



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JUN 10 2021

THE ADMINISTRATOR

Mr. Toby Baker
Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711

Dear Mr. Baker:

I am hereby denying your March 15, 2017, and December 11, 2017, letters in which the Texas Commission on Environmental Quality submitted a request for administrative stay and a petition for reconsideration, (collectively "2017 requests") concerning the U.S. Environmental Protection Agency's final action titled *Air Quality Designations for the 2010 Sulfur Dioxide (SO₂) Primary National Ambient Air Quality Standard – Supplement to Round 2 for Four Areas in Texas: Freestone and Anderson Counties, Milam County, Rusk and Panola Counties, and Titus County*, 81 FR 89870 (December 13, 2016).

In the December 11, 2017, petition for reconsideration, TCEQ requested that the EPA reconsider the nonattainment designations for the Freestone and Anderson Counties, Rusk and Panola Counties and Titus County areas based on SO₂ emissions facility retirements, limited state resources to develop state implementation plans, the deployment of new ambient air monitors, reliance on third-party modeling and consent decree obligations. In the March 15, 2017, letter, TCEQ requested that the EPA stay the final rule's effective date.

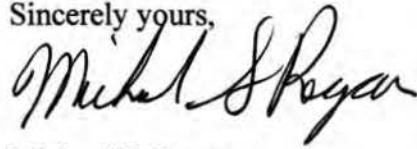
However, as discussed more fully in the enclosures, the EPA concludes that the 2017 requests do not present facts or arguments that warrant a reconsideration process or a stay of the effective date of the EPA's 2016 designations action. Therefore, the EPA denies the petition for reconsideration and the request to stay the final rule's effective date.

At the request of the state of Texas, on May 7, 2021, the acting EPA Region 6 Administrator signed a final action titled *Air Plan Approval; Clean Data Determination for the 2010 1-Hour Primary Sulfur Dioxide National Ambient Air Quality Standard; Anderson and Freestone Counties and Titus County Nonattainment Areas*, which determined that portions of Freestone and Anderson Counties and Titus County are now attaining the 2010 SO₂ Primary National Ambient Air Quality Standard. This determination suspends most attainment planning requirements under the 2010 SO₂ NAAQS for these two areas for as long as they continue to attain the NAAQS. As explained in that final action, the primary sources of SO₂ emissions in

these two areas have permanently shut down, and, as a result, the EPA's assessment is that air quality in these two areas is now meeting the 2010 SO₂ primary NAAQS.

I appreciate your interest in air-quality standards in Texas and in providing cleaner, healthier air for its residents.

Sincerely yours,

A handwritten signature in black ink that reads "Michael S. Regan". The signature is written in a cursive style with a large, prominent "M" and "R".

Michael S. Regan

Enclosures

Enclosure 1

The Environmental Protection Agency's Basis for Denying Texas Commission on Environmental Quality's Petition for Reconsideration and Request for Administrative Stay

I. Statutory and Regulatory Background

A. Revisions to the SO₂ NAAQS

The Administrator of the U.S. Environmental Protection Agency signed a final rule revising the primary sulfur dioxide (SO₂) National Ambient Air Quality Standard on June 2, 2010. The EPA published this rule in the *Federal Register* on June 22, 2010 (75 FR 35520, codified at 40 CFR 50.17), and it became effective on August 23, 2010.¹ Based on the Administrator's review of the air quality criteria for oxides of sulfur (SO_x) and the primary NAAQS for SO_x as measured by the indicator compound SO₂, the EPA revised the primary SO₂ NAAQS to provide requisite protection of public health with an adequate margin of safety. Specifically, the EPA established a new one-hour SO₂ standard at a level of 75 parts per billion (ppb), which is met when the three-year average of the annual 99th percentile of daily maximum one-hour average concentrations is less than or equal to 75 ppb, as determined in accordance with Appendix T of 40 CFR part 50.40 CFR 50.17(a) and (b). The EPA also established provisions to revoke both the existing 24-hour and annual primary SO₂ standards, subject to certain conditions. *See* 40 CFR 50.4(e).

B. Multiple Rounds of Designations for the 2010 SO₂ NAAQS

The process for designating areas following promulgation of a new or revised NAAQS is contained in Clean Air Act section 107(d). After promulgation of a new or revised NAAQS, each governor or tribal leader is required to recommend air-quality designations, including the appropriate boundaries for nonattainment areas, to the EPA. The EPA considers these recommendations when fulfilling its duty to promulgate all initial area designations and boundaries for the new or revised NAAQS. By no later than 120 days prior to promulgating designations, the EPA is required to notify states, territories and tribes, as appropriate, of any intended modifications to an area designation or boundary recommendation that the EPA deems necessary. During that period, states may demonstrate why they believe the EPA's proposed modifications are inappropriate. Nearly all states, including Texas, submitted timely designation recommendations for the 2010 SO₂ NAAQS to the EPA.

After invoking a one-year extension of the deadline to designate areas, as provided for in section 107(d)(1)(B)(i) of the CAA, the EPA published an initial round of SO₂ designations for certain areas of the country on August 5, 2013 (referred to as "Round 1") (78 FR 47191). The Freestone and Anderson Counties, Rusk and Panola Counties and Titus County areas in Texas were not included in that first round of designations, as those areas did not have existing monitoring data showing a violation of the 2010 SO₂ NAAQS.

¹ Furthermore, as required by the *Clean Air Act*, the EPA conducted a periodic review of the SO₂ NAAQS, and on March 18, 2019, the agency published a decision to retain the 2010 one-hour primary standard. *See* 84 FR 9866.

Following Round 1 designations, three lawsuits were filed against the EPA in different United States District Courts, alleging the agency had failed to perform a nondiscretionary duty under the CAA by not designating all portions of the country by the extended deadline. The state of Texas was a plaintiff or plaintiff-intervenor in two of those cases. In one of those cases, the U.S. District Court for the Northern District of California entered an order on March 2, 2015, for the EPA to complete the area designations by three specific deadlines.² By the first deadline in the court order (July 2, 2016), the EPA was required to designate areas containing SO₂ emissions sources meeting certain criteria (referred to as “Round 2”). As shown in Table 1, each area subject to this petition included a facility owned by Vistra Energy meeting the criteria for a Round 2 designation.

Table 1. Texas SO₂ Emissions Sources Addressed in EPA’s Round 2 Designations and in Texas’s Petition

Area	Facility
Freestone and Anderson Counties	Big Brown Steam Electric Station
Rusk and Panola Counties	Martin Lake Electrical Station
Titus County	Monticello Steam Electric Station

On March 20, 2015, the EPA provided additional guidance on designations for the 2010 SO₂ NAAQS and solicited updated state recommendations for Round 2 areas by September 18, 2015.³ Texas provided its updated Round 2 SO₂ designation recommendations to the EPA on September 18, 2015, which recommended that the EPA designate areas in Texas without monitoring data as unclassifiable/attainment, including Freestone, Anderson, Rusk, Panola and Titus Counties. Texas also noted that the constrained time frame did not allow it to complete detailed analyses, determine model input refinements or develop detailed graphics.⁴ In the same letter, Texas cited its “disagreement with any use of modeled predictions to determine attainment status.”

C. EPA’s Data Requirements Rule

On August 21, 2015, the EPA separately promulgated a rule requiring states to undertake air-quality characterization for areas with SO₂ sources meeting certain criteria, called the Data Requirements Rule.⁵ The DRR required state air agencies to provide additional monitoring or modeling information to characterize SO₂ air quality in areas containing SO₂ emissions sources either meeting certain criteria or that have otherwise been listed under the DRR by the EPA or state air agencies. In lieu of the SO₂ air-quality characterization required under the DRR, state air agencies could demonstrate that the listed sources restricted their annual SO₂ emissions to less than 2,000 tons per year (tpy) through federally enforceable and in effect emissions limits, or provide documentation that the sources had been shut down, by January 13, 2017. Thus, for the purpose of meeting the DRR obligations, states were provided options on how to characterize

² *Sierra Club v. McCarthy*, No. 3-13-cv-3953 (SI) (N.D. Cal. Mar. 2, 2015).

³ See “Updated Guidance for Area Designations for the 2010 Primary Sulfur Dioxide National Ambient Air Quality Standard,” memorandum to Regional Air Division Directors, Regions 1-10, from Stephen D. Page, dated March 20, 2015, available at <https://www.epa.gov/sites/production/files/2016-04/documents/20150320so2designations.pdf>.

⁴ <https://www.epa.gov/sites/production/files/2016-03/documents/tx-rec-r2.pdf>.

⁵ See 80 FR 51052 (August 21, 2015), codified at 40 CFR part 51 subpart BB.

their air quality, including the option of setting up and beginning operation of new EPA-approved SO₂ monitoring networks by January 2017. States were required to notify the EPA by July 1, 2016, of which characterization option they had selected for each listed DRR source. The DRR did not, however, relieve the EPA of its obligation under the court order to designate Round 2 areas meeting the order's criteria no later than July 2, 2016. *See* 80 FR 51052 at 51056.

In a letter dated January 15, 2016, the Texas Commission on Environmental Quality identified 25 facilities in Texas with 2014 SO₂ emissions exceeding 2,000 tons, including Martin Lake, Big Brown and Monticello.⁶ In a subsequent letter dated June 29, 2016, TCEQ identified the source characterization pathways (*i.e.*, modeling or monitoring) for most of the previously identified DRR sources.⁷ At that time, TCEQ asserted that, notwithstanding the requirements of the DRR, there was no need to provide future air quality characterization plans for the Martin Lake, Big Brown and Monticello facility areas because the EPA was required to designate those areas by the Round 2, July 2, 2016, deadline. TCEQ noted, however, that it would characterize these source areas through monitoring if the EPA designated any of the areas as unclassifiable.⁸

D. Background on the Designations for Portions of Freestone and Anderson Counties, Rusk and Panola Counties, and Titus County in Texas

In September and December 2015, Sierra Club submitted air-quality modeling for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County. Neither Texas nor Vistra Energy provided any other representative monitoring, modeling or technical information prior to the EPA's notification to the governor of its intended designations.⁹ In a letter dated February 11, 2016, the EPA notified Texas of the EPA's intended modifications to the state's September 18, 2015, recommendation for Round 2 designations for the 2010 SO₂ NAAQS. Specifically, the EPA's letter informed Texas of its intended nonattainment designations for three separate areas covering portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County, based on consideration of all available information including the modeling submitted by Sierra Club.¹⁰ This letter was accompanied by the EPA's technical support document providing the rationale for this intended designation modification.¹¹ On March 1, 2016, the EPA also published a notice in the *Federal Register* soliciting public comments on the intended Round 2 designations. *See* 81 FR 10563.

During the public comment period associated with the intended designations, in March 2016, the EPA received comments from citizens, Sierra Club, Luminant (a subsidiary of Vistra Energy), TCEQ and the governor of the state of Texas regarding its intended nonattainment designations for these three areas. As discussed further in Section III, as part of their

⁶ <https://www.epa.gov/sites/production/files/2016-06/documents/tx.pdf>.

⁷ https://www.epa.gov/sites/production/files/2016-07/documents/texas_source_characterization.pdf.

⁸ Contrary to TCEQ's June 29, 2016, DRR pathway letter, the 2016 Texas Ambient Monitoring Network Plan stated that TCEQ would characterize the Martin Lake, Big Brown or Monticello areas through monitoring if the EPA designated the areas as nonattainment by the court-ordered July 2, 2016, deadline. *See* <https://www.epa.gov/sites/production/files/2017-09/documents/txplan2016.pdf>.

⁹ *See* Docket ID Nos. EPA-HQ-OAR-2014-0464-0084 and EPA-HQ-OAR-2014-0464-0082.

¹⁰ <https://www.epa.gov/sites/production/files/2016-03/documents/tx-epa-resp-r2.pdf>.

¹¹ <https://www.epa.gov/sites/production/files/2016-03/documents/tx-epa-td-r2.pdf>.

comments, Luminant submitted air dispersion modeling for all three areas, and the Sierra Club submitted revised versions of the modeling previously submitted.¹² Texas did not submit modeling but maintained its position that air-quality monitoring data is the proper method for designating these areas, even though at that time it had no such monitoring data nor had it installed monitors in any of the three areas. Concerning the Sierra Club modeling, Texas claimed that this modeling “has errors and clearly overestimates actual SO₂ concentrations.”¹³ Summaries of the comments received can be found in the *Responses to Significant Comments on the Designation Recommendations for the 2010 Sulfur Dioxide National Ambient Air Quality Standards (NAAQS) – Supplement for Four Areas in Texas Not Addressed in June 30, 2016, Version*, dated November 29, 2016.¹⁴

Before the July 2, 2016, Round 2 designations deadline, the EPA and plaintiffs to the court order agreed to extensions for a limited number of the subject areas, including portions of the Freestone and Anderson, Rusk and Panola and Titus Counties. The deadline for signing the final designations for the Texas areas was extended until November 29, 2016. On July 12, 2016, the EPA published designations for all other areas containing SO₂ emissions sources meeting the Round 2 criteria, in accordance with the court-ordered deadline. *See* 81 FR 45039.

In developing the final designations for the three Texas areas, the EPA reviewed all available information. The EPA determined that the modeling submitted by Luminant was not representative of current air quality in these areas for several reasons, as further explained in the EPA’s final designations TSD.¹⁵ For example, Luminant’s modeling used a non-EPA preprocessor model, AERLIFT, to increase the observed temperatures and velocities of the plumes exiting from the stacks, which the EPA determined was not adequately justified, and, thus, could not be relied upon in the designations decision-making process. The EPA determined that the Sierra Club’s revised March 2016 modeling used the latest model version available at the time, and was in accordance with the general recommendations on modeling provided by the EPA.¹⁶ Regarding monitoring data, the EPA maintained our historic approach regarding the importance of considering all available modeling and monitoring data for SO₂ designations and noted that there were not monitoring data available to characterize air quality in these areas, only modeling data, and since these designations were subject to the court’s order to designate certain areas by November 29, 2016, the agency did not have the discretion to await the results of future monitoring.¹⁷ The final Round 2 designations for portions of the Freestone and Anderson, Rusk and Panola and Titus Counties were based on the EPA’s assessment of all available information, including the Sierra Club’s revised March

¹² *See* Docket ID No. EPA-HQ-OAR-2014-0464-0328 for Luminant’s comment and Docket ID No. EPA-HQ-OAR-2014-0464-0332 for Sierra Club’s comment.

¹³ *See* Docket ID No. EPA-HQ-OAR-2014-0464-0294.

¹⁴ https://www.epa.gov/sites/production/files/2016-11/documents/rtc_so2_comments_received_document_4_tx_sources_final_0.pdf.

¹⁵ https://www.epa.gov/sites/production/files/2016-11/documents/texas_4_deferred_luminant_tsd_final_docket.pdf.

¹⁶ *See* the SO₂ NAAQS Designations Source-Oriented Monitoring Technical Assistance Document at <https://www.epa.gov/sites/production/files/2016-06/documents/so2monitoringtad.pdf>, and the SO₂ NAAQS Designations Modeling Technical Assistance Document at <https://www.epa.gov/sites/production/files/2016-06/documents/so2modelingtad.pdf>.

