6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R06-OAR-2013-0387; FRL-9900-80-Region6]

Approval and Promulgation of Implementation Plans; Texas; Attainment Demonstration for the Houston-Galveston-Brazoria 1997 8-hour Ozone Nonattainment Area

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: EPA is proposing to approve State Implementation Plan (SIP) submittals from the State of Texas for the Houston-Galveston-Brazoria 1997 8-hour ozone nonattainment area (HGB area). EPA is proposing approval of the following SIP Clean Air Act required elements from Texas for the HGB area: the attainment demonstration for the 1997 ozone National Ambient Air Quality Standards (NAAQS), the reasonably available control measures (RACM) demonstration for the NAAQS, the contingency measures plan in the event of failure to attain the NAAQS by the applicable attainment date, and a Motor Vehicle Emissions Budget (MVEB) for 2018, which is the attainment year for the area. EPA is also proposing to approve revisions to the air pollution control measures and General Air Quality Definitions in the Texas SIP. The revisions to the air pollution control measures include revisions to the Mass Emissions Cap and Trade (MECT) program for nitrogen oxides (NOx), revisions to the highly reactive volatile organic compound (HRVOC) emissions cap and trade (HECT) program, Voluntary Mobile Emissions Program

(VMEP) measures, and Transportation Control Measures (TCMs). EPA is proposing these actions in accordance with section 110 and part D of the Clean Air Act (CAA or the Act).

DATES: Written comments must be received on or before **[Insert date 30 days from date of publication in the Federal Register].**

ADDRESSES: Submit your comments, identified by Docket No. EPA-R06-OAR-2013-0387, by one of the following methods:

- *www.regulations.gov*. Follow the online instructions.
- E-mail: *r6air_hgbozone@epa.gov*. Please also send a copy by e-mail to the person listed in the **FOR FURTHER INFORMATION CONTACT** section below.
- Mail or delivery: Mr. Guy Donaldson, Chief, Air Planning Section (6PD-L), Environmental Protection Agency, 1445 Ross Avenue, Suite 1200, Dallas, Texas 75202-2733.

Instructions: Direct your comments to Docket No. EPA-R06-OAR-2013-0387. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *www.regulations.gov*, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information through *www.regulations.gov* or e-mail that you consider to be CBI or otherwise protected. The *www.regulations.gov* web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *www.regulations.gov* your e-mail address will be automatically captured and included as part of the comment that is placed

in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

Docket: All documents in the docket are listed in the *www.regulations.gov* index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in *www.regulations.gov* or in hard copy at the Air Planning Section (6PD-L), Environmental Protection Agency, 1445 Ross Avenue, Suite 700, Dallas, Texas 75202-2733. Contact the person listed in the **FOR FURTHER INFORMATION CONTACT** paragraph below to make an appointment.

FOR FURTHER INFORMATION CONTACT: Carl Young, Air Planning Section (6PD-L), telephone (214) 665-6645, e-mail *young.carl@epa.gov*.

SUPPLEMENTARY INFORMATION: Throughout this document wherever "we," "us," or "our" is used, we mean the EPA.

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I. Background

A. The 1997 ozone NAAQS and the HGB Area

Ground level ozone is formed when NOx and volatile organic compounds (VOC) react in the presence of sunlight. These two pollutants, referred to as ozone precursors, are emitted by many types of pollution sources, including on-road and non-road motor vehicles and engines, power plants and industrial facilities, and smaller area sources such as lawn and garden equipment and paints. *See* 77 FR 30088, 30089 (May 21, 2012). Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground level ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. *See* 77 FR 30088, 30089 (May 21, 2012). For more information on ground level ozone please see *htpp://epa.gov/airquality/ozonepollution*.

In 1979, under section 109 of the CAA, EPA established primary and secondary NAAQS for ozone at 0.12 parts per million (ppm) averaged over a 1-hour period. *See* 44 FR 8202 (February 8, 1979). Primary standards are set to protect human health while secondary standards are set to protect public welfare. On July 18, 1997, EPA revised the primary and secondary NAAQS for ozone to set the acceptable level of ozone in the ambient air at 0.08 ppm, averaged over an 8-hour period. *See* 62 FR 38856 (July 18, 1997). EPA set the 8-hour ozone standard

based on scientific evidence demonstrating that ozone causes adverse health effects at lower concentrations and over longer periods of time than was understood when the pre-existing 1-hour ozone standard was set. EPA determined that the 8-hour standard would be more protective of human health, especially children and adults who are active outdoors, and individuals with a pre-existing respiratory disease, such as asthma.[1]

In 2004, we classified the HGB area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery and Waller counties) as a moderate ozone nonattainment area for the 1997 ozone NAAQS. *See* 69 FR 23858 (April 30, 2004). In 2007, at the request of the State, and under CAA section 181(b)(3), we reclassified the HGB area to severe calling for attainment as expeditiously as practicable but no later than June 15, 2019. *See* 73 FR 56983 (October 1, 2008). Since 2018 is the first full year before the attainment deadline, we will judge attainment based on data through the end of 2018 and therefore, we refer to 2018 as the attainment year.

B. CAA and Regulatory Requirements for Ozone Nonattainment SIPs

States must implement the 1997 8-hour ozone standard under Title 1, Part D of the CAA, which includes section 172, "Nonattainment plan provisions," and subpart 2, "Additional Provisions for Ozone Nonattainment Areas" (sections 181–185). We promulgated a regulation to implement the 1997 ozone NAAQS at 40 CFR 51, subpart X (Provisions for Implementation of 8-hour Ozone National Ambient Air Quality Standard). The regulation addresses the requirements for modeling and attainment demonstrations, reasonably available control technology and measures (RACT and RACM), reasonable further progress (RFP), contingency measures, and new source review.

