CHAPTER 4: REQUIRED CONTROL STRATEGY ELEMENTS

4.1 OVERVIEW OF EXISTING CONTROL STRATEGIES

Since the Dallas-Fort Worth (DFW) area was initially designated as nonattainment for ozone in 1991, the Texas Commission on Environmental Quality (TCEQ) has consistently taken steps to bring the area into attainment. The TCEQ and DFW area local governments have implemented numerous control measures to help improve DFW air quality. Emission reductions from federal measures have also helped the area. The control strategies implemented so far have significantly improved air quality in the DFW area. In the past 15 years, the area's one-hour ozone design value has decreased from 140 parts per billion (ppb) in 1990 to 125 ppb in 2005. The area's eight-hour ozone design value shows a similar trend, decreasing from 105 ppb in 1990 to 95 ppb in 2005. Ozone design values have decreased despite a steady increase in the area's population. Tables 4-1: *Existing Dallas-Fort Worth SIP NO_X Control Strategies*, and 4-2: *Existing Voluntary Mobile Emission Reduction Programs (VMEP) in the DFW SIP*, summarizes the state, local, and federal NO_X strategies currently in effect in the DFW area.

Table 4-1: Existing Dallas-Fort Worth SIP NO_X Control Strategies

Measure	tpd*	Description	Area(s) Affected	Start Date(s)
State Measures				
Point source controls	129.1	Reductions from industrial boilers. Reductions from utility boilers	4-county area	March 31, 2002 May 1, 2003-May 1, 2005
East and Central Texas Electric Generating Facility controls	375	Sets emission limits for boilers and turbines	East and Central Texas	May 1, 2003-May 1, 2005
East and Central Texas Cement Kiln Controls	10.6	Sets emission limits for cement kilns	East and Central Texas	May 1, 2003
Vehicle Inspection/ Maintenance	54.5	Yearly treadmill-type testing for pre-1996 vehicles and computer checks for 1996 and newer vehicles. ▪ Begin May 1, 2002 in 4 core counties ▪ Begin May 1, 2003 in 5 perimeter counties	9-county area	May 1, 2002 May 1, 2003
Texas Emission Reduction Plan (TERP)	22.2	Provides grant funds for heavy-duty diesel engine replacement/retrofit. Replaces construction restrictions and Tier 2/3 accelerated purchase.	9-county area	Jan 2002
Speed Limit Reduction	5.4	This rule reduces all posted speed limits of 65 and 70	9-county area	Sept 1, 2001

		mph by 5 mph.		
Cleaner Diesel	3.5	Requires all diesel for both on-road and non-road use to have a lower aromatic content and a higher cetane number	110 East Texas counties	January 31, 2006
Airport Ground Support Equipment	6.1	TCEQ agreements with American, Delta, Southwest, DFW International Airport, City of Dallas, and City of Fort Worth.	DFW area airports	Phased in through Dec 31, 2005
California Gasoline Engines	1.8	California standards for non-road large spark-ignition gasoline engines 25 hp and larger.	Statewide	Dec 31, 2004
Gas-Fired Water Heaters, Process Heaters and Small Boilers	0.5	Previously adopted statewide rule limiting NO_X emissions from these small-scale residential and industrial sources	Statewide	July 1, 2002 phased in through 2007
Lean-Burn Rich Burn Engines	1.87	Sets emission limits for gas-fired lean-burn engines Sets emission limits for gas-fired rich and lean-burn engine	4-county area 9-county area	March 31, 2002 June 15, 2007
Energy Efficiency	0.72	Implementation of International Residential Code and International Energy Conservation Code	Statewide	Jan. 1, 2002
Local Measures				
VMEP	3.9	Thirteen voluntary measures administered by the NCTCOG (see separate summary for details).	4-county area to 12-county area (vary by program)	Through 2007
Transportation Control Measures	4.7	Various transportation control measures.	4-county area	Through 2007

*NO_X reductions in tons per day (tpd) by 2007

Note:

- *"4-county area" or "core counties" refer to Collin, Dallas, Denton, and Tarrant counties.*
- *"9-county area" refers to the above counties plus Ellis, Johnson, Kaufman, Parker, and Rockwall counties. These are also known as the "five perimeter counties."*
- *"12-county area" refers to all the above counties plus Henderson, Hood, and Hunt counties.*

Table 4-2: Existing Voluntary Mobile Emission Reduction Programs (VMEP) in the DFW SIP

Measure	Description	NO_X Reduction (tpd)
Tier II Locomotive Engines	Only Tier II locomotive engines in the DFW area by 2005.	0 – 0.3
Non-Road Ozone Season Reductions	Survey work, public outreach and possibly some funding towards encouraging deferring emission causing activities until after 10 am during ozone season. Actual daily emission reductions are minimal so no credit is taken.	-
Sustainable Development	Program to favor sustainable development in each stage of the transportation planning, programming and construction process. Benefits are not quantified or claimed as of the most recent SIP revision.	-
Public Education Campaign/Ozone Season Fare Reduction	Public education campaign conducted by the North Texas Clean Air Coalition (NTCAC). Ozone action day announcements are made by NCTCOG throughout the region.	0.15
Alternative Fuel Program	NCTCOG provides up to 80% the incremental cost of an alternative fueled vehicle (AFV).	0.18
Employee Trip Reduction	Employers in the region with over 100 employees reduce employee commute vehicle trips through implementation of programs including vanpools, telecommuting, flexible work hours, transit pass subsidies, bicycling and other strategies.	0.53
Off-Road Heavy Duty Diesel Engine Retrofits	NCTCOG to survey and encourage the voluntary retrofit of diesel engines for non-road equipment in the 4-county region.	-
Vehicle Retirement Program/Vehicle Maintenance	Use of subsidies and direct acquisitions to remove high emission vehicles from the road.	0.77
Total		**1.63 – 1.93**

Despite the significant decreases in one-hour ozone design value and NO_X and VOC emissions in the DFW area, the increased stringency of the eight-hour ozone standard requires further reductions to bring the area into attainment of the eight-hour standard by 2009.

The VOC emissions in the DFW 9-county area come primarily from area sources and on-road mobile sources. The VOC emissions have decreased by about 62 percent in the past 14 years, mostly due to the continuing fleet turnover to cleaner vehicles. Point source VOC emissions have also been reduced in the four-county area due to rules in Chapter 115 implementing RACT (as detailed in Table 4-11). The ambient VOC concentrations in the DFW area have also decreased in the last nine years.

4.2 NO_X AND VOC CONTROL MEASURES

Table 4-3: DFW Modeled NO_x Reduction Estimates

August 17, 1999 Base Case Emissions Inventory	1999 Baseline Emissions (tpd)	2009 Future Year Base Inventory (tpd)	2009 Future Year Control Inventory (tpd)
Area sources	34	44	40
Non-road sources	148	107	100
Point Sources	134	59	35
On-road mobile sources	430	184	174
Biogenic sources	52	52	51
TOTALS	**747**	**447**	**400**

Table 4-4: Summary of Control Strategies NO_x Reduction Estimates for the DFW Attainments Demonstration

TCEQ-PROPOSED RULES	Estimated NO_x Reductions in 2009 (tpd)
DFW Industrial, Commercial, and Institutional Sources Rule	12.7
DFW Electric Generating Units Rule	2.0
DFW Minor Source Rule	4.5
Cement Kiln Rule	11.0
East Texas Combustion Source Rule	37[1]

[1]- This control strategy applies to 39 of the 61 counties within or traversed by the 200 km perimeter from DFW and the 2009 emissions reductions from the East Texas Combustion rule, as proposed, are estimated at approximately 37 tpd. The modeling control strategy sensitivity run (Combination 4), assumes the rule applies to all 61 counties within 200 km and reduces NO_X by 40.9 tpd.

DFW LOCAL INITIATIVES	Estimated NO_x Reductions in 2009 (tpd)
VMEP in 9 counties	2.63[2]
TCMs in 9 counties	0.26

[2]-The modeling control strategy sensitivity run (Combination 4) is based on NCTCOG's initial VMEP estimates and assumes VMEP will reduce NO_X emission by 16.3 tpd. NCTCOG's refined estimate is 2.63 tpd of NO_X reductions. The modeling control strategy sensitivity run will be corrected to reflect any updates prior to adoption of this SIP revision.

FEDERAL MEASURES	Estimated NO_x Reductions in 2009 (tpd)
On-Road Measures	217.52
Non-Road Measures	21.49

4.2.1 VOC Control Measures

In April 2005, the commission adopted the DFW Five Percent Increment of Progress (IOP) SIP in order to demonstrate progress towards attainment and transition from the previous one-hour ozone standard to the eight-hour ozone standard. The VOC rules for Stage I vapor recovery and for surface coating processes were extended to Ellis, Johnson, Kaufman, Parker, and Rockwall Counties at that time.

The remaining applicable VOC rules were adopted on November 15, 2006, to meet the RACT requirements. The VOC RACT rules subject VOC-emitting sources located in Ellis, Johnson,

Kaufman, Parker, and Rockwall Counties to the same control, monitoring, testing, recordkeeping, and reporting requirements that sources in the other four counties in the DFW nonattainment area are subject.

4.2.2 NO_X Control Measures

4.2.2.1 Major Source NO_X Reductions

Industrial, Commercial, and Institutional (ICI) Sources

Proposed new division 30 TAC Chapter 117, Subchapter B: Combustion Control at Major Industrial, Commercial, and Institutional Sources in Ozone Nonattainment Areas; Division 4: Dallas-Fort Worth Eight-Hour Ozone Nonattainment Area Major Sources (§§117.400-117.456), would require owners or operators of major sources of NO_X in the DFW area to reduce NO_X emissions by March 1, 2009. The proposed emission specifications for industrial, commercial, or institutional (ICI) boilers and gas turbines; duct burners used in turbine exhaust ducts; process heaters and furnaces; stationary internal combustion engines; metallurgical heat treating and reheat furnaces; and incinerators are consistent with current emission specifications effective in the HGB ozone nonattainment area.

New emission specifications are proposed for certain source categories in the DFW eight-hour ozone nonattainment area that currently have no known emission specifications established. These source categories, proposed to be newly regulated under Chapter 117, include brick and ceramic kilns; lime kilns; electric arc furnaces used in steel production; lead smelting blast (cupola) and reverberatory furnaces; glass melting furnaces; fiberglass and mineral wool fiber melting furnaces; fiberglass and wool fiber curing and forming ovens; natural gas-fired heaters, ovens, and dryers used in organic solvent, printing ink, ceramic tile, clay, and brick drying, and calcining and vitrifying.

Proposed new emission specifications vary by unit type and size. To achieve the proposed emission specifications, owners or operators of subject units may be required to maintain good engineering and combustion practices, install available NO_X controls, replace older units with those capable of complying with emission specifications, or utilize combinations of these compliance methodologies.

The proposed new NO_X emission specifications for gas-fired boilers are 0.020 pounds per million British thermal units of heat input (lb/MMBtu) for units with a maximum rated capacity greater than or equal to 100 million British thermal units per hour (MMBtu/hr), 0.030 lb/MMBtu for units with a capacity greater than or equal to 40 MMBtu/hr but less than 100 MMBtu/hr, and 0.036 MMBtu/hr (or alternately, 30 parts per million by volume (ppmv) at 3.0 percent oxygen (O_2) dry basis) for units with a capacity less than 40 MMBtu/hr. Proposed new NO_X emission specifications for liquid-fired boilers are 2.0 pounds per 1,000 gallons of liquid burned.

The proposed new NO_X emission specifications for process heaters are 0.025 lb/MMBtu for units with a maximum rated capacity greater than or equal to 40 MMBtu/hr, and 0.036 lb/MMBtu (or alternately, 30 ppmv at 3.0 percent O_2 dry basis) for units with a capacity less than 40 MMBtu/hr. The proposed new NO_X emission specification for gas-fired ovens and heaters, and organic solvent, printing ink, clay, brick, and ceramic tile, calcining, and vitrifying dryers is 0.036 lb/MMBtu.

Proposed new NO_X emission specifications for stationary gas turbines and duct burners used in turbine exhaust ducts are 0.032 lb/MMBtu for units rated at 10 megawatts (MW) or greater, 0.15 lb/MMBtu for units rated at greater than 1.0 MW but less than 10 MW, and 0.26 lb/MMBtu for units rated at less than 1.0 MW.

The proposed new NO_X emission specifications for metallurgical furnaces are 0.087 lb/MMBtu for heat treating furnaces, 0.10 lb/MMBtu for reheat furnaces, 0.30 pound per ton (lb/ton) of

product for electric arc furnaces, and 0.45 lb/ton of product for lead smelting blast (cupola) and reverberatory furnaces used in conjunction.

The proposed new NO_X emission specifications for incinerators are 0.030 lb/MMBtu or 80 percent reduction from their reported calendar year 2000 emission inventory. The proposed new emission specification for lime kilns is 3.1 lb/ton of calcium oxide produced. The proposed new NO_X emission specification for brick and ceramic kilns is 0.175 lb/ton of product.

The proposed new NO_X emission specifications for glass and fiberglass melting furnaces are 1.30 lb/ton of glass pulled for container glass melting furnaces, 1.45 lb/ton of product pulled for mineral wool-type electric fiberglass melting furnaces and mineral wool-type fiberglass regenerative furnaces. The proposed new NO_X emission specification for gas-fired curing and forming ovens used for the production of mineral wool-type or textile-type fiberglass is 0.036 lb/MMBtu.

