

Revisions to the State Implementation Plan (SIP)  
for the Control of Ozone Air Pollution

HOUSTON-GALVESTON-BRAZORIA EIGHT-HOUR OZONE NONATTAINMENT AREA  
REASONABLE FURTHER PROGRESS SIP

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
P.O. BOX 13087  
AUSTIN, TEXAS 78711-3087

Adoption  
May 23, 2007

PROJECT NO. 2006-030-SIP-NR

## EXECUTIVE SUMMARY

Section 182 of the 1990 Federal Clean Air Act Amendments (FCAAA) requires ozone nonattainment areas with air quality classified as moderate or higher to submit plans showing reasonable further progress (RFP) towards attainment of the NAAQS. The Houston-Galveston-Brazoria (HGB) area is classified as a moderate nonattainment area for the eight-hour ozone standard with an attainment date of June 15, 2010. The RFP SIP is not required or intended to demonstrate attainment of the ozone National Ambient Air Quality Standards (NAAQS), but rather is to demonstrate that ozone precursor emissions will be reduced by 15 percent for the period between 2002 and 2008.

This SIP demonstrates that the RFP 15 percent reduction requirement will be met for the analysis period of 2002 to 2008. Demonstration of RFP is based on the guidelines set forth in the EPA Phase II Eight-Hour Ozone Implementation Rule (published in the November 29, 2005, Federal Register Vol. 70, No. 228) (40 CFR §51.910) specifying how eight-hour ozone nonattainment areas must demonstrate RFP. Target year inventories include the latest information available to estimate emissions growth. Target levels for 2008 also account for RFP corrections and non-creditable reductions. All of the RFP inventories are based upon an ozone season weekday analysis.

The RFP methodology involves development of the base year and milestone year inventories, emission reductions for each milestone year, and an estimate of the effects of non-creditable reductions and pre-1990 FCAAA rules. Through this methodology the 15 percent reduction amount is determined. Once these values have been calculated, the milestone target levels and emission inventories can be compared to determine if the forecasted controlled emission inventories are less than the target level. The results demonstrating that the HGB RFP area meets the FCAAA RFP requirements for the 2008 milestone year are shown in Table 3-3: *Summary of RFP Demonstration for Eight HGB Counties*.

This SIP revision also sets the nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC) motor vehicle emission budgets (MVEBs) for transportation conformity purposes for the milestone year 2008. An MVEB is the on-road mobile source allocation of the total allowable emissions for each applicable criteria pollutant or precursor, as defined in the SIP. Transportation conformity determinations must be performed using the budget test, once EPA determines the budget adequate for transportation conformity purposes. To pass the budget test, areas must demonstrate that the estimated emissions from transportation plans, programs, and projects do not exceed the motor vehicle emissions budget for the established year.

Although no new on-road mobile source controls have been adopted for the HGB RFP SIP, the on-road mobile emission inventories and control reduction values have been updated using the latest EPA on-road mobile source inventory development tool, MOBILE6. Since the inventories have changed, the MVEBs are updated as part of this SIP revision. Chapter 5 documents the development of the revised RFP MVEBs for the eight-county HGB ozone nonattainment area. A summary of the revised MVEBs is presented in Table ES-1: RFP Motor Vehicle Emission Budgets for HGB. This MVEB remains consistent with the 2007 NO<sub>x</sub> MVEB budget from the HGB Mid-Course Review SIP as adopted on December 1, 2004, by the Commission.

**Table ES-1: RFP Motor Vehicle Emission Budgets for HGB**

Description	NO <sub>x</sub> tpd	VOC tpd
2008 RFP MVEBs	186.13	86.77

Based on comments received from the EPA during the public comment period, changes were made to the proposed HGB RFP SIP in Chapters 2 and 5. Table 2-11: *HGB RFP Ozone Season Weekday On-Road Mobile Source NO<sub>x</sub> Emissions and Control Strategy Reductions* and Table 2-

12: *HGB RFP Ozone Season Weekday On-Road Mobile Source VOC Emissions and Control Strategy Reductions* were added and updated MVEB calculations and tables are provided in Chapter 5.

## SECTION V: LEGAL AUTHORITY

### A. General

The TCEQ has the legal authority to implement, maintain and enforce the national ambient air quality standards.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superseded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. The Legislature amended the TCAA in 1969, 1971, 1973, 1979, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003 and 2005. In 1989, the TCAA was codified as Chapter 382 of the Texas Health & Safety Code.

