

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## AGENDA ITEM REQUEST

### for State Implementation Plan Adoption

**AGENDA REQUESTED:** October 5, 2022

**DATE OF REQUEST:** September 16, 2022

**INDIVIDUAL TO CONTACT REGARDING CHANGES TO THIS REQUEST, IF NEEDED:** Jamie Zech, Agenda Coordinator, (512) 239-3935.

**CAPTION: Docket No. 2022-0134-SIP.** Consideration for adoption of the Navarro County Attainment Demonstration State Implementation Plan (SIP) Revision for the 2010 One-Hour Sulfur Dioxide (SO<sub>2</sub>) National Ambient Air Quality Standard (NAAQS). The SIP revision addresses federal Clean Air Act requirements for the Navarro County SO<sub>2</sub> nonattainment area by including a comprehensive inventory of current SO<sub>2</sub> emissions; evaluation and provision for implementing all reasonably available control measures and reasonably available control technology; air quality dispersion modeling to demonstrate attainment; a reasonable further progress demonstration; contingency measures; and certification that nonattainment New Source Review requirements are met.

The associated 30 Texas Administrative Code Chapter 112 Subchapter G rules (Rule Project 2021-035-112-AI) provide the enforceable control strategy demonstrating attainment of the 2010 SO<sub>2</sub> NAAQS by the April 30, 2026, attainment deadline. (Mary Ann Cook, Terry Salem, John Minter; SIP Project No. 2021-012-SIP-NR)

Sam Short

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**Acting Director**

Donna F. Huff

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**Deputy Director**

Jamie Zech

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**Agenda Coordinator**

Copy to CCC Secretary? NO ☒ YES ☐

# Texas Commission on Environmental Quality

## Interoffice Memorandum

**To:** Commissioners **Date:** September 16, 2022

**Thru:** Laurie Gharis, Chief Clerk  
Toby Baker, Executive Director

**From:** Sam Short, Acting Director  
Office of Air

**Docket No.:** 2022-0134-SIP

**Subject:** Commission Approval for Adoption of the Navarro County Attainment Demonstration State Implementation Plan (SIP) Revision for the 2010 One-Hour Sulfur Dioxide (SO<sub>2</sub>) National Ambient Air Quality Standard (NAAQS)

Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision  
SIP Project No. 2021-012-SIP-NR

**Background and reason(s) for the SIP revision:**

On June 22, 2010, the United States Environmental Protection Agency (EPA) revised the SO<sub>2</sub> NAAQS, adding a 75 parts per billion (ppb) one-hour primary standard, effective August 23, 2010 (75 *Federal Register* (FR) 35520).

In the final round of designations for the 2010 SO<sub>2</sub> NAAQS, the EPA designated a portion of Navarro County as nonattainment, effective April 30, 2021 (86 FR 16055). Texas is required to submit an attainment demonstration SIP revision for the Navarro County nonattainment area to the EPA by October 30, 2022. The SIP revision is required to demonstrate attainment of the 2010 SO<sub>2</sub> NAAQS as expeditiously as practicable but no later than five years after the effective date of designations, or April 30, 2026.

**Scope of the SIP revision:**

This SIP Revision fulfills Texas' federal Clean Air Act (FCAA) SIP planning requirements for the 2010 One-Hour SO<sub>2</sub> NAAQS in the Navarro County nonattainment area. This SIP revision, together with the associated 30 Texas Administrative Code (TAC) Chapter 112, Subchapter G rules (Rule Project No. 2021-035-112-AI), documents the state's plan to achieve the emission reductions required to demonstrate timely attainment of the SO<sub>2</sub> NAAQS in the Navarro County nonattainment area and to meet other FCAA-required SIP elements.

**A.) Summary of what the SIP revision would do:**

This SIP revision, along with the associated Chapter 112 rules, demonstrates attainment and maintenance of the 2010 SO<sub>2</sub> NAAQS in the Navarro County nonattainment area as expeditiously as practicable, but not later than April 30, 2026.

**B.) Scope required by federal regulations or state statutes:**

In accordance with FCAA, §172 general requirements and FCAA, §191 and §192 specific requirements, this attainment demonstration SIP revision includes a comprehensive inventory of current SO<sub>2</sub> emissions; a control strategy with evaluation and provision for implementing all reasonably available control measures and reasonably available control technology; air quality dispersion modeling to demonstrate attainment of the 2010 SO<sub>2</sub> NAAQS; a reasonable further progress (RFP) demonstration; contingency measures; and the state's certification that current regulations provide the means to satisfy nonattainment New Source Review (NSR) requirements for the Navarro County 2010 SO<sub>2</sub> nonattainment area.

Re: Docket No. 2022-0134-SIP

This SIP submittal must demonstrate that the 2010 SO<sub>2</sub> NAAQS will be attained as expeditiously as practicable but not later than April 30, 2026. Based on the EPA's *Guidance for 1-Hour SO<sub>2</sub> Nonattainment Area SIP Submissions*, control strategies must be in place by January 1, 2025, to provide for attainment of the NAAQS by the April 30, 2026, attainment deadline.

**C.) Additional staff recommendations that are not required by federal rule or state statute:**  
None.

**Statutory authority:**

Sections 382.002, 382.011 and 382.012 of the Texas Clean Air Act (TCAA), which is codified as Texas Health & Safety Code, (THSC), Chapter 382, provide authority for the commission's purpose to safeguard the state's air resources, as well as to control the quality of the state's air and prepare and develop a general, comprehensive plan for the proper control of the state's air. The Texas Water Code, Section 5.102 provides general authority for the commission necessary for it to exercise its authority and discharge its duties.

The authority to propose and adopt the SIP revision is derived from FCAA, 42 United States Code, §7410, which requires states to submit SIP revisions that contain enforceable measures to achieve the NAAQS, and other general and specific authority in Texas Water Code, Chapters 5 and 7, and THSC, Chapter 382.

**Effect on the:**

**A.) Regulated community:**

For the Navarro County nonattainment area to attain the 2010 SO<sub>2</sub> NAAQS, SO<sub>2</sub> emission reductions are necessary at the Arcosa Lightweight Streetman plant (Streetman Plant), a lightweight aggregate production plant in Navarro County. The control strategy for demonstrating attainment of the 2010 SO<sub>2</sub> NAAQS in the Navarro County nonattainment area is made enforceable with commission adoption and EPA approval of the associated Chapter 112 rules. Arcosa LWS, LLC (Arcosa), the owner of the Streetman Plant, is required to comply with all requirements and stipulations of the associated rules.

**B.) Public:**

The public in the nonattainment area and possibly the surrounding areas will benefit from improved air quality due to lower SO<sub>2</sub> emission levels resulting from implementation of the control strategy in this SIP revision.

**C.) Agency programs:**

No impact on agency programs is anticipated from this SIP revision.

**Stakeholder meetings:**

Stakeholder meetings were held with regulated entities during development of the associated rules. The proposed SIP revision went through public review and comment with one public hearing offered.

**Public comment:**

The commission offered a public hearing for this SIP revision and the associated rules on May 23, 2022 in Corsicana, Texas. Notice of the public hearing was published in the *Texas Register* as well as the *Dallas Morning News* and *Corsicana Daily Sun*. Texas Commission on Environmental Quality (TCEQ) staff were present and ready to open the hearing for public comment; however, no attendees registered to make comments on the record. Therefore, the public hearing was not formally opened for comment.

Re: Docket No. 2022-0134-SIP

The public comment period opened on April 15, 2022 and closed on June 2, 2022. During the comment period, the TCEQ received comments from the EPA. EPA comments primarily concerned contingency measure triggering, compliance schedule, attainment modeling, enforceable controls, NSR permit references, State of Texas Air Reporting System (STARS) data use, modeling protocol, maintenance startup and shutdown (MSS) activity, location of modeling files, ambient air determinations, consistent naming conventions.

A summary of the comments and TCEQ responses are included as a part of this SIP revision in the Response to Comments. Comments received regarding the associated Chapter 112 rules are summarized and addressed in the Response to Comments contained in the preamble to the adopted rules. This adopted SIP revision reflects changes made in response to comments received on both the SIP and rulemaking proposals.

**Significant changes from proposal:**

The following significant changes were made in response to comments received on both the SIP revision and associated rulemaking proposals:

- Contingency measures were revised to account for failure to meet RFP. Revisions were made to Chapter 2: *Anthropogenic Emissions Inventories* and Appendix A: *Stationary Point Source Sulfur Dioxide (SO<sub>2</sub>) Emissions* to update the 2026 SO<sub>2</sub> emissions limit for the Streetman Plant based on comments received from Arcosa on the associated rule proposal.
- Emission limits and stack parameters for Streetman Plant's lightweight aggregate kiln were updated and a single emission limit replaced two different emission limits.
- Revisions were made to Chapter 4: *Attainment Demonstration Modeling* and Appendix J: *Modeling Technical Support Document (TSD)* to incorporate an updated site description and modeling scenarios and results based on comments received from Arcosa on the associated rule proposal.
- Rule text was added to allow Arcosa to request an alternate means of control for units subject to emission limits. This change was made for consistency with SIP revisions for Howard County (SIP Project No. 2021-010-SIP-NR) and Hutchinson County (SIP Project No. 2021-011-SIP-NR) and is based on comments received on the associated rule proposal.

**Potential controversial concerns and legislative interest:**

None.

**Will this SIP revision affect any current policies or require development of new policies?**

No.

**What are the consequences if this SIP revision does not go forward? Are there alternatives to revising the SIP?**

If this SIP revision is not submitted to the EPA by October 30, 2022, the EPA could issue a finding of failure to submit and require the state to submit the required SIP revision within a specified period. The EPA could also impose sanctions on the state that could include 200% emission offset requirements for new construction and major modifications of stationary sources in the nonattainment area as well as transportation funding restrictions. The EPA would be required to promulgate a federal implementation plan (FIP) if the TCEQ fails to submit, or the EPA does not approve, the required SIP revision within two years of the finding of failure to submit. The EPA could impose sanctions and implement a FIP until the state submits, and the EPA approves, a replacement SIP for the nonattainment area.

**Key points in the SIP revision schedule:**

**Anticipated adoption date:** October 5, 2022

Commissioners  
Page 4  
September 16, 2022

Re: Docket No. 2022-0134-SIP

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REVISIONS TO THE STATE OF TEXAS AIR QUALITY  
IMPLEMENTATION PLAN FOR THE CONTROL OF SULFUR  
DIOXIDE AIR POLLUTION

NAVARRO COUNTY 2010 SULFUR DIOXIDE STANDARD  
NONATTAINMENT AREA



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

**NAVARRO COUNTY ATTAINMENT DEMONSTRATION  
STATE IMPLEMENTATION PLAN FOR THE 2010 ONE-HOUR  
SULFUR DIOXIDE NATIONAL AMBIENT AIR QUALITY  
STANDARD**

2021-012-SIP-NR  
SFR-122/2021-012-SIP-NR

Adoption  
October 5, 2022

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## EXECUTIVE SUMMARY

On June 22, 2010, the United States Environmental Protection Agency (EPA) revised the sulfur dioxide (SO<sub>2</sub>) National Ambient Air Quality Standards (NAAQS) to add the 75 parts per billion (ppb) one-hour primary standard, effective August 23, 2010 (75 *Federal Register* (FR) 35520).

In the final round of designations for the 2010 SO<sub>2</sub> NAAQS, the EPA designated a portion of Navarro County as nonattainment, effective April 30, 2021 (86 FR 16055). Texas is required to submit an attainment demonstration state implementation plan (SIP) revision for the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area to the EPA by October 30, 2022. The attainment demonstration SIP revision is required to demonstrate attainment of the 2010 SO<sub>2</sub> NAAQS as expeditiously as practicable but no later than five years after the effective date of designation, or April 30, 2026.

This Navarro County Attainment Demonstration SIP Revision for the 2010 One-Hour SO<sub>2</sub> NAAQS demonstrates that the Navarro County nonattainment area will attain the 2010 SO<sub>2</sub> NAAQS by the April 30, 2026 attainment date. The Arcosa Lightweight Streetman plant (Streetman Plant), a lightweight aggregate production plant in Navarro County owned and operated by Arcosa LWS, LLC (Arcosa), is the only significant SO<sub>2</sub> emissions source in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area.

In accordance with federal Clean Air Act (FCAA), §172 general requirements and FCAA, §191 and §192 specific requirements, this SIP revision includes a comprehensive inventory of current SO<sub>2</sub> emissions; evaluation and provision for implementing all reasonably available control measures and reasonably available control technology; air quality dispersion modeling to demonstrate attainment of the 2010 SO<sub>2</sub> NAAQS; a reasonable further progress demonstration; contingency measures; and the state's certification that current regulations provide the means to satisfy nonattainment New Source Review requirements for the Navarro County 2010 SO<sub>2</sub> nonattainment area.

This SIP revision incorporates associated 30 Texas Administrative Code (TAC) Chapter 112 Subchapter G rules (Rule Project No. 2021-035-112-AI). The rules provide an enforceable control strategy that limits emissions at the Streetman Plant to a level necessary to attain the 2010 SO<sub>2</sub> NAAQS. This SIP revision, together with the associated rules, fulfills Texas' FCAA SIP planning requirements for the Navarro County 2010 SO<sub>2</sub> nonattainment area.

## SECTION V-A: LEGAL AUTHORITY

### General

The Texas Commission on Environmental Quality (TCEQ) has the legal authority to implement, maintain, and enforce the National Ambient Air Quality Standards (NAAQS) and to control the quality of the state's air, including maintaining adequate visibility.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superseded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. The legislature amended the TCAA in 1969, 1971, 1973, 1979, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, and 2019. In 1989, the TCAA was codified as Chapter 382 of the Texas Health and Safety Code.

Originally, the TCAA stated that the Texas Air Control Board (TACB) was the state air pollution control agency and was the principal authority in the state on matters relating to the quality of air resources. In 1991, the legislature abolished the TACB effective September 1, 1993, and its powers, duties, responsibilities, and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). In 2001, the 77th Texas Legislature continued the existence of the TNRCC until September 1, 2013 and changed the name of the TNRCC to the TCEQ. In 2009, the 81st Texas Legislature, during a special session, amended section 5.014 of the Texas Water Code, changing the expiration date of the TCEQ to September 1, 2011, unless continued in existence by the Texas Sunset Act. In 2011, the 82nd Texas Legislature continued the existence of the TCEQ until 2023. With the creation of the TNRCC (and its successor the TCEQ), the authority over air quality is found in both the Texas Water Code and the TCAA. Specifically, the authority of the TCEQ is found in Chapters 5 and 7. Chapter 5, Subchapters A - F, H - J, and L, include the general provisions, organization, and general powers and duties of the TCEQ, and the responsibilities and authority of the executive director. Chapter 5 also authorizes the TCEQ to implement action when emergency conditions arise and to conduct hearings. Chapter 7 gives the TCEQ enforcement authority.

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

Local government authority is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. They also

may make recommendations to the commission concerning any action of the TCEQ that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA and the rules or orders of the commission.

In addition, Subchapters G and H of the TCAA authorize the TCEQ to establish vehicle inspection and maintenance programs in certain areas of the state, consistent with the requirements of the federal Clean Air Act; coordinate with federal, state, and local transportation planning agencies to develop and implement transportation programs and measures necessary to attain and maintain the NAAQS; establish gasoline volatility and low emission diesel standards; and fund and authorize participating counties to implement vehicle repair assistance, retrofit, and accelerated vehicle retirement programs.

#### Applicable Law

The following statutes and rules provide necessary authority to adopt and implement the state implementation plan (SIP). The rules listed below have previously been submitted as part of the SIP.