[1] Subsequently, we lowered the 8-hour ozone NAAQS to 0.075 ppm and classified the Houston area as a marginal nonattainment area for the 2008 ozone NAAQS. *See* 73 FR 16436 (March 27, 2008); 77 FR 30088 30089 (May 21, 2012). This rulemaking does not address the 2008 ozone NAAQS.

When we reclassified the HGB area, we also identified the SIP requirements for the area. The requirements being addressed in this notice are: (1) an attainment demonstration (40 CFR 51.908), (2) provisions for RACM (40 CFR 51.912), and (3) contingency measures to be implemented in the event of failure to attain the standard by the applicable attainment date (CAA 172(c)(9) and 182(c)(9)). In order to approve the attainment demonstration for the area we must also approve: (1) the measures relied on as necessary to demonstrate attainment, (2) an attainment MVEB for transportation conformity purposes, and (3) the RFP plan and the RFP contingency measures. *See Sierra Club v. EPA*, 294 F.3d 155, 163, (D.C. Cir. 2002). Some measures, relied upon as necessary for attainment, have been previously approved (section II.B.5). We are proposing to approve additional measures relied on as necessary to demonstrate attainment, and an attainment MVEB for 2018. In a separate proposal, we are addressing the RFP and RFP contingency measures requirements.[2] Current information on the status of HGB area SIP requirements for the 1997 ozone NAAQS can be found at: *http://epa.gov/air/urbanair/sipstatus*.

CAA section 172(c)(6) requires the attainment demonstration to include enforceable emission limitations, and such other control measures, means or techniques as well as schedules and timetables for compliance, as may be necessary to provide for attainment by the applicable attainment date. In order to be considered in the modeling, the measures must be permanent, enforceable and quantifiable. *See* 57 FR 13498, 13567 (April 16, 1992).

CAA sections 110(a)(1) and (2) and 110(l) require a state to provide reasonable public notice and opportunity for public hearing prior to the adoption and submission of a SIP or SIP revision. To meet this requirement, every SIP submittal should include evidence that adequate

[2] *See* docket EPA-R06-OAR-2010-0333 in *www.regulations.gov*.

public notice was given and an opportunity for a public hearing was provided consistent with EPA's implementing regulations in 40 CFR 51.102.

C. State SIP Submittals

On April 6, 2010, Texas submitted for the HGB area: (1) an attainment demonstration, (2) revisions to the MECT program to protect the integrity of the NOx cap in the HGB area, (3) revisions to the HECT program to reduce the HRVOC cap by 25% in Harris County and provide for a more equitable distribution of the HECT allowances, and (4) revisions to the General Air Quality definitions applicable to the entire Texas SIP.

On May 6, 2013, Texas submitted an update to the attainment demonstration. The update included: (1) revised on-road mobile source emissions inventories and MVEBs using the more recent EPA MOVES mobile source emissions estimation model, (2) an update of the contingency measures analysis, and (3) updated discussions of emissions inventory, photochemical modeling, control strategies and required elements, and weight-of-evidence that the area will attain by its attainment date.

In addition to the revisions submitted on April 6, 2010, Texas previously submitted SIP revisions to the General Air Quality Definitions (30 TAC 101.1) on August 16, 2007. Texas later submitted additional revisions to 30 TAC 101.1 on March 11, 2011.

Each of the above identified submittals was given proper hearing and public notice by Texas as required by 40 CFR 51.102 and evidence of this was provided in the SIP submittal. Please see the submittals found in the electronic docket and our technical support document (TSD).

II. EPA's Evaluation

We have prepared a TSD for this rulemaking which details our evaluation. Our TSD may be accessed online at *http://www.regulations.gov*, Docket No. EPA-R06-OAR-2013-0387.

A. Attainment Demonstration Modeling and Weight-of-Evidence

Below, we briefly discuss the steps necessary to build an attainment demonstration, including photochemical modeling and supplemental weight of evidence and our evaluation of Texas' performance of these steps. Please see the TSD for this action for our full evaluation and conclusions.

1. Attainment Demonstration General. CAA 182 (c)(2)(A), and 40 CFR §§51.908, 51.112, and Part 51 Appendix W - Guideline on Air Quality Models require that attainment demonstrations for ozone nonattainment areas classified as moderate or higher (severe in this case) be conducted with photochemical grid modeling or an equivalent technique approved by EPA. The CAA and regulations (including Appendix W) do not prescribe a specific photochemical grid model, but allow for EPA to judge the suitability of a model by considering multiple factors. These factors include choice of episode(s), emissions and meteorological inputs, model formulation, databases used, and how the model is used in the attainment test. Texas used the Comprehensive Air Quality Model with Extensions (CAMx) photochemical grid model in its demonstration that the control strategies for the HGB area will achieve attainment by 2018. The Texas Commission on Environmental Quality (TCEQ) also included a TSD, a number of appendices, and numerous electronic files that document model formulation, databases used, assumptions, judgements, evaluations of control strategy impacts, etc. EPA reviewed the available information and concluded that the use of CAMx is acceptable and TCEQ's modeling and documentation meets

the photochemical modeling demonstration requirements of the CAA and 40 CFR §§51.908, 51.112, and Part 51 Appendix W. Also, as allowed under EPA policy, TCEQ has introduced other evidence, referred to as weight of evidence, to supplement the modeling analysis.

