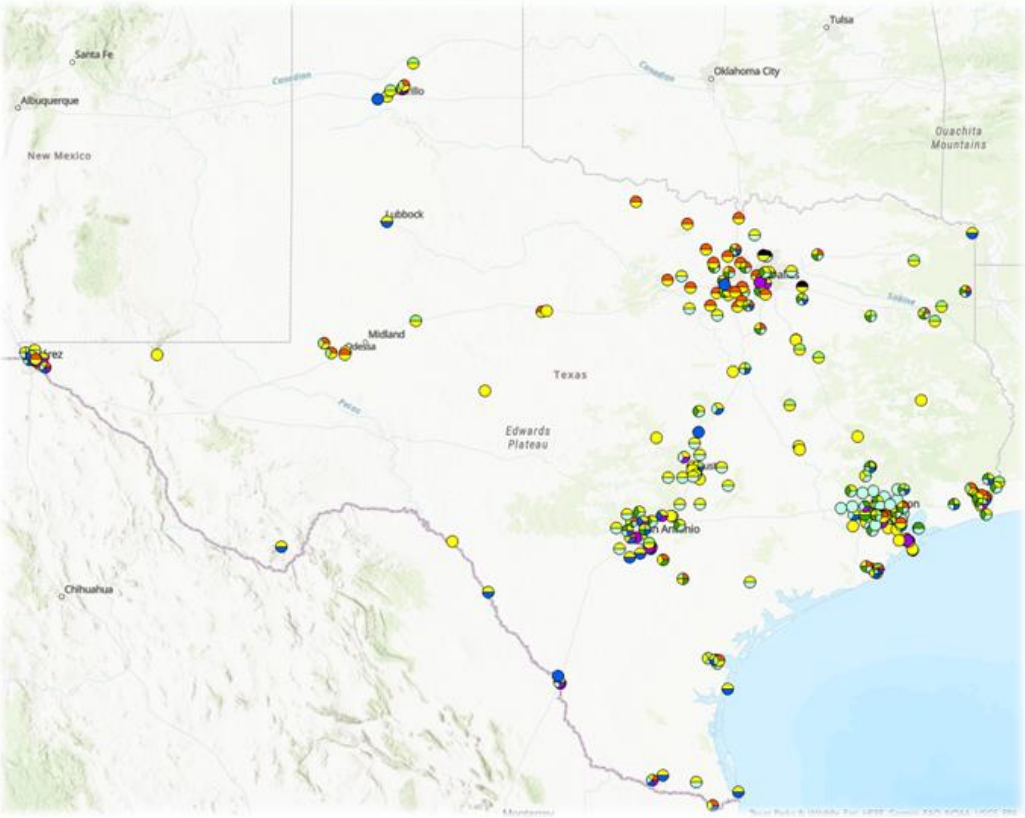
Texas Commission on Environmental Quality
Annual Monitoring Network Plan



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Texas Commission on Environmental Quality 2022 Annual Monitoring Network Plan

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List of Acronyms and Abbreviations

– number
% – percent
> – greater than
≥ – greater than or equal to
< – less than
µg/m^3 – micrograms per cubic meter
AADT – annual average traffic count
AMNP – annual monitoring network plan
autoGC – automated gas chromatograph
CBSA – core based statistical area
CFR – Code of Federal Regulations
CO – carbon monoxide
DFW – Dallas-Fort Worth
DRR – Data Requirements Rule
EI – emissions inventory
EPA – United States Environmental Protection Agency
FEM – federal equivalent method
FRM – federal reference method
LBJ – Lyndon B. Johnson
LLC – limited liability company
MSA – metropolitan statistical area
NA – not applicable
NAAQS – National Ambient Air Quality Standards
NCore – National Core Multipollutant Monitoring Stations
NEI – National Emissions Inventory
NO_2 – nitrogen dioxide
NO – nitrogen oxide
NO_x – oxides of nitrogen
NO_y – total reactive nitrogen compounds
O_3 – ozone
PAMS – Photochemical Assessment Monitoring Stations
Pb – lead
PM_{10} – particulate matter of 10 micrometers or less in diameter
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
$PM_{10-2.5}$ – coarse particulate matter
ppb – parts per billion
PWEI – population weighted emissions index
QC – quality control
RA-40 – Regional Administrator 40
SE – southeast

SETRPC – Southeast Texas Regional Planning Commission
SLAMS – State or Local Air Monitoring Stations
SO_2 – sulfur dioxide
SPM – special purpose monitor
TAD – technical assistance document
TCEQ – Texas Commission on Environmental Quality
TEOM – tapered element oscillating microbalance
tpy – tons per year
TSP – total suspended particulate
U.S. – United States
UTEP – University of Texas at El Paso
VOC – volatile organic compound

Introduction

Title 40 Code of Federal Regulations (CFR) Section 58.10 requires states to submit an annual monitoring network plan (AMNP) to the United States (U.S.) Environmental Protection Agency (EPA) by July 1 of each year. This monitoring plan is required to provide the implementation and maintenance framework for an air quality surveillance system, known commonly as the ambient air quality monitoring network.

The TCEQ reviews its ambient air quality monitoring network annually and creates the AMNP to demonstrate how Texas is meeting or will meet federal air monitoring requirements specified in 40 CFR Part 58 and its appendices. The AMNP presents the current federal network established for use in evaluations to determine compliance with the National Ambient Air Quality Standards (NAAQS). The monitoring plan includes proposed changes from the previous year and future proposed changes to the monitoring network. Specific air monitors used to meet federal air quality standards as well as other monitors that provide additional information on air quality and the weather are discussed in the AMNP. Because the AMNP is focused on federally required monitoring, it does not include a review of state-initiated monitoring conducted in addition to federal requirements. This plan is limited to the portion of the TCEQ air monitoring network designed to comply with federal monitoring requirements and supported by federal funding.

The Texas Commission on Environmental Quality (TCEQ) posts the annual plan to solicit public comment for at least 30 days prior to submission to the EPA. The TCEQ submits the AMNP to the EPA for final review and approval with comments received during the 30-day inspection period, responses to the comments, and with any appropriate changes based on the received comments. This plan includes the recommended federal monitoring network changes from July 1, 2021, through December 31, 2023, summarized in AMNP Appendix A. This plan also includes federal monitoring network changes recommended prior to July 1, 2021, that have been completed since that date or are still pending completion. Historical air monitoring network plans, associated public comments, and TCEQ responses are available on the TCEQ webpage TCEQ Air Monitoring Network Plans - Texas Commission on Environmental Quality - www.tceq.texas.gov.

The TCEQ continues to evaluate additional ambient air monitoring requested during previous AMNP public inspection and comment periods. Details regarding the potential monitors under consideration are included in this plan to solicit further public comment. Any future implementation of these monitoring considerations may be included as part of the TCEQ federal ambient air monitoring network or as state-initiative special studies. These monitoring proposals are under consideration, and the proposals and implementation of said proposals are subject to change.

The TCEQ federal monitoring network includes more than double the number of monitors required by federal rule. The number, type, and location of monitors within the network is sufficient to characterize area air quality for all areas required within Texas. The TCEQ also operates a robust network of state-initiative monitors that support a variety of purposes, including potential health effects evaluation; however, these monitors are outside the scope of this document and are not included. The latest information regarding the Texas air monitoring network, monitoring data, and air quality forecast conditions for Texas' metropolitan areas is featured on the TCEQ webpage Air Quality and Monitoring - Texas Commission on Environmental Quality - www.tceq.texas.gov.

Title 40 CFR Part 58, Appendix D provides the minimum design requirements for air monitoring networks including State or Local Air Monitoring Stations (SLAMS), Photochemical Assessment Monitoring Stations (PAMS), and National Core Multi-Pollutant Monitoring Stations (NCore). AMNP Appendix B lists existing monitors established to meet federal monitoring requirements and objectives.

The TCEQ uses statistical-based definitions for core based statistical areas (CBSAs) or metropolitan statistical areas (MSAs), as delineated by the U.S. Office of Management and Budget. The U.S. OMB defined CBSAs and MSAs overlap in Texas, and the terms are used in this plan according to usage in federal regulations. AMNP Appendix C lists the Texas CBSAs with the most recent 2020 U.S. Census Bureau population estimates (vintage edition available at time of publication). Each CBSA (or MSA) and associated population are evaluated by air pollutant based on requirements under 40 CFR Part 58 and certified air monitoring data as applicable. The TCEQ uses these data to evaluate the networks and determine the required monitor counts as documented in the AMNP and its appendices. Based on annual internal audits performed to date, all monitoring sites supporting federal requirements and monitoring objectives are meeting the requirements defined in 40 CFR Part 58 and its Appendices A, B, C, D, and E, with the following exceptions:

- The TCEQ is evaluating viable locations to relocate the Midlothian Old Fort Worth (OFW) air monitoring site to meet siting criteria. The Midlothian OFW air monitoring site was temporarily decommissioned on April 22, 2022, due to the property owner revoking the TCEQ's access to the site.

Regulatory Network Review

General Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 1 describes the monitoring objectives and general criteria for the required SLAMS ambient air monitoring stations. Ambient air monitoring networks must be designed to meet the three basic monitoring objectives, though each objective is to be considered independently.

- Provide air pollution data to the public in a timely manner.
- Support compliance with ambient air quality standards and emissions strategy development.
- Support air pollution research studies (for example NCore network data).

Federal reference methods (FRM) and federal equivalent methods (FEM) are designated in accordance with 40 CFR Parts 50 and 53. FRM and FEM methods are acceptable for use in air quality surveillance systems under 40 CFR Part 58 and are used for comparing an area's air pollution levels against the NAAQS. These methods must be used in strict accordance with associated operation and/or instruction manuals and with applicable quality assurance procedures. The EPA reviews and approves associated FRM and FEM designated instrumentation. The list of EPA designated reference and equivalent methods are updated periodically Air Monitoring Methods - Criteria Pollutants | US EPA.

National Core Multipollutant Monitoring Stations Requirements

NCore multipollutant sites, approved by the EPA Administrator, were selected to measure multiple pollutants utilizing continuous methods as available. NCore sites are intended to be long-term sites useful for a variety of applications including air quality trends analyses, model evaluation, and tracking metropolitan area statistics. NCore guidance suggest monitoring instruments capable of trace levels (high sensitivity), where needed. The TCEQ NCore monitoring network includes the following measurements in compliance with NCore monitoring guidance and federal requirements listed in 40 CFR Part 58, Appendix D, Section 3, as discussed further in this section.

- nitrogen oxide (NO), high sensitivity
- total reactive nitrogen compounds (NO_y), high sensitivity
- sulfur dioxide (SO_2), high sensitivity
- ozone (O_3)
- carbon monoxide (CO), high sensitivity
- filter-based particulate matter of 2.5 micrometers or less in diameter ($PM_{2.5}$)
- continuous $PM_{2.5}$
- speciated $PM_{2.5}$
- coarse particulate matter ($PM_{10-2.5}$)
- meteorology (ambient temperature, wind speed, wind direction, and relative humidity)

Monitoring Requirements

Texas is required to operate two to three urban NCore sites, due to multiple air sheds and MSAs, and meets these requirements with three urban NCore sites and associated measurements listed in Table 1. Additional air monitoring information for these sites is detailed in AMNP Appendix B. The TCEQ meets NCore monitoring requirements listed in 40 CFR Part 58, Appendix D, Section 3(b) with the measurements at the NCore sites and monitors listed in Table 1.

Table 1: National Core Multipollutant Monitoring Stations and Parameters

Core Based Statistical Area	Site Name	NO_y* and NO*	SO_2*	O_3	CO*	$PM_{2.5}$ mass filter-based	$PM_{2.5}$ mass continuous	$PM_{2.5}$ speciation	$PM_{10\text{-}2.5}$	Meteorology
Dallas-Fort Worth-Arlington	Dallas Hinton	√	√	√	√	√	√	√	√	√
Houston-The Woodlands-Sugar Land	Houston Deer Park #2	√	√	√	√	√	√	√	√	√
El Paso	El Paso Chamizal	√	√	√	√	√	√	√	√	√

*instrument capable of measuring trace levels (high sensitivity)
- number sign
CO – carbon monoxide
NO_y – total reactive nitrogen compounds
NO – nitrogen oxide
SO_2 – sulfur dioxide
O_3 – ozone
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
$PM_{10\text{-}2.5}$ – coarse particulate matter
Meteorology – includes wind speed, wind direction, ambient temperature, and relative humidity

Photochemical Assessment Monitoring Stations Requirements

State monitoring agencies are required to measure and report PAMS measurements at each required NCore site located in CBSAs with populations greater than 1,000,000, based on the latest available census figures. Two of the three NCore sites in Texas are located in CBSAs with populations meeting this requirement. The El Paso CBSA, according to the most recent census figures, does not meet this requirement. The Texas 2020 U.S. Census Bureau population estimates are listed in AMNP Appendix C. The TCEQ meets PAMS monitoring requirements listed in 40 CFR Part 58, Appendix D, Section 5(b) with the measurements at the two NCore/PAMS sites listed in Table 2.

The minimum PAMS measurements include the following:

- speciated volatile organic compounds (VOCs);
- carbonyl compounds, three eight-hour samples on a 1-in-3 day schedule during June, July, and August;
- O_3;
- true (direct-read) nitrogen dioxide (NO_2);
- NO and NO_y;
- ambient temperature;
- wind direction and wind speed;
- atmospheric pressure;
- relative humidity;
- precipitation;
- mixing-height;
- solar radiation; and
- ultraviolet radiation.

Monitoring Requirements

State monitoring agencies are required to measure and report PAMS measurements at each required NCore site located in CBSAs with populations greater than 1,000,000, based on the latest available census figures. Two of the three NCore sites in Texas are located in CBSAs with populations meeting this requirement. The El Paso CBSA, according to the most recent census figures, does not meet this requirement. The Texas 2020 U.S. Census Bureau population estimates are listed in AMNP Appendix C. The TCEQ meets PAMS monitoring requirements listed in 40 CFR Part 58, Appendix D, Section 5(b) with the measurements at the two NCore/PAMS sites listed in Table 2.

Table 2: Photochemical Assessment Monitoring Stations and Parameters

Core Based Statistical Area	Site Name	VOCs	Carbonyl compounds	O_3	True NO_2	NO_y and NO	Ambient Temperature	Wind Direction and Speed	Atmospheric Pressure	Relative Humidity	Precipitation	Mixing-Height	Solar Radiation	Ultraviolet Radiation
Dallas-Fort Worth-Arlington	Dallas Hinton	√	√	√	√	√	√	√	√	√	√	√	√	√
Houston-The Woodlands-Sugar Land	Houston Deer Park #2	√	√	√	√	√	√	√	√	√	√	√	√	√

- number sign
VOCs – volatile organic compounds speciated
O_3 – ozone
NO_2 – nitrogen dioxide
NO_y – total reactive nitrogen compounds
NO – nitrogen oxide

The TCEQ developed an Enhanced Monitoring Plan detailing enhanced O_3 and O_3 precursor monitoring activities in addition to the PAMS requirements. The Enhanced Monitoring Plan was provided as an appendix to the 2019 AMNP and approved by the EPA. The Enhanced Monitoring Plan includes details on additional O_3, NO_x and/or NO_y, speciated VOC, and meteorology monitoring at locations other than those required. Air monitoring information for these additional Enhanced Monitoring Plan monitors, identified as PAMS in the Network column, is listed in AMNP Appendix B.

Nitrogen Dioxide

The TCEQ NO_2 network includes measurements for nitrogen oxide (NO), NO_2, true NO_2, and total reactive nitrogen compound (NO_y) parameters sited in compliance with federal monitoring requirements, as discussed further in this section. The TCEQ NO_2 network is designed to meet area-wide, Regional Administrator 40 (RA-40), near-road, PAMS, and NCore monitoring requirements, as specified in 40 CFR Part 58. The TCEQ is required to operate a total of 20 monitors that measure NO, NO_2, true NO_2, and NO_y and exceeds the requirements with 58 monitors that measure those parameters. AMNP Appendix D summarizes the monitoring requirements detailed in the AMNP for NO, NO_2, true NO_2, and NO_y in each Texas CBSA. The TCEQ utilizes a variety of instruments to measure these parameters; including an oxides of nitrogen (NO_x) instrument that reports NO_2, NO, and NO_x data; an instrument that measures NO_2 directly, and an NO_y instrument that reports NO_y and NO data. TCEQ air monitoring instrumentation for these measurements varies by site. Instrumentation measurement type is based on the

specific federal monitoring objective. AMNP Appendix B lists the air monitoring sites and instrumentation measurement type where NO_x, NO, NO_2, true NO_2, and NO_y are measured.

Monitoring Requirements

Area-Wide Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 4.3.3 requires one area-wide ambient air quality monitoring site in each CBSA with a population of 1,000,000 or more persons. The requirements stipulate that these sites be located in the areas with the highest expected NO_2 concentration that are also representative of a neighborhood or larger (urban) spatial scale. Title 40 CFR Part 58, Appendix D, Section 4.3.5 (3) and (4), define neighborhood scale monitoring as representative of ambient air concentrations in an area between 0.5 and 4.0 kilometers with relatively uniform land use. Urban scale monitoring is representative of ambient air concentrations over large portions of an urban area with dimensions between 4 and 50 kilometers.

Based on 2020 U.S. Census Bureau population estimates for Texas as noted in AMNP Appendix D, area-wide neighborhood or urban scale NO_2 monitoring is required in four Texas CBSAs. The NO_2 data derived at the following sites meet these area-wide requirements.

- Dallas-Fort Worth-Arlington (DFW) CBSA: Dallas Hinton
- Houston-The Woodlands-Sugar Land (Houston) CBSA: Clinton
- San Antonio-New Braunfels (San Antonio) CBSA: San Antonio Northwest
- Austin-Round Rock (Austin) CBSA: Austin North Hills Drive

Regional Administrator Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 4.3.4 states that the EPA Regional Administrators collaborate with the states to designate a minimum of 40 NO_2 monitoring stations nationwide that are positioned to protect susceptible and vulnerable populations (referred to as RA-40 monitoring requirements). The TCEQ collaborated with the EPA to identify the four Texas RA-40 NO_2 monitoring sites (monitoring with NO_x instruments) listed below to meet the portion of this requirement attributed to Texas.

- DFW CBSA: Arlington Municipal Airport
- Houston CBSA: Clinton
- El Paso CBSA: Ascarate Park Southeast (SE)
- Beaumont-Port Arthur (Beaumont) CBSA: Nederland 17th Street

Near-Road Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 4.3.2 requires one microscale near-road NO_2 monitor located near a major road with high annual average daily traffic counts in each CBSA with a population of 1,000,000 or more persons. An additional near-road monitor is required in each CBSA with a population of 2,500,000 or more persons. The TCEQ near-road monitoring network meets these requirements with the six current sites (monitoring with NO_x instruments) and one pending new site listed below.

- DFW CBSA: Dallas LBJ Freeway and Fort Worth California Parkway North
- Houston CBSA: Houston Southwest Freeway and Houston North Loop

- San Antonio CBSA: San Antonio Interstate 35 and the pending new site at San Antonio Sherwood Drive (detailed information listed in the AMNP NO_2 Previously Recommended Changes section below)
- Austin CBSA: Austin North Interstate 35

Previously Recommended Changes

The TCEQ 2020 AMNP recommended deploying a second near-road monitoring station in the San Antonio CBSA to meet the near-road monitoring requirement in CBSAs with 2,500,000 or more persons. The existing near-road air monitoring station is located in north-northeast San Antonio at the annual average daily traffic (AADT) road segment ranked number seven on Interstate Highway (IH) 35 (TCEQ near-road site San Antonio Interstate 35 information is detailed in Appendix B). TCEQ requested the current AADT counts from the Texas Department of Transportation for the San Antonio CBSA road segments ranked 1 through 60. The TCEQ evaluated the San Antonio highest ranked road segments, considering fleet mix, roadway design, terrain, and meteorology, and performed site reconnaissance to determine the most appropriate location for a second near-road air monitoring station to monitor expected maximum hourly NO_2 concentrations. AADT road segments one through nine were not viable, primarily due to above or below grade roads and/or dense commercial properties.

TCEQ's recommended location for the second near-road station is in a different San Antonio geographic area, north-northwest San Antonio, and on a different interstate highway to meet requirements in 40 CFR Part 58, Appendix D, Section 4.3.2(a)(1). The recommended location is at the San Antonio road segment ranked with an AADT of 10 on IH-10 and Sherwood Drive. The EPA approved the recommended location for a second San Antonio near-road air monitoring station at the new site San Antonio Sherwood Drive in a letter dated August 16, 2021. The TCEQ expects to deploy the site and NO_x monitor before December 31, 2022.

Regulatory NO_2 Monitoring Network Changes

The TCEQ evaluated the current NO_2 monitoring network with the changes described above and determined the existing NO_2 network, with the addition of a second pending San Antonio near-road NO_2 monitoring site, meets all federal monitoring requirements; therefore, no changes are recommended.

Sulfur Dioxide

The TCEQ SO_2 network includes monitors sited to meet federal ambient SO_2 and high-sensitivity SO_2 monitoring requirements. The TCEQ SO_2 network is designed to meet the population weighted emissions index (PWEI) by CBSA, 2015 *Data Requirements Rule (DRR) for the 1-Hour Sulfur Dioxide Primary NAAQS*, and NCore monitoring requirements, as discussed above and further in this section. The TCEQ is required to operate a total of 19 SO_2 monitors and exceeds the requirements with 31 monitors. A summary of the CBSA PWEI calculations and associated monitoring requirement evaluations and current number of SO_2 monitors in each CBSA is shown in AMNP Appendix E. AMNP Appendix B lists the air monitoring sites where SO_2 is measured.

Monitoring Requirements

Population Weighted Emissions Index Requirements

Title 40 CFR Part 58, Appendix D, Section 4.4.2 requires states to establish an SO_2 monitoring network based on the PWEI calculations for Texas CBSAs. These indices are

calculated by multiplying the CBSA population by the emissions inventory (EI) data for counties within that CBSA, using an aggregate of the most recent EI data. The National Emissions Inventory (NEI) combines emissions inventory estimates for point, nonpoint (area), on-road, non-road, and wildfire and prescribed burn event sources and is released by the EPA every three years. The TCEQ updates point-source emissions annually. Data from the most recent NEI with the most recent point-source EI aggregate calculated values are divided by one million to obtain the CBSA PWEI. The PWEI monitoring requirements include the following:

- one monitor in CBSAs with a PWEI equal to or greater than 5,000, but less than 100,000;
- two monitors in CBSAs with a PWEI equal to or greater than 100,000, but less than 1,000,000; and
- three monitors in CBSAs with a PWEI equal to or greater than 1,000,000.

The TCEQ used the most recent quality assured data available – the 2020 U.S. Census Bureau population estimates and 2017 NEI data with 2020 TCEQ point-source EI data to calculate the PWEIs and determine the minimum monitoring requirements for each CBSA. AMNP Appendix E details this assessment by MSA (with county level EI data) and lists the total number of required and existing SO2 monitors per MSA. The TCEQ meets the PWEI requirements with six monitors required in five CBSAs, as shown in AMNP Appendix E.

Data Requirements Rule (DRR) Requirements

Title 40 CFR Part 51 Subpart BB (the DRR) required air agencies to characterize air quality around specified sources that emitted 2,000 tons per year (tpy) or more of SO_2 in the latest emissions inventory year (2014, at that time, for Texas). The TCEQ identified 24 sources for air quality characterization, including 13 sources identified for evaluation by monitoring. To meet the DRR requirement for characterization of air quality around those sources, 11 SO_2 source-oriented monitors, located near these 13 sources, were installed and operational by January 1, 2017. Details for the TCEQ's DRR SO_2 source evaluation, modeling, and monitoring recommendations are in the TCEQ 2017 AMNP.

One of the 11 monitors, the TCEQ Rockdale John D. Harper SO_2 monitor (and entire site), was decommissioned in 2020, due to the sale/lease of the property. This monitor was eligible for decommission based on a design value less than 50% of the 2010 one-hour SO_2 NAAQS from data collected during the first three-year period of operation, as provided by 40 CFR Section 51.1203(c)(3). Additionally, the facility near this site that required DRR SO_2 air quality characterization was shut down in 2017. TCEQ SO_2 monitors fulfilling DRR monitoring requirements are listed in Table 3.

Table 3: Data Requirements Rule Required SO_2 Monitoring Sites

Core Based Statistical Area	County Name	Air Monitoring Site Name
Amarillo	Potter	Amarillo Xcel El Rancho
Beaumont-Port Arthur	Orange	Orange 1st Street
Beaumont-Port Arthur	Jefferson	Port Arthur West 7th Street Gate 2
Big Spring*	Howard	Big Spring Midway
Borger*	Hutchinson	Borger FM 1559
College Station-Bryan	Robertson	Franklin Oak Grove

Core Based Statistical Area	County Name	Air Monitoring Site Name
Corsicana*	Navarro	Richland Southeast 1220 Road
Longview	Harrison	Hallsville Red Oak Road
Mount Pleasant*	Titus	Cookville FM 4855
San Antonio-New Braunfels	Bexar	San Antonio Gardner Road

* Micropolitan statistical area
FM – farm to market
SO_2 – sulfur dioxide

Title 40 CFR Section 51.1205(b) requires the TCEQ to submit an annual report for areas where modeling of actual SO_2 emissions served as the basis for designating such area as attainment. The report must document the annual SO_2 emissions of each applicable source, provide an assessment of the cause of any emissions increase from the previous year, and make a recommendation regarding further modeling needs. The DRR-required assessment and recommendation are provided in AMNP Appendix F. Where allowable SO_2 emissions served as the basis for designating the area as attainment, air agencies are not subject to ongoing data requirements, *see* 40 CFR Section 51.1205(c).

Previously Recommended Changes

The TCEQ 2021 AMNP recommended decommissioning the San Antonio Gardner Road SO_2 monitor; however, due to incomplete 2018 data for one quarter, the design value was determined to be invalid. In EPA's response letter to the AMNP dated October 20, 2021, the EPA disapproved the proposed decommission but recommended that the TCEQ resubmit the request when three years of complete data for design value calculation were obtained. The San Antonio Gardner Road SO_2 monitor remains operational until the EPA approves the deactivation.

The TCEQ 2021 AMNP recommended decommissioning the Fairfield Farm to Market (FM) 2570 Ward Ranch SO_2 monitor; the monitor is eligible for decommission based on the design value. In addition, the SO_2 source triggering area SO_2 air quality characterization ceased operations in early 2018 and was demolished in 2021. This proposal was not approved by the EPA due to language in the proposed *Redesignation Request and Maintenance Plan State Implementation Plan (SIP) Revision for the Freestone-Anderson and Titus 2010 SO_2 NAAQS Nonattainment Areas* indicating reliance, in part, on monitoring data from this monitor.

The TCEQ submitted the revised adopted *Redesignation Request and Maintenance Plan State Implementation Plan (SIP) Revision for the Freestone-Anderson and Titus 2010 SO_2 NAAQS Nonattainment Areas* to the EPA on March 3, 2022. The SIP revision includes a request that the EPA redesignate the Freestone-Anderson and Titus nonattainment areas to attainment for the 2010 SO_2 NAAQS and provides 10-year maintenance plans for both areas consistent with federal Clean Air Act, §175A requirements. The Fairfield FM 2570 Ward Ranch SO_2 monitor remains operational until the EPA approves the SIP redesignation request and redesignates the Freestone-Anderson area attainment for SO_2.

Regulatory SO_2 Monitoring Network Changes

The TCEQ recommends changing the Freeport South Avenue I SO_2 monitor, located in Brazoria county, network designation from state-initiative to federal special purpose monitor (SPM), effective December 31, 2022. The TCEQ recommends decommissioning

the San Antonio Gardner Road SO_2 monitor by December 31, 2022. This monitor is eligible for decommission based on the 2019-2021 preliminary design value of 4 ppb, which is 5% of the 2010 one-hour SO_2 NAAQS, as provided by 40 CFR Section 51.1203(c)(3). In addition, the SO_2 source requiring DRR SO_2 air quality characterization was shut down in late 2018. The San Antonio-New Braunfels CBSA PWEI required monitor, located at the Calaveras Lake air monitoring site, will remain operational.

Lead

The TCEQ lead (Pb) network includes total suspended particulate (TSP) monitors sited in compliance with federal source-oriented SLAMS requirements, as discussed further in this section. The TCEQ Pb network is required to operate three TSP Pb monitors and meets this requirement. AMNP Appendix G lists the Pb network monitoring requirements and the total number of TSP Pb monitors. AMNP Appendix B lists the air monitoring sites where Pb is measured.

Monitoring Requirements

The TCEQ Pb network meets 40 CFR Part 58, Appendix D, Section 4.5 monitoring requirements for Pb. This section requires state agencies to conduct ambient air Pb monitoring near Pb sources that have been shown or are expected to contribute to a maximum ambient air Pb concentration in excess of the standard. Title 40 CFR Part 58, Appendix D, Section 4.5(a) requires a minimum of one source-oriented ambient air Pb monitoring site to measure maximum concentrations near each non-airport facility emitting 0.50 tpy or more of Pb annually, based on either the most recent NEI data or annual EI data submitted to meet state reporting requirements.

The TCEQ evaluated the 2018, 2019, and 2020 Pb point-source EI data. All Texas 2020 point-source emissions remain below the 0.50 tpy threshold that would trigger Pb monitoring requirements. Table 4 includes information regarding historical Pb point-source EI data for sources that previously exceeded 0.50 tpy annual Pb point-source emissions, thus requiring source-oriented monitoring or a waiver in the last five years.

Table 4: 2018-2020 Lead Point-Source Emissions Inventory Data

Facility Name	County	2018 Pb Emissions (tpy)	2019 Pb Emissions (tpy)	2020 Pb Emissions (tpy)	TCEQ Comments
Lower Colorado River Authority	Fayette	0.5793	0.1800	0.1128	Pb waiver renewal approved April 29, 2021, see Pb Waivers section below for detail
Conecsus, LLC	Kaufman	0.2812	0.1804	0.1779	Pb is monitored at the Terrell Temtex site*

* site temporarily decommissioned on May 31, 2022, due to the property owner revocation of the lease agreement and is pending relocation.
LLC – limited liability company
Pb – lead
TCEQ – Texas Commission on Environmental Quality
tpy – tons per year

Pb Waivers

Under 40 CFR Part 58, Appendix D, Section 4.5(a)(ii), the EPA Regional Administrator may waive the requirement in 40 CFR Part 58, Appendix D, 4.5(a) for monitoring near specific Pb sources with sufficient demonstration that the Pb source will not contribute to a maximum concentration in ambient air greater than 50% of the NAAQS based on

historical monitoring data, modeling, or other approved means. All approved waivers must be renewed every five years as part of the network assessment required under 40 CFR Part 58.10(d).

