TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AGENDA ITEM REQUEST

for Proposed State Implementation Plan Revision

AGENDA REQUESTED: April 13, 2022

DATE OF REQUEST: March 25, 2022

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

CAPTION: Docket No. 2022-0133-SIP. Consideration for publication of, and hearing on, the proposed Hutchinson County Attainment Demonstration State Implementation Plan (SIP) Revision for the 2010 One-Hour Sulfur Dioxide (SO_2) National Ambient Air Quality Standard (NAAQS). The proposed SIP revision addresses federal Clean Air Act (FCAA) SIP requirements for the Hutchinson County SO_2 nonattainment area by including a comprehensive inventory of current SO_2 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 proposed 30 Texas Administrative Code Chapter 112 Subchapter F rulemaking (Rule Project No. 2021-035-112-AI) would provide the enforceable control strategy needed to demonstrate attainment of the 2010 SO_2 NAAQS by the April 30, 2026 attainment date. (Mary Ann Cook, Terry Salem, John Minter; SIP Project No. 2021-011-SIP-NR)

Tonya Baer
Director

Donna F. Huff
Deputy Director

Jamie Zech
Agenda Coordinator

Copy to CCC Secretary? NO ☒ YES ☐

Texas Commission on Environmental Quality
Interoffice Memorandum

To: Commissioners **Date:** March 25, 2022

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

From: Tonya Baer, Director
Office of Air

Docket No.: 2022-0133-SIP

Subject: Commission Approval to Propose the Hutchinson County Attainment Demonstration State Implementation Plan (SIP) Revision for the 2010 One-Hour Sulfur Dioxide (SO_2) National Ambient Air Quality Standard (NAAQS)

Hutchinson County 2010 SO_2 Attainment Demonstration SIP Revision
SIP Project No. 2021-011-SIP-NR

Background and reason(s) for the SIP revision:
On June 22, 2010, the United States Environmental Protection Agency (EPA) revised the SO_2 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_2 NAAQS, the EPA designated a portion of Hutchison County as nonattainment, effective April 30, 2021 (86 FR 16055). Texas is required to submit an attainment demonstration SIP revision for the Hutchinson County nonattainment area to the EPA by October 30, 2022. The SIP revision is required to demonstrate attainment of the 2010 SO_2 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 proposed SIP Revision would fulfill Texas' federal Clean Air Act (FCAA) SIP planning requirements for the 2010 One-Hour SO_2 NAAQS in the Hutchinson County nonattainment area. The proposed SIP revision, together with the associated proposed 30 Texas Administrative Code Chapter 112, Subchapter F rulemaking (Rule Project No. 2021-035-112-AI), will document the state's plan to achieve the emission reductions required to demonstrate attainment of the SO_2 NAAQS in the Hutchinson County nonattainment area and meet other FCAA-required SIP elements.

A.) Summary of what the SIP revision would do:
If adopted by the commission and approved by the EPA, this proposed SIP revision, along with associated proposed Chapter 112 rulemaking, would demonstrate attainment and maintenance of the 2010 SO_2 NAAQS in the Hutchinson County nonattainment area as expeditiously as practicable, and 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 proposed attainment demonstration SIP revision includes a comprehensive inventory of current SO_2 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_2 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 Hutchinson County 2010 SO_2 nonattainment area.

This SIP revision submittal must demonstrate that the 2010 SO_2 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_2 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 jurisdiction and discharge its duties.

The authority to propose and adopt the proposed 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 Hutchinson County nonattainment area to attain the 2010 SO_2 NAAQS, SO_2 emission reductions are necessary. The control strategy for demonstrating attainment of the 2010 SO_2 NAAQS in the Hutchinson County nonattainment area would be made enforceable with commission adoption and EPA approval of the associated proposed Chapter 112 rulemaking. Applicable facilities in the nonattainment area would be required to comply with all requirements and stipulations of the associated proposed rule rulemaking.

B.) Public:
The public in the nonattainment area, and possibly the surrounding areas, would benefit from improved air quality due to lower SO_2 emission levels resulting from implementation of the control strategy in this proposed SIP revision.

C.) Agency programs:
No impact on agency programs is anticipated from this proposed SIP revision.

Stakeholder meetings:
If this proposed SIP revision and associated proposed rulemaking are approved by the commission for public comment and public hearing, then a public comment period will be opened, and a public hearing will be offered.

Potential controversial concerns and legislative interest:
None.

Would 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?
The commission could choose to not comply with the requirements to develop and submit this attainment demonstration SIP revision to the EPA. However, if this SIP revision is not submitted to

the EPA by the submittal deadline, the EPA could issue a finding of failure to submit, requiring that the TCEQ submit the required SIP revision within a specified period. The EPA could also impose sanctions on the state. Sanctions could include 200% emissions offsets 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 revision for the area.

Key points in the SIP revision schedule:

Anticipated proposal date: April 13, 2022
Anticipated public hearing date: May 19, 2022
Anticipated public comment period: April 15, 2022 through June 2, 2022
Anticipated adoption date: October 5, 2022

Agency contacts:

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

HUTCHINSON COUNTY 2010 SULFUR DIOXIDE STANDARD NONATTAINMENT AREA

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

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

2021-011-SIP-NR

Proposal
April 13, 2022

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EXECUTIVE SUMMARY

On June 22, 2010, the United States Environmental Protection Agency (EPA) revised the sulfur dioxide (SO_2) 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_2 NAAQS, the EPA designated a portion of Hutchinson 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 Hutchinson County 2010 SO_2 NAAQS nonattainment area to the EPA by October 30, 2022. The attainment demonstration SIP revision is required to demonstrate attainment of the 2010 SO_2 NAAQS as expeditiously as practicable but no later than five years after the effective date of designation, or April 30, 2026.

This proposed Hutchinson County Attainment Demonstration SIP Revision for the 2010 One-Hour SO_2 NAAQS demonstrates that the Hutchinson County nonattainment area will attain the 2010 SO_2 NAAQS by the April 30, 2026 attainment date.

In accordance with federal Clean Air Act (FCAA), §172 general requirements and FCAA, §191 and §192 specific requirements, this proposed Hutchinson County Attainment Demonstration SIP Revision for the 2010 One-Hour SO_2 NAAQS includes a comprehensive inventory of current SO_2 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_2 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 Hutchinson County 2010 SO_2 nonattainment area.

This proposed SIP revision incorporates associated proposed 30 Texas Administrative Code (TAC) Chapter 112, Subchapter F rules (Rule Project No. 2021-035-112-AI). The proposed rulemaking provides an enforceable control strategy that limits emissions at applicable emissions sources in the nonattainment area to a level necessary to attain the 2010 SO_2 NAAQS. This proposed SIP revision, together with the associated proposed Chapter 112 rule revisions, fulfills Texas' FCAA SIP planning requirements for the Hutchinson County nonattainment area for the 2010 SO_2 NAAQS.

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, 2019
TEXAS WATER CODE	September 1, 2019

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 35: Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions	
Subchapter A: Purpose, Applicability, and Definitions	December 10, 1998
Subchapter B: Authority of Executive Director	December 10, 1998
Subchapter C: General Provisions	March 24, 2016
Subchapter K: Air Orders	July 20, 2006
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 10, 2021
Chapter 55: Requests for Reconsideration and Contested Case Hearings; Public Comment, all of the chapter, except §55.125(a)(5) and (6)	September 10, 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	August 3, 2017
Chapter 112: Control of Air Pollution from Sulfur Compounds	July 16, 1997
Chapter 113: Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants	May 14, 2009
Chapter 114: Control of Air Pollution from Motor Vehicles	July 2, 2020
Chapter 115: Control of Air Pollution from Volatile Organic Compounds	July 22, 2021

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_2 State Implementation Plan (SIP) Revision (No change)
    2. Milam County SO_2 SIP Revision (No change)
    3. Attainment Demonstration for the Rusk-Panola 2010 SO_2 NAAQS Nonattainment Area (No change)
    4. Redesignation Request and Maintenance Plan for the Freestone-Anderson and Titus 2010 SO_2 NAAQS Nonattainment Areas (No change)
    5. Attainment Demonstration SIP Revision for the Howard County 2010 SO_2 NAAQS Nonattainment Area (Concurrent proposal under consideration)
    6. Attainment Demonstration SIP Revision for the Hutchinson County 2010 SO_2 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
    7. Attainment Demonstration SIP Revision for the Navarro County 2010 SO_2 NAAQS Nonattainment Area (Concurrent proposal under consideration)
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)

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LIST OF ACRONYMS

AEDT	Aviation Environmental Design Tool
AERR	Air Emissions Reporting Requirements
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
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
FCCU	Fluid Catalytic Cracking Units
FM	Farm to Market
FMVCP	Federal Motor Vehicle Control Program
FR	*Federal Register*
FSA	full system audit
GSE	ground support equipment
hr	hour
HRSG	heat recovery steam generator
ICI	Industrial, Commercial, and Institutional
km	kilometers
lb	pound
MMBtu	one million British Thermal Units
MOVES	Motor Vehicle Emission Simulator
MSS	maintenance, startup, and shutdown
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
SIL	significant impact level
SIP	state implementation plan
SO_2	sulfur dioxide
SRU	sulfur recovery unit
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

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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 webpage (http://www.tceq.texas.gov/airquality/sip) and on the Texas Commission on Environmental Quality's (TCEQ) website (http://www.tceq.texas.gov/).

1.2 HISTORY OF THE HUTCHINSON 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_2) 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 Hutchinson County. An updated recommendation submitted to the EPA on April 20, 2012 did not change the state's initial recommendation for Hutchinson County.

On July 27, 2012, the EPA extended its deadline for area designations for the 2010 primary SO_2 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_2 standard, effective October 4, 2013 (78 FR 47191). These were 29 areas that had monitored data indicating violations of the 2010 SO_2 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_2 standard designations.

The EPA's Data Requirements Rule (DRR) for the 2010 SO_2 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_2 monitor at the Borger Farm to Market 1559 site (air quality system number 482331073) on November 16, 2016, in Hutchinson 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*.[1] 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.

[1] https://www.epa.gov/sites/default/files/2019-09/documents/round_4_so2_designations_memo_09-05-2019_final.pdf

This Hutchinson County SO_2 attainment demonstration, in accordance with FCAA, §172 general requirements and FCAA, §191 and §192 specific requirements, includes a comprehensive inventory of current SO_2 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 meet an RFP milestone by the deadline; and the state's certification that current regulations provide the means to satisfy nonattainment New Source Review requirements for the Hutchinson County 2010 SO_2 nonattainment area.

This SIP revision for Hutchinson County is proposed concurrent with proposed attainment demonstration SIP revisions for the Howard County (Non-Rule Project No. 2021-010-SIP-NR) and Navarro County (Non-Rule Project No. 2021-012-SIP-NR) 2010 SO_2 NAAQS nonattainment areas and an associated proposed 30 Texas Administrative Code Chapter 112, Subchapter F rulemaking (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 commission will hold a public hearing for this proposed SIP revision at the following time and location.

Table 1-1: Public Hearing Information

City	Date	Time	Location
Borger	May 19, 2022	6:00 p.m. CDT	Borger City Hall City Council Room 600 N. Main Street Borger, Texas 79007

The public comment period will open on April 15, 2022, and close on June 2, 2022. Written comments will be accepted via mail, fax, or through the eComments (https://www6.tceq.texas.gov/rules/ecomments/) system. All comments should reference the "Hutchinson County 2010 SO_2 NAAQS Attainment Demonstration SIP Revision" and should reference Project Number 2021-012-SIP-NR. Comments may be submitted to Mary Ann Cook, MC 206, State Implementation Plan Team, Air Quality Division, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087 or faxed to (512) 239-6188. Electronic comments must be submitted through the eComments system. File size restrictions may apply to comments being submitted via the eComments system. Comments must be received by June 2, 2022.

An electronic version of this proposed Hutchinson County 2010 SO_2 NAAQS Attainment Demonstration SIP Revision is provided on the TCEQ's Air Pollution from Sulfur Dioxide webpage (https://www.tceq.texas.gov/airquality/sip/criteria-pollutants/sip-so2#latest-air-quality-planning). An electronic version of the hearing notice will be available on the Texas SIP Revisions webpage (https://www.tceq.texas.gov/airquality/sip/sipplans.html#prosips).