2. Photochemical Grid Modeling. Photochemical grid models are the state-of-the-art method for predicting the effectiveness of control strategies in reducing ozone levels. The model uses a three-dimensional grid to represent conditions in the area of interest. In this case, TCEQ has developed a grid system that stretches from beyond Austin to the West, to the Atlantic Ocean to the East, to southern Canada to the North and into the Gulf of Mexico to the South. The model uses nested grid cells of 36 kilometers (km) on the outer portions, 12 km in east Texas and portions of nearby States, a 4 km grid cell covering the HGB and Beaumont Port Arthur (BPA) areas and a refined 2 km grid covering the HGB area. For more information on the modeling domain, please see Appendix A of the TSD. The model simulates the movement of air and emissions into and out of the three-dimensional grid cells (advection and dispersion); mixes pollutants upward and downward among layers; injects new emissions from sources such as point, area, mobile (both on-road and non-road), and biogenic into each cell; and uses chemical reaction equations to calculate ozone concentrations based on the concentration of ozone precursors and incoming solar radiation within each cell. Running the model requires large amounts of data regarding the emissions and meteorological conditions during an episode. Air quality planners choose historical episodes with high ozone levels to test the model. Modeling to duplicate conditions during a historical episode is referred to as the base case modeling and is used to verify that the model system can predict the historical ozone levels with an acceptable degree of accuracy. If the model can predict the ozone levels in the base case, it can then be used

to project future ozone levels and the response of future ozone levels to proposed emission control strategies.

3. Modeling Episodes. Texas chose six recent historical episodes (2005: 5/19 – 6/3, 6/17 – 6/30, and 7/26 – 8/8; 2006: 5/31 – 6/15, 8/13 – 9/15, 9/16 – 10/11) that encompassed much of the time period of the Texas Air Quality Study (TexAQS II) 2005/6. During this study period, researchers from around the country participated in an intensive study of ozone formation in the HGB area, collecting additional meteorological and chemical data with the last two episodes occurring when the intensive field campaign occurred. This study provided a wealth of information to test the assumptions in the model. EPA believes that these episodes are acceptable episodes for development of the 1997 8-hour attainment plan. The episodes encompass a large number of exceedance days (55 days) and contain a variety of meteorological conditions which resulted in high concentrations of ozone in the area as measured on both a 1-hour and 8-hour basis. Day specific evaluation of these episode days confirms that overall, these episodes are representative of the conceptual model for high ozone in the HGB area. In summary, these episodes include most meteorological conditions that occur when ozone exceedances are monitored in HGB and the modeling and analyses were enhanced by having the TexAQS II field study data.

4. Modeling Emissions Inventory. TCEQ followed acceptable procedures for the development of the basecase inventory, following or building upon EPA guidance. They also included emissions during upsets and other day specific emissions. Despite these efforts, one of the original findings of the TexAQS 2000 study was that observed concentrations of certain compounds, especially light olefins such as ethylene and propylene, were much larger than represented in the reported

emission inventory. As a result, TCEQ created an 'imputed' inventory (approximately 5.8 times the reported levels for these HRVOC species) in its 1- hour ozone attainment SIP. TCEQ also instituted rules to better regulate the industrial point sources that emit these compounds with "HRVOC rules" in a 2004 SIP modification approved by EPA (71 FR 52656, September 6, 2006). The more recent 2005/6 field study confirmed that these measures resulted in lower levels of these pollutants (approximately 42% lower on average than 2000 levels) but the HRVOC levels were still under reported with ambient measurements indicating that actual emissions were an average of 2-3 times reported levels. Field study data also confirmed that emission inventory estimates of other VOCs, in addition to the HRVOCs, were also under estimated, but these VOCs are harder to attribute to a specific category as they could be emitted from mobile, area, and non-road categories in addition to industrial point sources. As a result, TCEQ adjusted the estimates of the HRVOCs in the 2005/6 basecase emission inventories. This reconciliation with ambient data was performed using a combination of wind data and measurements from the Auto Gas Chromatographs that measure 56 different VOC species. The reconciliation resulted in upward adjustments of facility HRVOC emissions better match the ambient data. The adjustments ranged from less than two times greater than reported to more than ten times greater than reported in some cases.

We believe that the method TCEQ has used to reconcile ambient HRVOC emissions data with reported emissions is a reasonable approach to addressing the concern that reported emissions, despite being based on accepted estimation technologies, do not result in emission estimates that are consistent with ambient measurements. In addition, the "reconciliation" approach is more sophisticated and more accurate than the "imputed" approach used in past SIP revisions for the HGB area. The inventory, based on this reconciliation technique, also improved

model performance. We continue to encourage TCEQ to find and resolve the issues that are resulting in these discrepancies between reported and actual emissions. As TCEQ works on attaining the 2008 8-hour ozone NAAQS, resolving these underestimated emissions of HRVOCs and other VOCs will continue to be very important.

5. Model Performance. Model performance is a term used to describe how well the basecase model predicts the ozone levels in a historical episode(s). As models have to make numerous simplifying assumptions and the system being modeled is very complex, model predictions will never be perfect. EPA and TCEQ evaluate a number of times series, diagnostic, and statistical metrics for the meteorological analysis that is used in the photochemical modeling analysis. EPA has developed various diagnostic, statistical and graphical analyses that TCEQ employed to evaluate the model's performance and determine if the model is working adequately to test control strategies. Overall the modeling over-predicted some maxima on lower ozone days and under-estimated some maxima on the higher ozone days. In addition, modeled ozone values at night do not drop as much as monitored ozone levels. EPA notes that the model’s general tendency to under-predict on high days and over-predict on low days raises some uncertainty in the control strategy modeling. While the model had some problems with predicting the maxima in the HGB area, overall, the performance was adequate for moving forward using 37 of the initial 55 exceedance days in the control strategy analysis.

