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December 7, 2012

Mary Ann Cook, MC 206
SIP Team, Office of Air
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Submitted via eComments

Re: Proposed Infrastructure and Transport SIP Revision for the 2010 Sulfur Dioxide NAAQS (Project No. 2012-022-SIP-NR)

Dear Ms. Cook:

On behalf of the Sierra Club and its thousands of members who are adversely impacted by Texas sources of sulfur dioxide (SO_2) pollution, we submit the following comments on the proposed revision to the Texas Air Quality State Implementation Plan (SIP): Infrastructure and Transport SIP Revision for the 2010 SO_2 National Ambient Air Quality Standard (NAAQS), required by Section 110(a)(1) and (2) of the federal Clean Air Act (FCAA or "Act"). 42 U.S.C. § 7410(a)(1), (2).

As TCEQ has recognized, the new one-hour SO_2 standard is necessary to protect public health from the serious threats posed by short-term exposure to sulfur compounds, including decreased lung function, increases in respiratory symptoms such as chest tightness, wheezing, and shortness of breath, and other serious indicators of respiratory illness. *See Primary National Ambient Air Quality Standard for Sulfur Dioxide; Final Rule*, 75 Fed. Reg. 35,520, 35,550 (June 20, 2010) (hereinafter "Final Rule"); TCEQ Presentation, 2010 SO_2 Primary NAAQS, Public Information Meetings, January 20 and 24, 2011.[1] The health data relied upon by EPA in promulgating the new standard overwhelmingly indicated that increased asthma attacks and hospital visits are attributable to short-term concentrations of sulfur compound concentrations in the air. Due to these and other serious impairments caused by short-term SO_2 exposure, Texas must properly implement the one-hour SO_2 NAAQS to protect Texans' health.

[1] http://www.tceq.state.tx.us/assets/public/implementation/air/sip/so2/SO2_presentation.pdf.

A. THE INFRASTRUCTURE SIP MUST INCLUDE ENFORCEABLE 1-HOUR SO_2 EMISSION LIMITS FOR BIG BROWN, MARTIN LAKE AND MONTICELLO POWER PLANTS TO ENSURE ATTAINMENT OF THE NAAQS.

Although the 2010 NAAQS represents a new and tighter standard for ambient SO_2 levels, TCEQ does not propose any additional restrictions on SO_2 sources to meet the new NAAQS. By simply proposing the status quo, TCEQ fails to satisfy its obligations under the Act. Section 110(a)(1) of the Act, 42 U.S.C. § 7410(a)(1), provides that each state shall "adopt and submit to the Administrator … a plan which provides for implementation, maintenance, and enforcement of" the NAAQS. Section 110(a)(2)(A) requires that these plans, known as Infrastructure SIPs, "include enforceable emission limitations … to meet the applicable requirements" of the Clean Air Act, including the requirement to maintain the NAAQS. In addition, 42 U.S.C. § 7410(a)(2)(H)(ii) mandates that Infrastructure SIPs provide for their revision if the EPA finds on the basis of information available to it that the plan is substantially inadequate to attain the NAAQS. TCEQ explains: "This expanded section is unique to infrastructure SIP revisions submitted to address requirements of FCAA, §110(a)(1), as it demonstrates that the state can provide for the implementation, maintenance, and enforcement of the NAAQS." Infrastructure and Transport State Implementation Plan Revision for the 2010 Sulfur Dioxide National Ambient Air Quality Standard (I-SIP), October 31, 2012 Proposal at ES-2.

TCEQ fails to include adequate enforceable emission limits to implement, maintain and enforce the 2010 SO_2 NAAQS. Specifically, Luminant Generation Company's Martin Lake Steam Station (Martin Lake), Monticello Steam Station (Monticello), and Big Brown Steam Station (Big Brown) all cause violations of the 2010 SO_2 NAAQS, and the existing SIP limits do not prevent this. Therefore, TCEQ must add enforceable 1-hour averaging time SO_2 emission limits for Martin Lake, Monticello and Big Brown into its SIP that will eliminate these facilities' violations of the 2010 SO_2 NAAQS.

While TCEQ points to provisions in the SIP (30 TAC 112) that prohibit a source from contributing to certain ground concentration levels of SO_2, none of these provisions succeeds in ensuring the NAAQS will be maintained. For example, 30 TAC 112.3 prohibits creating net ground level concentrations of 400 ppb, except in certain counties where it is 280 ppb or 320 ppb. These levels are significantly higher than the 75 ppb NAAQS. That the SIP limits are based on 30-minute averaging times rather than 1 hour does not mean they are stringent enough to protect the NAAQS. TCEQ has offered no evidence to prove that a limit of 280 ppb, averaged over 30 minutes, protects a 75 ppb limit, averaged over an hour, nor is that possible.