In April 2005, the commission adopted the DFW Five Percent IOP SIP in order to demonstrate progress towards attainment and transition from the previous one-hour ozone standard to the eight-hour ozone standard. A portion of the Five Percent IOP was achieved through NO_X reductions from stationary gas-fired reciprocating internal combustion engines. Emission specifications were adopted in §117.206(b)(3) for stationary gas-fired engines rated 300 horsepower (hp) or greater at major sources of NO_X in the DFW eight-hour ozone nonattainment area. Lean burn engines are limited to 2.0 grams per horsepower-hour (g/hp-hr). Rich burn engines installed, modified, reconstructed, or relocated before January 1, 2000, are limited to 2.0 g/hp-hr. Rich burn engines installed, modified, reconstructed, or relocated on or after January 1, 2000, are limited to 0.50 g/hp-hr.

Compliance with these emission standards is determined based on the current monitoring, testing, reporting, and recordkeeping procedures for major sources in the DFW ozone nonattainment area. Initial compliance with the emission specifications is determined through stack testing using EPA test methods or EPA approved test methods. The compliance date for owners or operators to comply with the IOP emission specifications and other associated requirements, is June 15, 2007.

Under the proposed new emission specifications for stationary engines, owners or operators of lean burn and rich burn stationary internal combustion engines that are fired on landfill gas must comply with the proposed emission specification of 0.6 g/hp-hr. All other gas-fired and dual-fuel stationary internal combustion engines must limit their emissions to 0.50 g/hp-hr. In addition, the 300 hp exemption will no longer apply and engines less than 300 hp will be required to meet the same emission specifications.

Many existing diesel-fueled internal combustion engines may currently be operating within the proposed new emission specification of 11.0 g/hp-hr or have the capacity to do so. Proposed emission specifications for diesel engines placed into service on or after June 1, 2007, range from 2.8 to 5.0 g/hp-hr, depending on the year of installation and engine rating. Since the NO_X emission specifications are derived from the EPA Tier standards for diesel engines, owners or operators would be required either to purchase new manufactured units compliant with the proposed emission specifications or to retrofit a relocated existing engine. A stationary diesel engine operated less than 100 hours per year, based on rolling 12-month average, would be exempt if the engine was placed into service before June 1, 2007, and not modified, reconstructed, and relocated on or after June 1, 2007. Any new, modified, reconstructed, or relocated stationary diesel placed into service on or after June 1, 2007, that operates less than 100 hours per year, based on a rolling 12-month average, in other than emergency situations would also be exempt provided the engine meets the corresponding emission standards in 40 CFR §89.112(a), Table 1 (October 23, 1998), in effect at the time of installation, modification, reconstruction, or relocation. This requirement ensures that as older diesel engines are replaced, the engine will be replaced with newer and cleaner model engines.

An additional control requirement that applies to stationary diesel engines as well as stationary dual-fuel engines is the prohibition on starting or operating engines for testing or maintenance purposes between 6:00 a.m. and noon. This measure delays NO_X emissions from the engines primarily used as back-up engines until after noon to help limit ozone formation. Testing requiring a run over 18 consecutive hours recommended by the manufacturer, to verify reliability of emergency equipment immediately after unforeseen repairs, and firewater pumps for emergency response training from April 1 through October 31 would be exempt from this prohibition.

These proposed emission specifications for attainment demonstration are equivalent to or more stringent than any RACT requirement that might be applied to applicable source categories in the five new counties of the DFW eight-hour ozone nonattainment area. Therefore, a separate rulemaking expanding the existing RACT emission specifications in existing §117.205 to the five new counties is not necessary.

Compliance with these emission standards is determined based on monitoring, testing, reporting, and recordkeeping procedures consistent with the current requirements for ICI sources in the HGB ozone nonattainment area. A continuous emissions monitoring system (CEMS) or predictive emissions monitoring system (PEMS) for NO_X is required for units with a maximum rated capacity of 100 MMBtu/hr or greater, stationary gas turbines with a MW rating equal to or greater than 30 MW, units that use a chemical reagent to control NO_X, units that comply on a 30-day rolling average, and on any kiln subject to the proposed rule. For units not required to have NO_X CEMS or PEMS, initial compliance with the proposed emission specifications is determined through stack testing using EPA test methods or EPA approved test methods. In addition, similar to requirements for major sources in the HGB ozone nonattainment area, biennial (or within 15,000 hours of operation) testing and quarterly checks for NO_X and carbon monoxide (CO) are required. Carbon monoxide testing and monitoring procedures consistent with other ozone nonattainment areas are required. Ammonia monitoring using the same procedures required in the HGB ozone nonattainment area is required for units that use ammonia or urea injection for NO_X control.

Electric Generating Utility Sources

Proposed new 30 TAC Chapter 117 Subchapter C: Combustion Control at Major Utility Electric Generation Sources in Ozone Nonattainment Areas, Division 4: Dallas-Fort Worth Eight-Hour Ozone Nonattainment Area Utility Electric Generation Sources (§§117.1300-117.1356), establishes a unit-by-unit emission rate for compliance with the existing emission specifications for utility boilers, auxiliary steam boilers, stationary gas turbines, and duct burners used in turbine exhaust ducts and introduces a new efficiency, or output based, emission specification for utility boilers used in an electric power generating system owned or operated by a municipality or a public utility commission (PUC) regulated utility, or any of their successors, regardless of whether the successor is a municipality or is regulated by the PUC; or an electric cooperative, independent power producer, municipality, river authority, or public utility located within the DFW eight-hour ozone nonattainment area, with a March 1, 2009 compliance date.

The proposed new specifications for the regulation of NO_X emissions from electric generating units for the DFW eight-hour ozone attainment demonstration would retain the existing heat input based emission specifications, however, the proposal would remove the system-wide plant emission specifications or system cap method of compliance. Under the proposal, affected units would comply with the proposed emission specifications on a unit-by-unit basis. The proposed specifications would include a new efficiency, or output based (lb NO_X per megawatt-hour (lb/MW-hr)), compliance option. The proposed emission specification for utility boilers that are part of a small utility system is 0.06 lb/MMBtu heat input on a 24-hour rolling average basis from March through October and on a 30-day rolling average basis from November through February. Proposed emission specifications for utility boilers that are part of a large utility system are 0.033

lb/MMBtu heat input on a 24-hour rolling average basis from March through October, and on a 30-day rolling average basis from November through February; or 0.50 lb/MW-hr output on an annual average basis.

To satisfy RACT requirements for the five new counties, the existing RACT emission specifications from existing §117.105 that apply in the DFW ozone nonattainment area are proposed as emission specifications for attainment demonstration for the DFW eight-hour ozone nonattainment area. The proposed NO_X emission specifications for auxiliary steam boilers are 0.26 lb/MMBtu heat input on a 24-hour rolling average basis and 0.20 lb/MMBtu heat input on a 30-day rolling average basis while firing natural gas or a combination of natural gas and waste oil, 0.30 lb/MMBtu heat input on a 24-hour rolling average basis while firing fuel oil only, or the heat input weighted average of the applicable emission specifications on a 24-hour rolling average basis while firing a mixture of natural gas and fuel oil.

For stationary gas turbines with a MW rating greater than or equal to 30 MW and an annual electric output in MW-hr of greater than or equal to the product of 2,500 hours and the MW rating of the unit, proposed NO_X emission specifications are 42 ppmv while firing natural gas; and 65 ppmv while firing fuel oil used for peaking service with an annual electric output in MW-hr of less than the product of 2,500 hours and the MW rating of the unit NO_X emissions in excess of a one-hour block average of 0.20 lb/MMBtu heat input while firing natural gas; and 0.30 lb/MMBtu heat input while firing fuel oil.

For utility boilers or auxiliary steam boilers, CO limit of 400 ppmv (or alternatively, 0.30 lb/MMBtu heat input for gas-fired units and 0.31 lb/MMBtu heat input for oil-fired units) is being proposed, based on a one-hour average for units not equipped with a CEMS or PEMS for CO or a 24-hour rolling average for units equipped with CEMS or PEMS for CO and for any stationary gas turbine with a MW rating greater than or equal to 10 MW, CO emissions in excess of a one-hour block average of 132 ppmv. Proposed new ammonia limits, for units that inject urea or ammonia for NO_X control, are 10 ppmv for boilers and stationary gas turbines (including duct burners used in turbine exhaust ducts), based on a one-hour block average for units not equipped with a CEMS or PEMS for ammonia; or a 24-hour rolling average for units equipped with CEMS or PEMS for ammonia; and for all other units, 20 ppmv based on a one-hour block average.

Compliance with these proposed emission standards is determined based on monitoring, testing, reporting, and recordkeeping procedures consistent with the current requirements for utility electric generation sources in the DFW ozone nonattainment area. In addition, for sources for that owner or operator elects to use the output based emission standard of 0.50 lb/MW-hr, parameter monitoring of the gross energy production of the unit in megawatt-hours is proposed. Carbon monoxide testing and monitoring procedures consistent with other ozone nonattainment areas are required. Ammonia monitoring using the same procedures required in the HGB ozone nonattainment area is required for units that use ammonia or urea injection for NO_X control.

Cement Kilns

On April 15, 2005, a settlement agreement was entered into by the TCEQ and Blue Skies Alliance, et al. to resolve a lawsuit brought by the Blue Skies Alliance, et al., against the EPA. The settlement agreement required the TCEQ to conduct a study of technologies for controlling NO_X emissions from cement kilns, in consultation with the parties to the settlement. The report, entitled "Assessment of NO_X Emissions Reduction Strategies for Cement Kilns--Ellis County: Final Report," was submitted to the TCEQ on July 14, 2006, and is available on the commission's web site at *www.tceq.state.tx.us/implementation/air/sip/BSA_settle.html*.

The study evaluated the applicability, availability, and cost effectiveness of potential NO_X control technologies for cement kilns located in the DFW eight-hour ozone nonattainment area that could provide additional NO_X reductions beyond the current requirements of Chapter 117. The report primarily focused on three active types of control technologies for cement kilns: selective

catalytic reduction (SCR), selective non-catalytic reduction (SNCR), and low temperature oxidation (LoTOx). Based on the results of this study, the TCEQ conducted modeling sensitivity studies at two levels of control to evaluate the potential ozone reduction benefit from possible cement kiln control strategies. The first control level modeling run was performed based on 35 – 50 percent control, and the second control level modeling run was performed based on 80 – 85 percent control.

After reviewing the final report of the control technology study, modeling sensitivity run results, and all other available information, the TCEQ has determined that the 35 – 50 percent control level is the most appropriate control level for this proposed rulemaking. This control level is based on using SNCR controls on cement kilns. SNCR control technology is applicable to both dry preheater-precalciner or precalciner kilns and long wet kilns. While SCR and LoTOx control technologies may be applicable to cement kilns, these control technologies are not as well established for cement kilns as SNCR control.

To implement this proposed control strategy, the TCEQ is proposing a source cap approach to establish a maximum NO_X emission cap for each account in Ellis County. This approach provides maximum flexibility for owners or operators to achieve the reductions modeled for this control strategy. A source cap allows an owner or operator to choose the most applicable and cost effective control technology available to a particular kiln while still achieving the overall reductions modeled for the DFW eight-hour ozone attainment demonstration. Owners or operators may use any of the control technologies identified in the final report of the control technology study to reduce emissions for compliance with the source cap. Before an increase in NO_X emissions from a change in operation from one unit or the installation of a new kiln could occur, a corresponding and equivalent decrease in NO_X emission would be required from another existing unit. Depending on the control options selected by the owner or operator, the source cap would not necessarily impact production.

Compliance with the proposed source cap would be on a 30-day rolling average basis. The 30-day rolling average basis for the source cap provides flexibility to account for the inherent variability in NO_X emissions from cement kilns. Owner or operators would demonstrate compliance with the source cap using proposed new monitoring, testing, reporting, and recordkeeping requirements in the proposed rule. The TCEQ estimates that this proposed rule will result in approximately 11 tons per day (tpd) in NO_X emission reductions.

4.2.2.2 Minor Source NO_X Reductions

Proposed amendments to 30 TAC Chapter 117, Subchapter D: Division 2--Combustion Control at Minor Sources in Ozone Nonattainment Areas, Dallas-Fort Worth Eight-Hour Ozone Nonattainment Area Minor Sources (§§117.2100-117.2145), would require owners or operators of minor sources of NO_X in the DFW eight-hour ozone nonattainment area to reduce NO_X emissions from affected boilers, process heaters, stationary internal combustion engines, and gas turbines (including duct burners). These amendments would regulate units at sites including small businesses and industries, hospitals, hotels, public and private office and administrative buildings, and school districts that were previously unregulated.

The TCEQ has identified approximately 2,769 boilers with a capacity less than 100 MMBtu/hr in the DFW eight-hour ozone nonattainment area, of which 1,712 are expected to be exempt from the rule because they are smaller than the minimum subject capacity of 2.0 MMBtu/hr, leaving about 1,057 boilers that would be subject to the proposed requirements. Gas-fired boilers and process heaters are anticipated to meet the proposed new emission specification of 0.036 lb/MMBtu heat input via combustion modifications and low NO_X burners (LNB). Liquid-fired boilers and process heaters are also anticipated to become compliant with the proposed new emission specification of 0.072 lb/MMBtu heat input using combustion modifications and LNB.