6. Future Year Modeling. Once the basecase/baseline modeling of historical episodes has been completed, the periods (days) with acceptable model performance can then be used to project future year ozone levels by replacing the basecase/baseline emissions with emissions estimates

for future years. TCEQ developed a 2018 emission inventory using recent emission data information and projection tools. TCEQ used the meteorology files from the basecase episodes for the 2018 modeling estimates. Using meteorology from historical episodes allows one to assess whether the lower projected 2018 emission levels would be expected to result in attainment of the standard if the same meteorology occurs. For further details about 2018 emissions estimates and how they were generated, see our TSD and TCEQ's materials supporting this action.

7. Results of 2018 Future Year Modeling. The results of 2018 modeling are shown in Table 1. In estimating if the modeling is predicting attainment or nonattainment in the future year, we use a ratio that is based on the average of the 8-hour daily maximums predicted around a monitor in the future divided by the average of the 8-hour daily maximum predicted in the basecase. This ratio is called a Relative Response Factor (RRF). The RRF for a monitor is multiplied by the basecase 5-year average Design Value (DV) to obtain a future 5-year average DV.

Table 1 shows that all of the regulatory monitors except Deer Park and Bayland Park are predicted to have 2018 DVs below the 1997 8-hour NAAQS. For a full explanation of how these projections were calculated, see our TSD. Table 1 also shows that the Wallisville Rd. monitor that TCEQ has labeled as non-regulatory is also projected to be above the 1997 8-hour NAAQS in 2018 modeled DV projections. We have evaluated TCEQ's DV projections and confirm that they followed EPA's attainment demonstration guidance and methods as required by 40 CFR 51.112 and Appendix W of Part 51.

Table 1. Future Year (2018) Projected Design Values (using the RRFs from the Modeling)

Monitor Designation	Site Code	2006 DV_B (ppb)**	RRF	2018 DV_F (ppb)**
Houston East (CAMS 1)	HOEA	80.3	0.942	75.6
Aldine (CAMS 8)	HALC	**85.0**	0.916	77.9
Channelview (CAMS 15)	HCHV	82.7	0.937	77.5
Northwest Harris County (CAMS 26)	HNWA	**89.0**	0.877	78.1
Galveston Airport (CAMS 34)	GALC	81.7	0.927	75.7
Deer Park (CAMS 35)	DRPK	**92.0**	0.936	**86.1**
Seabrook Friendship Park (CAMS 45)	SBFP	**85.3**	0.924	78.8
Bayland Park (CAMS 53)	BAYP	**96.7**	0.899	**87.0**
Conroe Relocated (CAMS 78)	CNR2	83.0	0.877	72.8
Houston Regional Office (CAMS 81)	HROC	79.7	0.949	75.6
Manvel Croix Park (CAMS 84)	MACP	**90.7**	0.890	80.7
Clinton (CAMS 403)	C35C	79.0	0.947	74.8
North Wayside (CAMS 405)	HWAA	76.3	0.932	71.2
Swiss and Monroe (CAMS 406)	HSMA	**90.3**	0.917	82.9
Lang (CAMS 408)	HLAA	77.7	0.897	69.6
Croquet (CAMS 409)	HCQA	**87.0**	0.897	78.1
Shell Westhollow (CAMS 410)	SHWH	**92.3**	0.868	80.1
Houston Texas Avenue (CAMS 411)	HTCA	79.3	0.937	74.3
Haden Road (CAMS 603)*	H03H	84.0	0.943	79.2
Wallisville Road (CAMS 617)*	WALV	**92.0**	0.935	**86.0**
Danciger (CAMS 618)*	DNCG	80.3	0.881	70.8
Mustang Bayou (CAMS 619)*	MSTG	84.7	0.901	76.2
Texas City (CAMS 620)*	TXCT	84.3	0.921	77.7
Lynchburg Ferry (CAMS 1015)	LYNF	81.7	0.942	76.9
Lake Jackson (CAMS 1016)	LKJK	77.0	0.891	68.6

* Non-regulatory, industry-sponsored monitor.

** Values 85 parts per billion (ppb) or greater are shown in bold. The 1997 8-hour ozone NAAQS is 0.08 ppm, which equates to 84 ppb when rounding is considered.

EPA's 2007 Modeling Guidance also recommends that areas not near monitoring locations (unmonitored areas) in a nonattainment area be analyzed in an "unmonitored area (UMA) analysis" to determine if these areas would be expected to reach attainment. The standard attainment test (results in the table above) only applies at monitor locations, and the UMA analysis is intended to identify any areas not near a monitoring location that are at risk of not reaching attainment. The TCEQ chose to use its own procedure to conduct the UMA analysis

instead of using EPA's Modeled Attainment Test Software (MATS). TCEQ's analysis uses similar approaches and we propose to accept its use for this SIP. TCEQ's UMA indicates that there are no areas in the HGB nonattainment area outside of the specific areas evaluated in the monitor based attainment test analysis that are at risk of not reaching attainment. In summary, EPA finds that TCEQ's photochemical modeling analysis indicates that all the monitors in HGB area will either be attaining or near attainment levels in 2018, all HGB unmonitored areas will be attainment, and TCEQ's evaluations conform with EPA's regulations and guidance.

8. Additional Evidence. The EPA's 1996 guidance entitled "Guidance on Use of Modeled Results to Demonstrate Attainment of the Ozone NAAQS" allows for the use of alternative analyses, called weight-of-evidence (WOE), to provide additional evidence that the proposed control strategy, although not modeling attainment, is nonetheless expected to achieve attainment by the attainment date. EPA continued to support WOE analyses in the 2007 Modeling Guidance. The intent of these guidance documents was to be cognizant of the fact that, under the structure of the standard some exceedances of the ozone NAAQS are allowed each year. Thus, even though the specific control strategy modeling may predict some areas to be above the NAAQS, this does not necessarily mean that with the implementation of the control strategy monitored attainment will not be achieved. In addition, as with other predictive tools, there are inherent uncertainties associated with modeling and its results. For example, there are uncertainties in the meteorological and emissions inputs and in the methodology used to assess the severity of an exceedance at individual sites. The EPA's guidance recognizes these limitations and provides a means for considering other evidence to help assess whether attainment of the NAAQS is likely. Since the future control case modeling in the Texas SIP

revision predicts some areas still exceeding the ozone NAAQS, the TCEQ followed EPA Modeling Guidance to supplement the control strategy modeling with WOE analyses.