Not only are the ambient concentrations permitted significantly higher than the 2010 SO_2 NAAQS, TCEQ cites to no SO_2 limits subject to a <u>one-hour</u> averaging time for the three power plants discussed above. *See* I-SIP at xi. Only an emission limit with a one-hour averaging time can assure compliance with a one-hour averaging time ambient air quality standard.

Nor are the emission limits in 30 TAC 112.8(a) and (b) (3.0 lb/mmbtu averaged over 3 hours, with a 4.0 lb/mmbtu limit for Milam County) adequate to implement, maintain, and enforce the NAAQS. These limits are not specifically tied to ensuring that ambient

concentrations remain below 75 ppb and, as our modeling demonstrates, these emission limits (assuming the facilities are in compliance) are not protective enough to maintain the 1-hour SO_2 NAAQS.

Consistent with EPA's long held position that modeling should be the primary method to determine NAAQS violations for SO_2, Sierra Club has modeled some of the largest SO_2 emission sources in Texas (and indeed the nation). In an effort to ascertain whether these plants cause exceedances of the new one-hour SO_2 standard, Sierra Club conducted refined air dispersion modeling of SO_2 emissions from the following facilities:

(1) Big Brown Steam Electric Station, located in Freestone County;
(2) Martin Lake Electrical Station, located in Rusk County; and
(3) Monticello Electrical Station, located in Titus County.

The modeling of these facilities demonstrates that SO_2 emissions from each plant are causing air impacts that far exceed the new one-hour SO_2 NAAQS. These exceedances are occurring in counties which Texas has not proposed to be designated as nonattainment; in fact, Texas has recommended one of the impacted counties (Gregg) for an attainment designation.

Sierra Club's expert modeler prepared an air dispersion modeling analysis for each of the plants identified above, to compare modeled ambient air concentrations and the one-hour SO_2 NAAQS. Specifically, the modeler modeled maximum hourly SO_2 emissions obtained from EPA's Clean Air Markets database or the plant's Title V permit.[2] The modeling protocol employed is consistent with the EPA's March 2011 guidance and utilizes AERMOD v. 11103. It used a data set for meteorological conditions developed by TCEQ.[3] Where any assumptions had to be made in the running of the models, the modeler employed conservative inputs which favor the prediction of lower impacts from the plants so that the results <u>understate</u> the plants' true SO_2 emissions impacts.

The results of these refined air dispersion modeling analyses show that these facilities are causing clear violations of the one-hour SO_2 NAAQS in the counties in which these facilities are located as well as some of the surrounding counties. What is more, these violations exist even without added background SO_2 concentrations from other emission sources in the area. Our findings are outlined in the table below.

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[2] For the Big Brown and Monticello plants, the maximum annual emissions of SO_2 from the Clean Air Markets database were converted to grams per second as required by the AERMOD model by assuming that the boilers operate continuously (8760 hours per year). For the Martin Lake plant, the annual allowable SO_2 emissions from the plant's Title V permit were converted to grams per second by the same method. EPA's guidance on modeling 1-hour SO_2 impacts and the Modeling Guidelines require using the maximum 1-hour emission rate. There are no 1-hour limits in the permit for the plants modeled. Therefore, the maximum emissions during a 1-hour period should be used. The emission rates used for the modeling performed by Sierra Club's expert are lower than the 1-hour maximum emissions and, thus, underestimate impacts. Using the 1-hour maximum, as required by EPA should result in even higher modeled concentrations.

[3] The pre-processed meteorological data from TCEQ were used to be consistent with TCEQ practices. The TCEQ practices regarding meteorological data are not consistent with best modeling practices, however.

Plant	Modeled Emissions Rates	4th Highest Facility Impact + Background (ug/m³)	Impacted Area	TCEQ Recommended Designation
Big Brown	Stack 1: 1,431.9 g/s Stack 2: 1,336.1 g/s	517.1 ug/ m^3	Freestone	Unclassifiable
Martin Lake	Stack 1: 955.6 g/s Stack 2: 927.0 g/s Stack 3: 961.5 g/s	463.5 ug/m^3	Rusk	Unclassifiable
			Panola	Unclassifiable
			Gregg	Attainment
Monticello	Stack 1: 877.8 g/s Stack 2: 860.3 g/s Stack 3: 633.4 g/s	357.3 ug/m^3	Titus	Unclassifiable
			Camp	Unclassifiable

Detailed reports presenting these modeling results and discussing the technical methodology used are attached. *See* Ex. 1, 2, & 3. The modeling files, with inputs and outputs, have been provided under separate cover referencing this docket and project number. Sierra Club staff members and modeler Khanh Tran of AMI Environmental met with TCEQ staff involved in SO_2 SIP issues on August 8, 2011 to present the modeling reports, but have not received further communication from TCEQ on the modeling.