¹⁷ *Id.*

2016 modeling that continued to demonstrate violations of the 2010 SO₂ NAAQS. On November 29, 2016, the EPA Administrator signed the final action designating portions of Freestone and Anderson Counties, Rusk and Panola Counties, and Titus County as nonattainment for the 2010 SO₂ NAAQS, and the action was published in the *Federal Register* on December 13, 2016. See 81 FR 89870 (“Round 2 Supplement”).

On February 13, 2017, the state of Texas, TCEQ, and Vistra Energy and its subsidiary companies filed petitions for judicial review of the Round 2 Supplement in the Fifth Circuit Court of Appeals.¹⁸ On that same day, Vistra Energy sent the EPA a petition for reconsideration, purportedly pursuant to CAA section 307(d)(7)(B) and the *Administrative Procedure Act* 5 U.S.C. §553(e), and for administrative stay of the EPA’s nonattainment designations for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County. On March 15, 2017, TCEQ also submitted a request for an administrative stay of the Round 2 Supplement final designations for these areas in Texas. On September 21, 2017, the EPA responded to Vistra Energy’s February 2017 petition for reconsideration by indicating an intent to undertake an administrative action with notice and comment to revisit the nonattainment designations for the three areas, but explained that pending completion of such action the nonattainment designations remained in effect.¹⁹ On October 12, 2017, the Fifth Circuit Court of Appeals granted the EPA’s motion to place the consolidated challenges to the Round 2 Supplement in abeyance on this basis. Additionally, TCEQ submitted a petition for reconsideration on December 11, 2017. On December 19, 2017, Vistra Energy provided additional information regarding facility retirements and the deployment of additional SO₂ monitors to support its February 2017 petition for reconsideration and administrative stay.

On August 22, 2019, the EPA proposed an error correction under CAA section 110(k)(6) in response to Vistra Energy’s petition for reconsideration and administrative stay. See 84 FR 43757. The proposed error correction, if finalized, would have revised the nonattainment designations to unclassifiable for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County. The EPA published the proposed error correction seeking public comment on whether the EPA erred by not giving greater weight to Texas’ preference to characterize air quality through monitoring and steps undertaken by Texas towards siting monitors with the intention to begin monitoring in these three areas, when considering all available information, relying on available air quality modeling analyses in making the initial designations that recognized included certain limitations or a combination of these two issues. Concurrently with issuing this response to the reconsideration petition, the EPA will publish in the *Federal Register* its withdrawal of the proposed error correction as explained in that notice.

¹⁸ Sierra Club additionally filed a petition for judicial review of this action in the D.C. Circuit Court of Appeals, which was transferred to the Fifth Circuit on November 2, 2017, and consolidated with the pending petition. Note, the EPA is not addressing section I.b. of Vistra’s petition for reconsideration, which involves a venue issue, in this response. The EPA has addressed its position on venue for the consolidated case challenging the Round 2 Supplement in filings in the 5th Circuit.

¹⁹ https://www.epa.gov/sites/production/files/2018-09/documents/3143_signed_response.pdf.

II. Criteria for Evaluating a Petition for Reconsideration of the Round 2 Supplement

The APA at 5 U.S.C. section 553(e) states that “[e]ach agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule.” The APA does not provide any criteria that an agency must consider in responding to such a petition, nor include a requirement that such a petition must be granted in certain express circumstances. Section 307(d)(7)(B) of the CAA governs petitions for reconsideration of final actions that are subject to section 307(d). However, CAA section 307(d) does not apply to the EPA’s Round 2 Supplement designations action that is the subject of TCEQ’s petition.²⁰ The EPA thus must simply apply reasoned decision making in evaluating a petition for reconsideration of the Round 2 Supplement. However, given that CAA section 307(d)(7)(B) provides clear criteria for evaluating reconsideration petitions, the EPA has chosen to evaluate the merits of this petition for reconsideration under the CAA section 307(d)(7)(B) criteria. The EPA’s evaluation of the petition using these criteria provide a reasoned basis for deciding whether to reconsider a final action in response to a petition under APA section 553(e). In doing so, the EPA in no way waives its objection to the applicability of CAA section 307(d) to this final action. Relevant to the EPA’s evaluation of this petition using these criteria, the EPA notes that even though the EPA was not required to provide public notice and comment in promulgating the Round 2 Supplement pursuant to CAA section 107(d)(2)(B), the EPA nevertheless provided stakeholders the opportunity to provide comments prior to final EPA action, and while TCEQ provided comment during and after²¹ the public comment period prior to final EPA action, in its petition TCEQ requests reconsideration under CAA section 307(d)(7)(B) and asserts in part that it was impossible for TCEQ to raise certain objections of central relevance to the outcome of the Round 2 Supplement during the public comment period.

Under CAA section 307(d)(7)(B), judicial review of final actions taken under CAA section 307(d) is only available with respect to issues raised “with reasonable specificity” during the rulemaking’s comment period. Furthermore, the EPA must convene a proceeding to reconsider a CAA section 307(d) rule if the person raising an objection can demonstrate to the Administrator both that it was impracticable to raise the objection during the comment period or that the grounds for such objection arose after the comment period but within the time specified for judicial review (*i.e.*, within 60 days after publication of the final rulemaking notice in the *Federal Register*, see CAA section 307(b)(1)) and that the objection is of central relevance to the outcome of the rule. In other words, CAA section 307(d)(7)(B) does not provide for required reconsideration of issues that have already been raised or could have been raised to the EPA in a CAA section 307(d) rulemaking. Furthermore, the second criterion must also be met for commencement of a reconsideration process under CAA section 307(d)(7)(B). An objection is of central relevance to the outcome of the rule if it provides substantial support for the argument that the promulgated regulation should be

²⁰ Designations are not one of the types of actions listed in CAA section 307(d)(1) as being automatically subject to CAA section 307(d), and the EPA did not exercise its discretion to subject the Round 2 Supplement to CAA section 307(d) under section 307(d)(1)(V).

²¹ Under CAA section 107(d), whenever the Administrator intends to make a modification to a state’s submitted designation recommendation, the Administrator must notify the state no later than 120 days before the date the Administrator promulgates the designation and provide such state with an opportunity to demonstrate why any proposed modification is inappropriate.

revised.²² It is not sufficient that the objection be of central relevance to the issues involved in the rulemaking that would not alter the final outcome. If the EPA denies a petition for reconsideration, the person raising the objection can seek judicial review of the EPA's refusal to do so.

III. The EPA's Evaluation of the Petition for Reconsideration

In its December 11, 2017, petition for reconsideration, TCEQ raises objections regarding five main topics: facility retirement announcements, limited resources to develop state implementation plans, the deployment of new ambient air monitors, the EPA's reliance on Sierra Club's modeling for designation determinations and compliance with the March 2015 designations consent decree. Each of these issues is addressed in this section. In general, other than the claims relating to future facility retirements, TCEQ's petition for reconsideration includes objections that either repeats comments already submitted to the EPA during the public comment period for the intended designations or reflects new objections without including any rationale to demonstrate that they were impracticable to raise during the public comment period or that the grounds for them arose after the end of the period for public comment but within the 60-day period for filing a petition for judicial review of the final designations. Regarding the claim relating to future facility retirements, TCEQ also fails to demonstrate that the objections were impracticable to raise during the public comment period or that the grounds for the objections arose after the end of the period for public comment but within the 60-day period for filing a petition for judicial review of the final designations. These claimed bases for reconsideration can be and are denied under the first criterion irrespective of consideration of the information and arguments presented for these objections in the petition. Nevertheless, the EPA also is providing an evaluation of the substance of TCEQ's comments and other information provided in the petition for these objections under the second criterion. Although a full review of these comments and this information is not warranted because TCEQ does not satisfy the first criterion for reconsideration, for the reasons explained in this section, the EPA also concludes that the petition does not meet the second criterion for reconsideration because the petition does not raise objections that are of central relevance to the outcome of the rule since the objections do not provide substantial support for the argument that the designations should be revised. The following subsections include an analysis of the petition for reconsideration's shortcomings with respect to both the first and second criteria.

A. Facility Retirement Announcements and Resources for State Implementation Plans

While the petitioner asserts that the facility retirements of the Monticello and Big Brown plants that Vistra Energy's subsidiary, Luminant, announced could not have been known or anticipated by TCEQ, the petitioner also admits that the announcements occurred in October 2017 and forecasted planned closings in early 2018, "well past the close of the comment on [sic] or publication of the final rule" and more than 60 days after publication of the final rulemaking notice in the *Federal Register*. As a result of the facility closures, the petitioner claims that the majority of the SO₂ emissions in the areas designated as nonattainment will be eliminated, and the "basis" for the EPA's final nonattainment designations for the Monticello and Big Brown

²² *Coalition for Responsible Regulation v. EPA*, 684 F.3d 102, 125 (DC Cir. 2012).

areas “will no longer exist.” The petitioner asserts that TCEQ will expend significant time and resources to develop unnecessary attainment and maintenance plans for the Big Brown and Monticello plants, which were scheduled for closure at the time the petition was submitted, if the nonattainment designations remain in effect. The petitioner also asserts that the maintenance obligations will continue for 20 years for these areas “with no foreseeable SO₂ emissions.” Finally, the petitioner states that “in the interest of administrative economy” the EPA should “redesignate” these areas now “before the planning requirements are triggered.”

The petitioner fails to and does not demonstrate that these objections meet the first criterion because the facility shutdowns, as detailed further in Section V of this document, occurred more than 60 days after publication of the Round 2 Supplement in the *Federal Register*. These objections do not meet the second criterion because the EPA does not interpret the statute as allowing the EPA to consider future air quality in the initial designations process, and the D.C. Circuit has upheld this interpretation as reasonable;²³ thus, any impact on air quality from these later-occurring shutdowns are not of central relevance to the outcome of the rule. These objections also do not meet the second criterion because the nonattainment designations were not based on an assumption of future air quality, but rather were based on a determination regarding current air quality at the time of the EPA’s final designations in December 2016, which is the determination from which any planning obligations and redesignation requirements under the CAA must flow.

The EPA based its final nonattainment designation on the Sierra Club’s modeling of the 2013-2015 actual emissions for Big Brown and the 2012-2014 actual emissions for Monticello. This modeling was based on neither future emissions nor the assumption that the two plants would continue to operate into the future. For the same reasons explained in the Round 2 Supplement and Section III.C., the EPA believes that that Sierra Club’s March 2016 modeling properly demonstrated that the Big Brown and Monticello areas were violating the 2010 SO₂ NAAQS at the time of the EPA’s final designations in December 2016. This conclusion is consistent with our analysis in Section V of this document. The EPA also notes, regarding Texas’s planning obligations, that these designations have remained in continuous effect (*i.e.*, the planning obligations were triggered by the nonattainment designations and were never stayed or altered), and the time and resources that Texas is required by the CAA to expend to meet these obligations are not relevant to the factual determinations the EPA made regarding air quality in 2016.²⁴

²³ See *Miss. Comm’n on Env’tl. Quality v. EPA*, 790 F.3d 138, 156 (D.C. Cir. 2015); *Catawba County v. EPA*, 571 F.3d 20, 43-44 (D.C. Cir. 2009). The 2015 decision upheld the EPA’s designations issued just days before new certified air quality data became available showing more areas violating the 2008 ozone NAAQS than the EPA designated as nonattainment. See also *State of Texas v. EPA*, 983 F.3d 826, 837-838 (5th Cir. 2020) (holding that the EPA’s nonattainment designation, which modified the state’s recommendation, was not arbitrary and capricious because the county was not compliant with the ozone NAAQS when the EPA promulgated its designation and the CAA uses concrete terms such that a county either does or does not meet the NAAQS).

²⁴ Subsequent to TCEQ’s petition, more recently at the request of Texas, the EPA finalized a determination that the Big Brown and Monticello areas are now attaining the 2010 SO₂ NAAQS per the EPA’s Clean Data Policy. See <https://www.regulations.gov> under Docket ID No. EPA-R06-OAR-2020-0434. This determination suspends most attainment planning requirements under the 2010 SO₂ NAAQS for these two areas for as long as the areas continue to attain the NAAQS.

B. *Deployment of New Ambient Air Monitors*

The petitioner claims that the EPA should reconsider the final designations using monitoring data to be collected by TCEQ in two of the three areas at issue, based on its view that the monitoring data, rather than modeling data, are the “only reliable data for making designation determinations.” The petitioner also states that a reconsideration of the final nonattainment designations would allow TCEQ “time to collect actual, verifiable air-quality data on the attainment status of this area.”

This objection does not meet the first criterion because it repeats comments already submitted to the EPA during the public comment period for the intended designations. In its April 2016 comment, TCEQ advocated that the EPA should not finalize the proposed designations based on modeling because nonattainment designations “should be based only on real world, monitored data, and not predicted values subject to the limitations and flaws of a model.” Luminant, a subsidiary of Vistra Energy, submitted similar comments on the EPA’s intended Round 2 designations during the public comment period, which the EPA considered and responded to in the Round 2 Supplement. In its March 2016 public comment, Luminant advocates that the EPA should not finalize the proposed designations based on modeling because the agency has “consistently supported monitoring over modeling for NAAQS designations purposes and its approach here was inconsistent with the statute, regulations and the EPA’s prior practice.” In the responses to comments document that accompanied the Round 2 Supplement, the EPA previously provided a response to this claim:

The EPA maintains our previous position for the reasons delineated in the preamble to the final 2010 SO₂ NAAQS rulemaking, the February 2013 Strategy Paper, the proposed and final SO₂ Data Requirements Rule, and in the June 30, 2016, version of the Response to Comments document for why both air quality modeling and ambient monitoring are appropriate tools for characterizing ambient air quality for purposes of informing decisions to implement the SO₂ NAAQS, including designation determinations. The EPA’s reliance on modeling to assess SO₂ air quality, even in the face of conflicting monitoring, where appropriate, has been judicially affirmed. *See, e.g., Montana Sulphur & Chemical Company v. EPA*, 666 F.3d 1174, 1185 (9th Cir. 2012). Moreover, it has long been the EPA’s practice to rely upon appropriate modeling when issuing designations under the SO₂ NAAQS. *See, e.g.,* 43 FR 8962 (March 3, 1978), 43 FR 40416 (September 11, 1978), 43 FR 40502 (September 12, 1978).²⁵

Given that the EPA fully considered this same objection in the Round 2 Supplement and rejected that only monitoring data may be relied upon for SO₂ designations under the CAA, this objection also does not meet the “central relevance” second criterion as it does not provide substantial support for the argument that the promulgated 2016 action should be revised. The EPA may rely on representative modeling to assess SO₂ air quality for area designations under the CAA and did rely on available air quality modeling to assess SO₂ air quality in the absence of any available monitoring data at that time. For those same reasons cited to and articulated in the Round 2 Supplement, the EPA reaffirms our previous statements that both air quality modeling and ambient monitoring are appropriate tools for characterizing ambient air quality for purposes of

²⁵ Round 2 Supplement Responses to Comments, Page 13.

informing decisions to implement the 2010 SO₂ NAAQS, including designation determinations. For the reasons explained in the EPA's final designations TSD, incorporated here by reference, the EPA's analysis is that Sierra Club submitted valid, representative modeling based on the then-most recent actual SO₂ emissions demonstrating that the areas were violating the 2010 SO₂ NAAQS. The EPA concluded both that the Sierra Club's 2016 modeling mostly followed EPA guidance and that correcting the deviations in the modeling to be more consistent with the guidance would not have resulted in modeled values near or below the standard. As also explained in the EPA's intended and final designations TSDs and the responses to comments document that accompanied the Round 2 Supplement, at the time of the EPA's final designations on December 13, 2016, there were no SO₂ monitors sited in the areas of maximum concentration to properly characterize the air quality around Martin Lake, Big Brown, or Monticello, nor were there SO₂ monitors in the same counties as the facilities. The EPA properly considered these modeling data to establish a designation of nonattainment for these areas and properly determined that there were not any available monitoring data that could properly characterize air quality in any of the areas at that time. Finally, as explained Section III.A. of this document, the EPA properly designated the areas based on the available information regarding SO₂ air quality at the time and properly did not consider the gathering of any future air-quality monitoring data.