The TCEQ has identified approximately 207 stationary engines in the DFW eight-hour ozone

nonattainment area that are expected to be subject to the proposed new emission specifications. Of these, 61 are estimated to be lean-burn engines and 146 are estimated to be rich-burn engines. Rich-burn engines are anticipated to comply with the rule using NSCR and a secondary catalyst module. Lean-burn engines are likely to comply with either exhaust gas recirculation (EGR) plus NSCR or exhaust gas recirculation plus SCR.

Proposed new emission specifications are 0.60 g/hp-hr for stationary, gas-fired, reciprocating internal combustion engines fired on landfill gas and 0.50 g/hp-hr for all other reciprocating internal combustion engines. The proposed new emission specification is 5.83 g/hp-hr for stationary, dual-fuel, reciprocating internal combustion engines. The proposed new emission specification for stationary gas turbines (including duct burners) is 0.15 lb/MMBtu.

The proposed new emission specifications for stationary, diesel, reciprocating internal combustion engines are the lower of 11.0 g/hp-hr or the emission rate established by testing, monitoring, manufacturer's guarantee, or manufacturer's other data for units placed into service before June 1, 2007, that have not been modified, reconstructed, or relocated on or after June 1, 2007. For engines not subject to the above, the proposed new emission specifications are 5.0 g/hp-hr for units with a hp rating of 50 – 99 hp, installed, modified, reconstructed, or relocated on or after June 1, 2007, but before January 1, 2008; 3.3 g/hp-hr for units with a hp rating of 50 – 99 hp installed, modified, reconstructed, or relocated on or after January 1, 2008; 2.8 g/hp-hr for units with a hp rating of 100 – 749 hp, installed, modified, reconstructed, or relocated on or after June 1, 2007; and 4.5 g/hp-hr for units with a hp rating of 750 hp or greater installed, modified, reconstructed, or relocated on or after June 1, 2007. A stationary diesel engine operated less than 100 hours per year, based on rolling 12-month average, would be exempt if the engine was placed into service before June 1, 2007, and not modified, reconstructed, and relocated on or after June 1, 2007. Any new, modified, reconstructed, or relocated stationary diesel placed into service on or after June 1, 2007, that operates less than 100 hours per year, based on a rolling 12-month average, in other than emergency situations would also be exempt provided the engine meets the corresponding emission standards in 40 CFR §89.112(a), Table 1 (October 23, 1998), in effect at the time of installation, modification, reconstruction, or relocation. This requirement ensures that as older diesel engines are replaced, the engine will be replaced with newer and cleaner model engines.

An additional control requirement that applies to stationary diesel engines as well as stationary dual-fuel engines is the prohibition on starting or operating engines for testing or maintenance purposes between 6:00 a.m. and noon. This measure delays NO_X emissions from the engines primarily used as back-up engines until after noon to help limit ozone formation. Testing requiring a run over 18 consecutive hours recommended by the manufacturer, to verify reliability of emergency equipment immediately after unforeseen repairs, and firewater pumps for emergency response training from April 1 through October 31 would be exempt from this prohibition.

Stationary, dual-fuel, reciprocating internal combustion engines are anticipated to comply with the proposed new emission specification of 5.83 g/hp-hr using combustion modifications. Engines placed into service before January 1, 2007, that have not been modified, reconstructed, or relocated after January 1, 2007, would be limited to the lower of 11.0 g/hp-hr or the emission rate established by testing, monitoring, manufacturer's guarantee, or manufacturer's other data.

Compliance with these proposed emission standards is determined based on monitoring, testing, reporting, and recordkeeping procedures similar to the current requirements for minor sources in the HGB ozone nonattainment area. Initial compliance with the proposed emission specifications is determined through stack testing using EPA test methods or EPA approved test methods. In addition, similar to requirements for major sources in the HGB ozone nonattainment area, biennial (or within 15,000 hours of operation) testing and quarterly checks for NO_X and CO are required for stationary engines.

4.2.2.3 East Texas Combustion Source NO_X Reductions

Proposed amendments to 30 TAC Chapter 117, Subchapter E: Division 4--Multi-Region Combustion Control, East Texas Combustion (§§117.3300-3345), would require owners and operators of stationary, gas-fired, reciprocating internal combustion engines located in certain designated affected counties of the northeast Texas region, unless exempted, to meet NO_X emission specifications and other requirements to reduce NO_X emissions and ozone air pollution transport into the DFW area. The counties proposed to be included in this rulemaking are: Anderson, Bosque, Brazos, Burleson, Camp, Cass, Cherokee, Cooke, Franklin, Freestone, Grayson, Gregg, Grimes, Harrison, Henderson, Hill, Hood, Hopkins, Hunt, Lee, Leon, Limestone, Madison, Marion, Morris, Nacogdoches, Navarro, Panola, Rains, Robertson, Rush, Shelby, Smith, Somervell, Titus, Upshur, Van Zandt, Wise, and Wood Counties. Lean-burn gas-fired internal combustion engines would be required to comply with the proposed new emission specifications of 1.5 g/hp-hr for new engines placed into service on or after June 1, 2007, and 2.0 g/hp-hr for existing engines placed into service before June 1, 2007. These lean-burn gas-fired engines may require EGR plus NSCR, or low emission combustion (LEC) in order to comply with the proposed emission specifications. An emission specification of 1.0 g/hp-hr is proposed for rich-burn gas-fired internal combustion engines with a maximum rated capacity less than 500 hp. While no rich-burn engines fired on landfill gas were specifically identified in the proposed affected counties, landfill gas-fired engines, if any, are anticipated to use combustion modifications or engine replacement to comply with the proposed new emission specification of 0.60 g/hp-hr. All other rich-burn engines would be required to comply with an emission specification of 0.5 g/hp-hr using NSCR and a secondary catalyst module, if necessary.

According to the TCEQ's emissions inventory and studies conducted or funded by the TCEQ, NO_X reductions from sources outside the DFW area are instrumental for the DFW area to demonstrate attainment of the NAAQS for ozone. Results of photochemical modeling performed by the TCEQ show that stationary gas-fired engines in attainment counties in east Texas contribute a substantial portion of NO_X emissions that impact the DFW area.

The commission estimates that approximately 985 point source and area source stationary, gas-fired engines would be subject to this rule. While this rulemaking is proposed as part of the DFW attainment demonstration for the eight-hour NAAQS for ozone, the Northeast Texas Early Action Compact area in east Texas will also benefit from NO_X reductions resulting from this rule.

Compliance with these proposed emission standards is determined based on monitoring, testing, reporting, and recordkeeping procedures similar to the current requirements for minor sources in the HGB ozone nonattainment area. Initial compliance with the proposed emission specifications is determined through stack testing using EPA test methods or EPA approved test methods. In addition, similar to requirements for major sources in the HGB ozone nonattainment area, the proposed rule requires biennial (or within 15,000 hours of operation) testing and quarterly checks for NO_X and CO.

The modeling control strategy sensitivity run (Combination 4), assumes the rule applies to all 61 counties within 200 km and reduces ozone by 40.9 tpd. This control strategy applies to 39 of the 61 counties within or traversed by the 200 km perimeter from DFW. The 39 counties were selected to focus controls on those regions where gas-fired stationary engines are predominately located within the 200 km perimeter range, and where reductions of NO_X from these engines would benefit the DFW area. The 2009 emissions reductions from the East Texas Combustion rule, as proposed, are estimated at approximately 37 tpd. The modeling control strategy sensitivity run will be corrected to reflect this change prior to adoption of this SIP revision.

4.2.2.4 Water Heater Rule Revision

Proposed amendments to 30 TAC Subchapter E: Division 3--Multi-Region Combustion Control, Water Heaters, Small Boilers, and Process Heaters (§§117.3200-3215), would repeal the current

statewide emission standard of 10 nanograms NO_X per Joule heat input (ng/J) due to comments received and uncertainties in the capabilities of water heater manufacturers to produce units compliant with the current rule (rule project 2006-034-117-ED). Under the adopted rules, manufacturers, distributors, retailers, and installers of natural gas-fired water heaters with a maximum rated capacity of no more than 75,000 British thermal units per hour (Btu/hr), designated as a "Type 0 unit" in the adopted rules, manufactured, distributed, sold, or installed on or after July 1, 2002, but no later than December 31, 2004, are required to meet an emission limit of 40 ng/J. Type 0 units manufactured, distributed, sold, or installed on or after January 1, 2007, were required to meet a 10 ng/J heat input limit. The proposed rules repeal these standards and reinstate the 40 ng/J emission limit in force since July 1, 2002.

House Bill 965, from the 79th Texas Legislative Session, authorized this amendment and required emission reductions to offset the loss of SIP credits due to the potential repeal of the proposed rule. The TCEQ proposes to use reductions included in the DFW Five Percent IOP SIP submittal dated April 27, 2005, that were in excess of the five percent to offset the 0.5 tpd shortfall in the DFW four-county ozone nonattainment area. The DFW Five Percent IOP SIP provided information and control measures to provide for a five percent increment of progress from the area's 2002 emissions baseline in addition to federal measures and state measures already approved by EPA. Table 4-5: *DFW Five Percent Increment of Progress reductions*, shows that the DFW Five Percent IOP SIP contained 3.35 tpd VOC reductions that exceeded the five percent requirement. Because percent of this, the TCEQ proposes to use 0.5 tpd of reductions in NO_X emissions from the nine-county lean-burn and rich-burn engine rule to offset the shortfall. According to the DFW Five Percent IOP SIP, the nine-county engine rule will reduce NO_X emissions by 1.87 tpd by June 15, 2007, which is sufficient to offset the 0.5 tpd shortfall. If 0.5 tpd of reductions from the engine rule were removed from the DFW Five Percent IOP SIP, the reduction requirement for that SIP would still be met. The reduction requirement for the DFW Five Percent IOP SIP is based on total NO_X and VOC emissions combined; therefore, adjustment to the DFW Five Percent IOP SIP should not be necessary.

Table 4-5: DFW five percent Increment of Progress reductions

	Five Percent IOP SIP	
	April 27, 2005	
	TPD NO_X	TPD VOC
Adjusted Baseline Inventory	622.22	470.8
Percent Target Reduction	4.6	0.4
Target Reduction	28.62	1.88
Source of reductions	TPD NO_X	TPD VOC
Eligible existing measures		
Alcoa (within 200 km radius)	3.9	
TERP	22.2	
Energy efficiency	0.72	
Portable fuel containers (nine-county area)		2.79
Portable fuel containers (within 100 km radius)		0.63
Subtotal	26.82	3.42
Control measures requiring rulemaking		
Nine county lean-burn and rich-burn engine rule	1.87	
Expand surface coating rule to five counties		0.3
Lower Stage I exemption throughput to 10,000 gal/mo. in five counties (same as in four core counties)		1.49
Subtotal	1.87	1.79
TOTAL IDENTIFIED REDUCTIONS	28.69	5.21
Minimum reductions required to meet five%	28.69	1.86
REDUCTIONS BEYOND FIVE PERCENT IOP	0.00	3.35

4.2.3 Transportation Control Measures

Transportation control measures (TCM) are transportation projects and related activities that are designed to reduce on-road mobile source emissions and are included as control measures in the SIP. Allowable types of TCM are listed in §7408 (Air Quality Criteria and Control Techniques) of the FCAA, 42 USC, 1970, as amended, and defined in the federal transportation conformity rule found in Title 40 CFR, Part 93 (Determining Conformity of Federal Actions to State or Federal Implementation Plans). In general, a TCM is a transportation related project that attempts to reduce vehicle use, change traffic flow, or reduce congestion conditions. A project that adds single-occupancy-vehicle roadway capacity or is based on improvements in vehicle technology or fuels is not eligible as a TCM.

The North Central Texas Council of Governments (NCTCOG) has identified TCMs that have been or will be implemented in the nine-county nonattainment area. By July 2009, these TCMs will reduce NO_X emissions in the nonattainment area by 1.53 tpd and VOC emissions by 1.61 tpd. Table 4-6: *Total 2009 Estimated Emission Reductions by TCM Program* summarizes the 2009 emission reductions by type of TCM. The description below Table 4-4: *Summary of Control Strategies NO_x Reduction Estimates for the DFW Attainments Demonstration* shows how each program improves air quality. The region's transportation policy body (the Regional Transportation Council) approved and identified funding for these local commitments. In addition to the information provided in the SIP about TCM commitments, the federal transportation conformity rule requires that timely implementation of TCM be demonstrated.

Table 4-6: Total 2009 Estimated Emission Reductions by TCM Program

TCM Program	Commitments (Jan 2000 – July 2009)		July 2009 NO_X Benefits (lbs/day)		July 2009 VOC Benefits (lbs/day)	
	Modeled	**Post-Processed**	**Modeled**	**Post-Processed**	**Modeled**	**Post-Processed**
Bicycle/Pedestrian Projects	0.0 Miles	15.4 Miles	0.00	14.98	0.00	9.51
Grade Separation Projects	82 Locations	2 Locations	350.35	4.26	898.44	51.40
HOV/Managed Lane Projects	70.0 Miles	0.0 Miles	1,584.92	0.00	881.50	0.00
Intersection Improvement Projects	0 Locations	655 Locations	0.00	293.76	0.00	786.87
Park and Ride Projects	1,465 Spaces	820 Spaces	55.30	30.95	35.11	19.65
Rail Transit Projects	70.2 Miles	0.0 Miles	568.55	0.00	419.17	0.00
Vanpool Projects	0 Vanpools	216 Vanpools	0.00	168.99	0.00	113.11
Total Pounds/Day			**2,559.12**	**512.94**	**2,234.22**	**980.54**
Total Tons/Day			**1.27**	**0.26**	**1.12**	**0.49**

**All of the listed projects are commitments, have been approved by the transportation policy body (Regional Transportation Council), and are funded.*

***The project listing for each program area; with associated emission reductions and methodology will be accounted for in the subsequent Transportation Conformity Document(s).*

To avoid double counting emission reductions, the NCTCOG provided separately, the reductions accounted for in the photochemical model and the reductions that are calculated after the photochemical modeling work is complete, i.e., post-processed. Reductions accounted for in photochemical modeling are reflected in the on-road emissions inventory. Post-processed reductions are not reflected in the emissions inventory but are subtracted from the inventory to establish the motor vehicle emissions budget.