Based on the AMI Environmental modeling, to achieve and maintain the NAAQS, TCEQ must promulgate one-hour averaging time emission limits into its SIP which are no less stringent than the following limits.[4] These emission limits must apply at all times, including during startup, shutdown and malfunction. The SIP must also require that compliance with these emission limits must be based on continuous emission monitoring systems (CEMS) that must be operated at all times the units are combusting fuel, including during startup, shutdown and malfunction. A CEMS that complied with the New Source Performance Standard (NSPS) requirements would not be adequate because the NAAQS applies all the time whereas the NSPS requirements do not require that the CEMS operate at all times.

Plant	Maximum possible emission limit
Big Brown	Stack 1: 4308 lb/hr Stack 2: 4019 lb/hr
Martin Lake	Stack 1: 3207 lb/hr Stack 2: 3111 lb/hr Stack 3: 3227 lb/hr
Monticello	Stack 1: 3822 lb/hr Stack 2: 3745 lb/hr Stack 3: 2758 lb/hr

[4] Given how conservative the modeling inputs were, *see supra* note 2 and *infra* page 5, these proposed limits are likely not stringent enough. TCEQ must evaluate the sources' emissions causing violations of the NAAQS and impose limits that will reduce emissions to a point where the sources are not causing or contributing to violations.

We used the following formula to obtain these maximum required emission limits based on the assumption that AERMOD normally has a linear relationship between emission rate and ambient concentration when all other parameters are held constant: (196 ug/m3 / modeled design value) * modeled emission rate in grams/second * 3600 seconds/hour / 453.5924 grams/lb.

Sierra Club's modeling, however, contains several assumptions which tend to underestimate ambient impacts. Therefore, TCEQ must model, using the best available current data, any emission limit it sets to confirm that it will ensure that the SO_2 NAAQS will not be violated. For example, TCEQ must model using ASOS meteorological data run through the AERMINUTE preprocessor. Also, TCEQ must establish that operating scenarios at less than 100% load with lower exit velocity and temperature and with building downwash do not result in additional violations.

TCEQ takes the position that EPA is not requiring TCEQ to model all its large sources of SO_2 to prove that they do not cause NAAQS violation. However, EPA's April 12, 2012 letter referenced by TCEQ does not give states license to ignore information in front of them. *See generally Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto Ins. Co.,* 463 U.S. 29, 43 (1983) (arbitrary and capricious for agency to ignore important aspect of an issue)*; Grand Canyon Trust v. FAA*, 290 F.3d 339, 346 (D.C. Cir. 2002). The letter merely states that in light of EPA's process of taking stakeholder input, EPA "no longer expect[s] your state's June 2013 SIP submittals to contain modeling demonstration showing attainment of the standard in unclassifiable areas, as was outlined in the final SO_2 NAAQS rule and described further in the draft implementation guidance." EPA's letter merely rescinds the stated requirement that the *state* conduct modeling for each attainment area; it does not address the situation currently facing TCEQ. Here, Sierra Club has provided the State with modeling demonstrating that the existing regulations allow for violation of the NAAQS in areas that are currently designated attainment and have not been recommended for nonattainment status. EPA clearly considers modeling a valid tool in this context. In the April 12, 2012 letter, EPA goes on to say: "If your state has begun modeling, however, and wishes to continue that work, we will be glad to work with you."

TCEQ readily admits that it uses "air quality modeling to help Texas prepare SIP revisions." I-SIP at xiv. TCEQ also explains that "[a]ir quality modeling is conducted during development of revisions to the Texas SIP, as appropriate for the state to demonstrate attainment with required NAAQS." *Id.* at xvii. There is no justification for Texas to deviate from that approach here by simply ignoring Sierra Club's modeling.