#### Statutes

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

TEXAS HEALTH & SAFETY CODE, Chapter 382 September 1, 2021

TEXAS WATER CODE September 1, 2021

#### Chapter 5: Texas Natural Resource Conservation Commission

Subchapter A: General Provisions

Subchapter B: Organization of the Texas Natural Resource Conservation Commission

Subchapter C: Texas Natural Resource Conservation Commission

Subchapter D: General Powers and Duties of the Commission

Subchapter E: Administrative Provisions for Commission

Subchapter F: Executive Director (except §§5.225, 5.226, 5.227, 5.2275, 5.231, 5.232, and 5.236)

Subchapter H: Delegation of Hearings

Subchapter I: Judicial Review

Subchapter J: Consolidated Permit Processing

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

Subchapter M: Environmental Permitting Procedures (§5.558 only)

#### Chapter 7: Enforcement

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

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

Subchapter C: Administrative Penalties

Subchapter D: Civil Penalties (except §7.109)

Subchapter E: Criminal Offenses and Penalties: §§7.177, 7.179-7.183

## Rules

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

Chapter 7: Memoranda of Understanding, §§7.110 and 7.119	December 13, 1996 and May 2, 2002
Chapter 19: Electronic Reporting	March 15, 2007
Subchapter A: General Provisions	
Subchapter B: Electronic Reporting Requirements	
Chapter 39: Public Notice	
Subchapter H: Applicability and General Provisions, §§39.402(a)(1) - (6), (8), and (10) - (12), 39.405(f)(3) and (g), (h)(1)(A) - (4), (6), (8) - (11), (i) and (j), 39.407, 39.409, 39.411(a), (e)(1) - (4)(A)(i) and (iii), (4)(B), (5)(A) and (B), and (6) - (10), (11)(A)(i) and (iii) and (iv), (11)(B) - (F), (13) and (15), and (f)(1) - (8), (g) and (h), 39.418(a), (b)(2)(A), (b)(3), and (c), 39.419(e), 39.420 (c)(1)(A) - (D)(i)(I) and (II), (D)(ii), (c)(2), (d) - (e), and (h), and Subchapter K: Public Notice of Air Quality Permit Applications, §§39.601 - 39.605	September 16, 2021
Chapter 55: Requests for Reconsideration and Contested Case Hearings; Public Comment, all of the chapter, except §55.125(a)(5) and (6)	September 16, 2021
Chapter 101: General Air Quality Rules	May 14, 2020
Chapter 106: Permits by Rule, Subchapter A	April 17, 2014
Chapter 111: Control of Air Pollution from Visible Emissions and Particulate Matter	November 12, 2020
Chapter 112: Control of Air Pollution from Sulfur Compounds	July 16, 1997
Chapter 114: Control of Air Pollution from Motor Vehicles	June 23, 2022
Chapter 115: Control of Air Pollution from Volatile Organic Compounds	July 22, 2021
Chapter 116: Control of Air Pollution by Permits for New Construction or Modification	July 1, 2021
Chapter 117: Control of Air Pollution from Nitrogen Compounds	March 26, 2020
Chapter 118: Control of Air Pollution Episodes	March 5, 2000
Chapter 122: §122.122: Potential to Emit	February 23, 2017

## SECTION VI: CONTROL STRATEGY

- A. Introduction (No change)
- B. Ozone (No change)
- C. Particulate Matter (No change)
- D. Carbon Monoxide (No change)
- E. Lead (No change)
- F. Oxides of Nitrogen (No change)
- G. Sulfur Dioxide (Revised)
  - 1. Harris County SO<sub>2</sub> State Implementation Plan (SIP) Revision (No change)
  - 2. Milam County SO<sub>2</sub> SIP Revision (No change)
  - 3. Attainment Demonstration for the Rusk-Panola 2010 SO<sub>2</sub> NAAQS Nonattainment Area (No change)
  - 4. Redesignation Request and Maintenance Plan for the Freestone-Anderson and Titus 2010 SO<sub>2</sub> NAAQS Nonattainment Areas (No change)
  - 5. Attainment Demonstration SIP Revision for the Howard County 2010 SO<sub>2</sub> NAAQS Nonattainment Area (No change)
  - 6. Attainment Demonstration SIP Revision for the Hutchinson County 2010 SO<sub>2</sub> NAAQS Nonattainment Area (No change)
  - 7. Attainment Demonstration SIP Revision for the Navarro County 2010 SO<sub>2</sub> NAAQS Nonattainment Area (New)
    - Chapter 1: General
    - Chapter 2: Emissions Inventories
    - Chapter 3: Control Strategy and Required Elements
    - Chapter 4: Attainment Demonstration Modeling
    - Chapter 5: Reasonable Further Progress
- H. Conformity with the National Ambient Air Quality Standards (No change)
- I. Site Specific (No change)
- J. Mobile Sources Strategies (No change)
- K. Clean Air Interstate Rule (No change)
- L. Transport (No change)
- M. Regional Haze (No change)

## TABLE OF CONTENTS

Executive Summary	
Section V-A: Legal Authority	
Section VI: Control Strategy	
Table of Contents	
List of Acronyms	
List of Tables	
List of Figures	
List of Appendices	
Chapter 1: General	
1.1 Background	
1.2 History of the Navarro County 2010 Sulfur Dioxide National Ambient Air Quality Standard Nonattainment Area	
1.3 Public Hearing and Comment Information	
1.4 Health Effects	
1.5 Stakeholder Participation	
1.6 Social and Economic Considerations	
1.7 Fiscal and Manpower Resources	
Chapter 2: Anthropogenic Emissions Inventories	
2.1 Introduction	
2.2 Point Sources	
2.2.1 2017 Base Year Point Source Emissions Inventory	
2.2.2 2026 Attainment Year Point Source Emissions Inventory	
2.3 Area Sources	
2.3.1 2017 Base Year Area Source Emissions Inventory	
2.3.2 2026 Attainment Year Area Source Emissions Inventory	
2.4 Non-Road Mobile Sources	
2.4.1 NONROAD Model Categories	
2.4.1.1 2017 Base Year NONROAD Model Emissions Inventory	
2.4.1.2 2026 Attainment Year NONROAD Model Emissions Inventory	
2.4.2 Locomotives	
2.4.2.1 2017 Base Year Locomotive Emissions Inventory	
2.4.2.2 2026 Attainment Year Locomotive Emissions Inventory	
2.4.3 Airports	
2.4.3.1 2017 Base Year Airport Emissions Inventory	
2.4.3.2 2026 Attainment Year Airport Emissions Inventory	
2.5 On-Road Mobile Sources	

2.5.1	2017 Base Year On-Road Mobile Emissions Inventory
2.5.2	2026 Attainment Year On-Road Mobile Emissions Inventory
2.6	Emissions Inventory Improvement
2.7	Emissions Summaries
Chapter 3: Control Strategies and Required Elements	
3.1	Introduction
3.2	Permanent and Enforceable Measures
3.2.1	RACT and RACM Analysis
3.2.1.1	Alternate Means of Control (AMOC)
3.2.2	Enforceable Control Measures
3.3	Monitoring Network
3.4	Contingency Measures
3.4.1	Introduction
3.4.2	Contingency Plan
3.5	SIP Emissions Year for Emission Credit and Discrete Emission Credit Generation
3.6	Additional Federal Clean Air Act Requirements
3.6.1	Conformity Requirements
3.6.1.1	General Conformity
3.6.1.2	Transportation Conformity
3.6.2	Nonattainment New Source Review Certification Statement
Chapter 4: Attainment Demonstration Modeling	
4.1	Introduction
4.2	Sources Overview
4.2.1	Streetman plant Site
4.3	Summary of Attainment Demonstration Modeling
4.4	Modeling Scenarios and Results
4.4.1	Source Parameters
4.4.2	Modeling Scenarios
4.4.3	Modeling Results
4.5	Conclusion
4.6	References
Chapter 5: Reasonable Further Progress	
5.1	Introduction
5.2	RFP demonstration
5.3	Compliance Schedule

## LIST OF ACRONYMS

AEDT	Aviation Environmental Design Tool
AERR	Air Emissions Reporting Requirements
AMOC	alternate means of control
AMS	American Meteorological Society
AERMOD	American Meteorological Society/United States Environmental Protection Agency Regulatory Model
APU	auxiliary power unit
AQD	Air Quality Division
BPIPPRM	Building Profile Input Program for PRIME
CEMS	continuous emissions monitoring system
CFR	Code of Federal Regulations
DV	design value
EI	emissions inventory
EPA	United States Environmental Protection Agency
EPN	Emissions Point Number
ERG	Eastern Research Group
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FCAA	federal Clean Air Act
FMVCP	Federal Motor Vehicle Control Program
Ft/s	feet per second
FR	<i>Federal Register</i>
FSA	full system audit
GSE	ground support equipment
hr	hour
ICI	Industrial, Commercial, and Institutional
km	kilometers
lb	pound
m	meters
MMBtu	one million British Thermal Units
MSS	maintenance, startup, and shutdown
MOVES	Motor Vehicle Emission Simulator
NAAQS	National Ambient Air Quality Standard

NEI	National Emissions Inventory
NSR	New Source Review
ppb	parts per billion
RACM	reasonably available control measures
RACT	reasonably available control technology
RFP	reasonable further progress
RN	Regulated Entity Reference Number
RRC	Railroad Commission of Texas
s	second
SIP	state implementation plan
SO <sub>2</sub>	sulfur dioxide
STARS	State of Texas Air Reporting System
TAC	Texas Administrative Code
TACB	Texas Air Control Board
TCAA	Texas Clean Air Act
TCEQ	Texas Commission on Environmental Quality (commission)
TexN2.2	Texas NONROAD version 2.2
THSC	Texas Health and Safety Code
TNRCC	Texas Natural Resource Conservation Commission
tpy	tons per year
TSD	technical support document
TTI	Texas A&M Transportation Institute
TWC	Texas Water Code
TX	Texas
UTM	Universal Transverse Mercator

## **LIST OF TABLES**

Table 2-1:	Navarro County Nonattainment Area SO <sub>2</sub> Emissions in TPY
Table 4-1:	NSR Permit Number 5337 Requirements for EPN E3-1
Table 4-2:	Modeling Scenarios and EPN E3-1 Stack Parameters
Table 4-3:	Modeling Scenario Results

## **LIST OF FIGURES**

- Figure 4-1: Overview of the Navarro County Nonattainment Area
- Figure 4-2: Streetman Plant Site Overview
- Figure 4-3: Streetman Plant Site Close-Up
- Figure 4-4: Modeling Domain and Receptor Grid
- Figure 4-5: Innermost Receptor Grid
- Figure 4-6: Hypothetical Stack Locations for Modeling
- Figure 4-7: Scenario A Results Throughout the Nonattainment Area
- Figure 4-8: Scenario A Results Near the Streetman Plant
- Figure 4-9: Scenario B Results Throughout the Nonattainment Area
- Figure 4-10: Scenario B Results Near the Streetman Plant

## LIST OF APPENDICES

<u>Appendix</u>	<u>Appendix Name</u>
Appendix A	Stationary Point Source Sulfur Dioxide (SO <sub>2</sub> ) Emissions
Appendix B	Growth Factors for Area and Point Sources
Appendix C	Characterization of Oil and Gas Production Equipment and Develop a Methodology to Estimate Statewide Emissions
Appendix D	Industrial, Commercial, and Institutional (ICI) Fuel Use Study
Appendix E	TexN2.2 Updates for Compatibility with the US EPA MOVES3 Model
Appendix F	2020 Texas Statewide Locomotive and Rail Yard Emissions Inventory and 2011 through 2050 Trend Inventories
Appendix G	2020 Texas Statewide Airport Emissions Inventory and 2011 through 2050 Trend Inventories
Appendix H	MOVES3 On-road Inventory Development
Appendix I	Population Ratios for Non-Point Sources
Appendix J	Modeling Technical Support Document (TSD)

## CHAPTER 1: GENERAL

### 1.1 BACKGROUND

Information on the Texas State Implementation Plan (SIP) and a list of SIP revisions and other air quality plans adopted by the commission can be found on the [Texas State Implementation Plan](http://www.tceq.texas.gov/airquality/sip) webpage (<http://www.tceq.texas.gov/airquality/sip>) and on the [Texas Commission on Environmental Quality's](http://www.tceq.texas.gov/) (TCEQ) website (<http://www.tceq.texas.gov/>).

### 1.2 HISTORY OF THE NAVARRO COUNTY 2010 SULFUR DIOXIDE NATIONAL AMBIENT AIR QUALITY STANDARD NONATTAINMENT AREA

On June 22, 2010, the United States Environmental Protection Agency (EPA) revised the sulfur dioxide (SO<sub>2</sub>) National Ambient Air Quality Standards (NAAQS), adding a 75 parts per billion one-hour primary standard (75 *Federal Register* (FR) 35520). On June 2, 2011, Texas submitted a letter to the EPA recommending designations for all Texas counties, including an unclassifiable designation for Navarro County. An updated recommendation submitted to the EPA on April 20, 2012, did not change the state's initial recommendation for Navarro County.

On July 27, 2012, the EPA extended its deadline for area designations for the 2010 primary SO<sub>2</sub> standard for one year due to having insufficient information to make initial area designations at that time but intending to complete initial designations by June 3, 2013. On August 5, 2013, the EPA designated parts of 16 states as nonattainment for the 2010 SO<sub>2</sub> standard, effective October 4, 2013 (78 FR 47191). These were 29 areas that had monitored data indicating violations of the 2010 SO<sub>2</sub> NAAQS within the period from 2009 through 2011. The EPA was not prepared to issue designations for any remaining areas, so no areas of Texas were designated in Round 1 of the EPA's 2010 SO<sub>2</sub> standard designations.

The EPA's Data Requirements Rule (DRR) for the 2010 SO<sub>2</sub> NAAQS required that for areas to be characterized by monitoring for Round 4 designations, all source-oriented monitors used to inform designations were to be installed and operating by January 1, 2017. The TCEQ deployed an SO<sub>2</sub> monitor at the Richland Southeast 1220 Road site (air quality system number 483491081) on November 16, 2016, in Navarro County.

The EPA published final Round 4 designations on March 26, 2021, effective April 30, 2021 (86 FR 16055). These designations were based primarily on ambient monitoring data, including data from monitors installed pursuant to the DRR and in accordance with the EPA's September 5, 2019, memorandum to Regional Air Directors, *Area Designations for the 2010 Primary Sulfur Dioxide National Ambient Air Quality Standard - Round 4*.<sup>1</sup> Specifically defined portions of Howard, Hutchinson, and Navarro Counties were designated nonattainment, and Texas is required to submit attainment demonstrations for all three of these partial-county nonattainment areas to the EPA by October 30, 2022.

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<sup>1</sup> [https://www.epa.gov/sites/default/files/2019-09/documents/round\\_4\\_so2\\_designations\\_memo\\_09-05-2019\\_final.pdf](https://www.epa.gov/sites/default/files/2019-09/documents/round_4_so2_designations_memo_09-05-2019_final.pdf)

This Navarro County SO<sub>2</sub> attainment demonstration, in accordance with FCAA, §172 general requirements and FCAA, §191 and §192 specific requirements, includes a comprehensive inventory of current SO<sub>2</sub> emissions; identification of existing federal and state controls; evaluation and provision for implementing all reasonably available control measures and reasonably available control technology; air quality dispersion modeling and analysis to evaluate projected air quality improvements from existing and new controls; a reasonable further progress (RFP) demonstration; contingency measures that would be implemented to achieve additional emissions reductions if the area fails to attain the NAAQS or make RFP by the deadline; and the state's certification that current regulations provide the means to satisfy nonattainment New Source Review requirements for the Navarro County 2010 SO<sub>2</sub> nonattainment area.

This SIP revision for Navarro County is adopted concurrent with attainment demonstration SIP revisions for the Howard County (Non-Rule Project No. 2021-010-SIP-NR) and Hutchinson County (Non-Rule Project No. 2021-011-SIP-NR) 2010 SO<sub>2</sub> NAAQS nonattainment areas and associated 30 Texas Administrative Code Chapter 112 rules (Rule Project No. 2021-035-112-AI) to provide the control strategy applicable for each nonattainment area.

### **1.3 PUBLIC HEARING AND COMMENT INFORMATION**

The public comment period opened on April 15, 2022 and closed on June 2, 2022. Notice of public hearings regarding this and two concurrently proposed SO<sub>2</sub> attainment demonstration SIP revisions and associated proposed Chapter 112 rulemaking was published in the *Texas Register* on April 29, 2022. An abbreviated notice of the hearing scheduled specifically for this SIP and the rulemaking was published in the *Dallas Morning News* and the *Corsicana Daily Sun*. The commission offered that public hearing on May 23, 2022, at 6:00 p.m. at the Cook Education Center at Navarro College in Corsicana, Texas. TCEQ staff were present and ready to open the hearing; however, no persons registered to provide comment on record. Therefore, the public hearing was not opened.

Written comments were accepted via mail, fax, or through the eComments (<https://www6.tceq.texas.gov/rules/comments/>) system. During the comment period, TCEQ received written comments regarding this proposed SIP revision and the associated rules. The comments regarding the SIP received from the EPA are summarized and addressed in the Response to Comments for this SIP revision. The comments received regarding proposed Chapter 112 rulemaking are summarized and addressed in the Response to Comments contained in the preamble to the adopted rules. This SIP revision reflects changes made in response to comments received on both the SIP and rulemaking proposals.

Submitted during the public comment period, Arcosa LWS, LLC (Arcosa) provided information regarding maintenance, startup, and shutdown (MSS) activities that occurred between January 2019 and July 2022. TCEQ used these records to support and confirm emissions estimates in order to address an EPA concern raised in a comment about potential SO<sub>2</sub> emissions from MSS activities. Arcosa also committed to install a CEMS that will continue to operate during MSS activities for monitoring emissions and stack parameters.

#### **1.4 HEALTH EFFECTS**

Current scientific evidence links short-term exposures to SO<sub>2</sub>, ranging from five minutes to 24 hours, with an array of adverse respiratory effects including bronchoconstriction and increased asthma symptoms (75 FR 35520). These effects are particularly important for people with asthma at elevated ventilation rates (e.g., while exercising or playing) and other at-risk populations including children and elderly people.

Sulfur oxides such as SO<sub>2</sub> can react with other compounds in the atmosphere to form small particles. These particles have the potential to penetrate deeply into sensitive parts of the lungs, and at high levels, can contribute to respiratory disease, such as emphysema and bronchitis. They may aggravate existing heart disease, leading to increased hospital admissions and possibly premature death (75 FR 35520). However, the health effects associated with current ambient levels of particulate matter are less clear. Although some observational epidemiology studies have reported statistical associations between such health effects and ambient particulate matter, a clear mechanism of action has yet to be identified. Furthermore, these reported effects vary widely with geographical location as well as with size and composition of the particulate matter (EPA/600/R-08/139F sections 2.1.1 and 2.2.2).

#### **1.5 STAKEHOLDER PARTICIPATION**

The TCEQ and representatives of Arcosa, owners of the Arcosa Lightweight Streetman plant (Streetman Plant), held regular meetings during the development of this SIP revision to discuss modeling, control strategies, contingency measures, and development of the Chapter 112, Subchapter G rules. The TCEQ, representatives of Streetman Plant, and the EPA also held meetings to discuss modeling details.

#### **1.6 SOCIAL AND ECONOMIC CONSIDERATIONS**

No significant fiscal implications are anticipated for the TCEQ or other units of state or local governments from administration or enforcement of the associated rules. Because the Streetman Plant is the only significant SO<sub>2</sub> point source within the nonattainment area, all controls to reach attainment will be borne by this emission source. As such, any economic impacts will be limited to the single SO<sub>2</sub> source associated with this SIP revision. The associated rules are expected to have a significant fiscal impact on Streetman Plant. The citizens living within the nonattainment area will benefit from reduced SO<sub>2</sub> emissions.

#### **1.7 FISCAL AND MANPOWER RESOURCES**

The TCEQ determined that its fiscal and manpower resources are adequate and will not be adversely affected through the implementation of this plan.

