



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

Ms. Margaret Earnest  
State Implementation Plan Team  
Texas Commission on Environmental Quality  
Austin, TX 78753

Dear Ms. Earnest,

Thank you for the opportunity to comment on the draft revision of the Texas Regional Haze State Implementation Plan (SIP). I appreciate the tremendous effort that has gone into the preparation of this document. My staff has reviewed the SIP and our comments are enclosed. We stand ready to assist the Texas Commission on Environmental Quality as you prepare the final document.

If you have any questions concerning these comments, please feel free to call me at (214) 665-7242, or Joe Kordzi, of my staff at (214) 665-7186.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Guy Donaldson".

Guy Donaldson, Chief  
Air Planning Section (6PD-L)

Enclosure

EPA Region 6 Comments on the Texas Draft Regional Haze SIP  
2/15/08

1. EPA has submitted these comments on the Texas draft Regional Haze State Implementation Plan (RH SIP) with the intention of addressing the more significant issues that could be identified considering the review time available. Due to time, resource constraints, and the fact that that the TCEQ has elected not to submit a paper copy of the SIP (which consists of approx. 50 separate electronic files), it has not been possible to conduct a completely thorough review, particularly with regard to modeling. It is possible that additional concerns, not discovered during the review of this draft, will surface during the review of the final version of this SIP.
2. The TCEQ should ensure, with the submittal of the final SIP, it demonstrates it has followed the requirements of Appendix V to Part 51. EPA also suggests that TCEQ edit the paragraph "Public Notice" on page 2.1 to include a reference to Appendix V of Part 51. Lastly, EPA suggests the documentation showing that TCEQ complied with Appendix V of Part 51 be included in SIP Appendix 2-1 ("Public Participation Process") of the final SIP submittal.
3. In general, the TCEQ should ensure that it has specifically addressed each requirement of Section 51.308, even if it feels specific requirements don't apply or appear to be self evident. It is suggested that a checklist be used for this purpose.
4. All graphs and charts originally produced with color coded lines and bars should be reproduced in color, as black and white reproduction does not allow the identification of the individual items. This should be ensured in both printed and electronic versions of the SIP, including all appendices.
5. Appendix 11-1, which is stated on page 11-10 as containing documents related to smoke management, is empty.
6. Display of impacts from Texas sources are divided into 3 separate areas in much of the graphics presented in the SIP, without the more relevant display of impacts from Texas as a whole. Impacts from Texas as a whole should be included in the analysis of impacts on out of state Class I areas.
7. On page 4-2, the TCEQ states, "The TCEQ has determined which states contribute to visibility impairment at the Texas Class I areas by using the results from the CENRAP particulate matter source apportionment technology (PSAT) modeling. These states are New Mexico, Oklahoma, Kansas, and Louisiana." EPA notes the TCEQ has apparently not, as of the writing of this draft SIP, consulted with New Mexico, Louisiana, and Colorado, despite it stating CENRAP modeling shows it impacts the visibility of Class I areas in those States. Under Section 51.308(d)(3), Texas is obligated to consult with those States in order to develop coordinated emission management strategies, as it apparently has emissions that are reasonably anticipated to contribute to visibility

impairment at Class I areas located in those States. Regarding this, the TCEQ should address the following:

- a) The TCEQ should describe how it has met the requirements of Section 51.308(d)(1)(iv), which states, “In developing each reasonable progress goal, the State must consult with those States which may reasonably be anticipated to cause or contribute to visibility impairment in the mandatory Class I Federal area. In any situation in which the State cannot agree with another such State or group of States that a goal provides for reasonable progress, the State must describe in its submittal the actions taken to resolve the disagreement.” EPA is particularly interested in the following:
    - i) Do these States agree with the TCEQ on the level of their apportionments?
    - ii) What, if any, reductions in these States’ sources were negotiated through the consultation process as part of the TCEQ’s reasonable progress strategy.
  - b) The TCEQ should demonstrate, as required under Section 51.308(d)(3)(ii), that it has included in its implementation plan all measures necessary to obtain its share of the emission reductions needed to meet the progress goal for those Class I areas for which it causes or contributes to visibility impairment.
  - c) On page 4-2, the TCEQ states that it attended Oklahoma’s three consultation calls held in August and September 2007. The TCEQ should discuss the results of those calls, including whether Oklahoma requested any additional emission reductions due to Texas’ visibility impacts at the Wichita Mountains Class I area
8. The TCEQ states on page 4-2 that Arkansas and Missouri have begun consultations with Texas about the impact of Texas’ emissions on regional haze at the Class I areas in those States and have accepted Texas’ planned emissions and regional haze impact reductions as adequate for their Class I areas. The TCEQ also states it has begun consultations with Oklahoma concerning its Class I area. Regarding this, the TCEQ should update this information, and show how it has complied with Section 51.308(d)(3)(i) – (iii), including the following:
- a) The TCEQ should demonstrate it has included in its implementation plan all measures necessary to obtain its share of the emission reductions needed to meet the progress goals for the Class I areas it affects.
  - b) The TCEQ should document the technical basis, including modeling, monitoring and emissions information, on which it relies to determine its apportionment of emission reduction obligations necessary for achieving reasonable progress in each mandatory Class I Federal area it affects. If this information is within an appendix, it should be specifically referenced and summarized.
9. The following comments refer to the TCEQ’s calculations on natural visibility:

- a) The TCEQ should provide more detail than is present in Appendix 5-2 on the calculation of the estimate for the refined natural visibility for its two Class I areas. Any data, assumptions, calculations, research, spreadsheets, etc. necessary to replicate the results summarized in Table 5-2 of Appendix 5-2 should be included.
- b) Apparently, the TCEQ assumes major dust events can be assumed to be completely natural in origin, for the purpose of calculating the natural visibility values for its Class I areas. The TCEQ should either provide documentation that supports that assumption, or adopt a lower value that can be supported.
- c) Reviewing Figures 8-4 and 8-5, it appears that on the 20% worst days, wind blown dust (bCM) is much more important to visibility degradation at Guadalupe Mountains than at Big Bend. This conclusion is borne out in a report on dust storms and regional haze<sup>1</sup> prepared by the TCEQ. Near the end of that report is this statement:

“The number of dust storms at BIBE and GUMO do not correlate with each other. ... Because of these differences, the natural conditions for these two sites should be evaluated individually.”

The TCEQ should discuss how that information was considered in the assumptions and calculation of the natural visibility values for each Class I area.

- 10. Regarding its 2018 emission inventory, the TCEQ should discuss the following in the context of its effect on visibility modeling projections:
  - a) How it resolved any significant differences between the actual locations of stationary sources in 2002 and the IPM generated 2018 locations.
  - b) How it resolved any significant differences between the 2002 magnitudes of stationary sources and the IPM generated 2018 magnitudes.
  - c) Does the 2018 total electrical generating capacity appear to be reasonable, when compared to that in 2002?
  - d) Does the mix of electrical generating capacity (gas versus coal plus renewables) as projected in 2018 appear reasonable when compared to that in 2002.
  - e) Why, as discussed on page 8-16, have emissions associated with off-shore marine and oil and gas production activities been held constant? Has the TCEQ verified this is a reasonable assumption with the Minerals Management Service?
- 11. On page 7-1, the TCEQ states the SO<sub>2</sub> emissions modeled by the CENRAP are significantly higher than the 15,633 tpy reported by Texas, and that it is working with

---

<sup>1</sup> Dust Storms and Regional Haze, June 2007,  
[http://www.tceq.state.tx.us/assets/public/implementation/air/sip/bart/haze\\_sip-dust\\_storms.pdf](http://www.tceq.state.tx.us/assets/public/implementation/air/sip/bart/haze_sip-dust_storms.pdf)