The TCEQ submitted a Pb modeling analysis for the Lower Colorado River Authority Fayette Power Plant in the 2020 TCEQ *Texas Five-Year Ambient Monitoring Network Assessment.* The Pb modeling analysis demonstration, necessary to request a waiver from the source-oriented Pb monitoring requirement, indicated the predicted maximum ground level concentration for a rolling three-month average continues to remain below 50% of the NAAQS. The EPA Region 6 approved the TCEQ Pb waiver renewal request in a letter dated April 29, 2021. Based on decreases to the Lower Colorado River Authority Fayette Power Plant 2019 and 2020 Pb point-source emission data, the Pb waiver is no longer required.

Collocation Requirements

Title 40 CFR Part 58, Appendix A, Section 3.4.4 requires a primary quality assurance organization to select 15% of the Pb monitoring sites within the network for collocated quality control (QC) monitoring, with the first of these monitors measuring the highest Pb concentrations in the network. Based on the current network of primary Pb monitors, the TCEQ is required to maintain one collocated QC Pb monitor. The TCEQ operates collocated QC Pb monitors at Frisco Eubanks and Terrell Temtex. Terrell Temtex measured the highest 2020 network Pb concentrations.

Previously Recommended Changes

The TCEQ 2021 AMNP recommended no changes to the Pb monitoring network.

Regulatory Pb Monitoring Network Changes

The TCEQ evaluated the current Pb monitoring network and determined the existing Pb network meets all federal monitoring requirements; therefore, no changes are recommended.

Ozone

The TCEQ O_3 network is designed to meet SLAMS, PAMS, and NCore monitoring requirements, as discussed further in this section. The TCEQ O_3 monitoring network is required to operate a total of 27 O_3 monitors in 14 MSAs and exceeds this requirement with 72 O_3 monitors in 15 MSAs and 2 micropolitan statistical areas. AMNP Appendix H lists the O_3 requirements and monitors in each MSA in the state. AMNP Appendix B lists the air monitoring sites where O_3 is measured.

Monitoring Requirements

SLAMS Requirements

Title 40 CFR Part 58, Appendix D, Section 4.1 requires O_3 monitoring in each MSA with a population of 350,000 or more persons. Monitoring is also required in MSAs with lower populations if the design value for that MSA is equal to or greater than 85% of the NAAQS. Specific SLAMS O_3 minimum monitoring requirements are included in Table 5, an excerpt of 40 CFR Part 58, Appendix D, Table D-2. The TCEQ evaluated 2020 U.S. Census Bureau population estimates and 2018-2020 eight-hour O_3 design values for each Texas MSA in AMNP Appendix H. AMNP Appendix H details this assessment by MSA and lists the total number of required and existing SLAMS, NCore, and PAMS O_3 monitors per MSA. The TCEQ must operate a minimum of 24 O_3 monitors

in Texas MSAs to meet SLAMS network requirements. AMNP Appendix B lists the monitors in each MSA.

Table 5: Ozone SLAMS Minimum Monitoring Requirements

MSA Population	Monitors required for MSAs with most recent 3-year design value concentrations ≥85% of any O_3 NAAQS[1]	Monitors required for MSAs with most recent 3-year design value concentrations <85% of any O_3 NAAQS[2, 3]
>10,000,000	4	2
4,000,000 to 10,000,000	3	1
350,000 to <4,000,000	2	1
50,000 to <350,000	1	0

[1]The ozone (O_3) National Ambient Air Quality Standards (NAAQS) levels are defined in 40 CFR Part 50.
[2]These minimum monitoring requirements apply in the absence of a design value.
[3]MSA must contain an urbanized area of 50,000 or more population.
≥ - greater than or equal to
< - less than
> - greater than
% - percent

Previously Recommended Changes

The TCEQ 2021 AMNP recommended no changes to the O_3 monitoring network.

Regulatory O_3 Monitoring Network Changes

The TCEQ evaluated the current O_3 monitoring network and determined the existing O_3 network meets all federal monitoring requirements; therefore, no changes are recommended.

Carbon Monoxide

The TCEQ CO network includes ambient CO and high sensitivity CO monitoring to meet federal monitoring requirements, as discussed here and in the NCore section above. The TCEQ CO network is designed to meet NCore and near-road monitoring requirements. The agency is required to operate seven total CO monitors and exceeds the requirements with 12 monitors: eight ambient CO monitors and four high sensitivity CO monitors. AMNP Appendix I lists the required and current CO monitors in each CBSA. AMNP Appendix B lists the air monitoring sites where CO is measured.

Monitoring Requirements

Near-Road Requirements

Title 40 CFR Part 58, Appendix D, Section 4.2 requires collocating one CO monitor with one required near-road NO_2 monitor in CBSAs with populations of 1,000,000 or more persons. The TCEQ meets this requirement with CO monitors at the following near-road sites.

- DFW CBSA: Fort Worth California Parkway North
- Houston CBSA: Houston North Loop
- San Antonio CBSA: San Antonio Interstate 35
- Austin CBSA: Austin North Interstate 35

Previously Recommended Changes

The TCEQ 2019 AMNP recommended replacing the San Antonio Interstate 35 CO monitor with a high sensitivity CO monitor. The EPA approved this request in a letter dated November 4, 2019. The existing San Antonio Interstate 35 CO monitor will be replaced with a high sensitivity CO monitor by December 2022.

Regulatory CO Monitoring Network Changes

The TCEQ evaluated the current CO monitoring network and determined the existing CO network meets all federal monitoring requirements; therefore, no changes are recommended.

Particulate Matter of 10 Micrometers or Less

The TCEQ particulate matter of 10 micrometers or less in diameter (PM_{10}) network is designed to meet SLAMS monitoring requirements based on MSA populations and 24-hour concentration data, as discussed further in this section. The TCEQ is required to operate between 16 and 41 PM_{10} monitors and meets this requirement with 21 monitors, plus the recommended additions outlined below. AMNP Appendix J lists the required and current PM_{10} monitors in each MSA. AMNP Appendix B lists the air monitoring sites where PM_{10} is measured.

Monitoring Requirements

The TCEQ PM_{10} network is designed to meet the SLAMS requirements under 40 CFR Part 58, Appendix D, Section 4.6, which provides the approximate number of PM_{10} monitors required in MSAs based on population and available measured concentrations. Specific PM_{10} monitoring requirements are listed in Table 6, an excerpt of 40 CFR Part 58, Appendix D, Table D-4. Modifications from these PM_{10} monitoring requirements must be approved by the EPA Regional Administrator. Compliance with the PM_{10} standard is based on the number of measured exceedances of the 24-hour 150 micrograms per cubic meter (µg/m^3) standard averaged over three years. The TCEQ evaluated 2020 U.S. Census Bureau population estimates and 2018-2020 PM_{10} maximum 24-hour concentration data for each Texas MSA. AMNP Appendix J, Table 1, details this evaluation by MSA and lists the range of total number of required and existing SLAMS PM_{10} monitors per MSA.

Table 6: Particulate Matter of 10 Micrometers or Less SLAMS Minimum Monitoring Requirements

MSA Population	PM_{10} monitors required for MSAs with high concentration[1]	PM_{10} monitors required for MSAs with medium concentration[2]	PM_{10} monitors required for MSAs with low concentration[3]
>1,000,000	6-10	4-8	2-4
500,000 to 1,000,000	4-8	2-4	1-2
250,000 to 500,000	3-4	1-2	0-1
100,000 to 250,000	1-2	0-1	0

[1]High Concentration areas are those for which ambient PM_{10} data show ambient concentrations exceeding the PM_{10} National Ambient Air Quality Standards (NAAQS) by 20 percent or more.
[2]Medium Concentration areas are those for which ambient PM_{10} data show ambient concentrations exceeding 80 percent of the PM_{10} NAAQS.
[3]Low Concentration areas are those for which ambient PM_{10} data show ambient concentrations less than 80 percent of the PM_{10} NAAQS.
PM_{10} – particulate matter of 10 micrometers or less in diameter
> – greater than

Collocation Requirements

Title 40 CFR Part 58, Appendix A, Section 3.3.4 requires a primary quality assurance organization to select 15% of the PM_{10} monitoring sites within the network for collocated QC sampling. At least 50% of the selected sites should have an annual mean particulate matter concentration among the highest in the network. AMNP Appendix J, Table 2 lists the maximum 24-hour concentration measurements during the three-year period from 2018-2020 and includes the 2018, 2019, and 2020 annual mean concentrations for each PM_{10} site. The TCEQ evaluates the PM_{10} concentration data annually to ensure the PM_{10} collocated QC monitors continue to meet 40 CFR Part 58, Appendix A, Section 3.3.4.2. Based on the current network of PM_{10} monitors, the TCEQ is required to operate three PM_{10} collocated QC monitors and exceeds this requirement with four monitors.

The PM_{10} annual measured mean concentration data were evaluated from 2018-2020 to determine network collocated QC sites, shown in AMNP Appendix J, Table 2. The PM_{10} measurement concentrations at Clinton and Socorro Hueco had 2018 to 2020 annual mean concentrations among the highest in the network and continue to satisfy collocation QC requirements. AMNP Appendix J, Table 1 lists the current collocated QC monitors.

Previously Recommended Changes

The EPA approved two changes recommended in previous TCEQ AMNPs. The TCEQ 2019 AMNP recommended adding a PM_{10} continuous FEM monitor to Houston North Wayside. The EPA approved the recommendation in a letter dated November 4, 2019. Due to area humidity interferences with instrument function, a non-NAAQS comparable continuous PM_{10} monitor was deployed to Houston North Wayside September 1, 2021. The TCEQ 2020 AMNP recommended deploying a PM_{10} FRM filter-based monitor to a new air monitoring site, the new Dallas Bexar Street air monitoring site; a PM_{10} FRM monitor was deployed September 7, 2021.

Regulatory PM_{10} Monitoring Network Changes

The TCEQ recommends replacing the PM_{10} continuous non-NAAQS comparable monitors necessary to report $PM_{10\text{-}2.5}$ data at NCore sites (Dallas Hinton, El Paso Chamizal, and Houston Deer Park #2, detailed in Table 1) with PM_{10} FEM continuous monitors by December 2022. The DFW MSA PM_{10} FEM monitor will satisfy new area requirements with four to eight PM_{10} monitors due to 2020 DFW data measurements attributed to forecasted Saharan Dust and patchy lingering wildfire smoke in June 2020. (evaluation located in AMNP Appendix J, Table 1.

The TCEQ recommends replacing and upgrading PM_{10} FRM filter-based monitors and PM_{10} non-NAAQS comparable monitors to continuous PM_{10} FEM monitors with near real-time data reporting. The TCEQ also recommends adding continuous PM_{10} FEM to the pending new site in the Houston Fifth Ward to improve spatial coverage. Sites with recommendations for continuous PM_{10} FEM monitors are listed in Table 7. Monitor upgrades supported by American Rescue Plan (ARP) grant funding are expected to be deployed in 2023 and 2024.

Table 7: Particulate Matter of 10 Micrometers or Less Monitor Recommendations

Core Based Statistical Area	Site Name	Existing Monitor	New Monitor	Recommendation
Austin-Round Rock-Georgetown	Austin Webberville Road	PM_{10} FRM	PM_{10} FEM continuous	Replace
Dallas-Fort Worth-Arlington	Dallas Bexar Street	PM_{10} FRM	PM_{10} FEM continuous	Replace
Dallas-Fort Worth-Arlington	Dallas Hinton	PM_{10} continuous (non-NAAQS comparable)	PM_{10} FEM continuous	Replace
El Paso	El Paso Chamizal	PM_{10} continuous (non-NAAQS comparable)	PM_{10} FEM continuous	Replace
El Paso	Ivanhoe	PM_{10} FRM	PM_{10} FEM continuous	Replace
El Paso	Ojo De Agua	PM_{10} FRM	PM_{10} FEM continuous	Replace
El Paso	Socorro Hueco	PM_{10} FRM	PM_{10} FEM continuous	Replace
Houston-The Woodlands-Sugar Land	Houston Deer Park #2	PM_{10} continuous (non-NAAQS comparable)	PM_{10} FEM continuous	Replace
Houston-The Woodlands-Sugar Land	Texas City Fire Station	PM_{10} FRM	PM_{10} FEM continuous	Replace
Houston-The Woodlands-Sugar Land	New Site: Houston Fifth Ward area, pending site selection	None	PM_{10} FEM continuous	New monitor
McAllen-Edinburg-Mission	Mission	PM_{10} FRM	PM_{10} FEM continuous	Replace
San Antonio-New Braunfels	San Antonio Bulverde Parkway	PM_{10} FRM	PM_{10} FEM continuous	Replace

- number sign
FEM - federal equivalent method
FRM – federal reference method designated for filter-based instruments
NAAQS – National Ambient Air Quality Standards
PM_{10} – particulate matter of 10 micrometers or less in diameter

Particulate Matter of 2.5 Micrometers or Less

The TCEQ $PM_{2.5}$ monitoring network includes a combination of non-continuous FRM, continuous FEM, and non-NAAQS comparable monitors designed to meet SLAMS area, regional background, regional transport, NCore, and near-road network requirements, as discussed further in this section. The TCEQ is required to operate 28 FRM, FEM, $PM_{10\text{-}2.5}$, or speciated $PM_{2.5}$ monitors and exceeds the requirements with 72 monitors. An analysis of $PM_{2.5}$ monitoring and siting requirements using the most recent 2020 U.S.

Census Bureau population estimates and 2020 $PM_{2.5}$ design values is provided in AMNP Appendix K. AMNP Appendix B lists the air monitoring sites where $PM_{2.5}$ is measured.

Monitoring Requirements

General and Continuous Requirements

Title 40 CFR Part 58, Appendix D, Section 4.7 requires SLAMS $PM_{2.5}$ monitoring in MSAs with populations of 500,000 or more persons and in MSAs with lower populations if measured $PM_{2.5}$ design values for an MSA equal or exceed 85% of the NAAQS. Specific $PM_{2.5}$ monitoring requirements are listed in Table 8, an excerpt of 40 CFR Part 58, Appendix D, Table D-5. Under 40 CFR Part 58, Appendix D, Section 4.7.2, the TCEQ must operate continuous $PM_{2.5}$ monitors equal to at least one-half the required number of SLAMS-required sites in each MSA. Due to the replacement of $PM_{2.5}$ FRM filter-based monitors with continuous $PM_{2.5}$ FEM monitors in the TCEQ network, all Texas MSAs meet the continuous requirement, shown in AMNP Appendix K, Table 2. Additionally, 40 CFR Part 58, Appendix D, Section 4.7.3 requires each state to install and operate at least one $PM_{2.5}$ site to monitor for regional background and at least one $PM_{2.5}$ site to monitor regional transport. AMNP Appendix B lists monitors meeting the regional background and transport requirements. The TCEQ evaluated 2020 U.S. Census Bureau population estimates and 2018-2020 $PM_{2.5}$ annual and 24-hour design value data for each Texas MSA in AMNP Appendix K, Table 2. AMNP Appendix K, Table 2 details this evaluation by MSA and lists the total number of required and existing SLAMS $PM_{2.5}$ monitors per MSA.

Table 8: Particulate Matter of 2.5 Micrometers or Less SLAMS Minimum Monitoring Requirements

MSA population	$PM_{2.5}$ monitors required for MSAs with most recent 3-year design value ≥85% of any $PM_{2.5}$ NAAQS	$PM_{2.5}$ monitors required for MSAs with most recent 3-year design value <85% of any $PM_{2.5}$ NAAQS
>1,000,000	3	2
500,000 to 1,000,000	2	1
50,000 to <500,000	1	0

< – less than
> – greater than
≥ – greater than or equal to
% - percent
MSA – metropolitan statistical area
NAAQS – National Ambient Air Quality Standards
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter

Near-Road $PM_{2.5}$ Requirements

Title 40 CFR Part 58, Appendix D, Section 4.7.1(b)(2) requires collocating one FRM or FEM $PM_{2.5}$ monitor with one required near-road NO_2 monitor in CBSAs with populations of 1,000,000 or more persons. The TCEQ meets this requirement with $PM_{2.5}$ monitors at the near-road sites listed below and listed in AMNP Appendix K, Table 2.

- DFW CBSA: Fort Worth California Parkway North
- Houston CBSA: Houston North Loop
- San Antonio CBSA: San Antonio Interstate 35
- Austin CBSA: Austin North Interstate 35

Collocation Requirements

Title 40 CFR Part 58, Appendix A, Section 3.2.3 requires a primary quality assurance organization to select 15% of the $PM_{2.5}$ primary monitors of each method designation (FRM or FEM) for collocated QC sampling. Based on the current network of five $PM_{2.5}$ FRM monitors, the TCEQ is required to operate one collocated $PM_{2.5}$ FRM (FRM/FRM collocation) monitor and exceeds this requirement with two monitors. For each primary monitor designated as an FEM, 50% of the monitors designated for collocation shall be collocated with an FRM (FRM/FEM) and 50% shall be collocated with a monitor having the same method designation as the FEM primary monitor (FEM/FEM). Fifty percent of the collocated QC monitors must be deployed at sites with annual average or daily concentrations estimated to be within plus or minus 20% of either the annual or 24-hour standard.

Based on the current $PM_{2.5}$ network of 44 FEM monitors, the TCEQ is required to operate seven collocated QC monitors pursuant to 40 CFR Part 58, Appendix A, Section 3.2.3.2(b). A seventh collocated QC monitor was added at the Dona Park site in May 2022. The TCEQ meets this requirement with three same-method collocated $PM_{2.5}$ (FEM/FEM collocation) monitors and four different-method collocated $PM_{2.5}$ (FEM/FRM collocation) monitors with $PM_{2.5}$ monitors at the seven air monitoring sites listed in Table 9. Information regarding the $PM_{2.5}$ collocation designations is listed in AMNP Appendix B.

Table 9: Particulate Matter of 2.5 Micrometers or Less FEM Quality Control Collocation Monitor Types and Sites

Primary Monitor Type and Method Code	QC Collocated Monitor Type and Method Code	Site Name
$PM_{2.5}$ FEM, method 209	$PM_{2.5}$ FRM, method 145	Austin Webberville Road
$PM_{2.5}$ FEM, method 209	$PM_{2.5}$ FEM, method 209	Corpus Christi Huisache
$PM_{2.5}$ FEM, method 209	$PM_{2.5}$ FRM, method 145	San Antonio Northwest
$PM_{2.5}$ FEM, method 209	$PM_{2.5}$ FEM, method 209	Fort Worth California Parkway North
$PM_{2.5}$ FEM, method 209	$PM_{2.5}$ FRM, method 145	Houston Aldine
$PM_{2.5}$ FEM, method 209	$PM_{2.5}$ FEM, method 209	Port Arthur Memorial School
$PM_{2.5}$ FEM, method 209	$PM_{2.5}$ FRM, method 145	Dona Park (completed May 25, 2022)

FEM – federal equivalent method
FRM – federal reference method
$PM_{2.5}$ – particulate matter of 2.5 micrometers in diameter or less
QC – quality control

Previously Recommended Changes

The TCEQ recommended deploying a $PM_{2.5}$ non-NAAQS comparable monitor to a new air monitoring site, Dallas Bexar Street, in the 2020 AMNP. The new Dallas Bexar Street continuous $PM_{2.5}$ monitor, approved by the EPA in a letter dated September 2, 2020, was activated on February 1, 2022. The TCEQ 2021 AMNP recommended deploying $PM_{2.5}$ QC collocated FEM monitors at three additional sites listed in Table 10 to meet the 15% collocation requirements as primary FEM monitor counts reach thresholds. The EPA approved the collocations in letters dated August 13, 2021, and October 20, 2021. The TCEQ deployed the Port Arthur Memorial $PM_{2.5}$ QC collocated FEM monitor on September 29, 2021; other sites are pending.

The TCEQ continues to replace $PM_{2.5}$ FRM non-continuous monitors and non-NAAQS comparable $PM_{2.5}$ continuous monitors ($PM_{2.5}$ TEOMs) with $PM_{2.5}$ FEM continuous monitors, as indicated and approved in previous AMNPs. The status of previously approved $PM_{2.5}$ recommendations are listed in Table 11.

Table 10: Previously Approved Particulate Matter of 2.5 Micrometers or Less QC Collocated Changes

Site Name	Existing $PM_{2.5}$ Monitor(s)	New Monitor	Action	Status
El Paso UTEP	$PM_{2.5}$ FRM	$PM_{2.5}$ FEM continuous	Existing $PM_{2.5}$ FRM becomes QC collocated with 1/12-day sampling	Pending site relocation (modified for current fulfillment at Dona Park)
Mission	$PM_{2.5}$ FEM continuous	$PM_{2.5}$ FEM continuous	Add same method QC collocated monitor	Pending
Port Arthur Memorial	$PM_{2.5}$ FEM continuous	$PM_{2.5}$ FEM	Add same method QC collocated monitor	Completed September 29, 2021

FEM – federal equivalent method
FRM – federal reference method
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
QC – quality control
UTEP – University of Texas at El Paso

Table 11: Previously Approved Particulate Matter of 2.5 Micrometers or Less Summary of Changes

Site Name	Monitor(s) Replaced	New Monitor	Action	Status
Dallas Bexar Street	None – new monitor	$PM_{2.5}$ TEOM	Deploy	Completed February 1, 2022
Ascarate Park Southeast	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending
Clinton	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending
Conroe Relocated	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed September 30, 2021
Convention Center	$PM_{2.5}$ FRM	$PM_{2.5}$ FEM continuous	Method code change	Completed April 29, 2022

Site Name	Monitor(s) Replaced	New Monitor	Action	Status
Corsicana Airport	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed April 25, 2022
Dona Park	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed May 25, 2022
Edinburg East Freddy Gonzalez	$PM_{2.5}$ FRM	$PM_{2.5}$ FEM continuous	Method code change	Completed June 6, 2022
El Paso UTEP	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending site relocation
Kaufman	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed April 25, 2022
Midlothian OFW	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending site relocation
Seabrook Friendship Park	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed September 30, 2021
Socorro Hueco	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending

FEM – federal equivalent method
FRM – federal reference method
OFW – Old Fort Worth
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
TEOM – tapered element oscillating microbalance
UTEP – University of Texas at El Paso

Regulatory $PM_{2.5}$ Monitoring Network Changes

The TCEQ listed additional monitoring considerations in the 2021 AMNP based on previously received AMNP comments. The TCEQ received positive support and comment on the additional monitoring considerations and recommend the special purpose monitoring summarized below and listed in Table 12.

- Deployment of a $PM_{2.5}$ FEM continuous monitor to the existing Houston Bayland Park site (completed on April 22, 2022).
- Establishment of a new air monitoring site in the Gregory-Portland area to measure $PM_{2.5}$ FEM continuous, (with VOCs and meteorological parameters) pending site selection.
- Establishment of a new air monitoring site in the Houston Fifth Ward to measure $PM_{2.5}$ FEM continuous (with VOCs and meteorological parameters), pending site selection.
- Establishment of a new air monitoring site in the Houston Pleasantville neighborhood area to measure $PM_{2.5}$ FEM continuous (with meteorological parameters) pending site selection.

The TCEQ recommends changing the Freeport South Avenue I $PM_{2.5}$ FRM monitor with metal speciation analyses network designation from state-initiative to federal SPM, effective December 31, 2022.

With awarded ARP funds, the TCEQ recommends adding continuous $PM_{2.5}$ FEM monitors to new and existing sites and/or replacing and upgrading $PM_{2.5}$ non-NAAQS

comparable monitors to continuous $PM_{2.5}$ FEM monitors as listed in Table 12. The TCEQ recommends adding a $PM_{2.5}$ FEM continuous monitor to the San Antonio Bulverde Parkway in late 2023. ARP funding is expected to be awarded in the fall of 2022; monitors are expected to be deployed in 2023.

Table 12: Particulate Matter of 2.5 Micrometers or Less Monitor Recommendations

Site Name	Monitor	Recommendation	Estimated Completion Date
Dallas Bexar Street	$PM_{2.5}$ TEOM	Upgrade existing non-NAAQS comparable monitor to continuous $PM_{2.5}$ FEM	December 31, 2023
Freeport South Avenue I	$PM_{2.5}$ FRM with metal speciation (state-initiative)	Add special purpose monitoring at existing site to federal network	December 31, 2022
New Site: Gregory-Portland area	$PM_{2.5}$ FEM continuous	Add special purpose monitoring to new site for spatial coverage	December 31, 2022
Houston Bayland Park	$PM_{2.5}$ FEM continuous	Add special purpose monitoring to existing site for spatial coverage	Completed April 22, 2022
New Site: Houston Fifth Ward area	$PM_{2.5}$ FEM continuous	Add special purpose monitoring to new site for spatial coverage	December 31, 2022
New Site: Houston Pleasantville area	$PM_{2.5}$ FEM continuous	Add special purpose monitoring to new site for spatial coverage	December 31, 2022
Old Highway 90	$PM_{2.5}$ TEOM	Upgrade existing non-NAAQS comparable monitor to continuous $PM_{2.5}$ FEM	December 31, 2023
San Antonio Bulverde Parkway	$PM_{2.5}$ TEOM (state-initiative)	Upgrade the existing non-NAAQS comparable, state-initiative monitor to continuous $PM_{2.5}$ FEM and add as federal special purpose monitoring for spatial coverage	December 31, 2023
Skyline Park	$PM_{2.5}$ FEM continuous	Add special purpose monitor to existing site for spatial coverage	December 31, 2023
Dona Park	$PM_{2.5}$ FRM	Monitor designation change to QC collocated supporting method 209 collocation requirements.	Completed May 24, 2022

FEM – federal equivalent method
FRM – federal reference method
NAAQS – National Ambient Air Quality Standards
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
QC – quality control
TEOM – tapered element oscillating microbalance

Volatile Organic Compounds

The TCEQ volatile organic compound (VOC) network is designed to meet PAMS requirements, as discussed further in this section. The TCEQ is required to operate two VOC monitors and exceeds this requirement with 12 monitors. For purposes of meeting federal PAMS requirements, the TCEQ VOC network includes eight automated gas chromatograph (autoGC) continuous monitors and four non-continuous canister monitors. AMNP Appendix L, Table 1 lists the required and current VOC monitors in

each Texas CBSA. AMNP Appendix B lists the air monitoring sites where VOCs are measured.

Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 5 requires state agencies to collect speciated VOC hourly-averaged measurements at NCore sites located in CBSAs with a population of 1,000,000 or more persons as part of the PAMS network requirements. The TCEQ exceeds PAMS required VOC monitoring requirements with autoGCs at the two PAMS sites listed in Table 2 and at six other sites as listed in AMNP Appendix B.

Previously Recommended Changes

The TCEQ 2021 AMNP recommended no changes to the VOC monitoring network.

Regulatory and Non-Regulatory VOC Monitoring Network Changes

The TCEQ listed additional monitoring considerations in the 2021 AMNP based on previously received AMNP comments. The TCEQ received positive support and comment on the additional monitoring considerations and recommends the non-regulatory special purpose monitoring summarized below.

- Establishment of a new air monitoring site in the Houston Fifth Ward to measure VOCs by canister every sixth day, pending site selection, expected to be operational by December 2022.
- Establishment of a new air monitoring site in the Gregory-Portland area to measure VOC by canister every sixth day, pending site selection, expected to be operational by December 2022.

The TCEQ evaluated the current VOC monitoring network and determined the existing VOC network meets all federal monitoring requirements.

Carbonyls

The TCEQ carbonyl monitoring network is designed to meet PAMS requirements, as discussed further in this section. The TCEQ is required to operate two carbonyl monitors and exceeds this requirement with four monitors. AMNP Appendix L, Table 2 lists the required and current carbonyl monitors in each Texas CBSA. AMNP Appendix B lists the air monitoring sites where carbonyls are measured.

Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 5 requires state agencies to collect PAMS carbonyl measurements with three eight-hour averaged samples taken every third day at each NCore site located in CBSAs with a population of 1,000,000 or more persons. The TCEQ exceeds carbonyl monitoring requirements with carbonyl monitors at the two required PAMS sites listed in Table 2 and at two other sites listed in AMNP Appendix B.

Previously Recommended Changes

The TCEQ 2021 AMNP recommended no changes to the carbonyl monitoring network.

Regulatory Carbonyl Monitoring Network Changes

The TCEQ evaluated the current carbonyl monitoring network and determined the existing carbonyl network meets all federal monitoring requirements; therefore, no changes are recommended.

Meteorology

The TCEQ meteorology monitoring network includes surface meteorology parameters (solar radiation, wind speed, wind direction, and temperature), upper air measurements (mixing height), and other meteorological parameters, as discussed further in this section. Surface meteorology is measured at most air monitoring stations and additional meteorology parameters are required at PAMS monitoring stations. All meteorology monitors in the TCEQ network are included in AMNP Appendix B.

Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 5 requires state agencies to collect PAMS surface and upper air meteorology measurements at all NCore sites in CBSAs with a population of 1,000,000 or more persons. Meteorological PAMS measurements at the required PAMS sites (or alternatively approved waiver locations) include measurements of wind speed, wind direction, outdoor temperature, atmospheric pressure, relative humidity, precipitation, hourly averaged mixing-height, solar radiation, and ultraviolet radiation. The TCEQ meets these meteorological monitoring requirements with measurements collected at the Dallas Hinton, Houston Deer Park #2, and La Porte Airport sites.

Previously Recommended Changes

The TCEQ 2019 AMNP recommended several meteorology monitoring changes that were approved by the EPA in a letter dated November 4, 2019. The TCEQ recommended deploying wind speed, wind direction, and outdoor temperature monitors to a new air monitoring site, Dallas Bexar Street, in the Dallas County southern sector. The new Dallas Bexar Street wind speed, wind direction, and outdoor temperature monitors are expected to be operational Summer 2022. The TCEQ San Antonio Northwest ceilometer is expected to be operational as equipment becomes available in 2023.

The TCEQ 2020 AMNP recommended deploying wind speed, wind direction, and outdoor temperature monitors to a second near-road monitoring station in the San Antonio MSA. The EPA approved the recommendation for a second San Antonio near-road air monitoring station at the new site San Antonio Sherwood Drive in a letter dated August 16, 2021. TCEQ expects to deploy the site and wind speed, wind direction, and outdoor temperature monitors before December 31, 2022.