1.4 HEALTH EFFECTS

Current scientific evidence links short-term exposures to SO_2, 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 symptoms 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_2 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 significant SO_2 emissions sources located in the Hutchinson County 2010 SO_2 NAAQS nonattainment area held regular meetings during the development of this proposed SIP revision to discuss modeling, control strategies, contingency measures, and development of the associated proposed Chapter 112 rules. The TCEQ, representatives of significant SO_2 emissions sources in the Hutchinson County nonattainment area, 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 proposed rules. All controls to reach attainment will be borne by the emission sources identified in this proposed SIP revision and Chapter 112, Subchapter F of the associated proposed rules. As such, any economic impacts will be limited to each of the SO_2 sources associated with this proposed SIP revision and associated proposed rulemaking. The proposed rules are expected to have significant fiscal impact to the affected sources in Hutchinson County, and those impacts are discussed in the preamble to the proposed rules. The citizens living and working within the nonattainment area will benefit from reduced SO_2 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 that 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_2) 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 site or source category. The total anthropogenic inventory of SO_2 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 Hutchinson County 2010 SO_2 National Ambient Air Quality Standard (NAAQS) nonattainment area dispersion modeling.

The most current periodic EI data were analyzed as part of this proposed state implementation plan (SIP) revision. The TCEQ chose 2017 as the base year for most of 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 proposed 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 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.

Eight point source sites are located in the Hutchinson County 2010 SO_2 NAAQS nonattainment area. Details about these point source sites are provided in Table 2-1: *Hutchinson County Nonattainment Area Point Source SO_2 Emissions Sources by Industry Type*.

The carbon black, industrial organic chemicals, natural gas processing, and petroleum refining industries emit over 99% of the 2017 base year SO_2 emissions in the Hutchinson County 2010 SO_2 NAAQS nonattainment area.

Table 2-1: Hutchinson County Nonattainment Area Point Source SO_2 Emissions Sources by Industry Type

Company	Site	Point Source Name	Regulated Entity Reference Number (RN)	Industry Type
Orion Engineered Carbons LLC	Borger Carbon Black Plant	Orion Borger Carbon Black Plant	RN100209659	Carbon Black
Tokai Carbon CB LTD	Borger Carbon Black Plant	Tokai Borger Carbon Black Plant	RN100222413	Carbon Black
Chevron Phillips Chemical LP	Borger Plant	CP Chem Borger Plant	RN102320850	Industrial Organic Chemicals
Solvay Specialty Polymers USA LLC	Solvay Specialty Polymers USA	Solvay Specialty Polymers Plant	RN107829640	Industrial Organic Chemicals
Phillips 66 Company	Borger Refinery	P66 Borger Refinery	RN102495884	Petroleum Refining
IACX Rock Creek LLC	Rock Creek Gas Plant	IACX Rock Creek Gas Plant	RN100216613	Natural Gas Processing
Borger Energy Associates LP	Blackhawk Power Plant	Blackhawk Power Plant	RN100217298	Natural Gas Electric Generating Unit
Agrium US LLC	Borger Nitrogen Operations	Agrium Borger Nitrogen Plant	RN101865715	Fertilizer Plant

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_2 in tons per year (tpy) for the eight point sources located in the Hutchinson County 2010 SO_2 NAAQS nonattainment area.

The 2017 base year point source SO_2 EI is summarized in Table 2-2: *Hutchinson County Nonattainment Area SO_2 Emissions.*

2.2.2 2026 Attainment Year Point Source Emissions Inventory

If this proposed SIP revision and the associated proposed 30 TAC Chapter 112, Subchapter F rulemaking (Rule Project No. 2021-035-112-AI) are adopted by the commission, the CP Chem Borger Plant, IACX Rock Creek Gas Plant, Orion Borger Carbon Black Plant, P66 Borger Refinery, and Tokai Borger Carbon Black Plant will be subject to the TCEQ SO_2 emissions regulations required for attainment. The 2026 forecasted controlled actual emissions were determined from historical emissions and/or the application of enforceable requirements from consent decrees, rules, modeled emissions rates, and/or permits to affected sources.

For sources subject to enforceable requirements that have annual permitted limits lower than the historical average, the 2026 forecasted controlled emissions were projected to the annual permitted limits. For sources that did not report point source emissions inventory data, the 2026 forecasted emissions were determined from modeled emissions rates or rule limits. The 2026 attainment year SO_2 emissions inventories increased for the P66 Borger Refinery (approximately 40 tons) and the IACX Rock Creek Gas Plant (approximately 12 tons) due to emissions from sources that either were not built and/or did not report routine emissions in the 2017 base year emissions inventory.

For other sources, the 2026 forecasted emissions were determined from historical emissions. The historical emissions were the average of the reported 2017 through 2020 annual point source inventory SO_2 emissions. The TCEQ extracted the 2017 through 2020 point source inventory data from STARS on December 8, 2021. The extracted data include reported annual (routine) SO_2 emissions in tpy for point sources located in the Hutchinson County 2010 SO_2 NAAQS nonattainment area. The 2017 through 2020 emissions average was held constant to project the 2026 forecasted emissions.

Appendix A: *Stationary Point Sources Sulfur Dioxide (SO_2) Emissions* provides details on the 2017 base year SO_2 emissions and 2018 through 2020 point source inventory SO_2 emissions, and the 2026 projected SO_2 emissions by emissions point number.

The 2026 attainment year point source SO_2 EIs are summarized in Table 2-2.

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_2 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 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 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_2 EI is summarized in Table 2-2.

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 Texas Railroad Commission 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.

No controls were incorporated into the area source attainment year inventories.

The 2026 attainment year area source SO_2 EI is summarized in Table 2-2.

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 proposed 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_2 EIs are summarized in Table 2-21.

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_2 emissions for this proposed 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_2 emissions for this proposed 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 proposed 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_2 emissions for this proposed 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_2 emissions for this proposed 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 proposed 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 proposed 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_2 emissions for this proposed 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_2 emissions for this proposed 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_2 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 proposed 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. Because 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_2 emissions for this proposed 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_2 emissions from mobile sources.

The 2017 base year on-road mobile source SO_2 EI is summarized in Table 2-2.

2.5.2 2026 Attainment Year On-Road Mobile Emissions Inventory

TCEQ staff developed the 2026 attainment year on-road mobile source category SO_2 emissions for this proposed 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_2 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 webpage (https://www.tceq.texas.gov/airquality/airmod/project/pj.html).

2.7 EMISSIONS SUMMARIES

The 2017 base year and 2026 attainment year Hutchinson County 2010 SO_2 NAAQS nonattainment area SO_2 emissions for this proposed SIP revision are summarized in Table 2-2. 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 (over 99%) of SO_2 emissions in the Hutchinson County 2010 SO_2 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, the area, non-road mobile, and on-road mobile sources emissions are typically calculated as county-wide totals for Hutchinson County. To obtain area, non-road mobile, and on-road mobile source emissions for the Hutchinson County 2010 SO_2 NAAQS nonattainment area for this proposed 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 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 2-2: Hutchinson County Nonattainment Area SO_2 Emissions in TPY

Source Category	2017 Base Year Reported Emissions (TPY)	2026 Attainment Year Emissions (TPY)
Point – Orion Borger Carbon Black Plant	3,706.09	481.96
Point – Tokai Borger Carbon Black Plant	6,949.59	5,014.26
Point – CP Chem Borger Plant	530.11	441.58
Point – Solvay Specialty Polymers Plant	0.19	0.15
Point – P66 Borger Refinery	204.89	244.39
Point – IACX Rock Creek Gas Plant	184.14	196.43
Point – Blackhawk Power Plant	71.80	70.88
Point – Agrium Borger Nitrogen Plant	0.73	0.90
Area – Other than Oil and Gas	4.51	8.10
Area – Oil and Gas	0.80	0.49
On-road Mobile	0.84	0.71
Non-road Mobile	0.30	0.29
Total	11,653.99	6,460.14

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 Hutchinson County as nonattainment for the 2010 sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS), with a rule effective date of April 30, 2021 (86 *Federal Register* (FR) 16055). The SO_2 nonattainment area designated by the EPA includes the following sites of SO_2 emissions, owned and operated by the following regulated entities:

- Tokai Carbon CB LTD's Borger Carbon Black Plant site (Tokai Borger Carbon Black Plant),
- Orion Engineered Carbons LLC's Borger Carbon Black Plant site (Orion Borger Carbon Black Plant),
- Agrium US LLC's Borger Nitrogen Operations site (Agrium Borger Nitrogen Plant),
- IACX Rock Creek LLC's Rock Creek Gas Plant site (IACX Rock Creek Gas Plant),
- Borger Energy Associates LP's Blackhawk Power Plant site (Blackhawk Power Plant),
- Chevron Phillips Chemical LP's Borger Plant site (CP Chem Borger Plant),
- Solvay Specialty Polymers USA LLC's Solvay Specialty Polymers USA site (Solvay Specialty Polymers Plant), and
- Phillips 66 Company's Borger Refinery site (P66 Borger Refinery).

The CP Chem Borger Plant manufactures specialty chemicals and plastics with various industrial applications. The IACX Rock Creek Gas Plant is a natural gas gathering plant. The Tokai Borger Carbon Black Plant and Orion Borger Carbon Black Plant manufacture carbon black for use in various industrial applications, such as tires. The P66 Borger Refinery is owned by WRB Refining LP and operated by P66 and processes primarily medium sour crude oil and natural gas oil. The Solvay Specialty Polymers Plant manufacturers polymers and composite materials, various chemicals, and various consumer and industrial solutions. The Agrium Borger Nitrogen Plant specializes in the manufacture of nitrogen products for agricultural, industrial, and feed customers. The Blackhawk Power Plant is an electric power generating station. All eight sites located in the area designated nonattainment for the 2010 SO_2 NAAQS are covered under this state implementation plan (SIP) revision. Only five of the eight sites, the CP Chem Borger Plant, the IACX Rock Creek Gas Plant, the Orion Borger Carbon Black Plant, the P66 Borger Refinery, and the Tokai Borger Carbon Black Plant, are proposed to be included in the associated proposed 30 Texas Administrative Code (TAC) Chapter 112, Subchapter F rulemaking. The EPA has historically used pollutant-specific concentration levels, known as significant impact levels (SIL), to identify the degree of air quality impact that causes or contributes to a violation of the NAAQS or a New Source Review (NSR) Prevention of Significant Deterioration permit program increment. As a result, the TCEQ used the SIL for SO_2 of 3 parts per billion (ppb) or 7.85 micrograms per cubic meter ($\mu g/m^3$) to determine which emission points were most likely to be significant contributors to nonattainment.

Through air dispersion modeling, the TCEQ identified the SO_2 emission rates that modeled attainment by using an iterative process that included modeling and consultation with the affected sites in the nonattainment area. The associated proposed Chapter 112 rulemaking would specify the SO_2 emission rates determined

necessary to model attainment of the 2010 SO_2 NAAQS in the Hutchinson County nonattainment area.

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 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 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 proposed SIP revision describes a control strategy that consists of permanent, quantifiable, and enforceable emission reductions at the CP Chem Borger Plant; the IACX Rock Creek Gas Plant; the Orion Borger Carbon Black Plant; the P66 Borger Refinery; and the Tokai Borger Carbon Black Plant necessary to demonstrate attainment of the 2010 SO_2 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 proposed SIP revision and the associated proposed 30 Texas Administrative Code (TAC) Chapter 112, Subchapter F rulemaking (Rule Project No. 2021-035-112-AI) provide the mechanism to make quantifiable SO_2 emissions 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_2 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 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_2 Nonattainment Area SIP Submissions* (2014 SO_2 SIP guidance) maintains previous EPA guidance regarding the definition of RACT.[2] The 2014 SO_2 SIP

[2] EPA, April 23, 2014. *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions* (https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf).

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.