The Petitioner also claims that it announced plans to deploy additional SO₂ monitors near Martin Lake, Big Brown and Monticello "in light of the Final Rule's nonattainment designations." Furthermore, the petitioner suggests that the EPA should designate the areas as unclassifiable in the absence of monitoring data and later redesignate the areas once the monitoring data are collected.

This objection does not meet the first criterion, as the petitioner fails to demonstrate that the objection was impracticable to raise in the public comment period or that the grounds for the objections arose after the end of the period for public comment but within the 60-day period for filing a petition for judicial review of the final designations. This objection does not meet the second criterion because, as explained further in Section V of this document, these monitors began operating nearly a year (October or November 2017) after the EPA's court-ordered deadline to designate the areas, and thus the data from these monitors are not reflective of air quality at the time of the EPA's final designations in December 2016 and, therefore, could not have affected the outcome of the rule. In the responses to comments document that accompanied the Round 2 Supplement, the EPA previously provided this response to the Utility Air Regulatory Group's similar claim made during the public comment period:

In response to the commenter's suggestion that designations should await future completion of three years of monitoring, the EPA notes that in the case of the designations subject to the court's order to designate certain areas by July 2, 2016, the agency does not have the discretion to await the results of future monitoring.²⁶

These objections also do not meet the second criterion because the EPA is required to consider all available information in making its designations at the time of the final designations under the CAA. Thus, these objections could not have affected the outcome of the rule since they are predicated on the EPA relying on or weighing more heavily information that was not available at

²⁶ Round 2 Supplement Responses to Comments, Page 14.

the time the EPA was required to finalize the Round 2 Supplement. As explained previously, at the time of the EPA's final designations on December 13, 2016, there were no SO₂ monitors sited in the areas of maximum concentration to properly characterize the air quality around Martin Lake, Big Brown or Monticello, nor were there SO₂ monitors in the same counties as the facilities. The absence of available monitoring data at that time did not relieve the EPA of its obligation to issue designations for these areas under the court order. CAA section 107(d) specifies that the EPA make designations based on the air quality at the time of final designations (*i.e.*, determining at the time of signature whether the area meets the NAAQS).²⁷ Furthermore, at the time of the final designations, the agency did not have the discretion to await the results of 3 years of ambient air monitoring data (*i.e.*, 2018-2020) from Texas's proposed (but not yet established) monitoring sites before taking final action due to the court's order to designate certain areas in Texas. There was, however, as explained previously and in the EPA's final designations TSD, valid modeling submitted by the Sierra Club based on the then-most recent actual emissions demonstrating that the areas were violating the 2010 SO₂ NAAQS, which also did not support and unclassifiable designation. The EPA properly considered these modeling data to establish a designation of nonattainment for these areas. Additionally, as explained in Section III.A., the EPA does not interpret the statute as allowing the EPA to consider future air quality in the initial designations process, and the D.C. Circuit has upheld this interpretation as reasonable.²⁸

C. *Reliance on the Sierra Club's Modeling*

The petitioner asserts that the EPA relied on the Sierra Club's modeling to make nonattainment designation determinations for the three areas in Texas even though "the EPA did not agree with some of Sierra Club's assertions" regarding important aspects of the modeling. Specifically, TCEQ stated that the EPA "conceded that the modeling was not peer reviewed, used an old version of the model, and only generally meets the requirements of the EPA's modeling guidance." The petitioner also references Vistra Energy's modeling, submitted to the EPA during the comment period, that "in many ways contradicts the conclusions of Sierra Club's modeling as to these areas" and asserts that the EPA did not fully consider the competing information. The Petitioner thus asserts that the areas should be designated unclassifiable.

This objection, as well as the reference to Vistra Energy's modeling submitted during the comment period, does not meet the first criterion because it repeats comments already submitted to the EPA during the public comment period for the intended designations. The EPA's intended nonattainment designations for portions of Freestone and Anderson Counties, Rusk and Panola Counties, and Titus County were based on Sierra Club's September and December 2015 modeling that demonstrated violations of the 2010 SO₂ NAAQS. As explained in the EPA's intended designations TSD, the EPA identified aspects of Sierra Club's 2015 modeling that were not as refined as possible. The modeling did not include building downwash or variable stack temperature and velocity, since Sierra Club did not have access to information needed to support such inclusion (including building downwash will generally, though not always, increase the predicted maximum modeled concentrations). Sierra Club's 2015 modeling used stack velocity and temperatures consistent with 100 percent load. This, coupled with actual hourly emissions

²⁷ See, *supra*, n.23.

²⁸ See, *supra*, n.23.

rates, underestimated actual concentrations because higher temperatures and velocities of 100 percent load, when paired with lower emissions of less than 100 percent load, should provide an overestimation of the dispersion and thus an underestimation of maximum ambient concentrations at ground level. Because the inclusion of building downwash and variable stack parameters would likely not result in values near or below the 2010 SO₂ NAAQS, the EPA concluded that the Sierra Club's 2015 modeling was an adequate basis for the intended nonattainment designations for the areas containing Martin Lake, Big Brown, and Monticello. In its March 2016 comment, TCEQ claims that the nonattainment designations were based on third-party, non-peer reviewed modeling that has errors and overestimates the actual SO₂ concentrations. In the responses to comments document that accompanied the Round 2 Supplement, the EPA previously provided a response to this claim:

The EPA disagrees with the commenter's claim that the modeling supporting the nonattainment designations is erroneous and overestimates SO₂ concentrations in these areas. Although it is true that the modeling was provided by a party other than TCEQ and was not peer reviewed, neither of these facts is relevant to whether the modeling accurately, reliably, and persuasively shows the areas to be violating the NAAQS...During the comment period, we received additional modeling. The newest Sierra Club modeling includes refined inputs for stack and emissions data and several sensitivity runs that further inform our final decision. In our TSDs for our proposal and supplement for this action we explain that we have reviewed the modeling data and concluded that the modeling was of sufficient quality to make a decision regarding whether the area evaluated meets or does not meet the SO₂ NAAQS.²⁹

This objection also does not meet the "central relevance" second criterion, as the objection does not provide any additional information to that previously submitted in the public comment period (and fully considered by the EPA in taking the final action) to provide substantial support for the argument that the promulgated 2016 action should be revised. For the reasons explained in the EPA's final designations TSD, incorporated here by reference, the EPA assessed and considered all available information, including but not limited to Texas' recommendation and comments, modeling submitted by Vistra Energy and modeling submitted by Sierra Club. The EPA's analysis was that Sierra Club submitted valid, representative modeling based on the then-most recent actual SO₂ emissions demonstrating that the areas were violating the 2010 SO₂ NAAQS. The EPA, thus, did not have a basis to conclude that each of the areas could not be classified on the basis of available information to designate them unclassifiable. The EPA specifically disagrees with the petitioner's assertion that the EPA did not fully consider competing information; the EPA fully analyzed and considered Vistra Energy's modeling in the final designations TSD and determined that, in brief, the modeling for the Martin Lake, Big Brown and Monticello facility areas was not representative. The EPA concluded both that the Sierra Club's 2016 modeling mostly followed EPA guidance and that correcting the deviations in the modeling to be more consistent with the guidance would not have resulted in modeled values near or below the standard. The EPA, thus, also disagrees with the petitioner's characterization of these aspects of Sierra Club's modeling and fully explained this technical assessment in the record for the Round 2 Supplement.

²⁹ Round 2 Supplement Responses to Comments, Page 17.

Additionally, the EPA's evaluation of the Sierra Club's March 2016 modeling used for the final designations indicated that it may have actually had a slight underestimation bias. For example, as explained in the responses to comments document that accompanied the Round 2 Supplement, the modeling did not include surrounding SO₂ sources and used a low background concentration. After further consideration, for the same reasons explained in the Round 2 Supplement response to comment document, and supporting technical support documents, and as further supported by our analysis in Section V of this document, the EPA believes that Sierra Club's March 2016 modeling was of sufficient quality to determine that the Martin Lake, Big Brown and Monticello facility areas in Texas were violating the 2010 SO₂ NAAQS at the time of the EPA's final designations in December 2016.

D. Consent Decree Obligations

The petitioner states that reconsideration and redesignation does not violate the terms of the March 2015 consent decree, which required the EPA to designate the Martin Lake, Big Brown and Monticello areas. The petitioner claims that with the shut-down of Big Brown and Monticello, the areas will no longer contain stationary sources with SO₂ emissions over the thresholds established in the consent decree that triggered the designations.

These objections do not meet the first criterion, as the petitioner fails to demonstrate that it was impracticable to raise in the public comment period for the Round 2 Supplement or that the grounds for the objection arose after the end of the period for public comment but within the 60-day period for filing a petition for judicial review of the Round 2 Supplement.

While the EPA agrees that the consent decree does not (nor could it) prohibit subsequent redesignations and reconsiderations of areas designated by the governing deadlines under the court order, these objections do not meet the second criterion because, as explained in Section III.A., the EPA does not interpret the statute as allowing the EPA to consider future air quality in the initial designations process, and the D.C. Circuit has upheld this interpretation as reasonable;³⁰ thus, any impact on air quality from these later-occurring shutdowns are not of central relevance to the outcome of the rule. These objections do not meet the second criterion because the nonattainment designations were not based on an assumption of future air quality, but rather were based on a determination regarding current air quality at the time of the EPA's final designations in December 2016, the EPA's deadline established in the court order for issuing the designations for the areas. The court order required the EPA to designate the Martin Lake, Big Brown and Monticello areas in Round 2 because (a) they had not been announced for retirement by March 2, 2015; and (b) in 2012 they had either (i) emitted more than 16,000 tons of SO₂ or (ii) emitted more than 2,600 tons of SO₂ and had an annual average emissions rate of 0.45 lbs/SO₂/MMBTU or higher. Moreover, the existence of the EPA's statutory authority in CAA section 107(d)(3) to subsequently redesignate areas that have been previously designated is of no relevance at all to the factual determinations the EPA previously made in 2016, as that authority exists no matter what decision the EPA might have made in 2016 and as the statutory authority in CAA section 107(d)(1)-(2) governing initial designations is not circumscribed by the redesignation authority.

³⁰ See, *supra*, n.23.

IV. The EPA's Evaluation of the Request for Administrative Stay

In TCEQ's March 15, 2017, request for administrative stay, the petitioner also asks the EPA to administratively stay the effective date of the final nonattainment designations for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County pursuant to APA section 705. The EPA concludes that an administrative stay of the Round 2 Supplement for these three areas' designations is neither appropriate nor warranted.

APA section 705 authorizes an agency to postpone the effective date of an agency action pending judicial review when the agency finds that justice so requires. In this case, the Round 2 Supplement became effective January 12, 2017. The petitioner submitted its request for an administrative stay relying upon APA section 705 by petition on March 15, 2017, 62 days after the Round 2 Supplement became effective. Even if the EPA believed that an administrative stay was warranted here, which it does not, an APA section 705 stay is not appropriate once the effective date of the agency action has passed because postponing an effective date necessitates action before the effective date arrives. *See, e.g., NRDC v. U.S. Dep't of Energy*, 362 F. Supp. 3d 126, 151 (S.D.N.Y. 2019) ("Section 705 only allows an agency to 'postpone the effective date of action taken by it.' 5 U.S.C. § 705. It does not allow agencies to suspend a rule that has already taken effect."); *see also Safety-Kleen Corp. v. EPA*, 1996 U.S. App. LEXIS 2324, *2-3 (D.C. Cir. Jan. 19, 1996); *Becerra v. U.S. Department of Interior*, 276 F.Supp.3d 953 (N.D. Cal. 2017); *California v. United States BLM*, 277 F.Supp.3d 1106 (N.D. Cal. 2017). As cited in TCEQ's petition for reconsideration, the EPA stated in its September 21, 2017, letter to Vistra Energy that the December 2016 final nonattainment designations for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County remain in effect while the EPA's intended notice and comment rulemaking action is pending (*i.e.*, the August 2019 proposed error correction).

Even assuming that the EPA has authority to grant an administrative stay here under APA section 705 at this time, an administrative stay is not warranted for the same reasons that the EPA is denying the petition to reconsider, including that the objections raised did not provide substantial support for the argument that the Round 2 Supplement should be revised. The EPA has determined that the petitioner has not made a showing on the merits that reconsideration or stay is warranted after consideration of petitioner's claims, including claims of emissions declines and predictions regarding then-future monitoring data, as well as acknowledgment of the currently available monitoring and review of the currently available modeling data discussed in Section V.

V. Additional Information

A. Recent SO₂ Emissions Data

As shown in Table 2, Martin Lake's SO₂ emissions have more than doubled from 25,472 tons in 2016 to 56,198 tons in 2018, making Martin Lake the largest emitter of SO₂ in the United States.³¹ Big Brown's SO₂ emissions decreased from 42,470 tons in 2016 to 6,659 tons in 2018, and Monticello's emissions decreased from 24,961 tons in 2016 to 0 tons in 2018. As explained

³¹ *See* <https://ampd.epa.gov/ampd/>.

in additional detail below, both the Big Brown and Monticello facilities permanently and enforceably shut down in 2018 (*i.e.*, the facilities surrendered their operating permits and must obtain all required air-quality permits from TCEQ prior to future operation).

Table 2. Comparison of Recent SO₂ Emissions (tons)

Facility	2016	2017	2018
Martin Lake	25,472	36,441	56,198
Big Brown	42,470	47,632	6,659
Monticello	24,961	29,412	0

Regarding the Anderson and Freestone Counties area, Vistra Energy permanently retired the Big Brown coal-fired steam electric generating Units 1 and 2 on February 12, 2018. Vistra Energy filed to void the Big Brown Title V permit, FOP 065, on May 24, 2018, and TCEQ voided this permit on August 29, 2018. Vistra Energy submitted a letter to TCEQ on March 27, 2018, requesting that the agency void Big Brown's individual new source review permits (17891, 18744, 45420, 53205, 54810, 56445, 56447, 83646, 83647, 85296, 94619, 95214, 96276, 99047, 99050, 106862, 108990, 112207, and 148918). On March 29, 2018, TCEQ cancelled all NSR authorizations for Big Brown Units 1 and 2 and certain other facilities, as requested by Vistra Energy.³² Vistra Energy will retain the remaining permits (17891, 18744, 56447, 106862 and 112207) addressing material handling operations for coal piles, silos and conveyors, until all facility closure activities are completed.