The strongest parts of the WOE analysis are the most recent 8-hour ozone monitoring trends and the continued reductions expected from vehicle fleet turnover. Ozone Design Value trends at most of the monitors in the HGB area show significant decreases over time and many of the monitors are currently attaining the 1997 8-hour ozone standard. Furthermore, the ozone precursor trends are generally showing a decrease that supports the HGB area's impact on ozone levels that exceed the standard is continuing to decrease.

The HGB area's most recent design value is 88 ppb through 2012. Additional reductions of precursor emissions are expected with six more years of fleet turnover bringing cleaner cars and off road equipment into the fleet. EPA believes that these reductions will bring about the additional 4 ppb of reduction necessary from 2012 monitored levels to reach attainment – supporting the proposed finding that HGB will attain by its attainment year.

To further support its WOE argument Texas submitted many additional analyses, which are discussed in the TSD for this action. These include: corroborative analysis of the modeling, process analysis, application of source apportionment tools, highly detailed model performance evaluations, and analysis of model response to simulated emission reductions. Texas also provided an analysis of air quality data including: ozone design value trends, trends in strength of ozone gradients, impact of Hurricane Ike on ozone levels, NOx and VOC monitored trends, geographic patterns in HRVOC monitored values, meteorological adjusted trends, regional and Texas background ozone trends, and transport/surface wind trajectories.

Finally, to support the finding that the area would attain the standard, Texas documented additional control programs that were not included in the model but will provide emission

reductions that will contribute to lower ozone levels. These include: improved international marine diesel and fuel standards, SmartWay transport initiatives, car allowance rebates, improved control of VOCs from storage tanks, energy efficiency and renewable energy measures, Texas Emission Reduction Plan, Low Income Vehicle Repair Assistance/Retirement program, Clean School Bus program, Best Management Practices for barge emissions, and other local initiatives. In general, these measures are expected to reduce ozone concentrations but are difficult to quantify and therefore were not modeled. EPA agrees that these measures contribute to the evidence that the area will attain the standard by its attainment date.

One area of uncertainty in the attainment demonstration is the treatment of flare emissions in the modeling. The destruction efficiencies are projected to be high, with values from 98% to 99% depending on the compound. It is likely that flares not achieving these destruction efficiencies are one source of the documented under-estimation of the emissions inventory and the need to impute emissions based on ambient air concentrations for the base case/baseline emission inventory. We note that TCEQ has been working with industry on flare best management practices to try to insure good flare performance. These efforts should result in reduced flare emissions compared to current levels, but it is uncertain that all flares will achieve the projected destruction efficiencies in 2018 as assumed in the modeling. How successful TCEQ's initiative is in reducing emissions of flares will likely have a significant impact on the success of the HGB area in continued ozone improvement. The details of our review of the WOE analysis and data can be reviewed in our TSD Appendix A – HGB MOAAD, Chapter 6. In accordance with 40 CFR §§51.908, 51.112, and Appendix W of Part 51, the WOE analysis supports our proposed finding of attainment for HGB by its attainment date.

9. Attainment Demonstration Evaluation. EPA believes that the combination of photochemical modeling and other evidence (WOE) indicates that the HGB area will attain the NAAQS by 2018. This SIP revision represents a significant improvement over past efforts to model the HGB area. Texas has greatly improved the representation of the area's complex meteorology. In addition they have a much more refined emission inventory because of the better reconciliation of HRVOC emissions with ambient data. The modeling projects significant improvement in air quality and all but three of the monitors are projected to attain the standard and the three monitors not demonstrating attainment to the standard are projected to be only slightly above the standard. This modeling evidence taken together with the WOE discussed above, demonstrates that HGB will reach attainment of the 1997 8-hour NAAQS by the end of the ozone season of 2018. In reaching this conclusion, we have considered the uncertainties presented by discrepancies between reported emissions and ambient measurements and uncertainties regarding the performance of flares. We have also considered the significant improvements in ozone levels documented by ambient ozone data and the expected future reductions including those that were not modeled.

In summary, our analysis of TCEQs photochemical modeling and WOE concludes that the area will reach attainment of the 1997 8-hour ozone NAAQS by the end of 2018. Our review confirms that TCEQ's modeling and WOE conform to 40 CFR §§51.908, 51.112, Appendix W of Part 51, EPA's guidance and methodologies. Our full evaluation of each modeling and WOE elements of the attainment demonstration submitted by TCEQ in this SIP revision is included in our TSD for this notice.

B. Control Measures Relied Upon in the Attainment Demonstration

1. MECT. The MECT is a portion of the SIP-approved control strategy for the HGB area that caps NOx emissions beginning January 1, 2002, with a final reduction to the cap occurring in 2007 for stationary sources. The cap represents an approximate reduction in NOx emissions of 80% from the applicable stationary sources (with some sources reducing more and some reducing less). Facilities are required to demonstrate compliance with the MECT on an annual basis by having sufficient allowances, or other credits as provided in the SIP, to equal the annual NOx emissions from the previous year. EPA published a final rule approving the MECT program in 66 FR 57252 (November 14, 2001). We have subsequently approved revisions to the MECT on September 6, 2006 and July 16, 2009. *See* 71 FR 52698 and 74 FR 34503.