Because modeling of the sources at the Solvay Specialty Polymers Plant, the Agrium Borger Nitrogen Plant, the Blackhawk Power Plant, and several sources at the CP Chem Borger Plant, the IACX Rock Creek Gas Plant, the Orion Borger Carbon Black Plant, the P66 Borger Refinery, and the Tokai Borger Carbon Black Plant found those sources of SO_2 emissions to have impacts below the SO_2 SIL of 3 ppb (7.85 µg/m^3), those sources were determined not to have a significant impact in the nonattainment area. Because the TCEQ determined that those sources do not have a significant impact, RACM, including RACT, are not required to be applied to those sources as part of the overall control strategy to reduce SO_2 emissions and attain and maintain the 2010 SO_2 NAAQS.

The five sites of SO_2 described above in Section 3.1: *Introduction* contain the sources of SO_2 determined to significantly contribute to nonattainment in the Hutchinson County 2010 SO_2 NAAQS nonattainment area and are the only sources for which RACM, including RACT, are required to be applied under FCAA §172(c)(1).

The CP Chem Borger Plant will implement RACM, including RACT, through implementation of final SO_2 emissions limits on the following sources at the site:

- A sulfolene handling area, including a building and trailer with the following limitations:
  - An SO_2 limit of 1.00 pound per hour (lb/hr) for the sulfolene building and trailers designated as Emission Point Number (EPN) F-M2A_1); and
  - An SO_2 limit of 0.98 lb/hr for the parking and storage area for the trailers for sulfolene designated as EPN F-M2A_2; and
- Source cap for the North flare and South flare with an SO_2 limit of 430.00 lb/hr.

The IACX Rock Creek Gas Plant will implement RACM, including RACT, through implementation of final SO_2 emissions limits on the following sources at the site:

- Acid gas flare with an SO_2 limit of 140.00 lb/hr; and
- Acid gas incinerator with an SO_2 limit of 140.00 lb/hr.

The IACX Rock Creek Gas Plant would also be prohibited from operating the acid gas flare and acid gas incinerator simultaneously in the associated proposed 30 TAC Chapter 112, Subchapter F rulemaking.

The Orion Borger Carbon Black Plant will implement RACM, including RACT, through implementation of final SO_2 emissions limits on the following sources at the site:

- Waste heat boiler with circulating dry scrubber with an SO_2 limit of 144.11 lb/hr; and
- New combined flare to be constructed and operated with an SO_2 limit of 750.05 lb/hr.

If the new combined flare were not constructed by the proposed rule compliance date, no flaring would be allowed at the site until the new flare were constructed in the associated proposed 30 TAC Chapter 112, Subchapter F rulemaking (Rule Project No.

2021-035-112-AI). The new combined flare would also be required to be constructed with a stack height of no less than 65.00 meters, and the new combined flare must receive all waste gases instead of the existing three flares at the site, which are expected to be permanently shut down.

The P66 Borger Refinery will implement RACM, including RACT, through implementation of final SO_2 emissions limits on the following sources at the site:

- Sulfur recovery unit (SRU) 1 incinerator with an SO_2 limit of 44.82 lb/hr during routine operations;
- SRU 2 incinerator with an SO_2 limit of 37.00 lb/hr during routine operations;
- Source cap for the SRU 1 and SRU 2 incinerators, designated as EPN SRU_MS_CAP, during maintenance, startup, and shutdown (MSS) operations with an SO_2 limit of 94.00 lb/hr;
- Limitation on operation of the two SRU incinerators in the source cap EPN SRU_MS_CAP to only one SRU incinerator at a given time during SRU MSS operations;
- Source cap designated as EPN FLARE_R_CAP for each of the four flares covered by the associated proposed Chapter 112 rule with an SO_2 limit of 100.14 lb/hr during routine operations;
- Source cap designated as EPN FLARE_MS_CAP for each of the four flares covered by the associated proposed Chapter 112 rule with an SO_2 limit of 850.00 lb/hr during MSS operations;
- Source cap designated as EPN Flex_R_CAP comprising the sources listed in Table 4-9: *P66 Borger Refinery Point Sources* of Chapter 4 of this proposed SIP revision with an SO_2 limit of 185.69 lb/hr during routine operations;
- Source cap designated as EPN Flex_MS_CAP comprising the sources listed in Table 4-9: *P66 Borger Refinery Point Sources* of Chapter 4 of this proposed SIP revision with an SO_2 limit of 106.05 lb/hr during MSS operations;
- Two Fluidized catalytic cracking units (FCCU) with the following limitations:
  - For FCCU designated as EPN 29P1:
    - An SO_2 limit of 155.49 lb/hr during routine operations;
    - An SO_2 limit of 155.49 lb/hr during MSS operations with an exhaust flow rate of at least 210,922.60 actual cubic meters per hour (acmh);
    - An SO_2 limit of 140.00 lb/hr during MSS operations with an exhaust flow rate between 158,191.95 acmh and 210,922.59 acmh;
    - An SO_2 limit of 130.00 lb/hr during MSS operations with an exhaust flow rate between 105,461.30 acmh and 158,191.94 acmh; and
    - Exhaust flow rates less than 105,461.30 acmh would be prohibited by the associated proposed Chapter 112 rule;
- For FCCU designated as EPN 40P1:
    - An SO_2 limit of 155.49 lb/hr during routine operations;
    - An SO_2 limit of 155.49 lb/hr during MSS operations with an exhaust flow rate of at least 298,242.71 actual cubic meters per hour (acmh);
    - An SO_2 limit of 140.00 lb/hr during MSS operations with an exhaust flow rate between 223,682.03 acmh and 298,242.70 acmh;
    - An SO_2 limit of 130.00 lb/hr during MSS operations with an exhaust flow rate between 149,121.36 acmh and 223,682.02 acmh; and

- Exhaust flow rates less than 149,121.36 acmh would be prohibited by the associated proposed Chapter 112 rule.

The P66 Borger Refinery would also be required to implement a limit on the sulfur content of any refinery gas stream combusted in any flare covered by the proposed rule to a maximum of 162 parts per million by volume hydrogen sulfide determined on a three-hour rolling average and the proposed SO_2 limits previously described in the associated proposed 30 TAC Chapter 112, Subchapter F rulemaking.

Finally, the Tokai Borger Carbon Black Plant will implement RACM, including RACT, through implementation of SO_2 emissions limits on the following sources at the site:

- Two Boilers, with a combined stack, designated as EPN 119, with an SO_2 limit of 109.10 lb/hr, when Boilers 1 or 2 are operating, singly or together;
- Plant 1 dryer stack, designated as EPN 121, with an SO_2 limit of 441.40 lb/hr;
- Plant 2 dryer stack, designated as EPN 122, with an SO_2 limit of 595.60 lb/hr;
- If a new flare is not constructed and operated, the following limitations:
  - An SO_2 limit of 420.00 lb/hr for the existing flare, referred to as the Plant 1, Unit 1 Primary Bag Filter Flare, designated as EPN Flare-1;
  - An SO_2 limit of 0.00 lb/hr for EPN 119;
  - An SO_2 limit of 250.00 lb/hr for EPN 121; and
  - An SO_2 limit of 400.00 lb/hr EPN 122;
- If a new flare is constructed and operated, the following limitations:
  - An SO_2 limit of 806.60 lb/hr for the new flare, to be referred to as the New Flare, to be designated as EPN New-Flare;
  - An SO_2 limit of 0.00 lb/hr for EPN 119;
  - An SO_2 limit of 272.50 lb/hr for EPN 121; and
  - An SO_2 limit of 436.00 lb/hr EPN 122.

The Tokai Borger Carbon Black Plant has not yet determined if it will rely on its existing flare or if it will construct and operate a new flare. In the associated proposed 30 TAC Chapter 112, Subchapter F rulemaking, in no circumstance would the site be allowed to operate more than one flare. The associated proposed Chapter 112 rulemaking would address this operational scenario for the possibility of relying on the existing flare or a newly constructed flare. Additionally, the associated proposed Chapter 112 rulemaking would require the permanent shut down of the existing three flares (EPNs Flare-2, Flare-3, and Flare-4) if the new flare were not constructed and operated; conversely, if the new flare were constructed and operated, all four existing flares (EPNs Flare-1, Flare-2, Flare-3, and Flare-4) would be required to be permanently shut down. If the new flare were constructed and operated, it would be required to have a stack height of no less than 60.35 meters, receive all waste gases instead of the existing four flares, and operate only when both boilers would not be operating. Otherwise, pursuant to the associated proposed 30 TAC Chapter 112, Subchapter F rulemaking, the existing flare, EPN Flare-1, would be allowed to operate only when both boilers would not be operating.

In addition to the emissions limit on SO_2, the associated proposed 30 TAC Chapter 112, Subchapter F rulemaking contains 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.

An option for owners or operators to request an alternative SO_2 emission limit is also provided for in the proposed rulemaking. The owner or operator would be required to conduct and submit dispersion modeling and analysis that includes the requested new limit, all the inputs in the most recent attainment demonstration SIP, and follows the methodology laid out in the most recent attainment demonstration SIP. Any deviations from the modeling methodology from the most recent attainment demonstration would be required to be explained and approved by the executive director of the TCEQ and the EPA. The modeling and additional analyses would be required to confirm the modeled regulatory design value in the nonattainment area will not increase due to the new limit. The request would also be required to include any additional monitoring, testing, and recordkeeping requirements necessary to demonstrate compliance with the requested new limit. The owner or operator would only be allowed to comply with the alternative limit if the request is approved by both the TCEQ and the EPA. The alternative emission limit would satisfy RACM including RACT because it would ensure that any change in the emission limit would not increase the design values and will include monitoring, testing and recordkeeping necessary to determine compliance.

3.2.2 Enforceable Control Measures

The control measures needed to meet the final SO_2 emissions limits and to further demonstrate attainment of the 2010 SO_2 NAAQS in the Hutchinson County nonattainment area are made enforceable by the associated proposed 30 TAC Chapter 112, Subchapter F rulemaking. The associated proposed Chapter 112 rulemaking includes the control measures for attainment, the associated implementation schedules, and the contingency measures to be triggered in the event of failure to attain the 2010 SO_2 NAAQS. The associated proposed Chapter 112 rulemaking also makes enforceable the appropriate SO_2 emissions monitoring, testing, recordkeeping, and reporting requirements necessary to determine compliance with the final SO_2 emissions limits to ensure enforceability of the final SO_2 emissions limits in lb/hr for the five sites. The proposed compliance deadline is January 1, 2025.

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_2 NAAQS. SO_2 monitors are managed in accordance with 40 CFR Part 58 to provide data to determine compliance or progress towards compliance with the 2010 SO_2 NAAQS. The SO_2 monitor site evaluation and selection process considers the SO_2 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_2 NAAQS, the TCEQ deployed SO_2 monitors near sources meeting specifications referenced in the EPA's SO_2 Data Requirements Rule (DRR). To meet the relevant requirement of the DRR, the TCEQ deployed an SO_2 monitor at the Borger Farm to Market (FM) 1559 site (air quality system number 482331073) on November 16, 2016, in Hutchinson County. A portion of Hutchinson County 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 Borger FM 1559 SO_2 monitor is 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 reasonable further progress, 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_2 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_2 SIP guidance, the EPA acknowledged that SO_2 presents special considerations as a directly emitted pollutant. The EPA stated that control efficiencies are well understood for SO_2 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 would attain the 2010 SO_2 NAAQS, it would be unlikely for the area to then fail to meet the NAAQS. As such, the EPA's 2014 SO_2 SIP guidance stated that a comprehensive program to identify sources causing a violation of the 2010 SO_2 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 Hutchinson County 2010 SO_2 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 based on the modeling, control strategy implementation, and monitoring data available that the affected nonattainment area failed to attain the 2010 SO_2 NAAQS, 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_2 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_2 NAAQS. Texas has the authority to promulgate rules according to THSC, §382.017 and TWC, §5.103. State administrative procedures require that proposed 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 sites in the Hutchinson County 2010 SO_2 NAAQS nonattainment area determined to have a significant impact on attainment of the 2010 SO_2 NAAQS are the five sites listed and described in Section 3.1: *Introduction* and Section 3.2: *Permanent and Enforceable Measures* of this SIP revision. The control strategy that will be made enforceable if the associated proposed Chapter 112 rulemaking is adopted, discussed in Section 3.2.4: *Enforceable Control Measures* of this chapter, is protective of and provides for attainment of the 2010 SO_2 NAAQS. The TCEQ's comprehensive program to identify sources of violations of the 2010 SO_2 NAAQS is satisfied through the monitoring network discussed in Section 3.3: *Monitoring Network* of this proposed 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 TCEQ's enforcement authority.