Bicycle/Pedestrian Projects

Projects that create and/or enhance bicycle/pedestrian pathways throughout the region serve to link individuals to alternative methods of transportation, other than driving a single occupancy vehicle. By doing so, the automobile emissions that would otherwise be released from the automobile are removed completely. In the North Central Texas region, a veloweb has been designed for use primarily by fast-moving bicyclists. The veloweb is also designed to encourage concurrent pedestrian transportation use. NCTCOG has identified 15.4 miles of veloweb projects that will be implemented in the DFW eight-hour ozone nonattainment area by July 2009.

Grade Separation Projects

By separating a road or railroad track from a crossroad, idling time that would otherwise be created by intersection blockage is eliminated. With this elimination of idling, grade separations increase the efficiency of traffic flow thereby improving travel time and minimizing delay. Thus, vehicle emissions and fuel consumption are reduced. NCTCOG has identified 84 project locations to be implemented in the DFW eight-hour ozone nonattainment area by July 2009.

High Occupancy Vehicle (HOV) Projects

High occupancy vehicle projects promote carpooling thereby removing single occupancy vehicles and the associated vehicle emissions released from the roadway. The increase in flow of HOV lanes offers incentive for drivers to carpool. NCTCOG has identified 70.0 lane miles of HOV projects that will be implemented in the DFW eight-hour ozone nonattainment area by July 2009.

Intersection Improvement Projects
Improvements to intersections including left and/or right hand turn lanes decrease the amount of time automobiles are left idling at intersections. This decrease in idling reduces fuel consumption and vehicle emissions. NCTCOG has identified 655 intersection improvement locations that will be implemented in the DFW eight-hour ozone nonattainment area by July 2009.

Park and Ride Projects
Park and ride facilities promote carpooling and vanpooling. With each occupied parking space at these locations, the emissions from the parked vehicle are reduced. Park and ride lots that also serve as transit stations are not accounted for in the analysis as it is assumed the majority of these park and ride lots contain transit riders that are then captured in Rail Transit Projects. NCTCOG has identified new location(s) to provide 2,285 additional new parking spaces in Park and Ride projects. These projects will be implemented by July 2009.

Rail Transit Projects
Rail projects involve implementation of new or expanded transit services or facilities. The improvements may be accomplished for all transit modes such as buses, rail, and paratransit. The three main components of improved transit are: system/service expansion projects, system/service operational improvements, and inducements. By improving regional transit systems, an increase in opportunity is created for new passengers as well as an increase in air quality benefits. NCTCOG has identified 70.2 miles of rail projects that will be implemented in the DFW eight-hour ozone nonattainment area by July 2009.

Vanpool Projects
Vanpool projects include a group of six to fifteen commuters who travel to and from the same area, have similar work hours, share the costs of operating the van, and usually meet at a Park and Ride lot at a centralized location. These projects remove the extra vehicles that would otherwise be commuting by consolidating travelers into one automobile, there by reducing air pollution, traffic congestion, and helping conserve fuel. NCTCOG has identified 216 vanpools that will be implemented in the DFW eight-hour ozone nonattainment area by July 2009.

Projects in this section are described and documented in Appendix F: *Transportation Control Measures for the DFW Eight Hour SIP*. Appendix F, Table 1: *Completed Projects without Applicable Benefits* covers projects that have been implemented but the associated emission benefits are not applicable in this SIP Revision. Appendix F, Table 2: *Completed Projects with Applicable Benefits* covers projects that have been implemented as well as their emission benefits. Appendix F, Table 3: *Projects with Applicable Benefits* is a summary table including the original commitments, completed commitments, and remaining commitments for each category with associated NO_X and VOC emission benefits.

4.2.4 Voluntary Mobile Source Emission Reduction Programs (VMEP)
The 1990 Clean Air Act Amendments increased the states' responsibility to demonstrate progress toward attainment of the NAAQS. Voluntary mobile source measures have the potential to contribute, in a cost-effective manner, emission reductions needed for progress toward attainment and maintenance of the NAAQS.

Historically, federal mobile source control strategies have focused primarily on reducing emissions per mile through vehicle and fuel technology improvements. Tremendous strides have been made resulting in new light-duty vehicle emission rates that are 70 to 90 percent less than that for the 1970 model year. However, transportation emissions continue to be a significant cause of air pollution due to population and employment growth as well as an increase in daily vehicle miles traveled (VMT) per person. Therefore, mobile source strategies that attempt to complement existing regulatory programs through voluntary, nonregulatory changes in local transportation sector activity levels or changes in vehicle and engine fleet composition are being explored and developed.

A number of voluntary mobile source and transportation programs have already been initiated at the state and local level in response to increasing interest by the public and business sectors in creating alternatives to traditional emission reduction strategies. Some examples include economic and market-based incentive programs, trip reduction programs, growth management strategies, ozone action programs, and targeted public outreach. These programs attempt to gain additional emissions reductions beyond mandatory Clean Air Act programs by engaging the public to make changes in activities that will result in reducing mobile source emissions.

Table 4-7: *NCTCOG Voluntary Mobile Emission Reductions* summarizes the new DFW voluntary commitments under this SIP revision. The estimated benefits listed are calculated for the year 2009 only and may not be forecasted to estimate emission reductions for any other year. VMEP strategies are limited to nine percent or less of the total emissions reductions required. NCTCOG anticipates that the proposed VMEP emissions reductions will comply with this limitation.

NCTCOG identified seven voluntary programs that will aid in the improvement of the North Texas region's air quality. NCTCOG, as the regional metropolitan transportation planning agency for the DFW area, commits to make a good faith effort to implement the projects and/or programs outlined in this document. NCTCOG will be responsible for monitoring and reporting the emission reductions to the TCEQ. Any VMEP shortfall (of the total 2.63 tpd NO_X committed) will be covered by supplementing additional Transportation Emission Reduction Measures (TERMs). The program areas that may be used to remedy this shortfall are Traffic Signal Improvements; Intelligent Transportation Systems (ITS); and/or Freeway and/or Arterial Bottleneck Removal. These programs would be surplus to those already credited in the SIP.

More information on each of the VMEP commitments can be found in Appendix H: *Voluntary Mobile Source Emission Reduction Programs for the DFW Eight-Hour SIP*.

The modeling control strategy sensitivity run (Combination 4) is based on NCTCOG's initial VMEP estimates and assumes VMEP will reduce NOx emissions by 16.3 tpd. NCTCOG's refined estimate is 2.63 tpd of NO_X reductions. The modeling control strategy sensitivity run will be corrected to reflect this change prior to adoption of this SIP revision.

Table 4-7: NCTCOG Voluntary Mobile Emission Reductions

NORTH CENTRAL TEXAS STATE IMPLEMENTATION PLAN VOLUNTARY MOBILE EMISSION REDUCTION PROGRAM (VMEP) EMISSION BENEFITS BY PROGRAM TYPE				
PROGRAM TYPE	**2009 NOx BENEFITS (tons per day)**		**2009 VOC BENEFITS (tons per day)**	
	Modeled	**Post-Processed**	**Modeled**	**Post-Processed**
Clean Vehicle Program	0.00	0.24	0.00	0.05
Employee Trip Reduction	0.43	0.00	0.28	0.00
Locally Enforced Idling Restriction	0.00	0.62	0.00	0.02
Diesel Freight Idling Reduction Program	0.00	0.33	0.00	0.01
SmartWay Transport Demonstration Project	0.00	0.00	0.00	0.00
Public Agency Policy for Construction Equipment	0.00	0.06	0.00	0.01
Aviation Efficiencies	0.00	0.95	0.00	0.24
TOTAL BENEFITS (tons per day)	**0.43**	**2.20**	**0.28**	**0.33**

(1) NOx = Nitrogen Oxides, VOC = Volatile Organic Compounds

4.2.5 Other State and Local Programs:

4.2.5.1 Energy Efficiency

In the 77th Texas Legislative Session in 2001, the Energy Systems Laboratory (ESL), part of Texas Engineering Experiment Station, Texas A&M University System, was mandated as part of the TERP under Texas Health and Safety Code § 388.003(e) to provide an annual report on energy efficiency and renewable energy (EE/RE) efforts in the state. With TCEQ guidance, ESL produced an annual report detailing these efforts (*Energy Efficiency/Renewable Energy Impact in the Texas Emissions Reduction Plan (TERP))*. The report:

- provides quantification of energy savings and NO_X reductions resulting from building energy code compliance in new residential and commercial construction in the 41 affected counties;
- describes methodologies developed to enable the commission to substantiate energy and emission reduction credits from energy efficiency and wind and other renewable energy initiatives to the EPA, including development of a web-based emissions calculator; and
- outlines progress by ESL in advancing EE/RE methodologies for documenting pollution reduction credit in the SIP.

The DFW five Percent IOP included emission reduction credits of 0.72 tpd for EE/RE programs in the DFW eight-hour ozone nonattainment area. Energy efficiency reductions for 2007 were included in the DFW five Percent IOP SIP, based on electricity and natural gas usage reductions expected to occur following implementation of Texas Building Energy Performance Standards for single and multi-family residences adopted in September 2001. These calculations also included reductions in energy use from energy efficiency measures implemented by local governments and utilities and reported to the State Energy Conservation Office and the PUC.

Legislation passed during the regular session of the 79th Texas Legislature directed the ESL to collaborate with the commission to develop a methodology for computing emission reductions attributable to use of renewable energy (primarily wind) and for the ESL to quantify annually such emission reductions for inclusion in the SIP. House Bill 2921 directed the Texas Environmental Research Consortium to utilize the Texas Engineering Experiment Station to develop this methodology.

The ESL documents methods used to develop current estimates of energy savings and NO_X emissions reductions resulting from reductions in natural gas consumption and displaced power from conventional electric generating units (EGUs). The ESL used EPA's Emissions and Generation Resource Integrated Database to spatially allocate energy use and emission reductions among EGUs. For natural gas reductions, the ESL used AP-42 emissions factors to calculate emissions reductions.

The Texas Health and Safety Code sections 389.002 and 389.003 contain requirements that the PUC, the State Energy Conservation Office, and the ESL report to the TCEQ all emission reductions resulting from EE/RE projects in Texas. Current estimates of EE/RE related NO_X reductions in the DFW area are based on six types of EE/RE projects or programs:

Residential Building Code

The state residential building code (i.e. Texas Building Energy Performance Standards) for single family and multi-family housing, as adopted by the 77th Texas Legislature. See Texas Health and Safety Code Section 388.003.

Commercial Building Code

The state commercial building code for commercial buildings, known as Texas Building Energy Performance Standards, as adopted by the 77th Texas Legislature. See Texas Health and Safety Code Section 388.003.

Federal Facilities EE/RE Projects
Federal facilities are required to reduce energy use by Presidential executive order 13123 and the Energy Policy Act of 2005 (Public Law 109-58 EPACT20065 most recent energy bill passed in August 2005) to reduce energy use. The ESL compiled energy reductions data for the federal EE/RE projects in Texas.

Political Subdivisions Projects
Political subdivisions in nonattainment and affected counties are required by SB 5 of the 77th Texas Legislature to report EE/RE projects to the State Energy Conservation Office. See Texas Health and Safety Code Sections 388.005 and 388.005. These projects are typically building systems retrofits, non-building lighting projects, and other mechanical and electrical systems retrofits such as municipal water and waste water treatment systems.

Electric Utility Sponsored Programs
Utilities are required by SB 5 and SB 7 of the 77th Texas Legislature to report these projects to PUC. See Texas Health and Safety Code Section 386.205 and Section 39.905 of the Texas Utilities Code. These projects are typically air conditioner replacements, ventilation duct tightening, and commercial and industrial equipment replacement.

Wind Power Projects
Measured electric power derived from wind power EGUs in the Electric Reliability Council of Texas service area.

Due to uncertainties in the data and methods used, emission reduction estimates have been reduced using a discounting formula. For example, the ESL estimates for building codes projects have been discounted 20 percent and the State Energy Conservation Office reported projects have been discounted 60 percent. Original emissions reductions estimates were also reduced a further five percent per year to account for systems degradation.

According to projections by the ESL, the nine-county DFW area is estimated to reduce NO_X in 2009 by 2.12 tpd from the six types of EE/RE measures and projects implemented from January 1, 2000, through December 31, 2009. Emissions reductions estimated as a result of energy efficiency were not explicitly included in the photochemical modeling because local efficiency efforts may not result in local emissions reductions.

4.2.5.2 Texas Emission Reduction Plan (TERP) NO_X Reductions
Future TERP funds, if appropriated by the Texas Legislature, would result in additional NO_X reductions and would be used to help meet the NCTCOG emission reduction goals, if necessary.