## CHAPTER 2: ANTHROPOGENIC EMISSIONS INVENTORIES

### 2.1 INTRODUCTION

The federal Clean Air Act (FCAA) requires attainment demonstration emissions inventories (EI) be prepared from all sources within a planning area (57 *Federal Register* (FR) 13498, April 16, 1992). The EI must be a comprehensive, accurate, and current inventory of actual emissions for all sources in the nonattainment area plus any sources located outside the nonattainment area that may affect attainment.

The Texas Commission on Environmental Quality (TCEQ) maintains an inventory of current information for sources of sulfur dioxide (SO<sub>2</sub>) emissions that identifies the types of emissions sources present in an area, the amount of each pollutant emitted, and the types of processes and control devices employed at each facility or source category. The total anthropogenic inventory of SO<sub>2</sub> emissions for an area is derived from estimates developed for three general categories of emissions sources: point, area, and mobile (both non-road and on-road). All inventories are developed in accordance with the Environmental Protection Agency's Air Emissions Reporting Requirements (AERR) (40 Code of Federal Regulations (CFR) Part 51, Subpart A).

This chapter discusses general EI and attainment year emissions development for each of the anthropogenic source categories. Chapter 4: *Attainment Demonstration Modeling* details specific EIs and emissions inputs developed for the Navarro County 2010 SO<sub>2</sub> National Ambient Air Quality Standard (NAAQS) nonattainment area dispersion modeling.

The most current periodic EI data were analyzed as part of this state implementation plan (SIP) revision. The TCEQ chose 2017 as the base year for the analyses presented in this chapter because it was the most recent periodic inventory year available for all source categories to develop an EI for this SIP revision. Details on the projection methods to forecast 2017 base year emissions to the 2026 attainment year for all source categories are documented in this chapter.

### 2.2 POINT SOURCES

Stationary point source data are collected annually from sites that meet the reporting requirements of 30 Texas Administrative Code (TAC) §101.10. The TCEQ provides detailed reporting instructions and tools for completing and submitting an EI. Companies submit EI data using a Web-based system called the Annual Emissions Inventory Report System. Companies are required to report emissions data and to provide sample calculations used to determine the emissions. Information characterizing the process equipment, the abatement units, and the emission points is also required. As required by FCAA, §182(a)(3)(B) and the United States Environmental Protection Agency (EPA) guidance, a company representative certifies that reported emissions are true, accurate, and fully represent emissions that occurred during the calendar year to the best of the representative's knowledge.

All data submitted in the EI are reviewed for quality assurance purposes and then stored in the State of Texas Air Reporting System (STARS) database. The TCEQ's [Point Source Emissions Inventory](https://www.tceq.texas.gov/airquality/point-source-ei/psei.html) webpage (<https://www.tceq.texas.gov/airquality/point-source-ei/psei.html>) contains guidance documents and historical point source

emissions data. Additional information is available upon request from the TCEQ's Air Quality Division.

The Arcosa Lightweight Streetman plant (Streetman Plant) owned by Arcosa LWS, LLC (Arcosa) (Regulated Entity Reference Number [RN] RN100211283), a lightweight aggregate production facility, is the only SO<sub>2</sub> point source site located in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area. The Streetman Plant emits over 99% of the SO<sub>2</sub> emissions in the nonattainment area.

### **2.2.1 2017 Base Year Point Source Emissions Inventory**

The TCEQ extracted the 2017 point source inventory data from STARS on December 8, 2021. The extracted data include reported annual (routine) emissions of SO<sub>2</sub> in tons per year (tpy) for the Streetman Plant located in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area. The 2017 base year point source SO<sub>2</sub> EI is summarized in Table 2-1: *Navarro County Nonattainment Area SO<sub>2</sub> Emissions*.

### **2.2.2 2026 Attainment Year Point Source Emissions Inventory**

With this SIP revision and the associated 30 TAC Chapter 112, Subchapter G rules (Rule Project No. 2021-035-112-AI), the Streetman Plant is subject to TCEQ SO<sub>2</sub> emissions regulations implemented to reduce emissions from its SO<sub>2</sub> emissions source, a lightweight aggregate kiln.

The lightweight aggregate kiln's 2026 forecasted controlled actual emissions were projected based on the hourly emissions limit set by requirements in the rulemaking. This emissions limit was conservatively used to forecast the 2026 annual emissions assuming a full calendar year (8,760 hours) of operation.

The 2026 forecasted actual controlled emissions based on the emission limit set by rule requirements are lower than the historical 2017 through 2020 annual point source inventory SO<sub>2</sub> emissions that the TCEQ extracted from STARS on December 8, 2021.

Appendix A: *Stationary Point Source Sulfur Dioxide (SO<sub>2</sub>) Emissions* provides details on the 2017 point source base year SO<sub>2</sub> emissions, 2018 through 2020 point source SO<sub>2</sub> emissions, and the 2026 projected point source SO<sub>2</sub> emissions.

The 2026 attainment year point source SO<sub>2</sub> EI is summarized in Table 2-1.

## **2.3 AREA SOURCES**

Stationary emissions sources that do not meet the reporting requirements for point sources are classified as area sources. Area sources are small-scale stationary industrial, commercial, and residential sources that use materials or perform processes that generate emissions. Examples of typical SO<sub>2</sub> emissions sources include upstream oil and gas engines and heaters, stationary source fossil fuel combustion at residences and businesses, outdoor refuse burning, and agricultural crop burning.

EPA rules and guidance require area source emissions to be calculated as county-wide totals rather than as individual sources. Area source emissions are typically calculated by multiplying an EPA- or TCEQ-developed emissions factor (emissions per unit of activity) by the appropriate activity or activity surrogate responsible for generating

emissions. Population is one of the more commonly used activity surrogates for area source calculations. Other activity data that are commonly used include the amount of gasoline sold in an area, employment by industry type, and crude oil and natural gas production.

The emissions data for each of the area source categories are developed, quality assured, stored in the Texas Air Emissions Repository database system, and compiled to develop the statewide area source EI.

### **2.3.1 2017 Base Year Area Source Emissions Inventory**

The 2017 area source EIs were developed using EPA-generated EIs; TCEQ-contracted projects to develop EIs; TCEQ staff projects to develop EIs; and projecting 2014 EIs by applying growth factors derived from Eastern Research Group (ERG) study data, the [Economy and Consumer Credit Analytics](http://www.economy.com/default.asp) website (<http://www.economy.com/default.asp>), and the United States Energy Information Administration's *Annual Energy Outlook* publication. The documentation for the development of the ERG study projection factors is provided in Appendix B: *Growth Factors for Area and Point Sources*.

The EPA developed EIs for states to use for many area source categories as part of the National Emissions Inventory (NEI). The states access these individual EIs through the [EPA's NEI](https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data) website (<https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data>). These source categories include but are not limited to industrial coatings; degreasing; residential, commercial/institutional, and industrial fuel use; commercial cooking; aviation fuel use; and consumer products. For some source categories, the TCEQ developed state-specific emissions estimates by acquiring current state-specific activity data and applying appropriate emissions factors. These source categories include but are not limited to gasoline storage tanks, structure fires, dry cleaners, and automobile fires.

The TCEQ committed significant resources to improve the oil and gas area source inventory categories for the 2017 base year EI. The improvements included the development and refinement of a state-specific oil and gas area source emissions calculator. This oil and gas area source emissions calculator uses county-level production and local equipment activity data with local emissions requirements to estimate emissions from individual production categories including compressor engines, condensate and oil storage tanks, loading operations, heaters, and dehydrators. The documentation for the development of the oil and gas emissions calculator is provided in Appendix C: *Characterization of Oil and Gas Production Equipment and Develop a Methodology to Estimate Statewide Emissions*.

Another significant improvement made for the 2017 base year EI was the development of a Texas-specific industrial, commercial, and institutional (ICI) combustion emissions calculator. This improved upon the default calculations and parameters provided by the EPA for these fuel combustion sources. The documentation for the development of the ICI combustion emissions calculator is provided in Appendix D: *Industrial, Commercial, and Institutional (ICI) Fuel Use Study*.

Quality assurance of area source emissions involves ensuring that the activity data used for each category are current and valid. Data such as current population figures,

fuel usage, and material usage were updated and the EPA guidance on emissions factors was used. Other routine efforts were also implemented, such as checking calculations for errors and conducting reasonableness and completeness checks.

The 2017 base year area source SO<sub>2</sub> EI is summarized in Table 2-1.

### **2.3.2 2026 Attainment Year Area Source Emissions Inventory**

Since 2017 was the most recently available periodic EI year, the TCEQ designated the 2017 EI as the starting point for the 2026 attainment year EI projections of all area source categories except oil and gas sources. Since more recent activity data are available for oil and gas sources, the area source oil and gas EI was updated using Railroad Commission of Texas 2020 production data. These newer data reflect growth that has occurred since the 2017 base year and are more representative of recent operations. This 2020 oil and gas area source EI was used as the projection base year for the 2026 attainment year EI.

The updated 2026 attainment year EI for the area source categories were developed using projection factors derived from Appendix B. The study in this appendix contains individual projection factors for each source category and for each forecasting year. This projection method is the EPA standard and accepted methodology for developing future-year EIs.

The 2026 area source EI was developed by applying the selected emissions projection factor to the 2017 emissions for each area source category except oil and gas source categories; the 2026 area source EI for oil and gas source categories was developed by applying the selected emissions projection factor to the 2020 emissions. No controls were incorporated into the area source attainment year inventories.

The 2026 attainment year area source SO<sub>2</sub> EI is summarized in Table 2-1.

## **2.4 NON-ROAD MOBILE SOURCES**

Non-road vehicles do not normally operate on roads or highways and are often referred to as off-road or off-highway vehicles. Non-road emissions sources include agricultural equipment, commercial and industrial equipment, construction and mining equipment, lawn and garden equipment, aircraft and airport equipment, and locomotives.

For this SIP revision, EIs for non-road sources were developed for the following subcategories: NONROAD model categories, airports, and locomotives. The airport subcategory includes estimates for total emissions from the aircraft, auxiliary power units (APU), and ground support equipment (GSE) subcategories added together and presented as a total. The following sections describe the emissions estimation methods used for the non-road mobile source subcategories.

The 2017 base year and 2026 attainment year non-road mobile source SO<sub>2</sub> EIs are summarized in Table 2-1.

### **2.4.1 NONROAD Model Categories**

The Motor Vehicle Emission Simulator 3 (MOVES3) model is the EPA's latest mobile source emissions model for estimating non-road source category emissions. The TCEQ used the most recent Texas-specific utility for the non-road mobile component of the MOVES3 model, called Texas NONROAD version 2.2 (TexN2.2), to calculate emissions from all non-road mobile source equipment and recreational vehicles, except for airports and locomotives.

Because emissions for airports and locomotives are not included in either the MOVES3 model or the TexN2.2 utility, the emissions for these categories are estimated using other EPA-approved methods and guidance.

The TCEQ conducted equipment survey studies that focused on various equipment categories operating in different areas of Texas, including diesel construction equipment, liquid propane gas-powered forklifts, and agricultural equipment. The resulting survey data contributed to input updates to the TexN utility to estimate non-road emissions more accurately for the State of Texas instead of using the national default values in the EPA's MOVES model.

The TexN2 utility was recently updated to be compatible with the MOVES3 model. In addition, enhancements were added to the utility to streamline the way TexN2 handles alternative equipment scrappage curves and generates county databases for submittal for the AERR and NEI. The resulting new TexN2 utility is called TexN2.2. More information regarding the updates and development for the TexN2.2 utility is provided in the ERG report in Appendix E: *TexN2.2 Updates for Compatibility with the US EPA MOVES3 Model*.

#### **2.4.1.1 2017 Base Year NONROAD Model Emissions Inventory**

TCEQ staff developed the 2017 base year non-road model category SO<sub>2</sub> emissions for this SIP revision using the TexN2.2 utility set for fully controlled run scenarios that used 2017 meteorological input data.

#### **2.4.1.2 2026 Attainment Year NONROAD Model Emissions Inventory**

TCEQ staff developed the 2026 attainment year non-road model category SO<sub>2</sub> emissions for this SIP revision using the TexN2.2 utility set for fully controlled run scenarios that used 2017 meteorological input data.

### **2.4.2 Locomotives**

The locomotive EIs were developed from a TCEQ-commissioned study using EPA-accepted EI development methods. The locomotive EIs include line haul and yard emissions activity data from all Class I and III locomotive activity and emissions by rail segment (currently, there are no Class II operators in Texas). The method and procedures used to develop the locomotive EIs for this SIP revision are detailed in the Texas A&M Transportation Institute (TTI) report in Appendix F: *2020 Texas Statewide Locomotive and Rail Yard Emissions Inventory and 2011 through 2050 Trend Inventories*.

#### 2.4.2.1 2017 Base Year Locomotive Emissions Inventory

The 2017 base year locomotive SO<sub>2</sub> emissions for this SIP revision were taken from the 2017 trend EI developed as part of the TTI report in Appendix F.

#### 2.4.2.2 2026 Attainment Year Locomotive Emissions Inventory

The 2026 attainment year locomotive SO<sub>2</sub> emissions for this SIP revision were taken from the 2026 trend EI developed as part of the TTI report in Appendix F.

### **2.4.3 Airports**

The airport EIs were developed from a TCEQ-commissioned study using the Federal Aviation Administration (FAA) Aviation Environmental Design Tool (AEDT). The AEDT is the most recent FAA model for estimating airport emissions and replaced the FAA's Emissions and Dispersion Modeling System. The airport emissions categories used for this SIP revision included aircraft (commercial air carriers, air taxis, general aviation, and military), APU, and GSE operations.

The method and procedures used to develop the airport EIs for this SIP revision are provided in the TTI report in Appendix G: *2020 Texas Statewide Airport Emissions Inventory and 2011 through 2050 Trend Inventories*.

#### 2.4.3.1 2017 Base Year Airport Emissions Inventory

The 2017 base year airport SO<sub>2</sub> emissions for this SIP revision were taken from the 2017 statewide airport trend EI developed as part of the ERG report in Appendix G.

#### 2.4.3.2 2026 Attainment Year Airport Emissions Inventory

The 2026 attainment year airport SO<sub>2</sub> emissions for this SIP revision were taken from the 2026 statewide airport trend EI developed as part of the ERG report in Appendix G.

### **2.5 ON-ROAD MOBILE SOURCES**

On-road mobile emissions sources consist of automobiles, trucks, motorcycles, and other motor vehicles traveling on public roadways as well as off-network emissions occurring outside public roadways. On-road mobile source SO<sub>2</sub> emissions are usually categorized as combustion-related emissions. Combustion-related emissions are estimated for vehicle engine exhaust. To calculate emissions, both the rate of emissions per unit of activity and the number of units of activity must be determined.

Updated on-road EIs for this SIP revision were developed using the inventory mode of the EPA's mobile source emissions model, MOVES3. During a MOVES3 inventory mode run, emissions rates are first calculated and then applied to user-provided activity levels or EPA MOVES default activity levels. The MOVES3 model may be run using national default information or the default information may be modified to simulate specific data, such as the control programs, driving behavior, meteorological conditions, and vehicle characteristics. Modifications to the national default values influence the emissions factors calculated internally by the MOVES3 model; therefore, parameters that are used in TCEQ EI development reflect local conditions to the extent that local values are available.

### **2.5.1 2017 Base Year On-Road Mobile Emissions Inventory**

TCEQ staff developed the 2017 base year on-road mobile source category SO<sub>2</sub> emissions for this SIP revision using the MOVES3 model. Values that reflect local conditions as well as local activity levels were used when available. Detailed information on the inputs and data sources used in the on-road EI development are provided in Appendix H: *MOVES3 On-road Inventory Development*.

The Federal Motor Vehicle Control Program (FMVCP) provides on-going emissions reductions from mobile sources. The FMVCP includes vehicle emission certification standards as well as corresponding limits on fuel sulfur content. The limits on sulfur content for diesel and gasoline fuels contribute to reduced SO<sub>2</sub> emissions from mobile sources.

The 2017 base year on-road mobile source SO<sub>2</sub> EI is summarized in Table 2-1.

### **2.5.2 2026 Attainment Year On-Road Mobile Emissions Inventory**

TCEQ staff developed the 2026 attainment year on-road mobile source category SO<sub>2</sub> emissions for this SIP revision using the MOVES3 model. Values reflect local conditions as well as local activity levels when available, excluding meteorology and fuel inputs, which were held constant at 2017 levels. For more detailed information on the inputs and data sources used in the on-road EI development, see Appendix H.

The 2026 attainment year on-road mobile source SO<sub>2</sub> EI is summarized in Table 2-1.

## **2.6 EMISSIONS INVENTORY IMPROVEMENT**

The TCEQ EI reflects years of emissions data improvement, including extensive point and area source inventory reconciliation with ambient emissions monitoring data. Reports detailing recent TCEQ EI improvement projects are provided at the TCEQ's [Air Quality Research and Contract Projects](https://www.tceq.texas.gov/airquality/airmod/project/pj.html) webpage (<https://www.tceq.texas.gov/airquality/airmod/project/pj.html>).

## **2.7 EMISSIONS SUMMARIES**

The 2017 base year and 2026 attainment year Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area SO<sub>2</sub> emissions for this SIP revision are summarized in Table 2-1. In this table, annual routine emissions for all source categories are provided in tpy. These emissions summaries demonstrate that the point source category contributes the largest portion (99.9%) of SO<sub>2</sub> emissions in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area.

The 2026 attainment year EI presented in this chapter is not the modeled EI. For more details on the modeled EI, please consult Chapter 4: *Attainment Demonstration Modeling*.

Per EPA EI rules and guidance, area, non-road mobile, and on-road mobile source emissions are typically calculated as county-wide totals for Navarro County. To obtain area, non-road mobile, and on-road mobile source emissions for the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area for this SIP revision, county-level emissions were ratioed based on the 2010 population located within the portions of the nonattainment boundaries for the area. Details of the population-based ratios applied to the county-

wide totals for the area, non-road mobile, and on-road mobile source categories are presented in Appendix I: *Population Ratios for Non-Point Sources*.