Upon the effective date of a determination by the EPA that the affected nonattainment area in Hutchinson County failed to attain the 2010 SO_2 NAAQS, pursuant to FCAA §179(c), 42 United States Code (U.S.C.), §7509(c), all five sites listed in Section 3.1: *Introduction* of this SIP revision would be notified by the TCEQ that a full system audit (FSA) is required of all SO_2 emissions units at the five sites, respectively, subject to the associated Chapter 112 rulemaking proposed concurrently with this SIP revision. Within 90 calendar days of the effective date of the EPA's determination of failure to attain the SO_2 NAAQS, all five sites, respectively, must submit the FSA, including recommended provisional SO_2 emission control strategies, to the TCEQ's Deputy Director of the Air Quality Division (AQD).

As part of the FSA, all five sites, respectively, 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_2 from the sources of SO_2 covered in the associated proposed 30 TAC Chapter 112, Subchapter F rulemaking;
- the meteorological conditions at the monitor, including the frequency distribution of wind direction temporally correlated with SO_2 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.

TCEQ AQD staff will analyze the FSA to verify and/or determine the cause of the failure to attain the 2010 SO_2 NAAQS. Any additional or adopted revised SO_2 control strategy required to achieve attainment would 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 Hutchinson County for the 2010 SO_2 NAAQS. Since this proposed attainment demonstration SIP revision does not use a projection-base year inventory for SO_2 emissions, this proposed SIP revision establishes 2017 as the SIP emissions year for all affected point sources in the nonattainment area, under §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_2), particulate matter (PM_{10} and $PM_{2.5}$), SO_2, 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 Hutchinson County 2010 SO_2 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_2 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 Hutchinson County 2010 SO_2 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_2, PM_{10} and $PM_{2.5}$, and certain precursor pollutants in applicable NAAQS nonattainment and maintenance areas (40 CFR §93.102(b)(1)). SO_2 is not considered a transportation-related NAAQS, and the Hutchinson County 2010 SO_2 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_2 in certain $PM_{2.5}$ nonattainment and maintenance areas may be considered significant enough to subject the areas to transportation conformity requirements for SO_2 as a precursor pollutant. The Hutchinson County 2010 SO_2 NAAQS nonattainment area has never been designated nonattainment for another NAAQS, including $PM_{2.5}$, so only the SO_2 NAAQS is applicable. Based on the EPA's transportation conformity regulations, the Hutchinson County 2010 SO_2 NAAQS nonattainment area has no transportation conformity obligations; therefore, this proposed 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_2 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_2 nonattainment areas are those sources emitting at least 100 tpy of SO_2. 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_2 nonattainment area must comply with the lowest achievable emissions rate and obtain sufficient emissions offsets. Nonattainment NSR permits for SO_2 authorize construction of new major sources or major modifications of existing sources of SO_2 in an area that is designated nonattainment for the SO_2 NAAQS. The NSR offset ratio for SO_2 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 federal Clean Air Act Amendments of 1990 as well as other changes, the EPA published its approval of Texas' nonattainment NSR regulation for SO_2 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_2 NAAQS for areas including the Hutchinson County 2010 SO_2 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_2 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 Hutchinson County Attainment Demonstration State Implementation Plan (SIP) Revision for the 2010 sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS). The United States Environmental Protection Agency's (EPA) *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions* (EPA, 2014; SO_2 SIP guidance) requires air quality dispersion modeling to demonstrate attainment of the 2010 SO_2 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_2 attainment demonstration SIP revisions as provided in 40 Code of Federal Regulations (CFR) Part 51 Appendix W (EPA, 2017) and the 2014 SO_2 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_2 NAAQS. A detailed description of the various modeling elements can be found in Appendix J: *Modeling Technical Support Document (TSD).*

4.2 SOURCES OVERVIEW

There are eight sites housing multiple SO_2 emissions sources in the Hutchinson County 2010 SO_2 NAAQS nonattainment area that are included in the attainment demonstration modeling. They are as listed:

- Tokai Carbon CB LTD's Borger Carbon Black Plant site (Tokai Borger Carbon Black Plant),
- Orion Engineered Carbons LLC's Borger Carbon Black Plant site (Orion Borger Carbon Black Plant),
- Agrium US LLC's Borger Nitrogen Operations site (Agrium Borger Nitrogen Plant),
- IACX Rock Creek LLC's Rock Creek Gas Plant site (IACX Rock Creek Gas Plant),
- Borger Energy Associates LP's Blackhawk Power Plant site (Blackhawk Power Plant),
- Chevron Phillips Chemical LP's Borger Plant site (CP Chem Borger Plant),
- Solvay Specialty Polymers USA LLC's Solvay Specialty Polymers USA site (Solvay Specialty Polymers Plant), and
- Phillips 66 Company's Borger Refinery site (P66 Borger Refinery).

The emissions sources at all eight sites are included in the attainment demonstration modeling. Chapter 3: *Control Strategies and Required Elements* explains which of these sites and emissions sources are proposed to be subject to new emissions limits or controls through this action.

Figure 4-1: *Overview of the Hutchinson County 2010 SO_2 NAAQS Nonattainment Area* shows the location and boundaries of each site as a blue, solid line. Also shown is a Data Requirements Rule (DRR) monitor, the Borger Farm to Market (FM) 1559 monitor or Continuous Ambient Monitoring Station 1073 (C1073), represented by a green

triangle, and the weather station used for surface meteorological data, Borger Hutchinson Airport, represented as a purple plus sign.

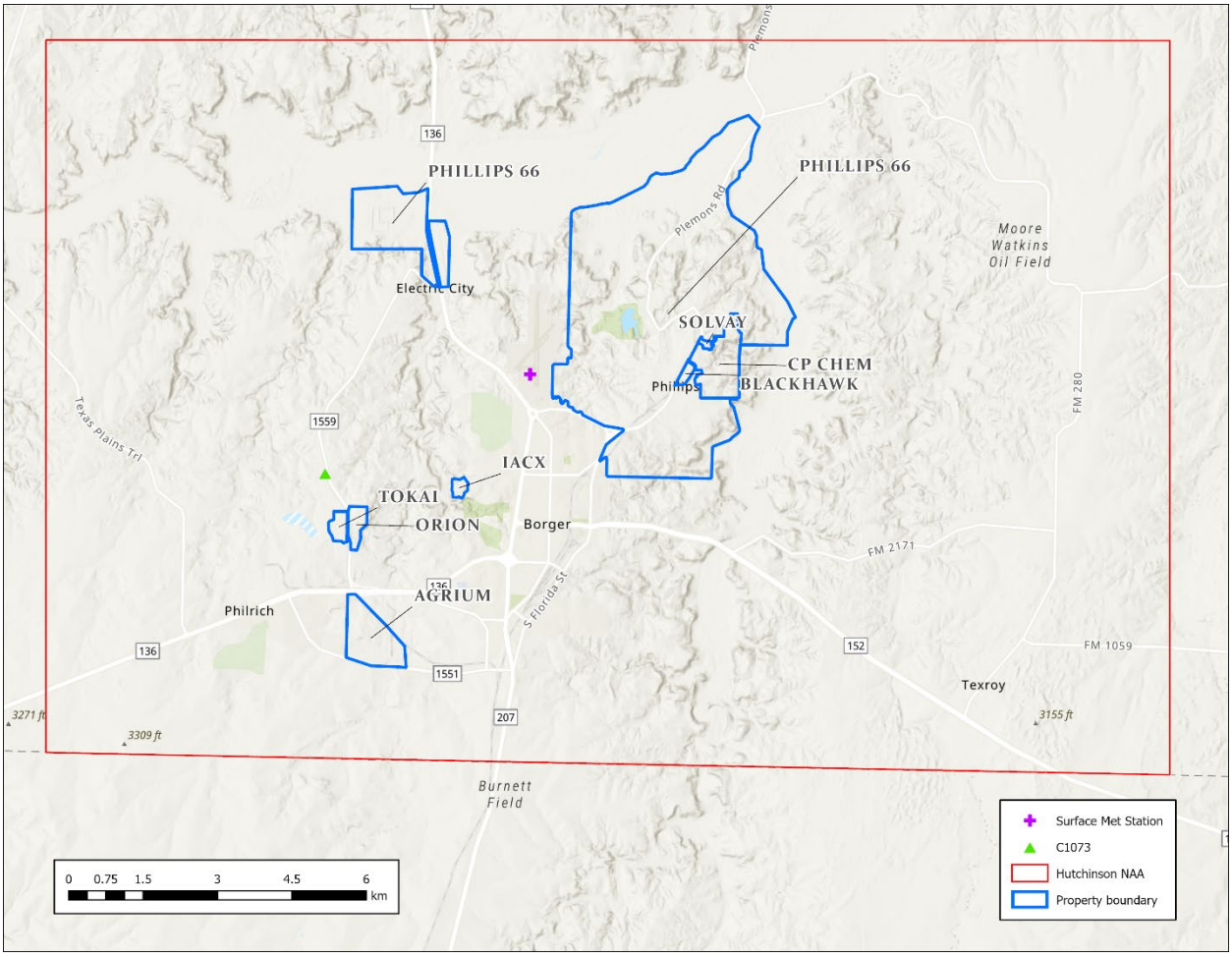

Figure 4-1: Overview of the Hutchinson County 2010 SO_2 NAAQS Nonattainment Area

The location of emissions sources and buildings within each site's modeled boundaries are presented in the next figures. Figure 4-2: *Orion Borger Carbon Black Plant and Tokai Borger Carbon Black Plant Overview* shows the Orion Borger Carbon Black Plant modeled site modeled site boundary outlined in teal, the Tokai Borger Carbon Black Plant modeled site boundary outlined in blue, their associated buildings outlined in red, and their stack locations marked with pink points. Figure 4-3: *CP Chem Borger Plant, P66 Borger Refinery, Solvay Specialty Polymers Plant, and Blackhawk Power Plant Overview* shows modeled site boundaries for CP Chem Borger Plant (teal), P66 Borger Refinery (blue), Solvay Specialty Polymers Plant (yellow), and Blackhawk Power Plant (light pink). Within their modeled site boundaries are their buildings outlined in red and source locations marked with pink points.

