainment Area*

Survey, were under review at the time of inventory development and therefore were not available for inclusion in this SIP revision. The commission is reviewing the incorporation of more recent data, including these efforts, into future SIP revisions. This information will assist in evaluating current inventory data, improving area-specific emission rates, and assessing the effects of best management practices and other controls. The commission has made no changes in response to these comments.

Emissions from Crude Oil and Condensate Tanks

The BSEEC and the TPA commented that the TCEQ overestimated the amount of VOC emitted from condensate storage tanks in the DFW area by using the Houston Area Research Council (HARC) 51C factors to estimate emissions from storage tanks.

The BSEEC provided a general critique of the HARC 51C study and an Environ memorandum that provided a review of the HARC study based on statistical analysis as appendices to their comments. The BSEEC also commented that the emissions from condensate tanks may misrepresent lease level emissions because the RRC allocates condensate recovered by salt water injection operators back to the lease.

The area source condensate and crude oil storage tank emissions inventories are compiled on a county-level basis using the HARC 51C emissions factors for crude oil and condensate in conjunction with RRC county production data. The commission appreciates the statistical analysis of the HARC 51C study; however, operating pressures for numerous area source separators are not available on the county level to develop area source inventories. While lease-level RRC condensate production data might not be accurate due to saltwater disposal sites allocating recovered condensate to multiple lease owners/operators, overall production data at the county level would not be significantly affected by these allocations. The commission has made no changes in response to these comments.

Emissions from Well Completions

An individual asked if well completion emissions are being considered.

Well completions are considered in the commission's estimates of emissions from oil and gas activity and are included in this SIP revision.

Emissions Inventory Development

An individual commented that the public living in and around the leases should estimate the emissions from the leases.

The federal Air Emissions Reporting Requirements (AERR) require the commission to submit an annual point source emissions inventory to the EPA. 30 TAC §101.10 requires all sites meeting the rule's applicability thresholds, including major point sources, to submit an annual emissions inventory to the commission. Emissions inventories are reviewed for completeness and accuracy. The AERR also require the commission to develop and submit a periodic emissions inventory for all nonpoint (area) sources, including oil and gas sources. The commission develops the oil and gas area source emissions inventory based on production data reported to the RRC and the best available emissions factor information.

VOC Emissions from Fort Worth Oil and Gas Activity

An individual commented that VOC emissions from oil and gas activities are underreported. The individual cited results from the City of Fort Worth study.

For this SIP revision, VOC emissions estimates for Tarrant County oil and gas activities were greater than emissions estimated in the City of Fort Worth Air Quality study.

The BSEEC commented that the City of Fort Worth study verified the low VOC emissions numbers from the Barnett Shale Special Inventory.

The City of Fort Worth Air Quality Study estimated short-term emissions from sites within Fort Worth city limits. The study developed a 2010 inventory for oil and gas activities within the City of Fort Worth by extrapolating these estimated short-term data into annual emissions. The Barnett Shale special inventory requested 2009 annual emissions from all sites producing from the Barnett Shale formation within a 23-county area. Since the scope of the two inventories differs, comparisons between the two inventories will require additional analyses for possible inclusion in future inventory development.

Growth in Natural Gas Activity

An individual commented that the natural gas industry could grow substantially in the Barnett Shale area.

The commission uses the most currently available emissions inventory information and the EPA-approved models and growth factors to estimate growth of emissions to 2011 and 2012. Future growth estimates beyond these years is outside the scope of this SIP revision.

Hazardous Air Pollutant (HAP) Emissions Estimates

The BSEEC commented that the commission overestimated statewide hazardous air pollutant (HAP) emissions since these emissions were based on HARC 51C VOC emissions estimates and there was a possible error on the speciated HAP content of vapor emitted during condensate loading.

The commission estimated total VOC emissions for the DFW SIP revisions using the best available information. HAP emissions are outside the scope of the SIP revisions. The commission appreciates the information concerning the 2010 ERG report and will note the error in the report. The emissions of total VOC for the DFW SIP were not based on this and were not affected. The commission has made no changes in response to these comments.