Regarding the Titus County area, Vistra Energy permanently retired the Monticello coal-fired steam electric generating Units 1, 2, and 3 on December 31, 2017. Vistra Energy filed to void the Monticello Title V permit, FOP 64, on May 23, 2018, and TCEQ voided this permit on August 3, 2018. Vistra Energy submitted a letter to TCEQ requesting that the agency void individual NSR permits (2401, 26740, 45432, 54808, 56384, 71238, 85294, 95215, 104897, 105738, 146220, 83645, and 83640) on February 9, 2018. On February 14, 2018, TCEQ cancelled all NSR authorizations for Monticello Units 1, 2, and 3 and certain other facilities, as requested by Vistra Energy.^{33,34} Vistra Energy will retain the remaining permits (146278, 2399, 140265, 137864, 56387, 54408 and 104210) addressing material handling operations for coal piles, silos and conveyors, until all facility closure activities are completed.

Although the Big Brown and Monticello facilities permanently and enforceably shut down in 2018, the shutdowns have no bearing on whether the areas were attaining the 2010 SO₂ NAAQS at the time the EPA designated the areas in December 2016. Additionally, the facility shutdowns do not rebut the modeling information relied upon by the EPA for designating the Big Brown and Monticello areas at the time of the Round 2 Supplement.

³² See Docket ID No. EPA-HQ-OAR-2014-0464-0455 for a list of Big Brown's voided NSR permits. Big Brown's voided operating permit is also located in Docket EPA-HQ-OAR-2014-0464.

³³ See Docket ID No. EPA-HQ-OAR-2014-0464-0456 for a list of voided NSR permits, and docket item number EPA-HQ-OAR-2014-0464-0457 for the voided operating permit.

³⁴ Any remaining NSR or material handling permits for Big Brown and Monticello will only be maintained while the facilities complete closure activities related to coal piles, silos, conveyors and other shutdown tasks.

B. Recent SO₂ Monitoring Data

In its 2017 annual monitoring network plan, TCEQ proposed new SO₂ monitoring sites in the Freestone and Anderson Counties, Rusk and Panola Counties and Titus County areas to assess air quality in the new SO₂ nonattainment areas involving the Vistra Energy facilities. Texas referred to the 2016 Sierra Club modeling analysis, among other information, to inform its proposed siting of the new monitors.³⁵ The EPA approved TCEQ's 2016 Texas Ambient Monitoring Network Plan on October 3, 2017.³⁶ In October and November 2017, almost a year after the EPA designated the three areas in Texas as nonattainment for the 2010 SO₂ NAAQS, Texas began operating the new SO₂ monitoring networks to characterize the air quality around the Martin Lake and Big Brown facilities.³⁷

On November 1, 2017, Texas began operating an SO₂ monitor (AQS ID# 48-401-1082) in the Rusk and Panola Counties area to characterize the air quality around the Martin Lake facility. From that time through May 2020, there have been 22 daily maximum one-hour average concentrations that exceeded the 2010 SO₂ NAAQS. The 2018, 2019 and 2020 99th percentile daily maximum one-hour average concentrations are 109.1 ppb, 114.7 ppb, and 83.8 ppb (preliminary), respectively. Although a valid and quality assured three-year design value is not yet available (pending certification of 2020 air quality data), the EPA estimates that the 2018-2020 design value is 103 ppb based on data submitted to the EPA through December 2020, which would violate the 2010 SO₂ NAAQS. It is important to recognize that the 2017-2020 monitoring data do not provide a demonstration of air quality at the time of the EPA's court-ordered deadline to designate the Martin Lake area in December 2016. As such, the monitoring data neither directly corroborate nor rebut the EPA's basis for designating the area as nonattainment at the time of the Round 2 Supplement. The newer monitoring data do, however, indicate that there are likely current, and potentially ongoing, violations of the 2010 SO₂ NAAQS in this area. Additionally, despite the petitioner's predictions to the contrary, the newer monitoring data neither suggest that the Martin Lake area is now attaining the 2010 SO₂ NAAQS, nor do the data appear to support the claim that the previously established requirement for Texas to undertake air quality planning efforts to bring the area into NAAQS attainment should be suspended or terminated.

On October 30, 2017, Texas began operating an SO₂ monitor (AQS ID 48-161-1084) in the Freestone and Anderson Counties area to characterize the air quality around the Big Brown facility. From this time through May 2020, there was only a single daily maximum one-hour average concentration that exceeded the 2010 SO₂ NAAQS, which occurred prior to Big Brown shutting down. The 2018 and 2019 99th percentile daily maximum one-hour average concentrations are 39.4 ppb and 5.8 ppb, respectively, and the recent monitoring data indicate that there have not been ongoing exceedances of the 2010 SO₂ NAAQS since Big Brown shut down. However, given that the 2017-2020 monitoring data do not provide a demonstration of air quality at the time of the EPA's court-ordered deadline to designate the Big Brown area in December 2016, the monitoring data neither directly corroborates nor rebuts the EPA's basis for

³⁵ https://www.tceq.texas.gov/assets/public/compliance/monops/air/annual_review/historical/2017-AMNP.pdf.

³⁶ https://www.tceq.texas.gov/assets/public/compliance/monops/air/annual_review/historical/EPA2017AMNP.pdf.

³⁷ Texas did not install and operate the SO₂ monitor planned near the Monticello facility once the facility retirement was announced in 2017.

designating the area as nonattainment at the time of the Round 2 Supplement. The 2017-2020 monitoring data are unable to demonstrate whether the area was attaining the 2010 SO₂ NAAQS by the EPA's court-ordered deadline to designate the area in December 2016, while the facility was still operating, and therefore do not rebut the EPA's nonattainment determination made in the Round 2 Supplement.

C. *Recent SO₂ Modeling Data*

The EPA received several comments on its August 22, 2019, CAA section 110(k)(6) proposed error correction action proposing to revise the designations to unclassifiable for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County.³⁸ Specifically, on September 23, 2019, Sierra Club submitted a comment that included updated modeling purporting to demonstrate that the Martin Lake area did not meet the 2010 SO₂ NAAQS at the time of designation and currently does not meet the 2010 SO₂ NAAQS based on more recent data, even when the EPA's potential modeling limitations are appropriately addressed.³⁹ As explained further in Enclosure 2, the EPA's assessment of Sierra Club's September 2019 modeling concludes that there were not errors in the March 2016 modeling, which the EPA used as the basis for its final nonattainment designations in the Round 2 Supplement, that would have resulted in designations other than nonattainment. Although Sierra Club did not submit updated modeling for the Big Brown and Monticello areas as part of the September 2019 submission, it claims that the EPA's previously identified limitations (individually or collectively) have no material effect on the model results for those areas. Overall, the EPA believes that Sierra Club's September 2019 modeling, as it addresses air quality that existed at the time of the 2016 designations, further confirms our analysis of then-available data and the final December 13, 2016, nonattainment designations for portions of Freestone and Anderson Counties, Rusk and Panola Counties, and Titus County.

VI. **Conclusion**

For the aforementioned reasons, the EPA is denying TCEQ's December 11, 2017, petition for reconsideration and has determined that a stay of the EPA's final nonattainment designations for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County is not appropriate or warranted. The 2010 SO₂ NAAQS nonattainment designations for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County, which the EPA published in the *Federal Register* on December 13, 2016, continue to remain in effect. The EPA notes, however, that it recently finalized a separate administrative action (*i.e.*, a clean data determination) that suspends most attainment planning requirements for the Freestone and Anderson Counties and Titus County areas for so long as the areas remain in attainment with the 2010 SO₂ NAAQS.⁴⁰

³⁸ See Docket ID No. EPA-HQ-OAR-2014-0464.

³⁹ See Docket ID No. EPA-HQ-OAR-2014-0464-0466.

⁴⁰ See, *supra*, n.24.

Enclosure 2

The U.S. Environmental Protection Agency's Assessment of Sierra Club's September 2019 Modeling

I. Executive Summary

The U.S. Environmental Protection Agency received several comments on its August 22, 2019, Clean Air Act section 110(k)(6) proposed error correction action proposing to revise the nonattainment designations to unclassifiable for portions of Freestone and Anderson Counties, Rusk and Panola Counties, and Titus County, Texas ("Proposed Error Correction," 84 FR 43757).¹ Specifically, on September 23, 2019, Sierra Club submitted a comment that included updated modeling purporting to demonstrate that the area around the Martin Lake Electric Station (*i.e.*, Rusk and Panola Counties) did not meet the 2010 Sulfur Dioxide (SO₂) Primary National Ambient Air Quality Standard at the time of initial designations in December of 2016 and, at the time of the comment submission, did not meet the 2010 SO₂ NAAQS based on more recent data (*i.e.*, 2016-2018 data), even when potential modeling limitations (as characterized in the Proposed Error Correction) are appropriately addressed.²

As explained further in this document, the EPA's assessment of Sierra Club's September 2019 modeling concludes that this modeling confirms the EPA's initial assessment of the Sierra Club's March 2016 modeling for all three areas, which the EPA used as the basis for its final nonattainment designations in the Round 2 Supplement (81 FR 89870). More specifically, Sierra Club's 2019 modeling confirms the EPA's initial assessment that any further refinements to the modeling inputs used in the March 2016 modeling would not have resulted in designations other than nonattainment for these three areas. The EPA's assessment of the March 2016 modeling in the record for the Round 2 Supplement, which is consistent with the EPA's assessment in this document of Sierra Club's September 2019 modeling, concludes that there were not material errors in the March 2016 modeling for these three areas. Furthermore, the EPA concludes that Sierra Club's September 2019 updated modeling further demonstrates that the individual and collective alleged limitations of the March 2016 modeling, as characterized in the EPA's Proposed Error Correction, were not in fact limitations that undermined the EPA's reasonable reliance on the March 2016 modeling to determine the areas were then violating the 2010 SO₂ NAAQS and designate them as nonattainment. In fact, the EPA no longer believes that the bases identified in the Proposed Error Correction (*e.g.*, that those alleged limitations in the March 2016 modeling support action under CAA section 110(k)(6) to revise the designations) support the proposed conclusion that an error correction is appropriate. Overall, the EPA believes that Sierra Club's September 2019 modeling, as it addresses air quality that existed at the time of the 2016 designations, further confirms our analysis and final December 13, 2016, nonattainment designations for portions of Freestone and Anderson Counties, Rusk and Panola Counties, and Titus County.

¹ See Docket ID No. EPA-HQ-OAR-2014-0464.

² See Docket ID No. EPA-HQ-OAR-2014-0464-0466. Although Sierra Club did not submit updated modeling for the Big Brown and Monticello areas as part of the September 2019 submission, it also claims that the EPA's proposed limitations (individually or collectively) have no material effect on the model results for those areas.

II. Background

A. Final Round 2 Supplement to 2010 SO₂ NAAQS Designations for Four Areas in Texas

On December 13, 2016, the EPA designated portions of Freestone and Anderson Counties (Big Brown Steam Electric Station), Rusk and Panola Counties (Martin Lake Electric Station) and Titus County (Monticello Steam Electric Station) as nonattainment for the 2010 SO₂ NAAQS based on the EPA's assessment of all available information, including the Sierra Club's March 2016 modeling that demonstrated violations of the 2010 SO₂ NAAQS. *See* 81 FR 89870 ("Round 2 Supplement"). Vistra Energy's subsidiary Luminant owned all three power plants in 2016.

In finalizing the designations for the three Texas areas in 2016, the EPA reviewed all available information and determined that Sierra Club's March 2016 modeling used the latest model version available at the time, used the default regulatory options, and was conducted in accordance with the general recommendations on modeling provided by the EPA in its "SO₂ NAAQS Designations Modeling Technical Assistance Document" ("SO₂ NAAQS Designations Modeling TAD").³ Sierra Club's March 2016 modeling provided to the EPA was inherently subject to the constraints of the data available to Sierra Club, specifically the level of refinement reflected the modeling inputs. The Sierra Club's March 2016 modeling made adjustments and corrections to its previously submitted December 2015 and September 2015 modeling (collectively referred to as 2015 modeling) in response to the EPA's assessment of the 2015 modeling in its February 2016 Intended Designations Technical Support Document (TSD). In the March 2016 modeling these adjustments and corrections included updating the model version used, updating to the most recent 3 years (2013-2015) of actual emissions for Martin Lake and Big Brown, inclusion of only the principle source in each area, and correction of switched stack locations at the Big Brown facility.⁴ There were several aspects of the Sierra Club's March 2016 modeling that the EPA discussed in the Final Designations Supplement TSD⁵ regarding potential deviation from or lack of refinement where information was not publicly available under the SO₂ NAAQS Designations Modeling TAD:

1. Exclusion of variable stack exit temperature (information not publicly available; used fixed values)
2. Exclusion of building downwash (information not publicly available)
3. Elevation of flagpole receptors (1.5 meters)
4. Use of older land use data at the surface meteorological station
5. Exclusion of fenceline or omission of receptors from certain locations (Luminant claimed certain locations were not feasible to place a monitor in receptor grid)

³ *See* the SO₂ NAAQS Designations Modeling Technical Assistance Document ("SO₂ NAAQS Designations Modeling TAD") at <https://www.epa.gov/sites/production/files/2016-06/documents/so2modelingtad.pdf>.

⁴ Technical Support Document Texas Area Designations for the 2010 SO₂ Primary National Ambient Air Quality Standard ("Intended Designations TSD"), available at <https://www.epa.gov/sites/production/files/2016-03/documents/tx-epa-tds-r2.pdf>.

⁵ Technical Support Document for the Designation Recommendations for the 2010 Sulfur Dioxide National Ambient Air Quality Standards (NAAQS) – Supplement for Four Areas in Texas Not Addressed in June 30, 2016 ("2016 Final Designations Supplement TSD"), available at https://www.epa.gov/sites/production/files/2016-11/documents/texas_4_deferred_luminant_tsd_final_docket.pdf.