Regulatory Meteorology Monitoring Network Changes

The TCEQ is upgrading older meteorology technology to new all-in-one sonic weather sensors as equipment becomes available. The new sensor provides measurements of wind speed, wind direction, and ambient air temperature with options to report relative humidity and barometric pressure. The TCEQ recommends decommissioning the San Antonio Gardner Road wind speed, wind direction, and outdoor temperature monitors by December 31, 2022.

The TCEQ recommends deploying wind speed, wind direction, and outdoor temperature monitors to the recommended new air monitoring sites pending site selection in the Houston Fifth Ward, the Houston Pleasantville neighborhood, and the Gregory-Portland area; all monitors are expected to be operational by December 2022. The TCEQ recommends changing the Freeport South Avenue I wind speed, wind direction, and outdoor temperature monitor's network designation from state-initiative to federal SPM, effective December 31, 2022.

Air Monitoring Site Relocations

The TCEQ establishes property site usage agreements as a contractual means to locate and operate a continuous air monitoring station on public or privately owned land. Property owners retain the right to revoke the usage agreement at any time, often due to sale of property or need of space due to expansion of buildings. When possible, the TCEQ works with the existing property owner to identify another suitable air monitoring site location. In some circumstances, a new location must be identified, and a new site usage agreement implemented. The TCEQ is relocating the air monitoring sites listed in Table 13 and in Appendix A. Existing site and air monitoring details are provided in Appendix B.

Table 13: Air Monitoring Site Relocations

Site Name	New Site Name	New Site Address	Reason for Relocation	Status
Baytown Garth	Pending site selection	Pending site selection	Relocation due to property owner revocation of usage agreement (sale of property)	Expected December 2023
Brownsville	Brownsville East 6th Street	86 East 6th Street, Brownsville, Texas	Relocation one mile northwest of the existing site due to property owner revocation of usage agreement (building expansion), approved by the EPA in a letter dated August 19, 2021	Expected December 2022
El Paso UTEP	Pending site selection	Pending site selection	Relocation due to property owner revocation of usage agreement (building expansion)	Site temporarily deactivated November 2021, expected by December 2022
Houston Deer Park #2	Houston Deer Park	4413 Glenwood Avenue, Deer Park, Texas	Relocation less than 0.1 mile west of existing site due to property owner revocation of usage agreement (park expansion), approved by the EPA in a letter dated May 18, 2022	Expected August 2022

Site Name	New Site Name	New Site Address	Reason for Relocation	Status
Laredo Vidaurri	Laredo College	Laredo College, West End Washington Street, corner of Taylor and Crawford Roads, Laredo, Texas,	Relocation approximately 0.85 miles southwest of previous site due to property owner revocation of usage agreement (sale of property), approved by the EPA in a letter dated June 30, 2022	Site temporarily deactivated July 2021, expected by December 2022
Midlothian OFW	Midlothian Old Fort Worth Road	Pending site selection	Relocation due to property owner revocation of site access (road and building expansion)	Site temporarily deactivated April 22, 2022, expected by March 2023
National Seashore	National Seashore Park Service Road	Maintenance Service Road at 20420 Park Road 22, Corpus Christi	Relocation approximately 0.3 miles south of existing site due to property owner revocation of usage agreement.	Expected August 2022
Nederland High School	Nederland 17th Street	1516 17th Street, Nederland, Texas	Relocation 0.3 miles east of previous site due to property owner revocation of usage agreement (building structural integrity), approved by the EPA in a letter dated March 17, 2021	Completed May 13, 2022
Terrell Temtex	Pending site selection	Pending site selection	Relocation due to property owner revocation of usage agreement (building expansion)	Site temporarily deactivated May 31, 2022, expected by December 2022

- number sign
EPA – United States Environmental Protection Agency
OFW – Old Fort Worth
UTEP – University of Texas at El Paso

Additional Monitoring Considerations

The TCEQ reviews its ambient air quality monitoring network annually and develops the AMNP to demonstrate how Texas is meeting or will meet federal air monitoring requirements specified in 40 CFR Part 58 and its appendices. Additional ambient air monitoring requested during previous AMNP public inspection and comment periods continue to be evaluated for potential inclusion in the TCEQ ambient air monitoring network. Any future implementation of these monitoring considerations may be included as part of the TCEQ federal air monitoring network or as state-initiative special studies.

The TCEQ is considering deployment of a VOC canister to the existing Houston East air monitoring site based on previously received AMNP comments. This monitoring proposal is under consideration and is subject to change. The potential monitor under consideration is included in this plan to solicit further public comment.

Conclusion

As discussed in this report, the TCEQ has evaluated all federal requirements for ambient air quality monitoring and reviewed the TCEQ ambient air quality monitoring network. After consideration of the federal regulations, 2020 U.S. Census Bureau population data, EI data, and 2020 design values, the TCEQ has determined that it will meet or exceed all monitoring requirements with the above-mentioned recommendations for the next calendar year.

Appendix A

2022 Summary of Proposed Network Changes

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Appendix A: 2022 Summary of Proposed Network Changes

Metropolitan Statistical Area	Air Monitoring Site Name	Proposed Action	Parameter(s)	Estimated Completion Date
Houston-The Woodlands-Sugar Land	New Site: Houston Fifth Ward area, pending site selection	Deploy new site and monitors	$PM_{2.5}$ FEM continuous, PM_{10} FEM continuous, and met (with non-regulatory VOC canister)	December 31, 2022
Houston-The Woodlands-Sugar Land	New Site: Houston Pleasantville neighborhood area, pending site selection	Deploy new site and monitors	$PM_{2.5}$ FEM continuous and met	December 31, 2022
Corpus Christi	New Site: Gregory-Portland area, pending site selection	Deploy new site and monitors	$PM_{2.5}$ FEM continuous and met (with non-regulatory VOC canister)	December 31, 2022
San Antonio-New Braunfels	New Site: San Antonio Sherwood Drive	Deploy new site and monitors	NO_x monitor measuring NO_2, NO, and NO_x data; and met	December 31, 2022
Houston-The Woodlands-Sugar Land	Houston Bayland Park	Add monitor	$PM_{2.5}$ FEM continuous	Completed April 22, 2022
Houston-The Woodlands-Sugar Land	Freeport South Avenue I	Add monitor data to federal network	$PM_{2.5}$ FRM, $PM_{2.5}$ speciation, SO_2, and met	December 31, 2022
El Paso	Skyline Park	Add monitor	$PM_{2.5}$ FEM continuous	December 31, 2023
San Antonio-New Braunfels	San Antonio Bulverde Parkway	Add monitor to federal network	$PM_{2.5}$ FEM continuous	December 31, 2023
Houston-The Woodlands-Sugar Land	Baytown Garth	Relocate site	all existing monitors	December 31, 2023
Brownsville-Harlingen	Brownsville	Relocate site	all existing monitors	December 31, 2022
El Paso	El Paso UTEP	Relocate site	all existing monitors	December 31, 2022
Houston-The Woodlands-Sugar Land	Houston Deer Park #2	Relocate site	all existing monitors	August 31, 2022
Laredo	Laredo Vidaurri	Relocate site	all existing monitors	December 31, 2022
Dallas-Fort Worth-Arlington	Midlothian OFW	Relocate site	all existing monitors	March 31, 2023
Kingsville	National Seashore	Relocate site	all existing monitors	August 31, 2022
Beaumont-Port Arthur	Nederland High School (now Nederland 17th Street)	Relocate site	all existing monitors	Completed May 13, 2022
Dallas-Fort Worth-Arlington	Terrel Temtex	Relocate site	all existing monitors	December 31, 2022
San Antonio-New Braunfels	San Antonio Gardner Road	Decommission monitor	SO_2 and met	December 31, 2022

- number sign
FEM – federal equivalent method
FM - farm to market
FRM - federal reference method
met - meteorological sensors measuring outdoor temperature and wind
NO_x - oxides of nitrogen monitor reporting NO_2, NO, and NO_x data
OFW - Old Fort Worth
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
PM_{10} – particulate matter of 10 micrometers or less in diameter
SO_2 – sulfur dioxide
UTEP – University of Texas at El Paso
VOC - volatile organic compound

Appendix B

Ambient Air Monitoring Network Site List

Texas Commission on Environmental Quality
2022 Annual Monitoring Network Plan

Appendix B: Ambient Air Monitoring Network Site List

Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Amarillo	483751025	Amarillo 24th Avenue	4205 NE 24th Avenue, Amarillo	SO2	SLAMS	Pulsed Fluorescence	Continuous	Suburban	Population Exposure	Neighborhood	35.23674	-101.78741
Amarillo	483751025	Amarillo 24th Avenue	4205 NE 24th Avenue, Amarillo	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	35.23674	-101.78741
Amarillo	483751025	Amarillo 24th Avenue	4205 NE 24th Avenue, Amarillo	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	35.23674	-101.78741
Amarillo	483750320	Amarillo A&M	6500 Amarillo Blvd West, Amarillo	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Urban Scale	35.20159	-101.90927
Amarillo	483751077	Amarillo Xcel El Rancho	Folsom Rd. & El Rancho Rd., Amarillo	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	35.31650	-101.74180
Amarillo	483751077	Amarillo Xcel El Rancho	Folsom Rd. & El Rancho Rd., Amarillo	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	35.31650	-101.74180
Amarillo	483751077	Amarillo Xcel El Rancho	Folsom Rd. & El Rancho Rd., Amarillo	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	35.31650	-101.74180
Austin-Round Rock-Georgetown	484530020	Austin Audubon Society	12200 Lime Creek Rd, Leander	O3	SLAMS	UV Photometric	Continuous	Rural	Population Exposure	Neighborhood	30.48316	-97.87231
Austin-Round Rock-Georgetown	484530020	Austin Audubon Society	12200 Lime Creek Rd, Leander	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Rural	Population Exposure	Neighborhood	30.48316	-97.87231
Austin-Round Rock-Georgetown	484530020	Austin Audubon Society	12200 Lime Creek Rd, Leander	Solar Radiation	SPM	Photovoltaic	Continuous	Rural	Population Exposure	Urban Scale	30.48316	-97.87231
Austin-Round Rock-Georgetown	484530020	Austin Audubon Society	12200 Lime Creek Rd, Leander	Temperature	SPM	Sonic weather sensor	Continuous	Rural	Population Exposure	Urban Scale	30.48316	-97.87231
Austin-Round Rock-Georgetown	484530020	Austin Audubon Society	12200 Lime Creek Rd, Leander	Wind	SPM	Sonic weather sensor	Continuous	Rural	Population Exposure	Urban Scale	30.48316	-97.87231
Austin-Round Rock-Georgetown	484530014	Austin North Hills Drive	3824 North Hills Drive, Austin	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Urban Scale	30.35494	-97.76173
Austin-Round Rock-Georgetown	484530014	Austin North Hills Drive	3824 North Hills Drive, Austin	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	30.35494	-97.76173
Austin-Round Rock-Georgetown	484530014	Austin North Hills Drive	3824 North Hills Drive, Austin	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	30.35494	-97.76173
Austin-Round Rock-Georgetown	484530014	Austin North Hills Drive	3824 North Hills Drive, Austin	SO2	SLAMS	Pulsed Fluorescence	Continuous	Suburban	Population Exposure	Urban Scale	30.35494	-97.76173
Austin-Round Rock-Georgetown	484530014	Austin North Hills Drive	3824 North Hills Drive, Austin	Temperature	SPM	Sonic weather sensor	Continuous	Suburban	General, Background	Neighborhood	30.35494	-97.76173
Austin-Round Rock-Georgetown	484530014	Austin North Hills Drive	3824 North Hills Drive, Austin	Wind	SPM	Sonic weather sensor	Continuous	Suburban	General, Background	Neighborhood	30.35494	-97.76173

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Austin-Round Rock-Georgetown	484531068	Austin North Interstate 35	8912 N IH 35 SVRD SB, Austin	CO	Near Road, SLAMS	Gas Filter Correlation	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	30.35385	-97.69157
Austin-Round Rock-Georgetown	484531068	Austin North Interstate 35	8912 N IH 35 SVRD SB, Austin	NO/NO2/NOx	Near Road, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	30.35385	-97.69157
Austin-Round Rock-Georgetown	484531068	Austin North Interstate 35	8912 N IH 35 SVRD SB, Austin	PM2.5 (Beta)	Near Road, SLAMS	Beta Attenuation	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	30.35385	-97.69157
Austin-Round Rock-Georgetown	484531068	Austin North Interstate 35	8912 N IH 35 SVRD SB, Austin	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	30.35385	-97.69157
Austin-Round Rock-Georgetown	484531068	Austin North Interstate 35	8912 N IH 35 SVRD SB, Austin	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	30.35385	-97.69157
Austin-Round Rock-Georgetown	484530021	Austin Webberville Rd	2600B Webberville Rd, Austin	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Neighborhood	30.26321	-97.71288
Austin-Round Rock-Georgetown	484530021	Austin Webberville Rd	2600B Webberville Rd, Austin	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Neighborhood	30.26321	-97.71288
Austin-Round Rock-Georgetown	484530021	Austin Webberville Rd	2600B Webberville Rd, Austin	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric	24 Hours; 1/12 Days	Urban and Center City	Population Exposure	Neighborhood	30.26321	-97.71288
Austin-Round Rock-Georgetown	484530021	Austin Webberville Rd	2600B Webberville Rd, Austin	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure	Neighborhood	30.26321	-97.71288
Austin-Round Rock-Georgetown	484530021	Austin Webberville Rd	2600B Webberville Rd, Austin	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure	Neighborhood	30.26321	-97.71288
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Neighborhood	30.03647	-94.07109
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Max Precursor Emissions Impact; Population Exposure	Neighborhood	30.03647	-94.07109
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	SO2	SLAMS	Pulsed Fluorescence	Continuous	Suburban	Population Exposure	Neighborhood	30.03647	-94.07109
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	30.03647	-94.07109
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Suburban	Max Precursor Emissions Impact; Population Exposure	Neighborhood	30.03647	-94.07109
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	Temperature	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	30.03647	-94.07109

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Suburban	Max Precursor Emissions Impact; Population Exposure	Neighborhood	30.03647	-94.07109
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	Wind	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	30.03647	-94.07109
Beaumont-Port Arthur	482450022	Hamshire	12552 Second St, Not In A City	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	General, Background; Regional Transport	Neighborhood / Urban Scale	29.86396	-94.31780
Beaumont-Port Arthur	482450022	Hamshire	12552 Second St, Not In A City	O3	SLAMS	UV Photometric	Continuous	Suburban	General, Background; Regional Transport	Urban Scale	29.86396	-94.31780
Beaumont-Port Arthur	482450022	Hamshire	12552 Second St, Not In A City	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	29.86396	-94.31780
Beaumont-Port Arthur	482450022	Hamshire	12552 Second St, Not In A City	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	General, Background	Neighborhood	29.86396	-94.31780
Beaumont-Port Arthur	482450022	Hamshire	12552 Second St, Not In A City	Temperature	SPM	Sonic weather sensor	Continuous	Suburban	General, Background	Neighborhood	29.86396	-94.31780
Beaumont-Port Arthur	482450022	Hamshire	12552 Second St, Not In A City	Wind	SPM	Sonic weather sensor	Continuous	Suburban	General, Background	Neighborhood	29.86396	-94.31780
Beaumont-Port Arthur	482450018	Jefferson County Airport	End of 90th Street Jefferson County Airport, Port Arthur	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	Suburban	General, Background	Neighborhood	29.94280	-94.00077
Beaumont-Port Arthur	482450018	Jefferson County Airport	End of 90th Street Jefferson County Airport, Port Arthur	Temperature	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	General, Background	Neighborhood	29.94280	-94.00077
Beaumont-Port Arthur	482450018	Jefferson County Airport	End of 90th Street Jefferson County Airport, Port Arthur	Wind	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	General, Background	Neighborhood	29.94280	-94.00077
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	Barometric Pressure	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	Dew Point	SPM	Derived at site	Continuous	Suburban	Population Exposure	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	Relative Humidity	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.97893	-94.01087

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Suburban	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	Temperature	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Suburban	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	482451035	Nederland 17th Street	1516 17th Street, Nederland	Wind	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.97893	-94.01087
Beaumont-Port Arthur	483611083	Orange 1st Street	2239 1st Street, Orange	SO2	SLAMS	Pulsed Fluorescence	Continuous	Urban and Center City	Source Oriented	Neighborhood	30.15376	-93.72595
Beaumont-Port Arthur	483611083	Orange 1st Street	2239 1st Street, Orange	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	General, Background	Neighborhood	30.15376	-93.72595
Beaumont-Port Arthur	483611083	Orange 1st Street	2239 1st Street, Orange	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	General, Background	Neighborhood	30.15376	-93.72595
Beaumont-Port Arthur	482450021	Port Arthur Memorial School	2200 Jefferson Drive, Port Arthur	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	29.92289	-93.90902
Beaumont-Port Arthur	482450021	Port Arthur Memorial School	2200 Jefferson Drive, Port Arthur	PM2.5 (Beta)	QA Collocated, SLAMS	Beta Attenuation	Continuous	Suburban	Quality Assurance	Neighborhood	29.92289	-93.90902
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	O3	SLAMS	UV Photometric	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.89752	-93.99108
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	SO2	SLAMS	Pulsed Fluorescence	Continuous	Urban and Center City	Source Oriented	Neighborhood	29.89752	-93.99108
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	Solar Radiation	SPM	Photovoltaic	Continuous	Urban and Center City	Population Exposure; Source Oriented	Neighborhood	29.89752	-93.99108
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Source Oriented	Neighborhood	29.89752	-93.99108
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure; Source Oriented	Neighborhood	29.89752	-93.99108
Beaumont-Port Arthur	482451071	Port Arthur West 7th Street Gate 2	West 7th Street, Valero Port Arthur Gate 2, Port Arthur	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	29.84420	-93.96520
Beaumont-Port Arthur	482451071	Port Arthur West 7th Street Gate 2	West 7th Street, Valero Port Arthur Gate 2, Port Arthur	Temperature	SPM	Sonic weather sensor	Continuous	Rural	General, Background	Neighborhood	29.84420	-93.96520

Appendix B: Ambient Air Monitoring Network Site List

Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Beaumont-Port Arthur	482451071	Port Arthur West 7th Street Gate 2	West 7th Street, Valero Port Arthur Gate 2, Port Arthur	Wind	SPM	Sonic weather sensor	Continuous	Rural	General, Background	Neighborhood	29.84420	-93.96520
Beaumont-Port Arthur	482450101	SETRPC 40 Sabine Pass	5200 Mechanic, Not In A City	O3	PAMS, SLAMS	UV Photometric	Continuous	Rural	Max Ozone Concentration	Neighborhood	29.72793	-93.89408
Beaumont-Port Arthur	483611100	SETRPC 42 Mauriceville	Intersection of TX Highways 62 & 12, Port Arthur	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Regional Transport; Upwind Background	Regional Scale	30.19429	-93.86718
Beaumont-Port Arthur	482450102	SETRPC 43 Jefferson Co Airport	Jefferson County Airport, Port Arthur	O3	SPM	UV Photometric	Continuous	Suburban	Max Precursor Emissions Impact	Middle Scale	29.94275	-94.00068
Beaumont-Port Arthur	483611001	West Orange	2700 Austin Ave, West Orange	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Population Exposure	Neighborhood	30.08526	-93.76134
Beaumont-Port Arthur	483611001	West Orange	2700 Austin Ave, West Orange	O3	SLAMS	UV Photometric	Continuous	Urban and Center City	Population Exposure	Neighborhood	30.08526	-93.76134
Beaumont-Port Arthur	483611001	West Orange	2700 Austin Ave, West Orange	Solar Radiation	SPM	Photovoltaic	Continuous	Urban and Center City	Source Oriented	Neighborhood	30.08526	-93.76134
Beaumont-Port Arthur	483611001	West Orange	2700 Austin Ave, West Orange	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Source Oriented	Neighborhood	30.08526	-93.76134
Beaumont-Port Arthur	483611001	West Orange	2700 Austin Ave, West Orange	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Source Oriented	Neighborhood	30.08526	-93.76134
Big Spring	482271072	Big Spring Midway	1218 N. Midway Rd, Big Spring	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	32.28042	-101.40711
Big Spring	482271072	Big Spring Midway	1218 N. Midway Rd, Big Spring	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	32.28042	-101.40711
Big Spring	482271072	Big Spring Midway	1218 N. Midway Rd, Big Spring	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	32.28042	-101.40711
Borger	482331073	Borger FM 1559	19440 FM 1559, Borger	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	35.67620	-101.44010
Borger	482331073	Borger FM 1559	19440 FM 1559, Borger	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	35.67620	-101.44010
Borger	482331073	Borger FM 1559	19440 FM 1559, Borger	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	35.67620	-101.44010
Brownsville-Harlingen	480610006	Brownsville	344 Porter Drive, Brownsville	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Regional Scale	25.89252	-97.49383
Brownsville-Harlingen	480610006	Brownsville	344 Porter Drive, Brownsville	Solar Radiation	SPM	Photovoltaic	Continuous	Urban and Center City	Highest Concentration	Neighborhood	25.89252	-97.49383
Brownsville-Harlingen	480610006	Brownsville	344 Porter Drive, Brownsville	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure	Urban Scale	25.89252	-97.49383

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Brownsville-Harlingen	480610006	Brownsville	344 Porter Drive, Brownsville	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Highest Concentration	Neighborhood	25.89252	-97.49383
Brownsville-Harlingen	480611023	Harlingen Teege	1602 W Teege Avenue, Harlingen	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	26.20033	-97.71268
Brownsville-Harlingen	480611023	Harlingen Teege	1602 W Teege Avenue, Harlingen	Temperature	SPM	Sonic weather sensor	Continuous	Suburban	Population Exposure	Neighborhood	26.20033	-97.71268
Brownsville-Harlingen	480611023	Harlingen Teege	1602 W Teege Avenue, Harlingen	Wind	SPM	Sonic weather sensor	Continuous	Suburban	Population Exposure	Neighborhood	26.20033	-97.71268
Brownsville-Harlingen	480612004	Isla Blanca State Park Road	33174 State Park Road 100, South Padre Island	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Rural	Regional Transport	Urban Scale	26.07110	-97.15770
Brownsville-Harlingen	480612004	Isla Blanca State Park Road	33174 State Park Road 100, South Padre Island	Temperature	SPM	Sonic weather sensor	Continuous	Rural	Regional Transport	Regional Scale	26.07110	-97.15770
Brownsville-Harlingen	480612004	Isla Blanca State Park Road	33174 State Park Road 100, South Padre Island	Wind (3m)	SPM	Sonic weather sensor	Continuous	Rural	Regional Transport	Regional Scale	26.07110	-97.15770
College Station-Bryan	480411086	Bryan Finfeather Road	3670 Finfeather Road, Bryan	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Rural	Population Exposure; Regional Transport	Neighborhood	30.62833	-96.36278
College Station-Bryan	480411086	Bryan Finfeather Road	3670 Finfeather Road, Bryan	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	30.62833	-96.36278
College Station-Bryan	480411086	Bryan Finfeather Road	3670 Finfeather Road, Bryan	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	30.62833	-96.36278
College Station-Bryan	483951076	Franklin Oak Grove	8127 Oak Grove Road, Franklin	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	31.16896	-96.48198
College Station-Bryan	483951076	Franklin Oak Grove	8127 Oak Grove Road, Franklin	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	31.16896	-96.48198
College Station-Bryan	483951076	Franklin Oak Grove	8127 Oak Grove Road, Franklin	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	31.16896	-96.48198
Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	PM2.5 (Beta)	QA Collocated, SLAMS	Beta Attenuation	Continuous	Urban and Center City	Quality Assurance	Neighborhood	27.80449	-97.43156
Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Neighborhood	27.80449	-97.43156
Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	SO2	SLAMS	Pulsed Fluorescence	Continuous	Urban and Center City	Highest Concentration; Population Exposure	Neighborhood	27.80449	-97.43156
Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure	Middle Scale	27.80449	-97.43156

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Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure	Middle Scale	27.80449	-97.43156
Corpus Christi	483550026	Corpus Christi Tuloso	9860 La Branch, Corpus Christi	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	27.83243	-97.55542
Corpus Christi	483550026	Corpus Christi Tuloso	9860 La Branch, Corpus Christi	SO2	SLAMS	Pulsed Fluorescence	Continuous	Suburban	Population Exposure	Neighborhood	27.83243	-97.55542
Corpus Christi	483550026	Corpus Christi Tuloso	9860 La Branch, Corpus Christi	Temperature	SPM	Sonic weather sensor	Continuous	Suburban	Highest Concentration	Neighborhood	27.83243	-97.55542
Corpus Christi	483550026	Corpus Christi Tuloso	9860 La Branch, Corpus Christi	Wind	SPM	Sonic weather sensor	Continuous	Suburban	Highest Concentration	Neighborhood	27.83243	-97.55542
Corpus Christi	483550025	Corpus Christi West	902 Airport Road, Corpus Christi	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	27.76534	-97.43426
Corpus Christi	483550025	Corpus Christi West	902 Airport Road, Corpus Christi	SO2	SLAMS	Pulsed Fluorescence	Continuous	Suburban	Population Exposure	Neighborhood	27.76534	-97.43426
Corpus Christi	483550025	Corpus Christi West	902 Airport Road, Corpus Christi	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	Population Exposure	Neighborhood	27.76534	-97.43426
Corpus Christi	483550025	Corpus Christi West	902 Airport Road, Corpus Christi	Temperature	SPM	Sonic weather sensor	Continuous	Suburban	Population Exposure	Neighborhood	27.76534	-97.43426
Corpus Christi	483550025	Corpus Christi West	902 Airport Road, Corpus Christi	Wind	SPM	Sonic weather sensor	Continuous	Suburban	Population Exposure	Neighborhood	27.76534	-97.43426
Corpus Christi	483550034	Dona Park	5707 Up River Rd, Corpus Christi	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Neighborhood	27.81182	-97.46570
Corpus Christi	483550034	Dona Park	5707 Up River Rd, Corpus Christi	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Urban and Center City	Regional Transport	Neighborhood	27.81182	-97.46570
Corpus Christi	483550034	Dona Park	5707 Up River Rd, Corpus Christi	PM2.5 (FRM) (speciation)	QA Collocated, SLAMS	Sequential FRM Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Neighborhood	27.81182	-97.46570
Corpus Christi	483550034	Dona Park	5707 Up River Rd, Corpus Christi	PM2.5 (Speciation)	SPM	Carbons, Elements, Ions, 2025/URG	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Neighborhood	27.81182	-97.46570
Corpus Christi	483550034	Dona Park	5707 Up River Rd, Corpus Christi	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Highest Concentration	Regional Scale	27.81182	-97.46570
Corpus Christi	483550034	Dona Park	5707 Up River Rd, Corpus Christi	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Highest Concentration	Regional Scale	27.81182	-97.46570
Corsicana	483491051	Corsicana Airport	Corsicana Airport, Corsicana	Dew Point	SPM	Derived at site	Continuous	Rural	General, Background		32.03193	-96.39914
Corsicana	483491051	Corsicana Airport	Corsicana Airport, Corsicana	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Rural	General, Background; Max Precursor Emissions Impact	Urban Scale	32.03193	-96.39914
Corsicana	483491051	Corsicana Airport	Corsicana Airport, Corsicana	O3	SPM	UV Photometric	Continuous	Rural	General, Background; Max Ozone Concentration	Urban Scale	32.03193	-96.39914

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Corsicana	483491051	Corsicana Airport	Corsicana Airport, Corsicana	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Rural	Source Oriented	Neighborhood	32.03193	-96.39914
Corsicana	483491051	Corsicana Airport	Corsicana Airport, Corsicana	Relative Humidity	SPM	Sonic weather sensor	Continuous	Rural	General, Background	Urban Scale	32.03193	-96.39914
Corsicana	483491051	Corsicana Airport	Corsicana Airport, Corsicana	SO2	SPM	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Urban Scale	32.03193	-96.39914
Corsicana	483491051	Corsicana Airport	Corsicana Airport, Corsicana	Temperature	SPM	Sonic weather sensor	Continuous	Rural	General, Background	Urban Scale	32.03193	-96.39914
Corsicana	483491051	Corsicana Airport	Corsicana Airport, Corsicana	Wind	SPM	Sonic weather sensor	Continuous	Rural	General, Background	Urban Scale	32.03193	-96.39914
Corsicana	483491081	Richland Southeast 1220 Road	Southeast 1220 Road, Richland	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	31.90410	-96.35200
Corsicana	483491081	Richland Southeast 1220 Road	Southeast 1220 Road, Richland	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	31.90410	-96.35200
Corsicana	483491081	Richland Southeast 1220 Road	Southeast 1220 Road, Richland	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	31.90410	-96.35200
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Neighborhood	32.65637	-97.08859
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	32.65637	-97.08859
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	Highest Concentration	Neighborhood	32.65637	-97.08859
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Highest Concentration	Neighborhood	32.65637	-97.08859
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Highest Concentration	Neighborhood	32.65637	-97.08859
Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Urban Scale	32.35361	-97.43674
Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	Radar Profiler	SPM	Radar Profiler	Continuous	Suburban	Regional Transport	Regional Scale	32.35361	-97.43674
Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	General, Background	Neighborhood	32.35361	-97.43674
Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	Temperature	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	General, Background	Neighborhood	32.35361	-97.43674
Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	Wind	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	General, Background	Neighborhood	32.35361	-97.43674
Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Neighborhood	32.77426	-96.79769

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Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	PM10 (FRM)	QA Collocated, SLAMS	HiVol Gravimetric	24 Hours; 1/12 Days	Urban and Center City	Population Exposure	Neighborhood	32.77426	-96.79769
Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Urban and Center City	Highest Concentration; Population Exposure	Neighborhood	32.77426	-96.79769
Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.77426	-96.79769
Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.77426	-96.79769
Dallas-Fort Worth-Arlington	481131096	Dallas Bexar Street	5800 Bexar Street, Dallas	PM10 (FRM)	SPM	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Neighborhood	32.74512	-96.75319
Dallas-Fort Worth-Arlington	481131096	Dallas Bexar Street	5800 Bexar Street, Dallas	PM2.5 (TEOM)[N]	SPM	TEOM Gravimetric	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.74512	-96.75319
Dallas-Fort Worth-Arlington	481131096	Dallas Bexar Street	5800 Bexar Street, Dallas	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	General, Background	Neighborhood	32.74512	-96.75319
Dallas-Fort Worth-Arlington	481131096	Dallas Bexar Street	5800 Bexar Street, Dallas	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	General, Background	Neighborhood	32.74512	-96.75319
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Barometric Pressure	PAMS, SLAMS	Pressure transducer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Carbonyl	PAMS, SLAMS	DNPH Silica HPLC	24 Hours; Seasonal, 8 Hour; Seasonal	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	CO (High Sensitivity)	NCORE, SLAMS	Gas Filter Correlation	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Dew Point	SPM	Derived at site	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	NO2 (Direct)	PAMS, SLAMS	Direct-Read NO2	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	NOy (High Sensitivity)	NCORE, PAMS, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Highest Concentration	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	O3	NCORE, PAMS, SLAMS	UV Photometric	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	32.82007	-96.86012