**Table 2-1: Navarro County Nonattainment Area SO<sub>2</sub> Emissions in TPY**

Source Category	2017 Base Year Reported Emissions	2026 Attainment Year Emissions
Point – Streetman Plant	3,493.10	972.36
Area – Non-Oil and Gas	0.46	0.79
Area – Oil and Gas	less than 0.01	less than 0.01
On-road Mobile	0.24	0.23
Non-road Mobile	0.05	0.05
Total	3,493.85	973.43

## CHAPTER 3: CONTROL STRATEGIES AND REQUIRED ELEMENTS

### 3.1 INTRODUCTION

On March 26, 2021, the United States Environmental Protection Agency (EPA) finalized a rule designating a portion of Navarro County as nonattainment for the 2010 sulfur dioxide (SO<sub>2</sub>) National Ambient Air Quality Standard (NAAQS), with an effective date of April 30, 2021 (86 *Federal Register (FR)* 16055). The SO<sub>2</sub> nonattainment area designated by the EPA includes the Arcosa Lightweight Streetman plant (Streetman Plant) owned by Arcosa LWS, LLC (Arcosa).<sup>2</sup> The Streetman Plant manufactures lightweight aggregate for use in various industrial applications, such as concrete and asphalt, and is the only site covered under this state implementation plan (SIP) revision. Federal Clean Air Act (FCAA), §172(c) establishes planning requirements for attainment demonstration SIP revisions for areas that do not meet the NAAQS for a criteria pollutant. This chapter describes how this SIP revision meets the statutory requirements under FCAA, §172(c)(1) for reasonably available control measures (RACM) including reasonably available control technology (RACT); under FCAA, §172(c)(6) for enforceable emissions limitations and control measures; under FCAA, §173(a) for a nonattainment New Source Review (NSR) permit program; and under FCAA, §172(c)(9) for an adequate contingency plan for the nonattainment area.

### 3.2 PERMANENT AND ENFORCEABLE MEASURES

The SIP revision describes a control strategy that consists of permanent, quantifiable, and enforceable emission reductions at the Streetman Plant necessary to demonstrate attainment of the 2010 SO<sub>2</sub> NAAQS. The emission rates and control measures must be accompanied by appropriate methods and conditions to determine compliance with the respective emission limit and must be quantifiable (i.e., a specific amount of emission reduction can be ascribed to the measures), fully enforceable (i.e., specifying clear, unambiguous and measurable requirements for which compliance can be practicably determined), replicable (i.e., the procedures for determining compliance are sufficiently specific and non-subjective so that two independent entities applying the procedures would obtain the same result), and accountable (i.e., source specific limits must be permanent and must reflect the assumptions used in the SIP demonstration). This SIP revision and the associated 30 Texas Administrative Code (TAC) Chapter 112, Subchapter G rules (Rule Project No. 2021-035-112-AI) provide the mechanism to make quantifiable SO<sub>2</sub> emission reductions, establish enforceable requirements for which compliance with the emission rates is determined in a replicable manner, and make permanent the emission rates established through the required SIP elements.

#### 3.2.1 RACT and RACM Analysis

FCAA, §172(c)(1) requires that nonattainment areas provide for the implementation of all RACM, including RACT, as expeditiously as practicable and provide for attainment of the NAAQS. The SIP must provide for attainment of the NAAQS based on SO<sub>2</sub> emission reductions from control measures that are permanent and enforceable. RACT is defined in 40 Code of Federal Regulations (CFR) §51.100(o) as devices, systems, process modifications, or other apparatus or techniques that are reasonably available

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<sup>2</sup> Although referenced in various and sometimes shortened forms in the proposals of this SIP revision and the associated rules, at adoption the commission has revised all references to consistently refer to the site and its owners in the Navarro County nonattainment area.

taking into account what is necessary to attain and maintain the NAAQS while considering the social environmental, and economic impact of such controls. The EPA's *Guidance for 1-Hour SO<sub>2</sub> Nonattainment Area SIP Submissions* (2014 SO<sub>2</sub> SIP guidance) maintains previous EPA guidance regarding the definition of RACT.<sup>3</sup> The 2014 SO<sub>2</sub> SIP guidance also provides that states should consider all RACM, including RACT, that can be implemented in light of the attainment needs of the affected area.

The Streetman Plant is the only site contributing to nonattainment in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area and contains the only source for which RACM, including RACT, is required to be applied under FCAA §172(c)(1). Arcosa will implement RACM, including RACT, through compliance with an SO<sub>2</sub> emissions limit of 222 pounds per hour (lb/hr) for the lightweight aggregate kiln and any associated control device. Arcosa has not yet determined what control measures to implement to attain and maintain the 2010 SO<sub>2</sub> NAAQS, and based on air dispersion modeling of the source, the associated 30 TAC Chapter 112, Subchapter G rules require minimum operating limits on stack parameters such as velocity, temperature, and height to ensure that the emission limit of 222 lb/hr will result in attainment and maintenance of the 2010 SO<sub>2</sub> NAAQS. Stack height, stack temperature, and exhaust velocity impact the attainment demonstration because they affect the dispersion of SO<sub>2</sub> emissions from the stack. To ensure sufficient dispersion and modeled attainment of the affected area, the associated rules require that the minimum stack velocity be 42.5 feet per second and that the minimum stack temperature be 117 degrees Fahrenheit. In addition, stack parameter requirements including location, height, and diameter are established to ensure consistency with modeled parameters that demonstrate compliance with the NAAQS.

In addition to the emissions limit on SO<sub>2</sub>, the associated rules contain the other enforceable measures necessary for the affected area to attain and maintain the NAAQS, including monitoring requirements, testing requirements, and recordkeeping and reporting requirements.

#### 3.2.1.1 Alternate Means of Control (AMOC)

An option for owners or operators to request an alternative alternate means of control (AMOC) is provided and based on the same procedural requirements in the SIP-approved 30 TAC Chapter 115 AMOC rules (30 TAC §§ 115.910 – 115.916). In approving these rules in 1997, the EPA stated that the AMOC provisions meet the FCAA requirements of the federal CAA by requiring “greater emission reductions for alternate control methods ... a public comment period and ... EPA approval/disapproval.”<sup>4</sup>

#### **3.2.2 Enforceable Control Measures**

The control measures needed to meet the final SO<sub>2</sub> emissions limits and demonstrate attainment for the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area are made

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<sup>3</sup> EPA, April 23, 2014. [Guidance for 1-Hour SO<sub>2</sub> Nonattainment Area SIP Submissions](https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf) (https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance\_nonattainment\_sip.pdf).

<sup>4</sup> See Clean Air Act Limited Approval of Volatile Organic Compound (VOC) Control Measure for Texas, 62 Fed. Reg. 27964, 27965 (May 22, 1997).

enforceable by the associated 30 TAC Chapter 112, Subchapter G rules, which include the control measures and implementation schedules for attainment, and the contingency measures to be triggered in the event of failure to attain the 2010 SO<sub>2</sub> NAAQS or failure to make reasonable further progress (RFP). The SO<sub>2</sub> rules also make enforceable the appropriate SO<sub>2</sub> emissions monitoring, testing, recordkeeping, and reporting requirements necessary to determine compliance with the final SO<sub>2</sub> emissions limits to ensure enforceability of the final SO<sub>2</sub> emissions limits in lb/hr. The compliance date is designed to ensure that compliance is achieved as soon as practicable while acknowledging that achieving the date depends on site-specific constraints related to design, construction, and installation of equipment, as well as global supply chain issues. The compliance deadline of January 1, 2025 is as soon as practicable given the need for Arcosa to design, purchase, install, and test control and monitoring equipment.

### **3.3 MONITORING NETWORK**

The Texas Commission on Environmental Quality (TCEQ) ambient air quality monitoring network provides monitoring data to characterize air quality based on the 2010 SO<sub>2</sub> NAAQS. SO<sub>2</sub> monitors are managed in accordance with 40 CFR Part 58 to provide data to determine compliance or progress towards compliance with the 2010 SO<sub>2</sub> NAAQS. The SO<sub>2</sub> monitor site evaluation and selection process considers the SO<sub>2</sub> source's peak modeled impacts along with other monitor siting criteria, including power availability, site access, and 40 CFR Part 58, Appendix E siting criteria requirements.

In areas not previously designated under the 2010 SO<sub>2</sub> NAAQS, the TCEQ deployed SO<sub>2</sub> monitors near sources meeting specifications referenced in the EPA's SO<sub>2</sub> Data Requirements Rule (DRR). To meet the relevant requirement of the DRR, the TCEQ deployed an SO<sub>2</sub> monitor at the Richland Southeast 1220 Road site (air quality system number 483491081) on November 16, 2016, in Navarro County. A portion of Navarro County around the Streetman Plant was designated nonattainment, effective April 30, 2021 (86 FR 16055). The designation was based on three years of monitoring data that resulted in a design value exceeding the NAAQS.

The TCEQ commits to maintaining an air monitoring network that meets regulatory requirements. The TCEQ continues to work with the EPA through the air monitoring network review process, as required by 40 CFR Part 58, to determine: the adequacy of the federal air monitoring network, additional monitoring needs, and recommended monitor decommissions. Air monitoring data from the Richland Southeast 1220 Road SO<sub>2</sub> monitor are quality assured, reported, and certified according to 40 CFR Part 58.

### **3.4 CONTINGENCY MEASURES**

#### **3.4.1 Introduction**

FCAA, §172(c)(9) defines contingency measures as such measures in a SIP that are to be implemented in the event that an area fails to make RFP, or fails to attain the NAAQS, by the applicable attainment date. FCAA, §172(c)(9), further requires contingency measures to become effective without further action. According to the EPA's 2014 SO<sub>2</sub> SIP guidance, contingency measures should consist of other available control measures that are not made enforceable as the control strategy as part of the SIP. In the 2014 SO<sub>2</sub> SIP guidance, the EPA acknowledged that SO<sub>2</sub> presents special

considerations as a directly emitted pollutant. The EPA stated that control efficiencies are well understood for SO<sub>2</sub> control measures and are less uncertain than for other pollutants. Because the control strategy for an attainment demonstration SIP revision is based on the controls necessary through dispersion modeling to demonstrate the nonattainment area will attain the 2010 SO<sub>2</sub> NAAQS, it will be unlikely for the area to then fail to meet the NAAQS. As such, the EPA's 2014 SO<sub>2</sub> SIP guidance stated that a comprehensive program to identify sources causing a violation of the 2010 SO<sub>2</sub> NAAQS and undertake aggressive follow-up action for compliance and enforcement pending the adoption of a revised SIP is a valid contingency measure.

Required contingency measures, described in section 3.4.2: *Contingency Plan*, would be triggered upon the effective date of the EPA's final notice of failure to attain for the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area. Under FCAA, §172(c)(1), the EPA has six months following the attainment date to determine whether the area attained the standard. The EPA makes the determination of attainment based on available monitoring data, air dispersion modeling, and a demonstration that an enforceable control strategy incorporated in the SIP has been implemented. If the EPA determines that the affected nonattainment area failed to attain the 2010 SO<sub>2</sub> NAAQS or failed to make RFP, the contingency measures will be triggered.

### **3.4.2 Contingency Plan**

The TCEQ's comprehensive program to identify sources of violations of the 2010 SO<sub>2</sub> NAAQS is satisfied through the monitoring network discussed in Section 3.3 of this chapter, and follow-up for compliance and enforcement is satisfied through the TCEQ's enforcement programs authorized under the Texas Water Code (TWC) Chapter 7 and Texas Health and Safety Code (THSC) Chapter 382. See the Legal Authority (Section V-A) of this SIP revision for more information on the TCEQ's enforcement authority. Texas has the authority to issue orders pursuant to §382.024 and §382.025 of the Texas Clean Air Act (TCAA or the Act), THSC Chapter 382, and the FCAA, 42 United States Code, §§7401 et seq., for the purpose of supporting attainment and maintenance of the 2010 SO<sub>2</sub> NAAQS. Texas has the authority to promulgate rules according to THSC, §382.017 and TWC, §5.103. State administrative procedures require that rules are adopted no more than six months after notice of the proposal is published in the *Texas Register* (see Texas Government Code, §2001.027).

The only site in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area determined to have a significant impact on attainment of the 2010 SO<sub>2</sub> NAAQS is the Streetman Plant. The control strategy discussed in Section 3.2.4: *Enforceable Control Measures* of this chapter, is protective of and provides for attainment of the 2010 SO<sub>2</sub> NAAQS. The TCEQ's comprehensive program to identify sources of violations of the 2010 SO<sub>2</sub> NAAQS is satisfied through the monitoring network discussed in Section 3.3: *Monitoring Network* of this SIP revision, and follow-up for compliance and enforcement is satisfied through the TCEQ's enforcement programs authorized under the TWC Chapter 7 and THSC Chapter 382. See the Legal Authority (Section V-A) of this SIP narrative for the TCEQ's enforcement authority.

Upon the effective date of a determination by the EPA that the affected nonattainment area in Navarro County failed to attain the 2010 SO<sub>2</sub> NAAQS or failed to make RFP, pursuant to FCAA §179(c), 42 United States Code (U.S.C.), §7509(c), Arcosa will be notified by the TCEQ that a full system audit (FSA) is required of the source of SO<sub>2</sub> at

the Streetman Plant subject to the associated 30 TAC Chapter 112 rulemaking. Within 90 calendar days of the effective date of the EPA's determination of failure to attain the SO<sub>2</sub> NAAQS or failure to make RFP, Arcosa must submit the FSA, including recommended provisional SO<sub>2</sub> emission control strategies, to the TCEQ's Deputy Director of the Air Quality Division (AQD).

As part of the FSA, Arcosa will conduct a root cause analysis of the circumstances surrounding the cause of the determination of failure to attain. The root cause analysis will include:

- a review and consideration of, at a minimum, hourly mass emissions of SO<sub>2</sub> from the lightweight aggregate kiln, any associated control device, and associated stack parameters and sulfur content of the fuel(s) covered in the associated 30 TAC Chapter 112, Subchapter G rules;
- the meteorological conditions at the monitor, including the frequency distribution of wind direction temporally correlated with SO<sub>2</sub> readings greater than 75 parts per billion at the monitor for which the EPA's determination of failure to attain was made; and
- any exceptional event that may have occurred.

The site would also be required to conduct an FSA including a root cause analysis in the event of a failure to make RFP. The rule clarifies that meteorological information is only required if the determination is based on information from ambient monitoring. TCEQ AQD staff will analyze the FSA to verify and/or determine the cause of the failure to attain the 2010 SO<sub>2</sub> NAAQS. Any additional or adopted revised SO<sub>2</sub> control strategy required to achieve attainment be submitted as a SIP revision to the EPA including any necessary changes to the adopted Chapter 112 rules.

### **3.5 SIP EMISSIONS YEAR FOR EMISSION CREDIT AND DISCRETE EMISSION CREDIT GENERATION**

The Emissions Banking and Trading rules in 30 TAC §101.300 and §101.370 define SIP emissions for emission credit and discrete emission credit generation, respectively. There has been no previous attainment demonstration SIP revision applicable to Navarro County for the 2010 SO<sub>2</sub> NAAQS. Since this attainment demonstration SIP revision does not use a projection-base year inventory for SO<sub>2</sub> emissions, this SIP revision establishes 2017 as the SIP emissions year for all affected point sources in the nonattainment area, under 30 TAC §§101.300(30)(E) and 101.370(31)(E).

### **3.6 ADDITIONAL FEDERAL CLEAN AIR ACT REQUIREMENTS**

#### **3.6.1 Conformity Requirements**

Section 176(c) of the FCAA establishes that no federal institution may support or approve an action in a NAAQS nonattainment or maintenance area that does not conform to the approved SIP. According to FCAA, §176(c)(1)(B)(i-iii), federal actions may not "cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area." Requirements for complying with FCAA, §176(c) and conforming to the SIP fall under two categories, general conformity requirements (40

CFR Part 93, Subpart B) and transportation conformity requirements (40 CFR Part 93, Subpart A).

#### 3.6.1.1 General Conformity

General conformity regulations apply in all NAAQS nonattainment and maintenance areas (ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), SO<sub>2</sub>, and lead) for all federal actions except those related to transportation plans, programs, and projects developed, funded, or approved under Title 23 United States Code or the Federal Transit Act, namely transportation-related actions by the Federal Highway Administration or the Federal Transit Administration. Federal actions in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area became subject to general conformity requirements April 30, 2022, one year after the effective date of designation as nonattainment. Federal actions with SO<sub>2</sub> emissions that are expected to meet or exceed 100 tons per year (tpy) will be required to demonstrate general conformity according to the criteria and procedures established in 40 CFR Part 93, Subpart B. In consultation with federal agencies that are required to approve general conformity determinations for federal actions in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area, the TCEQ will ensure that those actions conform to the SIP according to the criteria established in 40 CFR §93.158.

#### 3.6.1.2 Transportation Conformity

Federal transportation conformity regulations are only applicable for the transportation-related NAAQS: ozone, CO, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, and certain precursor pollutants in applicable NAAQS nonattainment and maintenance areas (40 CFR §93.102(b)(1)). SO<sub>2</sub> is not considered a transportation-related NAAQS, and the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area is not subject to transportation conformity requirements.

Title 40 CFR §93.102(b)(2)(v) stipulates that transportation-related emissions of SO<sub>2</sub> in certain PM<sub>2.5</sub> nonattainment and maintenance areas may be considered significant enough to subject the areas to transportation conformity requirements for SO<sub>2</sub> as a precursor pollutant. The Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area has never been designated nonattainment for another NAAQS, including PM<sub>2.5</sub>, so only the SO<sub>2</sub> NAAQS is applicable. Based on the EPA's transportation conformity regulations, the Navarro 2010 SO<sub>2</sub> NAAQS nonattainment area has no transportation conformity obligations; therefore, this SIP revision does not include a motor vehicle emissions budget, and 30 TAC §114.270 is not applicable.