6. Use of the lowest monitored background concentration in Texas

However, the EPA also analyzed the impact of these potential issues in the 2016 Final Designations Supplement TSD and determined that they did not undermine the use of the Sierra Club's March 2016 modeling for the purpose of designating the areas. The EPA's analysis concluded that inclusion of such refinements or changes would not be expected to result in a change to the modeled concentrations to the degree that would alter the conclusion that the areas did not meet the 2010 SO₂ NAAQS. In the 2016 Final Designations Supplement TSD, the EPA also noted that we received comments from Luminant. Luminant's comments included modeling, which did not conform with the SO₂ NAAQS Modeling TAD, but which provided some useful information regarding modeling inputs not previously available to the public.⁶ For the area around the Martin Lake facility, the EPA concluded the following in the 2016 Final Designations Supplement TSD:

1. Regarding stack temperature, the EPA concluded that the constant temperature used by Sierra Club for the stacks (449.3K) was, on average, 21 percent higher than the continuous emissions monitor temperatures furnished by Luminant as part of their 2016 modeling analysis, which for near full load (filtered for stack velocity > 25 m/s), has an average of 356K and ranged between 338-478K. the EPA concluded that the increased temperature used by Sierra Club would increase the modeled buoyancy of the plume and tend to reduce modeled concentrations, and that the amount of reduction was dependent on meteorological conditions. The EPA determined that the use of the Sierra Club's higher-than-actual constant temperature would likely underestimate the actual concentrations.⁷
2. Regarding building downwash, the EPA concluded that, while we did not agree with the Sierra Club's assertion that exclusion of downwash is conservative in all cases, in our evaluation, the inclusion of building information and associated downwash in this analysis would not change our recommended designation of nonattainment. We noted that Luminant's modeling report (which Texas also included in their response to the EPA's intended designations) indicated that they expected that the modeling results were not extremely sensitive to this issue because the stack heights are well above the buildings and there is considerable momentum and buoyancy rise for the stack plumes. The EPA concluded that the modeling values were sufficiently above the standard and inclusion of downwash often leads to higher concentrations closer to the source but – even in situations we have seen where this did not occur – any decreases in maximum modeled values from inclusion of downwash were relatively small and not expected to be enough of a decrease to resolve all modeled exceedance values near Martin Lake.⁸
3. Regarding use of flagpole receptors, we stated that we would expect only a very slight change in the modeled numbers and the area of exceedances and magnitude of the values would be basically equivalent, and, therefore, not change our final action. We based this conclusion on analysis of sensitivity modeling conducted by the Sierra Club for another source, which found decreases in modeled SO₂ between almost 0 and 0.2 percent when removing the flagpole receptors and estimating concentrations at ground level. Since the

⁶ See Docket ID No. EPA-HQ-OAR-2014-0464-0328.

⁷ 2016 Final Designations Supplement TSD, p. 61.

⁸ 2016 Final Designations Supplement TSD, pp. 61-62.

Sierra Club's March 2016 maximum modeled design concentration (in ambient air) at Martin Lake was at least 14 percent above the standard, the EPA concluded that the change due to flagpole receptor heights would not decrease the value to below the standard.⁹

4. Regarding use of land surface data from 1992, the EPA indicated based on Sierra Club's 2016 modeling, which included a sensitivity analysis for updated surface data/characteristics, that a small decrease (*i.e.*, approximately 3.6 percent) in maximum modeled design concentrations would be expected from updated surface characteristics.¹⁰
5. Regarding inclusion of contested receptors, the EPA only evaluated concentrations in Sierra Club's March 2016 modeling at receptors that represented areas where it was clear to the EPA based on available information that it would also be feasible to place a monitor and record ambient air impacts. Luminant's 2016 modeling included areas that it considered to be non-ambient, but the EPA did not have sufficient information to evaluate and conclude that all the areas Luminant was claiming as non-ambient were in fact non-ambient areas. Without sufficient data to support Luminant's non-ambient area claims, the EPA evaluated Sierra Club's March 2016 modeling results for the areas that Luminant did not claim as non-ambient, which we referred to as the "uncontested area." the EPA's assessment included evaluating concentrations at only uncontested receptors and separately also evaluating concentrations at areas that clearly were erroneously claimed as unfeasible by Luminant. The EPA also noted concerns that Luminant had contested receptors (excluded in Luminant's modeling) in more areas than were appropriate and that the maximum values in the uncontested area in Sierra Club's March 2016 modeling were as high as 239.1 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) near the Luminant excluded area.¹¹ For the EPA's analysis, we explained that we used 224 $\mu\text{g}/\text{m}^3$ (highest concentration at an uncontested receptor) to evaluate the modeling, but the analysis could also be done based on the 239.1 $\mu\text{g}/\text{m}^3$ value, which would further support a nonattainment designation for the area around Martin Lake.¹²
6. Regarding background, the EPA concluded that many of the SO₂ monitors in Texas are in urban areas and/or near a SO₂ point source, so there were limited data for background values. In addition, the EPA concluded that using the El Paso monitor, which was the lowest design value in the state of Texas during this period, was an underestimation. Given the mass of SO₂ emissions in East Texas compared to the El Paso area, the EPA explained that this assumption likely leads to an underestimation in the concentrations around these facilities (*i.e.*, if background monitoring data existed for East Texas it would be expected to be a higher value than the El Paso monitor data and would result in an increase in the modeled concentrations around the Martin Lake facility) but was within the framework of the SO₂ NAAQS Designations Modeling TAD's options for inclusion of background monitoring data.¹³

⁹ 2016 Final Designations Supplement TSD, pp. 58-60.

¹⁰ 2016 Final Designations Supplement TSD, pp. 28, 76.

¹¹ 2016 Final Designations Supplement TSD, pp. 65-72. Note the captions for Figures 22 and 23 in the 2016 Final Designations Supplement TSD indicate the Maximum value of 229.1 $\mu\text{g}/\text{m}^3$ but that is a typographical error and should have been 239.1 $\mu\text{g}/\text{m}^3$.

¹² 2016 Final Designations Supplement TSD, pp. 60, 66-72.

¹³ 2016 Final Designations Supplement TSD, p. 65.

Based on the modeling available at the time, the EPA also explained in the 2016 Final Designations Supplement TSD that inclusion of only the principle source in the modeling was an acceptable choice in this area's circumstances, as we maintained that Martin Lake was likely contributing nearly 100 percent of the impact for the values above the 2010 SO₂ NAAQS. Sierra Club's modeling, by not including the nearby Pirkey Power Plant, was potentially slightly under-estimating approach to determining whether the area is attaining and to identifying the boundaries of such area, as inclusion of this source should result in either similar maximum impacts and boundaries or slightly increased impacts and possibly slightly larger boundaries, but should not result in decreased impacts or "shrinking" of boundaries from those modeled.¹⁴

In the 2016 Final Designations Supplement TSD, the EPA concluded that the Sierra Club's March 2016 modeling followed the appropriate the EPA modeling guidance based on the information that was available to Sierra Club at the time, and specifically concluded that several techniques (*i.e.*, not including building downwash, not using variable stack temperature, not including other SO₂ emissions sources, and using the lowest monitored background concentration) generally would tend to reduce/underestimate modeled design concentrations.¹⁵ The EPA also evaluated the combination of all these aspects (potential positive and negative impacts on concentrations) of the modeling through a comparison analysis, using 224 µg/m³ as the maximum value based on the subset of uncontested receptors.¹⁶ The EPA's assessment of the available information ultimately concluded that the collective differences/changes to the Sierra Club modeling would not result in modeled values near or below the standard.¹⁷ The EPA reached this conclusion after considering that Sierra Club's modeled concentrations (with a low background and no nearby SO₂ emissions sources) were 14 percent above the standard using 224 µg/m³ and 22 percent above the standard using 239.1 µg/m³ as the maximum modeled design concentrations. The EPA evaluated the factors listed previously and concluded that these would result in Sierra Club's 2016 modeling under-estimating impacts and that any differences/changes to Sierra Club's modeling would not result in modeled values near or below the standard. Instead, the EPA concluded that any adjustments to these factors would actually result in higher modeled concentrations. Therefore, the EPA considered the final Sierra Club modeling submitted March 2016 to be relevant information that must be considered in our designation decision and found that the modeling was a sufficient basis for a nonattainment designation because it clearly demonstrated the area around Martin Lake was violating the 2010 SO₂ NAAQS.¹⁸

In addition to the March 2016 updated Sierra Club modeling, the EPA reviewed modeling submitted by Luminant during the public comment period in 2016.¹⁹ The Luminant modeling did not conform to the guidance of the SO₂ Designations Modeling TAD nor the 40 CFR Part 51 Appendix W – Guideline on Air Quality Models. Furthermore, the EPA determined that Luminant's modeling was not representative of current air quality in these areas for several

¹⁴ 2016 Final Designations Supplement TSD, pp. 60-62.

¹⁵ 2016 Final Designations Supplement TSD, p. 75.

¹⁶ 2016 Final Designations Supplement TSD, p. 76.

¹⁷ 2016 Final Designations Supplement TSD, pp. 75-77.

¹⁸ 2016 Final Designations Supplement TSD, p. 75-77.

¹⁹ See Docket ID No. EPA-HQ-OAR-2014-0464-0328.

reasons, as further explained in the EPA's 2016 Final Designations Supplement TSD. Some examples of the issues the EPA identified with Luminant's modeling were:

- Luminant applied non-EPA preprocessor models, AERLIFT and AERMOIST, to the CEM data to increase the observed temperatures and (in the case of AERLIFT) velocities of the plumes exiting from the stacks. The EPA reviewed these proposed processors and supplied information, and then analyzed some of the significant changes that these processors were making to modeled stack parameters and buoyancy flux calculation. The lack of supporting documentation and the EPA's review of the changes the processors were making resulted in the EPA determining that AERLIFT and AERMOIST were not adequately justified and, thus, model results using these processors could not be relied upon in the designations decision-making process.²⁰
- Luminant's March 2016 report included a then-future emissions estimate scenario (2017-2019 estimated SO₂ emissions). Luminant asserted that Martin Lake will not cause or contribute to nonattainment near the plant when modeled with Luminant's then-projected future emissions because the maximum modeled design concentration was 192.1 µg/m³. These projected emissions were associated with potentially improving scrubber efficiency, fuel switches and potentially collateral benefits with reductions of SO₂ from the facility complying with the Mercury Air Toxics Rule. In the 2017-2019 future estimated emissions modeling scenario, Luminant projected future emissions rates in 2017-2019 that were lower than recent actual emissions at the time based in part on future non-enforceable, voluntary operational changes at Martin Lake.²¹ However, for the purpose of determining whether the area is currently meeting the 2010 SO₂ NAAQS and designating the area, either actual emissions or currently enforceable allowable emissions limits should be modeled. The EPA provided the following explanation in the 2016 Final Designations Supplement TSD:

Neither the efficiency improvements in operation of existing scrubbers nor fuel switches were reflected in a permanently enforceable situation. This means that they could change, and are not a certain or effective limitation on either current or future emissions...In this case the intended switching of fuel and increases in scrubber efficiency, whether they have occurred or not, are not yet enforceable through any mechanism provided by Luminant - such as a permit limit - and Luminant would be free to either not switch or, if it does switch, change back to a higher sulfur content coal in the future, depending on circumstances.²²

Without permanent and federally enforceable emissions limits, the facility could make operational modifications (*e.g.*, change the fuel type, alter the volume of process exhaust bypassing the scrubber, etc.), which may not be protective of future air quality.²³

²⁰ The EPA also compared the difference between the pre-processors assumptions and impacts and the stack temperatures used in Sierra Club's March 2016 modeling. *See, e.g.*, 2016 Final Designations Supplement TSD at pp. 55-61.

²¹ As discussed elsewhere, actual emissions for this time period were higher than Luminant predicted and similar to the actual 2013-2015 emissions that were modeled to inform designations.

²² 2016 Final Designations Supplement TSD, p. 55-56.

²³ 2016 Final Designations Supplement TSD, p. 55-56.

- Luminant's modeling used Beta options LOWWIND3 and ADJ_U* which had not been approved by the EPA for regulatory use and, among other conditions, required consultation and pre-approval from the EPA for regulatory applications as an alternative model. This process was not initiated or completed in the modeling of these three areas and thus, the modeling based on their use was determined by the EPA to not be acceptable for this regulatory use.²⁴

B. Proposed Error Correction of 2010 SO₂ NAAQS Designations for Three Areas in Texas

On August 22, 2019, the EPA proposed to determine it had made an error in the 2010 SO₂ NAAQS nonattainment area designations for three Texas areas and to revise the designations to unclassifiable for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County. *See* 84 FR 43757. The EPA proposed that it erred in not giving greater weight to Texas' preference to characterize air quality through monitoring and steps undertaken by Texas towards siting monitors with the intention to begin monitoring in these three areas, when considering all available information; in relying on available air-quality modeling analyses in making the initial designations that the EPA recognized included certain limitations and uncertainties; or a combination of these two issues.

Regarding the limitations and uncertainties with the Sierra Club 2015 and March 2016 modeling, the EPA stated in the Proposed Error Correction that given the possible collective significance of these issues and, in the case of the areas around the Martin Lake and Monticello power plants, given that the maximum modeled concentrations are within about 10 percent of the primary SO₂ NAAQS, we were less confident in our prior statements that potential adjustments to the Sierra Club modeling would not result in modeled values near or below the SO₂ NAAQS.²⁵ In the Proposed Error Correction, the EPA stated that limitations and uncertainties with the Sierra Club modeling identified in the Intended Designations TSD and the Final Designations Supplement TSD for the 2016 SO₂ designations included:

1. Absence of variable stack conditions and representation of 100 percent load stack parameters. The EPA stated that commenters on the EPA's proposed designations noted this issue is particularly pronounced as the Electric Reliability Council of Texas market is competitive with plant dispatch based on variable cost and falling natural gas prices and renewable capacity resulting in these units running in variable operations. The EPA also noted that the EPA stated in the technical support document for the 2016 designations in Indiana that use of hourly stack parameters more accurately characterizes plume characteristics, which will provide greater reliability both in the estimated concentration and in the geographical distribution of concentrations.
2. Treatment of building downwash (failure to include), surface meteorology, hourly wind inputs, potential to emit/allowable emissions, variable stack temperature and velocity.

²⁴ 2016 Final Designations Supplement TSD, p. 58.

²⁵ As explained in the 2016 Final Designations Supplement TSD, the modeled 99th percentile daily maximum one-hour SO₂ concentrations for the Martin Lake and Monticello facilities are 14 percent and 8 percent above the 2010 SO₂ NAAQS, respectively. The Martin Lake figure is based on the approach of looking only at uncontested receptors.

3. Inappropriate elevation of flagpole receptors.
4. Use of an older version of AERMOD (Note: This refers to modeling in the EPA's Intended Designations TSD but not in modeling for the 2016 Final Designations Supplement TSD).
5. Representation of recent emissions, including controls after the 2011 National Emissions Inventory.
6. Use of a larger receptor grid than recommended.
7. Approach to estimation of background concentrations.
8. Failure to include fence-line receptors or source contribution in the modeling analysis.

The EPA stated that “while individually these deficiencies are not dispositive, collectively they are a sufficient basis for the EPA to propose that we erred in relying on the Sierra Club modeling in making the initial nonattainment designations for the three Texas areas.” *See* 84 FR at 43761.

III. Sierra Club Modeling Submitted in Response to the EPA's September 2019 Proposed Error Correction

The EPA received several comments on its August 22, 2019, Proposed Error Correction action proposing to revise the designations to unclassifiable for portions of Freestone and Anderson Counties, Rusk and Panola Counties and Titus County.²⁶ Specifically relevant to this technical support document, on September 23, 2019, Sierra Club submitted a comment including new modeling that addressed the limitations identified in the Proposed Error Correction regarding the Sierra Club's previous modeling,²⁷ both individually and collectively. The Sierra Club's September 2019 modeling purportedly demonstrated the area around Martin Lake was violating the 2010 SO₂ NAAQS based on modeling of 2013-2015 period with actual emissions for Martin Lake. The remainder of this document analyzes Sierra Club's September 2019 modeling for the 2013-2015 period and compares that modeling with the Sierra Club's March 2016 modeling used for the EPA's final nonattainment designation of the Martin Lake area. The Sierra Club's September 2019 modeling was conducted to characterize air quality in that area using the most recent three years of actual emissions then-available at the time of the Round 2 Supplement. The following assessment focuses on Sierra Club's September 2019 modeling of the 2013-2015 period, which collectively addressed all the issues raised in the EPA's Proposed Error Correction; however, the EPA also reviewed and agrees with the analyses of the individual factors as detailed in the Sierra Club's modeling report for the same reasons stated therein.