4.2.6 Additional Measures
In addition to the control strategies discussed and quantified above, several programs already in place in the DFW nine-county area will reduce NO_X emissions and will help bring the area into attainment of the eight-hour ozone standard. These programs include EPA's SmartWay program, additional energy efficiency measures, EPA's Blue SkyWays program, and TCEQ's Clean School Bus program, the use of Texas Low Emission Diesel (TxLED) by locomotive switcher engines in the DFW area, stationary diesel and dual-fuel engine control measures. Although these programs were not accounted for in the photochemical modeling, they will benefit air quality and help bring the DFW area into attainment of the eight-hour ozone standard.

4.2.6.1 EPA SmartWay and Blue SkyWays Programs
Among its various efforts to improve air quality in Texas, the TCEQ is currently promoting two voluntary programs in cooperation with the EPA: the SmartWay Transport Partnership and the Blue Skyways Collaborative.

The SmartWay Transport Partnership is a collaborative, voluntary program between the EPA and the freight transport industry that promotes strategies and technologies to help improve fleet efficiency while also reducing air emissions. Fleets participating in the SmartWay Transport Partnership commit to implementing these voluntary measures over three years, providing the EPA with annual updates of their progress throughout that period.

SmartWay carriers will typically commit to integrating fuel savings strategies and technologies into their fleet including: improved aerodynamics, single-wide tires, lighter wheels and rims, idle reduction, automatic tire inflation systems, driver training, and advanced powertrain technologies.

Unfortunately, the transient nature of freight transportation makes it difficult to isolate emissions reductions to a certain region, or even a certain state. As a result, any estimates of the impact of these technologies will largely rely on estimates of accumulated reductions based on estimated levels of overall fleet integration. These estimates are possible because through their ongoing research, and in conjunction with the more than 300 companies already committed as SmartWay partners, the EPA has identified a variety of technologies, and quantified the potential fuel savings and emissions reductions from those technologies.

Rolling resistance is estimated to account for as much as 13 percent of a heavy-duty vehicle's fuel consumption. By reducing rolling resistance as well as vehicle weight, the EPA believes that single-wide tires will help to improve fuel economy and reduce NO_X emissions by an average of five percent. On the other hand, aerodynamic drag accounts for most of a long-haul truck's energy losses at highway speeds. As a result, the EPA estimates that improving the aerodynamics of both a long-haul truck and its trailer can help to improve fuel economy and reduce NO_X emissions by five percent.

The extended periods of idling typically associated with long-haul trucks consume an average of one gallon of fuel per hour, while also generating the associated emissions. New technologies such as auxiliary power units (APU) and truck stop electrification (TSE) reduce vehicle idling by providing power for air conditioning, heating, and onboard electrical accessories, even when the vehicle is not in operation. The EPA estimates that, assuming typical idling levels, idling reduction technologies such as APU and TSE can reduce NO_X emissions by approximately ten percent.

The Blue Skyways Collaborative is a related effort, spearheaded by the EPA Region 6 office in Dallas, and the Region 7 office in Kansas City, Missouri.

Partnering with the EPA through this effort are the environmental and energy agencies from the ten states along the I-35 corridor, including Texas, New Mexico, Louisiana, Arkansas, Oklahoma, Kansas, Missouri, Nebraska, Iowa, and Minnesota. In implementing the Blue Skyways Collaborative, the EPA and the participating states recognize that because air quality is often a regional concern, greater reductions are possible through cooperative efforts as opposed to individual efforts initiated independently in each state.

The primary objective of the Blue Skyways Collaborative is to improve air quality in these states by promoting innovative technologies in a variety of sectors. In addition to promoting reduction strategies through the SmartWay Partnership for freight transportation via air, water, and rail, Blue Skyways also focuses on promoting emissions reduction strategies for other on-road sources, non-road sources, and highway fueling and idling reduction infrastructure, while also promoting renewable, efficient, and alternative energy sources.

In order to complete these objectives, the collaborative will develop partnerships among international, federal, state, and local governments, as well as non-profits, environmental groups and private industries. These partnerships will reduce emissions along the key transportation corridors by sharing technology and leveraging financial resources from a variety of sources.

4.2.6.2 Other Energy Efficiency Measures

Local governments may have enacted measures beyond what has been reported to SECO and the PUCT. The commission encourages local political subdivisions to promote EE/RE measures in their respective communities and to ensure these measures are fully reported to SECO and the PUCT via legislatively mandated mechanisms. The commission has attempted to include all known surplus, quantifiable, enforceable, and permanent NO_X emissions reduction measures in the SIP.

4.2.6.3 Clean School Bus Program

The 79th Texas Legislature passed House Bill 3469 which established the Clean School Bus Program as part of the Texas Emissions Reduction Plan (TERP). The new program is codified in Chapter 390 of the Texas Health and Safety Code Chapter and implemented through Title 30 Texas Administrative Code §§114.640 – 114.648.

The program is based on the EPA guidance documents, *Improving Air Quality with Economic Incentive Programs* (EPA-452/R-01-001) and *Diesel Retrofits: Quantifying and Using Their Benefits in SIPs and Conformity* (EPA-420-B-06-005). Under the Economic Incentive Program guidance, the TCEQ is using the Financial Mechanism option, which is described as subsidies targeted at promoting pollution-reducing activities or products. The Clean School Bus Program will operate under the same general provisions as apply to other TERP incentive programs.

The Clean School Bus Program was established to provide monetary incentives for school districts in the state by reducing emissions of diesel exhaust in school buses. Eligible technologies include catalysts, particulate filters, qualifying fuels, and other emissions reducing add-on or retrofit equipment that will reduce emissions. Some of the technologies eligible for funding under the program will result in reductions in NO_X emissions. When those projects take place in the eligible counties, NO_X emissions reductions will be available for SIP credit.

The Clean School Bus Program meets the requirements for SIP credit under the guidance documents, including the standards outlined below.

Surplus
An activity is not eligible if it is required by any state or federal law, rule, or regulation, memorandum of agreement, or other legally binding document.

Enforceable
Contracts will contain provisions that allow the state to recapture grant money for the failure to reduce emissions. Furthermore, if the performing party fails to comply with the requirements of the contract, the TCEQ may require that all or a portion of the reimbursement funds be returned or repaid.

Quantifiable
Emission reductions through TERP will be quantified. The methodology will include consideration of baseline NO_X emissions, reduced NO_X emissions, percentage of usage in eligible counties, and annual usage data.

Permanent
Environmental benefit from projects associated with TERP will occur for at least the life of the project, as enforced under the grant contract. The project life will be the time period during which the grant recipient must commit to using the grant-funded vehicle in the eligible counties. Under HB 3469, the minimum project life will be at least five years and the commission may extend the required period to a longer commitment.

For information on recent TERP activities, please visit the following web site: http://www.terpgrants.org.

4.2.6.4 Texas Low Emission Diesel

NO_X reductions from locomotive switcher engines in the nine-county area using TxLED were not included in the 2009 future case inventory. Although not accounted for in the modeling, they will reduce NO_X emissions not accounted for in the modeling and help bring the DFW area closer toward attainment of the eight-hour ozone standard.

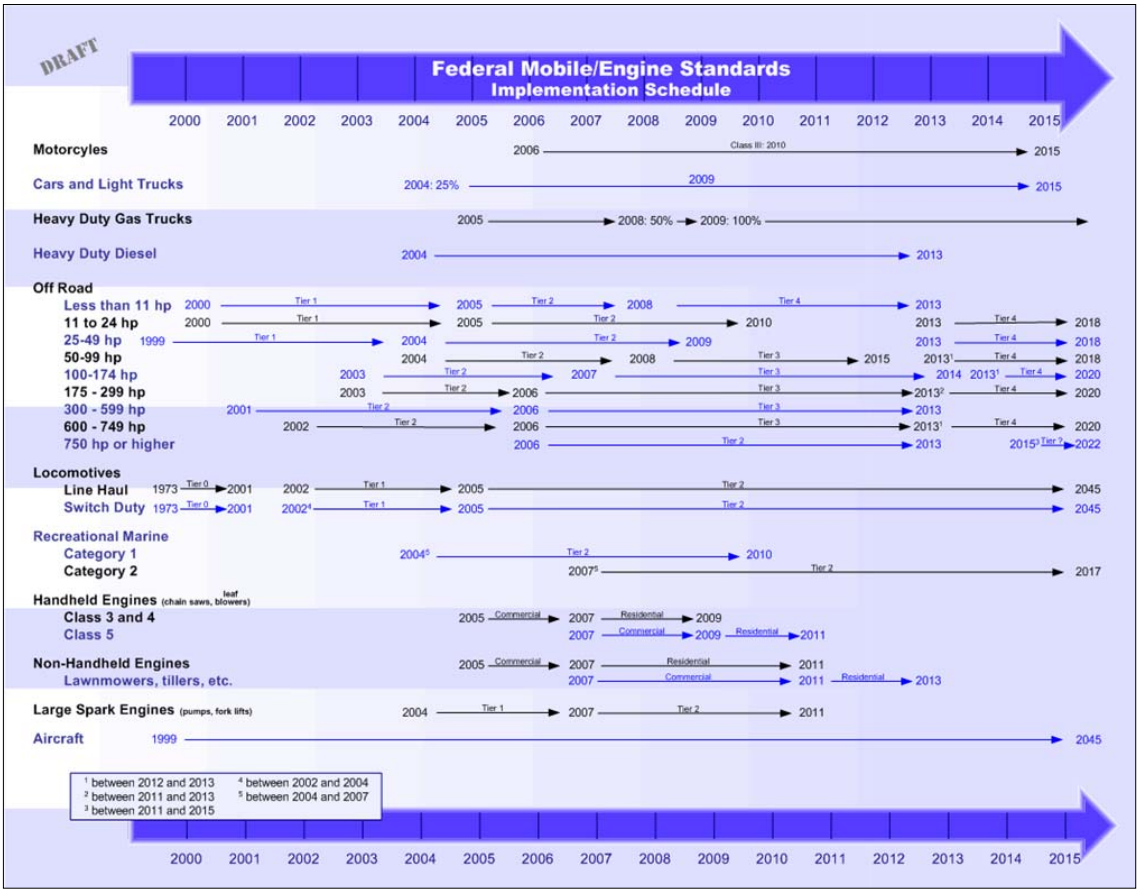
4.2.6.5 Stationary Diesel and Dual-Fuel Engine Control Measures

As discussed in Sections 4.5.2.1 and 4.5.2.3, the proposed rules for ICI major and minor sources in the DFW area would establish new requirements on stationary diesel engines used less than 100 hours per year in other than emergency situations and that were placed into service, modified, relocated, or reconstructed after on or after June 1, 2007. These engines, which are primary back-up engines, would be required to meet the emission standards in 40 CFR §89.112(a), Table 1 (October 23, 1998), in effect at the time of installation, modification, reconstruction, or relocation. This requirement ensures that as older diesel engines are replaced, the engines will be replaced with newer and cleaner model engines. An additional control requirement that applies to stationary diesel engines as well as stationary dual-fuel engines is the prohibition on starting or operating engines for testing or maintenance purposes between 6:00 a.m. and noon, except for certain situations. This measure delays NO_X emissions from the engines primarily used as back-up engines until after noon to help limit ozone formation. Both of these measures are similar to control measures implemented for the HGB one-hour ozone attainment demonstration. These control measures are not accounted for in the modeling but are estimated to reduce emissions by approximately 0.9 tpd of NO_X in the DFW area.

4.3 POST-2009

In addition to the control strategies and programs currently in place in the DFW nine-county area that will help bring the area into attainment of the eight-hour ozone standard, the continued implementation of federal engine standards for both on-road and non-road mobile measures will be critical for the area to maintain NAAQS attainment after 2009. See Table 4-8: *Federal Mobile/Engine Standards Implementation Schedule* for more information.

Table 4-8: Federal Mobile/Engine Standards Implementation Schedule



4.4: ON-ROAD EMISSION INVENTORY TRENDS FOR NINE-COUNTY DFW FROM 1999 TO 2012

During 2004 and 2005, NCTCOG submitted on-road emission inventories for the earlier referenced ozone episode to the TCEQ for the Nine-County DFW area for 1999, 2007, and 2009. For each of these years, NCTCOG provided benefits of State-issued control strategies.

The results of these analyses for the "representative" Tuesday, August 17 episode day are summarized below in Table 4-9: *Tuesday, August 17 On-Road Emission Trends for Nine-County DFW From 1999-2012*.

A 2012 on-road emission inventory for this episode is under development by NCTCOG, but not yet complete. TCEQ estimated approximate 2012 totals for on-road NO_X, VOC, and CO by modifying the 2009 MOBILE6.2 input files for 2012 application, along with increasing the 2009 vehicle miles traveled (VMT) estimates at an annual rate of 2 percent. Similar to the 2007 and 2009 inventories, the benefits State issued control strategies. The estimated changes that will occur in on-road emissions from 2009 to 2012 are summarized below in Table 4-10: *Change in On-Road Emissions for Tuesday, August 17 in Nine-County DFW From 1999-2012*.