As stated in the Final Rule, "For initial designations that will be finalized in June 2012, States should use… any refined SO_2 dispersion modeling" – such as the modeling Sierra Club has conducted – "for sources that may have the potential to cause or contribute to a NAAQS violation, provided that it is recent and available." Final Rule, 75 Fed. Reg. at 35,569. Similarly, TCEQ acknowledged that EPA expects states to use "recent and available refined SO_2 dispersion modeling provided by states for sources that may have the potential to cause or contribute to a NAAQS violation." TCEQ April 1, 2011 Interoffice Memorandum regarding Commission Approval for Designation Recommendations for the 2010 SO_2 Primary NAAQS at 1.

EPA does not need to issue a rulemaking to use modeling to advance the initial implementation of the SO_2 NAAQS. As an initial matter, Appendix W and EPA guidance documents explain the AERMOD modeling methodology required to determine source specific compliance with the SO_2 NAAQS. With AERMOD, EPA and/or the states can evaluate specific sources' compliance with the SO_2 NAAQS taking into account the background design values in the relevant areas and then determine the percent reduction in SO_2 emissions required to ensure that the SO_2 NAAQS are not violated on an individual, source by source basis. This is the same approach taken by Sierra Club's modeler in the attached report and in the formula described above.

TCEQ has long been on notice that EPA considers modeling data an important source of information for achieiving and maintaining the NAAQS. EPA has historically used modeling in determining attainment for the SO_2 standard. *See e.g.,* EPA SO2 White Paper at 3, ftnt. 1; *see also* Respondent's Opposition to Motion of the State of North Dakota for a Stay of EPA's 1-Hour SO_2 Ambient Standard Rule at 3, *National Environmental Development Association's Clean Air Project v. EPA* (D.C. Cir. 2010) (No. 10-1252), attached hereto as Ex 4 ("the Agency has historically relied on modeling to make designations for sulfur dioxide"). For example, in EPA's 1994 SO_2 Guideline Document, EPA noted that "for SO_2 attainment demonstrations, monitoring data alone will generally not be adequate," and that "[a]ttainment determinations for SO_2 will generally not rely on ambient monitoring data alone, but instead will be supported by an acceptable modeling analysis which quantifies that the SIP strategy is sound and that enforceable emission limits are responsible for attainment." U.S. EPA, 1994 SO_2 Guideline Document, *available at* http://www.epa.gov/ttn/oarpg/t1/memoranda/so2_guide_092109.pdf, at 2-1; *see also id.* at 2-5 ("For SO_2 attainment demonstrations, monitoring data alone will generally not be adequate."). The 1994 Guidance goes on to note that monitoring alone is likely to be inadequate: "[f]or SO_2, dispersion modeling will generally be necessary to evaluate comprehensively a source's impacts and to determine the areas of expected high concentrations based upon current conditions." *Id.* at 2-3.

EPA's acceptance of modeling for making attainment designations stretches back decades, and is equally applicable to determining the adequacy of an infrastructure SIP. In 1983, OAQPS issued a Section 107 Designation Policy Summary. *See* Sheldon Meyers Memorandum re Section 107 Designation Policy Summary (April 21, 1983), attached hereto as Ex. 5 ("Meyers Memorandum"). OAQPS explained that "air quality modeling emissions data[] should be used to determine if the monitoring data accurately characterize the worst case air quality in the area." *Id.* at 1. Of course, if there is no monitoring data for an area, it does not accurately characterize the worst case air quality in an area. EPA acknowledged that some nonattainment designations were "based solely on modeling[.]" *Id.* at 2.

In fact, reliance on modeling for nonattainment designations stretches back to the Carter Administration. In 1978, EPA designated Laurel, Montana nonattainment "due to measured and modeled violations of the primary SO_2 standard." *Montana Sulphur & Chemical Co. v. EPA*, 666 F.3d 1174, 1181 (9th Cir. 2012) (citing 43 Fed. Reg. 8,962 (Mar. 3, 1978)).

As such, EPA's final 2010 SO_2 NAAQS rule simply continues and builds upon EPA's historical practice of using modeling to determine attainment and nonattainment status for SO_2 NAAQS. In doing so, EPA properly recognized the "strong source-oriented nature of

SO_2 ambient impacts," Final Rule, 75 Fed. Reg. at 35,370, and concluded that the appropriate methodology for purposes of determining compliance, attainment, and nonattainment with the new NAAQS is modeling. *See* Final Rule, 75 Fed. Reg. at 35,551 (describing dispersion modeling as "the most technically appropriate, efficient, and readily available method for assessing short-term ambient SO_2 concentrations in areas with large point sources."). Accordingly, in promulgating the new SO_2 NAAQS, EPA explained that, for the 1-hour standard, "it is more appropriate and efficient to principally use modeling to assess compliance for medium to larger sources . . . ." *Id.* at 35,570. Similarly, EPA itself then explained in the white paper that using modeling to determine attainment for the SO_2 standard "could better address several potentially problematic issues than would the narrower monitoring-focused approach discussed in the proposal for the SO_2 NAAQS, including the unique source-specific impacts of SO_2 emissions and the special challenges SO_2 emissions have historically presented in terms of monitoring short-term SO_2 levels for comparison with the NAAQS in many situations (75 FR 35550)." White Paper at 3-4.