CENRAP to correct this error for future modeling. Regarding this, the TCEQ should address the following:

- a) The TCEQ should provide more detail on the differences between the two inventory versions and why it feels the CENRAP-generated SO<sub>2</sub> inventory is incorrect.
  - b) The TCEQ concludes this discussion by stating, “CENRAP’s modeled emissions estimate is not expected to significantly impact visibility estimates for 2018 because of the relatively small contribution from these Texas sources on Class I areas.” Considering other comments herein concerning the impact of Texas sources on other States’ Class I areas, EPA suggests the TCEQ clarify this statement.
12. Figures 8-4 and 8-5 display the observed and modeled light extinction on the worst 20% days for 2002 for Big Bend and Guadalupe Mountains. The following comments pertain to these figures:
- a) It appears the modeled values severely under-predict the observed values in most cases for both total magnitude and SO<sub>4</sub>. The TCEQ should discuss how this level of model performance affects its regional haze SIP. EPA is particularly interested in how this may have affected the TCEQ’s reasonable progress demonstration.
  - b) It appears that SO<sub>4</sub> is in most instances the predominant controllable pollutant. The TCEQ should discuss how this has informed its reasonable progress and long term strategy.
13. Section 51.308(d)(2)(i) requires the TCEQ construct baseline visibility conditions for the most impaired and least impaired days, using 2000 to 2004 data. The TCEQ presents this information in Table 5-1. However, the TCEQ should explain why the baseline average for Big Bend does not include data from 2000.
14. Section 51.308(d)(4)(v) requires the TCEQ submit an emissions inventory that must include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. The TCEQ has supplied an inventory for the baseline year, and for 2018. EPA understands that the TCEQ has emission inventory data available for 2005 and requests that it be included in the SIP. The preamble to the 1999 Regional Haze Rule (64 FR 35745) clarifies EPA authority for requiring the emission inventory of the "most recent year for which data are available," under 51.308(d)(4)(v):
- a) "Requirements Under Section 110(a)(2) of the CAA. Visibility SIP submittals must document certain program infrastructure capabilities consistent with the requirements of section 169B(e)(2) and section 110(a)(2) of the CAA. Section 169(B)(e)(2) requires States to revise their section 110 SIPs to “contain such emission limits, schedules of compliance, and other measures as may be necessary” to carry out regulations promulgated pursuant to this section. The EPA believes that this language authorizes EPA to ensure that States review their existing program

infrastructures to ensure that the types of elements required by section 110(a)(2) for programs addressing the NAAQS are also sufficient for adoption and implementation of SIP measures for regional haze. The final rule does not include specific provisions addressing all elements of section 110(a)(2). However, section 51.308(d)(4)(iv) of the final rule requires the State to maintain and update periodically a statewide inventory of emissions of pollutants that contribute to visibility impairment. Where a State is also revising its SIP to incorporate changes to address the PM2.5 NAAQS, many of these revisions may be sufficient to address both PM2.5 and regional haze. The EPA encourages States to consider the needs of both programs when updating the provisions required by section 110 of the CAA to minimize any administrative burdens."

EPA requests that the TCEQ contrast its 2005 emission inventory with that from its baseline year of 2002, and 2018, in order to serve as a check of the EI projection methodology.