Table 4-9: Tuesday, August 17 On-Road Emission

Trends for Nine-County DFW From 1999-2012

Calendar Year	***Weekday VMT***	***Weekday Emissions*** *(tons per day)*		
		NO_X	*VOC*	*CO*
1999	138,299,779	438.86	183.58	2,271.67
2007	173,065,387	219.50	110.27	1,512.84
2009	187,988,303	193.42	99.68	1,157.68
2012	199,494,691	129.88	79.03	974.66

Table 4-10: Change in On-Road Emissions for Tuesday, August 17 in Nine-County DFW From 1999-2012

On-Road Change From 2009 to 2012	***Weekday VMT***	***Weekday Emissions*** *(tons per day)*		
		NO_X	*VOC*	*CO*
Difference	11,506,388	-63.54	-20.65	-183.02
Relative Change	6.12%	-32.85%	-20.71%	-15.81%

As shown, even though VMT is expected to increase over six percent from 2009 to 2012, NO_X, VOC, and CO are expected to decrease by 33 percent, 21 percent, and 16 percent, respectively. Since State issued control strategy benefits are included in both the 2009 and 2012 inventory totals, the expected drop in emissions is due solely to fleet turnover effects where the use of "older" high-emitting vehicles is discontinued, while only "newer" low-emitting vehicles enter the fleet. These changes in the on-road fleet are shown graphically in Figure 4-1: *Weekday On-Road Emission Inventory Trends in Nine-County DFW From 1999-2012*.

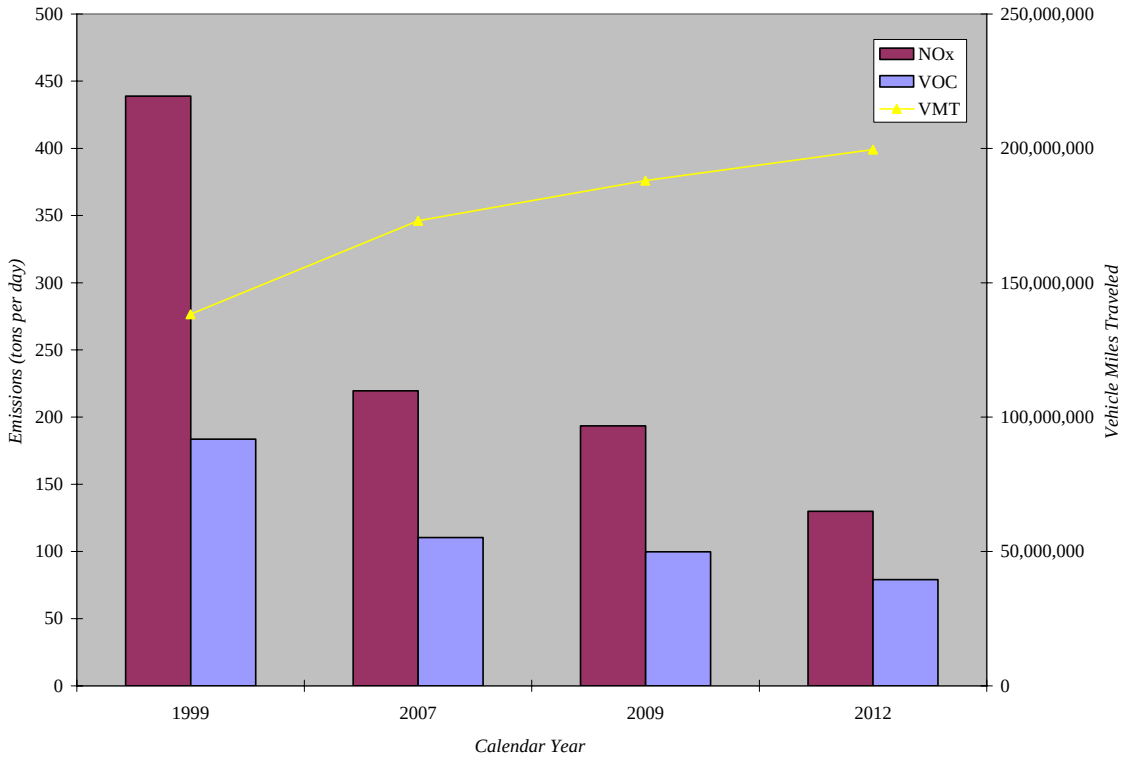


Figure 4-1: Weekday On-Road Emission Inventory Trends in Nine-County DFW From 1999-2012

4.5 REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) ANALYSIS

4.5.1 INTRODUCTION

Under the former one-hour ozone NAAQS, the four-county DFW area, consisting of Collin, Dallas, Denton, and Tarrant Counties, was classified as a serious nonattainment area. The new eight-hour ozone NAAQS classifies the nine-county DFW area, consisting of Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant Counties, as a moderate nonattainment area. Under the eight-hour ozone standard, the nine-county DFW area is required to meet the RACT mandates of the FCAA under sections §172(c)(1), §182(b)(2) and §182(f).

According to EPA's Final Rule to Implement the Eight-Hour Ozone NAAQS – Phase 2 (40 CFR §51.912, November 29, 2005), areas classified as moderate nonattainment or higher must demonstrate, by revision to their SIP, that their current rules fulfill eight-hour RACT for all Control Technique Guidelines (CTG) categories and all non-CTG major sources of NO_X and VOC. Such demonstrations can be made with either a new RACT determination or a certification that previously required RACT controls represent RACT for the eight-hour ozone standard. Areas may rely on previous analyses prepared for the one-hour ozone plans and EPA guidance documents.

RACT is defined as the lowest emissions 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). RACT requirements are included in the FCAA to assure that significant source categories at major sources of ozone precursor emissions are controlled to a "reasonable" extent, but not necessarily to best available control technology (BACT) levels expected of new sources or maximum achievable control technology (MACT) required for major sources of hazardous air pollutants.

This RACT SIP submittal demonstrates that the RACT requirements for the DFW eight-hour ozone nonattainment area have been fulfilled by identifying all CTG and non-CTG major source categories of VOC and NO_X emissions within the DFW area; listing the state regulation that implements or exceeds RACT for that category; detailing the basis for concluding that these regulations fulfill RACT through comparison with established RACT requirements described in the CTG and Alternative Control Technique (ACT) guidance documents and rules developed by other state and local agencies; and submitting negative declarations where there are no major sources within the DFW area.

4.5.2 VOC RACT Demonstration

EPA proposed to approve RACT for all major sources of VOC in the four-county DFW one-hour ozone nonattainment area on November 18, 2001, and received no comments (66 FR 4756). On August 22, 2006, EPA proposed to approve the DFW 5 percent Increment of Progress (IOP) SIP and stated their intention to finalize approval of the DFW 5 percent IOP SIP and the one-hour RACT in the same rulemaking (71 FR 48870). The DFW 5 percent IOP SIP extended the applicability of certain RACT requirements to include all nine counties in the DFW eight-hour ozone nonattainment area. On November 15, 2006, the TCEQ adopted rules extending the applicability of the remaining control, monitoring, testing, recordkeeping, and reporting requirements in 30 TAC Chapter 115 to include all nine counties in the DFW eight-hour ozone nonattainment area. With the adoption of these rules the new five counties are subject to the same rules EPA has proposed to approve as RACT for the original four-county DFW area.

The only comment the TCEQ received regarding additional controls was a suggestion that thermal oxidizers be used to control VOC emissions from cement kilns. As discussed in the preamble to the adopted rule to be considered on November 15, 2006, the use of thermal oxidizers does not represent RACT for control of VOC emissions from cement kilns because it is not economically reasonable. In addition, since modeling discussed in Chapter 2 of this proposed

SIP revision indicates the reduction of VOC emissions has less benefit in reducing ozone levels than reduction in NO_X emissions, the level of control required by the rules in 30 TAC Chapter 115 continues to represent RACT for the nine-county DFW area.

The TCEQ reviewed EPA CTG and ACT documents to verify the 30 TAC Chapter 115 rules still satisfy the RACT requirements for all applicable major source types. The TCEQ reviewed the emission inventory (EI) database for emission sources that reported 50 tons per year (tpy) or more of VOC emissions in 2002 to determine if there are major sources of VOC emissions not covered by a CTG. A major source of VOC emissions in the DFW area is one with the potential to emit 100 tpy or more of VOC, but because the EI reports actual emissions rather than potential to emit, the TCEQ looked at sources with as few as 50 tpy of actual emissions. Since any major sources of VOC emissions are required to have a Title V operating permit, the TCEQ also reviewed the Title V database to ensure there were no additional sources of VOC emissions with Title V permits or applications pending.

4.5.3 NO_X RACT Demonstration

The emission specifications for attainment demonstration established in 30 TAC Chapter 117, Subchapter B, Division 4 (relating to Combustion Control at Major Industrial, Commercial, and Institutional Sources in Nonattainment Areas; Dallas-Fort Worth Eight-Hour Ozone Nonattainment Area) regulate all major sources of NO_X emissions in the area and consistently contain lower NO_X emission limits than those established by CTG and ACT documents, EPA guidelines and policies, and those technologies and methodologies currently considered RACT by the EPA and other affected states.

Due to the significant NO_X emissions reductions necessary to demonstrate ozone attainment in the region, the proposed eight-hour emissions specifications are more stringent than those generally considered RACT. To ensure the proposed DFW eight-hour emission specifications fulfill the RACT requirements for all applicable major source types, the specifications in the rules have been compared to and are more stringent than the controls contained in the CTG and ACT guidance documents and current control technologies and methodologies implemented as RACT in other moderate nonattainment areas.

4.5.4 Conclusion

The State adopted rules fulfilling the VOC RACT requirements for all nine counties in the DFW eight-hour ozone nonattainment area. Table 4-11: *DFW VOC RACT Analysis Table 1* notes the state rules addressing the RACT requirements for sources in the CTG and ACT documents. A negative declaration is provided in the table for source types described within the EPA guidance documents that do not exist in the DFW area. Table 4-12: *DFW VOC RACT Analysis Table 2* lists the major VOC sources in the new five counties of the DFW area and the relevant RACT requirement.

The proposed 30 TAC Chapter 117 DFW eight-hour ozone NO_X emission specifications for attainment demonstration are equal to or lower than the emission limits associated with the controls contained in the CTG and ACT guidance documents and current control technologies and methodologies implemented as RACT in other moderate nonattainment areas.

Table 4-13: *DFW NO_X RACT Analysis Table* provides the state specifications addressing the RACT requirements for sources in the CTG and ACT documents or generally recognized major NO_X emission sources considered in the RACT analysis of other moderate nonattainment regions. A negative declaration is provided in the table for source types described within the EPA guidance documents or generally recognized major NO_X emission sources considered in the RACT analysis of other regions that do not exist in the DFW eight-hour area. For CTG and ACT categories that are not regulated under the proposed eight-hour ozone DFW rules, there are either no sources in the area subject to these CTG and ACT categories, or sources exist but are not major and are not required to demonstrate RACT compliance.

Table 4-11: DFW VOC RACT Analysis Table 1

CTG/ACT Source Category	CTG/ACT Reference Document	30 TAC Specification Fulfilling RACT Requirements
Aerospace	Guideline Series: Control of Volatile Organic Compound Emissions from Coating Operations at Aerospace Manufacturing and Rework Operations, EPA-453/R-97-004, EPA-68/D1-00115, EPA-453/D-96-016, December 1997 (see 59 FR 29216, June 6, 1994)	§§115.420 – 429
Agricultural Pesticides (not a category for which Texas is required to adopt RACT rules)	Control of Volatile Organic Compound Emissions from the Application of Agricultural Pesticides, EPA-450/R-92-011, March 1993	ACT document does not give presumptive RACT controls
Architectural and Industrial Maintenance Coatings	Reduction of Volatile Organic Compound Emissions from Application of Traffic Markings, EPA-450/3-88-007, August 1988 (Note – the Architectural and Industrial Maintenance coatings national rule issued in 1998 includes limits for traffic coatings and superseded the ACT)	National rule
Automobile Coating	The Reduction of Volatile Organic Compound Emissions from Automobile Refinishing, EPA-450/3-88-009, October 1988, NTIS No PB-89-148-282	§§115.420 – 429
Automobile Refinishing	Alternative Control Techniques Document: Automobile Body Refinishing, EPA-453/R-94-031, April 1994 (Note: a national rule for auto-body refinishing was issued in 1998 after the ACT)	§§115.420 – 429
Batch Processes	Alternative Control Techniques Document: Control of Volatile Organic Compound Emissions from Batch Processes, EPA-453/R-93-017 or EPA 453/R-93-020, February 1994	No existing major sources in the DFW eight-hour ozone area (SIC 2821, 2833, 2834, 2861, 2865, 2869, and 2879)
Bulk Gasoline Plants	Control of Volatile Organic Emissions from Bulk Gasoline Plants, EPA-450/2-77-035, December 1977	§§115.211 – 219
Cleaning Solvents	Alternative Control Techniques Document: Industrial Cleaning Solvents, EPA-453/R-94-015, February 1994	§§115.412 – 419 and §§115.420 – 429
Commercial Bakeries	Alternative Control Techniques Document: Bakery Ovens, EPA-453/R-92-017, December 1992	§§115.120 – 129
Cutback Asphalt	Control of Volatile Organic Compounds from Use of Cutback Asphalt, EPA-450/2-77-037, December 1977	§§115.510 – 519
Ethylene Oxide Sterilization/	Alternative Control Technology Document: Ethylene Oxide Sterilization/Fumigation	Covered by MACT per §113.200