#### **3.6.2 Nonattainment New Source Review Certification Statement**

SO<sub>2</sub> nonattainment area SIP revisions must include provisions to require permits for the construction and operation of new or modified stationary sources. Major stationary sources in SO<sub>2</sub> nonattainment areas are those sources emitting at least 100 tpy of SO<sub>2</sub>. An NSR permitting program for nonattainment areas is required by FCAA, §172(c)(5) and §173, and further defined in 40 CFR 51, Subpart I (Review of New Sources and Modifications). Under these requirements, new major sources or major modifications at existing sources in an SO<sub>2</sub> nonattainment area must comply with the lowest achievable emissions rate and obtain sufficient emissions offsets. Nonattainment NSR permits for SO<sub>2</sub> authorize construction of new major sources or major modifications of

existing sources of SO<sub>2</sub> in an area that is designated nonattainment for the SO<sub>2</sub> NAAQS. The NSR offset ratio for SO<sub>2</sub> nonattainment areas is 1.00:1.

In response to changes made by the Texas Air Control Board (a predecessor agency to the TCEQ) to address requirements of the FCAA Amendments of 1990 as well as other changes, the EPA published its approval of Texas' nonattainment NSR regulation for SO<sub>2</sub> on September 27, 1995, effective November 27, 1995 (60 FR 49781). The TCEQ has determined that because the Texas SIP already includes 30 TAC §116.12 (Nonattainment and Prevention of Significant Deterioration Review Definitions), most recently approved by the EPA as published on November 10, 2014 (79 FR 66626), and 30 TAC §116.151 (New Major Source or Major Modification in Nonattainment Area Other Than Ozone), most recently approved by the EPA as published on October 25, 2012 (77 FR 65119), the nonattainment NSR SIP requirements are met for Texas for the 2010 SO<sub>2</sub> NAAQS for areas including the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area. Further, the TCEQ already certified that Texas has EPA-approved rules that cover nonattainment NSR requirements with the timely-submitted 2010 SO<sub>2</sub> NAAQS Infrastructure and Transport SIP Revision.

## CHAPTER 4: ATTAINMENT DEMONSTRATION MODELING

### 4.1 INTRODUCTION

This chapter describes the air quality dispersion modeling conducted in support of the Navarro County Attainment Demonstration State Implementation Plan (SIP) Revision for the 2010 Sulfur Dioxide (SO<sub>2</sub>) National Ambient Air Quality Standard (NAAQS). The United States Environmental Protection Agency's (EPA) *Guidance for 1-Hour SO<sub>2</sub> Nonattainment Area SIP Submissions* (EPA, 2014; SO<sub>2</sub> SIP guidance) requires air quality dispersion modeling to demonstrate attainment of the 2010 SO<sub>2</sub> NAAQS of 75 parts per billion (ppb) throughout the nonattainment area.

The modeling demonstration includes recommended and required elements for air quality dispersion modeling for SO<sub>2</sub> attainment demonstration SIP revisions as provided in 40 Code of Federal Regulations (CFR) Part 51, Appendix W (EPA, 2017) and the 2014 SO<sub>2</sub> SIP guidance.

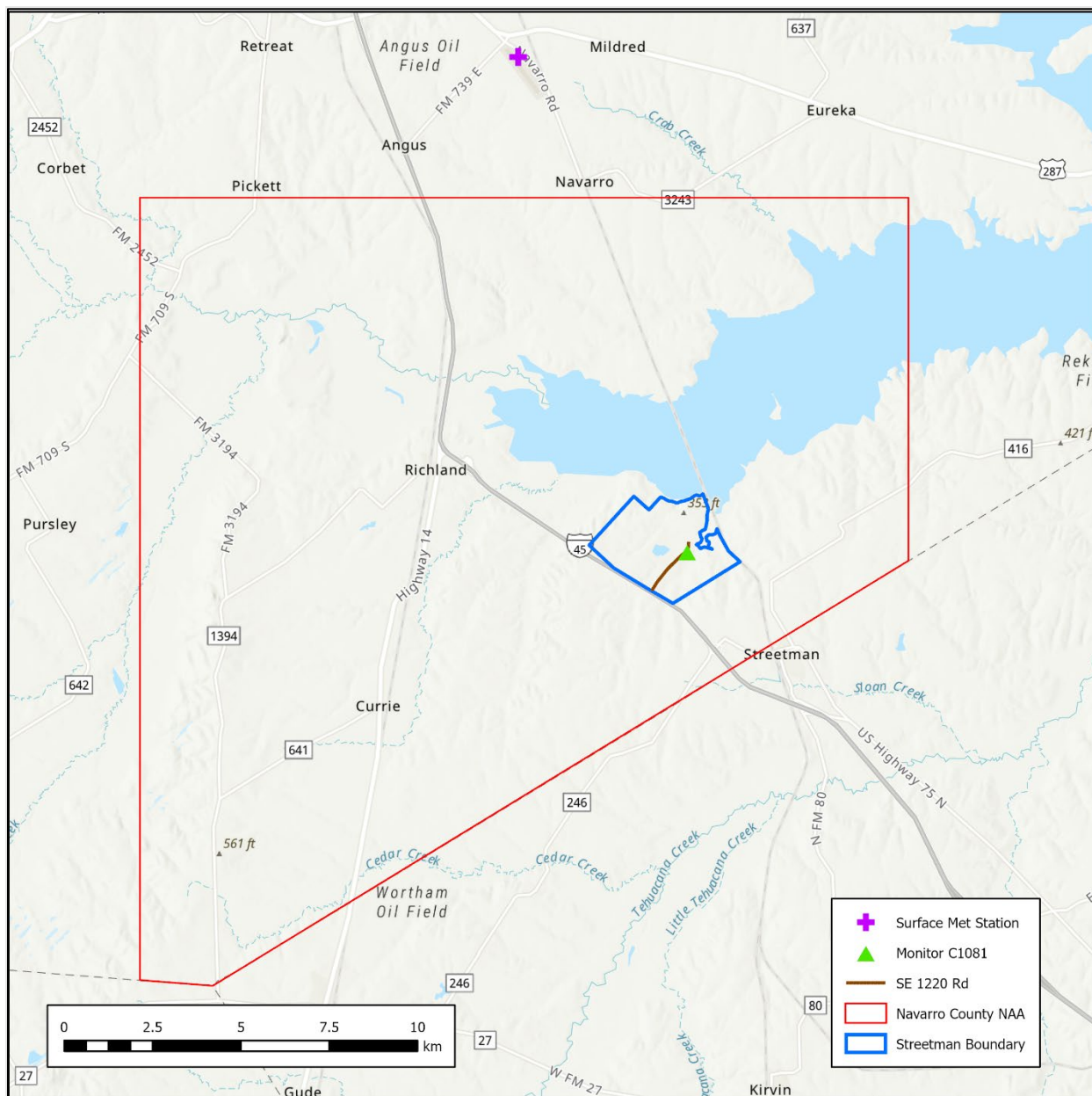
This chapter summarizes the attainment demonstration modeling and presents results demonstrating that the control measures described in Chapter 3: *Control Strategies and Required Elements* will be effective in achieving attainment of the 2010 SO<sub>2</sub> NAAQS. A detailed description of the various modeling elements can be found in Appendix J: *Modeling Technical Support Document (TSD)*.

### 4.2 SOURCES OVERVIEW

The Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area includes a portion of Navarro County as indicated by the red line in Figure 4-1: *Overview of the Navarro County Nonattainment Area*. The Arcosa Lightweight Streetman plant (Streetman Plant), owned by Arcosa LWS, LLC (Arcosa), is the only significant source of SO<sub>2</sub> emissions within the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area (property outlined with a blue line in Figure 4-1). A Data Requirements Rule-required monitor, the Richland Southeast 1220 Road monitor, or Continuous Ambient Monitoring Station 1081 (C1081) was sited near the Streetman Plant in November 2016 to monitor SO<sub>2</sub> concentrations near the site (shown as a green triangle in Figure 4-1). C1081 is located adjacent to a public county road - Southeast 1220 Road - which intersects the Streetman Plant property. The National Weather Service (NWS) monitor that has been used for surface meteorological data, the Corsicana Campbell Field station at the Corsicana Municipal Airport, is marked on Figure 4-1 as a purple plus-sign.

Besides the Streetman Plant, Guardian Industries (Guardian) is the only other site with SO<sub>2</sub> emissions greater than 100 tons per year within 50 kilometers (km) of C1081. Guardian is located approximately 18 km north-northwest of the Streetman Plant and approximately 7 km north of the nonattainment area. Due to Guardian's distance from the Streetman Plant and its highly localized concentration gradient, as demonstrated in the Texas Commission on Environmental Quality's (TCEQ) SO<sub>2</sub> nonattainment area designation modeling (TCEQ, 2020), Guardian is not expected to significantly impact concentrations within the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area. Therefore, Guardian was accounted for in modeling in the background concentration and was not explicitly modeled for this demonstration (see Appendix J, Section 4.1: *Guardian Industries* for more details).

Impacts of other sources of SO<sub>2</sub> affecting the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area that are not explicitly modeled, such as emissions from mobile sources or area sources outside of a specific site, are represented in the model as a background concentration. A representative background concentration of 6 ppb was used based on data from the Midlothian Old Fort Worth monitor (C52) in Ellis County, Texas (see Appendix J, Section 4.2: *Background Concentration* for details).



**Figure 4-1: Overview of the Navarro County Nonattainment Area**

#### 4.2.1 Streetman plant Site

The Streetman Plant site is shown in Figure 4-2: *Streetman Plant Site Overview* and in Figure 4-3: *Streetman Plant Site Close-Up*, with the property boundary outlined in blue

and buildings outlined in red. There is a single emissions source of SO<sub>2</sub> at the Streetman Plant: a kiln stack for a lightweight aggregate kiln, Emission Point Number (EPN) E3-1, indicated in Figures 4-2 and 4-3 as a pink pin marker. In compliance with this SIP revision, Arcosa will replace the current EPN E3-1 with a new kiln scrubber stack to be built within the rectangular region specified in Chapter 3, as shown by the yellow rectangle in Figures 4-2 and 4-3. Section 4.5.1: *Source Parameters and Modeling Scenarios* provides more details concerning EPN E3-1.

Also shown in Figure 4-2 is the nonambient air boundary, marked with an orange dashed line, which denotes the section of the Streetman Plant property that the TCEQ considered as nonambient for this attainment demonstration SIP revision. Per the 2014 SO<sub>2</sub> SIP guidance, modeling for SO<sub>2</sub> attainment demonstrations must evaluate SO<sub>2</sub> concentrations across all areas within the nonattainment area “that are considered ambient air (i.e., where the public generally has access).” The EPA’s ambient air policy allows for the “atmosphere over land owned or controlled by the stationary source” to be excluded from ambient air given that measures are in place to restrict access to the land from the general public (EPA, 2019). Due to agricultural leasing on portions of the Streetman Plant property, only areas that are not leased and can be made inaccessible to the public were considered nonambient for this demonstration. Arcosa provided the TCEQ and the EPA’s Region 6 office with documentation of measures to restrict public access to the marked area that are either currently in place or will be put in place, including fencing, guarded gates, signage, and security patrols. The sections of Arcosa’s property that are not leased and have documented access restrictions were not considered ambient air for this attainment demonstration SIP revision.



Figure 4-2: Streetman Plant Site Overview

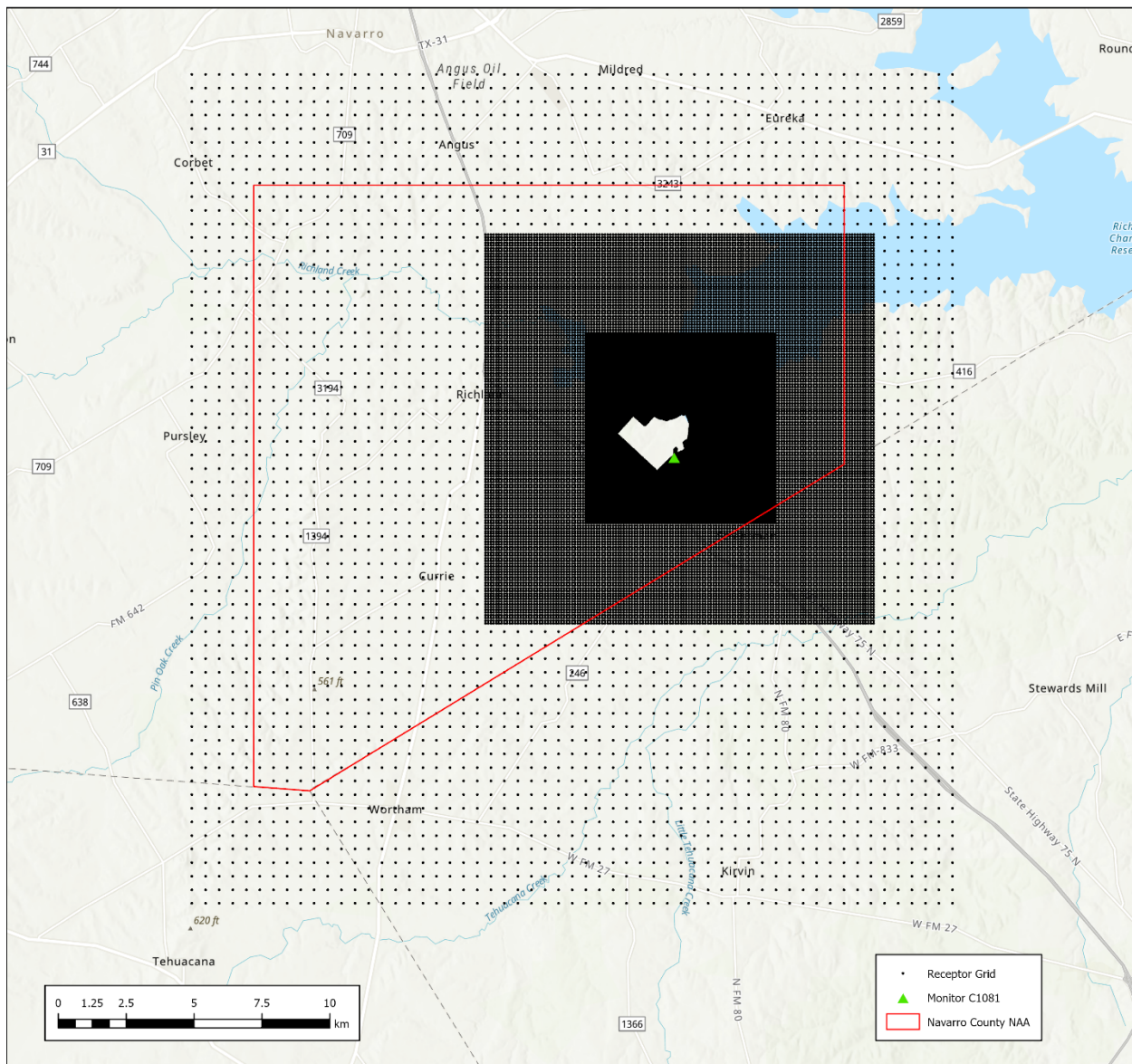


**Figure 4-3: Streetman Plant Site Close-Up**

### 4.3 SUMMARY OF ATTAINMENT DEMONSTRATION MODELING

As recommended in the 2014 SO<sub>2</sub> SIP guidance and 40 CFR Part 51, Appendix W, the American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD) version 21112 was used for this demonstration along with the associated suite of preprocessors. Software versions and settings used in the preprocessors, are included in Appendix J, Section 8: *Reference Tables for Modeling Information*. Modeling details relating to the domain, receptor grid, meteorological inputs, background concentration, and building downwash were shared with the EPA's Region 6 office and finalized after extensive consultation.

Given emissions and meteorological inputs, AERMOD predicts pollutant concentrations at specific physical locations determined by the user, known as receptors. Per the 2014 SO<sub>2</sub> SIP guidance, receptors have been placed throughout the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area to ensure that the modeled scenarios demonstrate attainment of the NAAQS for all areas of ambient air within the nonattainment area. The domain for the Navarro County Attainment Demonstration SIP Revision for the 2010 SO<sub>2</sub> NAAQS modeling consists of three nested receptor grids centered on the original location of the Streetman Plant's EPN E3-1 to cover a 28.0 km by 30.5 km area, shown in Figure 4-3: *Modeling Domain and Receptor Grid*. The three grids decrease in resolution with increased distance away from the Streetman Plant to sufficiently capture SO<sub>2</sub> concentration gradients from the source. Receptors have been removed from the portion of the Streetman Plant property considered nonambient air (as depicted by the orange, dashed line in Figure 4-2) and placed along the nonambient air boundary, as shown in Figure 4-4: *Innermost Receptor Grid*. Receptor elevations were derived from AERMOD's terrain preprocessor, AERMAP. Appendix J, Section 5: *Modeling Domain* provides more detail on the modeling domain.



**Figure 4-4: Modeling Domain and Receptor Grid**



**Figure 4-5: Innermost Receptor Grid**

Meteorological inputs for AERMOD were created using the AERMET, AERMINUTE, and AERSURFACE preprocessors. Five years of meteorological data from 2015, 2016, 2017, 2019, and 2020 were processed, following the recommendations in 40 CFR Part 51, Appendix W, §8.4, to capture meteorological variability. Data from 2018 were not used because the fourth quarter of the year did not meet the EPA's data completeness requirements for regulatory dispersion modeling (EPA, 2000). Since the 2021 data were not available at the time modeling was conducted, data from 2015 were used instead of 2018. The decision to use data from 2015 was made in consultation with the EPA's Region 6 office. Surface data were taken from the NWS station at the Corsicana Municipal Airport, and upper air data came from the NWS station in Shreveport, Louisiana. Sub-hourly one-minute wind data from the surface station were processed

with AERMINUTE using a threshold windspeed of 0.5 meters per second (m/s). AERSURFACE was used to supply surface characteristics to AERMET. Details on AERMET, AERMINUTE, and AERSURFACE settings and data are provided in Appendix J, Section 6: *Meteorology*.