15. As required by Section 51.308(d)(4)(v), the TCEQ should include in its SIP a commitment to update the emission inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in its Class I areas periodically.
16. On Page 9-1, the TCEQ states it reviewed its emission inventory data and used the EPA's model plants as an initial screening tool for identifying potentially BART-eligible sources, and that surveys were sent to approximately 250 potentially BART-eligible sources. Regarding this, the TCEQ should address the following:
  - a) The TCEQ should present additional detail on the methodology used to identify the initial list of potentially BART eligible sources that received surveys. For instance, was a permit review part of this strategy? How did the TCEQ determine if particular sources were in one of the 26 BART categories; had a potential to emit of 250 tons per year or more of any visibility-impairing pollutant; and were not operating prior to August 7, 1962, and were in existence on August 7, 1977? This should include a discussion of the sources discussed in Section 9-5, which were exempted from BART eligibility through the TCEQ BART Rule.
  - b) The TCEQ should present additional information that demonstrates this strategy effectively captured all potentially BART eligible sources within the State.
17. The TCEQ concludes on page 9-10 that of the approximately 250 potentially BART eligible sources in the State, none are subject to BART. As discussed elsewhere in these comments, Texas sources significantly contribute to visibility degradation to a number of Class I areas in other States, in some cases more than the host State. As a result, it is unclear how this decision is "reasonable" under Section 51.308(e), which requires, "The State must submit an implementation plan containing emission limitations representing BART and schedules for compliance with BART for each BART eligible source that may reasonably be anticipated to cause or contribute to any impairment of visibility in any

mandatory Class I Federal area.” In light of this, EPA feels the TCEQ should reconsider its decision to select a BART contribution threshold of 0.5 dv. As discussed in the BART rule (70 FR 39161):

“In setting a threshold for “contribution,” you should consider the number of emissions sources affecting the Class I areas at issue and the magnitude of the individual sources’ impacts. In general, a larger number of sources causing impacts in a Class I area may warrant a lower contribution threshold. States remain free to use a threshold lower than 0.5 deciviews if they conclude that the location of a large number of BART-eligible sources within the State and in proximity to a Class I area justify this approach.”

18. In establishing its reasonable progress goals, Section 51.308(d)(1)(i)(A), requires the TCEQ “consider the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources, and include a demonstration showing how these factors were taken into consideration in selecting the goal.” The following comments address the TCEQ reasonable progress demonstration:
- a) Table 4 of Appendix 10-1 summarizes the estimated annualized costs for SO<sub>2</sub> and NO<sub>x</sub> controls on 24 sources. The TCEQ should provide a detailed cost accounting for the figures on Table 4.
  - b) It appears Tables 8, 9, and 10 of Appendix 10-1 have been truncated.
  - c) The TCEQ takes the position that even if over \$300M was spent on SO<sub>2</sub> and NO<sub>x</sub> controls at the 24 sources, only 0.05 deciview (dv) improvement would be seen at Big Bend and Guadalupe Mountains. EPA notes this simple assessment does not consider:
    - i) The average cost of SO<sub>2</sub> control is approximately \$1,850 per ton. Considering that SO<sub>4</sub> is the dominant controllable pollutant the TCEQ indicates causes or contributes to visibility impairment (Figures 8-4 and 8-5), the TCEQ should reconsider this assessment.
    - ii) This dollar per dv calculation only considers improvement at Big Bend and Guadalupe Mountains. Under Section 51.308(d)(3)(ii), the TCEQ must demonstrate it has included all measures necessary to obtain its share of the emission reductions needed to meet the progress goal of Class I areas in other States as well. As information in Appendix 10-2 indicates, the visibility improvement that would have occurred as a result of these controls at the Wichita Mountains Class I area in Oklahoma is much greater than the Texas Class I areas. In addition, Section 5.4.3 of Appendix 8-1 (the Technical Support Document) notes that sources in Texas significantly contribute to visibility impairment to Caney Creek in Arkansas and the Wichita Mountains in Oklahoma. In fact, according to information in Appendix E to Appendix 8-1, Texas sources

contributed more to the visibility problem at Caney Creek and the Wichita Mountains in 2002 than did Arkansas and Oklahoma sources, respectively, and are projected to repeat that contribution in 2018. Information presented in Chapter 11 also indicates, with the exception of coarse mass, Texas sources exceed the contributions of New Mexico sources to the visibility degradation of the Salt Creek Class I area in New Mexico.