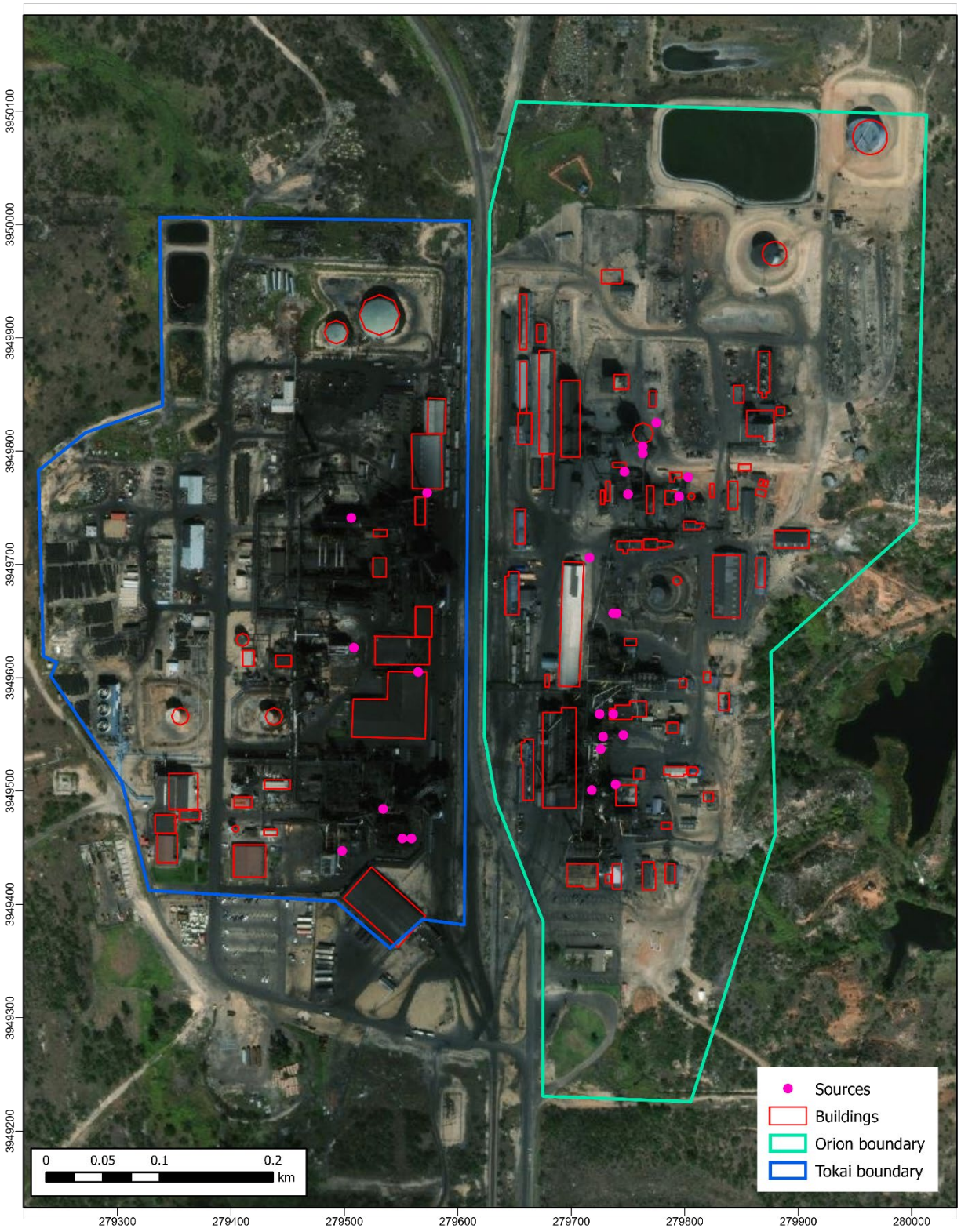

Figure 4-2: Orion Borger Carbon Black Plant and Tokai Borger Carbon Black Plant Overview

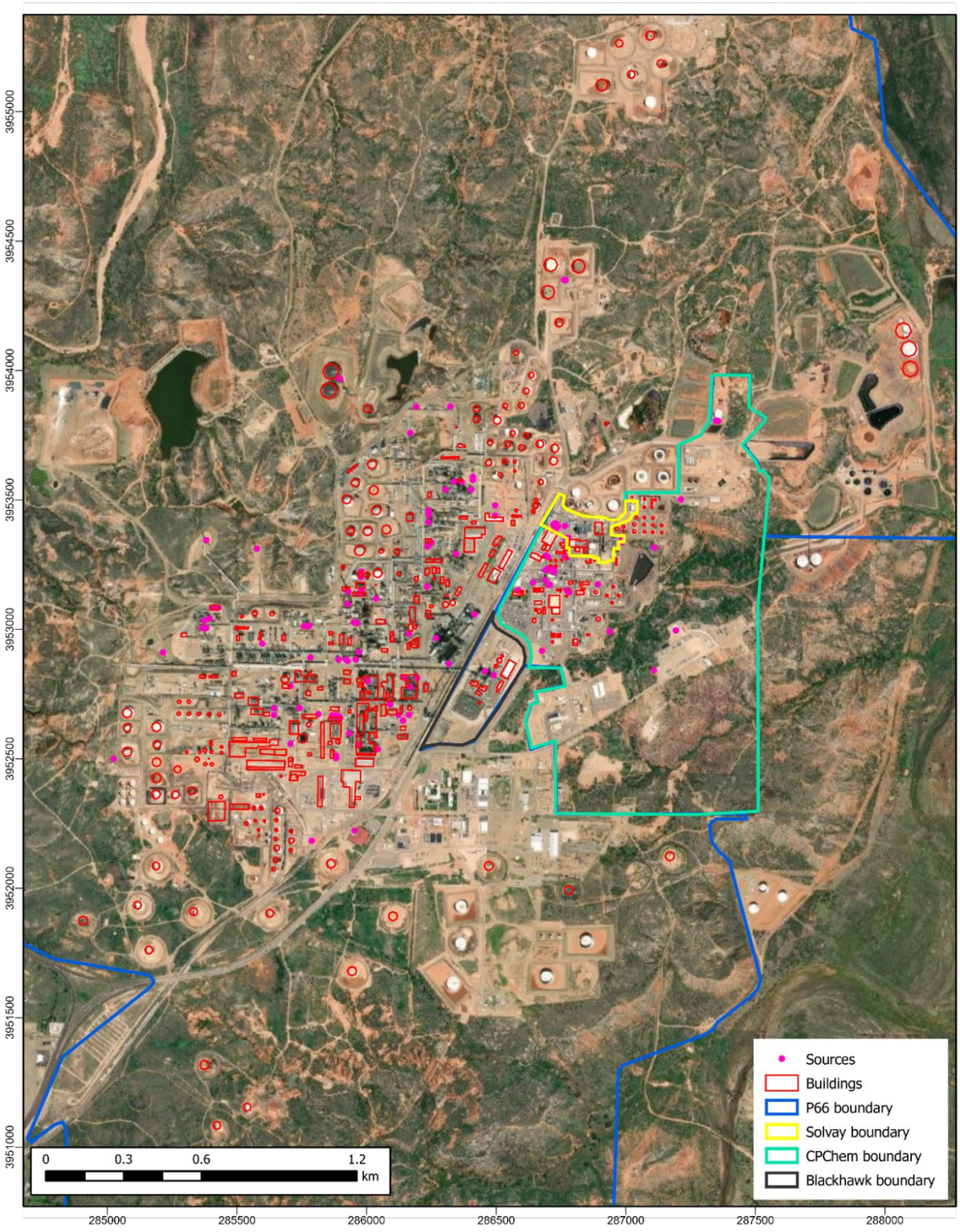

Figure 4-3: CP Chem Borger Plant, P66 Borger Refinery, Solvay Specialty Polymer Plant, and Blackhawk Power Plant Overview

Figure 4-4: *IACX Rock Creek Gas Plant Overview* displays the IACX Rock Creek Gas Plant modeled site boundary in a blue solid line, emissions sources as pink points and buildings in red. Figure 4-5: *Agrium Borger Nitrogen Plant Overview* displays the Agrium Borger Nitrogen Plant modeled site boundary in a blue solid line, buildings in red, and emissions sources as pink points.

Modeled emissions sources are discussed in Section 4.4: *Source and Modeled Emission Rates*. A detailed list of emissions sources and parameters in all eight properties in the Hutchinson County nonattainment area is included in Appendix J, Section 4: *Emission Sources and Parameters.*

Figure 4-4: IACX Rock Creek Gas Plant Overview

Figure 4-5: Agrium Borger Nitrogen Plant Overview

4.3 SUMMARY OF MODELING METHODS

As recommended in the 2014 SO_2 SIP guidance and 40 CFR Part 51 Appendix W, the American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD) 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 9: *Reference Tables with Modeling Information.* Modeling details relating to the domain, receptor grid, meteorological inputs, background concentration, and site modeled boundaries were shared with the EPA's Region 6 office and finalized after frequent 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_2 SIP guidance, modeling for SO_2 attainment demonstrations must evaluate SO_2 concentrations across all areas within the nonattainment area "that are considered ambient air (i.e., where the public generally has access)." Therefore, receptors have been placed throughout the ambient air portions of the Hutchinson County 2010 SO_2 NAAQS nonattainment area to ensure that the modeled scenarios demonstrate attainment of the NAAQS throughout the entire nonattainment area. Figure 4-6: *Modeling Domain and Receptor Grid* shows the nonattainment border as a red line and black points representing modeling receptors. To sufficiently capture SO_2 concentration gradients, the receptors decrease in resolution with increased distance away from emission sources with spacing of 50 meters for the finest, innermost grid, 150 meters for the medium-resolution grid, and 450 meters for the outermost grid. Receptors with spacing of 50 meters are placed around Tokai Borger Carbon Black Plant, Orion Borger Carbon Black Plant, and IACX Rock Creek Gas Plant sites, including the C1073 monitor, and around the south region of the northeast Phillips 66 property cluster, which includes Blackhawk Power Plant, CP Chem Borger Plant, Solvay Specialty Polymers Plant. Additional receptors with 25 meters spacing were placed along site modeled boundaries. Receptors were removed from areas not considered ambient air which typically include property that is owned/operated by the sites and to which public access is controlled through the use of physical barriers and security measures. The portions of the nonattainment area that are considered nonambient were determined based on discussion with EPA and the companies. Receptor elevations were derived with AERMOD's terrain preprocessor, AERMAP, using one-third arc-second United States Geological Survey (USGS) National Elevation Data (NED).

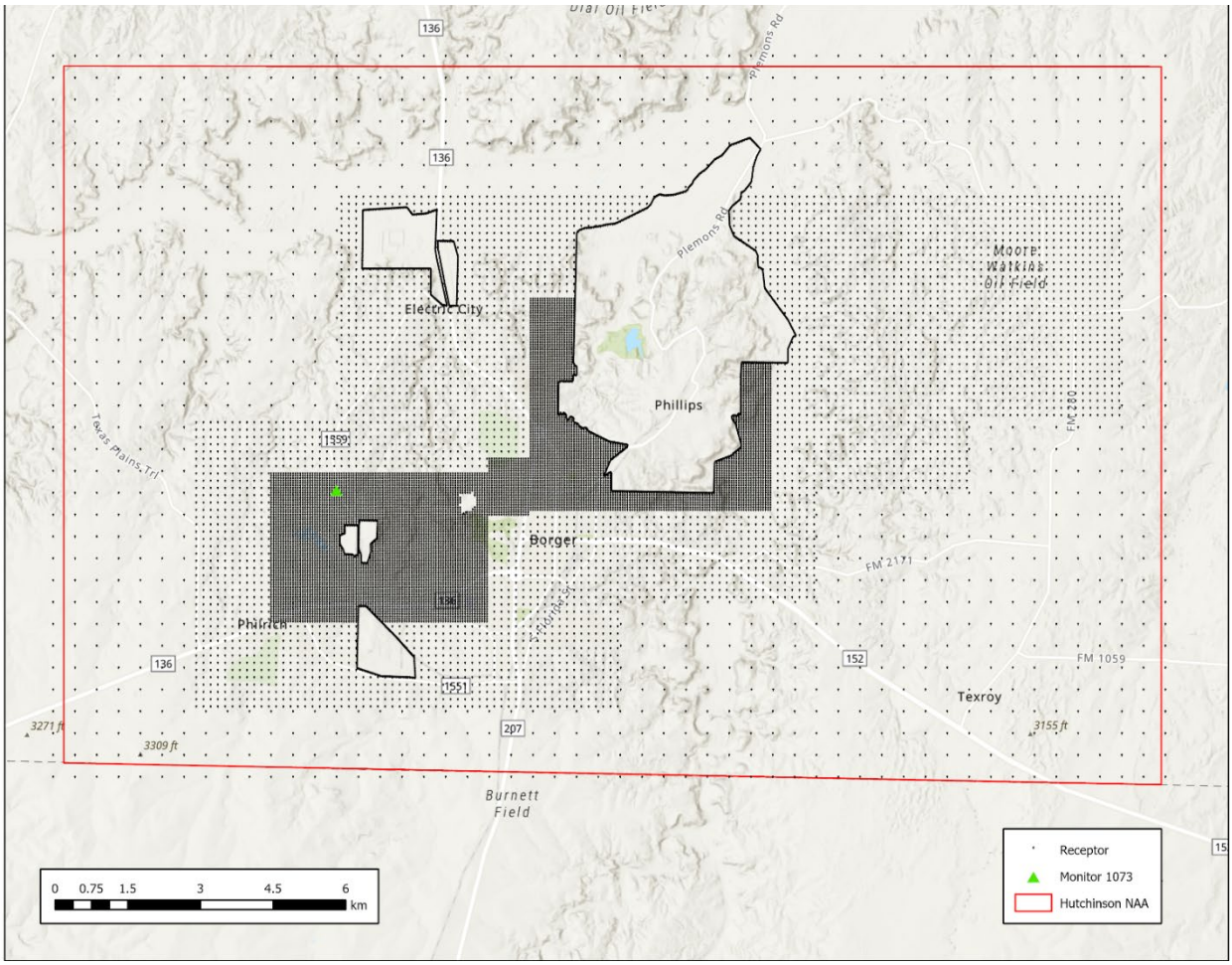

Figure 4-6: Modeling Domain and Receptor Grid

Meteorological inputs for AERMOD were created using AERMET, AERMINUTE, and AERSURFACE. Five years of meteorological data from 2016 through 2020 were processed following the recommendations in 40 CFR Part 51 Appendix W §8.4, to capture meteorological variability. Surface data was taken from the National Weather Station at Borger Hutchinson Airport (WBAN 03024) and upper air data came from the Amarillo Airport (WBAN 23047). Sub-hourly one-minute wind data from the surface station was processed with AERMINUTE using a threshold windspeed of 0.5 meters per second. AERSURFACE was used to supply surface characteristics to AERMET. Details on AERMET, AERMINUTE, and AERFURFACE settings and data are provided in Appendix J, Section 6: *Meteorological Modeling*.