EPA's use of modeling has moreover been upheld by the courts. For example, in *Montana Sulphur*, Montana Sulphur challenged a SIP Call, a SIP disapproval and a FIP promulgation because they were all premised a modeling analysis which showed the Billings/Laurel, Montana area was in nonattainment for SO_2. 666 F.3d at 1184. The Court rejected Montana Sulphur's argument and held that EPA's reliance on modeling was not arbitrary and capricious or otherwise unlawful. *Id.* at 1185; *see also Sierra Club v. Costle*, 657 F.2d 298, 332 (D.C. Cir. 1981) ("Realistically, computer modeling is a useful and often essential tool for performing the Herculean labors Congress imposed on EPA in the Clean Air Act"); *Republic Steel Corp. v. Costle*, 621 F.2d 797, 805 (6th Cir. 1980) (approving use of modeling to predict future violations and incorporating "worst-case" assumptions regarding weather and full-capacity operations of pollutant sources).

EPA uses modeling because EPA is well aware that modeling produces reliable results. For example, John C. Vimont was the Region 9 Regional Meteorologist in 1990. Declaration of John C. Vimont at 1, attached hereto as Ex. 6. In 1990, Mr. Vimont stated under oath:

> EPA does recognize the usefulness of ambient measurements for information on background concentrations, provided reliable monitoring techniques are available. <u>EPA does not recommend, however, that ambient measurements be used as the sole basis of setting emission limitations or determining the ambient concentrations resulting from emissions from an industrial source. These should be based on an appropriate modeling analysis.</u>

Id. at 11 (emphasis added).

Similarly, Roger Brode is currently a physical scientist in EPA's Air Quality Modeling Group. Declaration of Roger W. Brode at 1, attached hereto as Ex. 7. He co-chairs the AMS/EPA Regulatory Model Improvement Committee (AERMIC) and the AERMOD Implementation Workgroup. *Id.* at 2. Mr. Brode has stated under oath that AERMOD is "readily capable of accurately predicting whether the revised primary SO_2 NAAQS is attained and whether individual sources cause or contribute to a violation of the SO_2 NAAQS." *Id.* Mr. Brode has explained:

> As part of the basis for EPA adopting the AERMOD model as the preferred model for nearfield applications in the *Guideline on Air Quality Models,* Appendix W to 40 CFR Part 51, the performance of the AERMOD model was extensively evaluated based on a total of 17 field study data bases (AERMOD: Latest Features and Evaluation Results. EPA-454/R-03-003. U.S. Environmental Protection Agency, Research Triangle Park (2003), portions of which are attached to this affidavit) ("EPA 2003"). The scope of the model evaluations conducted for AERMOD far exceeds the scope of evaluations conducted on any other model that has been adopted in Appendix W to Part 51. These evaluations demonstrate the overall good performance of the AERMOD model based on technically sound model evaluation procedures, and also illustrate the significant advancement in the science of dispersion modeling represented by the AERMOD model as compared to other models that have been used in the past. In particular, adoption of the AERMOD model has significantly reduced the potential for overestimation of ambient impacts from elevated sources in complex terrain compared to other-models.

Id. at 3-4 (emphasis added).

Not only is modeling reliable, as discussed above, it also has the benefit of being able to be completed rapidly. For example, Minnesota modeled all of its large sources of SO_2 by March 2012. *See* Minnesota Pollution Control Agency, Air Pollutant: Sulfur Dioxide (SO_2), available at http://www.pca.state.mn.us/index.php/air/air-quality-and-pollutants/general-air-quality/state-implementation-plan/state-implementation-plan-for-so2.html.