- iii) An evaluation on a “QBase/5d” can be conducted but Q/D analyses are sensitive to the meteorology that impacts the transport and may not yield a conservative analysis. For example if the source modeled is not upwind (and the source does not transport directly to the Class I area frequently), the analysis would not be conservative to evaluate another source that is upwind of the Class I area more frequently. Please expand this issue so that it is clear that the analysis for all sources is a conservative assessment.
- d) On page 10-3, the TCEQ states regarding its reasonable progress goal, “These RPGs do not include additional emissions reductions from implementing the Texas BART rule ....” The TCEQ should discuss what emissions reductions resulted from its BART rule.
- e) On page 10-5, the TCEQ states, “The potential over prediction of EGU emissions on Class I areas by the IPM model analysis [sic]. This uncertainty in the impact of the CAIR program is one reason why the agency has elected not to pursue additional controls at this time.” EPA stresses that there is no provision in the regional haze rule for delaying potentially cost effective controls due to modeling uncertainty. EPA further notes, within Section C.5.9 (Appendix C) of Appendix 8-1 (the Technical Support Document) appears the statement:

“The observed extinction on the worst 20 percent days at BIBE [Big Bend] is under-predicted on almost every day resulting in a fractional bias value of -72% (Figure 3-17). Every component of extinction is underestimated on average for the worst 20 percent days (Figure C-56) with the underestimation bias ranging from -24% (OMC) to -162% (CM). SO<sub>4</sub> extinction, that typically represents the largest component of the total extinction is understated by -94%.”

The relevance of this information is summarized in Section C.6:

“Performance at the BRET, BIBE [Big Bend] and GUMO [Guadalupe Mountains] Class I areas for the worst 20 percent days is particularly suspect and care should be taken in the interpretation of the visibility projections at these three Class I areas.”

Consequently, based on an initial review, it would appear the actual rate of progress of the Texas SIP relative to the uniform rate of progress may in fact be much less than the TCEQ projects.

Considering comments a) through e), above, it is unclear how the SIP meets the reasonable progress and long term strategy requirements in Sections 51.308(d), and 51.308(d)(3) which state, respectively:

“The State must address regional haze in each mandatory Class I Federal area located within the State and in each mandatory Class I Federal area located outside the State which may be affected by emissions from within the State.”

“Each State listed in § 51.300(b)(3) must submit a long-term strategy that addresses regional haze visibility impairment for each mandatory Class I Federal area within the State and for each mandatory Class I Federal area located outside the State which may be affected by emissions from the State.”

19. EPA Region 6 has submitted a general comments on the Texas BART analysis with the intention of addressing the more significant issues that could be identified considering the review time available. EPA was involved in review of much of the CAMx modeling done for screening out sources, but due to time and resource constraints, EPA has not been possible to conduct a completely thorough review, particularly with regard to modeling. It is possible that additional concerns, not discovered during the review of this draft, will surface during the review of the final version of this SIP. In Section 9 it is difficult to review how each of the BART eligible sources were screened out. Further documentation and building of a cross-walk to help demonstrate what modeling was used to screen-out each source should be included.
20. On page 11-3, the TCEQ states:

“The TCEQ ... [determined] that Kansas, Louisiana, New Mexico, and Oklahoma contribute to visibility impairment at Texas’ Class I areas. Since each state is considering which additional emissions reductions are reasonable under the factors listed in 40 CFR §51.308(d)(1), Reasonable Progress Goals, the commission has made a preliminary determination that the emissions reductions that these states are projecting are reasonable for contributing to reasonable progress in reducing their contributions to visibility impairment at Texas’ two Class I areas.”

Since it doesn’t appear at the time of the writing of this SIP the TCEQ knew the extent of reductions in those states, it should explain how it determined those reductions were adequate.

21. On 2/13/08, the TCEQ approved the renewal of Air Quality Permit No. 20345 by ASARCO Incorporated. EPA is concerned about the potential of this facility to affect visibility for Texas and New Mexico Class I areas. The TCEQ should ensure that with the final submittal of this SIP, it has (1) assessed BART for this facility; and (2) included this facility in its reasonable progress analysis and long term strategy, including 2018 projections.