4.4 SOURCES AND MODELED EMISSION RATES

The modeling was conducted using the emission rates for each source from the new source review permit for each site or lower enforceable emission rates and other requirements as detailed in Chapter 3. A detailed list of each site's emissions sources and modeled emission rates that demonstrated attainment can be found in Table 4-1 through Table 4-10.

4.4.1 Tokai Borger Carbon Black Plant

Table 4-1: *Tokai Borger Carbon Plant Black Point Sources* lists modeled Tokai Borger Carbon Black Plant emissions point sources[3] along with the maximum allowable emission rates expressed in pound per hour (lb/hr). Three different modes of operation were modeled: one representing routine operation and two different modes for the planned maintenance, startup, and shutdown (MSS) operations. The first MSS mode (MSS1) involves flaring from an existing flare, with Emission Point Number (EPN) FLARE-1. During MSS1 mode there are no emissions from EPN 119 and emissions from EPN 121 and EPN 122 are lower compared to the routine operation mode. The second MSS mode (MSS2) involves flaring from a new, proposed-to-be-constructed flare that will replace emissions from all of the existing flares, EPN New-Flare. In addition, during MSS2 mode there are no emissions from EPN 119 and emissions from EPN 121 and EPN 122 have lower rates compared to the routine operation mode.

Table 4-1: Tokai Borger Carbon Black Plant Point Sources

EPN	Type	Description	Routine SO_2 Emission Rate (lb/hr)	MSS1 SO_2 Emission Rate (lb/hr)	MSS2 SO_2 Emission Rate (lb/hr)
119	Stack	Merged Boilers Stack	109.10	0.00	0.00
121	Stack	Plant 1 Dryer Stack	441.00	250.00	272.50
122	Stack	Plant 2 Dryer Stack	595.00	400.00	436.00
RVS	Stack	Cap for Small Reactor Vents	0.03	0.03	0.03
RVL	Stack	Cap for Small Reactor Vents	0.02	0.02	0.02
FLARE-1	Flare	Flare 1	0.00	420.00	0.00
New-Flare	Stack	New Flare	0.00	0.00	806.60

4.4.2 Orion Borger Carbon Black Plant

Table 4-2: *Orion Borger Carbon Black Plant Point Sources* lists modeled Orion Borger Carbon Black Plant emissions sources along with the maximum allowable emission rates. There are two different modes of operation, one representing routine operation and one with planned MSS operations. The MSS mode involves flaring from a new flare that is proposed to be constructed, EPN CFL. There will be no flaring from the existing flares with EPN E-10FL, EPN E-20FL, EPN E-40FL, and they are not accounted for in the

[3] In this chapter, "point source" refers to emissions sources with stacks and a specific location. This use of the term point source is consistent with the EPA's 2014 SO_2 SIP guidance and Appendix W.

modeling. During MSS, the waste heat boiler, EPN E-6BN, does not operate and thus its emissions are set to zero in the modeling.

Table 4-2: Orion Borger Carbon Black Plant Point Sources

EPN	Type	Description	Routine SO_2 Emission Rate (lb/hr)	MSS SO_2 Emission Rate (lb/hr)
E-100H	Stack	Tank Preheater	<0.01	<0.01
E-5B	Stack	Thermal Boiler	0.01	0.01
E-6BN	Stack	Waste Heat Boiler	144.11	0.00
E-10D	Stack	B-1 Dryers Stack A and B	0.02	0.02
E-10DF	Stack	B-1 Dryers A and B Bag Filters	0.01	0.01
E-20D	Stack	B-2 Dryers Stack A and B	0.02	0.02
E-20DF	Stack	B-2 Dryers A and B Bag Filters	0.01	0.01
CFL	Flare	New Combined Flare	0.00	750.05
E-40D	Stack	B-4 Dryers Stack A and B	0.02	0.02
E-41DF	Stack	B-4 Dryers Bag Filters	0.01	0.01
E-50R	Stack	Thermal Unit 1 Reactor Stack A	0.69	0.69
E-51R	Stack	Thermal Unit 1 Reactor Stack B	0.69	0.69
E-53P	Stack	TPE Bag Filter	1.37	1.37
P-60P	Stack	FD Fan Vent Stack	0.21	0.21

4.4.3 Agrium Borger Nitrogen Plant

Agrium Borger Nitrogen Plant emissions sources and the maximum allowable emission rates that were used in the modeling are listed in Table 4-3: *Agrium Borger Nitrogen Plant Point Sources.* Agrium Borger Nitrogen Plant has several sources that do not operate continuously; however, to capture their impact, they are accounted for in the modeling on an hourly basis. Therefore, there is only one modeling mode of operation for this site.

Table 4-3: Agrium Borger Nitrogen Plant Point Sources

EPN	Type	Description	Routine SO_2 Emission Rate (lb/hr)
2	Stack	Reformer stack	9.95
E-1	Stack	Ammonia Emergency Generator	<0.01
E-2	Stack	Urea Emergency Generator	<0.01
H-5	Stack	Startup Heater Stack	0.26
PKGB	Stack	Boiler	0.28
FL-1	Flare	Ammonia Emergency Flare	0.01
FL-2	Flare	Urea emergency Flare	0.06

4.4.4 IACX Rock Creek Gas Plant

Table 4-4: *IACX Rock Creek Gas Plant Point Sources* lists the modeled emissions sources along with the maximum allowable emission rates for this site. There are two

operation scenarios in which all sources have the same emissions except the incinerator (EPN ICIN1) and flare (EPN FLR1). In the first scenario, the incinerator, EPN ICIN1, is on and emits SO_2 while the flare is off. In the second scenario, the incinerator is off while the flare, EPN FLR1, is used and emits SO_2. Both modes of operation are accounted for in the modeling.

Table 4-4: IACX Rock Creek Gas Plant Point Sources

EPN	Type	Description	Scenario1 SO_2 Emission Rate (lb/hr)	Scenario2 SO_2 Emission Rate (lb/hr)
STK4	Stack	Cooper GMV-10	0.03	0.03
STK5	Stack	Superior 8G825	0.02	0.02
STK6A	Stack	31,050 HP GE Gas Turbine Stack	0.19	0.19
STK6B	Stack	31,050 HP GE Gas Turbine Stack	0.19	0.19
STK6C	Stack	31,050 HP GE Gas Turbine Stack	0.19	0.19
STK6D	Stack	31,050 HP GE Gas Turbine Stack	0.19	0.19
STK7	Stack	Gas Turbine 7A	0.14	0.14
STK8A	Stack	Superior 6G825	0.02	0.02
HOH1	Stack	North Hot Oil Heater	0.01	0.01
HOH2	Stack	South Hot Oil Heater	0.01	0.01
HTRSTK3	Stack	Regen. Heater Stack 3	0.01	0.01
ICIN1	Stack	Acid Gas Incinerator	140.00	0.00
FLR1	Flare	Acid Gas Flare	0.00	140.00

4.4.5 Blackhawk Power Plant

Table 4-5: *Blackhawk Power Plant Point Sources* lists modeled emissions sources along with the maximum allowable emission rates. These emissions are modeled continuously on an hourly basis.

Table 4-5: Blackhawk Power Plant Point Sources

EPN	Type	Description	Emission Rate (lb/hr)
EPN11	Stack	Unit 1, Combustion Turbine w. heat recovery steam generator (HRSG)	102.00
EPN21	Stack	Unit 2, Combustion Turbine w. HRSG	102.00

4.4.6 CP Chem Borger Plant

Table 4-6: *CP Chem Borger Plant Point Sources* lists modeled emissions point sources along with the maximum allowable emission rates. Table 4-7: *CP Chem Borger Plant Area Sources* lists emissions sources that were modeled as area sources[4] along with their emission rates. Emissions from flares under different operating scenarios are

[4] In this chapter, "area source" refers to emissions sources that are specified as emission within a defined area. This use of the term area source is consistent with the EPA's 2014 SO_2 SIP guidance and Appendix W.

listed in Table 4-6. Emissions from CP Chem Borger Plant are modeled continuously on an hourly basis, and three different scenarios were modeled.

Table 4-6: CP Chem Borger Plant Point Sources

EPN	Type	Description	Scenario 1 SO_2 Emission Rate (lb/hr)	Scenario 2 SO_2 Emission Rate (lb/hr)	Scenario 3 SO_2 Emission Rate (lb/hr)
FL-1	Flare	North Flare	411.90	0.00	430.00
FL-2	Flare	South Flare	75.18	430.00	0.00
ICE-NPY	Stack	North Paint Yard Air Compressor	0.01	0.01	0.01
ICE-SPY	Stack	North Paint Yard Air Compressor	0.01	0.01	0.01
M2B	Stack	SO_2 Unloading Hose	0.64	0.64	0.64
M2A1	Stack	Sulfolene Flaker Scrubber	0.05	0.05	0.05
M2A1_MSS	Stack	Sulfolene Flaker Scrubber	0.01	0.01	0.01
ICE-03	Stack	East Fire Water Engine	0.01	0.01	0.01
ICE-04	Stack	West Fire Water Engine	0.01	0.01	0.01
ICE-05	Stack	East Test Engine – RON	<0.01	<0.01	<0.01
ICE-06	Stack	West Test Engine - MON	<0.01	<0.01	<0.01

Table 4-7: CP Chem Borger Plant Area Sources

EPN	Description	SO_2 Emission Rate (lb/hr)
FM2A_1	Sulfolene handling area fugitive (Building + 1 trailer)	0.98
FM2A_2	Sulfolene handling area fugitive (4-trailer storage)	1.00
MPU_1	MPU Sulfolene Fugitives	<0.01
MPU_2	MPU Sulfolene Fugitives	<0.01
MPU_3	MPU Sulfolene Fugitives	<0.01
F_MPU	MPU Fugitives SO_2 Emissions	0.07

4.4.7 Solvay Specialty Polymers Plant

Table 4-8: *Solvay Specialty Polymers Plant Point Sources* lists modeled emissions sources along with the maximum allowable emission rates. There is only one mode of operation modeled for Solvay.

Table 4-8: Solvay Specialty Polymers Plant Point Sources

EPN	Type	Description	SO_2 Emission Rate (lb/hr)
H-10	Stack	No. 3 Dowtherm Furnace	1.24
H-8	Stack	No. 1 Dowtherm Furnace	0.87
H-9	Stack	No. 2 Dowtherm Furnace	0.87

4.4.8 P66 Borger Refinery

Table 4-9: *P66 Borger Refinery Point Sources* lists modeled emissions sources along with the maximum allowable emission rates, and Table 4-10: *P66 Borger Refinery Area Sources* lists sources that were modeled as area sources with their corresponding maximum allowable emission rates.

Phillips 66 has five emission caps as listed in Table 4 12: *P66 Borger Refinery Emission Caps*, which provides the cap name and the associated emission rate. Sources that are under each cap are indicated with the cap name in Table 4-9. Two caps involve routine operations, and three caps apply to MSS operations. The distribution of emissions for sources under caps under different operational scenarios is presented in Appendix J, Section 8: *Modeling Scenarios*.

Two Fluid Catalytic Cracking Units (FCCU), EPN 29P1 and EPN 40P1 at the site also have a tiered emission rate, specified as "Tiered Rates" in Table 4-9, based on the exhaust flow level (operating load) during MSS operations. The tiered emission rates for the FCCUs are presented in Table 4-11: *P66 Borger Refinery FCCU MSS Tiered Emission Rates*.