Permitting

An individual commented that the commission should strictly control and enforce emissions from existing coal plants and issue no more permits.

The commission appreciates the concerns regarding emissions from coal plants; however, this comment is beyond the scope of the current SIP revision. The commission also notes that the TCAA, Chapter 382 of the Texas Health & Safety

Code, specifies the statutory requirements for obtaining both preconstruction and operating permits. The commission has adopted rules that implement these statutory requirements. If an applicant meets the statutory and regulatory requirements for a preconstruction or operating permit, the commission is obligated to issue the permit under the TCAA. The commission has made no change in response to this comment.

Fort Worth Regional Concerned Citizens commented that part of the state limit of VOC emissions are in excess because the PBR allows industry to have so many VOC. The commenter further stated that the PBR should be stronger.

An individual commented that during the summer, most of the town of Pantego, Texas is downwind from two facilities that are permitted by rule. The individual continued to state that the Dalworthington Gardens gas well complex and the Midstream Pipeline Compression Station can both dump tons of VOC and NO_x into the air every year, which surrounds a residential area.

The commission initiated a PBR study which uses current science and technology in developing new PBRs and standard permits (SP). Two primary goals of the PBR study are to verify that all general authorizations of the commission, such as PBRs and SPs, are protective of public health and welfare and to recommend rule changes to ensure or improve their continued protectiveness. To achieve these goals, the commission conducted an impacts evaluation to verify that individual PBR and SP claims will not adversely impact public health and welfare. The Oil and Gas Sites PBR and SP were developed as a result of the PBR study. Recent improvements in science and technology result in a better understanding of emissions of oil and gas production operations, and their potential on public health and the environment. These authorizations provide an updated, comprehensive, and protective authorization for many common oil and gas sites in Texas. The PBR and SP were developed considering current emission capture and control equipment and included specifications and limitations for typical equipment (facilities) during normal production operations as well as planned maintenance, startups and shutdowns. The air quality impacts analysis considered numerous variables including emission source types, emission parameters, building wake effects (downwash), meteorological data, receptor grids, and appropriate modeling techniques. As a result the commission adopted new Oil and Gas Sites PBR and SP requirements for the Barnett Shale area, effect February 27, 2011.

The EPA commented that all nine counties in the serious ozone nonattainment area must meet the requirements specified under FCAA, § 182(c). The EPA questioned whether the commission had implemented all requirements for Parker, Johnson, Ellis, Kaufman and Rockwall Counties, specifically, the § 182(c)(6) de minimis rule, § 182(c)(7 and 8) special rules for source modifications, and the § 182(c)(10) increased offset ratio requirements.

Parker, Johnson, Ellis, Kaufman and Rockwall Counties are part of the DFW nonattainment area, which is now classified as “serious” for the 1997 ozone standard. The requirements that apply to major sources and major modifications in nonattainment areas apply in these counties. The requirements of §§ 182(c)(6), (7), (8) and (10) are documented in the definitions of major stationary source and

major modification located at 30 TAC § 116.12(17) and (18), and are further supplemented by the requirements of 30 TAC Chapter 116, as applicable.

COMPLIANCE AND ENFORCEMENT

Enforcement

An individual commented that more regulations and enforcement on emissions controls are needed. Another individual commented that more oil and gas enforcement is needed.

Since August of 2009, the commission has processed 36 Notices of Violation and eighteen enforcement orders against oil and gas operations in the Barnett Shale. The commission vigorously pursues enforcement against any person or business that is in non-compliance and whose violations meet the criteria for referral to enforcement as laid out in the commission's Enforcement Initiation Criteria. All penalties assessed are done so in accordance with the commission's Penalty Policy.

An individual was concerned that some oil and gas companies falsified documents on gas releases and exposure levels.

If there is evidence that documents were falsified, the case would be referred to the Special Investigations Unit for further investigation and possible prosecution in district court. This type of investigation is separate from the administrative enforcement that occurs in the commission's Enforcement Division.