EPA's practice in a number of other contexts also demonstrates that modeling is a technically superior approach for ascertaining impacts on NAAQS, and the history of EPA's preference for modeling to evaluate compliance rather than monitoring. For example, all NO_2, $PM_{2.5}$, and SO_2 NAAQS and PSD increment compliance verification analyses are performed with air dispersion modeling, such as running AERMOD in a manner consistent with the Guideline on Air Quality Models. 40 C.F.R. § 52.21(l)(1). Indeed, in order to ensure consistency in how air impacts are determined, both existing sources and newly permitted sources should be assessed using the same methods. AERMOD modeling performs particularly well in evaluating emission sources with one or a handful of large emission points. The stacks are well-characterized in terms of location, dimensions and exhaust parameters, and have high release heights. In addition, the EGUs discussed above have SO_2 continuous emission monitoring system ("CEMS") data. AERMOD accurately models medium-to-large SO_2 sources—even with conditions of low wind speed, the use of off site meteorological data, and variable weather conditions. For example, AERMOD has been tested and performs very well during conditions of low wind speeds:

> AERMOD's evaluation analyses included a number of site-specific meteorological data sets that incorporate low wind speed conditions. For example, the Tracy evaluation included meteorological data with wind speeds as low as 0.39 meter/second (m/s); the Westvaco evaluation included wind speeds as low as 0.31 m/s; the Kincaid SO_2 evaluation included wind speeds as low as 0.37 m/s; and the Lovett evaluation included wind speeds as low as 0.30 m/s. Concerns . . . regarding AERMOD's ability to model low wind speed conditions seem to neglect the data used in actual AERMOD evaluations.

Comments of Camille Sears, attached hereto as Ex. 8 (citing AERMOD evaluations and modeled meteorological data available at: http://www.epa.gov/ttn/scram/dispersion_prefrec.htm). EPA has noted as much for years: "[a]mbient monitoring data and air quality modeling data for a particular area can sometimes appear to conflict. This is primarily due to the fact-that modeling results may predict maximum SO_2 concentrations at receptors where no monitors are located." U.S. EPA 1994 SO_2 Guideline Document at 2-6.

Monitoring, of course, also provides information about violations of the NAAQS, TCEQ acknowledges that there is a non-regulatory monitor in Neuces County that had a preliminary design value of 103 ppb. TCEQ April 1, 2011 Interoffice Memorandum regarding Commission Approval for Designation Recommendations for the 2010 SO_2 Primary NAAQS at 5. Similarly, there is regulatory monitor in Beaumont C2/C112 which had a design value for 2010 of 77 ppb. *Id.* at 6th page. To achieve and maintain the NAAQS, TCEQ must identify what source or sources caused those violations and impose one-hour averaging time enforceable emission limits on those sources.

In sum, neither the SIP nor permitted emission limits for individual plants currently ensure that Texas counties will achieve and maintain the new 1-hour SO_2 NAAQS. To satisfy the Act's obligations, TCEQ must include adequate emissions limits in the SIP, with one-hour averaging periods. EPA has acknowledged that, for the one-hour SO_2 NAAQS, modeling is the most accurate means of determining attainment with the NAAQS. Final Rule, 75 Fed. Reg. at 35,551, 35,5570. Accordingly, TCEQ should include source-specific SO_2 emission limits in the SIP that, when modeled, show no exceedances of the NAAQS. Under their current permit limits, at least three sources (all owned by Luminant Generation Company) are causing violations of the NAAQS. Sierra Club has suggested potential limits for these sources that are likely even more lenient that needed to ensure compliance with the NAAQS.

B. TEXAS' SO_2 MONITORING NETWORK IS NOT ADEQUATE.

TCEQ claims that it has an adequate monitoring network in place. *See* Oct. 12, 2012 Interoffice Memorandum regarding Docket No. 2012-1636-SIP (Oct. 12 Memo). However, there is no provision in the Texas SIP requiring a monitoring network that meets the requirements of 42 U.S.C. § 7410(a)(2)(B) or EPA's SO2 monitoring network requirements. See I-SIP at xi – xii. Texas must add provisions to the SIP to address this omission.

In addition, the SIP should address the proper placement of monitors in the areas likely to be most impacted by SO2 sources, as indicated by air dispersion modeling and emissions reports. The monitoring network currently lacks SO_2 monitors in a number of counties where there are very large sources of SO_2. Both the modeling reports attached hereto and TCEQ data on SO2 emissions from various counties confirms that the states' monitors are almost certainly not identifying many existing violations. Jefferson County, the only county with a monitor that showed levels violating the NAAQS, is in fact last on the list of the top 15 counties for annual SO_2 emissions. Although the standard is based on short-term spikes in ambient levels of SO_2, not total annual emissions, the sheer volume of SO_2 being emitted in the top 10 counties– or at least the top three– deserves further

investigation and consideration for monitors. TCEQ stated in its 2010 Monitoring Network Assessment submitted to EPA that it was considering new SO_2 monitors in Rusk, Titus, Freestone, Fayette, and Limestone counties. *See* Texas Commission on Environmental Quality 2010 Five Year Ambient Air Monitoring Network Assessment (May 2010), *at* http://www.epa.gov/ttnamti1/files/networkplans/TXAssess2010.pdf. Sierra Club strongly supports adding monitors in these locations, sited appropriately to identify violations caused by the large SO_2 sources there. Rural communities as well as urban communities deserve to be protected from the health effects of SO_2. In Texas, rural counties are home to some of the largest sources of SO_2 pollution.