Table 4-9: P66 Borger Refinery Point Sources

EPN	Type	Description	Routine SO_2 Emission Rate (lb/hr)	MSS SO_2 Emission Rate (lb/hr)
BLR12	Stack	P66 Boiler 12	14.48	14.48
12E1	Stack	Gas Engine #41	Flex_R_CAP	Flex_MS_CAP
12E2	Stack	Gas Engine #42	Flex_R_CAP	Flex_MS_CAP
12E3	Stack	Gas Engine #43	Flex_R_CAP	Flex_MS_CAP
12E4	Stack	Gas Engine #44	Flex_R_CAP	Flex_MS_CAP
12E5	Stack	Gas Engine #45	Flex_R_CAP	Flex_MS_CAP
12E6	Stack	Gas Engine #46	Flex_R_CAP	Flex_MS_CAP
12E7	Stack	Gas Engine #47	Flex_R_CAP	Flex_MS_CAP
7E1	Stack	Unit 7 Plat Engine #1	Flex_R_CAP	Flex_MS_CAP
7E2	Stack	Unit 7 Plat Engine #2	Flex_R_CAP	Flex_MS_CAP
7E3	Stack	Unit 7 Plat Engine #3	Flex_R_CAP	Flex_MS_CAP
7E4	Stack	Unit 7 Plat Engine #4	Flex_R_CAP	Flex_MS_CAP
7E5	Stack	Unit 7 Plat Engine #5	Flex_R_CAP	Flex_MS_CAP
7E6	Stack	Unit 7 Plat Engine #6	Flex_R_CAP	Flex_MS_CAP
10H1	Stack	P66 Crude Oil Heater	Flex_R_CAP	Flex_MS_CAP
19B1/19H1	Stack	Charge Furnace, #2 & #3	Flex_R_CAP	Flex_MS_CAP
19B1/19H2	Stack	P66 19.2 #2 Reheater	Flex_R_CAP	Flex_MS_CAP
19H3	Stack	P66 19.1 Charge Furnace	Flex_R_CAP	Flex_MS_CAP
19B2/19H4	Stack	P66 U19.3 Charge Furnace	Flex_R_CAP	Flex_MS_CAP
19H5	Stack	Unit 19.2, #1 Reboiler	Flex_R_CAP	Flex_MS_CAP
19H6	Stack	P66 U19.2 #1 Reheater	Flex_R_CAP	Flex_MS_CAP
2H1	Stack	P66 Unit 2-2 HDS Charge Heater	Flex_R_CAP	Flex_MS_CAP
2H2	Stack	P66 Deoiler Furnace	Flex_R_CAP	Flex_MS_CAP
22H1	Stack	P66 Alky Reboiler Furnace	Flex_R_CAP	Flex_MS_CAP

EPN	Type	Description	Routine SO_2 Emission Rate (lb/hr)	MSS SO_2 Emission Rate (lb/hr)
26H1	Stack	P66 Unit 26 Debutanizer Reboiler	Flex_R_CAP	Flex_MS_CAP
28H1	Stack	P66 Unit 28 Heater	Flex_R_CAP	Flex_MS_CAP
29H4	Stack	P66 Unit 29 Debutanizer Reboiler	Flex_R_CAP	Flex_MS_CAP
29P1	Stack	P66 Unit 29 FCCU	155.49	Tiered Rates
34I1	Stack	P66 Unit 34 Incinerator	Flex_R_CAP	SRU_MS_CAP
36H1	Stack	P66 HDS Unit Charge Heater	Flex_R_CAP	Flex_MS_CAP
40H1	Stack	P66 Unit 40 Superheater No. 1	Flex_R_CAP	Flex_MS_CAP
40H3	Stack	P66 Unit 40 Superheater	1.14	1.14
40P1	Stack	P66 Unit 40 FCCU	155.49	Tiered Rates
4H2	Stack	Unit 4 Dehydrator Heater	Flex_R_CAP	Flex_MS_CAP
42H1	Stack	P66 Unit 42 Reactor Charge Heater	Flex_R_CAP	Flex_MS_CAP
42H2	Stack	P66 Unit 42 Reactor Charge Heater	Flex_R_CAP	Flex_MS_CAP
43I1	Stack	P66 Unit 43 Incinerator	Flex_R_CAP	SRU_MS_CAP
50H1	Stack	P66 Unit 50 Charge Furnace	Flex_R_CAP	Flex_MS_CAP
50HT1	Stack	Coker Heater Tank 1	0.08	0.08
50HT2	Stack	Coker Heater Tank 2	0.08	0.08
50HT3	Stack	Coker Heater Tank 3	0.08	0.08
5H1	Stack	P66 Unit 5-A Feed Heater	Flex_R_CAP	Flex_MS_CAP
6H1	Stack	BHU Reduction Furnace	Flex_R_CAP	Flex_MS_CAP
7H1-4	Stack	P66 Unit 7 Charge Furnace	Flex_R_CAP	Flex_MS_CAP
85B2	Stack	P66 Unit 40 Boiler	18.68	18.68
9H1	Stack	P66 Crude Oil Heater	Flex_R_CAP	Flex_MS_CAP
93E1	Stack	Gas Engine #37	Flex_R_CAP	Flex_MS_CAP
93E2	Stack	Gas Engine #38	Flex_R_CAP	Flex_MS_CAP
98H1	Stack	P66 SMR Charge Heater	Flex_R_CAP	Flex_MS_CAP
SKIDBLR	Stack	P66 Skid Boiler	9.43	9.43
66FL1	Flare	East Flare	Flare_R_CAP	Flare_MS_CAP
66FL2	Flare	West Flare	Flare_R_CAP	Flare_MS_CAP
66FL3	Flare	Cat Flare	Flare_R_CAP	Flare_MS_CAP
66FL8	Flare	100M Sour Brine Flare Pit	0.01	0.01
66FL10	Flare	100M Swt Brine Flare Pit	<0.01	<0.01
66FL11	Flare	30M Swt Brine Flare Pit	0.01	0.01
66FL12	Flare	P66 GOHDS Flare	Flare_R_CAP	Flare_MS_CAP
66FL13	Flare	P66 Derrick Flare	Flex_R_CAP	Flex_MS_CAP
51H1	Stack	Charge Heater - Vacuum Unit	Flex_R_CAP	Flex_MS_CAP
4H1	Stack	Butamer Furnace	Flex_R_CAP	Flex_MS_CAP
6H3	Stack	C6 Dryer Regen Furnace	Flex_R_CAP	Flex_MS_CAP
12H1	Stack	Regen. Gas Furnace	Flex_R_CAP	Flex_MS_CAP
81B17	Stack	Boiler 2.4	15.94	15.94
41H1	Stack	Reformer Furnace	Flex_R_CAP	Flex_MS_CAP

EPN	Type	Description	Routine SO_2 Emission Rate (lb/hr)	MSS SO_2 Emission Rate (lb/hr)
28-H3	Stack	Crude Charge Heater No. 1	6.94	6.94
28-H4	Stack	Crude Charge Heater No. 2	6.94	6.94
88-H1	Stack	CCR Charge and Interheaters	12.14	12.14
88-V1	Stack	CCR Vent	0.16	0.16
ENG-SD-6	Stack	Diesel Pump Engine	0.51	0.51
ENG-SD-7	Stack	Diesel Pump Engine	0.51	0.51
ENG-SD-8	Stack	Diesel Pump Engine	0.24	0.24
ENG-EB1	Stack	Auxiliary Air Engine1	0.10	0.10
ENG-EB2	Stack	Auxiliary Air Engine2	0.10	0.10
ENG-EB3	Stack	Auxiliary Air Engine3	0.10	0.10
ENG-EB4	Stack	Auxiliary Air Engine4	0.10	0.10
ENG-EB5	Stack	Auxiliary Air Engine5	0.10	0.10
ENG-EB6	Stack	Auxiliary Air Engine6	0.10	0.10
ENG-EB7	Stack	Auxiliary Air Engine7	0.10	0.10
ENG-EB8	Stack	Auxiliary Air Engine8	0.10	0.10
ENG-EB9	Stack	Auxiliary Air Engine9	0.10	0.10
FWP1A	Stack	67-H463 #8 ARDS Fire Water Pump	0.01	0.01
FWP2A	Stack	67-H464 #7 ARDS Fire Water Pump	0.01	0.01
FWP3A	Stack	67-H741 South NGL Fire Water Pump	<0.01	<0.01
FWP4A	Stack	67-V371 North Refinery Fire Water Pump	0.01	0.01
FWP5A	Stack	67-V372 South Refinery Fire Water Pump	0.01	0.01
NHT-3	Stack	North Holding Tank Portable Pump	0.58	0.58
53FL1	Stack	Thermal Oxidizer Unit	0.08	0.08
40H4	Stack	P66 Unit 40 Preheater Furnace	3.41	3.41
ENG-SC1	Stack	Unit 43 Backup Engine	0.16	0.16
EG-1	Stack	Emergency Generator	0.34	0.34
FWBP-1	Stack	Coker Firewater Engine	<0.01	<0.01
CPP1	Stack	North Sump Pump	0.21	0.21
CPP2	Stack	Lot 7 Pump	0.21	0.21

Table 4-10: P66 Borger Refinery Area Sources

EPN	Description	SO_2 Emission Rate (lb/hr)
F-43WHB	Train A Waste Heat Boiler Unit 43 Sulfur Recover Fugitives	0.01
MISC-MSS	Miscellaneous MSS Activities (Low Emitting Activities)	0.15
MSSFUG	Planned Maintenance Activities	0.01

Table 4-11: P66 Borger Refinery FCCU MSS Tiered Emission Rates

EPN	Exhaust Flow Level	MSS SO_2 Emission Rate (lb/hr)
29P1	100%	155.49
29P1	75%	140.00
29P1	50%	130.00
40P1	100%	155.49
40P1	75%	140.00
40P1	50%	130.00

Table 4-12: P66 Borger Refinery Emission Caps

CAP name	Number of Sources	Routine SO_2 Emission Rate (lb/hr)	MSS SO_2 Emission Rate (lb/hr)
Flex_R_CAP	47	185.69	N/A
Flex_MS_CAP	45	N/A	106.05
Flare_R_CAP	4	100.14	N/A
Flare_MS_CAP	4	N/A	850.00
SRU_MS_CAP	2	N/A	94.00

For a source in the Flex_R_CAP and Flex_MS_CAP, the hourly emission rate modeled is the maximum hourly individual contribution from that source to the sum total of the emissions specified as the emissions cap value and based on what is represented in the associated NSR permit application and provided by the company. Two incinerators, EPN 34I1 and EPN 43I1, are included in the Flex_R_CAP and also have individual maximum hourly enforceable limits of 44.82 lb/hr and 37.0 lb/hr, respectively.

The Flare_R_CAP was conservatively modeled with emissions of each flare set to the maximum allowable cap emission level, for every hour and day during the five-year period.

Flare_MS_CAP is an emissions cap allowing flexible operation across four flares, EPN 66FL1, EPN 66FL2, EPN 66FL3, and EPN 66FL12. The TCEQ modeled 13 scenarios, with different distribution of the emissions cap among the four flares based on past historical data provided by the company. Details of the scenarios are provided in Appendix J, Section 8: *Modeling Scenarios.*

The SRU_MS_CAP includes two sources, EPN 34I1 and EPN 43I1, and a limitation that only one of the incinerators can be operational at any time. Therefore, the TCEQ modeled two scenarios. Each modeling scenario has the maximum allowable cap emission rate released through one of the incinerators with the other incinerator not operating.

Other sources in P66 Borger Refinery that are not under any caps were modeled with normal and/or MSS emission rates, as applicable.

4.4.9 Other Sources

The impact of other sources of SO_2 affecting the Hutchinson County 2010 SO_2 NAAQS nonattainment area that are not explicitly modeled, such as emissions from mobile sources or area sources outside of a specific site were represented in the model as a background concentration. An hourly and seasonally varying background concentration was calculated based on data from the Midlothian Old Fort Worth monitor (C52) in Ellis County, Texas. Details on the choice of monitor and the calculation of background concentrations can be found in Appendix J, Section 7: *Background Concentration*.