A. Sierra Club's 2019 Updated Modeling for the 2013 -2015 Period

To address the issues the EPA identified in its Proposed Error Correction, the September 2019 Sierra Club modeling for the 2013-2015 period utilizes modeling inputs from Luminant's March 2016 modeling analysis except where noted. Since the remainder of the updated modeling was unchanged, refer to the 2016 Final Designations Supplement TSD for the Round 2 Supplement for a discussion of the individual, unchanged elements.

²⁶ *See* Docket ID No. EPA-HQ-OAR-2014-0464.

²⁷ This refers to Sierra Club's 2015 modeling used in the Intended Designation TSD and Sierra Club's March 2016 modeling used in the 2016 Final Designations Supplement TSD.

1. The most current version of the AERMOD modeling system, version 18081, was used for the analysis. Note, as explained by the EPA in the 2016 Final Designations TSD, the Sierra Club's March 2016 modeling analysis used the most recently available version (version 15181) of AERMOD at that time, which was an updated version of AERMOD compared to the previous Sierra Club modeling (using AERMOD version 14134) that the EPA reviewed in the Intended Designations TSD.
2. Refinements of the March 2016 modeling inputs for stack parameters, building dimensions and locations, emissions rates and receptor grid were obtained directly from Luminant's March 2016 modeling analysis. The Sierra Club's updated modeling (2019) used Luminant's March 2016 report as a basis since the Luminant analysis contained more refined modeling inputs based on data available to the facility owner, such as CEM measured stack and emission/temperature/flow/velocity parameters, and stack and building location and dimensions.²⁸ Specifically, the following was updated:
 - a. Stack location, height and diameters.
 - b. Specific building locations and dimensions allowing for evaluation of downwash.
 - c. Updated hourly emissions rates, stack temperatures and stack exit velocities. The Sierra Club March 2016 modeling analysis had used a constant temperature obtained from a prior regional haze modeling study. While the facility's continuous emissions monitoring system records temperatures, these data are not reported to the EPA's Clean Air Markets Division.²⁹ The updated Sierra Club analysis used Luminant's hourly CEM temperature measurements during 2013-2015.
3. Updated meteorological data were obtained from the surface station at the Longview Texas Regional Airport. To address potential concerns expressed during the Round 2 Supplement about recent changes in land use surrounding the airport, the beta version of AERSURFACE v. 19039 was run with 2011 National Land Cover Database, an update from the previous 1992 NLCD data.
4. To address the EPA's concerns regarding the Sierra Club's March 2016 modeling's use of a 1.5-meter flagpole receptor height to reflect a representative inhalation level, the updated analysis does not use an elevated flagpole height.
5. To address the EPA's concerns about the size of the receptor grid in Sierra Club's March 2016 modeling, Sierra Club used a 25-kilometer grid for both of the two modeling receptor grids. Receptor Grid #1 includes all locations around the Martin Lake Generating Station accessible by the general public. Receptor Grid #2 was obtained from Luminant's 2016 modeling analysis that excluded locations that Luminant claimed was

²⁸ Sierra Club is using data (including stack location and parameters, emissions rates, actual varying stack temperatures and stack velocities) provided by Luminant that is available to Luminant but not reported to the EPA's CAMD database or normally available to the public. This data that Sierra Club used was not adjusted by the processors AERLIFT and AERMOIST that the EPA determined invalidated the results of Luminant's 2016 modeling. The EPA has reviewed the information/values that Sierra Club is using in its September 2019 updated modeling from Luminant's March 2016 modeling analysis, and the EPA considers these to be acceptable because they comport with the SO₂ Designations Modeling TAD.

²⁹ <https://ampd.epa.gov/ampd/>.

not feasible for placement of a monitor and/or which were claimed as Luminant's property that the public does not have access.³⁰

B. Modeling for the 2016 - 2018 Period

Sierra Club also submitted modeling for the more recent 2016-2018 3-year period. The additional years modeled in other scenarios are intended to address the identified limitation that the 2013-2015 years might not be representative of future emissions. Actual hourly emissions rates were obtained from the EPA's CAMD database for 2016 through 2018. The Sierra Club attempted to derive representative stack temperatures and hourly-varying exit velocities for the 2016-2018 period. Since the full CEMS data were not publicly available for modeling the 2016-2018 period the 2013-2015 CEMS data were used to characterize the individual unit stack parameters. An average stack outlet temperature for each of the three units for 2013-2015 was calculated. Exit velocities for 2013-2015 from the CEM measurements were combined with concurrent heat input obtained from CAMD to derive a relationship between exhaust gas flow rate and heat input for the three units. The relationship was applied to the hourly heat input for each unit from CAMD during the 2016-2018 period to estimate hourly exit velocities during 2016-2018.

The background concentration was updated to the 99th percentile concentration in Travis County, Texas, the lowest design value measured at ambient monitors in the state of Texas, for the 2016-2018 period. Sierra Club indicated that this monitor was used because it is nearer to Martin Lake and because the monitor which previously had the lowest state value (El Paso UTEP) was decommissioned on December 31, 2017. The updated background concentration from the Austin Northwest monitor (AQS ID# 48-453-0014) is $7.8 \mu\text{g}/\text{m}^3$ (3 ppb), which is $2.7 \mu\text{g}/\text{m}^3$ (51 percent) higher than the background value of $5.1 \mu\text{g}/\text{m}^3$ used in Sierra Club's March 2016 modeling.

C. Scenarios Examined

The Sierra Club modeling analysis covered several scenarios relevant to assessing whether to revisit the initial designations for the three Texas areas, including our Proposed Error Correction. This modeling analysis provides new information that the EPA did not have at the time of our Proposed Error Correction. One of the central issues that the EPA had based our error correction proposal on was that the EPA did not have enough information at the time of the Round 2 Supplement to assess a combination of issues in Sierra Club's March 2016 modeling, to the extent that the March 2016 modeling should not have been relied upon to determine whether the area around Martin Lake was not attaining the 2010 SO₂ NAAQS. Sierra Club's September 2019 updated modeling confirms the EPA's initial analysis of Sierra Club's March 2016 modeling, which included both individual and collective analysis of such issues, and further demonstrates that the individual and collective alleged limitations of the March 2016 modeling, as characterized in the EPA's Proposed Error Correction, were not limitations that undermined the

³⁰ The EPA has not determined whether the areas that Luminant claimed as non-ambient and they excluded receptors from is substantiated or not, but Sierra Club's Receptor Grid #2 estimates the air quality in the modeled area based on areas that Luminant identified in their March 2016 modeling analysis as ambient (uncontested receptors) with modeled DVs above the NAAQS (2016 Final Designations Supplement TSD, pp. 66-72).

EPA's reasonable reliance on the March 2016 modeling to determine the areas were then violating the 2010 SO₂ NAAQS and designate them nonattainment. In fact, the EPA no longer believes that the bases identified in the Proposed Error Correction support the proposed conclusion that an error correction is appropriate. The results of the relevant modeling scenarios are discussed in the remainder of this section.

The key modeling scenario in Sierra Club's September 2019 modeling analyses, for comparison to the March 2016 modeling analysis, which the EPA relied on in the Round 2 Supplement, are the modeling files contained in the file "MLsx1315b.zip," which Sierra Club submitted during the public comment period, but hereinafter referred to the MLsc1315b scenario.³¹ This MLsc1315b scenario is assessed in the next section and includes all the inputs and updates explained in the September 2019 modeling for the 2013-2015 Period, including Receptor Grid #2. The EPA is focusing our comparison analysis on this specific modeling scenario that includes Receptor Grid #2, as this modeling analysis is for the same meteorological and emissions period (2013-2015) that was relied upon in the 2016 Final Designations Supplement TSD and also potentially underestimates the SO₂ air quality at the time of the Round 2 Supplement because it includes only uncontested modeling grid receptors.

Sierra Club's 2019 updated modeling reported results for four three-year meteorological/emissions periods: 2013-2015, 2014-2016, 2015-2017 and 2016-2018. As discussed previously, the stack parameters for the years 2013, 2014, and 2015 were from the CEMS while for the other years were estimated based on relationships derived from the 2013-2015 period because Sierra Club did not have access to varying stack temperature and velocity for the other years (2016-2018). The September 2019 modeling for the 2013-2015 period is most accurate because it uses information from Luminant on stack parameters (velocity and temperature) not publicly available for 2016-2018 period and noted as either actual or estimated in Table 2. Table 2 includes a summary of all the Modeling Scenarios provided by Sierra Club in their 2019 modeling analysis and their March 2016 modeling analysis including the maximum design concentration and background used.

³¹ Air dispersion modeling input and output files are too large to post in the docket or on the EPA's website and must be requested from the EPA Docket Center, Corey Mocka (mocka.corey@epa.gov), or Erik Snyder (snyder.erik@epa.gov).

Table 2. Results for Select Scenarios from the Sierra Club’s 2019 Modeling Analysis for the Martin Lake Area

Modeling Analysis	Modeling Scenario ID	SO₂ Emissions Type	Receptor Grid	Stack Parameters	99th Percentile 1-hour Daily Maximum (µg/m³)	Background (µg/m³)	Total (µg/m³)
March 2016	Not Applicable	Actual	Grid #1 ^a	Fixed Velocity & Temperature	239.0	5.1	244.1^b
September 2019	MLsc1315a	Actual 2013-15	Grid #1	Actual ^c	393.8	7.8	401.6
	MLsc1315b	Actual 2013-15	Grid #2	Actual ^c	388.7	7.8	396.5
	MLsc1416b	Actual 2014-16	Grid #2	Estimated	311.0	7.8	318.8
	MLsc1517b	Actual 2015-17	Grid #2	Estimated	209.2	7.8	217.0
	MLsc1618b	Actual 2016-18	Grid #2	Estimated	238.4	7.8	246.2

^a March 2016 Grid #1 extends to 50 km while the September 2019 Grid #1 extends to 25 km.

^b **Bold** concentrations are above the 2010 SO₂ NAAQS (196.4 µg/m³).

^c Actual Stack Parameters - Variable stack velocity and temperature were used from Luminant data included in Luminant’s 2016 modeling analysis. These values were measured or calculated from measured data and are not impacted by the processors that Luminant used (AERLIFT or AERMOIST) and are, therefore, acceptable. These values are more refined than the estimated values previously used by Sierra Club in their March 2016 modeling analysis.

IV. Comparison of Sierra Club’s March 2016 and September 2019 Modeling for the 2013-2015 Period

The MLsc1315b modeling scenario provides modeling that addresses previously identified concerns in the Proposed Error Correction and refines the modeling analysis in strict accordance with the SO₂ NAAQS Designations Modeling TAD for the 2013-2015 modeling period. Sierra Club’s September 2019 modeling for the 2013-2015 period has directly addressed all the modeling inputs that the EPA identified in our Proposed Error Correction and/or the Round 2 Supplement. The EPA has reviewed the September 2019 modeling, and the modeling strictly follows the SO₂ NAAQS Designations Modeling TAD, which the EPA provided in advance of the Round 2 designations. Sierra Club made several refinements to the model input data, which became publicly available at the end of the Round 2 designations public comment period as part of Luminant’s March 2016 comments, and these data and other updated components of the AERMOD modeling system were used in this September 2019 modeling. The changes, as detailed in the Section III of this document, are refinements to the model inputs, based on more detailed data, and more rigidly adhere to the EPA’s modeling guidance regarding when such refinements are available.

As explained in more detail later in this document, because the technical aspects of Sierra Club's March 2016 modeling identified by the EPA in the Proposed Error Correction have been addressed in Sierra Club's September 2019 modeling of the 2013-2015 meteorology and emissions, the 2019 modeling effectively demonstrates whether the EPA was correct in estimating the impact of any uncertainty from lack of refinement of inputs or deviation from the SO₂ NAAQS Designations Modeling TAD in the March 2016 modeling. In sum, the September 2019 modeling demonstrates that our initial designation of nonattainment for the area around Martin Lake, and by extension our initial designations for the areas around Big Brown and Monticello, were also valid. By comparing the key modeling scenario, MLsc1315b, for Sierra Club's September 2019 modeling analysis to Sierra Club's March 2016 modeling analysis, the EPA can assess the overall combined impact of the issues identified and compare to the initial analysis the EPA relied upon in the Round 2 Supplement. This assessment confirms the EPA's conclusions and designations for all three areas in the Round 2 Supplement.

The EPA notes that in the Proposed Error Correction we did not separate technical aspects that the EPA analyzed in the Intended Designations TSD from those the EPA analyzed in the 2016 Final Designations Supplement TSD. Additionally, the EPA notes that Sierra Club's March 2016 modeling, which was relied on in the 2016 Final Designations Supplement TSD, included updates to Sierra Club's older 2015 modeling that addressed some technical aspects the EPA identified in the Intended Designations TSD. The following technical aspects that potentially created uncertainties the EPA identified in the Proposed Error Correction were only in the Sierra Club's older 2015 modeling in the Intended TSD and were updated in the Sierra Club's March 2016 modeling, which the EPA relied on in the Final Designations Supplement TSD, to be strictly in accordance with the SO₂ NAAQS Designations Modeling TAD: 1) use of an older version of AERMOD (most recent version available at that time was used in the March 2016 modeling), and 2) representation of recent emissions, including controls after the 2011 National Emissions Inventory (the March 2016 modeling used the most recent three years (2013-2015) of actual emissions that were available at the time for Martin Lake and Big Brown as 2016 calendar year was still ongoing). Additionally, regarding the failure to include source contribution in the modeling analysis that the EPA listed in the Proposed Error Correction, the EPA notes that the older Sierra Club modeling included other sources to assess contribution, while the March 2016 modeling included only the principle source in each area in response to the EPA's analysis in the Intended Designations TSD.

One of the technical aspects that potentially created uncertainties that the EPA identified in the March 2016 modeling in the Proposed Error Correction was the absence of variable stack conditions and representation of 100 percent load stack parameters (variable stack temperature and velocity). The EPA also identified the treatment of building downwash (failure to include), use of a larger receptor grid than recommended, and failure to include fence-line receptors as limitations or uncertainties in the Proposed Error Correction. In the 2016 Final Designations Supplement TSD, the EPA explained that, when compared to the actual measured CEM temperatures furnished by Luminant as part of their modeling analysis, the Sierra Club's temperature was on the average 21 percent higher – the average temperature in the CEM data for near full load (filtered for stack velocity > 25 m/s) was 356K, ranging between 338-478K. The EPA explained that this increase in buoyancy would tend to reduce modeled concentrations, the amount depending on meteorological conditions; therefore, the EPA determined that the use of

the Sierra Club's higher-than-actual constant temperature likely underestimates the actual concentrations. More specifically, the EPA explained that this temperature difference would cause on the average a 196 percent increase in buoyancy flux versus using the CEM temperature when operating near full load, and that the buoyancy flux is used by the plume rise algorithm in AERMOD to calculate buoyant plume rise.