Building downwash was calculated for the Streetman point source using AERMOD's downwash preprocessor, the Building Profile Input Program for PRIME (BPIPPRM). Detailed building information used for BPIPPRM can be found in Appendix J, Section 3.1: *Building Layout and Stack-Tip Downwash*.

The TCEQ has archived all modeling input, output, and processing files used or generated as part of this attainment demonstration SIP revision modeling analysis. For more information, see Appendix J, Section 7: *Modeling Run Information and Archive*.

## 4.4 MODELING SCENARIOS AND RESULTS

### 4.4.1 Source Parameters

As previously mentioned in Section 4.3: *Streetman Plant Facility*, the only point source of SO<sub>2</sub> emissions at the Streetman Plant is EPN E3-1. Table 4-1: *NSR Permit Number 5337 Requirements for EPN E3-1* lists the currently permitted stack parameters and SO<sub>2</sub> emission rate for EPN E3-1 from New Source Review (NSR) permit number 5337. Source location is in meters based on Universal Transverse Mercator (UTM) coordinates, elevation, height, and diameter are in meters (m), temperature is in degrees Fahrenheit (°F), velocity is in feet per second (ft/s), and the maximum allowable emission rate is in pound per hour (lb/hr). The listed location coordinates for EPN E3-1 were corrected from the location listed in NSR permit 5337 with input from Arcosa, and the elevation of EPN E3-1 was determined using AERMOD's terrain preprocessor, AERMAP.

**Table 4-1: NSR Permit Number 5337 Requirements for EPN E3-1**

EPN	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Height (m)	Diameter (m)	Temperature (°F)	Velocity (ft/s)	SO <sub>2</sub> Emission Rate (lb/hr)
E3-1	750666	3533945	103.2	35.1	1.5	150.0	66	1,000.0

As discussed in Chapter 3, SO<sub>2</sub> emissions from EPN E3-1 need to be controlled from the currently permitted 1,000 lb/hr SO<sub>2</sub> limit to achieve attainment in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area. Arcosa has committed to replacing the current EPN E3-1 with a newly constructed controlled stack that will be built within a 30.0 m by 20.0 m rectangular region just north of where the current EPN E3-1 is currently located. As discussed in Chapter 3, EPN E3-1 will operate under a maximum allowable SO<sub>2</sub> emission rate of 222 lb/hr and will be required to maintain a minimum stack temperature and stack velocity during normal operations of 117°F and 42.5 ft/s respectively. The newly constructed EPN E3-1 will be required to be a minimum of 120 ft. tall.

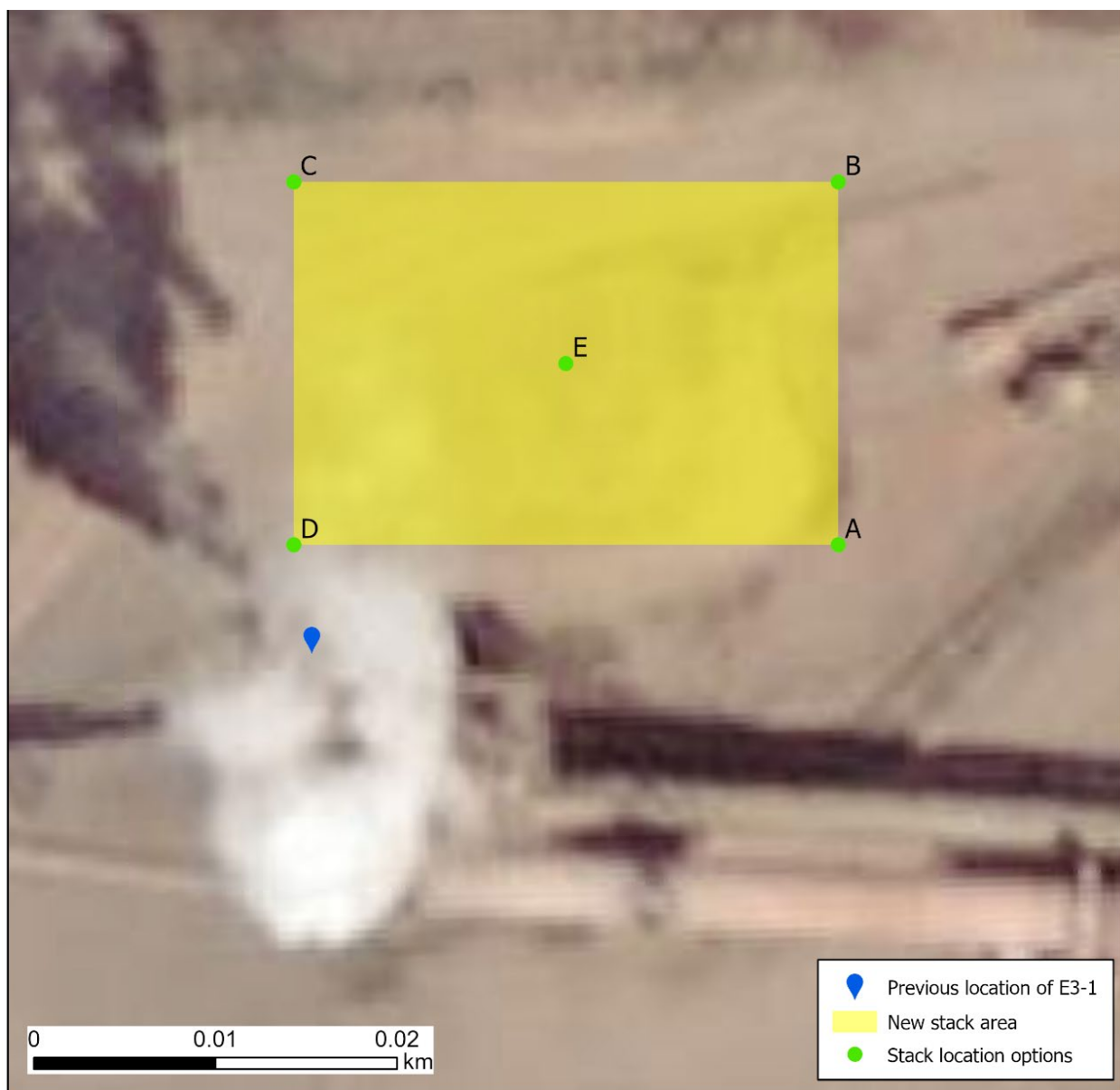
#### 4.4.2 Modeling Scenarios

To demonstrate that the control strategy will be protective of the NAAQS under future operating scenarios, guidance in 40 CFR Part 51, Appendix W, §8.2.2(d) recommends that multiple operating conditions be considered in modeling.

Under the control strategy, all normal operations of EPN E3-1 at any load will be subject to the maximum emissions and minimum stack parameter limits. The highest ground-level concentrations of SO<sub>2</sub> are expected to occur when the stack temperature and velocity are minimized and the emissions of SO<sub>2</sub> are maximized (i.e., at the maximum allowable emission rate).

Because the new EPN E3-1 may be built anywhere within the 30.0 m by 20.0 m rectangular region, modeling must demonstrate that the emissions and stack parameter limits will be protective of the NAAQS regardless of where the final stack is built. To do so, five hypothetical stack locations (A, B, C, D, and E) were modeled at the corners and at the midpoint of the rectangular area, as shown in Figure 4-6:

*Hypothetical Stack Locations for Modeling.* The elevations for each of these points were determined using AERMOD's terrain preprocessor, AERMAP, and building downwash was recalculated for each hypothetical stack location.



**Figure 4-6: Hypothetical Stack Locations for Modeling**

Besides normal operations, the TCEQ also considered the planned maintenance, startup, and shutdown (MSS) practices of the lightweight aggregate kiln to determine if additional modeling scenarios were needed to evaluate the potential for exceedances of the SO<sub>2</sub> NAAQS. Planned MSS activities of the lightweight aggregate kiln were authorized in an amendment to NSR permit number 5337 in 2012. As documented in the permit application, the kiln is fired exclusively with natural gas during startup until sufficient temperature is reached and the raw material feed can be introduced. The startup period ends when the raw material feed has been continuously fed for at least 30 minutes or when the kiln feed rate exceeds 60% of the kiln design limitation rate, which typically takes 12 to 24 hours. During shutdown of the kiln, raw material and fuel feed are discontinued, and subsequent combustion occurs only for a brief period following cessation of kiln feed to move the remaining material through the kiln. Shutdowns typically take approximately 24 hours. Maintenance of the kiln is

performed when the kiln is not operating, so there are no emissions associated with maintenance activities. The permit application states that there are roughly two planned MSS activities per year, consisting of one startup and one shutdown. Based on the SO<sub>2</sub> emission factor of natural gas, the twice-yearly frequency of planned MSS activities, and the 24-hour duration of planned MSS activities, the permit application represents the estimated potential to emit for SO<sub>2</sub> as less than 0.1 lb/hr SO<sub>2</sub> and less than 0.1 tons per year SO<sub>2</sub>. Planned MSS activities are not expected to change in the future. Records provided by Arcosa confirmed the estimates of frequency and duration of MSS activities made in the permit application, with only three MSS periods occurring between January 2019 and July 2022, each with combined startup and shutdown duration of less than 48 hours. Based on the current MSS practices and previously represented estimation of SO<sub>2</sub> emissions, MSS activities were not modeled as a separate scenario for this attainment demonstration SIP revision.

Therefore, the TCEQ modeled five scenarios to demonstrate that the adopted control measures will be protective of the NAAQS, each corresponding to a different hypothetical stack location. These modeling scenarios are listed in Table 4-2: *Modeling Scenarios and EPN E3-1 Stack Parameters*. All scenarios were run using the same meteorological inputs, domain, and background concentration.

**Table 4-2: Modeling Scenarios and EPN E3-1 Stack Parameters**

Scenario Letter	UTM Easting (m)	UTM Northing (m)	Elevation (m)	Height (ft)	Diameter (ft)	Temperature (°F)	Velocity (ft/s)	SO <sub>2</sub> Emission Rate (lb/hr)
A	750676	3533955	103.2	120.0	6.0	117.0	42.5	222.0
B	750676	3533975	103.5	120.0	6.0	117.0	42.5	222.0
C	750646	3533975	105.7	120.0	6.0	117.0	42.5	222.0
D	750646	3533955	104.6	120.0	6.0	117.0	42.5	222.0
E	750661	3533965	104.2	120.0	6.0	117.0	42.5	222.0

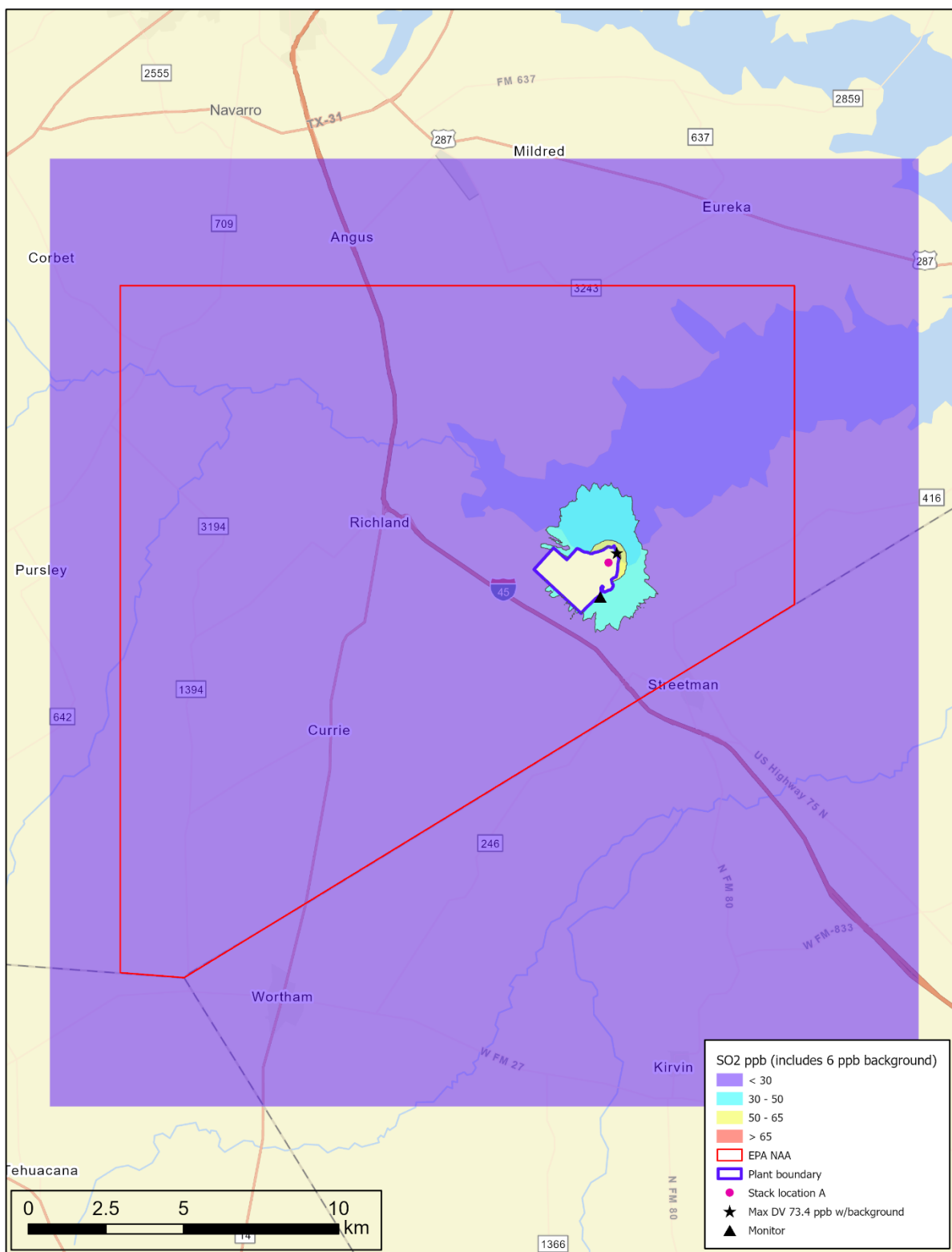
#### 4.4.3 Modeling Results

In every model run at each receptor in the domain, the 99th percentile daily maximum one-hour SO<sub>2</sub> concentrations for each of the five modeled years were averaged to calculate a design value (DV). All five modeled scenarios resulted in a maximum DV less than or equal to 75 ppb (including the 6.0 ppb background concentration), ranging from 70.0 ppb to 73.8 ppb, demonstrating that the control measures are protective of the 2010 SO<sub>2</sub> NAAQS. The modeling results for all five scenarios are listed in Table 4-4: *Modeling Scenario Results*. The scenario with the highest maximum DV (73.8 ppb), or the controlling scenario, was scenario B with the hypothetical stack located in the upper-right corner of the potential construction area. Scenario A, with the hypothetical stack located in the lower-right corner of the potential construction area, had the second highest maximum DV at 73.4 ppb, less than 0.5 ppb different than the DV from scenario B. In both scenario A and scenario B, the receptor with the maximum DV is on the nonambient air boundary line bordering the adjacent reservoir. The concentration results of these two scenarios are plotted in Figure 4-7: *Scenario A Results Throughout the Nonattainment Area*, Figure 4-8: *Scenario A Results Near the Streetman Plant*,

Figure 4-9: *Scenario B Results Throughout the Nonattainment Area*, and Figure 4-10: *Scenario B Results Near the Streetman Plant*.