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Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	PM10-2.5	NCORE, SLAMS	Beta Attenuation, 185 calculated	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	$PM10^{N}$ LC	NCORE, SLAMS	Beta Attenuation, 122 in local conditions	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	PM2.5	NCORE, SLAMS	Beta Attenuation, 170	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	PM2.5 (FRM)	NCORE, SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Urban and Center City	Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric	24 Hours; 1/12 Days	Urban and Center City	Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	PM2.5 (Speciation)	CSN STN, NCORE, SLAMS	Carbons, Elements, Ions, SASS/URG	24 Hours; 1/3 Days	Urban and Center City	Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Relative Humidity	NCORE, PAMS, SLAMS	Humidity Sensor	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	SO2 (High Sensitivity)	NCORE, SLAMS	Pulsed Fluorescence	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Highest Concentration; Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Highest Concentration; Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Visibility	SPM	Visibility Sensor	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.82007	-96.86012
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.82007	-96.86012

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Dallas-Fort Worth-Arlington	481131067	Dallas LBJ Freeway	8652 LBJ Freeway, Dallas	NO/NO2/NOx	Near Road, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	32.92115	-96.75352
Dallas-Fort Worth-Arlington	481131067	Dallas LBJ Freeway	8652 LBJ Freeway, Dallas	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	32.92115	-96.75352
Dallas-Fort Worth-Arlington	481131067	Dallas LBJ Freeway	8652 LBJ Freeway, Dallas	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	32.92115	-96.75352
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Neighborhood	32.91921	-96.80850
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Urban Scale	32.91921	-96.80850
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	General, Background	Neighborhood	32.91921	-96.80850
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	32.91921	-96.80850
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	Wind	PAMS	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	32.91921	-96.80850
Dallas-Fort Worth-Arlington	481130087	Dallas Redbird Airport Executive	3277 W Redbird Lane, Dallas	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Neighborhood	32.67645	-96.87206
Dallas-Fort Worth-Arlington	481130087	Dallas Redbird Airport Executive	3277 W Redbird Lane, Dallas	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Urban Scale	32.67645	-96.87206
Dallas-Fort Worth-Arlington	481130087	Dallas Redbird Airport Executive	3277 W Redbird Lane, Dallas	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	32.67645	-96.87206
Dallas-Fort Worth-Arlington	481130087	Dallas Redbird Airport Executive	3277 W Redbird Lane, Dallas	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	32.67645	-96.87206
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	Dew Point	SPM	Derived at site	Continuous	Rural	Population Exposure	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Rural	Max Ozone Concentration; Population Exposure	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	NOy (High Sensitivity)	PAMS, SLAMS	Chemilumin-escence	Continuous	Rural	Max Ozone Concentration; Population Exposure	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	O3	PAMS, SLAMS	UV Photometric	Continuous	Rural	Max Ozone Concentration; Population Exposure	Urban Scale	33.21908	-97.19628

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Rural	Population Exposure	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	Rural	Max Ozone Concentration	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Rural	Max Ozone Concentration	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Rural	Max Ozone Concentration	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	Speciated VOC (Canister)	PAMS, SLAMS	Canister GC-MS	24 Hours; 1/6 Days	Rural	Max Ozone Concentration; Population Exposure	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Rural	Max Ozone Concentration	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Rural	Max Ozone Concentration	Urban Scale	33.21908	-97.19628
Dallas-Fort Worth-Arlington	484390075	Eagle Mountain Lake	14290 Morris Dido Newark Rd, Eagle Mountain	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Rural	Max Precursor Emissions Impact	Urban Scale	32.98789	-97.47717
Dallas-Fort Worth-Arlington	484390075	Eagle Mountain Lake	14290 Morris Dido Newark Rd, Eagle Mountain	O3	SLAMS	UV Photometric	Continuous	Rural	Max Ozone Concentration	Neighborhood	32.98789	-97.47717
Dallas-Fort Worth-Arlington	484390075	Eagle Mountain Lake	14290 Morris Dido Newark Rd, Eagle Mountain	Solar Radiation	SPM	Photovoltaic	Continuous	Rural	Highest Concentration	Middle Scale	32.98789	-97.47717
Dallas-Fort Worth-Arlington	484390075	Eagle Mountain Lake	14290 Morris Dido Newark Rd, Eagle Mountain	Temperature	SPM	Aspirated Thermister	Continuous	Rural	Highest Concentration	Middle Scale	32.98789	-97.47717
Dallas-Fort Worth-Arlington	484390075	Eagle Mountain Lake	14290 Morris Dido Newark Rd, Eagle Mountain	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	Highest Concentration	Middle Scale	32.98789	-97.47717
Dallas-Fort Worth-Arlington	481130061	Earhart	3434 Bickers (Earhart Eleentary School), Dallas	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Neighborhood	32.78536	-96.87657
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North, Fort Worth	CO	Near Road, SLAMS	Gas Filter Correlation	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	32.66478	-97.33791
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North, Fort Worth	NO/NO2/NOx	Near Road, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	32.66478	-97.33791
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North, Fort Worth	PM2.5 (Beta)	Near Road, SLAMS	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Microscale	32.66478	-97.33791

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North, Fort Worth	PM2.5 (Beta)	QA Collocated, SLAMS	Beta Attenuation	Continuous	Urban and Center City	Quality Assurance	Microscale	32.66478	-97.33791
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North, Fort Worth	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	32.66478	-97.33791
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North, Fort Worth	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	32.66478	-97.33791
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Carbonyl	PAMS, SLAMS	DNPH Silica HPLC	24 Hours; Seasonal	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Dew Point	SPM	Derived at site	Continuous	Urban and Center City	Population Exposure	Middle Scale	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	O3	PAMS, SLAMS	UV Photometric	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	32.80582	-97.35652
Dallas-Fort Worth-Arlington	480850005	Frisco	6590 Hillcrest Road, Frisco	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Urban Scale	33.13244	-96.78641

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Dallas-Fort Worth-Arlington	480850005	Frisco	6590 Hillcrest Road, Frisco	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	General, Background	Urban Scale	33.13244	-96.78641
Dallas-Fort Worth-Arlington	480850005	Frisco	6590 Hillcrest Road, Frisco	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Urban Scale	33.13244	-96.78641
Dallas-Fort Worth-Arlington	480850005	Frisco	6590 Hillcrest Road, Frisco	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Urban Scale	33.13244	-96.78641
Dallas-Fort Worth-Arlington	480850009	Frisco Eubanks	6601 Eubanks, Frisco	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure; Source Oriented	Neighborhood	33.14468	-96.82880
Dallas-Fort Worth-Arlington	480850009	Frisco Eubanks	6601 Eubanks, Frisco	TSP (Pb)	QA Collocated, SLAMS	HiVol ICP-MS	24 Hours; 1/12 Days	Suburban	Population Exposure; Source Oriented	Neighborhood	33.14468	-96.82880
Dallas-Fort Worth-Arlington	480850009	Frisco Eubanks	6601 Eubanks, Frisco	TSP (Pb)	SLAMS	HiVol ICP-MS	24 Hours; 1/6 Days	Suburban	Population Exposure; Source Oriented	Neighborhood	33.14468	-96.82880
Dallas-Fort Worth-Arlington	480850009	Frisco Eubanks	6601 Eubanks, Frisco	Wind (3m)	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	33.14468	-96.82880
Dallas-Fort Worth-Arlington	480850029	Frisco Stonebrook	7202 Stonebrook Parkway, Frisco	TSP (Pb)	SPM	HiVol ICP-MS	24 Hours; 1/6 Days	Suburban	Population Exposure; Source Oriented	Neighborhood	33.13605	-96.82448
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Dr, Grapevine	Barometric Pressure	PAMS, SLAMS	Pressure transducer	Continuous	Suburban	Max Ozone Concentration	Neighborhood	32.98427	-97.06372
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Dr, Grapevine	Dew Point	SPM	Derived at site	Continuous	Suburban	Highest Concentration; Max Ozone Concentration	Neighborhood	32.98427	-97.06372
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Dr, Grapevine	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Max Ozone Concentration; Population Exposure	Neighborhood	32.98427	-97.06372
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Dr, Grapevine	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Max Ozone Concentration; Population Exposure	Neighborhood	32.98427	-97.06372
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Dr, Grapevine	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Suburban	Max Ozone Concentration	Neighborhood	32.98427	-97.06372
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Dr, Grapevine	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Max Ozone Concentration	Neighborhood	32.98427	-97.06372
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Dr, Grapevine	Speciated VOC (Canister)	PAMS, SLAMS	Canister GC-MS	24 Hours; 1/6 Days	Suburban	Max Ozone Concentration; Population Exposure	Neighborhood	32.98427	-97.06372
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Dr, Grapevine	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Suburban	Max Ozone Concentration	Neighborhood	32.98427	-97.06372

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Dr, Grapevine	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	Max Ozone Concentration	Neighborhood	32.98427	-97.06372
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure; Upwind Background	Neighborhood	33.15310	-96.11557
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure; Upwind Background	Neighborhood	33.15310	-96.11557
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	General, Background	Neighborhood	33.15310	-96.11557
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	33.15310	-96.11557
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	33.15310	-96.11557
Dallas-Fort Worth-Arlington	484391006	Haws Athletic Center	600 1/2 Congress St, Fort Worth	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Neighborhood	32.75919	-97.34231
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	Dew Point	SPM	Derived at site	Continuous	Rural	Upwind Background	Urban Scale	32.17542	-96.87019
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Rural	Upwind Background	Urban Scale	32.17542	-96.87019
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	O3	PAMS, SLAMS	UV Photometric	Continuous	Rural	Upwind Background	Urban Scale	32.17542	-96.87019
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Rural	Upwind Background	Urban Scale	32.17542	-96.87019
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Rural	Upwind Background	Urban Scale	32.17542	-96.87019
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	Speciated VOC (Canister)	PAMS, SLAMS	Canister GC-MS	24 Hours; 1/6 Days	Rural	Upwind Background	Urban Scale	32.17542	-96.87019
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Rural	Upwind Background	Urban Scale	32.17542	-96.87019
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Rural	Upwind Background	Urban Scale	32.17542	-96.87019
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Rural	Upwind Background	Urban Scale	32.17542	-96.87019
Dallas-Fort Worth-Arlington	482511008	Johnson County Luisa	2420 Luisa Ln, Alvarado	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	32.46970	-97.16927

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Dallas-Fort Worth-Arlington	482511008	Johnson County Luisa	2420 Luisa Ln, Alvarado	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	32.46970	-97.16927
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston St, Kaufman	Dew Point	SPM	Derived at site	Continuous	Suburban	Highest Concentration	Neighborhood	32.56496	-96.31770
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston St, Kaufman	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure; Upwind Background	Neighborhood / Urban Scale	32.56496	-96.31770
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston St, Kaufman	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Population Exposure; Upwind Background	Urban Scale	32.56496	-96.31770
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston St, Kaufman	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Upwind Background	Regional Scale	32.56496	-96.31770
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston St, Kaufman	Relative Humidity	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	Upwind Background	Urban Scale	32.56496	-96.31770
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston St, Kaufman	SO2	SLAMS	Pulsed Fluorescence	Continuous	Suburban	Population Exposure; Upwind Background	Neighborhood	32.56496	-96.31770
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston St, Kaufman	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Upwind Background	Urban Scale	32.56496	-96.31770
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston St, Kaufman	Temperature	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	Upwind Background	Urban Scale	32.56496	-96.31770
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston St, Kaufman	Wind	PAMS, SLAMS	Sonic weather sensor	Continuous	Suburban	Upwind Background	Urban Scale	32.56496	-96.31770
Dallas-Fort Worth-Arlington	484392003	Keller	FAA Site off Alta Vista Road, Fort Worth	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Max Precursor Emissions Impact	Urban Scale	32.92250	-97.28209
Dallas-Fort Worth-Arlington	484392003	Keller	FAA Site off Alta Vista Road, Fort Worth	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Max Ozone Concentration; Population Exposure	Neighborhood	32.92250	-97.28209
Dallas-Fort Worth-Arlington	484392003	Keller	FAA Site off Alta Vista Road, Fort Worth	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	General, Background	Urban Scale	32.92250	-97.28209
Dallas-Fort Worth-Arlington	484392003	Keller	FAA Site off Alta Vista Road, Fort Worth	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Suburban	General, Background	Urban Scale	32.92250	-97.28209
Dallas-Fort Worth-Arlington	484392003	Keller	FAA Site off Alta Vista Road, Fort Worth	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Urban Scale	32.92250	-97.28209
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Source Oriented	Neighborhood	32.48208	-97.02690

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Urban Scale	32.48208	-97.02690
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	PM2.5 (FRM) (speciation)	SPM	Sequential FRM Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure; Source Oriented	Regional Scale	32.48208	-97.02690
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	PM2.5 (Speciation)	SPM	Carbons, Elements, Ions, 2025/URG	24 Hours; 1/6 Days	Suburban	Population Exposure; Source Oriented	Neighborhood / Regional Scale	32.48208	-97.02690
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	PM2.5 (TEOM)[N]	SPM	TEOM Gravimetric	Continuous	Suburban	Regional Transport	Regional Scale	32.48208	-97.02690
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	SO2	SLAMS	Pulsed Fluorescence	Continuous	Suburban	Source Oriented	Neighborhood	32.48208	-97.02690
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	General, Background	Neighborhood	32.48208	-97.02690
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	32.48208	-97.02690
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	32.48208	-97.02690
Dallas-Fort Worth-Arlington	483670081	Parker County	3033 New Authon Rd, Weatherford	O3	SLAMS	UV Photometric	Continuous	Rural	Population Exposure	Urban Scale	32.86879	-97.90594
Dallas-Fort Worth-Arlington	483670081	Parker County	3033 New Authon Rd, Weatherford	Solar Radiation	SPM	Photovoltaic	Continuous	Rural	Source Oriented	Neighborhood	32.86879	-97.90594
Dallas-Fort Worth-Arlington	483670081	Parker County	3033 New Authon Rd, Weatherford	Temperature	SPM	Aspirated Thermister	Continuous	Rural	Source Oriented	Neighborhood	32.86879	-97.90594
Dallas-Fort Worth-Arlington	483670081	Parker County	3033 New Authon Rd, Weatherford	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	Source Oriented	Neighborhood	32.86879	-97.90594
Dallas-Fort Worth-Arlington	481211032	Pilot Point	792 E Northside Dr, Pilot Point	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Regional Scale	33.41102	-96.94456
Dallas-Fort Worth-Arlington	481211032	Pilot Point	792 E Northside Dr, Pilot Point	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	Upwind Background	Regional Scale	33.41102	-96.94456
Dallas-Fort Worth-Arlington	481211032	Pilot Point	792 E Northside Dr, Pilot Point	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Upwind Background	Regional Scale	33.41102	-96.94456
Dallas-Fort Worth-Arlington	481211032	Pilot Point	792 E Northside Dr, Pilot Point	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Upwind Background	Regional Scale	33.41102	-96.94456
Dallas-Fort Worth-Arlington	483970001	Rockwall Heath	100 E Heath St, Rockwall	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	32.93652	-96.45921

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Dallas-Fort Worth-Arlington	483970001	Rockwall Heath	100 E Heath St, Rockwall	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	Population Exposure	Neighborhood	32.93652	-96.45921
Dallas-Fort Worth-Arlington	483970001	Rockwall Heath	100 E Heath St, Rockwall	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	32.93652	-96.45921
Dallas-Fort Worth-Arlington	483970001	Rockwall Heath	100 E Heath St, Rockwall	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	32.93652	-96.45921
Dallas-Fort Worth-Arlington	482570020	Terrell Temtex	2988 Temtex Blvd, Terrell	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	32.73192	-96.31792
Dallas-Fort Worth-Arlington	482570020	Terrell Temtex	2988 Temtex Blvd, Terrell	TSP (Pb)	SLAMS	HiVol ICP-MS	24 Hours; 1/6 Days	Rural	Population Exposure; Source Oriented	Neighborhood	32.73192	-96.31792
Dallas-Fort Worth-Arlington	482570020	Terrell Temtex	2988 Temtex Blvd, Terrell	TSP (Pb)	QA Collocated, SLAMS	HiVol ICP-MS	24 Hours; 1/12 Days	Rural	Population Exposure; Source Oriented	Neighborhood	32.73192	-96.31792
Dallas-Fort Worth-Arlington	482570020	Terrell Temtex	2988 Temtex Blvd, Terrell	Wind (3m)	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	32.73192	-96.31792
Eagle Pass	483230004	Eagle Pass	265 Foster Maldonado, Eagle Pass	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Urban and Center City	Regional Transport	Regional Scale	28.70461	-100.45115
Eagle Pass	483230004	Eagle Pass	265 Foster Maldonado, Eagle Pass	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Regional Transport	Regional Scale	28.70461	-100.45115
Eagle Pass	483230004	Eagle Pass	265 Foster Maldonado, Eagle Pass	Visibility	SPM	Visibility Sensor	Continuous	Urban and Center City	Regional Transport	Regional Scale	28.70461	-100.45115
Eagle Pass	483230004	Eagle Pass	265 Foster Maldonado, Eagle Pass	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Regional Transport	Regional Scale	28.70461	-100.45115
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Barometric Pressure	PAMS, SLAMS	Pressure transducer	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Neighborhood	31.74675	-106.40280
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Dew Point	SPM	Derived at site	Continuous	Suburban	Highest Concentration; Upwind Background	Urban Scale	31.74675	-106.40280
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Highest Concentration; Upwind Background	Neighborhood / Urban Scale	31.74675	-106.40280
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Neighborhood	31.74675	-106.40280
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	PM2.5 (TEOM)[N]	SPM	TEOM Gravimetric	Continuous	Suburban	Population Exposure	Neighborhood	31.74675	-106.40280

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Neighborhood	31.74675	-106.40280
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Neighborhood	31.74675	-106.40280
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Neighborhood	31.74675	-106.40280
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Visibility	SPM	Visibility Sensor	Continuous	Suburban	Highest Concentration; Population Exposure	Urban Scale	31.74675	-106.40280
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Neighborhood	31.74675	-106.40280
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	CO (High Sensitivity)	NCORE, SLAMS	Gas Filter Correlation	Continuous	Urban and Center City	Highest Concentration	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	Dew Point	SPM	Derived at site	Continuous	Urban and Center City	Highest Concentration; Max Precursor Emissions Impact	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Highest Concentration; Max Precursor Emissions Impact	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	NOy (High Sensitivity)	NCORE, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Highest Concentration	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	O3	NCORE, PAMS, SLAMS	UV Photometric	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	PM10-2.5	NCORE, SLAMS	Beta Attenuation, 185 calculated	Continuous	Urban and Center City	Highest Concentration; Population Exposure	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	$PM10^{N}$ LC	NCORE, SLAMS	Beta Attenuation, 122 local conditions	Continuous	Urban and Center City	Highest Concentration; Population Exposure	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	PM2.5	NCORE, SLAMS	Beta Attenuation, 170	Continuous	Urban and Center City	Highest Concentration; Population Exposure	Neighborhood	31.76569	-106.45523

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	PM2.5 (FRM)	NCORE, SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Urban and Center City	Highest Concentration; Population Exposure	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	PM2.5 (Speciation)	CSN STN, NCORE, SLAMS	Carbons, Elements, Ions, SASS/URG	24 Hours; 1/3 Days	Urban and Center City	Highest Concentration	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	SO2 (High Sensitivity)	NCORE, SLAMS	Pulsed Fluorescence	Continuous	Urban and Center City	Highest Concentration	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Highest Concentration; Max Precursor Emissions Impact	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Highest Concentration; Max Precursor Emissions Impact	Neighborhood	31.76569	-106.45523
El Paso	481410044	El Paso Chamizal	800 S San Marcial Street, El Paso	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	31.76569	-106.45523
El Paso	481410038	El Paso Mimosa	7501 Mimosa Avenue, El Paso	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure	Neighborhood	31.73587	-106.37793
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	CO	SPM	Gas Filter Correlation	Continuous	Urban and Center City	Highest Concentration	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	Dew Point	SPM	Derived at site	Continuous	Urban and Center City	Max Ozone Concentration; Population Exposure	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Max Ozone Concentration; Population Exposure	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	O3	PAMS, SLAMS	UV Photometric	Continuous	Urban and Center City	Max Ozone Concentration; Population Exposure	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	PM2.5 (FRM)	SLAMS	Sequential FRM Gravimetric	24 Hours; 1/6 Days	Urban and Center City	General, Background; Population Exposure	Neighborhood	31.76830	-106.50126

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	PM2.5 (TEOM)[N]	SPM	TEOM Gravimetric	Continuous	Urban and Center City	Highest Concentration	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	Urban and Center City	Max Ozone Concentration	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Urban and Center City	Max Ozone Concentration	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	Max Ozone Concentration	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Urban and Center City	Max Ozone Concentration	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	Max Ozone Concentration	Neighborhood	31.76830	-106.50126
El Paso	481410037	El Paso UTEP	250 Rim Rd, El Paso	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Ozone Concentration	Neighborhood	31.76830	-106.50126
El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	O3	SPM	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	31.78576	-106.32363
El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure	Neighborhood	31.78576	-106.32363
El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	Relative Humidity	Border Grant, SLAMS	Humidity Sensor	Continuous	Suburban	General, Background	Neighborhood	31.78576	-106.32363
El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	31.78576	-106.32363
El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	Wind	Border Grant, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	31.78576	-106.32363
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	CO	SLAMS	Gas Filter Correlation	Continuous	Suburban	Population Exposure	Neighborhood	31.86250	-106.54733
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	O3	SPM	UV Photometric	Continuous	Suburban	General, Background	Neighborhood	31.86250	-106.54733
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure	Neighborhood	31.86250	-106.54733
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	PM10 (FRM)	QA Collocated, SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure	Neighborhood	31.86250	-106.54733
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	31.86250	-106.54733
El Paso	481410058	Skyline Park	5050A Yvette Drive, El Paso	O3	Border Grant, SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	31.89392	-106.42582

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El Paso	481410058	Skyline Park	5050A Yvette Drive, El Paso	Temperature	Border Grant, SLAMS	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	31.89392	-106.42582
El Paso	481410058	Skyline Park	5050A Yvette Drive, El Paso	Wind	Border Grant, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	31.89392	-106.42582
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	31.66755	-106.28798
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	PM10 (FRM)	Border Grant, SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	General, Background; Population Exposure	Neighborhood	31.66755	-106.28798
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	PM10 (FRM)	Border Grant, QA Collocated, SLAMS	HiVol Gravimetric	24 Hours; 1/12 Days	Suburban	Population Exposure	Neighborhood	31.66755	-106.28798
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	PM2.5 (TEOM)[N]	SPM	TEOM Gravimetric	Continuous	Suburban	Population Exposure	Neighborhood	31.66755	-106.28798
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	Radar Profiler	SPM	Radar Profiler	Continuous	Suburban	Regional Transport	Regional Scale	31.66755	-106.28798
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	31.66755	-106.28798
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	31.66755	-106.28798
El Paso	481410693	Van Buren	2700 Harrison Avenue, El Paso	PM10 (FRM)	SPM	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Neighborhood	31.81335	-106.46454
El Paso	481410693	Van Buren	2700 Harrison Avenue, El Paso	Relative Humidity	SPM	Humidity Sensor	Continuous	Urban and Center City	Population Exposure	Neighborhood	31.81335	-106.46454
El Paso	481410693	Van Buren	2700 Harrison Avenue, El Paso	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	Population Exposure	Neighborhood	31.81335	-106.46454
El Paso	481410693	Van Buren	2700 Harrison Avenue, El Paso	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Population Exposure	Neighborhood	31.81335	-106.46454
Granbury	482210001	Granbury	200 N Gordon Street, Granbury	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	32.44232	-97.80354
Granbury	482210001	Granbury	200 N Gordon Street, Granbury	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	General, Background	Middle Scale	32.44232	-97.80354
Granbury	482210001	Granbury	200 N Gordon Street, Granbury	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Middle Scale	32.44232	-97.80354
Granbury	482210001	Granbury	200 N Gordon Street, Granbury	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Middle Scale	32.44232	-97.80354

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Houston-The Woodlands-Sugar Land	482010058	Baytown	7210 1/2 Bayway Drive, Baytown	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	29.77070	-95.03123
Houston-The Woodlands-Sugar Land	482010058	Baytown	7210 1/2 Bayway Drive, Baytown	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Highest Concentration	Neighborhood	29.77070	-95.03123
Houston-The Woodlands-Sugar Land	482010058	Baytown	7210 1/2 Bayway Drive, Baytown	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Highest Concentration	Neighborhood	29.77070	-95.03123
Houston-The Woodlands-Sugar Land	482011017	Baytown Garth	8622 Garth Road Unit A, Baytown	O3	SLAMS	UV Photometric	Continuous	Suburban	Max Ozone Concentration	Neighborhood	29.82335	-94.98387
Houston-The Woodlands-Sugar Land	482011017	Baytown Garth	8622 Garth Road Unit A, Baytown	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	Population Exposure	Neighborhood	29.82335	-94.98387
Houston-The Woodlands-Sugar Land	482011017	Baytown Garth	8622 Garth Road Unit A, Baytown	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	29.82335	-94.98387
Houston-The Woodlands-Sugar Land	482011017	Baytown Garth	8622 Garth Road Unit A, Baytown	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	29.82335	-94.98387
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	Dew Point	SPM	Derived at site	Continuous	Suburban	Highest Concentration	Neighborhood	29.80271	-95.12549
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Middle Scale / Neighborhood	29.80271	-95.12549
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.80271	-95.12549
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.80271	-95.12549
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.80271	-95.12549
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Suburban	Population Exposure	Neighborhood	29.80271	-95.12549

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Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.80271	-95.12549
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Suburban	Population Exposure	Neighborhood	29.80271	-95.12549
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	Max Precursor Emissions Impact	Neighborhood	29.80271	-95.12549
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	Barometric Pressure	PAMS, SLAMS	Pressure transducer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	Carbonyl	PAMS, SLAMS	DNPH Silica HPLC	24 Hours; Seasonal	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	CO (High Sensitivity)	SPM	Gas Filter Correlation	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	Dew Point	SPM	Derived at site	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	O3	PAMS, SLAMS	UV Photometric	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	PM10 (FRM)	QA Collocated, SLAMS	HiVol Gravimetric	24 Hours; 1/12 Days	Urban and Center City	Highest Concentration; Population Exposure	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Highest Concentration; Source Oriented	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric	24 Hours; 1/12 Days	Urban and Center City	Highest Concentration; Population Exposure	Neighborhood	29.73374	-95.25760

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	PM2.5 (FRM)	SLAMS	Sequential FRM Gravimetric	24 Hours; 1/1 Days	Urban and Center City	Highest Concentration; Population Exposure; Source Oriented	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	PM2.5 (Speciation)	SPM	Carbons, Elements, Ions, 2025/2025	24 Hours; 1/6 Days	Urban and Center City	Highest Concentration	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	PM2.5 (TEOM)[N]	SPM	TEOM Gravimetric	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	Precipitation	SPM	Bucket	Continuous	Urban and Center City	General, Background	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	SO2	SLAMS	Pulsed Fluorescence	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Highest Concentration; Population Exposure; Source Oriented	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Highest Concentration; Population Exposure; Source Oriented	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.73374	-95.25760
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Dr, Houston	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.73374	-95.25760

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	General, Background; Population Exposure	Urban Scale	30.35030	-95.42513
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	General, Background; Population Exposure	Urban Scale	30.35030	-95.42513
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	General, Background	Neighborhood	30.35030	-95.42513
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Highest Concentration	Neighborhood	30.35030	-95.42513
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Suburban	Highest Concentration	Neighborhood	30.35030	-95.42513
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	Highest Concentration	Neighborhood	30.35030	-95.42513
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	Dew Point	SPM	Derived at site	Continuous	Suburban	General, Background; Upwind Background	Middle Scale	29.25448	-94.86129
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	General, Background; Upwind Background	Middle Scale / Urban Scale	29.25448	-94.86129
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Urban Scale	29.25448	-94.86129
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Regional Transport	Regional Scale	29.25448	-94.86129
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Urban Scale	29.25448	-94.86129
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Urban Scale	29.25448	-94.86129
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Urban Scale	29.25448	-94.86129

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	Max Ozone Concentration; Upwind Background	Urban Scale	29.25448	-94.86129
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	Barometric Pressure	PAMS, SLAMS	Pressure transducer	Continuous	Suburban	Max Ozone Concentration	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	Dew Point	SPM	Derived at site	Continuous	Suburban	Population Exposure	Urban Scale	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Max Ozone Concentration; Population Exposure	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	NOy (High Sensitivity)	PAMS, SLAMS	Chemilumin-escence	Continuous	Suburban	Max Ozone Concentration; Population Exposure	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	O3	PAMS, SLAMS	UV Photometric	Continuous	Suburban	Max Ozone Concentration; Population Exposure	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric	<None>	Suburban	Population Exposure	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Suburban	Max Ozone Concentration	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Suburban	Max Ozone Concentration	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Suburban	Max Ozone Concentration	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Rd, Houston	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	Max Ozone Concentration	Neighborhood	29.90104	-95.32614
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Middle Scale / Neighborhood	29.69573	-95.49922