An individual commented that on April 11, 2011, there was a major gas release from the Fulton site, asking whether Chesapeake Energy was underreporting emissions data to the Railroad Commission of Texas for the amount of gas released, and how the public could ever really know what is actually being released. The individual further commented that they thought it was a crime to falsify documents and that government agencies needed to be especially diligent to ensure that citizens are safe in their own homes. The individual also noted that her entire house filled up with the gas, which felt heavy and was very filthy-smelling, although she has been told that the gas is light and dissipates.

The commission appreciates the concerns raised by the commenter. The commission urges the commenter to contact the Railroad Commission of Texas directly to raise these concerns and obtain specific information relating to the report submitted by Chesapeake Energy to the Railroad Commission. The commission has no information regarding this report.

Monitoring

COPPs, the EPA, KIDS, and three individuals commented that the proposed attainment demonstration SIP revision did not provide final 2010 ozone monitoring data for the discussion of ambient trends of ozone concentrations in Chapter 5. COPPs, KIDS, and three individuals stated that the TCEQ was aware that 2010 monitoring data violated the 1997 eight-hour ozone standard but intentionally withheld those data from the proposal. The EPA advised updating the discussion of ozone design value monitors in Chapter to include 2010 monitoring data.

At the time the ambient trends were being developed for the proposed DFW attainment demonstration SIP revision, the certified 2010 data were not available. Based on the complete 2010 dataset, the fourth highest eight-hour ozone

concentration at the Keller C17 monitor was 85 ppb and the 2010 DFW design value was 86 ppb. The ambient trend data in Chapter 5 of the attainment demonstration were updated with 2010 ozone data as a result of these comments.

An individual questioned why Texas does not provide daily pollution forecasts for VOC, NO_x, and benzene.

The commission provides air pollution forecasts for citizens on the [Today's Texas Air Quality Forecast Web page](http://www.tceq.texas.gov/airquality/monops/forecast_today.html) (http://www.tceq.texas.gov/airquality/monops/forecast_today.html) which includes the latest forecast for ozone, particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers, and particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers in the largest Texas metropolitan areas based on the EPA's Air Quality Index. There is no federal standard for VOC or for benzene, and neither is included in the EPA's Air Quality Index. In addition, there is no federal standard for NO_x. There is a federal standard for nitrogen dioxide (NO₂); however, there are currently no nonattainment areas for NO_x in Texas.

Two individuals commented that the TCEQ should screen for carbon disulfide. One individual requested mobile monitoring for carbon disulfide.

The commission has monitored for carbon disulfide on two monitoring trips in the Barnett Shale area. Samples collected during the October 9 - 16, 2009 trip were analyzed for carbon disulfide and three of the 65 samples exceeded the short term AMCV of 10 ppb by volume.

Monitoring for carbon disulfide was conducted during November 16 - 20, 2009. There were 125 ambient air samples analyzed and no carbon disulfide was measured exceeding the short-term AMCV.

The link to access the data is as follows:

http://www.tceq.state.tx.us/assets/public/implementation/barnett_shale/2010.01.27-BarnettShaleMonitoringReport.pdf

The EPA has not established a regulatory level for carbon disulfide. The AMCV for carbon disulfide are very conservative and the commission would not expect adverse health effects to occur from exposure to any of the monitored levels of carbon disulfide seen in the Barnett Shale area.

An individual commented on TCEQ screening for formaldehyde and acrylonitrile.

Because acrylonitrile is not on the EPA's list of "Target Volatile Organic Compounds" as specified in the *Technical Assistance Document for Sampling and Analysis of Ozone Precursors* (EPA/600-R-98/161, September 1998) and not reported as an issue in the EPA's latest National-Scale Air Toxics Assessment, the commission has not sampled for or developed a sampling method for this compound. The technical assistance document mentioned above is the basis for much of the VOC sampling conducted in Texas.

The commission has conducted two carbonyl monitoring trips to the Barnett Shale area where formaldehyde was monitored (June 15 through 18, 2010, and November 6 through 10, 2010). No formaldehyde concentrations were detected above the short-term AMCVs.