The EPA further explained that higher values of buoyancy flux yield higher plume rise, affecting the transport and dispersion of the plume, and that, typically, higher plume rise reduces peak ground-level concentrations and tends to move the maximum impacts further away from the source. The EPA noted that because the 2010 SO₂ NAAQS is a one-hour standard, the buoyancy enhancements for critical hours would be a controlling factor in the modeled concentrations on which the maximum modeled design concentration is based, and that the use of Sierra Club's higher-than-actual constant temperature, judged without other factors, would most likely underestimate the actual maximum concentrations (*i.e.*, the use of higher temperatures in the Sierra Club's March 2016 modeling would lead to lower modeled concentrations than if the actual measured temperatures from Luminant would have been used, which would likely result in higher 99th percentile one-hour daily maximum concentration). The increase in buoyancy over the actual buoyancy would increase plume rise and alter the geographic distribution of concentrations. The 2019 Sierra Club modeling scenario MLsc1315b includes variable stack temperature and variable stack velocity, eliminating this identified limitation. Sierra Club's September 2019 modeling for the 2013-2015 period also included a sensitivity run using the stack velocity and stack temperatures from the March 2016 modeling analysis to determine the impacts of using the estimated stack velocity and temperature on the maximum modeled design concentration. In this sensitivity run, Sierra Club only changed these specific inputs; all other inputs were unchanged from the MLsc1315b scenario. This sensitivity run indicates that using the estimated stack parameters in the March 2016 modeling resulted in a maximum modeled design concentration that was 40 percent lower than the maximum modeled design concentration when CEM based hourly varying temperature and velocity were used in the September 2019 modeling (232.6 µg/m³ vs. 393.8 µg/m³). In other words, the 224 µg/m³ and 239 µg/m³ maximum modeled design concentrations cited in the 2016 Final Designations Supplement TSD, increased on the order of 69 percent (232.6 µg/m³ vs. 393.8 µg/m³) when these refined data were used in the September 2019 modeling. This confirms the EPA's assessment in the 2016 Final Designations Supplement TSD that Sierra Club's March 2016 maximum modeled design concentration was underestimated because of these technical aspects.

One of the technical aspects of Sierra Club's March 2016 modeling that the EPA identified in the Proposed Error Correction as creating uncertainty was the absence of including building downwash. Regarding building downwash, in the 2016 Final Designations Supplement TSD, the EPA concluded that, while we did not agree with Sierra Club's assertion that exclusion of downwash would underestimate the maximum modeled design concentration in all cases, in our evaluation the inclusion of building information and associated downwash in this analysis would not change our recommended designation of nonattainment. We noted that Luminant's 2016 modeling report (which Texas also included in their response) indicated that they expected that the modeling results were not extremely sensitive to this issue because the stack heights are well above the buildings and there is considerable momentum and buoyancy rise for the stack plumes. The EPA concluded that the modeling values were sufficiently above the standard and inclusion

of downwash often leads to higher concentrations closer to the source but, even in situations we have seen where this did not occur, any decreases in maximum modeled values from inclusion of downwash were relatively small and not expected to be enough of a decrease to resolve all modeled exceedance values near Martin Lake. The 2019 Sierra Club modeling scenario MLsc1315b includes building downwash, eliminating this identified limitation. Sierra Club's September 2019 modeling for the 2013-2015 period also included a sensitivity run where they removed the building information and downwash processing to determine what the impacts of including building downwash was on the maximum modeled design concentration. In this sensitivity run, Sierra Club only changed these specific inputs and all other inputs were unchanged from the MLsc1315b scenario. This sensitivity run indicates that the maximum modeled design concentration without including building was unchanged compared to the maximum modeled design concentration when downwash was included ($393.8 \mu\text{g}/\text{m}^3$ vs. $393.8 \mu\text{g}/\text{m}^3$). This confirms the EPA's assessment in the 2016 Final Designations Supplement TSD that including downwash in Sierra Club's March 2016 modeling analysis would not be expected to resolve all modeled exceedance values in the area because any changes in concentration or shift in location of the maximum concentration would be expected to be relatively minimal and may result in higher impacts closer to the facility.

Another technical aspect that the EPA identified in the Proposed Error Correction as creating uncertainty was the elevation of flagpole receptors in Sierra Club's March 2016 modeling. In the 2016 Final Designations Supplement TSD, the EPA stated that we would expect only a very slight change in the modeled concentrations and the area of exceedances and magnitude of the values would be basically equivalent, and, therefore, not change our final action. We based this conclusion on analysis of sensitivity modeling conducted by the Sierra Club for another source, which found decreases in modeled SO_2 between almost 0 and 0.2 percent when removing the flagpole receptors and estimating concentrations at ground level. Since Sierra Club's 2016 modeled maximum modeled designation concentration (in ambient air) at Martin Lake is at least 14 percent above the 2010 SO_2 NAAQS, the EPA concluded that the change due to flagpole receptor heights would not decrease the value to below the standard. Sierra Club's September 2019 modeling scenario MLsc1315b does not use elevated flagpole receptors, eliminating this identified limitation. Sierra Club's September 2019 modeling for the 2013-2015 period also included a sensitivity run where they changed the receptor heights to flagpole receptor heights to evaluate potential impacts on the modeled results. In this sensitivity run, Sierra Club only changed these specific inputs and all other inputs were unchanged from the MLsc1315b scenario. This sensitivity run indicates that the maximum modeled design concentration from using flagpole receptor heights resulted in maximum modeled design concentration that was 0.05 percent higher compared to the maximum modeled design concentration using normal receptor height ($394.0 \mu\text{g}/\text{m}^3$ vs. $393.8 \mu\text{g}/\text{m}^3$). This confirms the EPA's assessment in the 2016 Final Designations Supplement TSD that using flagpole receptor height in Sierra Club's March 2016 modeling analysis may result in a very small increase in the maximum modeled design concentration, which would not have had an impact on our decision because maximum modeled concentrations were at least 14 percent above the 2010 SO_2 NAAQS.

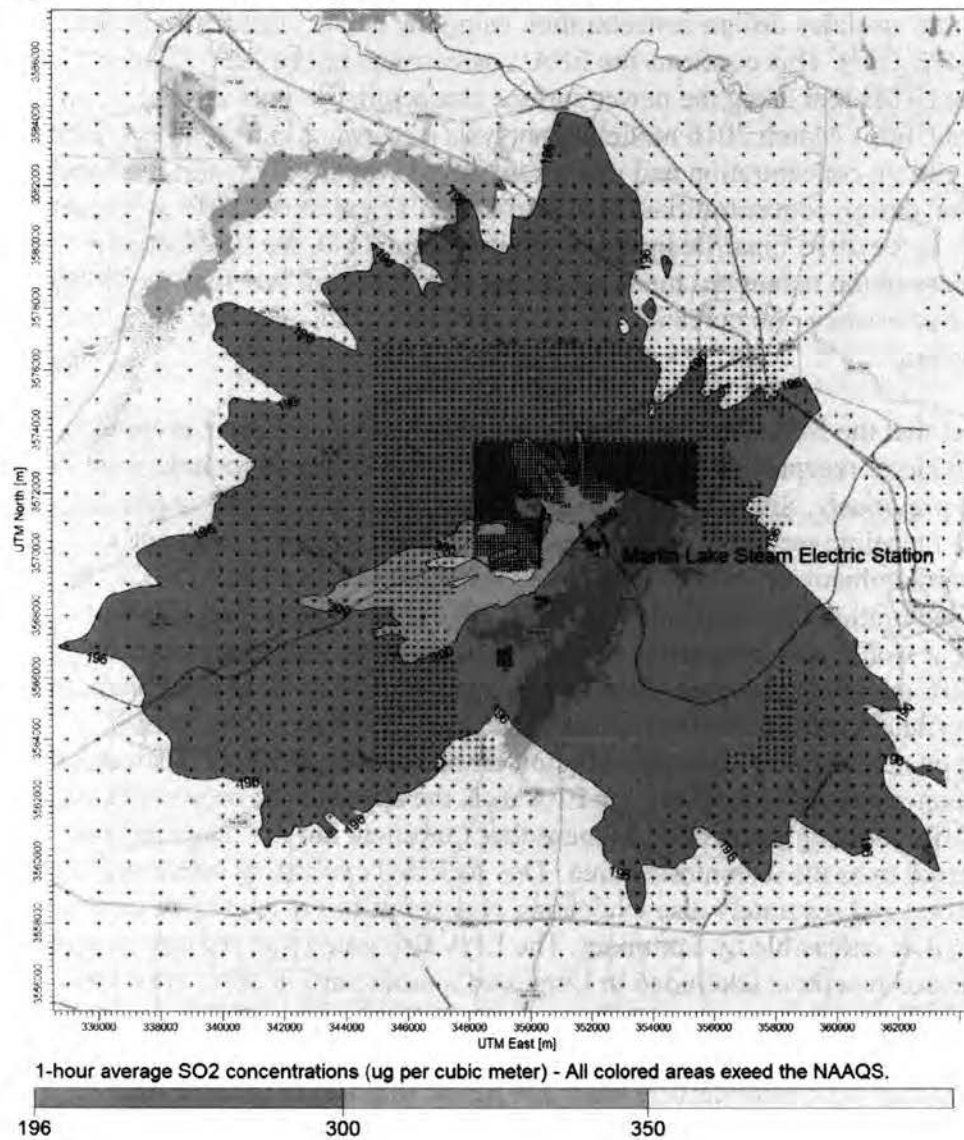
Another technical aspect that the EPA identified in the Proposed Error Correction as creating uncertainty was treatment of surface meteorology and hourly wind inputs. Regarding use of land surface data from 1992, the EPA indicated based on Sierra Club's March 2016 modeling, which included a sensitivity analysis for updated surface data/characteristics, that only a small decrease

in maximum modeled design concentrations of 3.6 percent was expected from using updated surface characteristics. As explained previously, in Sierra Club's September 2019 modeling, the meteorology was reprocessed with the EPA's updated AERSURFACE program and with updated land use and land cover information around the meteorological site, resolving this identified limitation. Sierra Club's September 2019 modeling for the 2013-2015 period also included a sensitivity run where they used the older surface characteristics (Land Use Land Cover from 1992 – LULC1992) instead of the new surface characteristics in processing the winds and AERMOD inputs to assess the use of the older surface characteristics on the maximum modeled design concentration. In this sensitivity run, Sierra Club only changed these specific inputs; all other inputs were unchanged from the MLsc1315b scenario. This sensitivity run indicates that the maximum modeled design concentration from the older surface characteristics resulted in a maximum modeled design concentration that was 1 percent higher compared to the maximum modeled design concentration using the newer surface characteristics (399.4.0 $\mu\text{g}/\text{m}^3$ vs. 393.8 $\mu\text{g}/\text{m}^3$). This confirms the EPA's assessment in the 2016 Final Designations Supplement TSD that using the newer surface characteristics data instead of the data from 1992 in Sierra Club's March 2016 modeling analysis may result in a small decrease in the maximum modeled design concentration and when considered would only result in slightly lower maximum modeled design concentrations. The Sierra Club's September 2019 sensitivity modeling indicates that, in the 2016 Final Designations Supplement TSD, the EPA actually overestimated the decrease of the maximum modeled design concentration that may occur from using newer surface characteristics (3.6 percent); the 2019 sensitivity indicates that the actual decrease was only 1 percent.

Another technical aspect that the EPA identified in the Proposed Error Correction as creating uncertainty was use of a larger receptor grid than recommended and failure to include fence-line receptors. As discussed previously, Sierra Club's 2015 and March 2016 modeling used a large grid and did not include fence-line receptors or restrict receptors from parts of Luminant's property that could be non-ambient air. In the 2016 Final Designations Supplement TSD, the EPA only evaluated concentrations in Sierra Club's March 2016 modeling at receptors that represented areas where it would also be feasible to place a monitor and record ambient air impacts. Luminant's 2016 modeling included areas that they considered to be non-ambient, but the EPA did not have sufficient information to evaluate and concluded that all the areas Luminant was claiming as non-ambient were actually non-ambient areas. Without sufficient data to support Luminant's non-ambient area claims, the EPA took the approach of only evaluating Sierra Club's March 2016 modeling results for the areas that Luminant did not claim as non-ambient, which we referred to as the uncontested area. This included evaluating concentrations at only uncontested receptors, and separately also evaluating concentrations at areas that clearly were erroneously claimed as unfeasible by Luminant. The EPA also noted that we had concerns that Luminant had contested receptors (excluded in Luminant's modeling) in more areas than were appropriate and that the maximum values in the uncontested area in Sierra Club's March 2016 modeling were actually as high as 239.1 $\mu\text{g}/\text{m}^3$ near the Luminant excluded area. The EPA's analysis explained that we conservatively used 224 $\mu\text{g}/\text{m}^3$ (highest at uncontested receptor) to evaluate the modeling, but the analysis could also be done based on the 239.1 $\mu\text{g}/\text{m}^3$ value, which would even more clearly demonstrate the area around Martin Lake was violating the 2010 SO₂ NAAQS. The 2019 Sierra Club modeling scenario MLsc1315b used the Luminant 2016 property descriptions in their location of receptors, so their new analysis only looked at

receptors that Luminant considered to be ambient (*i.e.*, the uncontested area). Sierra Club did not place receptors on areas that Luminant considered non-ambient thus, eliminating the potential concern about fence-line receptors. Sierra Club's September 2019 modeling and modeling report indicates multiple areas above $300 \mu\text{g}/\text{m}^3$ that are clearly outside the areas that Luminant considered in 2016 as their boundary for non-ambient air (Figure 1).³² Therefore, Sierra Club's September 2019 modeling clearly demonstrates that this is not a technical limitation; the only uncertainty is that Luminant claimed large areas as non-ambient in their 2016 modeling and some of these areas could be ambient, but this uncertainty does not impact the conclusion that the area is violating the 2010 SO_2 NAAQS.

Figure 1. Figure Showing Maximum Modeled Design Concentrations from Sierra Club's September 2019 Modeling (Scenario MLsc1315b)



³² Figure 2 from Sierra Clubs 2019 Modeling Report ("Martin Lake Generating Station TX – Evaluation of Compliance with the 1-hour NAAQS for SO_2 – Final – 23Sep19.pdf").

Another technical aspect and potential uncertainty that the EPA identified in the Proposed Error Correction was use of an older version of AERMOD. As noted previously, this uncertainty was only identified in the Sierra Club 2015 modeling, which the EPA used for the basis of its intended designation, not the March 2016 modeling that the EPA relied on for the final designation. Sierra Club also used the most recent version of AERMOD in their September 2019 modeling. Therefore, the EPA concludes that this was not a technical aspect or potential uncertainty in the March 2016 modeling and, therefore, could not be a part of a basis for concluding that relying on that March 2016 modeling used in the final designation was in error.