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Middle Scale	29.69573	-95.49922
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	29.69573	-95.49922
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	General, Background; Max Precursor Emissions Impact	Middle Scale	29.69573	-95.49922
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	Temperature	SPM	Sonic weather sensor	Continuous	Suburban	General, Background; Max Precursor Emissions Impact	Middle Scale	29.69573	-95.49922
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	Wind	SPM	Sonic weather sensor	Continuous	Suburban	General, Background; Max Precursor Emissions Impact	Middle Scale	29.69573	-95.49922
Houston-The Woodlands-Sugar Land	482010051	Houston Croquet	13826 1/2 Croquet, Houston	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	29.62396	-95.47434
Houston-The Woodlands-Sugar Land	482010051	Houston Croquet	13826 1/2 Croquet, Houston	SO2	SLAMS	Pulsed Fluorescence	Continuous	Suburban	Population Exposure	Neighborhood	29.62396	-95.47434
Houston-The Woodlands-Sugar Land	482010051	Houston Croquet	13826 1/2 Croquet, Houston	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	29.62396	-95.47434
Houston-The Woodlands-Sugar Land	482010051	Houston Croquet	13826 1/2 Croquet, Houston	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	29.62396	-95.47434
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	Barometric Pressure	PAMS, SLAMS	Pressure transducer	Continuous	Urban and Center City	General, Background	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	Carbonyl	PAMS, SLAMS	DNPH Silica HPLC	24 Hours; Seasonal, 8 Hour; Seasonal	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	CO (High Sensitivity)	NCORE, SLAMS	Gas Filter Correlation	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	Dew Point	SPM	Derived at site	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	NO2 (Direct)	PAMS, SLAMS	Direct-Read NO2	Continuous	Urban and Center City	Population Exposure; Source Oriented	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	NOy (High Sensitivity)	NCORE, PAMS, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	O3	NCORE, PAMS, SLAMS	UV Photometric	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	PM10-2.5	NCORE, SLAMS	Beta Attenuation, 185 calculated	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	$PM10^{N}$ LC	NCORE, SLAMS	Beta Attenuation, 122 local conditions	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	PM2.5	NCORE, SLAMS	Beta Attenuation, 170	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	PM2.5 (FRM)	NCORE, SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	PM2.5 (Speciation)	CSN STN, QA Collocated, SLAMS	Carbons, Elements, Ions, SASS/URG	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	PM2.5 (Speciation)	CSN STN, NCORE, SLAMS	Carbons, Elements, Ions, SASS/URG	24 Hours; 1/3 Days	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	Urban and Center City	General, Background	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	Relative Humidity	NCORE, PAMS, SLAMS	Humidity Sensor	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	SO2 (High Sensitivity)	NCORE, SLAMS	Pulsed Fluorescence	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.67006	-95.12851

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	Temperature	NCORE, PAMS, SLAMS	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Urban and Center City	Max Precursor Emissions Impact; Population Exposure	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Urban and Center City	General, Background	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant St, Deer Park	Wind	NCORE, PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Neighborhood	29.67006	-95.12851
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Highest Concentration; Population Exposure	Middle Scale / Neighborhood	29.76800	-95.22058
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	29.76800	-95.22058
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	29.76800	-95.22058
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Urban Scale	29.76800	-95.22058
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	29.76800	-95.22058
Houston-The Woodlands-Sugar Land	482010417	Houston Harvard Street	160 Harvard Street, Houston	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.77292	-95.39578
Houston-The Woodlands-Sugar Land	482010417	Houston Harvard Street	160 Harvard Street, Houston	O3	SPM	UV Photometric	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.77292	-95.39578

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	482010060	Houston Kirkpatrick	5565 Kirkpatrick, Houston	Temperature	SPM	Sonic weather sensor	Continuous	Suburban	Population Exposure	Neighborhood	29.80741	-95.29362
Houston-The Woodlands-Sugar Land	482010060	Houston Kirkpatrick	5565 Kirkpatrick, Houston	Wind	SPM	Sonic weather sensor	Continuous	Suburban	Population Exposure	Neighborhood	29.80741	-95.29362
Houston-The Woodlands-Sugar Land	482010062	Houston Monroe	9726 1/2 Monroe, Houston	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	29.62566	-95.26705
Houston-The Woodlands-Sugar Land	482010062	Houston Monroe	9726 1/2 Monroe, Houston	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure	Neighborhood	29.62566	-95.26705
Houston-The Woodlands-Sugar Land	482010062	Houston Monroe	9726 1/2 Monroe, Houston	Precipitation	SPM	Bucket	Continuous	Suburban	General, Background	Neighborhood	29.62566	-95.26705
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	CO	Near Road, SLAMS	Gas Filter Correlation	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.81453	-95.38769
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	NO/NO2/NOx	Near Road, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.81453	-95.38769
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	PM2.5 (Beta)	Near Road, SLAMS	Beta Attenuation	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.81453	-95.38769
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.81453	-95.38769
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.81453	-95.38769
Houston-The Woodlands-Sugar Land	482010046	Houston North Wayside	7330 1/2 North Wayside, Houston	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	29.82809	-95.28410
Houston-The Woodlands-Sugar Land	482010046	Houston North Wayside	7330 1/2 North Wayside, Houston	PM10 (TEOM)[N]	SPM	Gravimetric with modification (non-NAAQS comparable)	Continuous	Suburban	Population Exposure	Neighborhood	29.82809	-95.28410
Houston-The Woodlands-Sugar Land	482010046	Houston North Wayside	7330 1/2 North Wayside, Houston	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	29.82809	-95.28410

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	482010046	Houston North Wayside	7330 1/2 North Wayside, Houston	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	29.82809	-95.28410
Houston-The Woodlands-Sugar Land	482010046	Houston North Wayside	7330 1/2 North Wayside, Houston	Wind (3m)	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	29.82809	-95.28410
Houston-The Woodlands-Sugar Land	482011066	Houston Southwest Freeway	5617 Westward Avenue, Houston	NO/NO2/NOx	Near Road, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.72160	-95.49265
Houston-The Woodlands-Sugar Land	482011066	Houston Southwest Freeway	5617 Westward Avenue, Houston	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.72160	-95.49265
Houston-The Woodlands-Sugar Land	482011066	Houston Southwest Freeway	5617 Westward Avenue, Houston	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.72160	-95.49265
Houston-The Woodlands-Sugar Land	482010066	Houston Westhollow	3333 1/2 Hwy 6 South, Houston	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	29.72334	-95.63595
Houston-The Woodlands-Sugar Land	482010066	Houston Westhollow	3333 1/2 Hwy 6 South, Houston	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	29.72334	-95.63595
Houston-The Woodlands-Sugar Land	482010066	Houston Westhollow	3333 1/2 Hwy 6 South, Houston	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	29.72334	-95.63595
Houston-The Woodlands-Sugar Land	482010066	Houston Westhollow	3333 1/2 Hwy 6 South, Houston	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	29.72334	-95.63595
Houston-The Woodlands-Sugar Land	482011043	La Porte Airport C243	La Porte Airport, 2434 Buchanan Street, La Porte	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	Suburban	General, Background	Neighborhood	29.67200	-95.06470
Houston-The Woodlands-Sugar Land	482011043	La Porte Airport C243	La Porte Airport, 2434 Buchanan Street, La Porte	Radar Profiler	SPM	Radar Profiler	Continuous	Suburban	Regional Transport	Regional Scale	29.67200	-95.06470
Houston-The Woodlands-Sugar Land	482011043	La Porte Airport C243	La Porte Airport, 2434 Buchanan Street, La Porte	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	29.67200	-95.06470
Houston-The Woodlands-Sugar Land	482011043	La Porte Airport C243	La Porte Airport, 2434 Buchanan Street, La Porte	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	29.67200	-95.06470

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure; Source Oriented	Middle Scale / Neighborhood	29.04377	-95.47296
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure; Source Oriented	Neighborhood	29.04377	-95.47296
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	Highest Concentration	Middle Scale	29.04377	-95.47296
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Highest Concentration	Middle Scale	29.04377	-95.47296
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Highest Concentration	Middle Scale	29.04377	-95.47296
Houston-The Woodlands-Sugar Land	482010047	Lang	4401 1/2 Lang Rd, Houston	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Middle Scale / Urban Scale	29.83421	-95.48912
Houston-The Woodlands-Sugar Land	482010047	Lang	4401 1/2 Lang Rd, Houston	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Urban Scale	29.83421	-95.48912
Houston-The Woodlands-Sugar Land	482010047	Lang	4401 1/2 Lang Rd, Houston	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure	Neighborhood	29.83421	-95.48912
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Source Oriented	Middle Scale / Neighborhood	29.75889	-95.07944
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	O3	SLAMS	UV Photometric	Continuous	Suburban	Source Oriented	Middle Scale	29.75889	-95.07944
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	Highest Concentration	Neighborhood	29.75889	-95.07944
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Highest Concentration	Neighborhood	29.75889	-95.07944
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Highest Concentration	Neighborhood	29.75889	-95.07944

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	480391004	Manvel Croix Park	4503 Croix Pkwy, Manvel	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Urban Scale	29.52044	-95.39251
Houston-The Woodlands-Sugar Land	480391004	Manvel Croix Park	4503 Croix Pkwy, Manvel	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Urban Scale	29.52044	-95.39251
Houston-The Woodlands-Sugar Land	480391004	Manvel Croix Park	4503 Croix Pkwy, Manvel	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	29.52044	-95.39251
Houston-The Woodlands-Sugar Land	480391004	Manvel Croix Park	4503 Croix Pkwy, Manvel	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	29.52044	-95.39251
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	Dew Point	SPM	Derived at site	Continuous	Rural	Source Oriented	Microscale	30.03953	-95.67395
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	NO/NO2/NOx	PAMS, SLAMS	Chemilumin-escence	Continuous	Rural	Extreme Downwind; Population Exposure; Upwind Background	Urban Scale	30.03953	-95.67395
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	O3	PAMS, SLAMS	UV Photometric	Continuous	Rural	Extreme Downwind; Population Exposure; Upwind Background	Urban Scale	30.03953	-95.67395
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Rural	Extreme Downwind; Upwind Background	Urban Scale	30.03953	-95.67395
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Rural	Extreme Downwind; Upwind Background	Urban Scale	30.03953	-95.67395
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	Temperature	PAMS, SLAMS	Aspirated Thermister	Continuous	Rural	Extreme Downwind; Upwind Background	Urban Scale	30.03953	-95.67395
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Rural	Extreme Downwind; Upwind Background	Urban Scale	30.03953	-95.67395
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	Barometric Pressure	SPM	Pressure transducer	Continuous	Urban and Center City	General, Background	Neighborhood	29.68639	-95.29472

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	Dew Point	SPM	Derived at site	Continuous	Urban and Center City	General, Background	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	O3	SPM	UV Photometric	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	Precipitation	SPM	Bucket	Continuous	Urban and Center City	General, Background	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	Relative Humidity	SPM	Humidity Sensor	Continuous	Urban and Center City	General, Background	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	SO2	SPM	Pulsed Fluorescence	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	Solar Radiation	SPM	Photovoltaic	Continuous	Urban and Center City	General, Background	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	General, Background	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	UV Radiation	SPM	Photovoltaic	Continuous	Urban and Center City	General, Background	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Blvd, Houston	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	General, Background	Neighborhood	29.68639	-95.29472
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Rd, Seabrook	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Middle Scale / Neighborhood	29.58305	-95.01554
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Rd, Seabrook	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	29.58305	-95.01554
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Rd, Seabrook	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Population Exposure	Neighborhood	29.58305	-95.01554

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Rd, Seabrook	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	Highest Concentration	Middle Scale	29.58305	-95.01554
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Rd, Seabrook	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Highest Concentration	Middle Scale	29.58305	-95.01554
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Rd, Seabrook	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Highest Concentration	Middle Scale	29.58305	-95.01554
Houston-The Woodlands-Sugar Land	480710013	Smith Point Hawkins Camp	1850 Hawkins Camp Rd, Anahuac	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Source Oriented	Neighborhood	29.54626	-94.78697
Houston-The Woodlands-Sugar Land	480710013	Smith Point Hawkins Camp	1850 Hawkins Camp Rd, Anahuac	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Source Oriented	Neighborhood	29.54626	-94.78697
Houston-The Woodlands-Sugar Land	481670004	Texas City Fire Station	2516 Texas Avenue, Texas City	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Highest Concentration	Neighborhood	29.38481	-94.93131
Killeen-Temple-Fort Hood	480271047	Killeen Skylark Field	1605 Stone Tree Drive, Killeen	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Urban and Center City	General, Background	Urban Scale	31.08801	-97.67975
Killeen-Temple-Fort Hood	480271047	Killeen Skylark Field	1605 Stone Tree Drive, Killeen	O3	SLAMS	UV Photometric	Continuous	Urban and Center City	Population Exposure	Urban Scale	31.08801	-97.67975
Killeen-Temple-Fort Hood	480271047	Killeen Skylark Field	1605 Stone Tree Drive, Killeen	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	Population Exposure	Urban Scale	31.08801	-97.67975
Killeen-Temple-Fort Hood	480271047	Killeen Skylark Field	1605 Stone Tree Drive, Killeen	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Population Exposure	Urban Scale	31.08801	-97.67975
Killeen-Temple-Fort Hood	480271045	Temple Georgia	8406 Georgia Avenue, Temple	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Urban Scale	31.12242	-97.43105
Killeen-Temple-Fort Hood	480271045	Temple Georgia	8406 Georgia Avenue, Temple	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Population Exposure	Urban Scale	31.12242	-97.43105
Killeen-Temple-Fort Hood	480271045	Temple Georgia	8406 Georgia Avenue, Temple	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	31.12242	-97.43105
Killeen-Temple-Fort Hood	480271045	Temple Georgia	8406 Georgia Avenue, Temple	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	31.12242	-97.43105
Kingsville	482730314	National Seashore	20420 Park Road, Corpus Christi	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Rural	Regional Transport	Regional Scale	27.42697	-97.29870
Kingsville	482730314	National Seashore	20420 Park Road, Corpus Christi	Temperature	SPM	Aspirated Thermister	Continuous	Rural	Regional Transport	Regional Scale	27.42697	-97.29870

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Kingsville	482730314	National Seashore	20420 Park Road, Corpus Christi	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	Regional Transport	Regional Scale	27.42697	-97.29870
Laredo	484790017	Laredo Bridge	700 Zaragosa St, Laredo	PM10 (FRM)	Border Grant, SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Highest Concentration	Microscale	27.50173	-99.50313
Laredo	484790017	Laredo Bridge	700 Zaragosa St, Laredo	Speciated VOC (Canister)	Border Grant, SLAMS	Canister GC-MS	24 Hours; 1/6 Days	Urban and Center City	Highest Concentration	Neighborhood	27.50173	-99.50313
Laredo	484790017	Laredo Bridge	700 Zaragosa St, Laredo	Temperature	Border Grant, SLAMS	Aspirated Thermister	Continuous	Urban and Center City	Population Exposure	Neighborhood	27.50173	-99.50313
Laredo	484790017	Laredo Bridge	700 Zaragosa St, Laredo	Wind	Border Grant, SLAMS	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Population Exposure	Neighborhood	27.50173	-99.50313
Laredo	484790016	Laredo Vidaurri (relocating to Laredo College)	West End Washington Street, corner of Taylor Road and Crawford Road, Laredo	CO	Border Grant, SLAMS	Gas Filter Correlation	Continuous	Suburban	Population Exposure	Neighborhood	27.51746	-99.51522
Laredo	484790016	Laredo Vidaurri (relocating to Laredo College)	West End Washington Street, corner of Taylor Road and Crawford Road, Laredo	O3	Border Grant, SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	27.51746	-99.51522
Laredo	484790016	Laredo Vidaurri (relocating to Laredo College)	West End Washington Street, corner of Taylor Road and Crawford Road, Laredo	PM10 (FRM)	Border Grant, SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure	Neighborhood	27.51746	-99.51522
Laredo	484790016	Laredo Vidaurri (relocating to Laredo College)	West End Washington Street, corner of Taylor Road and Crawford Road, Laredo	Temperature	Border Grant, SLAMS	Sonic weather sensor	Continuous	Suburban	Population Exposure	Neighborhood	27.51746	-99.51522
Laredo	484790016	Laredo Vidaurri (relocating to Laredo College)	West End Washington Street, corner of Taylor Road and Crawford Road, Laredo	Wind	Border Grant, SPM	Sonic weather sensor	Continuous	Suburban	Population Exposure	Neighborhood	27.51746	-99.51522
Laredo	484790313	World Trade Bridge	Mines Road 11601 FM 1472, Laredo	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Suburban	Source Oriented	Microscale	27.59959	-99.53344
Longview	481830001	Longview	Gregg Co Airport near Longview, Longview	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Rural	Population Exposure	Neighborhood	32.37868	-94.71182

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Longview	481830001	Longview	Gregg Co Airport near Longview, Longview	O3	SLAMS	UV Photometric	Continuous	Rural	Population Exposure	Neighborhood	32.37868	-94.71182
Longview	481830001	Longview	Gregg Co Airport near Longview, Longview	Precipitation	SPM	Rain Gauge	Continuous	Rural	General, Background	Neighborhood	32.37868	-94.71182
Longview	481830001	Longview	Gregg Co Airport near Longview, Longview	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	General, Background; Population Exposure	Neighborhood	32.37868	-94.71182
Longview	481830001	Longview	Gregg Co Airport near Longview, Longview	Solar Radiation	SPM	Photovoltaic	Continuous	Rural	General, Background	Neighborhood	32.37868	-94.71182
Longview	481830001	Longview	Gregg Co Airport near Longview, Longview	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	32.37868	-94.71182
Longview	481830001	Longview	Gregg Co Airport near Longview, Longview	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	32.37868	-94.71182
Longview	484011082	Tatum CR 2181d Martin Creek Lake	9515 County Road 2181d, Tatum	SO2	SPM	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	32.27791	-94.57087
Longview	484011082	Tatum CR 2181d Martin Creek Lake	9515 County Road 2181d, Tatum	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	32.27791	-94.57087
Longview	484011082	Tatum CR 2181d Martin Creek Lake	9515 County Road 2181d, Tatum	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	32.27791	-94.57087
Longview (previously Marshall)	482031079	Hallsville Red Oak Road	9206 Red Oak Road, Hallsville	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	32.47022	-94.48159
Longview (previously Marshall)	482031079	Hallsville Red Oak Road	9206 Red Oak Road, Hallsville	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	32.47022	-94.48159
Longview (previously Marshall)	482031079	Hallsville Red Oak Road	9206 Red Oak Road, Hallsville	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	32.47022	-94.48159
Longview (previously Marshall)	482030002	Karnack	Hwy 134 & Spur 449, Not In A City	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Rural	General, Background	Regional Scale / Urban Scale	32.66898	-94.16747
Longview (previously Marshall)	482030002	Karnack	Hwy 134 & Spur 449, Not In A City	O3	SLAMS	UV Photometric	Continuous	Rural	General, Background	Regional Scale	32.66898	-94.16747
Longview (previously Marshall)	482030002	Karnack	Hwy 134 & Spur 449, Not In A City	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Rural	General, Background	Regional Scale	32.66898	-94.16747
Longview (previously Marshall)	482030002	Karnack	Hwy 134 & Spur 449, Not In A City	PM2.5 (Speciation)	CSN Supplemental, SLAMS	Carbons, Elements, Ions, SASS/URG	24 Hours; 1/6 Days, 24 Hours; 1/3 Days	Rural	General, Background; Regional Transport	Regional Scale	32.66898	-94.16747
Longview (previously Marshall)	482030002	Karnack	Hwy 134 & Spur 449, Not In A City	Solar Radiation	SPM	Photovoltaic	Continuous	Rural	General, Background	Urban Scale	32.66898	-94.16747

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Longview (previously Marshall)	482030002	Karnack	Hwy 134 & Spur 449, Not In A City	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Urban Scale	32.66898	-94.16747
Longview (previously Marshall)	482030002	Karnack	Hwy 134 & Spur 449, Not In A City	Visibility	SPM	Visibility Sensor	Continuous	Rural	General, Background	Urban Scale	32.66898	-94.16747
Longview (previously Marshall)	482030002	Karnack	Hwy 134 & Spur 449, Not In A City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Urban Scale	32.66898	-94.16747
Lubbock	483031028	Lubbock 12th Street	3901 East 12th Street, Lubbock	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Urban Scale	33.58553	-101.78698
Lubbock	483031028	Lubbock 12th Street	3901 East 12th Street, Lubbock	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	General, Background	Regional Scale	33.58553	-101.78698
Lubbock	483031028	Lubbock 12th Street	3901 East 12th Street, Lubbock	Wind (3m)	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	General, Background	Regional Scale	33.58553	-101.78698
McAllen-Edinburg-Mission	482151046	Edinburg East Freddy Gonzalez Drive	1491 East Freddy Gonzalez Drive, Edinburg	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Regional Scale	26.28862	-98.15207
McAllen-Edinburg-Mission	482151046	Edinburg East Freddy Gonzalez Drive	1491 East Freddy Gonzalez Drive, Edinburg	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure	Regional Scale	26.28862	-98.15207
McAllen-Edinburg-Mission	482151046	Edinburg East Freddy Gonzalez Drive	1491 East Freddy Gonzalez Drive, Edinburg	Wind (3m)	SPM	Sonic weather sensor	Continuous	Urban and Center City	Population Exposure	Regional Scale	26.28862	-98.15207
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	O3	SLAMS	UV Photometric	Continuous	Suburban	Population Exposure	Neighborhood	26.22621	-98.29107
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure	Urban Scale	26.22621	-98.29107
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Suburban	Population Exposure	Urban Scale	26.22621	-98.29107
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	Solar Radiation	SPM	Photovoltaic	Continuous	Suburban	Population Exposure	Microscale	26.22621	-98.29107
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Microscale	26.22621	-98.29107
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Microscale	26.22621	-98.29107
Mount Pleasant	484491078	Cookville FM 4855	385 CR 4855, Not In A City	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	33.07520	-94.84740
Mount Pleasant	484491078	Cookville FM 4855	385 CR 4855, Not In A City	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	33.07520	-94.84740
Mount Pleasant	484491078	Cookville FM 4855	385 CR 4855, Not In A City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	33.07520	-94.84740

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
none	480430101	Bravo Big Bend	Big Bend National Park, Big Bend Nat Park	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Rural	General, Background	Regional Scale	29.30255	-103.17791
none	480430101	Bravo Big Bend	Big Bend National Park, Big Bend Nat Park	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Microscale	29.30255	-103.17791
none	480430101	Bravo Big Bend	Big Bend National Park, Big Bend Nat Park	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Regional Scale	29.30255	-103.17791
none	481611084	Fairfield FM 2570 Ward Ranch	488 FM 2570, Fairfield	SO2	SPM	Pulsed Fluorescence	Continuous	Rural	Source Oriented	Neighborhood	31.79780	-96.10310
none	481611084	Fairfield FM 2570 Ward Ranch	488 FM 2570, Fairfield	Temperature	SPM	Aspirated Thermister	Continuous	Rural	Source Oriented	Neighborhood	31.79780	-96.10310
none	481611084	Fairfield FM 2570 Ward Ranch	488 FM 2570, Fairfield	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	Source Oriented	Neighborhood	31.79780	-96.10310
none	482551070	Karnes County	1100B East Main Avenue, Karnes City	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Rural	Max Precursor Emissions Impact; Upwind Background	Urban Scale	28.88044	-97.88807
none	482551070	Karnes County	1100B East Main Avenue, Karnes City	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	28.88044	-97.88807
none	482551070	Karnes County	1100B East Main Avenue, Karnes City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	28.88044	-97.88807
Odessa	481351014	Odessa Gonzales	2700 Disney, Odessa	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Suburban	Highest Concentration	Regional Scale	31.87026	-102.33476
Odessa	481351014	Odessa Gonzales	2700 Disney, Odessa	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	31.87026	-102.33476
Odessa	481351014	Odessa Gonzales	2700 Disney, Odessa	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	31.87026	-102.33476
San Antonio-New Braunfels	480290059	Calaveras Lake	14620 Laguna Rd, San Antonio	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Rural	Source Oriented; Upwind Background	Urban Scale	29.27539	-98.31166
San Antonio-New Braunfels	480290059	Calaveras Lake	14620 Laguna Rd, San Antonio	O3	SLAMS	UV Photometric	Continuous	Rural	Source Oriented; Upwind Background	Urban Scale	29.27539	-98.31166
San Antonio-New Braunfels	480290059	Calaveras Lake	14620 Laguna Rd, San Antonio	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Rural	Population Exposure; Source Oriented	Urban Scale	29.27539	-98.31166
San Antonio-New Braunfels	480290059	Calaveras Lake	14620 Laguna Rd, San Antonio	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Population Exposure; Source Oriented	Neighborhood	29.27539	-98.31166
San Antonio-New Braunfels	480290059	Calaveras Lake	14620 Laguna Rd, San Antonio	Temperature	SPM	Aspirated Thermister	Continuous	Rural	Source Oriented	Urban Scale	29.27539	-98.31166
San Antonio-New Braunfels	480290059	Calaveras Lake	14620 Laguna Rd, San Antonio	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	Source Oriented	Urban Scale	29.27539	-98.31166

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Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
San Antonio-New Braunfels	480290052	Camp Bullis	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Rural	Max Precursor Emissions Impact	Urban Scale	29.63206	-98.56494
San Antonio-New Braunfels	480290052	Camp Bullis	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	O3	SLAMS	UV Photometric	Continuous	Rural	Max Ozone Concentration; Population Exposure	Urban Scale	29.63206	-98.56494
San Antonio-New Braunfels	480290052	Camp Bullis	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	Solar Radiation	SPM	Photovoltaic	Continuous	Rural	Highest Concentration	Urban Scale	29.63206	-98.56494
San Antonio-New Braunfels	480290052	Camp Bullis	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	Temperature	SPM	Sonic weather sensor	Continuous	Rural	Highest Concentration	Urban Scale	29.63206	-98.56494
San Antonio-New Braunfels	480290052	Camp Bullis	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	Wind	SPM	Sonic weather sensor	Continuous	Rural	Highest Concentration	Urban Scale	29.63206	-98.56494
San Antonio-New Braunfels	484931038	Floresville Hospital Boulevard	1404 Hospital Blvd, Floresville	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Rural	Max Precursor Emissions Impact; Upwind Background	Urban Scale	29.13070	-98.14810
San Antonio-New Braunfels	484931038	Floresville Hospital Boulevard	1404 Hospital Blvd, Floresville	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	29.13070	-98.14810
San Antonio-New Braunfels	484931038	Floresville Hospital Boulevard	1404 Hospital Blvd, Floresville	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	29.13070	-98.14810
San Antonio-New Braunfels	480290060	Frank Wing Municipal Court	401 South Frio St, San Antonio	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Urban and Center City	Population Exposure	Middle Scale	29.42219	-98.50541
San Antonio-New Braunfels	480290677	Old Hwy 90	911 Old Hwy 90 West, San Antonio	PM2.5 (TEOM)[N]	SPM	Gravimetric	Continuous	Urban and Center City	Population Exposure	Neighborhood	29.42394	-98.58050
San Antonio-New Braunfels	480291087	San Antonio Bulverde Parkway	3843 Bulverde Parkway, San Antonio	PM10 (FRM)	SLAMS	HiVol Gravimetric	24 Hours; 1/6 Days	Suburban	Population Exposure	Neighborhood	29.63500	-98.41770
San Antonio-New Braunfels	480291087	San Antonio Bulverde Parkway	3843 Bulverde Parkway, San Antonio	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Population Exposure	Neighborhood	29.63500	-98.41770
San Antonio-New Braunfels	480291087	San Antonio Bulverde Parkway	3843 Bulverde Parkway, San Antonio	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Population Exposure	Neighborhood	29.63500	-98.41770
San Antonio-New Braunfels	480291080	San Antonio Gardner Road	7145 Gardner Road, San Antonio	SO2	SLAMS	Pulsed Fluorescence	Continuous	Suburban	Source Oriented	Neighborhood	29.35292	-98.33286

Appendix B: Ambient Air Monitoring Network Site List

Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
San Antonio-New Braunfels	480291080	San Antonio Gardner Road	7145 Gardner Road, San Antonio	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	General, Background	Neighborhood	29.35292	-98.33286
San Antonio-New Braunfels	480291080	San Antonio Gardner Road	7145 Gardner Road, San Antonio	Wind (3m)	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	General, Background	Neighborhood	29.35292	-98.33286
San Antonio-New Braunfels	480291069	San Antonio Interstate 35	9904 IH 35 N, San Antonio	CO	Near Road, SLAMS	Gas Filter Correlation	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.52943	-98.39140
San Antonio-New Braunfels	480291069	San Antonio Interstate 35	9904 IH 35 N, San Antonio	NO/NO2/NOx	Near Road, SLAMS	Chemilumin-escence	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.52943	-98.39140
San Antonio-New Braunfels	480291069	San Antonio Interstate 35	9904 IH 35 N, San Antonio	PM2.5 (Beta)	Near Road, SLAMS	Beta Attenuation	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.52943	-98.39140
San Antonio-New Braunfels	480291069	San Antonio Interstate 35	9904 IH 35 N, San Antonio	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.52943	-98.39140
San Antonio-New Braunfels	480291069	San Antonio Interstate 35	9904 IH 35 N, San Antonio	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Max Precursor Emissions Impact	Microscale	29.52943	-98.39140
San Antonio-New Braunfels	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	NO/NO2/NOx	SLAMS	Chemilumin-escence	Continuous	Suburban	Population Exposure	Neighborhood	29.51505	-98.62019
San Antonio-New Braunfels	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	O3	SLAMS	UV Photometric	Continuous	Suburban	Max Ozone Concentration; Population Exposure	Urban Scale	29.51505	-98.62019
San Antonio-New Braunfels	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Suburban	Population Exposure	Urban Scale	29.51505	-98.62019
San Antonio-New Braunfels	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric	24 Hours; 1/12 Days	Suburban	Population Exposure; Quality Assurance	Urban Scale	29.51505	-98.62019
San Antonio-New Braunfels	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	Temperature	SPM	Aspirated Thermister	Continuous	Suburban	Highest Concentration	Urban Scale	29.51505	-98.62019
San Antonio-New Braunfels	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Suburban	Highest Concentration	Urban Scale	29.51505	-98.62019
San Antonio-New Braunfels	480131090	Von Ormy Highway 16	17534 North State Highway 16, Not In A City	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Rural	Population Exposure; Source Oriented	Microscale	29.16286	-98.58914
San Antonio-New Braunfels	480131090	Von Ormy Highway 16	17534 North State Highway 16, Not In A City	Temperature	SPM	Sonic weather sensor	Continuous	Rural	General, Background	Neighborhood	29.16286	-98.58914
San Antonio-New Braunfels	480131090	Von Ormy Highway 16	17534 North State Highway 16, Not In A City	Wind	SPM	Sonic weather sensor	Continuous	Rural	General, Background	Neighborhood	29.16286	-98.58914
Texarkana	480371031	Texarkana New Boston	2700 New Boston Rd, Texarkana	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Urban and Center City	Population Exposure	Urban Scale	33.43611	-94.07778