The link to access the formaldehyde data is as follows:

Dish Project

(http://www.tceq.state.tx.us/assets/public/implementation/barnett_shale/healthEffects/2010.12.13-CarbonylSurveyProject%20.pdf)

Region 4 Carbonyl Project

(http://www.tceq.state.tx.us/assets/public/implementation/barnett_shale/healthEffects/2011.02.24-CarbonylMonitoringProject.pdf)

Formaldehyde monitoring is also routinely conducted at two Photochemical Assessment Monitoring System (PAMS) stationary sites, Fort Worth Northwest and Dallas Hinton, in the DFW area. For the previous 12 months, none of the validated data exceeded the short-term or long-term AMCVs for formaldehyde.

An individual commented the TCEQ should test the degree of air contamination by mercury, lead, carbon dioxide (CO₂), NO_x, and carbon monoxide (CO).

The commission monitors for lead, NO_x, and CO as required by federal law. There are no federal or state requirements or ambient regulatory standards for atmospheric mercury or CO₂ at present.

Field Investigations

Fort Worth Regional Concerned Citizens commented that it took too long to get an investigation report.

The commission appreciates the concerns raised by the commenter; however, comments concerning TCEQ investigation complaints are beyond the scope of this AD SIP revision. The investigation report referenced by the commenter (Report No. 826528 and Incident No. 140501) was delayed due to the large volume of Barnett Shale related investigations that were conducted prior to the formation of the Barnett Shale Team. No violations or issues were noted during this investigation.

Fort Worth Regional Concerned Citizens expressed concerns regarding complaints of nuisance odors and conditions from facilities that do venting and burning at night and on weekends. By the time the complaints are researched, the odors are gone and a true reading cannot be assessed.

An individual commented on gas facilities and the odors that are produced by the gas wells that have an adverse effect on human health, animal life, vegetation, and property.

These comments are beyond the scope of this AD SIP revision. The TCEQ field staff investigates odor complaints to determine if odors are impacting the

complainant's property at levels that meet the frequency, intensity, duration, and offensiveness to be considered nuisance odor conditions. During odor complaint investigations, attempts are made to locate and assess the odor first-hand. Although complaints related to issues with natural gas facilities are investigated within 12-hours of receipt, staff is not always able to document the alleged odors. In these instances, staff attempts to determine what type of activities were occurring at the time of the complaint and then determine whether that same activity is occurring at the time of the investigation.

Citizen-collected evidence, such as odor logs, may also be used for documenting alleged or potential nuisance conditions. Under the citizen-collected evidence program, individuals can provide information on possible violations of environmental law and the information can be used by the TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation.

The calculations provided by the regulated entities can include gas throughput and the composition of the natural gas stream which is obtained through a gas analysis. When staff requests calculations during investigations, staff is evaluating the assumptions made in the calculations to ensure they are reasonable.

An individual commented that the gas industry is allowed to pour out tons of emissions into the air that make the air smoggy. The individual also commented that the noise and fumes from the diesel trucks idling for 12 hours a day are a nuisance and make the air bad to breathe.

Concurrent with this SIP revision, the commission is adopting revisions to Chapter 115, Subchapter B, Division 1 (Rule Project Number 2010-025-115-EN) to implement RACT for VOC storage tanks. The rules require 95% control of flash emissions from crude oil and condensate storage tanks in the DFW area with the potential to emit at least 50 tpy of VOC. Implementation of the rule is expected to further reduce VOC emissions in the DFW nonattainment area. In addition, vehicle idling rules, under 30 TAC 114.510-114.517 for Locally Enforced Motor Vehicle Idling Limitations, are enforced by local authorities who have signed an agreement (MOU) with TCEQ. Tarrant County has signed an MOU and can therefore evaluate whether vehicles are idling excessively. Regardless of the cause, documented nuisance conditions will be addressed according to agency policy.

An individual commented that there were strong and pungent odors during high wind conditions along the Trinity River from the hydraulic fracturing operations.

The commission appreciates the concerns raised by the commenter; however, this comment is beyond the scope of this AD SIP revision. A complaint investigation was conducted on the same day the complaint was received for odors which were alleged to have occurred four days prior. During the investigation, no odors were detected and a potential source could not be located.