Originally, the TCAA stated that the Texas Air Control Board (TACB) is the state air pollution control agency and is principal authority in the state on matters relating to the quality of air resources. In 1991, the Legislature abolished the TACB effective September 1, 1993, and its powers, duties, responsibilities and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). With the creation of the TNRCC, the authority over air quality is found in both the Texas Water Code and the TCAA. Specifically, the authority of the TNRCC is found in Chapters 5 and 7 of the Texas Water Code. Chapter 5, Subchapters A - F, and H - J and L, include the general provisions, organization, and general powers and duties of the TNRCC, and the responsibilities and authority of the Executive Director. This Chapter also authorizes the TNRCC to implement action when emergency conditions arise, and to conduct hearings. Chapter 7 gives the TNRCC enforcement authority. In 2001, the 77<sup>th</sup> Texas Legislature continued the existence of the TNRCC until September 1, 2013, and changed the name of the TNRCC to the Texas Commission on Environmental Quality (TCEQ).

The TCAA specifically authorizes the TCEQ to establish the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general, comprehensive plan. The TCAA, Subchapters A - D, also authorize the TCEQ to collect information to enable the commission to develop an inventory of emissions; to conduct research and investigations; to enter property and examine records; to prescribe monitoring requirements; to institute enforcement proceedings; to enter into contracts and execute instruments; to formulate rules; to issue orders taking into consideration factors bearing upon health, welfare, social and economic factors, and practicability and reasonableness; to conduct hearings; to establish air quality control regions; to encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the Federal Government; to establish and operate a system of permits for construction or modification of facilities.

Local government authority is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. They also may make recommendations to the Commission concerning any action of the TCEQ that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA and the rules or orders of the Commission.

Subchapters F, G, and H of the TCAA authorize the TCEQ to establish low emission vehicle requirements for mass transit authorities, local government fleets, and private fleets; create a mobile emissions reduction credit program; establish vehicle inspection and maintenance programs in certain areas of the state, consistent with the requirements of the federal Clean Air

Act; establish gasoline volatility and low emission diesel standards; and fund and authorize participating counties to implement low-income vehicle repair assistance, retrofit, and accelerated vehicle retirement programs.

**B. Applicable Law**

The following statutes and rules provide necessary authority to adopt and implement the SIP.

Statutes

TEXAS HEALTH & SAFETY CODE, Chapter 382 September 1, 2005

TEXAS WATER CODE September 1, 2005

All sections of each subchapter are included, unless otherwise noted.

Chapter 5: Texas Natural Resource Conservation Commission

Subchapter A: General Provisions

Subchapter B: Organization of the Texas Natural Resource Conservation Commission

Subchapter C: Texas Natural Resource Conservation Commission

Subchapter D: General Powers and Duties of the Commission

Subchapter E: Administrative Provisions for Commission

Subchapter F: Executive Director (except §§ 5.225, 5.226, 5.227, 5.2275, 5.232, and 5.236)

Subchapter H: Delegation of Hearings

Subchapter I: Judicial Review

Subchapter J: Consolidated Permit Processing

Subchapter L: Emergency and Temporary Orders (§§ 5.514, 5.5145 and 5.515 only)

Chapter 7: Enforcement

Subchapter A: General Provisions (§§ 7.001, 7.002, 7.0025, 7.004, 7.005 only)

Subchapter B: Corrective Action and Injunctive Relief (§ 7.032 only)

Subchapter C: Administrative Penalties

Subchapter E: Criminal Offenses and Penalties: §§ 7.177, 7.179-7.181

Rules

All of the following rules are found in Title 30, Texas Administrative Code, as of the following effective dates:

Chapter 7, Memoranda of Understanding, §§ 7.110 and 7.119 May 2, 2002

Chapter 35, Subchapters A-C, K: Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions December 10, 1998

Chapter 39, Public Notice, §§ 39.201; 39.401; 39.403(a) and (b)(8)-(10); 39.405(f)(1) and (g); 39.409; 39.411 (a), (b)(1)-(6) and (8)-(10) and (c)(1)-(6) and (d); 39.413(9), (11), (12) and (14); 39.418(a) and (b)(3) and (4); 39.419(a), (b),(d) and (e); 39.420(a), (b) and (c)(3) and (4); 39.423 (a) and (b); 39.601; 39.602; 39.603; 39.604; and 39.605 August 15, 2002

Chapter 55, Request for Contested Case Hearings; Public Comment, §§ 55.1; 55.21(a) - (d), (e)(2), (3) and (12), (f) and (g); 55.101(a), (b), (c)(6) - (8); 55.103; 55.150; 55.152(a)(1), (2) and (6) and (b); 55.154; 55.156; 55.200; 55.201(a) - (h); 55.203; 55.205; 55.206; 55.209 and 55.211 August 29, 2002