On March 10, 2010, TCEQ adopted revisions to the MECT Program at 30 TAC Chapter 101, Subchapter H, Division 3, Sections 101.350, 101.351, and 101.353. These revisions amend the SIP-approved MECT program to protect the integrity of the NOx cap in HGB. Specifically, the TCEQ adopted revisions to 30 TAC 101.350 to revise the definition of "uncontrolled design capacity" to "uncontrolled design capacity to emit" to allow more flexibility for stationary diesel engines to determine how to comply with NOx emission requirements in Chapter 117 – either through participation in the MECT or through purchasing banked emission credits. The adopted revisions also revise the applicability of the MECT program at 30 TAC 101.351 to require subject sites to first determine the status as a major or minor source under 30 TAC Chapter 117. If the source is major, then it must participate in the MECT. If the source is minor then it can choose to participate under the MECT or meet reduction requirements through the purchase and retirement of banked emission credits. Finally, the adopted revisions modify the allocation of allowance requirements at 30 TAC 101.353 to discontinue the acceptance of late Level of Activity certification forms that could have inflated the cap. The TCEQ also adopted non-

substantive revisions throughout to correct typographical errors and Texas Register formatting requirements.

EPA's complete evaluation of the revisions to the MECT adopted on March 10, 2010 and submitted April 6, 2010, is available in our TSD. In summary, we find that the revisions to the MECT will continue to achieve the reduction in stationary source NOx emissions relied upon in the attainment demonstration.

2. HECT. The HECT program is a mandatory cap and trade program of HRVOCs for covered facilities including vent gas streams, flares, and cooling tower heat exchange systems that emit HRVOCs, as defined in 30 TAC Section 115.10, and that are located at a site subject to Chapter 115, Subchapter H. Facilities are required to meet HRVOC allowances on an annual basis. Facilities may purchase, bank, or sell their allowances for use in the following control period. EPA published final approval of the HECT program on September 6, 2006, as an integral component of the HGB 1-hour ozone attainment demonstration. *See* 71 FR 52659.

On March 10, 2010, the TCEQ adopted revisions to HECT Program at 30 TAC Chapter 101, Subchapter H, Division 6, Sections 101.390 – 101.394, 101.396 and 101.399 – 101.401. These revisions reduce the HRVOC cap in Harris County by 25% – a step taken to achieve the reductions shown necessary by the photochemical modeling for HGB 8-hour ozone attainment demonstration discussed in section II. The revisions also change the allocation methodology to promote equitable distribution of allowances as a result of comment and add necessary definitions to implement the allocation methodology changes. The TCEQ also adopted non-substantive revisions throughout to correct typographical errors and Texas Register formatting requirements.

EPA's complete evaluation of the revisions to the HECT adopted on March 10, 2010 and submitted April 6, 2010, is available in our TSD. In summary, we find that the revisions to the HECT to implement the reduction in the Harris County HRVOC cap by 25% will reduce ozone levels and achieve the reductions relied upon in the photochemical modeling for the attainment demonstration.

3. VMEP Measures and TCMs. The SIP included VMEP measures to reduce mobile source emissions of ozone precursors. VMEP measures consist of voluntary mobile source strategies that complement existing regulatory programs through voluntary, non-regulatory changes in local transportation activities or changes in in-use vehicle and engine composition. The types of HGB VMEP measures and NOx emission reductions are listed in Table 2 and are expected to reduce NOx emissions by 2.25 tons per day.

Table 2. VMEP Types and NOx Emission Reductions

Program type	**NOx reductions (tons per day)**
Alternative Commuting	0.20
Regional Traffic Flow Improvements	0.05
Vehicle Retrofit and Replacement	1.30
Off-road Measures	0.70
Total	**2.25**

Authority for our approval of VMEP measures is primarily grounded in section 110(a)(2) of the CAA, as well as sections 182(g)(4)(A) and 108. Section 110(a)(2) establishes that a SIP must include "enforceable emissions limits and other control measures, means or techniques … as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter." In interpreting 110(a)(2) of the CAA, EPA issued a guidance document entitled, "Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs)," Memorandum from Richard D.

Wilson, Acting Assistant Administrator for Air and Radiation, dated October 24, 1997, which allows for SIP credit for voluntary measures.[3] The Fifth Circuit Court of Appeals upheld, as a reasonable interpretation of the Act, EPA's VMEP policy and allowed the State to consider estimated emissions reductions from a VMEP in the HGB area 1-hour ozone attainment demonstration. *See BCCA Appeal Group v. EPA,* 355 F.3d 817, 825 (5th Cir. 2003).

Generally, to obtain credit for a VMEP, the SIP: (1) Identifies and describes a VMEP, (2) Contains projections of emission reductions attributable to the program, along with any relevant technical support documentation, (3) Commits to evaluation and reporting on program implementation and results, and (4) Commits to the timely remedy of any credit shortfall should the VMEP not achieve the anticipated emission reductions. The VMEP emission reduction credits should be quantifiable, surplus (i.e., they are not credited twice), enforceable, permanent, and adequately supported.[4] In addition, the VMEP must be consistent with attainment of the standard and with the reasonable further progress requirements and not interfere with other CAA requirements. The VMEP for an area can be revised by a SIP revision that substitutes or adds other VMEP measures if needed.

As in past commitments, we interpret the VMEP portion of the SIP to be enforceable because the State, through the Houston-Galveston Area Council (H-GAC), has committed to fill any shortfall in credit, thus any enforcement will be against the State. The H-GAC, as the regional metropolitan transportation planning agency for the HGA area, has committed to implement the projects and/or programs outlined in the HGA VMEP submittal. The H-GAC will be responsible for monitoring and reporting the emissions reductions to the TCEQ. The State, through the H-GAC, has committed to cover any VMEP shortfall (of the 2.25 tpd of NOx

[3] The 1997 guidance is available at http://www.epa.gov/otaq/stateresources/policy/general/vmep-gud.pdf .
[4] Id.

committed). The State, through the H-GAC, will remedy any VMEP shortfall that might occur in the VMEP program.