TOP TEXAS COUNTIES FOR ANNUAL SO_2 POLLUTION			
Rank	**County**	**Tons SO_2 in 2008**	**Large SO_2 Sources**
1	Titus	94,429	Monticello & Welsh coal-fired power plants
2	Rusk	78,896	Martin Lake coal-fired power plant
3	Freestone	62,516	Big Brown coal-fired power plant
4	Fort Bend	54,750	Parish coal-fired power plant
5	Fayette	30,015	Sam Seymour (aka Fayette) coal-fired power plant
6	Bexar	25,855	CPS coal plant complex
7	Milam	20,784	Sandow #4 coal-fired power plant
8	Limestone	21,268	Limestone coal-fired power plant
9	Lamb	20,176	Tolk coal-fired power plant
10	Harris	19,204	Oil refineries, sulfuric acid plant, gas power plants, chemical plants
11	Potter	19,134	Harrington coal-fired power plant
12	Goliad	17,417	Coleto Creek coal-fired power plant
13	Hutchinson	15,338	Oil refinery, carbon black plants
14	Grimes	12,567	Gibbons Creek coal-fired power plant
15	Jefferson	12,014	Oil refineries, petcoke processing plant

Source: TCEQ 2008 Emissions Inventory.

In addition, there are problems apparent with the existing network. TCEQ claims that "one monitor for the San Antonio-New Braunfels area and one monitor in the Amarillo area were both deployed after promulgation of this NAAQS." Oct. 12 Memo at 2. However, the US EPA's Air Quality System (AQS) does not report any air monitors in San Antonio-New Braunfels or Amarillo in 2011 or 2012. *See* Ex. 9 and Ex. 10. TCEQ must deploy properly sited monitors in these areas, operate them, and report their results on the AQS.

C. TEXAS' MINOR NSR PROGRAM DOES NOT REQUIRE SOURCES TO DEMONSTRATE THAT THEY WILL NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE 1-HOUR SO2 NAAQS.

Section 110(a)(2)(C) of the Act, 42 U.S.C. § 7410(a)(2)(C), requires the SIP to include "a program to provide for the enforcement of [emission limits necessary to meet the Act's

requirments]… including a permit program as required in parts C and D."[5] *Id.* (emphasis added). In order to meet this requirement for minor sources, TCEQ must add a regulation to its SIP that requires all minor sources to demonstrate that they will not cause or contribute to a violation of the 2010 SO_2 NAAQS. TCEQ has offered no support for excluding minor sources from this demonstration. There is no evidence to establish that sources that are below the PSD major source threshold of 250 tons per year, for example, will not cause or contribute to a violation of the 2010 one-hour SO_2 NAAQS. TCEQ must amend 30 TAC 116.111(a)(2) to make clear that minor sources as well as major sources must demonstrate they will not cause or contribute to a violation of the 1-hour SO_2 NAAQS.

D. TEXAS MUST MAKE CLEAR THAT ITS SIP ENFORCES THE 2010 NAAQS.

30 TAC 101.21 states that "the NAAQS" will be enforced throughout Texas. To avoid any potential confusion, TCEQ should make clear that this section of the Texas SIP references the current 2010 one-hour SO_2 NAAQS (and other current NAAQS).

E. TEXAS MUST MAKE CLEAR HOW ITS CURRENT REGULATIONS COMPLY WITH 42 U.S.C. § 7410(a)(2)(F)(iii).

Section 110(a)(2)(F)(iii) of the Act, 42 U.S.C. § 7410(a)(2)(F)(iii), provides that SIPs must require a correlation of reports by state agencies on the nature and amounts of emissions and emission-related data and any emission limitations or standards established under the Clean Air Act. These reports must be available at reasonable times for public inspection. *Id.* While TCEQ attempts to address 42 U.S.C. § 7410(a)(2)(F)(ii), TCEQ does not even attempt to address 42 U.S.C. § 7410(a)(2)(F)(iii). TCEQ must add provisions to its SIP to address 42 U.S.C. § 7410(a)(2)(F)(iii).