Chapter 101: General Air Quality Rules	June 23, 2005
Chapter 106: Permits by Rule, Subchapters A	June 30, 2004
Chapter 111: Control of Air Pollution from Visible Emissions and Particulate Matter	November 18, 2004
Chapter 112: Control of Air Pollution from Sulfur Compounds	July 16, 1997
Chapter 113, Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants	June 15, 2005
Chapter 114: Control of Air Pollution from Motor Vehicles	May 19, 2005
Chapter 115: Control of Air Pollution from Volatile Organic Compounds	May 5, 2005
Chapter 116: Permits for New Construction or Modification	June 15, 2005
Chapter 117: Control of Air Pollution from Nitrogen Compounds	May 19, 2005
Chapter 118: Control of Air Pollution Episodes	March 5, 2000
Chapter 122, § 122.122: Potential to Emit	December 11, 2002
Chapter 122, § 122.215: Minor Permit Revisions	June 3, 2001
Chapter 122, § 122.216: Applications for Minor Permit Revisions	June 3, 2001
Chapter 122, § 122.217: Procedures for Minor Permit Revisions	December 11, 2002
Chapter 122, § 122.218: Minor Permit Revision Procedures for Permit Revisions Involving the Use of Economic Incentives, Marketable Permits, and Emissions Trading	June 3, 2001

## SECTION VI. CONTROL STRATEGY

A. Introduction (No Change)

B. Ozone (Revised)

1. *Dallas-Fort Worth RFP (Revised May 23, 2007)*

2. *Houston-Galveston-Brazoria RFP (Revised May 23, 2007)*

Chapter 1: General

Chapter 2: Emission Inventories

Chapter 3: Target Emission Levels and RFP Demonstration

Chapter 4: Control Measures to Achieve Target Emission Levels

Chapter 5: Motor Vehicle Emissions Budget

3. *Beaumont-Port Arthur (No change)*

4. *El Paso (No change)*

5. *Regional Strategies (No change)*

6. *Northeast Texas (No change)*

7. *Austin Area (No change)*

8. *San Antonio Area (No change)*

C. Particulate Matter (No change)

D. Carbon Monoxide (No change)

E. Lead (No change)

F. Oxides of Nitrogen (No change)

G. Sulfur Dioxide (No change)

H. Conformity with the National Ambient Air Quality Standards (No change)

I. Site Specific (No change)

J. Mobile Sources Strategies (No change)

K. Clean Air Interstate Rule (No change)

# Houston-Galveston-Brazoria Reasonable Further Progress List of Acronyms

ABY= Adjusted Base Year  
ATP= Anti-Tampering Programs  
DERCs = Discrete Emission Reduction Credits  
DFW= Dallas-Fort Worth  
EBT=Emissions Banking and Trading  
EDMS= Emissions and Dispersion Model System  
EDMS= Environmental Data Management System  
EGAS=Economic Growth Analysis System  
EGUs= Electric Generating Units  
EI= Emissions Inventory  
EIQs= Emissions Inventory Questionnaires  
EPA= Environmental Protection Agency  
ERCs= Emission Reduction Credits  
ESAD= Emission Specifications for Attainment  
Demonstration  
FCAA= Federal Clean Air Act Amendments  
FMVCP= Federal Motor Vehicle Control Program  
HDDVs= Heavy Duty Diesel Vehicles  
HGB= Houston-Galveston-Brazoria  
HGAC=Houston-Galveston Area Council  
I/M= Inspection and Maintenance  
MECT = Mass Emissions Cap and Trade Program  
MVEBs= Motor Vehicle Emission Budgets  
NAAQS= National Ambient Air Quality Standards  
NLEV= National Low Emission Vehicle  
NOx= Nitrogen Oxides  
REMI= Regional Economic Modeling, Inc.  
RFP=Reasonable Further Progress  
ROP= Rate of Progress  
RVP= Reid Vapor Pressure  
SIC= Standard Industrial Classification  
SIP = State Implementation Plan  
STARS= State of Texas Air Reporting System  
TCEQ=Texas Commission on Environmental Quality  
TDMs= Travel Demand Models  
TexAQS 2000= Texas Air Quality Study 2000  
TIPI= Texas Industrial Production Index  
tpd= Tons Per Day  
TxLED= Texas Low Emission Diesel  
VMT= Vehicle Miles Traveled  
VOC= Volatile Organic Compounds

# Houston-Galveston-Brazoria Reasonable Further Progress Table of Contents

*Executive Summary*

*List of Acronyms*

*Table of Contents*

*List of Appendices*

*List of Tables*

*Chapter 1: General*

- 1.1 Houston-Galveston-Brazoria Reasonable Further Progress Background
- 1.2 Reasonable Further Progress Requirements
- 1.3 Public Hearing and Comment Information
- 1.4 Social and Economic Considerations
- 1.5 Fiscal and Manpower Resources