CTG/ACT Source Category	CTG/ACT Reference Document	30 TAC Specification Fulfilling RACT Requirements
Fumigation Operations	Operations, EPA-450/3-89-007, March 1989	
Fugitive Emissions	Fugitive Emission Sources of Organic Compounds – Additional Information on Emissions, Emission Reductions, and Costs, EPA-450/3-82-010, April 1982	§§115.352 – 359
Gasoline Service Stations	Design Criteria for Stage I Vapor Control Systems - Gasoline Service Stations, November 1975	§§115.221 – 229
Graphic Arts	Control of Volatile Organic Emissions from Existing Stationary Sources, Volume VIII: Graphic Arts - Rotogravure and Flexography, EPA-450/2-78-033, December 1978	§§115.430 – 439
Graphic Arts	Control of Volatile Organic Compound Emissions from Offset Lithographic Printing, September 1993	§§115.440 – 449
Graphic Arts	Alternative Control Technology Document: Offset Lithographic Printing, EPA-453/R-94-054, June 1994	§§115.440 – 449
Industrial Wastewater	Control Techniques for Industrial Wastewater, EPA-453/D-93-056, September 1992 [ACT: April 1994, consists of cover memo with option tables and CTG]	§§115.140 – 149
Ink and Paint Manufacturing	Alternative Control Technology Document: Control of Volatile Organic Compounds from Ink and Paint Manufacturing, EPA-453/3-92-013	No existing major sources in the DFW eight-hour ozone area (SIC 2842 and 2851)
Leather Tanning and Finishing Operations	Alternative Control Technology Document: Leather Tanning and Finishing Operations, EPA-453/R-93-025	No existing major sources in the DFW eight-hour ozone area (SIC 3111)
Metal Furniture	Control of Volatile Organic Emissions from Existing Stationary Sources, Volume III: Surface Coating of Metal Furniture, EPA-450/2-77-032, December 1977	§§115.420 – 429
Natural Gas/Gasoline Processing	Control of Volatile Organic Compound Equipment Leaks from Natural Gas/Gasoline Processing Plants, EPA-450/2-83-007, December 1983	§§115.352 – 359
Petroleum Dry Cleaners	Control of Volatile Organic Compound Emissions from Large Petroleum Dry Cleaners, EPA-450/3-82-009, September 1982	Contingency Measures: §§115.552 – 553 §§115.555 – 557 §115.559
Petroleum Liquid Storage	Control of Volatile Organic Emissions from Storage of Petroleum Liquids in Fixed Roof Tanks, EPA-450/2-77-036, December 1977	§§115.112 – 119
Petroleum	Control of Volatile Organic Emissions from	§§115.112 – 119

CTG/ACT Source Category	CTG/ACT Reference Document	30 TAC Specification Fulfilling RACT Requirements
Liquid Storage	Petroleum Liquid Storage in External Floating Roof Tanks, EPA-450/2-78-047, December 1978	
Petroleum Liquid Storage	Alternative Control Techniques Document: Volatile Organic Liquid Storage in Floating and Fixed Roof Tanks, EPA-453/R-94-001, January 1994	§§115.112 – 119
Plywood Veneer Dryers	Control Techniques for Organic Emissions from Plywood Veneer Dryers, EPA-450/3-83-012, May 1983	No existing major sources in the DFW eight-hour ozone area (SIC 2435 and 2436)
Process Vents	Alternative Control Technology Document: Organic Waste Process Vents, EPA-450/3-91-007, December 1990	Covered by the general vent gas rule §§115.120 – 129
Refineries	Control of Refinery Vacuum Producing Systems, Wastewater Separators, and Process Unit Turnarounds, EPA-450/2-77-025, October 1977	§§115.311 – 319 and §§115.131 – 139
Refineries	Control of Volatile Organic Compound Leaks from Petroleum Refinery Equipment, EPA-450/2-78-036, June 1978	§§115.352 – 359
Rubber Tires	Control of Volatile Organic Emissions from Manufacture of Pneumatic Rubber Tires, EPA-450/2-78-030, December 1978	No existing major sources in the DFW eight-hour ozone area (SIC 3011)
Shipbuilding and Ship Repair	Control Technique Guidelines for Shipbuilding and Ship Repair Operations, EPA-453/R-94-032, April 1994	No existing major sources in the DFW eight-hour ozone area (SIC 3731)
Shipbuilding and Ship Repair	Control Technique Guidelines for Shipbuilding and Ship Repair Surface Coating Operations, 61 FR 44050, August 27, 1996	No existing major sources in the DFW eight-hour ozone area (SIC 3731)
Solvent Cleaning	Control of Volatile Organic Emissions from Solvent Metal Cleaning, EPA-450/2-77-022, November 1977	§§115.412 – 419 and §§115.420 – 429
Solvent Cleaning	Alternative Control Technology Document: Halogenated Solvent Cleaners, EPA-450/3-89-030, August 1989	§§115.412 – 419
Stationary Sources	Control Techniques for Volatile Organic Compound Emissions from Stationary Sources, EPA-453/R-92-018, December 1992	Basic reference – does not contain control requirements for specific sources
Surface Coating	Control of Volatile Organic Emissions from Existing Stationary Sources, Volume I: Control Methods for Surface Coating Operations, EPA-450/2-76-028, November 1976	§§115.420 – 429
Surface Coating	Control of Volatile Organic Emissions from Existing Stationary Sources, Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks, EPA-	§§115.420 – 429

CTG/ACT Source Category	CTG/ACT Reference Document	30 TAC Specification Fulfilling RACT Requirements
	450/2-77-008, May 1977	
Surface Coating	Control of Volatile Organic Emissions from Existing Stationary Sources, Volume IV: Surface Coating for Insulation of Magnet Wire, EPA-450/2-77-033, December 1977	Covered by rules for miscellaneous metal parts and products in §§115.420 – 429
Surface Coating	Control of Volatile Organic Emissions from Existing Stationary Sources, Volume V: Surface Coating of Large Appliances, EPA-450/2-77-034, December 1977	§§115.420 – 429
Surface Coating	Control of Volatile Organic Emissions from Existing Stationary Sources, Volume VI: Surface Coating of Miscellaneous Metal Parts and Products, EPA-450/2-78-015, June 1978	§§115.420 – 429
Surface Coating	Control of Volatile Organic Emissions from Existing Stationary Sources, Volume VII: Factory Surface Coating of Flat Wood Paneling, EPA-450/2-78-032, June 1978	§§115.420 – 429
Surface Coating	Alternative Control Techniques Document: Surface Coating of Automotive/Transportation and Business Machine Plastic Parts, EPA-453/R-94-017, February 1994	§§115.420 – 429
Synthetic Organic Chemical Manufacturing Industry	Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products, 450/2-78-029, December 1978	§§115.531 – 539
Synthetic Organic Chemical Manufacturing Industry	Control of Volatile Organic Compound Emissions from Manufacture of High-Density Polyethylene, Polypropylene, and Polystyrene Resins, EPA-450/3-83-008, November 1983	§§115.120 – 129
Synthetic Organic Chemical Manufacturing Industry	Control of Volatile Organic Compound Fugitive Emissions from Synthetic Organic Chemical Polymer and Resin Manufacturing Equipment, EPA-450/3-83-006, March 1984	§§115.352 – 359
Synthetic Organic Chemical Manufacturing Industry	Control of Volatile Organic Compound Emissions from Air Oxidation Processes in Synthetic Organic Chemical Manufacturing Industry, EPA-450/3-84-015, December 1984	§§115.120 – 129
Synthetic Organic Chemical Manufacturing Industry	Polystyrene Foam Manufacturing, EPA-450/3-90-020, 1990	§§115.120 – 129
Synthetic	Control of Volatile Organic Compound	§§115.120 – 129

CTG/ACT Source Category	CTG/ACT Reference Document	30 TAC Specification Fulfilling RACT Requirements
Organic Chemical Manufacturing Industry	Emissions from Reactor Processes and Distillation Operations in Synthetic Organic Chemical Manufacturing Industry, EPA-450/4-91-031, August 1993	
Tank Trucks	Control of Hydrocarbons from Tank Truck Gasoline Loading Terminals, EPA-450/2-77-026, December 1977	§§115.211 – 219 or §§115.221 – 229
Tank Trucks	Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems, EPA-450/2-78-051, December 1978	§§115.211 – 219 and §§115.234 – 239
Vegetable Oil Manufacturing	Control of Volatile Organic Emissions from Manufacture of Vegetable Oils, EPA-450/2-78-035, June 1978	No existing major sources in the DFW eight-hour ozone area (SIC 2046 and 2076)
Wood Furniture Manufacturing	Guideline Series: Control of Volatile Organic Compound Emissions from Wood Furniture Manufacturing Operations, EPA-453/D-95/002	§§115.420 – 429
Wood Furniture Manufacturing	Guidelines Series: Control of Volatile Organic Compound Emissions from Wood Furniture Manufacturing Operations, EPA-453/R-96-007, April 1996 (see also 61 FR 25223, and, 61 FR 50823, September 27, 1996)	§§115.420 – 429

Table 4-12: DFW VOC RACT Analysis Table 2
VOC Emissions from Point Sources in Ellis, Johnston, Kaufman, Parker, and Rockwall Counties
Accounts with VOC Emissions > 50 tons per year Based on 2002 EI

ACCOUNT		SIC	VOC tons/yr	Source category or description	Covered by RACT	Com-ment
ED0099J	HOLCIM TEXAS LIMITED PARTNERSHIP	3241	626.67	Cement kilns	yes	1
ED0168P	DARTCO OF TEXAS LP	3089	539.65	Foam containers	yes	2
ED0011D	CHAPARRAL STEEL MIDLOTHIAN LP	3312	339.59	Iron/steel foundry electric arc furnaces	yes	3
JH0025O	JOHNS MANVILLE INTERNATIONAL INC	3296	219.30	Fiberglass curing	yes	4
ED0051O	OWENS-CORNING WAXAHACHIE PLANT	3296	137.50	Fiberglass forming and curing	yes	5
KB0015U	VISTAWALL ARCHITECTURAL PRODUCTS	3354	112.37	Aluminum coating	yes	6
PC0001E	ACME BRICK BENNETT PLANT	3251	90.59	Brick kiln	yes	7
PC0013U	ENBRIDGE GATHERING SPRINGTOWN GAS PLANT	1321	91.90	Gas plant (including fugitives, storage tanks)	yes	8
ED0332D	MIDLOTHIAN ENERGY LP	4911	77.39	Gas-fired combustion turbines	yes	9
KB0073G	MADIX INC SKYLINE MFG FACILITY	2542	63.49	Surface coating misc. metal parts	yes	6
ED0018M	ELK CORPORATION OF TEXAS	2952	59.66	Asphalt roofing	yes	10
ED0032S	G.S. ROOFING PRODUCTS	2952	51.27	Asphalt roofing	yes	10

Comments

1 Control of VOC emissions is not economically reasonable.

2 VOC emissions are controlled per BACT in NSR Permit No. 18505. Additional control for RACT is not economically reasonable.

3 VOC emissions are controlled per BACT in NSR Permit No. 1635, 3026, 5983, 8097, 8099. Further control may be required by MACT.
Additional control for RACT is not economically reasonable.

4 VOC emissions are controlled per BACT in NSR Permit No. 946A, 1218. Additional control for RACT is not economically reasonable.

5 VOC emissions are controlled per BACT in NSR Permit No. 6093. Additional control for RACT is not economically reasonable.

6 Surface coating operations are covered by RACT in Chapter 115, Subchapter E, Division 2.

7 VOC emissions are controlled per BACT in NSR Permit No. 25937. Additional control for RACT is not economically reasonable.