4.5 MODELING SCENARIOS AND RESULTS

The TCEQ identified and completed many modeling scenarios to evaluate the impact of emissions, during full and reduced loads, on air quality in the Hutchinson County 2010 SO_2 NAAQS nonattainment area. All modeling scenarios were run using the same meteorological inputs, domain, downwash, and background concentrations. A list of all modeling scenarios, along with the resulting modeled design value (DV), is presented in Appendix J, Section 8: *Modeling Scenarios*.

There were three sets of modeling runs: (1) modeling scenarios with emissions at 100% load; (2) modeling scenarios with emissions and stack parameters at lower operating loads; and (3) a third "site ambient run." A site ambient run provides information on the cumulative impact of sources in the nonattainment area, other than the sources within that site, on the air quality within a site. For site ambient runs, receptors are added within site modeled boundaries. Details of the site ambient runs and the results of runs are provided in Appendix J, Section 8: *Modeling Scenarios*.

All modeled scenarios have a maximum design value less than 75 ppb, which demonstrates that the control measures are protective of the 2010 one-hour SO_2 NAAQS.

The scenario with the highest maximum DV for routine operations, or the controlling routine scenario, was scenario number 1, with a maximum DV of 71.6 ppb. The results of this scenario are plotted in Figure 4-7: *Modeling Results of Controlling Routine Scenario*.

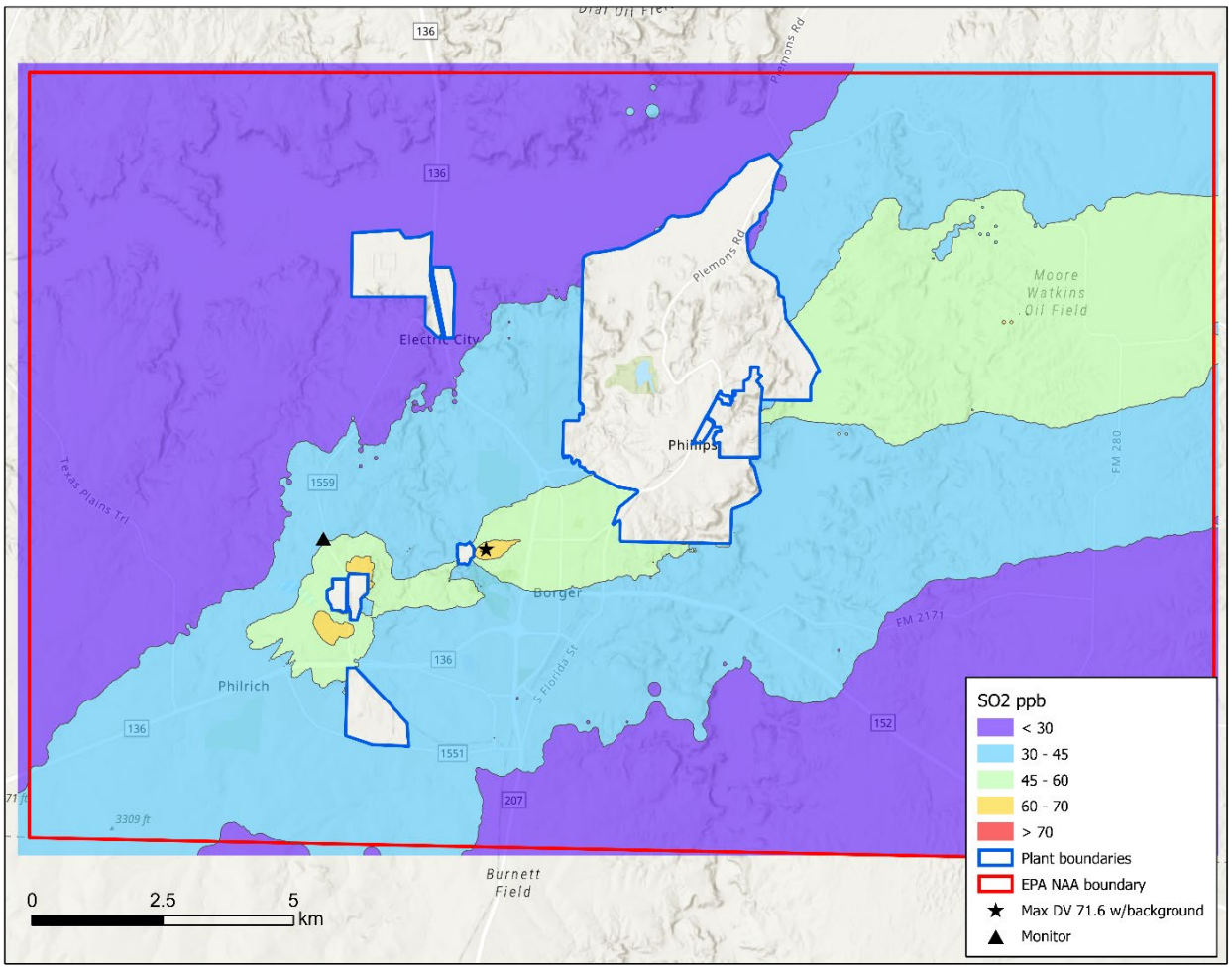

Figure 4-7: Modeling Results of Controlling Scenario

The scenario with the highest maximum DV for MSS operations, or the controlling MSS scenario, was scenario number 16, with a maximum DV of 74.7 ppb. The results of this scenario are plotted in Figure 4-7: *Modeling Results of Controlling MSS Scenario.*

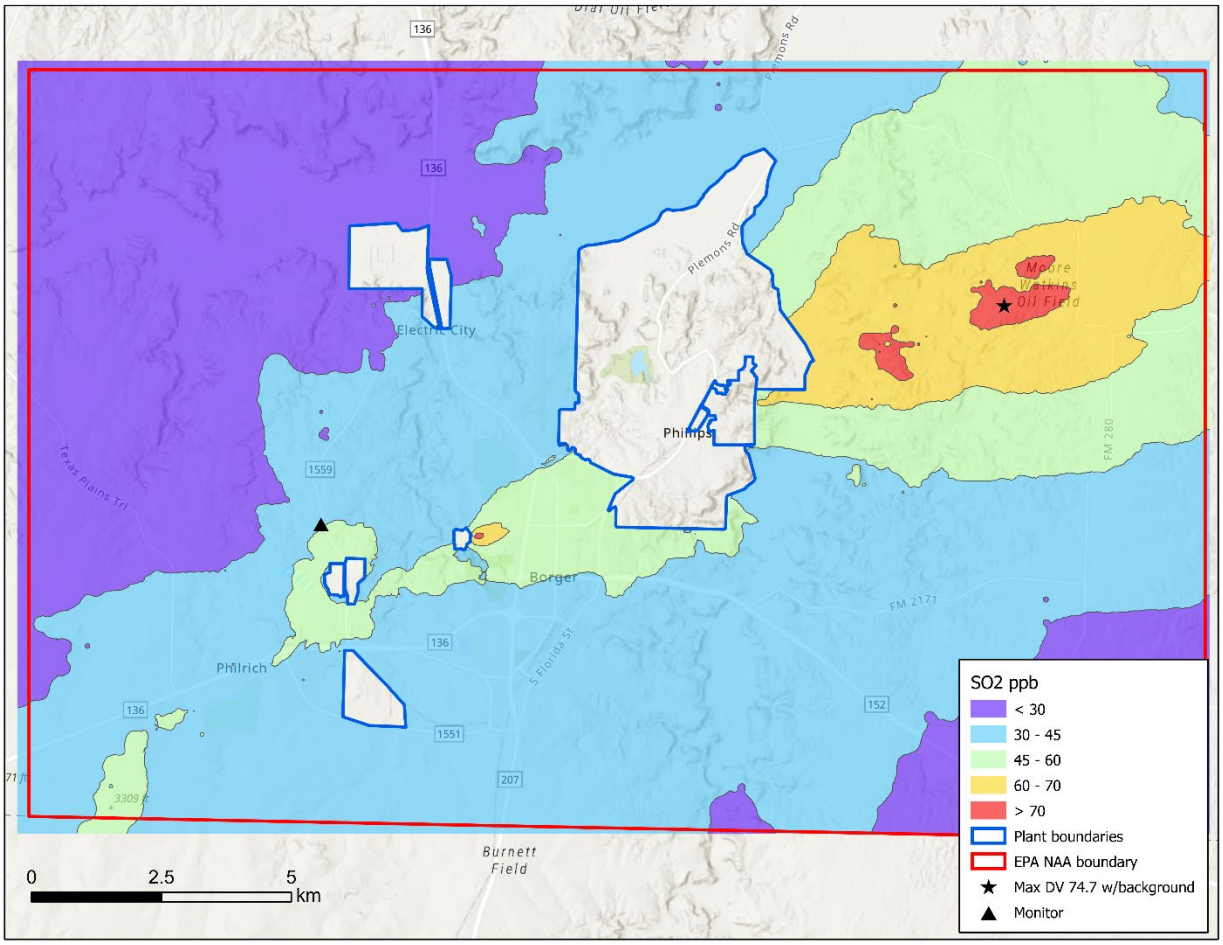

Figure 4-8: Modeling Results of Controlling Scenario

4.6 CONCLUSION

The TCEQ conducted air quality dispersion modeling following EPA Guidance for the proposed Hutchinson County Attainment Demonstration SIP Revision for the 2010 One-Hour SO_2 NAAQS. The TCEQ modeled the control measures for emission sources described in Chapter 3. The TCEQ considered possible operating scenarios and modeled attainment in each case, thereby ensuring that the flexibility in operating conditions allowed to the sources under the proposed controls will remain protective of the NAAQS. Based on the TCEQ's modeling, it is expected that the Hutchinson County 2010 SO_2 NAAQS nonattainment area will be in attainment by the attainment date.

4.7 REFERENCES

EPA, 2014. Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions, accessed at 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. 82 *Federal Register* 5182, accessed at https://www.epa.gov/sites/production/files/2020-09/documents/appw_17.pdf, January 17.

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

CHAPTER 5: REASONABLE FURTHER PROGRESS

5.1 INTRODUCTION

Federal Clean Air Act (FCAA), §171(c) 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_2 Nonattainment Area SIP Submissions* (2014 SO_2 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 sulfur dioxide (SO_2) 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_2 SIP guidance indicates that for SO_2 nonattainment areas, RFP is best construed as "adherence to an ambitious compliance schedule."

5.2 RFP DEMONSTRATION

On March 26, 2021, the EPA designated a portion of Hutchinson County as nonattainment for the 2010 SO_2 National Ambient Air Quality Standard (NAAQS), effective April 30, 2021 (86 FR 16055). Consistent with the EPA's 2014 SO_2 SIP guidance document, the Hutchinson County 2010 SO_2 NAAQS nonattainment area includes eight sites housing multiple SO_2 emissions sources from five of the eight sites, as explained in Chapter 3 of this proposed SIP revision, with well-defined emissions, such that emissions controls for specific sources should result in "swift and dramatic improvement in air quality." As detailed in Chapter 3: *Control Strategy and Required Elements* of this state implementation plan (SIP) revision, enforceable emission limitations would be implemented for the emissions sources at the five sites in this area, as detailed in Section 5.3: Compliance Schedule. This compliance schedule therefore fulfills the RFP requirement for the Hutchinson County 2010 SO_2 NAAQS nonattainment area.

5.3 COMPLIANCE SCHEDULE

The EPA's 2014 SO_2 SIP guidance indicates that RFP for the 2010 one-hour SO_2 NAAQS requires only such reductions in emissions that are necessary to attain the NAAQS. Given the relationship between SO_2 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_2 emissions implement appropriate control measures as expeditiously as practicable to ensure attainment of the standard by the applicable attainment date.

The compliance deadline for all five regulated entities, Chevron Phillips Chemical LP, IACX Rock Creek LLC, Orion Engineered Carbons LLC, Phillips 66 Company, and Tokai Carbon CB LTD, in the associated proposed 30 Texas Administrative Code Chapter 112, Subchapter F (Rule Project No. 2021-035-112-AI) rulemaking is January 1, 2025.

The attainment date for the Hutchinson County 2010 SO_2 nonattainment area is April 30, 2026.

Appendices Available Upon Request

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