Appendix B: Ambient Air Monitoring Network Site List

Texas MSA - CBSA	Site Number	Site Name	Address - Location	Monitor Type	Network	Methods	Operating Schedule	Location Setting	Monitoring Objective	Spatial Scale	Latitude	Longitude
Texarkana	480371031	Texarkana New Boston	2700 New Boston Rd, Texarkana	Temperature	SPM	Aspirated Thermister	Continuous	Urban and Center City	Population Exposure	Urban Scale	33.43611	-94.07778
Texarkana	480371031	Texarkana New Boston	2700 New Boston Rd, Texarkana	Wind (3m)	SPM	Potentiometer Cup Anemometer	Continuous	Urban and Center City	Population Exposure	Urban Scale	33.43611	-94.07778
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	NO/NO2/NOx	SPM	Chemilumin-escence	Continuous	Rural	General, Background	Urban Scale	32.34401	-95.41576
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	O3	SLAMS	UV Photometric	Continuous	Rural	General, Background	Urban Scale	32.34401	-95.41576
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	Precipitation	SPM	Rain Gauge	Continuous	Rural	General, Background	Neighborhood	32.34401	-95.41576
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	Solar Radiation	SPM	Photovoltaic	Continuous	Rural	General, Background	Neighborhood	32.34401	-95.41576
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	Temperature	SPM	Aspirated Thermister	Continuous	Rural	General, Background	Neighborhood	32.34401	-95.41576
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	General, Background	Neighborhood	32.34401	-95.41576
Victoria	484690003	Victoria	106 Mockingbird Lane, Victoria	O3	SLAMS	UV Photometric	Continuous	Urban and Center City	Population Exposure	Neighborhood	28.83622	-97.00551
Victoria	484690003	Victoria	106 Mockingbird Lane, Victoria	Solar Radiation	SPM	Photovoltaic	Continuous	Urban and Center City	Highest Concentration	Neighborhood	28.83622	-97.00551
Victoria	484690003	Victoria	106 Mockingbird Lane, Victoria	Temperature	SPM	Sonic weather sensor	Continuous	Urban and Center City	Highest Concentration	Neighborhood	28.83622	-97.00551
Victoria	484690003	Victoria	106 Mockingbird Lane, Victoria	Wind	SPM	Sonic weather sensor	Continuous	Urban and Center City	Highest Concentration	Neighborhood	28.83622	-97.00551
Waco	483091037	Waco Mazanec	4472 Mazanec Rd, Waco	CO	SLAMS	Gas Filter Correlation	Continuous	Rural	Upwind Background	Urban Scale	31.65309	-97.07070
Waco	483091037	Waco Mazanec	4472 Mazanec Rd, Waco	O3	SLAMS	UV Photometric	Continuous	Rural	Upwind Background	Regional Scale	31.65309	-97.07070
Waco	483091037	Waco Mazanec	4472 Mazanec Rd, Waco	PM2.5 (TEOM)[N]	SPM	Gravimetric	Continuous	Rural	Regional Transport	Regional Scale	31.65309	-97.07070
Waco	483091037	Waco Mazanec	4472 Mazanec Rd, Waco	SO2	SLAMS	Pulsed Fluorescence	Continuous	Rural	Upwind Background	Urban Scale	31.65309	-97.07070
Waco	483091037	Waco Mazanec	4472 Mazanec Rd, Waco	Solar Radiation	SPM	Photovoltaic	Continuous	Rural	Regional Transport	Urban Scale	31.65309	-97.07070
Waco	483091037	Waco Mazanec	4472 Mazanec Rd, Waco	Temperature	SPM	Aspirated Thermister	Continuous	Rural	Regional Transport	Urban Scale	31.65309	-97.07070
Waco	483091037	Waco Mazanec	4472 Mazanec Rd, Waco	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Rural	Regional Transport	Urban Scale	31.65309	-97.07070

Appendix B: Ambient Air Monitoring Network Site List

Symbol/Acronym	Description
*	Micropolitan Statistical Area
**	County is not a Metropolitan or Micropolitan Statistical Area
***	Marshall, Texas, is no longer a Micropolitan Statistical Area according to the United States Office of Management and Budget (OMB) and is currently designated as a part of the Longview MSA, AQS is pending updates to match the new OMB designation.
N	Monitor is not suitable for comparison against the NAAQS as described in 40 Code of Federal Regulations Part 58.30
24-Hours; 1/12 Days	1 24-hour sample, once every twelfth day
24-Hours; 1/6 Days	1 24-hour sample, once every sixth day
24-Hours; 1/3 Days	1 24-hour sample, once every third day
24-Hours, 1/1 Days	1 24-hour sample, daily
24 Hours; Seasonal, 8 Hour; Seasonal	1 24-hour sample every sixth day seasonal, three eight-hour samples seasonal
24-Hour 1/6 Days Seasonal	1 24-hour sample, once every sixth day seasonal
#	number
AMNP	Annual Monitoring Network Plan
AutoGC	automated gas chromatograph
Ave	avenue
Blvd	boulevard
Border	The Border network designation is part of the SLAMS network for monitors within 100 kilometers of the United States/Mexico border.
CBSA	core based statistical area
CO	carbon monoxide
CR	county road
CSN STN	Chemical Speciation Network Speciation Trends Network site (includes NCore monitors/requirements, samples analyzed by EPA contracted laboratory)
DNPH	dinitrophenylhydrazine
Dr	drive
E	east
FM	farm-to-market
FEM	federal equivalent method
FRM	federal reference method
GC	gas chromatograph
GC-MS	gas chromatograph mass spectrometry
HiVol	high-volume
Hi-Vol ICP-MS	high-volume with inductively coupled plasma by mass spectrometry
HPLC	high performance liquid chromatography
Hwy(s)	highway(s)
IH	Interstate Highway
LBJ	Lyndon B Johnson
LC	local conditions
Ln	lane
m	meter
Max	maximum
MSA	metropolitan statistical area/micropolitan statistical area
NCore	National Core Multipollutant Monitoring Stations
N	north

Symbol/Acronym	Description
NE	northeast
NO_2	nitrogen dioxide
$NO/NO_2/NO_x$	nitrogen oxides
NO_y	total reactive nitrogen
O_3	ozone
OFW	Old Fort Worth
PAMS	Photochemical Assessment Monitoring Stations
Pkwy	parkway
PM_{10}	particulate matter of 10 micrometers or less in diameter
$PM_{10-2.5}$	coarse particulate matter
$PM_{2.5}$	particulate matter of 2.5 micrometers or less in diameter
QA Collocated	quality assurance collocated monitor
Rd	road
S	south
SASS	Speciation Air Sampling System
SE	southeast
SETRPC	Southeast Texas Regional Planning Commission
SLAMS	State or Local Air Monitoring Stations
SO_2	sulfur dioxide (one-hour and five-minute maximum monitors)
SPM	special purpose monitor
St	street
SVRD	service road
TCEQ	Texas Commission on Environmental Quality
TEOM	tapered element oscillating microbalance (not NAAQS comparable)
TNMOC	total non-methane organic compound
TSP (Pb)	total suspended particulate (lead)
TX	Texas
URG	Universal Research Group
UTEP	University of Texas at El Paso
UV	ultraviolet
VOC	volatile organic compound
W	west
Wind	All wind sampler types produce data for parameters 61101, 61103, 61104, 61105, and 61106.
Yd	yard

Appendix C

Population and Criteria Pollutant Monitor Requirements and Count Summary by Metropolitan Statistical Area

Texas Commission on Environmental Quality
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Appendix C: Population and Criteria Pollutant Monitor Requirements and Count Summary by Metropolitan Statistical Area

Texas Metropolitan Statistical Area	2020 Population Estimate[1]	NO_2 and NO/NO_y Monitors Required[2,3]	NO_2 and NO/NO_y Monitors Existing[2,3]	SO_2 Monitors Required[2]	SO_2 Monitors Existing[2,4]	Pb Monitors Required	Pb Monitors Existing	O_3 Monitors Required	O_3 Monitors Existing	CO Monitors Required[2]	CO Monitors Existing[2,4]	PM_{10} Monitors Required[3,4]	PM_{10} Monitors Existing[3,4]	$PM_{2.5}$ Monitors Required[4]	$PM_{2.5}$ Monitors Existing[4]
Dallas-Fort Worth-Arlington	7,694,138	6	17	2	3	3	3	4	18	2	2	4-8	3	7	14
Houston-The Woodlands-Sugar Land	7,154,478	6	20	3	4	0	0	4	21	2	3	4-8	5	8	17
San Antonio-New Braunfels	2,590,732	3	5	2	2	0	0	2	3	1	1	1-2	2	3	5
Austin-Round Rock-Georgetown	2,295,303	2	2	0	1	0	0	2	2	1	1	1-2	2	3	3
McAllen-Edinburg-Mission	875,200	0	0	0	0	0	0	1	1	0	0	1-2	1	2	2
El Paso	846,192	2	4	1	1	0	0	3	7	1	3	4-8	5	5	8
Killeen-Temple	468,453	0	1	0	0	0	0	2	2	0	0	0-1	0	0	1
Corpus Christi	430,217	0	0	0	3	0	0	2	2	0	0	1-2	1	0	4
Brownsville-Harlingen	424,180	0	0	0	0	0	0	1	1	0	0	0-1	0	0	2
Beaumont-Port Arthur	391,310	1	4	3	4	0	0	2	7	0	0	0-1	0	0	3
Lubbock	326,364	0	0	0	0	0	0	0	0	0	0	0-1	0	0	1
Longview (includes Marshall)	287,105	0	2	2	3	0	0	1	2	0	0	0-1	0	0	2
Laredo	277,681	0	0	0	0	0	0	0	1	0	1	0-1	2	0	1
Waco	277,005	0	0	0	1	0	0	1	1	0	1	0-1	0	0	1
College Station-Bryan	268,224	0	0	1	1	0	0	0	0	0	0	0-1	0	0	1
Amarillo	265,761	0	0	1	2	0	0	0	0	0	0	0-1	0	0	1
Tyler	235,806	0	1	0	0	0	0	1	1	0	0	0	0	0	0
Midland	183,679	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Abilene	173,185	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Odessa	167,701	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Wichita Falls	152,485	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Texarkana	148,838	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sherman-Denison	138,318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Angelo	122,889	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Victoria	99,562	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Granbury[5]	63,527	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Eagle Pass[5]	58,378	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Corsicana[5]	50,694	0	1	1	2	0	0	0	1	0	0	0	0	0	1
Mount Pleasant[5]	45,986	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Big Spring[5]	36,540	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Kingsville[5]	30,717	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Borger[5]	20,677	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Karnes County[6]	NA	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Freestone County[6]	NA	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Big Bend National Park[6]	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Totals[3]		**20**	**58**	**19**	**31**	**3**	**3**	**27**	**72**	**7**	**12**	**16-41**	**21**	**28**	**72**

[1]United States Census Bureau population estimates as of July 1, 2020. Metropolitan and Micropolitan Statistical Areas Totals: 2010-2020 (census.gov)
[2]Required and existing counts include NO_y, high-sensitivity SO_2, and high-sensitivity CO monitors.
[3]Required monitor pending deployment is discussed in the applicable AMNP section.
[4]Individual monitors may fulfill multiple requirements and are only counted once. Collocated quality control monitors are not included in totals.
[5]Area is classified as a micropolitan statistical area and not subject to SLAMS requirements.
[6]Area not classified as a metropolitan or micropolitan statistical area, county population data is not applicable.
Core Based Statistical Areas are delineated by the United States Office of Management and Budget Delineation Files (census.gov)

CO - carbon monoxide
NA - not applicable
NO_2 and NO/NO_y - nitrogen dioxide, nitrogen oxide, and total reactive nitrogen compounds
Pb - lead
PM_{10} - particulate matter of 10 micrometers or less
$PM_{2.5}$ - particulate matter of 2.5 micrometers or less
O_3 - ozone
SO_2 - sulfur dioxide

Appendix D

Nitrogen Dioxide, Nitrogen Oxide, and Total Reactive Nitrogen Monitor Requirements and Count Summary

Texas Commission on Environmental Quality
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Appendix D: Nitrogen Dioxide, Nitrogen Oxide, and Total Reactive Nitrogen Monitor Requirements and Count Summary

Core Based Statistical Areas	2020 Population Estimate[1]	Required NO_2 Area-Wide Monitors	Required NO_2 RA-40 Monitors	Required NO_2 Near-Road Monitors	Required True NO_2 PAMS Monitors	Required NO/NO_y PAMS/NCore Monitors	Total Required NO_2 and NO/NO_y Monitors	Total Existing NO_2 and NO/NO_y Monitors[2]
Dallas-Fort Worth-Arlington	7,694,138	1	1	2	1	1	6	17
Houston-The Woodlands-Sugar Land	7,154,478	1	1	2	1	1	6	20
San Antonio-New Braunfels	2,590,732	1	0	2	0	0	3	5
Austin-Round Rock-Georgetown	2,295,303	1	0	1	0	0	2	2
McAllen-Edinburg-Mission	875,200	0	0	0	0	0	0	0
El Paso	846,192	0	1	0	0	1	2	4
Killeen-Temple	468,453	0	0	0	0	0	0	1
Corpus Christi	430,217	0	0	0	0	0	0	0
Brownsville-Harlingen	424,180	0	0	0	0	0	0	0
Beaumont-Port Arthur	391,310	0	1	0	0	0	1	4
Lubbock	326,364	0	0	0	0	0	0	0
Longview	287,105	0	0	0	0	0	0	2
Laredo	277,681	0	0	0	0	0	0	0
Waco	277,005	0	0	0	0	0	0	0
College Station-Bryan	268,224	0	0	0	0	0	0	0
Amarillo	265,761	0	0	0	0	0	0	0
Tyler	235,806	0	0	0	0	0	0	1
Midland	183,679	0	0	0	0	0	0	0
Abilene	173,185	0	0	0	0	0	0	0
Odessa	167,701	0	0	0	0	0	0	0
Wichita Falls	152,485	0	0	0	0	0	0	0
Texarkana	148,838	0	0	0	0	0	0	0
Sherman-Denison	138,318	0	0	0	0	0	0	0
San Angelo	122,889	0	0	0	0	0	0	0
Victoria	99,562	0	0	0	0	0	0	0
Corsicana[3]	50,694	0	0	0	0	0	0	1
Karnes County[4]	NA	0	0	0	0	0	0	1
Totals		**4**	**4**	**7**	**2**	**3**	**20**	**58**

Metropolitan and Micropolitan Statistical Areas Totals: 2010-2020 (census.gov)

[1]United States Census Bureau population estimates as of July 1, 2020.
[2]Monitors may fulfill multiple monitoring requirements and are only counted once.
[3]Area is classified as a micropolitan statistical area and not subject to SLAMS requirements.
[4]Area not classified as a metropolitan or micropolitan statistical area, county population data is not applicable.
NCore - National Core Multipollutant Monitoring Stations
NO - nitrogen oxide
NO_2 - nitrogen dioxide
NO_Y - total reactive nitrogen compounds
PAMS - Photochemical Assessment Monitoring Stations
RA-40 - Regional Administrator 40

Appendix E

Sulfur Dioxide Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
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Appendix E: Sulfur Dioxide Monitor Requirements and Count Assessment

Core Based Statistical Area	County	2020 Population Estimates[1]	2020 Point Source (tpy)	2017 NEI Data (tpy)	2017 Point Source Data (tpy)	2017 NEI Non-Point Source Data with 2020 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Dallas-Fort Worth-Arlington		7,694,138				5,492	42,256	1	0	1	2	3
	Collin		11	104	6	109						
	Dallas		345	921	347	919						
	Denton		342	69	340	71						
	Ellis		2,931	1,659	1,561	3,029						
	Hunt		1	35	1	35						
	Johnson		63	105	78	90						
	Kaufman		89	122	91	120						
	Parker		154	256	234	176						
	Rockwall		0	9	0	9						
	Tarrant		20	909	23	906						
	Wise		12	24	9	27						
Houston-The Woodlands-Sugar Land		7,154,478				34,560	247,260	2	0	1	3	4
	Austin		3	42	32	13						
	Brazoria		547	681	585	643						
	Chambers		252	203	191	264						
	Fort Bend		23,881	37,802	37,736	23,947						
	Galveston		1,077	2,382	1,819	1,640						
	Harris		6,692	8,667	7,546	7,814						
	Liberty		11	39	15	35						
	Montgomery		30	181	23	187						
	Waller		2	17	1	18						
San Antonio-New Braunfels		2,590,732				13,393	34,699	1	1	0	2	2
	Atascosa		10,615	9,316	8,779	11,152						
	Bandera		0	2	0	2						
	Bexar		1,267	13,007	12,724	1,550						
	Comal		325	428	407	346						
	Guadalupe		128	144	109	164						
	Kendall		2	7	2	8						
	Medina		0	10	0	10						
	Wilson		0	270	109	162						

Appendix E: Sulfur Dioxide Monitor Requirements and Count Assessment

Core Based Statistical Area	County	2020 Population Estimates[1]	2020 Point Source (tpy)	2017 NEI Data (tpy)	2017 Point Source Data (tpy)	2017 NEI Non-Point Source Data with 2020 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Austin-Round Rock-Georgetown		2,295,303				1,994	4,577	0	0	0	0	1
	Bastrop		88	305	292	101						
	Caldwell		0	354	338	16						
	Hays		1,428	1,189	1,164	1,453						
	Travis		129	359	119	369						
	Williamson		4	57	5	56						
McAllen-Edinburg-Mission		875,200				112	98	0	0	0	0	0
	Hidalgo		29	125	42	112						
El Paso		846,192				288	244	0	0	1	1	1
	El Paso		171	390	282	280						
	Hudspeth		6	10	7	9						
Killeen-Temple		468,453				82	38	0	0	0	0	0
	Bell		17	96	43	70						
	Coryell		0	7	0	7						
	Lampasas		0	4	0	4						
Corpus Christi		430,217				762	328	0	0	0	0	3
	Nueces		508	828	689	648						
	San Patricio		60	82	28	114						
Brownsville-Harlingen		424,180				83	35	0	0	0	0	0
	Cameron		2	83	1	83						
Beaumont-Port Arthur		391,310				15,834	6,196	1	2	0	3	4
	Hardin		1	12	1	12						
	Jefferson		11,762	14,002	13,849	11,916						
	Orange		3,866	6,340	6,300	3,906						
Lubbock		326,364				89	29	0	0	0	0	0
	Crosby		0	4	0	3						
	Lubbock		9	57	4	63						
	Lynn		0	23	0	23						

Appendix E: Sulfur Dioxide Monitor Requirements and Count Assessment

Core Based Statistical Area	County	2020 Population Estimates[1]	2020 Point Source (tpy)	2017 NEI Data (tpy)	2017 Point Source Data (tpy)	2017 NEI Non-Point Source Data with 2020 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Longview		287,105				45,762	13,139	1	1	0	2	3
	Gregg		20	68	23	65						
	Harrison		1,913	4,389	4,363	1,938						
	Rusk		43,729	36,599	36,578	43,750						
	Upshur		2	8	1	9						
Laredo		277,681				3,017	838	0	0	0	0	0
	Webb		347	584	390	540						
Waco		277,005				2,477	686	0	0	0	0	1
	Falls		0	7	0	7						
	McLennan		2,397	3,181	3,100	2,477						
Amarillo		265,761				8,514	2,263	0	1	0	1	2
	Armstrong		1	1	0	2						
	Carson		0	4	0	4						
	Potter		8,217	13,106	12,937	8,387						
	Randall		83	117	93	107						
	Oldham		0	14	0	14						
College Station-Bryan		268,224				11,247	3,017	0	1	0	1	1
	Brazos		9	57	12	54						
	Burleson		0	8	0	8						
	Robertson		11,178	11,254	11,248	11,184						
Tyler		235,806				471	111	0	0	0	0	0
	Smith		425	534	488	471						
Midland		183,679				1,334	245	0	0	0	0	0
	Martin		39	494	27	506						
	Midland		123	882	177	828						
Abilene		173,185				66	11	0	0	0	0	0
	Callahan		0	3	0	3						
	Jones		22	13	9	26						
	Taylor		0	37	0	37						

Appendix E: Sulfur Dioxide Monitor Requirements and Count Assessment

Core Based Statistical Area	County	2020 Population Estimates[1]	2020 Point Source (tpy)	2017 NEI Data (tpy)	2017 Point Source Data (tpy)	2017 NEI Non-Point Source Data with 2020 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Odessa		167,701				860	144	0	0	0	0	0
	Ector		404	1,484	1,028	860						
Wichita Falls		152,485				687	105	0	0	0	0	0
	Archer		0	2	0	2						
	Clay		59	50	47	62						
	Wichita		489	606	526	569						
Texarkana		148,838				53	8	0	0	0	0	0
	Bowie		35	34	15	53						
Sherman-Denison		138,318				44	6	0	0	0	0	0
	Grayson		6	45	7	44						
San Angelo		122,889				268	33	0	0	0	0	0
	Irion		0	237	0	237						
	Sterling		1	10	1	10						
	Tom Green		1	21	2	21						
Victoria		99,562				8,201	817	0	0	0	0	0
	Goliad		7,955	12,365	12,202	8,117						
	Victoria		29	85	31	84						
Corsicana[3]		50,694				3,628	184	NA	1	0	1	2
	Navarro		3,607	3,812	3,792	3,628						
Mount Pleasant[3]		45,986				8,191	377	NA	1	0	1	1
	Titus		8,169	43,509	43,487	8,191						
Big Spring[3]		36,540				4,468	163	NA	1	0	1	1
	Howard		3,979	6,835	6,346	4,468						
Borger[3]		36,540				7,825	286	NA	1	0	1	1
	Hutchinson		7,815	11,657	11,648	7,825						

Appendix E: Sulfur Dioxide Monitor Requirements and Count Assessment

Core Based Statistical Area	County	2020 Population Estimates[1]	2020 Point Source (tpy)	2017 NEI Data (tpy)	2017 Point Source Data (tpy)	2017 NEI Non-Point Source Data with 2020 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
None		not available					NA	NA	NA	0	0	1
	Freestone[4]		15	47,653	47,645	22			0	0	0	1
Total Monitors								**6**	**10**	**3**	**19**	**31**

[1]United States Census Bureau population estimates as of July 1, 2020. Metropolitan and Micropolitan Statistical Areas Totals: 2010-2020 (census.gov)

[2]Monitors may fulfill multiple monitoring requirements and are only counted once.

[3]Micropolitan statistical area

[4]Area not classified as a metropolitan or micropolitan statistical area.

Core Based Statistical Areas are defined by the United States Office of Management and Budget Delineation Files (census.gov)

DRR - Data Requirements Rule

NA - not applicable

NCore - National Core Multipollutant Monitoring Stations

NEI - National Emissions Inventory

PWEI - population weighted emission index (Core Based Statistical Area Population*[2017 NEI non-point source data and 2020 point source data]/1,000,000)

SO_2 - sulfur dioxide

Appendix F

Sulfur Dioxide Ongoing Data Requirements Annual Report

Texas Commission on Environmental Quality
2022 Annual Monitoring Network Plan

Appendix F: Sulfur Dioxide Ongoing Data Requirements Annual Report

As required by 40 Code of Federal Regulations (CFR) Section 51.1205(b), this report provides the Texas Commission on Environmental Quality's (TCEQ) annual assessment of sulfur dioxide (SO_2) emissions changes for areas designated attainment/unclassifiable for the 2010 SO_2 National Ambient Air Quality Standard (NAAQS), where the designations were based on characterization of air quality by modeling actual SO_2 emissions.

Out of all Texas counties (or portions of counties) currently designated attainment/unclassifiable for the 2010 SO_2 NAAQS, only the seven counties shown in Table 1 were designated based on modeled actual SO_2 emissions. The most recent (2020) total estimated SO_2 emissions, based on quality assured data from the relevant sources in each county, are listed in Table 1. The table includes emissions from the previous year (2019) and the change in SO_2 emissions from 2019 to 2020. The relevant sources in Fort Bend, Goliad, Lamb, Limestone, Robertson, and Wilbarger Counties had emission decreases from the previous year. Since the emissions have decreased for these locations from the previous year, the original designation modeling for each county provides reasonable assurance that the areas continue to meet the 2010 one-hour SO_2 primary NAAQS.

The relevant source in Atascosa County had an emission increase from the previous year. Table 2 shows the average Atascosa County SO_2 emissions data used in the 2012-2014 designation modeling. Table 2 also shows the average emissions data for years 2018-2020, which would likely be used for any new modeling initiated to reevaluate compliance with the 2010 SO_2 NAAQS. The comparison shows that the Atascosa County 2018-2020 average emissions data exceeds the average of the 2012-2014 emissions data used for designation modeling by 1,469 tons per year. This represents a 16.4 percent (%) increase over the 2012-2014 emissions modeled for the original designation. A conservative assumption to account for the increase in emissions would be to multiply (increase) the previous design value (111.5 micrograms per cubic meter [$\mu g/m^3$]), which includes a background concentration, by 16.4%. This results in an increase in the previously modeled concentration to 129.8 $\mu g/m^3$. This is well below the 2010 SO_2 NAAQS (196.4 $\mu g/m^3$) and the increase of SO_2 emissions would not be expected to change the attainment/unclassifiable designation determined from the original modeling.

For any area where SO_2 monitoring was conducted to characterize air quality pursuant to 40 CFR Section 51.1203, the TCEQ continues to operate the monitor(s) used to meet those requirements and reports quality assured data pursuant to existing ambient monitoring regulations, unless the monitor(s) have been approved for shut down by the EPA Regional Administrator pursuant to 40 CFR Section 51.1203(c)(3) or 40 CFR Section 58.14.

The TCEQ recommends that no additional SO_2 air quality modeling is needed to determine compliance with the 2010 SO_2 NAAQS for any of the seven Texas counties listed in Table 1.

Appendix F: Sulfur Dioxide Ongoing Data Requirements Annual Report

Table 1: 2019 to 2020 Emissions Comparisons

County	Relevant Source	2019 SO_2 (tpy)	2020 SO_2 (tpy)	Difference 2019 to 2020	Cause for Emission Increase
Atascosa	San Miguel Electric Plant	8,940	10,412	1,472	Increased operation
Fort Bend	W.A. Parish Electric Generating Station	28,828	23,866	-4,962	NA
Goliad	Coleto Creek Power Station	11,264	7,943	-3,321	NA
Lamb	Tolk Station Power Plant	7,225	4,660	-2,564	NA
Limestone	Limestone Electric Generating Station	5,686	4,921	-765	NA
Robertson	Twin Oaks Power Station	2,408	2,373	-35	NA
Wilbarger	Oklaunion Power Station	1,779	748	-1,031	NA

NA – not applicable
SO_2 – sulfur dioxide
tpy – tons per year

Table 2: Average Emissions Comparison

County	Relevant Source	2012-2014 SO_2 Average (tpy)	2018-2020 SO_2 Average (tpy)	Three Year Average SO_2 Comparison Change
Atascosa	San Miguel Electric Plant	8,942	10,411	1,469

SO_2 – sulfur dioxide
tpy – tons per year

Appendix G

Total Suspended Particulate Lead Monitor Requirements and Count Summary

Texas Commission on Environmental Quality
2022 Annual Monitoring Network Plan

Appendix G: Total Suspended Particulate Lead Monitor Requirements and County Summary

Metropolitan Statistical Area	County	Pb Source (Facility Name) or Monitoring Requirement	2020 Pb Source Emissions (tpy)	2019 Pb Source Emissions (tpy)	2018 Pb Source Emissions (tpy)	Site Name	Required Monitors[1]	Existing Monitors[1]
Dallas-Fort Worth-Arlington							3	3
	Collin	Maintenance Area	NA	NA	NA	Frisco Eubanks[1,2]	1	1
	Collin	Maintenance Area	NA	NA	NA	Frisco Stonebrook[2]	1	1
	Kaufman	Conecsus, LLC	0.1779	0.1804	0.2812	Terrell Temtex[1]	1	1
Totals							**3**	**3**

[1]Collocated quality control monitors are not included in totals.

[2]Monitor required to fulfill State Implementation Plan commitments.