8 VOC emissions from equipment leak fugitives are covered in 115 Sub D Div 3; from storage tanks by Sub B Div 1.

9 VOC emissions arise from natural gas combustion; control is not economically reasonable.

10 VOC emissions are controlled per BACT in NSR Permits. Additional control for RACT is not economically reasonable.

Table 4-13: DFW NO_X RACT Analysis

CTG/ACT Source Category	CTG/ACT Reference Document	30 TAC Specification Fulfilling RACT Requirements
Brick & Ceramic Manufacturing	Non-CTG Major NO_X Source	§117.410(b)(7)(B)
Cement Manufacturing	NO_X Emissions from Cement Manufacturing, EPA-453/R-94-004, March 1994 (Updated September 2000)	Existing §117.265 and proposed new §117.3110(a) – (f) & §117.3123
Coke, Wood, Rice, and Other Biomass-Fired Boilers	Non-CTG Major NO_X Source	No existing major sources in DFW eight-hour ozone area
Fiberglass Manufacturing	Non-CTG Major NO_X Source	§117.410(b)(10) & (11)
Fuel Switching	Fuel Switching to Meet NO_X RACT for NO_X, EPA Memorandum, July 30, 1993	Chapter 117 Subchapter B, Division 4 & Subchapter C, Division 4 contain NO_X emission limits for all fuel sources used in DFW
Glass Manufacturing	NO_X Emissions from Glass Manufacturing, EPA-453/R-94-037, June 1994	§117.410(b)(10) & (11)
Hot Mix Asphalt Plants	Non-CTG Major NO_X Source	No existing major sources in DFW eight-hour ozone area
Incinerators	Non-CTG Major NO_X Source	§117.410(b)(9)
Industrial, Commercial, and Institutional Boilers	NOx Emissions from Industrial, Commercial & Institutional Boilers, EPA-453/R-94-022, March 1994	§117.410(b)(1) & (2)
Iron and Steel	NO_X Emissions from Iron and Steel, EPA-453/R-94-065, September 1994	§117.410(b)(8)
Lead Smelting	Non-CTG Major NO_X Source	§117.410(b)(8)
Lightweight Aggregate Kilns	Non-CTG Major NO_X Source	No existing major sources in DFW eight-hour ozone area
Lime Manufacturing	Non-CTG Major NO_X Source	§117.410(b)(7)(A)
Magnesium Chloride Fluidized Bed Dryers	Non-CTG Major NO_X Source	No existing major sources in DFW eight-hour ozone area
Natural Gas-Fired Dryers, Heaters, and Ovens at Major Sources	Non-CTG Major NO_X Source	§117.410(b)(12) & (13)
Nitric and Adipic Acid Manufacturing	NO_X Emissions from Nitric and Adipic Acid Manufacturing Plants, EPA-453/3-91-026, December 1991	Chapter 117, Subchapter F, Divisions 1, 2, & 3 contain Acid Manufacturing NO_X limits
Oilfield Drilling Operations	Non-CTG Major NO_X Source	No existing major sources in DFW eight-hour ozone area
Other Minerals	Non-CTG Major NO_X Source	No existing major sources

CTG/ACT Source Category	CTG/ACT Reference Document	30 TAC Specification Fulfilling RACT Requirements
Processing Kilns		in DFW eight-hour ozone area
Petroleum Refining Operations	Non-CTG Major NO_X Source	No existing major sources in DFW eight-hour ozone area
Process Heaters	NO_X Emissions from Process Heaters, EPA-453/R-93-034, revised September 1993	§117.410(b)(3)
Pulping Liquor Recovery Furnaces	Non-CTG Major NO_X Source	No existing major sources in DFW eight-hour ozone area
Pyrolysis Reactors	Non-CTG Major NO_X Source	No existing major sources in DFW eight-hour ozone area
Stationary Internal Combustion Engines	NO_X Emissions from Stationary Internal Combustion Engines, EPA-453/R-93-032, July 1993 (Updated September 2000)	§117.410(a) & (b)(4)
Stationary Turbines	NO_X Emissions from Stationary Combustion Turbines, EPA-453/R-93-007, January 1993	§117.410(b)(5)
Utility Auxiliary Steam Boilers	Non-CTG Major NO_X Source	§117.1310(a)(2) (expanding existing §117.105 RACT limit to nine-county area)
Utility Boilers	NO_X Emissions from Utility Boilers, EPA-453/R-94-023, March 1994	§117.1310(a)(1)
Utility Stationary Gas Turbines	Non-CTG Major NO_X Source	§117.1310(a)(3) (expanding existing §117.105 RACT limit to nine-county area)

4.6 REASONABLY AVAILABLE CONTROL MEASURES (RACM) ANALYSIS

4.6.1 Introduction

Section 172(c)(1) of the FCAA requires states to "provide for implementation of all reasonably available control measures as expeditiously as practicable" and to include RACM analyses in the SIP. In the General Preamble for implementation of the FCAA Amendments (57 FR 13498), the EPA interprets Section 172(c)(1) as a requirement that states incorporate all reasonably available control measures that would advance a region's attainment date into their SIP. However, regions are obligated to adopt only those measures that are reasonably available for implementation in light of local circumstances. In the preamble, EPA provided guidelines to help states determine which measures should be considered reasonably available:

> *If it can be shown that one or more measures are unreasonable because emissions from the sources affected are insignificant (i.e. de minimis), those measures may be excluded from further consideration...the resulting available control measures should then be evaluated for reasonableness, considering their technological feasibility and the cost of control in the area to which the SIP applies...In the case of public sector sources and control measures, this evaluation should consider the impact of the reasonableness of the measures on the municipal or other government entity that must bear the responsibility*

for their implementation.

On July 2, 2002, the U.S. Court of Appeals upheld EPA's definition of RACM, including the consideration of economic and technological feasibility, the ability to cause substantial widespread and long-term adverse impacts, the collective ability of the measures to advance a region's attainment date, and whether an intensive or costly effort will be required to implement the measures.

4.6.2 Control Strategy Development

The TCEQ contracted with the North Central Texas Council of Governments (NCTCOG) to evaluate and quantify potential control measures for the DFW eight-hour ozone SIP. The NCTCOG subcontracted with two consultants, Environ International (Environ) and the Sierra Nevada Air Quality Group (SNAQG), to perform the strategy development work.

The NCTCOG and consultants first compiled a master list of potential control strategies by consulting a number of sources. These sources included the South Coast Air Quality Management District (SCAQMD) 2003 Air Quality Management Plan, EPA ozone Early Action Compact (EAC) control measures, the Port of Long Beach (POLB), control strategies developed for the 2000 DFW SIP revision, control strategies developed in 2004 by the Texas Transportation Institute (TTI), the Port of Los Angeles (POLA), the Lake Michigan Air Directors' Consortium (LADCO), the Ozone Transport Commission (OTC), and various other sources. For a complete list of the control strategy sources of the NCTCOG master list, please refer to Appendix I, Part I-1: *NCTCOG Control Strategy Sources*.

The initial master list consisted of 1,050 potential control strategies. Of these strategies, 176 applied to area sources; 628 applied to on-road mobile sources; 86 of them applied to non-road mobile sources; and 106 applied to point sources. There were an additional 54 strategies that fell under the category "Policy/Outreach," that were later bundled into the other four categories during the evaluation process. For the control strategy master list, please refer to Appendix I, Part I-2: *NCTCOG Control Strategy Master List*.

The NCTCOG, Environ, and the SNAQG evaluated the master list of strategies using a two-phase methodology. In phase one, each control strategy was systematically screened against the four EPA SIP criteria (permanent, quantifiable, enforceable, and surplus). In the second phase, the strategies meeting the EPA criteria were evaluated against a second set of criteria (practicality, likely public acceptance, emissions benefit, and cost effectiveness). Each strategy was given a score of one (low) to four (high) for each of the criteria. The strategies with a high total score were then placed on a draft short list that was taken out for public comment during stakeholder meetings in September 2005. To see the information presented at the stakeholder meetings, please refer to Appendix I, Part I-3: *NCTCOG Stakeholder Presentations*.

Based on public comment received at the September 2005 meetings, the NCTCOG, Environ, and the SNAQG revised their draft short list and created a final short list of control measures, then quantified reductions associated with these measures. The NCTCOG submitted the quantified control strategy short list along with accompanying documentation to the TCEQ in January 2006. Please refer to Appendix I, Part I-4: *NCTCOG Final Control Strategy Short List*, specifically Part I-4a: *Letter and Control Strategy Summary Table.*

The EPA submitted a list of potential control strategies to the TCEQ for possible inclusion in the DFW SIP. Please refer to Appendix I, Part I-5: *EPA Control Strategies.* This list included NO_X and VOC strategies for stationary and area sources, non-road and on-road sources, energy efficiency and renewable energy measures, and longer-term measures. The TCEQ compared the strategies on the EPA list to the strategies on the NCTCOG master list and final short list.

The NCTCOG actively sought public comment throughout the entire control development

process. A series of public meetings were held in the DFW region during June and September 2005. Public stakeholder meetings were held in Fort Worth, Arlington, and Richardson in September and December 2005. In addition, control strategy development was discussed at public meetings of the North Texas Clean Air Steering Committee from June 2005 to January 2006. The NCTCOG Regional Transportation Council and Surface Transportation Technical Committee also discussed control strategy development at several of their meetings. Additionally, public comment was sought at a meeting of the Clean Cities Technical Coalition in July 2005 and at a meeting of the Houston Regional Air Quality Planning Committee in October 2005. The public was provided with numerous opportunities to provide input in the control strategy development process.

4.6.3 Evaluation Criteria

Consistent with the U.S. District Court's opinion and EPA guidance, the TCEQ has defined specific criteria for the evaluation of potential RACM measures in the DFW eight-hour ozone nonattainment area. In order for an individual measure to be considered RACM, the measure must meet the following criteria.

- The measure will reduce emissions in the DFW area prior to the beginning of the 2009 ozone season.
- The measure can be implemented before January 1, 2009.
- The measure is enforceable.
- The measure is technically feasible.
- The measure is economically feasible.
- The measure would not create substantial or widespread adverse impacts within the region.
- Emissions from the source being controlled exceed a de minimis threshold.

Collectively, any RACM measures must meet the following criteria.

- The measures will enable the region to reduce ozone below 85 ppb prior to the beginning of the 2009 ozone season.
- The measures can be implemented without intensive or costly effort.

4.6.4 Point and Area Source RACM Analysis

The criteria discussed above were used to evaluate all suggested control measures. Appendix I, Part I-6: *Point and Area Source NO_X RACM Analysis for the Dallas-Fort Worth Eight-Hour Ozone Nonattainment Area* and Appendix I, Part I-7: *Point and Area Source VOC RACM Analysis for the Dallas-Fort Worth Eight-Hour Ozone Nonattainment Area* contain the RACM analysis of all suggested point and area source control measures. The analysis includes a brief description of each control measure, a determination as to whether or not the measure will advance the attainment date, and either justification for not implementing the control measure or the proposed state rule that would implement the control measure. For additional analysis and quantification of control measures considered, please refer to Appendix I, Part I-4: *NCTCOG Final Control Strategy Short List*, specifically Part I-4b: *Analysis of Short List Strategies.*.

4.6.5 Mobile Source RACM Analysis

The NCTCOG and its subcontractors analyzed and quantified 11 non-road mobile strategies. The non-road strategies considered were: aircraft emission standards, California portable engine rule, emission reduction contract incentives with public funding, enhanced TERP, freight rail infrastructure improvements, hybrid-electric locomotives, a lawn mower replacement program, limitations on idling of heavy-duty construction equipment, locomotive idling restrictions, rail efficiency, and Tier II.

The NCTCOG and its subcontractors analyzed and quantified 32 on-road mobile strategies. The on-road strategies considered were: 1974 and older model year vehicles I/M exemption, additional taxi fleet emissions testing, AirCheck Texas repair and replacement assistance

program, bicycle and pedestrian programs, California low-emitting vehicle II standards, CARB 2007 on-highway diesel engine standards, carsharing, congestion (value) pricing, drive-thru service restrictions, enhanced AirCheck Texas repair and replacement assistance program, best workplaces program, carpooling, transit subsidy programs, vanpooling, expanded I/M to include diesel vehicles, expanded I/M to surrounding counties, fare-free transit—system-wide on ozone action days, freeway and arterial bottleneck programs, heavy-duty idling restriction, higher vehicle occupancies, idle reduction infrastructure, intelligent transportation systems, light-duty vehicle idling restrictions, lower Reid vapor pressure, military ground equipment emissions testing, parking cash-out, pay-as-you-drive, speed limit decrease for heavy-duty diesel trucks, stricter I/M enforcement, traffic signal improvements, transit, and transit off-peak pass.

For an analysis of each mobile measure considered for analysis and quantification, please refer to Appendix I, Part I-4: *NCTCOG Final Control Strategy Short List*. The NCTCOG selected a list of mobile measures to implement. The measures committed to by NCTCOG are found in Chapter 4 of this SIP submittal under Transportation Control Measures and Voluntary Mobile Emission Reduction Measures. Appendix I, Part I-8: *NCTCOG Final Submittal of On-Road and Non-Road Emissions Benefits* contains the letter dated September 15, 2006, from Mr. Michael Morris, Director of NCTCOG Transportation, to Ms. Theresa Pella, Manager of the TCEQ Air Quality Planning Section, detailing the commitment to these measures.

4.7 MOTOR VEHICLE EMISSIONS BUDGET (MVEB)

The motor vehicle emissions budget refers to the maximum allowable emissions from on-road mobile sources for each applicable criteria pollutant or precursor as defined in the SIP. The budget must be used in transportation conformity analyses. Areas must demonstrate the estimated emissions from transportation plans, programs, and projects do not exceed the motor vehicle emissions budget. The attainment budget represents the on-road mobile source emissions that have been modeled for the attainment demonstration. The budget reflects all of the on-road control measures reflected in that demonstration. The motor vehicle emissions budget is shown in Table 4-14: *2009 Attainment Demonstration Motor Vehicle Emissions Budget for the Nine-County DFW Area*. For additional detail, see *Appendix H: Voluntary Mobile Source Emission Reduction Programs for the DFW Eight-Hour SIP*.

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Table 4-12: 2009 Attainment Demonstration Motor Vehicle Emissions Budget for the Nine-County DFW Area

Nine-County DFW Area	**Total Emissions** (tpd)	
	NO_x	**VOC**
DFW motor vehicle emissions budget	178.65	91.33

The modeling control strategy sensitivity run (Combination 4) is based on NCTCOG's initial VMEP estimates and assumes VMEP will reduce NOx emission by 16.3 tpd. NCTCOG's refined estimate is 2.63 tpd of NO_X reductions. The modeling control strategy sensitivity run will be corrected to reflect this change prior to adoption of this SIP revision. Upon final enactment of this SIP revision, which will occur after a public comment period and finalization of the strategies and modeling, the MVEB will be adjusted to reflect the final on-road emission reductions commitment from the region's transportation policy board.

4.8 CONTINGENCY MEASURES

Contingency measures that were put in place for the one-hour ozone standard were never triggered, and as such, they will remain in place for the eight-hour ozone standard. See the TCEQ VOC rules on Off-set Lithographic Printing §115.449(c), Degassing or Cleaning of Stationary, Marine, and Transport Vessels §115.549(b), and Petroleum Dry Cleaning §115.559(a).