**Table 4-3: Modeling Scenario Results**

Scenario Letter	Maximum DV (ppb)
A	73.4
B	73.8
C	70.2
D	70.0
E	71.7



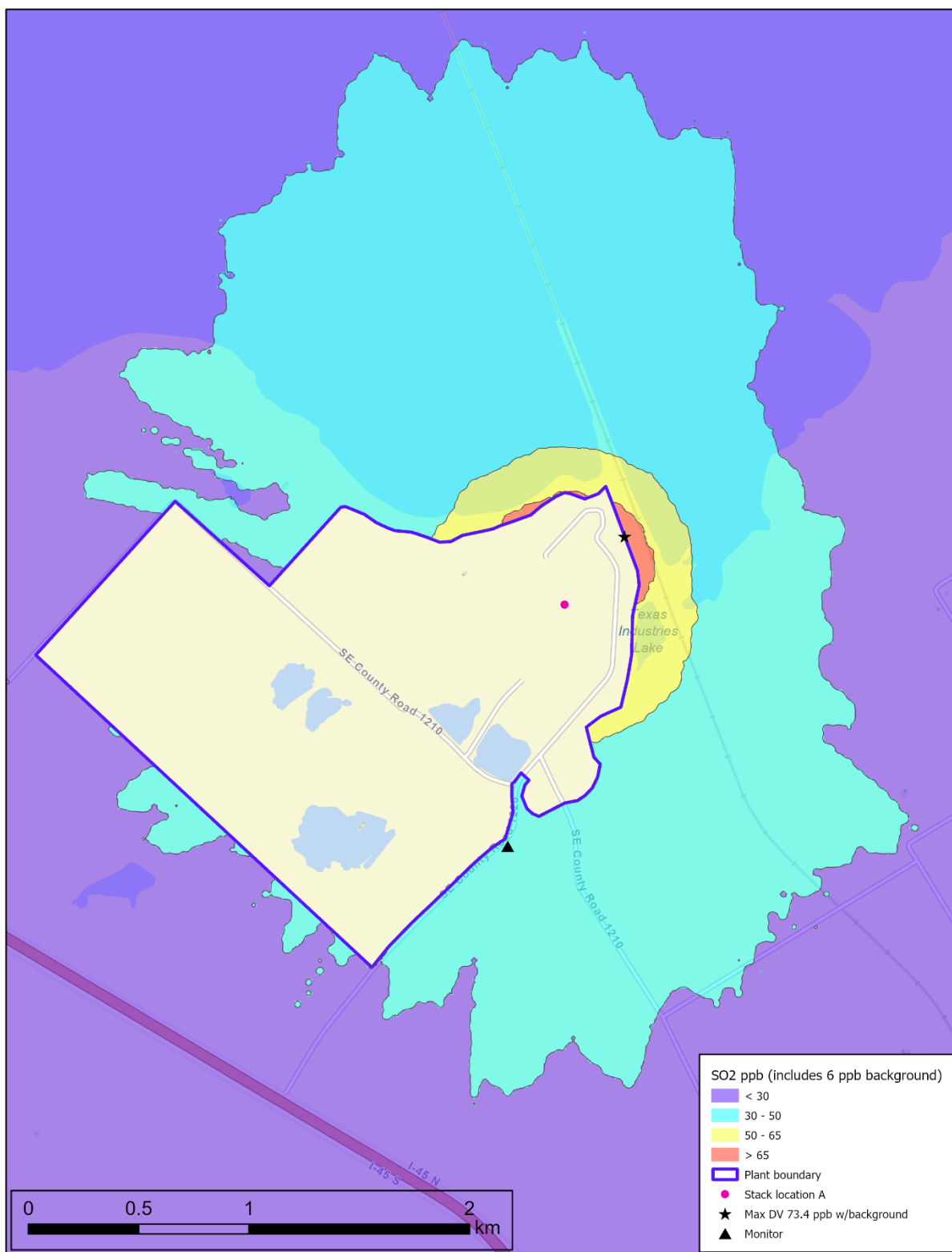


Figure 4-8: Scenario A Results Near the Streetman Plant

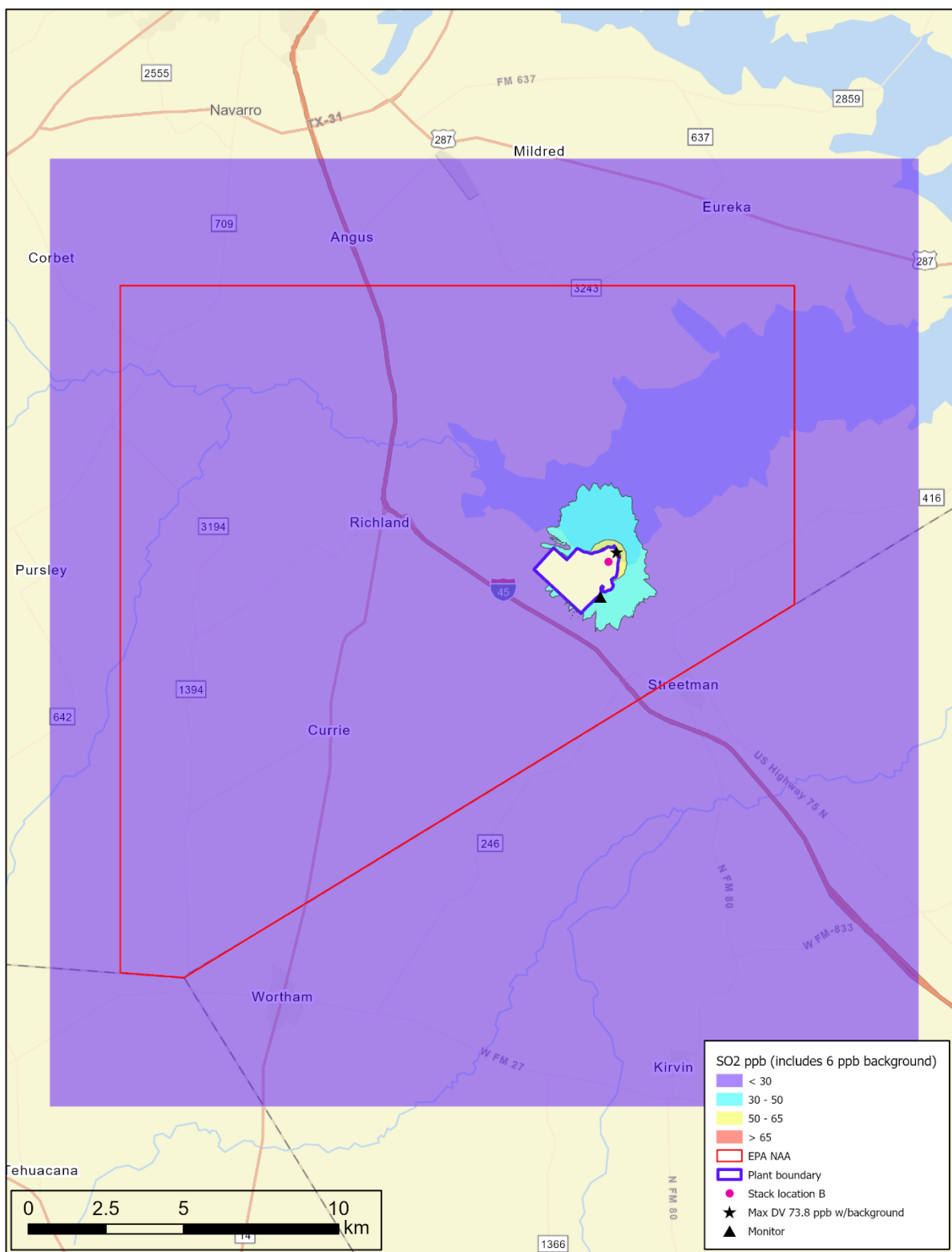


Figure 4-9: Scenario B Results Throughout the Nonattainment Area



## 4.5 CONCLUSION

The TCEQ conducted air quality dispersion modeling following the EPA's 2014 SO<sub>2</sub> SIP guidance and 40 CFR Part 51, Appendix W for the Navarro County Attainment Demonstration SIP Revision for the 2010 SO<sub>2</sub> NAAQS. The TCEQ modeled the control measures for the Streetman Plant described in Chapter 3. The TCEQ modeled multiple stack locations at the boundaries of the region where the new stack EPN E3-1 could be built and modeled attainment in each case, thereby ensuring that the controls will remain protective of the NAAQS. Based on the TCEQ's modeling, it is expected that the controls for the Streetman Plant will result in attainment in the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area.

## 4.6 REFERENCES

Environmental Protection Agency (EPA), 2000. [Meteorological Monitoring Guidance for Regulatory Modeling Applications](https://www.epa.gov/sites/default/files/2020-10/documents/mmgrma_0.pdf), accessed at [https://www.epa.gov/sites/default/files/2020-10/documents/mmgrma\\_0.pdf](https://www.epa.gov/sites/default/files/2020-10/documents/mmgrma_0.pdf).

EPA, 2014. [Guidance for 1-Hour SO<sub>2</sub> Nonattainment Area SIP Submissions](https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf), accessed at [https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance\\_nonattainment\\_sip.pdf](https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf), April 23.

EPA, 2017. [40 Code of Federal Regulations \(CFR\) Part 51 Appendix W: Revisions to the Guideline on Air Quality Models: Enhancements to the AERMOD Dispersion Modeling System and Incorporation of Approaches to Address Ozone and Fine Particulate Matter](https://www.epa.gov/sites/production/files/2020-09/documents/appw_17.pdf). 82 *Federal Register* 5182, accessed at [https://www.epa.gov/sites/production/files/2020-09/documents/appw\\_17.pdf](https://www.epa.gov/sites/production/files/2020-09/documents/appw_17.pdf), January 17.

EPA, 2019. [Revised Policy on Exclusions from "Ambient Air."](https://www.epa.gov/sites/production/files/2019-12/documents/ambient_air2019.pdf) Andrew R. Wheeler, accessed at [https://www.epa.gov/sites/production/files/2019-12/documents/ambient\\_air2019.pdf](https://www.epa.gov/sites/production/files/2019-12/documents/ambient_air2019.pdf), December 2.

TCEQ, 2020. [Response to the United States Environmental Protection Agency's Intended Round 4 Area Designations for the 2010 One-Hour Sulfur Dioxide Primary National Ambient Air Quality Standard for Texas](https://www.tceq.texas.gov/assets/public/implementation/air/sip/sipdocs/2020_SO2DocumentsLetters/GovAbbott_120Ltr_Response.pdf), accessed at [https://wayback.archive-it.org/414/20210529161022/https://www.tceq.texas.gov/assets/public/implementation/air/sip/sipdocs/2020\\_SO2DocumentsLetters/GovAbbott\\_120Ltr\\_Response.pdf](https://wayback.archive-it.org/414/20210529161022/https://www.tceq.texas.gov/assets/public/implementation/air/sip/sipdocs/2020_SO2DocumentsLetters/GovAbbott_120Ltr_Response.pdf), October 16.

## CHAPTER 5: REASONABLE FURTHER PROGRESS

### 5.1 INTRODUCTION

Federal Clean Air Act (FCAA), §171(1) defines the reasonable further progress (RFP) state implementation plan (SIP) requirement as “such annual incremental reductions in emissions of the relevant air pollutant as are required by this part or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date.” The United States Environmental Protection Agency’s (EPA) *Guidance for 1-Hour SO<sub>2</sub> Nonattainment Area SIP Submissions* (2014 SO<sub>2</sub> SIP guidance) indicates that this definition is most appropriate for pollutants emitted by numerous and diverse sources where inventory-wide reductions are necessary to attain a standard, but that this definition of RFP is “generally less pertinent to pollutants like SO<sub>2</sub> that usually have a limited number of sources affecting areas which are relatively well defined, and emissions controls for such sources result in swift and dramatic improvement in air quality.” Therefore, the 2014 SO<sub>2</sub> SIP guidance indicates that for sulfur dioxide (SO<sub>2</sub>) nonattainment areas, RFP is best construed as “adherence to an ambitious compliance schedule.”

### 5.2 RFP DEMONSTRATION

On March 26, 2021, the EPA published a designation for a portion of Navarro County as nonattainment for the 2010 SO<sub>2</sub> National Ambient Air Quality Standard (NAAQS), effective April 30, 2021 (86 FR 16055). Consistent with the EPA’s 2014 SO<sub>2</sub> SIP guidance document, the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area contains a single site with an emissions source with well-defined emissions, such that emissions controls for this source should result in “swift and dramatic improvement in air quality.” As detailed in Chapter 3: *Control Strategy and Required Elements* of this SIP revision, enforceable emission limitations will be implemented for the emissions source at this single site in this area according to the schedule outlined in Section 5.3: Compliance Schedule. This compliance schedule fulfills the RFP requirement for the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area.

### 5.3 COMPLIANCE SCHEDULE

The EPA’s 2014 SO<sub>2</sub> SIP guidance indicates that RFP for the 2010 one-hour SO<sub>2</sub> NAAQS requires only such reductions in emissions as are necessary to attain the NAAQS. Given the relationship between SO<sub>2</sub> emissions and air quality and the immediate effect of air quality improvements, RFP is best construed as “adherence to an ambitious compliance schedule” (74 FR 13547, April 16, 1992). The EPA maintains its interpretation that the source(s) of SO<sub>2</sub> emissions implement appropriate control measures as expeditiously as practicable to ensure attainment of the standard by the applicable attainment date.

The compliance deadline for Arcosa LWS, LLC (Arcosa) to meet the applicable rule requirements in the associated 30 Texas Administrative Code Chapter 112, Subchapter G rules (Rule Project No. 2021-035-112-AI) is January 1, 2025. Taking into account the time needed for Arcosa to design controls, solicit bids, contract with a vendor, install, and test control and monitoring equipment, and in consideration of current uncertainties related to the global supply chain, this date is as soon as practicable. The attainment date for the Navarro County 2010 SO<sub>2</sub> NAAQS nonattainment area is April 30, 2026.

*Appendices Available Upon Request*

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**RESPONSES TO COMMENTS RECEIVED CONCERNING THE  
NAVARRO COUNTY ATTAINMENT DEMONSTRATION  
STATE IMPLEMENTATION PLAN (SIP) FOR THE 2010  
SULFUR DIOXIDE (SO<sub>2</sub>) NATIONAL AMBIENT AIR  
QUALITY STANDARD (NAAQS)**

The Texas Commission on Environmental Quality (TCEQ or commission) offered a public hearing for the proposed SIP revision on May 23, 2020 at 6:00 p.m. at the Cook Education Center at Navarro College in Corsicana, Texas. No persons registered to speak at the public hearing. During the comment period, which closed on June 2, 2022, the TCEQ received written comments from the United States Environmental Protection Agency (EPA).

Changes made to this SIP revision that are based on comments received on the associated proposed Chapter 112 rules (Rule Project No. 2021-035-112-AI) are discussed in the Response to Comments section of the rule preamble.

**TABLE OF CONTENTS**

General Comments  
Control Strategy  
Technical Analysis

**GENERAL COMMENTS**

The EPA commented that the TCEQ should check for consistency of naming conventions of sources, equipment, scenarios, and all other terminology used for the site within all parts of the submittal, particularly with respect to the identification of the EPN and the term lightweight aggregate kiln.

**The TCEQ reviewed the terms used in the attainment demonstration SIP revision documents and the associated Chapter 112 rulemaking and ensured they are used consistently and correctly.**

The EPA commented that there was an invalid link for the TCEQ's October 16, 2020, response letter to the EPA regarding modification of SO<sub>2</sub> area designations in the reference list for Chapter 4: *Attainment Demonstration Modeling* of the attainment demonstration SIP revision.

**The link referenced in the EPA's comment has been updated to the correct web address.**

The EPA stated that contingency measures are to become effective without further action by the state or the EPA, where the area has failed to achieve reasonable further progress (RFP) or failed to attain the NAAQS by the statutory attainment deadline. The EPA further stated that the attainment demonstration and the rules for each nonattainment area should clarify that the contingency measures in the SIP are

triggered not only in the event that the area fails to attain the NAAQS, but also in the event that the area fails to make RFP. The EPA also recommended adding further discussion to Section 3.4.2: *Contingency Plan* on the contingency measures triggering in the event of the failure to make RFP.

**The commission updated Section 3.4 of this SIP revision to clarify that contingency measures are triggered if the area fails to meet RFP. Corresponding changes were made to the associated Chapter 112 rules, and those changes are discussed in the Response to Comments section of the rule preamble.**

The EPA commented that some one-hour SO<sub>2</sub> nonattainment areas have adopted contingency measures that require investigation by the sources whenever an exceedance, a monitored ambient air concentration above the NAAQS, or a violation of a permit limit occurs even prior to the attainment deadline date. The EPA stated that the requirement is to reach attainment as expeditiously as practicable, and this proactive contingency measure can help an area reach attainment. The EPA indicated that this approach could be beneficial for the Howard, Hutchinson, and Navarro attainment demonstrations.

**All sites addressed in the Chapter 112 rules are subject to the Title V Operating Permits Program, which provides additional compliance tools that, in conjunction with other aspects of the compliance and enforcement program, will help ensure attainment is reached as expeditiously as practicable. The TCEQ's robust enforcement program, exceedance reports in the associated rules, Title V deviation reports, and Title V compliance certifications will be used to investigate and address exceedances and violations of permit limits. Because the TCEQ already has the authority and tools needed to fully investigate exceedances and permit violations, no changes were made in response to this comment.**

The EPA commented that an important feature of attainment plans is the date by which sources must comply with limits sufficient to provide for attainment, and the EPA expects the approvable compliance dates for control measures in the attainment demonstration to be as expeditious as practicable. The EPA stated that the required compliance date should be specified based on consideration of the necessary measures needed to be implemented to comply with the emission limits and other requirements. The EPA also indicated that the identification of an enforceable compliance date should be supported by a justification of appropriateness, of the time frame necessary for the source to comply with the specific requirements, and where no additional controls are needed to comply, a shorter compliance schedule may be appropriate. The EPA also noted that, to satisfy RFP requirements, sources should comply as expeditiously as practicable in order to ensure attainment of the standard by the applicable attainment date. The EPA requested that more explanation and rationale be provided for how the selected compliance dates for affected sources in Howard, Hutchinson, and Navarro counties satisfy this requirement.

**The commission reevaluated the compliance dates to ensure that compliance is achieved as soon as practicable, depending on site-specific constraints as well as**

**other considerations such as global supply chain delays. The basis for the compliance dates is discussed in the Section 3.2.2 of the attainment demonstration SIP revision and the Response to Comments section of the preamble for the associated Chapter 112 rulemaking.**

The EPA commented that regarding greater than one-hour periods of measuring, sampling, or testing the sulfur content of inlet streams, tail gas, feed, products, etc.; the EPA prefers hourly data collection and calculation as that will match with the one-hour NAAQS. The EPA indicated that the attainment demonstration SIP revision, where applicable, should provide justification and additional supporting data from past measurements, sampling, or testing that this periodic measuring/sampling/testing of greater than one-hour periods does not vary considerably from one-hour measurements, sampling, or testing and provides for accurate calculations of actual emissions. The EPA stated that the SIP revision should demonstrate that these measurements/sampling/testing provide for enough stringency for attainment (the corresponding one-hour emission limit for the applicable unit is stringent enough that slight variations in sulfur content measured in a greater than one-hour period do not impact attainment). The EPA also requested TCEQ provide an evaluation of the use of a continuous emissions monitoring system (CEMS) to directly monitor SO<sub>2</sub> emissions to demonstrate compliance, especially for Arcosa's source. The EPA stated that for sources on which CEMS are not easily installed, post-combustion, continuous total sulfur content and continuous flow monitoring should be evaluated and required unless technically infeasible or cost prohibitive to monitor emissions accurately.

**The adopted rule requires Arcosa to directly monitor SO<sub>2</sub> emissions from the only source in the nonattainment area, the lightweight aggregate kiln, with a CEMS. Emissions data will be collected at least four times per hour and averaged over an hour consistent with EPA's preference.**

The EPA requested that the TCEQ provide an assurance that the proposed flare emission limits apply only to maintenance, startup, and shutdown (MSS) periods and not to upsets or periods of malfunctions and clarify that the analysis of historical events supporting development of emission limits and number of operating days for MSS periods does not include any malfunction events.