LLC - Limited Liability Company

NA - not applicable

Pb - lead

tpy - tons per year

Appendix H

Ozone Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
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Appendix H: Ozone Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2020 Population Estimates[1]	2018-2020 8-Hour Design Value (ppm)	Design Value as Percent of NAAQS[2]	Total Required SLAMS Monitors	Total Required NCore/PAMS Monitors	Total Required Monitors[3]	Total Existing Monitors[4]
Dallas-Fort Worth-Arlington	7,694,138	0.076	109%	3	1	4	18
Houston-The Woodlands-Sugar Land	7,154,478	0.079	113%	3	1	4	21
San Antonio-New Braunfels	2,590,732	0.072	103%	2	0	2	3
Austin-Round Rock-Georgetown	2,295,303	0.065	93%	2	0	2	2
McAllen-Edinburg-Mission	875,200	0.055	79%	1	0	1	1
El Paso	846,192	0.076	109%	2	1	3	7
Killeen-Temple	468,453	0.067	96%	2	0	2	2
Corpus Christi	430,217	0.061	87%	2	0	2	2
Brownsville-Harlingen	424,180	0.057	81%	1	0	1	1
Beaumont-Port Arthur	391,310	0.068	97%	2	0	2	7
Lubbock	326,364	NA	NA	0	0	0	0
Longview	287,105	0.063	90%	1	0	1	2
Laredo	277,681	0.059	84%	0	0	0	1
Waco	277,005	0.064	91%	1	0	1	1
College Station-Bryan	268,224	NA	NA	0	0	0	0
Amarillo	265,761	NA	NA	0	0	0	0
Tyler	235,806	0.065	93%	1	0	1	1
Midland	183,679	NA	NA	0	0	0	0
Abilene	173,185	NA	NA	0	0	0	0
Odessa	167,701	NA	NA	0	0	0	0
Wichita Falls	152,485	NA	NA	0	0	0	0
Texarkana	148,838	NA	NA	0	0	0	0
Sherman-Denison	138,318	NA	NA	0	0	0	0
San Angelo	122,889	NA	NA	0	0	0	0
Victoria	99,562	0.062	89%	1	0	1	1
Granbury[5]	63,527	0.066	94%	0	0	0	1
Corsicana[5]	50,694	0.063	90%	0	0	0	1
Totals				**24**	**3**	**27**	**72**

[1]United States Census Bureau population estimates as of July 1, 2020. Metropolitan and Micropolitan Statistical Areas Totals: 2010-2020 (census.gov)
[2]2015 eight-hour ozone National Ambient Air Quality Standard (NAAQS) is 0.070 parts per million (ppm).
[3]Total Required Monitors is a sum of requirements for SLAMS, PAMS, and NCore.
[4]Monitors may fulfill multiple monitoring requirements and are only counted once.
[5]Area is classified as a micropolitan statistical area and is not subject to SLAMS requirements.
NA - not applicable
NCore - National Core Multipollutant Monitoring Stations
PAMS - Photochemical Assessment Monitoring Stations
SLAMS - State or Local Air Monitoring Stations
Core Based Statistical Areas are delineated by the United States Office of Management and Budget Delineation Files (census.gov)

Appendix I

Carbon Monoxide Monitor Requirements and Count Summary

Texas Commission on Environmental Quality
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Appendix I: Carbon Monoxide Monitor Requirements and Count Summary

Core Based Statistical Area[1]	2020 Population Estimates	Site Name	Required CO NCore Monitors	Required CO Near-Road Monitors	Total Required Monitors[3]	Total Existing Monitors[4]
Dallas-Fort Worth-Arlington	7,694,138		1	1	2	2
		Dallas Hinton[5]	1	0	1	1
		Fort Worth California Parkway	0	1	1	1
Houston-The Woodlands-Sugar Land	7,154,478		1	1	2	3
		Clinton[5]	0	0	0	1
		Houston Deer Park #2[5]	1	0	1	1
		Houston North Loop	0	1	1	1
San Antonio-New Braunfels	2,590,732		0	1	1	1
		San Antonio Interstate 35	0	1	1	1
Austin-Round Rock-Georgetown	2,295,303		0	1	1	1
		Austin North Interstate 35	0	1	1	1
El Paso	846,192		1	0	1	3
		El Paso Chamizal[5]	1	0	1	1
		El Paso UTEP	0	0	0	1
		Ojo De Agua	0	0	0	1
Laredo	277,681		0	0	0	1
		Laredo Vidaurri	0	0	0	1
Waco	277,005		0	0	0	1
		Waco Mazanec	0	0	0	0
Totals			**3**	**4**	**7**	**12**

[1]This list does not include core based statistical areas with zero requirements and zero monitors.
United States Census Bureau population estimates as of July 1, 2020.
Metropolitan and Micropolitan Statistical Areas Totals: 2010-2020 (census.gov)
[3]Total Required Monitors is a sum of requirements for NCore and Near-Road.
[4]Monitors may fulfill multiple monitoring requirements and are only counted once.
[5]High-Sensitivity CO monitor
- number
CO - carbon monoxide
NCore - National Core Multipollutant Monitoring Stations
UTEP – University of Texas at El Paso

Appendix J

Particulate Matter of 10 Micrometers or Less Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
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Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Requirements and Count Assessment

Table 1: Particulate Matter of 10 Micrometers or Less Monitoring Requirements Assessment and Monitor Locations[1]

Metropolitan Statistical Area	2020 Population Estimates[2]	Site Name	2018-2020 Maximum Concentration (µg/m³)	Percent of NAAQS[3] (%)	Required Monitors[4]	Existing Monitors[4]
Dallas-Fort Worth-Arlington	7,694,138		125	83	4-8	3
		Convention Center (collocated QC pair)	125	83		
		Dallas Bexar Street[5] (monitor deployed September 2021)	NA	NA		
		Dallas Hinton (monitor planned in 2022)	NA	NA		
		Earhart	97	65		
Houston-The Woodlands-Sugar Land	7,154,478		133	89	4-8	5
		Clinton (collocated QC pair)	122	81		
		2022)	NA	NA		
		Houston Monroe	97	65		
		Houston North Wayside[5] (monitor deployed September 2021, non-NAAQS comparable)	NA	NA		
		Lang	101	67		
		Texas City Fire Station	133	89		
San Antonio-New Braunfels	2,590,732		87	58	1-2	2
		San Antonio Bulverde Parkway[5]	87	58		
		Frank Wing Municipal Court	117	78		
Austin-Round Rock-Georgetown	2,295,303		97	65	1-2	2
		Austin Webberville Road	97	65		
		Austin Audubon Society	90	60		
McAllen-Edinburg-Mission	875,200		97	65	1-2	1
		Mission	97	65		
El Paso	846,192		137	129	4-8	5
		El Paso Mimosa (previously Riverside)	126	84		
		El Paso Chamizal (monitor planned in 2022)	NA	NA		
		Ivanhoe	142	95		
		Ojo De Agua (collocated QC pair)	137	91		
		Socorro Hueco (collocated QC pair)	194	129		
		Van Buren	134	89		
Killeen-Temple	468,453		NA	0	0-1	0

Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2020 Population Estimates[2]	Site Name	2018-2020 Maximum Concentration (µg/m^3)	Percent of NAAQS[3] (%)	Required Monitors[4]	Existing Monitors[4]
Corpus Christi	430,217		133	89	1-2	1
		Dona Park	133	89		
Brownsville-Harlingen	424,180		NA	0	0-1	0
Beaumont-Port Arthur	391,310		NA	0	0-1	0
Lubbock	326,364		NA	0	0-1	0
Longview	287,105		NA	0	0-1	0
Laredo	277,681		81	54	0-1	2
		Laredo Vidaurri	81	54		
		Laredo Bridge	76	51		
Waco	277,005		NA	0	0-1	0
College Station-Bryan	268,224		NA	0	0-1	0
Amarillo	265,761		NA	0	0-1	0
Totals					**16-41**	**21**

[1]This list doesn't include metropolitan statistical areas with zero requirements and zero monitors.
[2]United States Census Bureau population estimates as of July 1, 2020.
[3]Current PM_{10} NAAQS is 150 micrograms per cubic meter (µg/m^3).
[4]collocated QC quality control monitors are not counted.
[5]Monitor deployed 2020-2021, incomplete design values are not used for regulatory compliance.
% - percent
NAAQS - National Ambient Air Quality Standards
PM_{10} - particulate matter of 10 micrometers or less
µg/m3 - micrograms per cubic meter
Core Based Statistical Areas are delineated by the United States Office of Management and Budget

Metropolitan and Micropolitan Statistical Areas Totals: 2010-2020 (census.gov)

Delineation Files (census.gov)

Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Requirements and Count Assessment

Table 2: Particulate Matter of 10 Micrometers or Less Monitor Concentrations

Site Name	2018-2020 Maximum Concentration (µg/m³)	2020 Annual Mean Concentration (µg/m³)	2019 Annual Mean Concentration (µg/m³)2	2018 Annual Mean Concentration (µg/m³)
Socorro Hueco (collocated QC pair)*	194	39	33	34
Clinton (collocated QC pair)*	122	30	28	29
Ivanhoe	142	32	27	21
El Paso Mimosa (previously Riverside)[3]	126	45	26	29
Van Buren	134	27	26	30
Laredo Vidaurri	81	25	25	25
Mission	97	25	24	24
Laredo Bridge	76	22	21	22
Houston Monroe	97	22	21	23
Convention Center (collocated QC pair)	125	22	20	25
Austin Webberville Road	89	25	20	23
Ojo De Agua (collocated QC pair)	137	22	20	24
Frank Wing Municipal Court	91	23	19	21
Lang	101	22	19	22
Earhart	97	21	19	24
Texas City Fire Station	133	21	17	21
Dona Park	133	21	17	20
Austin Audubon Society	90	17	12	18
San Antonio Bulverde Parkway[2] (previously Selma)	87	20	NA	NA
Houston North Wayside[2](non-NAAQS comparable)	NA	NA	NA	NA

[1]Highest annual mean concentrations, confirms at least half of collocated quality control (QC) monitoring occurs at network sites among the highest.
[2]New monitor deployed in 2020-2021, resulting in incomplete design value. Incomplete design values are not used for regulatory compliance.
[3]2020 data effected by road construction
QC - quality control
NAAQS - National Ambient Air Quality Standard
µg/m³ - micrograms per cubic meter

Appendix K

Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
2022 Annual Monitoring Network Plan

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Table 1: Particulate Matter of 2.5 Micrometers or Less Monitor Requirement and Count Summary

Metropolitan Statistical Area	2020 Population Estimates[1]	2018-2020 DV (μg/m^3) Annual (for Area)	2018-2020 DV (μg/m^3) 24-Hour (for Area)	Percent of NAAQS Annual[2] (for Area)	Percent of NAAQS 24-Hour[3] (for Area)	Required FRM/ FEM Monitors	Required NCore Monitors	Required Near-Road Monitors	Total Required Monitors[4]	Total Existing Monitors[4]
Dallas-Fort Worth-Arlington	7,694,138	9.1	20	76	57	2	4	1	7	14
Houston-The Woodlands-Sugar Land	7,154,478	10.6	27	88	77	3	4	1	8	17
San Antonio-New Braunfels	2,590,732	8.4	21	70	60	2	0	1	3	5
Austin-Round Rock-Georgetown	2,295,303	9.8	23	82	66	2	0	1	3	3
McAllen-Edinburg-Mission	875,200	10.8	29	90	83	2	0	0	2	2
El Paso	846,192	8.7	24	73	69	1	4	0	5	8
Killeen-Temple[5]	468,453	8.0	19	67	54	0	0	0	0	1
Corpus Christi	430,217	9.0	24	75	69	0	0	0	0	4
Brownsville-Harlingen	424,180	9.9	25	83	71	0	0	0	0	2
Beaumont-Port Arthur[5]	391,310	9.6	22	80	63	0	0	0	0	3
Lubbock[5]	326,364	5.9	17	49	49	0	0	0	0	1
Longview	287,105	8.5	18	71	51	0	0	0	0	2
Laredo[5]	277,681	10.1	27	84	77	0	0	0	0	1
Waco	277,005	NA	NA	NA	NA	0	0	0	0	1
Amarillo[5]	265,761	5.5	12	46	34	0	0	0	0	1
College Station-Bryan[5]	268,224	NA	NA	NA	NA	0	0	0	0	1
Odessa[5]	167,701	7.8	20	65	57	0	0	0	0	1
Texarkana	148,838	0.0	0	0	0	0	0	0	0	1
Eagle Pass[5,6]	58,378	7.7	23	64	66	0	0	0	0	1
Corsicana[6]	50,694	NA	NA	NA	NA	0	0	0	0	1
Kingsville[5,6]	30,717	9.9	27	83	77	0	0	0	0	1
Big Bend National Park[5,7]	NA	5.7	14	48	40	0	0	0	0	1
Totals*						**12**	**12**	**4**	**28**	**72**

[1]United States Census Bureau population estimates as of July 1, 2020. Metropolitan and Micropolitan Statistical Areas Totals: 2010-2020 (census.gov)
[2]Current $PM_{2.5}$ Annual NAAQS is 12.0 micrograms per cubic meter (μg/m^3).
[3]Current $PM_{2.5}$ 24-hour NAAQS is 35 μg/m^3.
[4]Individual monitors may fulfill multiple requirements and are only counted once. Collocated quality control monitors are not included in totals.
[5]Annual values do not meet completeness criteria; monitors deployed in 2018 to 2021. Incomplete design value information is not used for the purposes of regulatory compliance.
[6]Area is classified as a micropolitan statistical area and is not subject to SLAMS requirements.
[7]Area not classified as a metropolitan or micropolitan statistical area.
This list does not include metropolitan statistical areas with no requirement and no monitors.
DV - design value
FEM - federal equivalent method
FRM - federal reference method
NA - not applicable
NAAQS - National Ambient Air Quality Standards
NCore - National Core Multipollutant Monitoring Stations
μg/m^3 - micrograms per cubic meter

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Table 2: Particulate Matter of 2.5 Micrometers or Less Monitor Design Value, Location, Monitor Type[1], and Requirements Assessment

Metropolitan Statistical Area	2020 Population Estimates[2]	Site Name	Monitor Type(s)	2018-2020 Annual DV (µg/m^3)	2018-2020 24-Hour DV (µg/m^3)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Required SLAMS FRM/FEM Monitor[5]	Continuous Monitor[6]	Continuous Requirement Met[6]	Required NCore Monitor	Required Near-Road Monitor	Total Required Monitors[5]	Total Existing Monitors[5]
Dallas-Fort Worth-Arlington	7,694,138			9.1	20	76	57	2	9	Y	4	1	7	14
		Convention Center	BAM 1022 (NEW!)	9.1	19	76	54	1	1		0	0	1	1
		Dallas Hinton (collocated QC pair)	Partisol 2025, BAM1020 PM2.5, BAM1020 PM10-2.5, SASS/URG Speciation[7] (Partisol 2025 QC)	8.9	20	74	57	0	1		4	0	4	4
		Dallas Bexar	TEOM[8] (planned PM2.5 FEM continuous)	NA	NA	NA	NA	0	1		0	0	0	1
		Denton Airport South[9]	BAM 1022	7.5	14	63	40	0	1		0	0	0	1
		Fort Worth California Parkway North (collocated QC pair)	BAM 1022 (BAM 1022 QC)	8.4	18	70	51	0	1		0	1	1	1
		Fort Worth Northwest	BAM 1022	9.0	18	75	51	1	1		0	0	1	1
		Haws Athletic Center	BAM 1022	8.6	18	72	51	0	1		0	0	0	1
		Kaufman[9]	BAM 1022 (NEW!)	NA	NA	NA	NA	0	1		0	0	0	1
		Midlothian OFW	Partisol 2025[9], TEOM[8] (planned PM2.5 FEM continuous), URG/2025 Speciation	7.9	19	66	54	0	1		0	0	0	3
Houston-The Woodlands-Sugar Land	7,154,478			10.6	27	88	77	3	12	Y	4	1	8	17
		Baytown	BAM 1022	9.3	22	78	63	1	1		0	0	1	1
		Clinton (collocated QC pair)	Partisol 2025, TEOM[8] (planned PM2.5 FEM continuous), Partisol 2025 Speciation (Partisol 2025 QC)	10.4	22	87	63	1	1		0	0	1	3

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2020 Population Estimates[2]	Site Name	Monitor Type(s)	2018-2020 Annual DV (µg/m³)	2018-2020 24-Hour DV (µg/m³)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Required SLAMS FRM/FEM Monitor[5]	Continuous Monitor[6]	Continuous Requirement Met[6]	Required NCore Monitor	Required Near-Road Monitor	Total Required Monitors[5]	Total Existing Monitors[5]
		Conroe Relocated[9]	BAM 1022	NA	NA	NA	NA	0	1		0	0	0	1
		Galveston 99th Street	BAM 1022	7.7	22	64	63	0	1		0	0	0	1
		Houston Aldine (collocated QC pair)	BAM 1022 (Partisol 2025 QC)	9.8	27	82	77	1	1		0	0	1	1
		Houston Bayland Park	BAM 1022[9] (NEW!)	NA	NA	NA	NA	0	1		0	0	0	1
		Houston Deer Park #2 (speciation collocated QC pair[7])	Partisol 2025, BAM 1020 PM2.5, BAM 1020 PM10-2.5, SASS/URG Speciation[7] (SASS/URG Speciation QC[7])	8.4	21	70	60	0	1		4	0	4	4
		Houston East	BAM 1022	10.3	23	86	66	0	1		0	0	0	1
		Houston North Loop	BAM 1022	10.6	23	88	66	0	1		0	1	1	1
		Houston North Wayside[9]	BAM 1022	NA	NA	NA	NA	0	1		0	0	0	1
		Houston Westhollow[9]	BAM 1022	NA	NA	NA	NA	0	1		0	0	0	1
		Seabrook Friendship Park[9]	BAM 1022	NA	NA	NA	NA	0	1		0	0	0	1
San Antonio-New Braunfels	2,590,732			8.4	21	70	60	2	5	Y	0	1	3	5
		Calaveras Lake[9]	BAM 1022	7.5	28	63	80	1	1		0	0	1	1
		Old Highway 90	TEOM 1405[8] (planned PM2.5 FEM continuous)	NA	NA	NA	NA	0	1		0	0	0	1
		San Antonio Interstate 35[9]	BAM 1022	8.4	27	70	77	0	1		0	1	1	1
		San Antonio Northwest (collocated QC pair)	BAM 1022 (Partisol 2025 QC)	8.4	21	70	60	1	1		0	0	1	1
		Von Ormy Highway 16 (previously Palo Alto)[9]	BAM 1022	NA	NA	NA	NA	0	1		0	0	0	1

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2020 Population Estimates[2]	Site Name	Monitor Type(s)	2018-2020 Annual DV (µg/m³)	2018-2020 24-Hour DV (µg/m³)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Required SLAMS FRM/FEM Monitor[5]	Continuous Monitor[6]	Continuous Requirement Met[6]	Required NCore Monitor	Required Near-Road Monitor	Total Required Monitors[5]	Total Existing Monitors[5]
Austin-Round Rock-Georgetown	2,295,303			9.8	23	82	66	2	3	Y	0	1	3	3
		Austin North Interstate 35	BAM 1022	9.3	22	78	63	1	1		0	1	2	1
		Austin North Hills Drive (previously Austin Northwest)[9]	BAM 1022	NA	NA	NA	NA	0	1		0	0	0	1
		Austin Webberville Road (collocated QC pair)	BAM 1022 (Partisol 2025 QC)	9.6	23	80	66	1	1		0	0	1	1
McAllen-Edinburg-Mission	875,200			10.8	29	90	83	2	2	Y	0	0	2	2
		Edinburg East Freddy Gonzalez Drive	BAM 1022 (NEW!)	10.1	29	84	83	1	1		0	0	1	1
		Mission	BAM 1022	10.8	28	90	80	1	1		0	0	1	1
El Paso	846,192			8.7	24	73	69	1	4	Y	4	0	5	8
		Ascarate Park SE	TEOM[8] (planned PM2.5 FEM continuous)	NA	NA	NA	NA	0	1		0	0	0	1
		El Paso Chamizal	Partisol 2025, BAM 1020 PM2.5, BAM 1020 PM10-2.5, URG/SASS Speciation[7]	8.8	24	73	69	0	1		4	0	4	4
		El Paso UTEP	Partisol 2025, TEOM[8] (planned PM2.5 FEM continuous)	7.5	21	63	60	1	1		0	0	1	2
		Socorro Hueco	TEOM[8] (planned PM2.5 FEM continuous)	NA	NA	NA	NA	0	1		0	0	0	1
Killeen-Temple[9]	468,453			8.0	19	67	54	0	1	NA	0	0	0	1
		Temple Georgia[9]	BAM 1022	8.0	19	67	54	0	1		0	0	0	1

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2020 Population Estimates[2]	Site Name	Monitor Type(s)	2018-2020 Annual DV (µg/m³)	2018-2020 24-Hour DV (µg/m³)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Required SLAMS FRM/FEM Monitor[5]	Continuous Monitor[6]	Continuous Requirement Met[6]	Required NCore Monitor	Required Near-Road Monitor	Total Required Monitors[5]	Total Existing Monitors[5]
Corpus Christi	430,217			9.0	24	75	69	0	2	NA	0	0	0	4
		Corpus Christi Huisache (collocated QC pair)	BAM 1022 (BAM 1022 QC)	8.8	24	73	69	0	1		0	0	0	1
		Dona Park[9] (collocated QC pair)	BAM 1022 (NEW!), (Partisol 2025 QC/speciation), URG/2025 Speciation	8.4	23	70	66	0	1		0	0	0	3
Brownsville-Harlingen	424,180			9.9	25	83	71	0	2	NA	0	0	0	2
		Brownsville	BAM 1022	10.1	25	84	71	0	1		0	0	0	1
		Isla Blanca State Park Road[9]	BAM 1022	10.5	20	88	57	0	1		0	0	0	1
Beaumont-Port Arthur[9]	391,310			9.6	22	80	63	0	3	NA	0	0	0	3
		Hamshire[9]	BAM 1022	8.4	21	70	60	0	1		0	0	0	1
		Port Arthur Memorial School (collocated QC pair)	BAM 1022, (BAM 1022 QC)	9.1	21	76	60	0	1		0	0	0	1
		SETRPC 42 Mauriceville	BAM 1022	9.1	22	76	63	0	1		0	0	0	1
Lubbock[9]	326,364			5.9	17	49	49	0	1	NA	0	0	0	1
		Lubbock 12th Street[9]	BAM 1022	5.9	17	49	49	0	1		0	0	0	1
Longview	287,105			8.5	18	71	51	0	1	NA	0	0	0	2
		Karnack	BAM 1022, URG/SASS Speciation[7]	8.4	18	70	51	0	1		0	0	0	2
Laredo[9]	277,681			10.1	27	84	77	0	1	NA	0	0	0	1
		World Trade Bridge[9]	BAM 1022	10.1	27	84	77	0	1		0	0	0	1

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2020 Population Estimates[2]	Site Name	Monitor Type(s)	2018-2020 Annual DV (µg/m³)	2018-2020 24-Hour DV (µg/m³)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Required SLAMS FRM/FEM Monitor[5]	Continuous Monitor[6]	Continuous Requirement Met[6]	Required NCore Monitor	Required Near-Road Monitor	Total Required Monitors[5]	Total Existing Monitors[5]
Waco	277,005			NA	NA	NA	NA	0	1	NA	0	0	0	1
		Waco Mazanec	TEOM 1405[8]	NA	NA	NA	NA	0	1		0	0	0	1
Amarillo[9]	265,761			5.5	12	46	34	0	1	NA	0	0	0	1
		Amarillo A&M[9]	BAM 1022	5.5	12	46	34	0	1		0	0	0	1
College Station-Bryan[9]	268,224			NA	NA	NA	NA	0	1	NA	0	0	0	1
		Bryan Finfeather Road[9]	BAM 1022	8.1	NA	NA	NA	0	1		0	0	0	1
Odessa[9]	167,701			7.8	20	65	57	0	1	NA	0	0	0	1
		Odessa Gonzales[9]	BAM 1022	7.8	20	65	57	0	1		0	0	0	1
Texarkana	148,838							0	1	NA	0	0	0	1
		Texarkana New Boston	BAM 1022	9.4	19	78	54	0	1		0	0	0	1
Eagle Pass[9,10]	58,378			7.7	23	64	66	0	1	NA	0	0	0	1
		Eagle Pass[9]	BAM 1022	7.7	23	64	66	0	1		0	0	0	1
Corsicana[10]	50,694			NA	NA	NA	NA	0	1	NA	0	0	0	1
		Corsicana Airport[9]	BAM 1022 (NEW!)	NA	NA	NA	NA	0	1		0	0	0	1
Kingsville[9,10]	30,717			9.9	27	83	77	0	1	NA	0	0	0	1
		National Seashore[9]	BAM 1022	9.9	27	83	77	0	1		0	0	0	1

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2020 Population Estimates[2]	Site Name	Monitor Type(s)	2018-2020 Annual DV (µg/m^3)	2018-2020 24-Hour DV (µg/m^3)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Required SLAMS FRM/FEM Monitor[5]	Continuous Monitor[6]	Continuous Requirement Met[6]	Required NCore Monitor	Required Near-Road Monitor	Total Required Monitors[5]	Total Existing Monitors[5]
Big Bend National Park[9,11]	NA			5.7	14	48	40	0	1	NA	0	0	0	1
		Bravo Big Bend[9]	BAM 1022	5.7	14	48	40	0	1		0	0	0	1
Totals								**12**	**55**	**Y**	**12**	**4**	**28**	**72**

[1]This list does not include metropolitan statistical areas with no requirements and no monitors.
[2]United States Census Bureau population estimates as of July 1, 2020. Metropolitan and Micropolitan Statistical Areas Totals: 2010-2020 (census.gov)
[3]Current $PM_{2.5}$ Annual NAAQS is 12.0 µg/m^3.
[4]Current $PM_{2.5}$ 24-hour NAAQS is 35 µg/m^3.
[5]Individual monitors may fulfill multiple requirements and are only counted once. Collocated quality control monitors are not included in totals.
[6]Continuous $PM_{2.5}$ monitor total must equal at least one-half the required number of SLAMS-required sites and each MSA with SLAMS-required sites must have a minimum of one.
[7]Speciation monitor for NCore or Chemical Speciation Network (CSN)
[8]$PM_{2.5}$ TEOM monitors are non-FEM/FRM (non-NAAQS comparable)
[9]Annual values do not meet completeness criteria; monitors deployed in 2018 - 2021. Incomplete design value (gray font) information is not used for regulatory compliance.
[10]Area is classified as a micropolitan statistical area and is not subject to SLAMS requirements.
[11]Area not classified as a metropolitan or micropolitan statistical area.
- number
DV - design value
FEM - federal equivalent method
FRM - federal reference method
NA - not applicable
NAAQS - National Ambient Air Quality Standards
NCore - National Core Multipollutant Monitoring Stations require $PM_{2.5}$ FRM mass, $PM_{2.5}$ FEM continuous mass, $PM_{10-2.5}$ and $PM_{2.5}$ CSN speciation
N - no
OFW - Old Fort Worth
$PM_{2.5}$ FRM mass method code 145 by Partisol 2025 or 2025i
$PM_{2.5}$ FEM mass method codes 170 and 209 by beta attenuation method (BAM)1020 or 1022
$PM_{2.5}$ non-regulatory mass method code 702 by tapered element oscillating microbalance (TEOM)
$PM_{2.5}$ speciation method codes 810, 811, 812, 826, 831, 838, 839, 840, 841, 842, 846, and 849
$PM_{10-2.5}$ method code 185 by BAM1020
QC - quality control
SASS - second generation speciation sampling system (for CSN only)
SETRPC - Southeast Texas Regional Planning Commission
SE - southeast
SLAMS - State or Local Air Monitoring Stations
URG - University Research Glassware speciation sampler
UTEP - University of Texas at El Paso
Y - yes
µg/m^3 - micrograms per cubic meter
Core Based Statistical Areas are delineated by the United States Office of Management and Budget Delineation Files (census.gov)

Appendix L

Volatile Organic Compound and Carbonyl Monitor Requirements and Count Summary

Texas Commission on Environmental Quality
2022 Annual Monitoring Network Plan

Appendix L: Volatile Organic Compound and Carbonyl Monitor Requirement and Count Summary

Table 1: Volatile Organic Compound Monitor Requirement and Count Summary

Core Based Statistical Area[1]	Required PAMS VOC AutoGC Monitors	Existing VOC Canister Monitors	Existing VOC AutoGC Monitors	Total Existing VOC Monitors
Dallas-Fort Worth-Arlington	1	3	2	5
Houston-The Woodlands-Sugar Land	1	0	3	3
El Paso	0	0	1	1
Beaumont-Port Arthur	0	0	2	2
Laredo	0	1	0	1
Totals	**2**	**4**	**8**	**12**

[1]This list does not include core based statistical areas with zero requirements and zero monitors.
AutoGC – automated gas chromatograph
PAMS – Photochemical Assessment Monitoring Stations
VOC – volatile organic compound

Table 2: Carbonyl Monitor Requirement and Count Summary

Core Based Statistical Area[1]	Required PAMS Carbonyl Samplers	Total Existing Carbonyl Samplers
Dallas-Fort Worth-Arlington	1	2
Houston-The Woodlands-Sugar Land	1	2
Totals	**2**	**4**

[1]This list does not include core based statistical areas with zero requirements and zero monitors.
PAMS – Photochemical Assessment Monitoring Stations

Appendix M

TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

Texas Commission on Environmental Quality
2022 Annual Monitoring Network Plan

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

Introduction

As required under Title 40 Code of Federal Regulations (40 CFR) Section 58.10, the Texas Commission on Environmental Quality (TCEQ) posted the draft *2022 Annual Monitoring Network Plan* (AMNP or Plan) for public inspection for 30 days prior to submittal to the United States Environmental Protection Agency (EPA). The draft 2022 AMNP provided information on the current TCEQ ambient air monitoring network established to determine compliance with federal monitoring requirements specified in 40 CFR Part 58 and its appendices. This document presented the current federal network established for use in evaluations to determine compliance with the National Ambient Air Quality Standards (NAAQS) and to meet federal monitoring requirements and objectives. This Plan is limited to the portion of the TCEQ air monitoring network designed to comply with federal monitoring requirements and supported by federal funding. This document includes the recommended federal monitoring network changes from July 1, 2021, through December 31, 2023.The TCEQ also operates a robust network of state-initiative monitors that support a variety of purposes, including potential health effects evaluation; however, these monitors are outside the scope of this document and are not included.

The TCEQ continues to evaluate additional ambient air monitoring requested during previous AMNP public inspection and comment periods. Details regarding the potential monitors under consideration were included in the Additional Monitoring Considerations section of the Plan to solicit further public comment. Any future implementation of these monitoring considerations may be included as part of the TCEQ federal ambient air monitoring network or as state-initiative monitors. The monitoring proposal under consideration (see AMNP section Additional Monitoring Considerations), and the proposal and implementation of said proposal are subject to change.

During the public comment period from April 25, 2022, to May 24, 2022, the TCEQ received 22 individual comments (several regarding multiple topics) on the posted document. Comments received by the TCEQ relating to the TCEQ federal ambient air quality network, as described in the Plan, are addressed in this appendix. No changes to the 2022 AMNP were made in response to the comments.

Comment Summaries and TCEQ Responses

Comment 1: Air Alliance Houston (AAH) appreciated the opportunity to provide comment on the TCEQ draft AMNP, recognized the draft Plan met the federal requirements outlined in 40 CFR Part 58.10 and corresponding appendices, and that the network included more than double the number of monitors required by federal rule. AAH supported the three new proposed Houston area monitors in the Fifth Ward, Bayland Park, and Pleasantville neighborhoods. AAH strongly recommended that the TCEQ involve the community residents to determine the site locations of the Fifth Ward and Pleasantville particulate matter of 2.5 micrometers or less in diameter ($PM_{2.5}$) and particulate matter of 10 micrometers or less in diameter (PM_{10}) air

monitoring sites. AAH applauded TCEQ's efforts to monitor ambient air quality at levels exceeding federal requirements and adding regulatory monitors in two of Houston's environmental justice communities.

Response 1: The TCEQ appreciates the comments and support from AAH regarding the three new Houston area monitors proposed in the Fifth Ward, Bayland Park, and Pleasantville neighborhoods. The TCEQ has met with multiple community members to discuss potential site locations for the new Fifth Ward and Pleasantville air monitoring stations and will continue to work with the community and area property owners to identify site locations that meet federal siting criteria and logistical factors while ensuring sensitive population concerns are addressed.

Comment 2: AAH recommended that the TCEQ apply an environmental justice analysis to its ambient air monitoring planning pursuant to the EPA's recommendation in its response to the TCEQ's 2021 AMNP, as AAH did not see this evaluation in the draft Plan. AAH commented that the TCEQ must make a conscious effort to take environmental justice into account when making administrative decisions, including ambient air monitoring decisions. AAH recommended the TCEQ create reports on how monitor data was applied to address local polluters and if the monitoring branch considered this outside their scope of work, the appropriate staff should be tasked.