A detailed analysis of all the VMEP measures can be found in our TSD. Each creditable VMEP measure was found to be quantifiable. The VMEP emission reductions are surplus because they are not substitutes for mandatory, required emission reductions. The commitment to monitor, assess and timely remedy any shortfall from implementation of the measures is enforceable against the State. The reductions will continue at least for as long as the time in which they are used by this SIP demonstration, so they are considered permanent. There is a commitment that each measure is adequately supported by personnel and program resources for implementation.

The HGB area's ozone SIP VMEP meets the criteria for credit in the SIP. The State has shown that the credits are quantifiable, surplus, enforceable, permanent, adequately supported, and consistent with the SIP and the CAA. We propose to approve the VMEP portion of the Texas SIP.

TCMs are transportation related projects or activities designed to reduce on-road mobile source emissions. TCMs used as a control measure in the attainment demonstration must be specific, permanent, enforceable and quantifiable.[5] We approved the Texas rule for implementing TCMs in the SIP (30 TAC 114.270) in 67 FR 72379 (December 5, 2002). The SIP included six projects identified by the Houston-Galveston Area Council to reduce mobile source emissions by enhancing pedestrian and bicycle pathways (table 3). The emission reductions estimated from these projects are 0.015 tons per day of NOx. These projects would reduce NOx emissions by facilitating non-automobile travel. As the TCMs are part of the SIP, the

[5] Transportation Control Measures: State Implementation Plan Guidance, September 1990 (EPA 450/2–89–020), http://www.epa.gov/otaq/stateresources/policy/transp/tcms/state_plan_guidance.pdf

commitment to implement the TCMs is enforceable through the SIP. Because these projects are specific, permanent, enforceable, and quantifiable we propose to approve them.

Table 3. Pedestrian and Bicycle TCM Projects in the HGB SIP

Project Number	**Description**	**NOx Reductions (tons per day)**
0912-72-145	Holman Street Pedestrian Improvements	0.0001862
0912-72-146	Pedestrian Improvements for Elgin, Ennis, and Alabama Streets	0.0004562
0912-72-147	Pedestrian/Transit Improvement Program for Westheimer Road	0.0137628
0912-71-544	Columbia Tap Rail to Trail Bikeway	0.0002721
0912-71-801	Columbia Tap Union Station Trail Shared Use Path with Bike Lane	0.0005840
0912-71-655	Phase 2 West Houston On-Street Bikeway Network (Terry Hershey Park)	0.0001653
Total		**0.0154266**

4. Previously Approved State Measures and Federal Measures. Texas also identified other previously approved State ozone control measures and Federal measures applicable to the HGB area which achieved reductions that are relied upon in this attainment demonstration. The State control measures included those approved by EPA for: (1) the 1-hour ozone NAAQS (71 FR 52670, September 6, 2006) and (2) additional VOC emission controls for storage tanks, transport vessels and marine vessels in the HGB area (75 FR 15348, March 29, 2010). The Federal measures are regulations on vehicle emissions and fuel. As we have already approved the State measures and promulgated Federal measures to reduce ozone levels it is appropriate that they are relied upon in the attainment demonstration.

5. Summary Regarding Control Measures Relied Upon in the Attainment Demonstration. As noted earlier we must approve the measures relied on as necessary to demonstrate attainment in order to approve the attainment demonstration. These measures must be permanent, enforceable, quantifiable, and surplus. *BCCA Appeal Group*, 355 F.3d at 825. Our review of the control measures not yet approved found that they meet these criteria. We propose to approve these measures and to find that the SIP has sufficient measures to attain the 1997 ozone NAAQS in the HGB area as expeditiously as practicable but no later than June 15, 2019. Table 4 summarizes the measures relied upon for attainment.

Table 4. Summary of Measures Relied Upon in the Attainment Demonstration

Measure	**Comments**
1-hour ozone NAAQS measures	Approved (71 FR 52670, September 6, 2006)
VOC emission controls for storage tanks, transport vessels and marine vessels	Approved (75 FR 15348, March 29, 2010)
Federal measures	Federal regulations affecting vehicle emissions
Revisions to the MECT	Proposed for approval
Revisions to the HECT	Proposed for approval
VMEP, Transportation Control Measures,	Proposed for approval

C. RACM

Texas submitted a demonstration that the HGB area has adopted all RACM necessary to demonstrate attainment as expeditiously as practicable with the attainment demonstration as required by CAA section 172(c)(1) and 40 CFR 51.912(d). We consider a control measure to be necessary under the RACM requirement if it: (1) is technologically feasible, (2) is economically feasible, (3) does not cause "substantial widespread and long-term adverse impacts", (4) is not absurd, unenforceable, or impracticable and (5) can advance the attainment date.

To demonstrate that the area meets the RACM requirement Texas (1) identified potentially available control measures with input from stakeholders and (2) analyzed whether the measure would be considered a RACM measure. Texas determined that only one potential control measure, reduction of the HRVOC cap for Harris County, should be adopted to meet the RACM requirement. As discussed above, Texas has adopted a rule to reduce the HRVOC cap for Harris County and we are proposing to approve that rule. We reviewed Texas' RACM process and analysis and believe that Texas has shown that the HGB area has met the CAA RACM requirement. Therefore we propose to approve the demonstration of RACM implementation. For more information please see our TSD.