**The emission limits in the rules apply only to authorized emissions. This comment is further addressed in the Response to Comments section of the preamble for the associated Chapter 112 rulemaking.**

The EPA commented that the TCEQ should address whether it will have a commitment from Arcosa regarding controls chosen before SIP adoption. If not, then the TCEQ must address how this proposal is enforceable.

**Arcosa is evaluating the best options for control technology that will ensure compliance with the emission limits in 30 TAC Chapter 112, Subchapter G by the compliance date of January 1, 2025. Arcosa is evaluating wet scrubbers and dry**

**scrubbers as well as other controls. The proposal is enforceable through compliance with the specified emission limit and stack parameters, which will be directly monitored with a CEMS. Given uncertainties in global supply chains the TCEQ believes it is appropriate to allow flexibly in timing of final decisions regarding the type of controls Arcosa will install to achieve compliance before the compliance date of January 1, 2025.**

The EPA commented that the TCEQ refers to New Source Review (NSR) permit several times in this SIP proposal but does not identify revision dates for the NSR permit or when the limits in it will be submitted for SIP approval. Specifically, the TCEQ should supply a copy of the permit and identify the NSR revision date for the permit identified in Table 4-1 of the proposed SIP narrative and provide excerpts (as an appendix or attachment) or a tabulated history of the changes to the permit(s) for this site.

**The current permit for the Streetman Plant is dated May 29, 2020 and doesn't reflect the final controls that will be used to comply with 30 TAC 112, Subchapter G. Because Arcosa is still designing the control device that will be necessary to comply with the emission limits established in the rule, there is not currently an updated NSR permit. The updated NSR permit will be available through TCEQ Central File Room (see Access Records from our Central File Room - Texas Commission on Environmental Quality - [www.tceq.texas.gov](http://www.tceq.texas.gov)) upon completion. Additionally, the commission determined specifically that rulemaking, instead of incorporation of NSR permits, was the preferred method for identifying the enforceable emission limits and accompanying compliance obligations. Nothing in the EPA's rules requires the inclusion of a copy of the permit as part of the SIP; nor is there any need for a tabulated history of the changes to the permit(s) for the site as part of this SIP revision, as the enforceable emission limits and accompanying compliance obligations are clearly stated in the associated rules.**

The EPA commented that the TCEQ should provide a process description for the facility that should include process diagrams with labeled sources, operations, and operational data, and maybe even photos. The EPA indicated that the additional background on the facility and its operations are not only helpful for readers unfamiliar with the facility but are necessary in other cases.

**The commission does not agree with this comment as this information should not be necessary for enforcement of the emission limits and accompanying compliance obligations required by the rules associated with this SIP revision. Such information is required to support NSR permit applications, which are available through the TCEQ Central File Room. The TCEQ also encourages anyone who is unable to find any information they have difficulty locating through the online search available from the TCEQ's website to contact 512-239-1000 or [cfrreg@tceq.texas.gov](mailto:cfrreg@tceq.texas.gov).**

The EPA commented that it is unclear when or whether the control requirements of proposed §112.302 would require installation of controls or other reductions and modifications, but the rule indicates "The owner or operator of the Arcosa LWS LLC

Lightweight Streetman Plant (Regulated Entity Number 100211283) shall comply with the requirements of this subchapter as expeditiously as practicable, but no later than January 1, 2025.” The EPA indicated the final SIP should have (1) a much clearer timetable on when a control strategy decision is required and (2) dates that reflect the “as expeditiously as practicable” requirement for each control strategy option since installing a control device would take longer to complete than the other control strategy option of other reductions and modifications.

**No change has been made in response to this comment. The TCEQ evaluated the possibility of requiring compliance sooner than January 1, 2025 and determined that an earlier compliance date is not reasonable. At the time the rule is finalized, there will be just over two years for Arcosa to complete the control device design and purchase, install, and test the new control device and the monitoring system. Given current uncertainties related to the global supply chain, unexpected setbacks are possible during any one of these phases; therefore, compliance before January 1, 2025 may not be reasonably achievable.**

The EPA noted that unless monitors are shown to be located in the area of highest concentration, the determination of attainment must consider modeling, emissions data, and evidence of full implementation and compliance of required control measures in addition to monitoring data. The EPA stated that the current monitors are not located where the modeled maximum design value occurred in any of the nonattainment areas and that siting additional monitors at those locations would provide data to determine attainment more clearly.

**No change was made in response to this comment as monitor siting issues are beyond the scope of this SIP revision.**

## **CONTROL STRATEGY**

The EPA commented that there is no commitment by the TCEQ or Arcosa specified in the SIP proposal for add-on controls. The EPA also stated that no existing controls are identified in the SIP proposal other than the existing water sprayer to reduce particulate emissions from the stack. The EPA was concerned about the increased corrosion potential in the stack, as a result of sulfuric acid ( $H_2SO_4$ ) formation, if Arcosa uses the water scrubber stack for  $SO_2$  removal.

**Arcosa is in the process of designing appropriate controls to ensure compliance with the emission limits in the rule. The use of a CEMs will confirm that the controls are functioning properly and can provide information on anomalies in stack flow linked to corrosion; however, the TCEQ understands that Arcosa is addressing the risk of corrosion in the design of the controls.**

## **TECHNICAL ANALYSIS**

The EPA requested an explanation of why the State of Texas Air Reporting System (STARS) database was not relied upon for stack parameters and historical actual emission rates in modeling.

Following the EPA's 2014 SO<sub>2</sub> guidance, the commission modeled the future stack parameters and emission rate from a stack that will be constructed to control emissions to demonstrate attainment. The STARS database includes information about the current stack parameters and emission rates of Emissions Point Number (EPN) E3-1 prior to controls being added, which are not relevant to demonstrate attainment as the Streetman Plant will be subject to controlled stack parameters and emission rates as described in Chapter 3: *Control Strategies and Required Elements*.

The EPA commented that details should have been provided on modeling run configurations and the procedure of dividing up the large number of receptors into smaller grids. The EPA commented that such an approach is prone to errors when remerging information. The EPA also noted that the 2007 EPA memo on the Regulatory Status of Proprietary Version of American Meteorological Sociated/United States Environmental Protection Agency Regulatory Model (AERMOD) requires that the use of parallel versions of AERMOD or the approach of dividing receptors into smaller grids needed to be communicated to and approved in advance by EPA Region 6. Lastly, the EPA commented that the TCEQ did not consult appropriately with EPA Region 6; that the TCEQ's approach does not generate all information as would have been generated by one model run; and that the EPA has previously not approved such approaches.

The draft modeling protocol provided to the EPA and the SIP revision documentation both have sections on model selection providing information on the choice of the model used in the attainment demonstration modeling. The model that the TCEQ used is the EPA-approved AERMOD model, version 21112. The TCEQ did not alter the code and did not parallelize it. The source code, downloaded from the EPA website (<https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod>), was compiled on the TCEQ's Linux system and used for modeling. Since the source code was not altered, the TCEQ does not agree that EPA approval was needed prior to use, nor with the EPA's characterization that the TCEQ parallelized the code. The TCEQ ran the EPA-approved AERMOD multiple times for each scenario with the same inputs with only a fraction of receptors included in each run. The results from all runs and therefore all receptors were analyzed to determine the maximum design value for a given scenario. AERMOD is a deterministic model, and concentrations at each receptor are calculated independently from other receptors. Therefore, AERMOD results remain the same whether the model is run for all receptors in a single run or the receptors are divided into subsets to be modeled in multiple runs. Merging the receptor points does not introduce error into the model runs. The TCEQ does not agree with the EPA that the final AERMOD run should have been performed with all receptors included.

Modeling files were made available on the TCEQ Air Modeling FTP site, which include a modeling run configuration file for each run scenario. The run configuration file performs the process of splitting receptors and concatenating the results into a single file. In response to this comment, a description of the method

**used by the TCEQ to run AERMOD was added to Appendix J in Section 7: *Modeling Run Information and Archive*.**

The EPA commented on the planned MSS practices at the Streetman Plant, indicating several concerns with the TCEQ's decision to model such activities as a separate scenario. The EPA commented that since the transition from startup to normal and shutdown period operations could be difficult to identify, the EPA is concerned that there might be a potential for significant amounts of SO<sub>2</sub> to be emitted during these activities. The EPA requested that the TCEQ provide the historical data for the kiln operations and emission estimates for startup to normal operations and normal operations to kiln stoppage. The EPA further commented that the startup to normal and shutdown operations conditions should be tested, and the testing requirements should be added to Chapter 112. Lastly, the EPA commented that further refinement of the SO<sub>2</sub> emissions is needed to evaluate potential impacts at ambient air locations and requesting further stack testing and report submittal to determine if additional modeling is needed.

**Arcosa provided the TCEQ with records of all MSS activities that occurred between January 2019 and July 2022 (included below). According to the records Arcosa provided, there were three MSS periods in the last three years. In each case, the combined duration of startup and shutdown was less than or equal to 48 hours. As described in the attainment demonstration SIP revision, the rotary kiln does not operate during maintenance.**

**Start Date of MSS Activity: September 28, 2019  
Duration of Shutdown Event: 1 Hour  
Duration of Startup Event: 21.5 Hours  
Total Rotary Kiln Downtime for Maintenance: 331 Hours**

**Start Date of MSS Activity: November 26, 2020  
Duration of Shutdown Event: 1 Hour  
Duration of Startup Event: 21 Hours  
Total Rotary Kiln Downtime for Maintenance: 388 Hours**

**Start Date of MSS Activity: April 14, 2022  
Duration of Shutdown Event: 1 Hour  
Duration of Startup Event: 48 Hours  
Total Rotary Kiln Downtime for Maintenance: 384 Hours**

**These records confirm the estimates of frequency and duration of startup and shutdown activities that were included in the 2012 permit amendment application for NSR permit number 5337, being twice yearly (one startup and one shutdown) and approximately 24 hours (or 48 hours combined). The emissions estimate of less than 0.1 pound per hour (lb/hr) and less than 0.1 tons per year that were included in the permit application were based on the frequency and duration of MSS and the EPA's emission factor for natural gas combustion from large, uncontrolled boilers per AP-42 Chapter 1.4-4. EPA guidance recommends modeling load scenarios that**

could result in the maximum ground-level concentration, which is unlikely to occur during MSS activities; therefore, the EPA's identified concern regarding potential SO<sub>2</sub> emissions is unfounded and requires no further modeling.

Arcosa commits to installing a CEMS to monitor the emissions and stack parameters of EPN E3-1, which will continue to operate during MSS activities. No additional testing will be required.

A description of the historical MSS activity records has been added to Chapter 4, Section 4.5: *Modeling Scenarios and Results*, of the attainment demonstration SIP revision in response to this comment, but no additional modeling was conducted.

The EPA commented that the TCEQ should identify where the modeling files can be found to be downloaded in Appendix J or Chapter 4 of the SIP narrative.

Section 7: *Modeling Run Information and Archive* was added to Appendix J that describes the modeling files and where and how they can be accessed from the TCEQ Air Modeling FTP site. A sentence referencing this Section 7 of Appendix J and the file availability was also added to Chapter 4, Section 4.4 *Summary of Attainment Demonstration Modeling* of the SIP narrative.

The EPA commented that the TCEQ should include a complete modeling protocol as an attachment to Appendix J to describe the model set-up, modeling inputs, and processing steps. The EPA commented that Appendix J should include a section for Model Setup and Model Runs to discuss how AERMOD was run for the Streetman Plant. The EPA also commented that Appendix J should discuss the intermediate and final results with and without background for all scenarios, the SIL modeling, and how the design value was calculated, among other technical details.

A draft modeling protocol was prepared for and shared with the EPA in October 2021 to solicit feedback on modeling details in preparation for development of this SIP revision. Any changes to model set-up that occurred for the attainment demonstration modeling were made in consultation with the EPA. The TCEQ adapted the draft modeling protocol into a technical support document, Appendix J, which details all of the modeling information that was included in the modeling protocol. Appendix J includes only those details that are not already described in Chapter 4 of the SIP narrative. Information about modeling scenarios and results are included in Chapter 4 the SIP narrative, and details about running the preprocessors are available in Appendix J. A separate final modeling protocol was not developed for this SIP revision as it would merely be repetitive of the information in the SIP narrative and Appendix J.

Section 7: *Modeling Run Information and Archive* was added to Appendix J to describe in more detail the processing steps the TCEQ took to conduct the modeling. In Section 7, there is a brief description of the run processing scripts that were used by the TCEQ to run modeling simulations and to calculate the weighted-averaged design value for each receptor from having split years of meteorology.

**The SIL was not used to screen out sources from inclusion in the rule in the Navarro County SO<sub>2</sub> nonattainment area since the Streetman Plant is the only facility with SO<sub>2</sub> emissions in the nonattainment area.**

The EPA commented that the ambient air determination was based on various access limiting procedures, including periodic patrols of a facility's perimeter. The EPA commented that companies should be required to submit plans and records of access limiting procedures and periodic patrols to the TCEQ and the EPA. The EPA also commented that TCEQ and EPA approval should be required for modifications of the plans.

**Per the EPA's 2019 Revised Policy on Exclusions from "Ambient Air," "the atmosphere over land owned or controlled by the stationary source may be excluded from ambient air where the source employs measures, which may include physical barriers, that are effective in precluding access to the land by the general public." To make ambient air determinations, Arcosa provided the EPA and the TCEQ with extensive documentation detailing the current restriction measures in place that secure their property against access by the general public. Where restrictions are not currently in place, Arcosa provided a letter addressed to the EPA committing to putting those restrictions in place by the compliance deadline. The plans include details about fencing, signage, and patrolling where appropriate.**

The TCEQ does not agree with the EPA that TCEQ and EPA approval is necessary for changes to ambient air property restriction plans. The TCEQ is not aware of any precedent or EPA guidance requiring that ambient air property restriction measures be made enforceable via the SIP. As a matter of practice, companies have a vested interest in maintaining and securing their properties against public access. Other regulations may already apply that would require the companies to strictly monitor public access to their properties, such as the Federal Mine Health and Safety Act, in the case of the Streetman Plant, since there is an active mine on the property. There are also potential national security concerns that could arise with requiring ambient air property restriction plans to be reviewed and approved by the TCEQ and the EPA.

**No changes were made based on this comment.**

The EPA suggests requiring testing of startup and shutdown MSS scenarios begin within 90 days of the effective date of the Chapter 112 rules to verify the assumptions and determine the need for modeling.

**The CEMS unit to be added to the stack will continuously measure emissions during startup and shutdown as well as during normal operations. As a result, additional testing is not needed for these periods. No change to the rules was made in response to this comment.**

# Texas Commission on Environmental Quality



## ORDER ADOPTING REVISION TO THE STATE IMPLEMENTATION PLAN

**Docket No. 2022-0134-SIP**  
**Project No. 2021-012-SIP-NR**

On October 5, 2022, the Texas Commission on Environmental Quality (Commission), during a public meeting, considered adoption of a revision to the State Implementation Plan (SIP) consisting of an attainment demonstration for the Navarro County 2010 One-Hour Sulfur Dioxide (SO<sub>2</sub>) Nonattainment Area (Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision). The Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision addresses federal Clean Air Act requirements for SO<sub>2</sub> nonattainment areas including a comprehensive inventory of current SO<sub>2</sub> emissions; evaluation and provision for implementing all reasonably available control measures and reasonably available control technology; air quality dispersion modeling to demonstrate attainment; a reasonable further progress demonstration; contingency measures; and certification that nonattainment New Source Review requirements are met. The Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision included an associated rulemaking, 30 Texas Administrative Code, Chapter 112, Subchapter G, that provided the enforceable control strategy necessary to demonstrate attainment, which was considered separately by the Commission. Under Tex. Health & Safety Code Ann. §§ 382.011, 382.012, and 382.023 (West 2016), the Commission has the authority to control the quality of the state's air and to issue orders consistent with the policies and purposes of the Texas Clean Air Act, Chapter 382 of the Tex. Health & Safety Code. Notice of the public hearing regarding the proposed Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision was published in the April 29, 2022, issue of the *Texas Register* (47 TexReg 2598), the April 15, 2022 edition of the *Dallas Morning News*, and the April 16, 2022 edition of the *Corsicana Daily Sun*.

Pursuant to 40 Code of Federal Regulations § 51.102 and after proper notice, the Commission offered the public an opportunity for a public hearing to consider the Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision. Proper notice included prominent advertisement in the area affected at least 30 days prior to the date of the hearing. A public hearing was offered in Corsicana, Texas on May 23, 2022 but was not opened because no one signed up to comment.

The Commission circulated hearing notices of its intended action to the public, including interested persons, the Regional Administrator of the EPA, and all applicable local air pollution control agencies. The public was invited to submit data, views, and recommendations on the proposed Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision, either orally or in writing, at the hearing or during the comment period. Prior to the scheduled hearing, a copy of the proposed attainment demonstration SIP revision was available for public inspection at the Commission's central office and on the Commission's website.

Data, views, and recommendations of interested persons regarding the proposed attainment demonstration SIP revision were submitted to the Commission during the comment period and were considered by the Commission as reflected in the analysis of testimony incorporated by reference to this Order. The Commission finds that the analysis of testimony includes the names of all interested

groups or associations offering comment on the proposed attainment demonstration SIP revision and their position concerning the same.

IT IS THEREFORE ORDERED BY THE COMMISSION that the Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision incorporated by reference to this Order is hereby adopted. The adopted Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision is incorporated by reference in this Order as if set forth at length verbatim in this Order.

IT IS FURTHER ORDERED BY THE COMMISSION that on behalf of the Commission, the Chairman should transmit a copy of this Order, together with the adopted Navarro County 2010 SO<sub>2</sub> Attainment Demonstration SIP Revision to the Regional Administrator of EPA as a proposed revision to the Texas SIP pursuant to the Federal Clean Air Act, codified at 42 U.S. Code Ann. §§ 7401 - 7671q, as amended.

If any portion of this Order is for any reason held to be invalid by a court of competent jurisdiction, the invalidity of any portion shall not affect the validity of the remaining portions.

TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY

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Jon Niermann, Chairman

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Date Signed