Another technical aspect and potential uncertainty the EPA identified in Sierra Club's modeling for the Round 2 Supplement in the Proposed Error Correction was the representation of "recent emissions, including controls after the 2011 National Emissions Inventory" and "potential to emit/allowable emissions." See 84 FR at 43761. As noted previously, Sierra Club's March 2016 modeling used the most recent three years of actual emissions available at that time. Sierra Club's September 2019 MLsc1315b modeling scenario also used 2013-2015 actual emissions. The use of the 2013-2015 actual emissions is strictly in accordance with the SO₂ Designations Modeling TAD and consistent with assessing the air quality at the time of the Round 2 Supplement. The EPA provided the following assessment in the 2016 Final Designations Supplement TSD in response to Luminant's 2016 comments about controls in 2016, after the 2011 National Emissions Inventory, and how these might impact the potential to emit/allowable emissions:

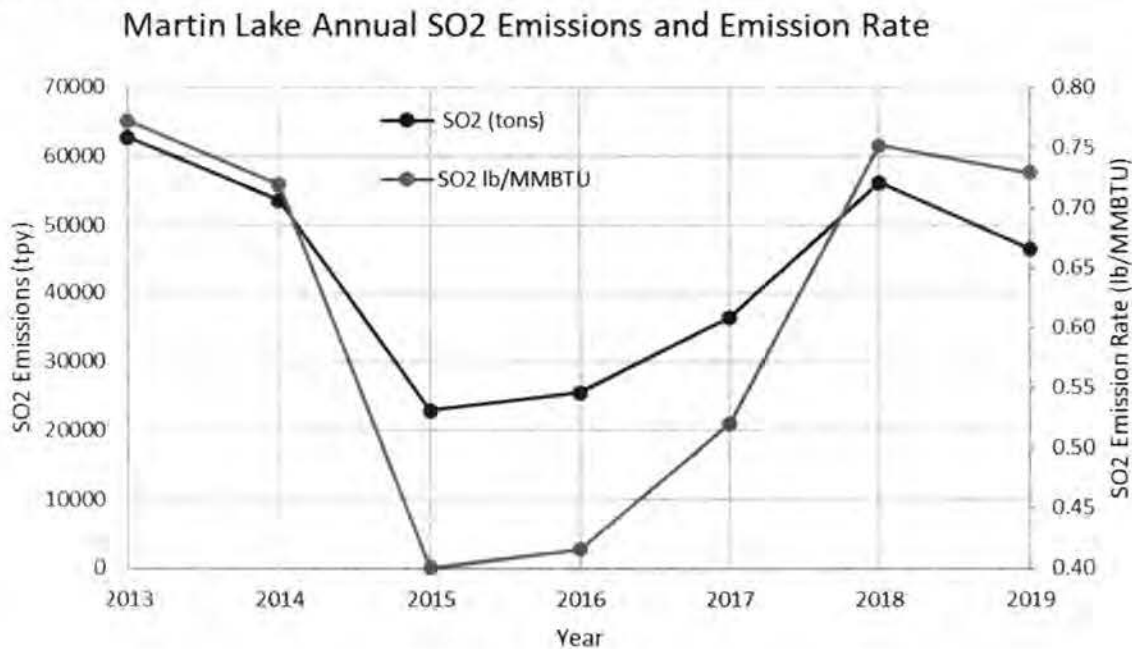
In the 2017-2019 emission modeling submission, Luminant projected future reduced emission rates were used that were based in part on future non-enforceable, voluntary operational changes at Martin Lake. However, for the purpose of determining whether the area is currently meeting the NAAQS and designating the area either actual emissions or a currently enforceable reduction in actual emissions should be used. Neither the efficiency improvements in operation of existing scrubbers or fuel switches were reflected in a permanently enforceable situation. This means that they could change and are not a certain and effective limitation on either current or future emissions. Compliance with MATS does allow for using SO₂ limits as surrogates for other pollutants, but how a facility meets the MATS requirements can be changed by fuel switching/blending and testing directly for the MATS pollutants. In this case the intended switching of fuel and increases in scrubber efficiency, whether they have occurred or not, are not yet enforceable through any mechanism provided by Luminant - such as a permit limit - and Luminant would be free to either not switch or, if it does switch, change back to a higher sulfur content coal in the future, depending on circumstances. Thus the modeling based on possible future changes at the facility, rather than on actual emissions, is not acceptable for this regulatory use.³³

The SO₂ Designations Modeling TAD recommends using the most recent three years of actuals or using a more recent federally enforceable and in effect allowable emissions limit, which could reflect new and lower continuing emissions that may not be reflected in modeling historical actual emissions. In the case of the Texas areas, there were not any more recent lower federally enforceable allowable limits that might have better represented recent and continuing SO₂

³³ 2016 Final Designations Supplement TSD, p. 55-56.

emissions performance. Therefore, use of actual recent SO₂ emissions was not a limitation or uncertainty in Sierra Club’s March 2016 modeling and, therefore, could not be a part of a basis for concluding that relying on that March 2016 modeling was in error. Additionally, the EPA has also reviewed the annual emissions since 2013. Figure 2, produced by the EPA using CAMD data, shows that the annual emissions and the average SO₂ emissions rate varied considerably from year to year at Martin Lake during the 2013-2019 period. The lowest emissions and emissions rates were recorded for the years 2015-2017 with the years 2018 and 2019 returning to about the previous higher emissions recorded in 2013-2014. The SO₂ emissions rate in 2015 dropped 48 percent from the highest rate that was recorded in 2013. Figure 2 does not demonstrate a trend toward lower emissions from the Martin Lake Power Plant with time. In fact, the lowest annual SO₂ emissions over the entire period was recorded in 2015, which was included in the Sierra Club’s March 2016 modeling. The emissions in 2015 were only 37 percent of those recorded in the highest year, 2013. Since 2015, the facility’s emissions trended up through 2018. The 3-year average emissions for 2017-2019 are almost identical to the 3-year average emissions for the modeling period for the designation, 2013-2015 (0.1 percent smaller). Luminant’s March 2016 comments on the EPA’s intended designation projected a 30-40 percent decrease in actual emissions for the 2017-2019 period compared to the 2014-2015 period, due solely to voluntary and non-enforceable scrubber optimization and anticipated fuel blending changes. In the 2016 Final Designations Supplement TSD, the EPA noted that these limits were not permanently enforceable and, therefore, could not be relied upon for designations decisions. We note that Luminant’s prediction did not actually occur, as reflected in the 2017-2019 actual emissions that are basically the same (0.1 percent smaller) as 2013-2015 actual emissions.

Figure 2. 2013-2019 Annual SO₂ Emissions (tpy) and Emissions Rate (lb/MMBTU) from the Martin Lake Power Plant



Another technical aspect and potential uncertainty that the EPA identified in the Proposed Error Correction was the March 2016 modeling's approach for the estimation of background concentrations. As explained in the 2016 Final Designations Supplement TSD, the lowest monitored background concentration (the El Paso monitor) was used in the March 2016 modeling. The EPA stated "Given the amount of SO₂ emissions in East Texas compared to El Paso area this assumption likely leads to a slight underestimation in concentrations around these facilities but is within the framework of the TAD's options for inclusion of background monitoring data."³⁴ Therefore, the EPA concludes that this was not a limitation or uncertainty in the March 2016 modeling and could not be a part of a basis for concluding that relying on that March 2016 modeling was in error. Additionally, as explained previously, the September 2019 modeling included a new background concentration, the 99th percentile design value concentration in Travis County, Texas, which is the lowest value measured at SO₂ ambient monitors in the State of Texas for the 2016-2018 period. This monitor was used by Sierra Club because it is nearer to Martin Lake and because the monitor that previously had the lowest state value (El Paso in the 2013-2015 period) was decommissioned in 2017. The updated background concentration is 7.8 µg/m³, 2.6 µg/m³ (51 percent) higher than the background value of 5.1 µg/m³ used in Sierra Club's March 2016 modeling and 2019 updated modeling of 2013-2015 period. Regardless of the background concentration, the maximum modeled design concentration for the September 2019 updated modeling is well above the 2010 SO₂ NAAQS, for this 2019 assessment of 2013-2015 period it is 388.7 µg/m³, before any background is added.

The final technical aspect and potential uncertainty that the EPA identified in the Proposed Error Correction was the failure to include source contribution in the March 2016 modeling analysis. As explained previously, the Sierra Club's 2015 modeling relied upon for the EPA's intended designations included such contribution from other sources. As explained in the Intended Designations TSD, the modeling indicated that the contribution to the maximum modeled design concentration from the Pirkey Power Plant only added 0.1 µg/m³ to increase the maximum modeled design concentration from 339.8 µg/m³ to 339.9 µg/m³.³⁵ Based on the modeling information available at the time, the EPA explained in the 2016 Final Designations Supplement TSD that inclusion of only the principle SO₂ emissions source in the modeling was an acceptable choice in this area's circumstances, as we maintained that Martin Lake was likely contributing almost if not equal to 100 percent of the impact for the values above the 2010 SO₂ NAAQS. The EPA also explained that Sierra Club's 2016 modeling, by not including Pirkey Power Plant, was a conservative approach (*i.e.*, potentially under-estimating the maximum modeled design concentration) to determining whether the area was violating the 2010 SO₂ NAAQS and to identifying the geographical boundaries of such exceedances. The EPA suggested that inclusion of Pirkey Power Plant should result in either similar impacts and boundaries or slightly increased impacts and possibly slightly larger boundaries, but inclusion of Pirkey Power Plant should not result in decreased impacts or "shrinking" of boundaries from those modeled.³⁶ Based on the information available at the time of the EPA's final nonattainment designation in 2016, the EPA continues to find that it was a reasonable decision at the time based on its prior assessment of the data available from Sierra Club's modeling of the area for the 2012-2014 (December 2015 modeling) and 2013-2015 (March 2016 modeling) periods; therefore, the EPA concludes that

³⁴ 2016 Final Designations Supplement TSD, p. 65.

³⁵ 2016 Final Designations Supplement TSD, pp.51-52.

³⁶ 2016 Final Designations Supplement TSD, pp. 60-62.

this was not a limitation or uncertainty in the March 2016 modeling and could not be a part of a basis for concluding that relying on that March 2016 modeling was in error.³⁷

After further assessment, the EPA agrees with the analyses in the 2016 Final Designations Supplement TSD referenced previously for the same reasons explained in the Round 2 Supplement. Regardless, as explained previously, Sierra Club's September 2019 modeling included refinements of their March 2016 modeling inputs for stack parameters, building dimensions and locations, and receptor grid (25 km and only uncontested receptors), which were obtained directly from Luminant's March 2016 modeling analysis. Sierra Club's September 2019 modeling analyses used these aspects of Luminant's March 2016 report since the Luminant analysis contained more refined modeling inputs based on data available to the facility owner, such as CEM measured stack and emissions parameters, and stack and building location and dimensions. These updates resolved the identified technical aspects and uncertainties in the Proposed Error Correction because they reflected the most refined information for these inputs and the strictest application of the SO₂ NAAQS Designations Modeling TAD while still considering only uncontested receptors where modeled concentrations were not the highest. As shown in Table 2, the maximum modeled concentration was higher in Grid #1 than Grid #2 in Sierra Club's September 2019 modeling, but both receptor grids resulted in values that violated the 2010 SO₂ NAAQS. The Sierra Club's 2019 modeling for the 2013-2015 period utilized more refined and accurate data for stack parameters (variable temperature and velocity) and included model inputs for building downwash, but it did not include any of the novel and unapproved modeling preprocessors (AERLIFT and AERMOIST) that Luminant had utilized in 2016, which previously concerned the EPA in the designations process.

In the Proposed Error Correction, the EPA stated that "while individually these deficiencies are not dispositive, collectively they are a sufficient basis for the EPA to propose that we erred in relying on the Sierra Club modeling in making the initial nonattainment designations for the three Texas areas." See 84 FR at 43761. However, the EPA acknowledges that, in the 2016 Final Designations Supplement TSD, the EPA also evaluated the combination of all the identified aspects of the March 2016 modeling (including all potential increasing and decreasing impacts on concentrations) through a comparison analysis, using the conservative approach of 224 µg/m³ as the maximum value.³⁸ In the 2016 Final Designations Supplement TSD regarding the area around Martin Lake, the EPA ultimately concluded that, given that Sierra Club's modeled concentrations (with a low background and no nearby sources) were 14 percent above the standard using 224 µg/m³ and 22 percent above the standard using 239.1 µg/m³ as the maximum and that several factors were deliberately conservative in under-estimating impacts and would tend to reduce the modeled concentrations (and actual modeled concentrations with appropriate background would be higher), our technical assessment of the available information was that the differences/changes to the Sierra Club modeling when combined overall would not result in modeled values near or below the standard.³⁹ Therefore, in the 2016 Final Designations

³⁷ The EPA's assessment does not prevent the Pirkey Power Plant from being included in any *future* modeling (e.g., state implementation plan demonstrations) for the Martin Lake area as a potentially contributing SO₂ emissions source; this will be dependent upon whether the Pirkey Power Plant is adequately represented by the background monitoring value added to the modeled concentrations, and/or on whether the state chooses to impose any new SO₂ emissions limits on the Pirkey Power Plant to be credited in the Martin Lake attainment demonstration.

³⁸ 2016 Final Designations Supplement TSD, p. 76.

³⁹ 2016 Final Designations Supplement TSD, pp. 76-77.

Supplement TSD, the EPA concluded that we considered the final Sierra Club modeling submitted March 2016 to be relevant information that must be considered in our designation decision and found that the modeling was a sufficient basis for a determination of nonattainment and clearly demonstrated the area around Martin Lake was nonattainment.⁴⁰

After further assessment of each individual aspect of the modeling and review of our previous analysis of the impact of the combined impact from the 2016 Final Designations Supplement TSD, the EPA agrees with the assessment of the combination of all the identified aspects of the modeling explained in the 2016 Final Designations Supplement TSD for those same reasons. Regardless, as shown in Table 2, the results of this updated modeling demonstrate that use of more refined inputs for the 2013-2015 period for the aspects of the March 2016 modeling that the EPA identified in the Proposed Error Correction as creating uncertainty increased the maximum modeled design concentration, before adding in background concentrations, for Martin Lake from 224 $\mu\text{g}/\text{m}^3$ (or 239.0 $\mu\text{g}/\text{m}^3$) to 388.7 $\mu\text{g}/\text{m}^3$, a 73 percent (or 63 percent) increase. This result provides the combined impact of the changes in the September 2019 updated modeling (as compared to the March 2016 modeling), and corroborates the EPA's assessment of Sierra Club's March 2016 modeling for the area around Martin Lake in the Round 2 Supplement and by extension for the areas around Big Brown and Monticello, which were modeled similarly and properly assessed by the EPA in the 2016 Final Designations Supplement TSD. Furthermore, Sierra Club's September 2019 modeling demonstrates that the March 2016 modeling underestimated the maximum modeled design concentrations and that more refined inputs addressing the identified limitations resulted in higher modeled concentrations, which the EPA predicted in the 2016 Final Designations Supplement TSD.

V. Conclusion

Sierra Club's September 2019 modeling addressed the uncertainties in the modeling that the EPA relied on in the Round 2 Supplement, which the EPA identified in the Proposed Error Correction. The Sierra Club's September 2019 modeling of the area around the Martin Lake Power Plant corroborates that the EPA's reliance on the Sierra Club's March 2016 modeling in the Round 2 Supplement was appropriate. The EPA agrees with our previous assessment of the technical aspects and potential uncertainties related to the Sierra Club's March 2016 modeling as explained in the Round 2 Supplement. Sierra Club's September 2019 modeling further confirms that the cumulative technical aspects and identified limitations with Sierra Club's March 2016 modeling that the EPA identified in the Proposed Error Correction were not merited.

⁴⁰ 2016 Final Designations Supplement TSD, p. 77.