F. TEXAS' GOOD NEIGHBOR ANALYSIS IS ARBITRARY AND INCOMPLETE.

TCEQ states that it performed an "analysis" pursuant to 42 U.S.C. § 7410(a)(2)(D)(i)(I), of whether Texas contributes significantly to interference with maintenance and attainment in downwind states. Unfortunately, that analysis is flawed to the point of being arbitrary.

First, TCEQ only looked at other states' violating monitors. I-SIP at 2-3. Thus, it ignored the Act's requirement to consider the impact of interstate pollution on maintenance areas. 42 U.S.C. § 7410(a)(2)(D)(i)(I). *See North Carolina v. EPA*, 531 F.3d 896, 909 - 910 (D.C. Cir. 2008). To comply with the Act, TCEQ must evaluate the impacts of Texas pollution on maintenance receptors of concern in other states, as well as violating monitors. In the Cross State Air Pollution Rule, EPA identified maintenance receptors of concern as "those receptors that would have difficulty maintaining the relevant NAAQS in a scenario

[5] Although the statute references the major source permitting programs, "[i]ncluding," means including but not limited to. Accordnigly,Section 110(a)(2)(C) encompasses the minor source permitting program as well. TCEQ acknowledges this in its Interim 1-Hour Sulfur Dioxide (SO2) NAAQS Implementation Guidance August 1, 2010 Updated November 28, 2011 at 1 – 2.

that takes into account historic variability in air quality at that receptor." 76 Fed. Reg. 48208, 48,227 (Aug. 8, 2011) (vacated on other grounds).[6]

TCEQ also failed to evaluate monitors where there are exceedances of the NAAQS, but had less than three years of data. Because these areas are at risk of becoming nonattainment in the future, TCEQ must evaluate them as part of its interstate transport analysis. *See e.g. North Carolina*, 531 F.3d at 909. For example, monitor 220870009 in St. Bernard, Louisiana had a 99th percentile value of 85.2 ppb in 2011 and monitor 350451233 in San Juan, New Mexico had a 99th percentile value of 136.0 ppb in 2011. Clearly under the maintenance prong and likely under the nonattainment prong, TCEQ must evaluate Texas sources' contribution to these monitors.

TCEQ states that it evaluated monitors that existed in states within Region 6 in 2011. I-SIP at 2-3. However, as TCEQ acknowledges, states are required to have additional monitors in place by January 2013. Therefore, TCEQ's analysis of Texas' impact on downwind states must include an analysis of any additional monitor locations identified by downwind states.

TCEQ claims, in Section 2.2.1.3 and again in its conclusion on page 2-10, that Texas is not contributing to violating monitors because monitors in between Texas and the violating monitors are not showing violations. This analysis assumes: (1) that SO_2 travels at ground level (the monitors in between Texas and the violating monitors only monitor SO_2 at ground level); and (2) pollution that might travel to the violating monitor would pass through the location of the "in-between" monitor, rather than through the almost infinite other pathways the pollution might travel from Texas to the violating monitors. Both of these assumptions are, of course, not valid. TCEQ itself set its HYSPLIT model trajectory height to 800 meters. I-SIP at 2-9. A plume of SO_2 traveling almost half a mile in the air will not register on a ground level ambient air monitor.

What little actual data TCEQ includes in its analysis indicates that Texas is indeed contributing to air quality problems in other states. TCEQ admits that "the clusters show possible evidence of transport[.]" I-SIP at 2-9. However, TCEQ fails to conduct modeling from its major sources of SO_2 emissions, which are limited in number, to see if they contribute more than 1% of the NAAQS (0.75 ppb). TCEQ must perform this analysis and allow the public an opportunity to review and comment on it.

G. CONCLUSION.

The Texas SIP is currently inadequate to achieve and maintain compliance with the 1-hour SO_2 NAAQS, as described above. TCEQ must adopt new provisions into the SIP to protect the public health and comply with the Act's requirements. As an initial step, TCEQ could adopt – or at least evaluate – Sierra Club's modeling of the three largest sources of SO_2 in the state. In addition to the reports provided to TCEQ in August 2011, and attached again here, Sierra Club has provided the underlying AERMOD files in support of the reports. We would be happy to provide any other information that might assist TCEQ in evaluating the impacts of these sources and developing a SIP in full compliance with the Act.

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[6] *See id.* at 48,228 for further details on EPA's methodology.

Respectfully submitted,

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