D. Contingency Measures

CAA sections 172(c)(9) and 182(c)(9) require contingency measures to be implemented in the event of failure to attain the standard by the applicable attainment date. These contingency measures must be fully adopted rules or measures which are ready for implementation quickly upon failure to meet attainment. Implementation of the contingency measures would provide additional emissions reductions of up to three percent of the adjusted base year inventory.[6] For more information on contingency measures, please see the April 16, 1992 General Preamble (57 FR 13498, 13510) and the November 29, 2005 Phase 2 8-hour ozone standard implementation rule (70 FR 71612, 71650). As noted in the November 29, 2005 rule, contingency measures could include Federal measures already scheduled for implementation. In the May 6, 2013 SIP submittal, Texas provided a demonstration that the contingency measures requirement would be met through Federal rules affecting mobile emissions. Table 5 summarizes the contingency measure analysis provided by Texas. We reviewed the analysis provided in the SIP and found the

[6] The adjusted base year inventory is that inventory specified by CAA section 182(b)(1)(B).

contingency measures provide the necessary reductions in ozone precursor emissions for the year 2019 in the event that the area fails to attain the 1997 ozone NAAQS at the end of 2018. Therefore we propose to approve the failure to attain contingency measures plan as meeting the contingency measures requirements of CAA sections 172(c)(9) and 182(c)(9). For more information please see our TSD.

Table 5. 2019 Contingency Demonstration for the HGB Area*

Description	**NOx Emissions (tons per day)**	**VOC Emissions (tons per day)**
Adjusted 2018 Base Year Emissions Inventory	1003.92	935.59
Percent for Contingency Calculation (total of 3%)	2.00	1.00
2018 to 2019 Required Contingency Reductions	20.08	9.36
Federal On-Road Reformulated Gasoline (RFG)	6.80	-0.25
Federal On-Road Mobile New Vehicle Certification Standards	22.28	9.50
State Inspection and Maintenance and Anti-Tampering Programs	-0.67	-0.26
Texas Low Emission Diesel (TxLED)	-0.20	0
Federal Non-Road Mobile New Vehicle Certification Standards	3.56	1.78
Non-Road RFG Gasoline	0.00	0.03
Federal Tier I and II Locomotive Standards	0.68	0.01
Federal Tier 2 Marine Diesel Standard	0.55	0.02
Total Contingency Reductions	**33.20**	**10.83**
Contingency Excess (+) or Shortfall (-)	**+12.92**	**+1.47**

* The reason for negative numbers for the RFG, Inspection and Maintenance/Anti-Tampering and TxLED programs is that there is a slightly higher benefit in 2018 than in 2019.

E. MVEB

The SIP included an attainment MVEB for 2018 (table 6). The MVEB represents the maximum level of on-road emissions of NOx and VOC that can be produced in 2018 – when considered with emissions from all other sources – which demonstrate attainment of the 1997 8-hour ozone NAAQS. The attainment MVEB submitted on April 6, 2010 was updated in the May 6, 2013 submittal using a more recent EPA mobile source emissions estimation model

(MOVES). Previously we determined that the updated 2018 MVEB was "adequate" for transportation conformity purposes and must be used for future conformity determinations in the HGB area (78 FR 46947, August 2, 2013). All future transportation improvement programs, projects and plans developed, funded, or approved under Title 23 U.S.C. or the Federal Transit Laws for the HGB area will need to show that they do not result in emissions which exceed the MVEB (40 CFR 93.118). We propose to approve the 2018 MVEB into the SIP.

Table 6. 2018 HGB Attainment MVEB

Pollutant	**Summer Weekday Emissions (tons per day)**
NOx	103.34
VOC	50.13

F. General Air Quality Definitions

The April 6, 2010, SIP submittal included revisions to the General Air Quality Definitions at 30 TAC Section 101.1. The General Air Quality definitions are applicable to the entirety of the Texas SIP. While reviewing the April 6, 2010 SIP submittal, we also reviewed other pending revisions to the General Air Quality definitions at 30 TAC 101.1 submitted on June 10, 2005, August 16, 2007, and March 11, 2011. The revisions to the definitions were minor and non-controversial. Our complete evaluation of these pending revisions is available in our TSD. In summary, our analysis demonstrates that the revisions are consistent with the CAA and EPA's regulations at 40 CFR Part 51, therefore we propose approval of the revisions to 30 TAC 101.1 submitted on June 10, 2005, August 16, 2007, April 6, 2010 and March 11, 2011. Please see Appendix C of our TSD for our analysis.

III. Proposed Action

We are proposing to approve SIP submittals from the State of Texas for the HGB ozone nonattainment area submitted on April 6, 2010, and May 6, 2013. Specifically, we are proposing to approve the following Texas SIP submittals for the HGB area:

- Attainment demonstration for the 1997 ozone NAAQS
- Revisions to the MECT air pollution control program
- Revisions to the HECT air pollution control program
- VMEP measures and TCMs
- A 2018 year MVEB
- Demonstration of RACM implementation
- Failure to attain contingency measures plan in the event of failure to attain the NAAQS by the applicable attainment date

We are also proposing to approve SIP revisions to the General Air Quality Definitions submitted by the State on June 10, 2005, August 16, 2007, April 6, 2010 and March 11, 2011. We are proposing these actions in accordance with section 110 and part D of the CAA.

IV. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the Act and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the Clean Air Act. Accordingly, this action merely proposes to approve state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this action:

- is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq*.);
- is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq*.);
- does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- is not subject to requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the Clean Air Act; and
- does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, this proposed rule does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply in Indian

country located in the state, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Nitrogen dioxide, Ozone, Volatile organic compounds.

Authority: 42 U.S.C. 7401 *et seq*.

Dated: August 28, 2013.

Samuel Coleman, P.E.,

Acting Regional Administrator, Region 6.

[FR Doc. 2013-21886 Filed 09/06/2013 at 8:45 am; Publication Date: 09/09/2013]