*Chapter 2: Emission Inventories*

- 2.1 Introduction
- 2.2 Point Sources
- 2.3 Area Sources
- 2.4 Non-Road Mobile Sources
- 2.5 On-Road Mobile Sources
- 2.6 Biogenic Sources
- 2.7 Emissions Summary

*Chapter 3: Target Emission Levels and RFP Demonstration*

- 3.1 Introduction
- 3.2 Target Level Methodology
- 3.3 Calculation of Target Emission Levels
- 3.4 Growth
- 3.5 RFP Demonstration

*Chapter 4: Control Measures to Achieve Target Emission Levels*

- 4.1 Overview of Control Measures
- 4.2 Point-Source Controls
- 4.3 Area-Source Controls
- 4.4 Non-Road Mobile Source Controls
- 4.5 On-Road Mobile Source Controls
- 4.6 Contingency Measures

*Chapter 5: Motor Vehicle Emissions Budget*

- 5.1 Introduction
- 5.2 Overview of Methodologies and Assumptions
- 5.3 Motor Vehicle Emissions Budget for RFP Milestone Year 2008

*Appendices*

# Houston-Galveston-Brazoria Reasonable Further Progress List of Appendices

<u>Number</u>	<u>Appendix Name</u>
Appendix 1	HGB RFP Demonstration Calculations Spreadsheet
Appendix 2	Point Source Inventory Projection Methodology
Appendix 3	Development of HGB RFP On-Road Mobile Source Emissions Inventories
Appendix 4	Rate of Further Progress Analysis for Non-Road Sources

# Houston-Galveston-Brazoria Reasonable Further Progress List of Tables

<u>Number</u>	<u>Table Name</u>
Table 2-1	HGB Eight-County RFP Point Source NO <sub>x</sub> Emissions
Table 2-2	HGB Eight-County RFP Point Source VOC Emissions
Table 2-3	HGB Eight-County RFP Area Source NO <sub>x</sub> Emissions
Table 2-4	HGB Eight-County RFP Area Source VOC Emissions
Table 2-5	HGB Eight-County RFP Non-Road Mobile Source NO <sub>x</sub> Emissions
Table 2-6	HGB Eight-County RFP Non-Road Mobile Source VOC Emissions
Table 2-7	HGB Eight-County RFP Ozone Season Weekday On-Road Mobile Source VMT
Table 2-8	HGB Eight-County RFP Ozone Season Weekday On-Road Mobile Source NO <sub>x</sub> Emissions
Table 2-9	HGB Eight-County RFP Ozone Season Weekday On-Road Mobile Source VOC Emissions
Table 2-10	Summary of HGB Non-Creditable Reductions, Ozone Season Weekday On-Road Mobile Source VMT and Emissions (tons per day)
Table 2-11	HGB RFP Ozone Season Weekday On-Road Mobile Source NO <sub>x</sub> Emissions and Control Strategy Reductions
Table 2-12	HGB RFP Ozone Season Weekday On-Road Mobile Source VOC Emissions and Control Strategy Reductions
Table 2-13	HGB Eight-County RFP 2002 Base Year Ozone Season Weekday NO <sub>x</sub> Emissions
Table 2-14	HGB Eight-County RFP 2002 Base Year Ozone Season Weekday VOC Emissions
Table 2-15	HGB Eight-County RFP 2008 Uncontrolled Ozone Season Weekday NO <sub>x</sub> Emissions
Table 2-16	HGB Eight-County RFP 2008 Uncontrolled Ozone Season Weekday VOC Emissions
Table 2-17	HGB Eight-County RFP 2008 Controlled Ozone Season Weekday NO <sub>x</sub> Emissions
Table 2-18	HGB Eight-County RFP 2008 Controlled Ozone Season Weekday VOC Emissions
Table 3-1	Summary of Calculation of Target Level for HGB
Table 3-2	Summary of Required Reductions that Include Growth for HGB
Table 3-3	Summary of RFP Demonstration for Eight HGB Counties for 2008
Table 4-1	Summary of HGB RFP Emission Reductions for 2008
Table 4-2	Summary of Point Source Emissions
Table 4-3	Summary of Area Source Emissions
Table 4-4	Summary of Non-Road Mobile Emissions
Table 4-5	Control Programs Modeled in MOBILE6 Emissions Factors for 2002 and 2008 RFP Controlled Emissions Inventories
Table 4-6	On-Road Mobile Control Reduction Summary 2008, HGB, Ozone Season Weekday
Table 4-7	RFP Contingency Demonstration for the HGB Area
Table 5-1	2008 Eight-Hour Ozone RFP Motor Vehicle Emission Budgets for the HGB Eight-County Ozone Nonattainment Area