Response 2: The TCEQ acknowledges the AAH recommendation to apply an additional environmental justice analysis to the Plan but notes the inclusion of such an analysis in the Plan is not specifically required by rule under 40 CFR Part 58. Further, the EPA has not provided guidance or criteria on how such an analysis should be performed. While the referenced analysis is not specifically required by rule, the Plan does include examples of air monitoring in fence line communities and underserved areas, such as the Houston Fifth Ward, Houston Pleasantville neighborhood, Houston Ship Channel communities, Charlton-Pollard community in Beaumont, west Port Arthur, and Corpus Christi Ship Channel communities. As stated in the introduction, the 2022 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. Air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring emissions (pollution) from specific sources. Monitoring data reports to address local polluters is outside the scope of the AMNP.

Comment 3: Harris County Pollution Control Services (HCPCS) appreciated the opportunity to submit comments on the TCEQ draft 2022 AMNP. HCPCS appreciated the recent addition of a $PM_{2.5}$ federal equivalent method (FEM) continuous monitor at Houston Bayland Park and indicated it would be beneficial to characterize $PM_{2.5}$ concentrations in the area given the proximity to Interstate 69 and other heavily traveled thoroughfares. HCPCS indicated this location would also benefit the Harris County's Community Air Monitoring Program (CAMP) by providing data for comparison to a CAMP non-FEM laser light scattering particulate matter (PM) monitor located at this site.

HCPCS supported adding a monitoring site to the Houston Fifth Ward with VOCs, $PM_{2.5}$, and PM_{10} due to the proximity of two major interstates and a major rail facility with chemical service. HCPCS also supported the addition of a monitoring site with $PM_{2.5}$ detection capability near the Pleasantville residential area due to the proximity

of Loop 610, Interstate 10, and a brewery to residences and also recommended the addition of a gas chromatograph or similar VOC analyzer at the site due to the proximity of a pipeline terminal and refinery.

HCPCS also supports the addition of a VOC canister sampler to the existing Houston East air monitoring site. HCPCS believes this area can benefit from VOC characterization given the proximity of a residential neighborhood located 1.5 miles from Houston Ship Channel industry.

HCPCS further recommended the addition of a $PM_{2.5}$ FEM continuous monitor in south Houston east of Highway 288, between South Loop 610 and the Sam Houston Tollway. HCPCS noted that the TCEQ currently doesn't have any $PM_{2.5}$ monitors in this area and believes the area could benefit from this monitor given its high population density and numerous concrete batch plant facilities in this area.

Response 3: The TCEQ appreciates the HCPCS comments and support. As demonstrated in the Plan, since 2021, the TCEQ has added an additional three $PM_{2.5}$ monitors in the Houston-The Woodlands-Sugar Land (Houston) metropolitan statistical area (MSA) at the existing Houston Westhollow, Houston North Wayside, and Houston Bayland Park sites and plans to add two new pending sites in the Houston Fifth Ward and Pleasantville neighborhoods. The TCEQ Houston area $PM_{2.5}$ federal monitoring network includes 17 active $PM_{2.5}$ monitors (plus two pending deployment) at 12 area sites to measure ambient $PM_{2.5}$ concentration data. The TCEQ exceeds the Houston area federal requirement for a minimum of eight $PM_{2.5}$ monitors. Houston area air monitoring sites are shown in Figure A below with $PM_{2.5}$ monitors indicated by a dark blue section. The TCEQ will continue to evaluate $PM_{2.5}$ air monitoring needs in the Houston MSA, including in south Houston east of Highway 288, between South Loop 610 and the Sam Houston Tollway, as resources are available.

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

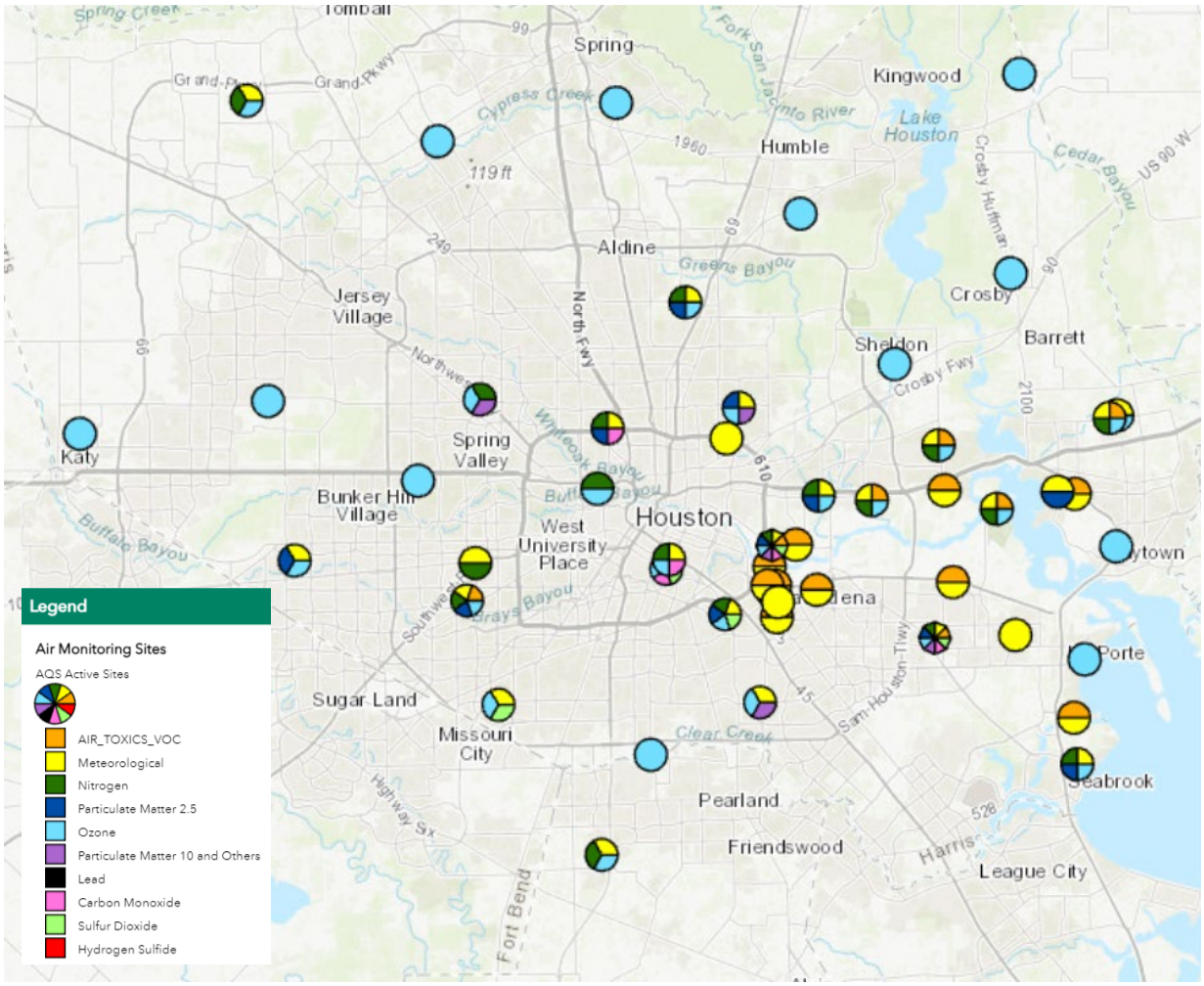

Figure A: Houston Area Active Sites and Ambient Air Monitors

Comment 4: Gunter Clean Air and two individuals commented on the location of an aggregate storage facility and multiple concrete batch plants within a mile of each other around the city of Gunter in North Texas (about 15 miles south of Sherman) and submitted air dispersion modeling regarding the potential impacts of these facilities. It was noted that their air dispersion modeling analysis showed one of the sites exceeding the NAAQS for $PM_{2.5}$, PM_{10}, and nitrogen dioxide (NO_2). It was noted that the modeling analysis predicted that 3500 trucks serviced one of the sites daily and the roads were unpaved and rarely watered. Concerns related to children diagnosed with pollution-related asthma exacerbation and the need for information and warnings for elderly/sensitive populations were also noted. Gunter Clean Air stated that the Purple Air monitors showed high PM levels during batching hours. The commentors requested the TCEQ add an air monitor in their community, strategically placed to monitor the plants and their impact on the air quality.

Response 4: The TCEQ's air monitoring network is designed to measure pollutant concentrations that are representative of regional areas and are generally not sited to assess impacts from specific industrial sources or in response to environmental complaints. Stationary monitors are not intended to assess the emissions from individual sources or the source's compliance with permitted emission limits.

Further, the measurements taken by these monitors measure the impact on air quality from all sources in an area making it impossible to determine an individual source's contribution to measured values. Data from TCEQ's air monitoring network are used to determine compliance with the federal air quality standards, evaluate pollutant trends, forecast daily air quality conditions, perform air quality and human health impact studies, and inform regulatory decisions.

$PM_{2.5}$ is one of the six air pollutants with established federal air quality standards. The $PM_{2.5}$ federal standard is based on two forms: a 24-hour average and an annual average. The TCEQ uses federal reference method or FEM air monitors to measure concentrations of $PM_{2.5}$ in ambient air. Federal air monitoring requirements for $PM_{2.5}$ are based on MSA population, with a minimum population threshold requiring $PM_{2.5}$ monitoring in MSAs of 500,000 or more persons. Gunter, located in the Sherman-Denison MSA, does not trigger $PM_{2.5}$ required monitoring.

The TCEQ acknowledges the data collected through citizen installed Purple Air $PM_{2.5}$ sensors near the Gunter concrete batch plants. These sensors are not federal reference or equivalent methods and tend to produce data of a higher concentration when compared to regulatory-grade monitors. Additionally, the Purple Air sensors collect and report instantaneous measurements that are not appropriate for comparison to the 24-hour or annual average federal standards. The TCEQ has reviewed data collected by the Purple Air sensors in the Gunter community and has not seen evidence in the data that would support the need for additional air monitoring.

Comment 5: Midlothian Breathe and eleven individuals provided comments regarding the Midlothian monitor. Midlothian Breathe and five individuals commented that due to prevailing south/southeasterly winds, the Midlothian Old Fort Worth Road (OFW) air monitor should be moved to the north of Midlothian's main emission point sources. These commenters also expressed that it was unacceptable to not have a working monitor in Midlothian for as long as a full year and an alternate monitor should be placed immediately so residents can be aware of unsafe air quality. These commenters added that since one of the Midlothian facilities was the number one polluter in north Texas and emitted more pollution than the next five largest industries combined, at least one additional monitor was needed in the area with one monitor located to the northeast and one to the northwest of the cement/concrete plants to most accurately capture ambient air quality under the prevailing wind stream. Three additional individuals commented that the Midlothian monitor should be moved downwind of the cement/concrete plants.

One additional individual commented that he stood with the Midlothian Breathe organization and its suggestions regarding the Midlothian monitor placement and stated that if the air quality monitors were placed incorrectly that the true pollution levels would be under reported. One individual commented twice that the Midlothian monitor needed to be located downwind of the biggest pollutant emitter in North Texas, that the current monitor placement was outside of the prevailing wind stream due to the area's predominant wind direction, and it was a greater offense to move the monitor one mile further south. The individual further commented that adequate air monitoring required upwind and downwind data and if there was only one area monitor then to place it in the prevailing wind stream. The individual noted that the Purple Air monitors showed consistently higher readings downwind of the

cement/concrete plants north of the city.

Response 5: The TCEQ appreciates the comments in regard to relocating the Midlothian air monitoring site and will continue to evaluate viable options regarding the best suited location for the relocated Midlothian site. The TCEQ was required to temporarily deactivate the Midlothian air monitoring site due to the property owner revoking the TCEQ's access to the site. The TCEQ will relocate the air monitoring site as expeditiously as possible after evaluating all necessary criteria to determine the best location to relocate the Midlothian air monitoring site and associated monitors.

As discussed above, the TCEQ's air monitoring network is designed to measure pollutant concentrations that are representative of regional areas and are generally not sited to assess impacts from specific industrial sources. Stationary monitors are not intended to assess the emissions from individual sources or the source's compliance with permitted emission limits. Data from the TCEQ's air monitoring network are used to determine compliance with the federal air quality standards, evaluate pollutant trends, forecast daily air quality conditions, perform air quality and human health impact studies, and inform regulatory decisions.

The TCEQ acknowledges that data are collected through citizen installed Purple Air PM sensors in the area. These sensors are not federal reference or equivalent methods and tend to produce data of a higher concentration when compared to regulatory-grade monitors; however, the TCEQ agrees that sensor data can be beneficial when siting ambient air monitors.

Comment 6: One individual commented that Tarrant County had bad air quality per EPA criteria. The individual commented that at least one additional air quality monitor was needed in the industrial southeast side of Fort Worth, Texas. The individual added that TCEQ needed to prioritize air quality monitoring in Tarrant County and that they were disappointed to see no plans in the 2022 report to add additional air monitors for the area. The individual commented that the Midlothian OFW monitor should be moved to the north of the Midlothian emission point sources immediately. The individual also added that the TCEQ should perform its mission to keep the public safe by ensuring the citizens of Tarrant County had monitors installed to check air quality.

Response 6: This AMNP is limited in scope to demonstrating compliance with federal air monitoring requirements under 40 CFR Part 58. As demonstrated in this Plan, the TCEQ is meeting and exceeding all federal monitoring requirements in the Dallas-Fort Worth-Arlington MSA that includes Tarrant County, and therefore, no additional monitors are necessary in Tarrant County. Figure B illustrates the TCEQ Tarrant, Dallas, Johnson, and Ellis County area air monitoring sites. Tarrant County includes 19 federal air monitors at 7 sites, and an additional 5 sites with state-initiative monitoring outside the scope of this document. Relocation of the Midlothian air monitoring station is addressed in Response 5.

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

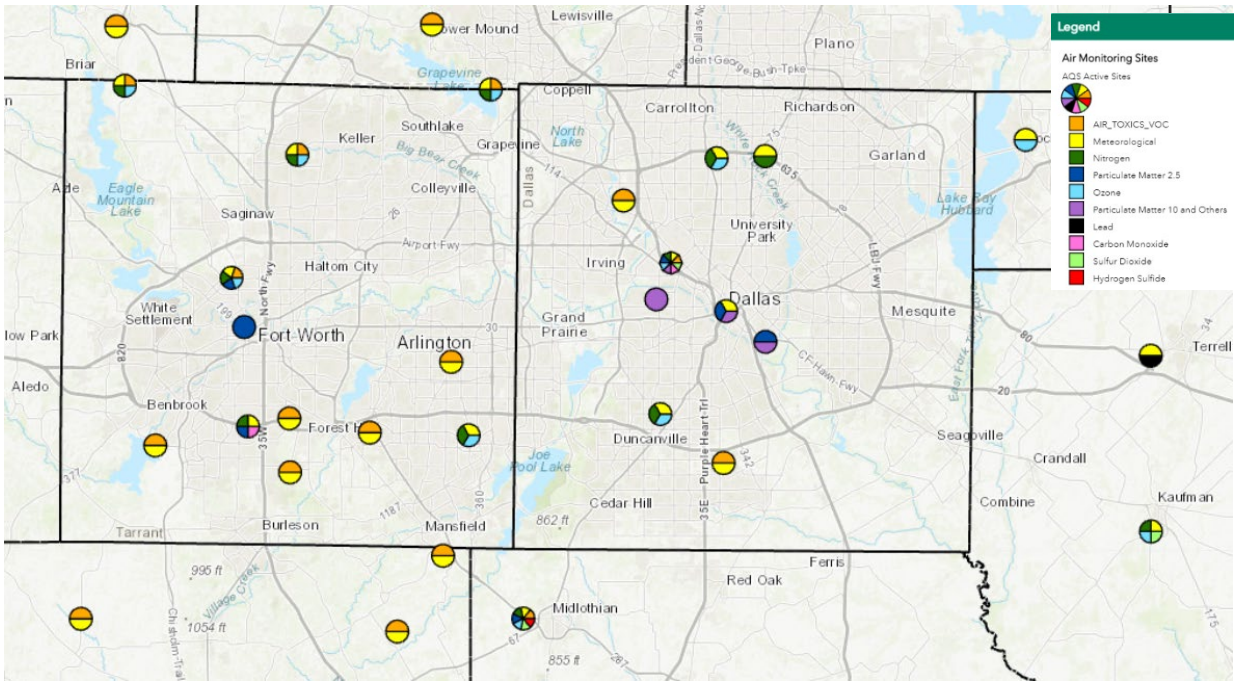

Figure B: Tarrant County Area Active Sites and Ambient Air Monitors

Comment 7: Sierra Club asserted that the TCEQ's draft 2022 Plan must be included in the applicable State Implementation Plan (SIP) revision and should be subject to notice and comment rulemaking The comment stated that the Federal Clean Air Act (CAA) and its implementing regulation make it clear that a State's monitoring plan is part of its SIP, 42 United States Code (USC) Part 7410(a)(2)(B). Sierra Club requested that TCEQ remand the Plan and revise it through notice and comment rulemaking. In addition, the comment states TCEQ's lack of outreach disenfranchises Texas communities deprived of proportionate representation in environmental regulation. The TCEQ's arbitrary refusal and failure to publish air quality monitoring data and the monitoring plan in Spanish and other languages deprives native and non-English speaking communities of air quality and public health information. The Sierra Club requested that the TCEQ hold a public hearing, with Spanish interpretation services available, in Houston or El Paso to afford the public an opportunity to ask questions about the Plan to the TCEQ staff responsible for its creation and implementation.

Response 7: As the Sierra Club is well aware, the 2022 AMNP is not a revision to the SIP subject to notice and comment rulemaking procedures. This was affirmed by the Court of Appeals for the District of Columbia Circuit in a decision issued on May 31, 2019, in the case *Sierra Club v. Environmental Protection Agency*, 925 F.3d 490 (D.C. Cir. 2019). Sierra Club petitioned for review of the EPA's Revision to Ambient Monitoring Quality Assurance and Other Requirements, 81 *Federal Register* 17,248 (March 28, 2016), which modified 40 CFR Part 58.

One of the Sierra Club's issues in this case concerned whether AMNPs should be subject to notice and comment rulemaking. The Court stated that the EPA adopted regulations in 2006 that specifically placed these plans outside the SIP-review process [see Revisions to Ambient Air Monitoring Regulations, 71 *Federal Register* 61,236 (October 17, 2006)]. Because the Clean Air Act requires that petitions for review of agency regulations be filed within sixty days of a challenged action appearing in the

Federal Register, the Sierra Club could not re-open the issue more than ten years later. The court found that the EPA's 2006 rulemaking makes clear that the annual monitoring network plans are not components of a SIP that require notice and comment. Instead, a state must make the plan "available for public inspection," without requiring the formal notice and comment procedures that are necessary for SIP revisions. The court also found that the EPA's rulemaking that was under review in this case did not change these requirements and that there was no indication the EPA intended to address or change the non-SIP approach for annual monitoring network plans.

Therefore, because SIP notice and comment procedures are not required under federal rule and the TCEQ's current public comment process for the AMNP complies with 40 CFR Part 58.10(a)(1), the TCEQ is not required to hold public hearings on the AMNP. The TCEQ is responding to the comments that were received during the Plan's provided notice period, submitting all comments and responses to the EPA, and posting them on the TCEQ webpage.

TCEQ appreciates the comments regarding the need for greater outreach, especially the provision of information in Spanish. One way the TCEQ does this is by providing a link to Spanish-language information on the TCEQ's main website, which includes a link to the EPA's Spanish-language page. Individuals needing basic information of the EPA's requirements can search the EPA's website for information concerning environmental topics or can request such information from the TCEQ. In addition, the TCEQ expanded outreach to non-English speaking communities in 2022 by publishing the 2022 Plan request for comment announcement in Spanish (and English) and by including a Spanish (and English) summary of the Plan.

Comment 8: The Sierra Club appreciated and supported TCEQ's recent placement of $PM_{2.5}$ and PM_{10} monitors in the Houston area, including at Houston Bayland Park, the Houston Fifth Ward, Houston Pleasantville neighborhood, and Houston Westhollow, but indicated more are needed in the western and central parts of Houston. The Sierra Club stated that TCEQ should work with the City of Houston, Harris County, and the EPA to install lower cost community monitors throughout Houston. The Sierra Club referenced an Environmental Defense Fund study from 2020 that utilized an ensemble analysis with Houston area 2013-2015 PM data. This 2020 study identified potential west and central Houston areas where annual $PM_{2.5}$ concentrations could have exceeded the 12.0 microgram per cubic meter (ug/m^3) NAAQS for 2013-2015 and noted that emissions in the area have increased. The Sierra Club included a map (see Figure C below) noting that there are no existing $PM_{2.5}$ monitors (shown as blue dots) in central or western Houston where $PM_{2.5}$ was predicted to be greater than 12.0 ug/m^3 and population density was greater than 5,700 people per square mile.

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

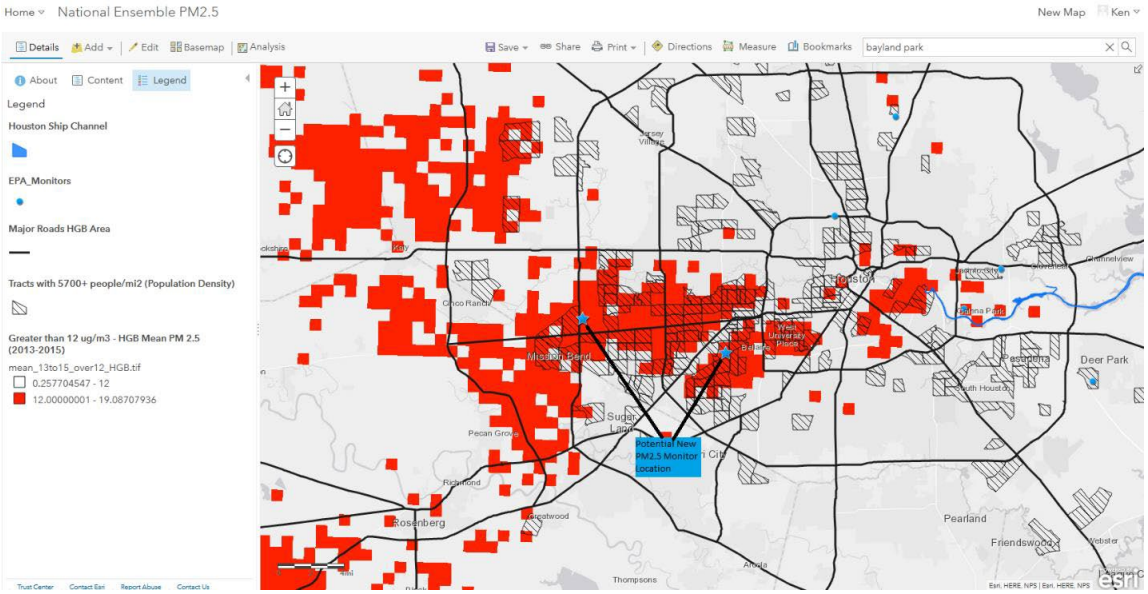

Figure C: Sierra Club Houston Area $PM_{2.5}$ Modeled Predictions

In addition, the Sierra Club stated that funding was needed for a speciation/source apportionment study to understand the cause of PM concentrations needed to develop an emission source reduction plan. The Sierra Club stated it was critical that the existing $PM_{2.5}$ monitors be maintained in their current location.

Response 8: The TCEQ appreciates the Sierra Club's support for the additional $PM_{2.5}$ FEM monitors in Houston

The TCEQ Houston area $PM_{2.5}$ federal monitoring network includes 17 active $PM_{2.5}$ monitors (plus two pending deployment) at 12 area sites to measure ambient $PM_{2.5}$ concentration data through gravimetric, speciation, and continuous measurements to determine maximum concentrations, concentrations in areas of high population density, and background and transport concentrations. The TCEQ exceeds the Houston area federal requirement for a minimum of eight $PM_{2.5}$ monitors. The TCEQ also notes that the 2022 AMNP does not recommend any $PM_{2.5}$ FEM monitor location changes or decommissions, only additions.

The addition of $PM_{2.5}$ FEM monitors at Houston Westhollow and Houston Bayland Park provide data and spatial coverage for west Houston, an area specifically cited in Sierra Club's comments. Data from these monitors will be useful to determine if additional west Houston area $PM_{2.5}$ monitoring or speciation analyses are needed to characterize the area. The TCEQ will continue to assess Houston area $PM_{2.5}$ monitoring needs.

As stated in the introduction, the 2022 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. Comments related to community-placed monitors, which are not required and may not be NAAQS comparable, $PM_{2.5}$ speciation source apportionment studies to determine the sources of $PM_{2.5}$ in west Houston, and emission reduction plans are beyond the scope of the AMNP.

Comment 9: Sierra Club commented that there was a compelling need for additional VOC monitors along the Houston ship channel to protect the public from cumulative

risks in an area with concentrated operations. Sierra Club commented that recent data indicated possible systematic air emissions underreporting errors by facilities along the channel and noted that some communities along the channel were exposed to greater pollution than others. The commenters also noted that daily unauthorized emissions are compounded by the steady stream of preventable disasters at channel facilities. The commenters stated that the chronic allowable emissions exceedances render the TCEQ air permit review process incapable of protecting public health because the technical assumptions upon which air permits are issued likely underestimate actual pollution levels and that enhanced VOC monitoring in the Houston ship channel communities was necessary to fill regulatory gaps. Sierra Club commented that no VOC monitors were located along the Houston Ship Channel on the southbound side of Interstate Highway 610 and requested that a VOC monitor be placed near JR Harris Elementary school. Commenters also requested additional monitoring in Manchester, Pasadena, Deer Park, and Baytown.

Response 9: As previously stated, this Plan addresses federally required monitoring and demonstrates the TCEQ's compliance with requirements under 40 CFR Part 58. Photochemical Assessment Monitoring Stations (PAMS)-related VOC monitoring is included in this Plan and comments unrelated to federally required monitoring are beyond the scope of this Plan. PAMS monitoring objectives include collecting data to evaluate and support air quality model development and ozone (O_3) precursor concentration trend assessment for O_3 NAAQS attainment efforts. The TCEQ is required to have one Houston Metro area PAMS autoGC for speciated VOCs at the TCEQ National Core Multipollutant Network (NCore) Houston Deer Park number (#) 2 air monitoring site. The TCEQ operates two additional federally supported Houston area autoGCs at Clinton and Channelview, exceeding federal PAMS VOC monitoring requirements. Comments unrelated to federally required monitoring are beyond the scope of this Plan.

The TCEQ also operates a robust network of state-initiative monitors that support a variety of purposes. Though the TCEQ state-initiative monitors are outside of the scope of this document, this state-initiative monitoring network provides valuable information for assessing public health. Data from these state-initiative monitors are located on the TAMIS webpage. It is possible that the Sierra Club overlooked that, in 2021 and 2022, the TCEQ significantly enhanced its state-initiative air monitoring capabilities along the Houston Ship Channel with three new autoGC sites capable of continuous measurement of 46 VOCs. The new Channelview Drive Water Tower site and autoGC were activated in February 2021. The new Manchester East Avenue N and Pasadena Richey Elementary School sites and autoGCs were activated in the Houston Manchester and Pasadena communities in November 2021 and May 2022, respectively. Both the Manchester and Pasadena air monitoring sites are on the southbound side of Interstate Highway 610. While an autoGC is not planned at the John R Harris Elementary School, the new Manchester East Avenue N air monitoring site and autoGC provides the requested VOC monitoring in Manchester and is located less than one mile to the east of the school.

In addition to the three new TCEQ autoGC sites, the TCEQ collaborated with Houston Regional Monitoring (HRM) Corporation to provide additional publicly available continuous VOC monitoring data from two sites in Deer Park and Baytown via the TAMIS webpage. This includes data from an autoGC at HRM Site 16 in Deer Park and

a new autoGC placed at their existing HRM Site 7 in Baytown (HRM information and site locations are provided in the TAMIS and at http://hrm.aecom.com/index.htm). The Houston Deer Park area is historically supported by an autoGC at the TCEQ Houston Deer Park #2 air monitoring site. The new state-initiative monitors and HRM collaboration has expanded TCEQ's ability to rapidly assess air quality and provide data to monitor daily ambient air quality conditions in the Houston Ship Channel and surrounding areas.

Comment 10: Sierra Club commented that the TCEQ should add additional O_3 monitors to the San Antonio area to provide air pollution data to the public in a timely manner, support compliance with air quality standards and emissions strategy development, and to provide information about air pollution transport into and outside of a city or region, as provided by 40 CFR Part 58, Appendix D, §1(a), §1(b), and §1.1.1. The Sierra Club commented that the TCEQ should also add O_3 monitors in surrounding counties, at a minimum in New Braunfels, to ensure that the approximately 300,000 people who live in Guadalupe and Comal counties have localized air quality data. In addition, Sierra Club commented that TCEQ should add an O_3 monitor north of the San Miguel Electric Plant to help assess the potential impact on Bexar County air quality.

Response 10: The TCEQ does not agree with these comments. The TCEQ is federally required to operate a minimum of two O_3 monitors in the San Antonio-New Braunfels MSA, based on the most recent population estimates and the three-year O_3 design value, and currently operates three O_3 monitors illustrated by the light blue sections in Figure D below: one upwind and one downwind of the greater San Antonio area, and one downwind of city center. The data from these three monitors are provided to the public in a timely manner, support compliance with ambient air quality standards and emissions strategy development, support air pollution research studies, and provide information about air pollution transport into and around the area. The San Miguel Electric Plant is located in Atascosa County. The counties of Atascosa and Bexar are delineated by the United States Office of Management and Budget (OMB) under the San Antonio-New Braunfels MSA. The TCEQ exceeds O_3 monitoring requirements in this MSA, as noted above.

The TCEQ strengthened its O_3 precursor monitoring efforts in 2020 by adding two upwind monitors to measure nitrogen dioxide [NO_2], nitrogen oxide[NO] and NO_x downwind of the Eagle Ford Shale area at the Floresville Hospital Boulevard and Karnes County monitoring sites. Figure D illustrates the San Antonio area air monitoring, with NO_x monitors noted by a green section and O_3 monitors noted by a light blue section. Additionally, as part of the TCEQ state-initiative monitoring, the TCEQ operates two autoGCs measuring continuous VOCs at these same sites, as noted by the orange sections shown in Figure D, further supporting emissions strategy development.

Local and industry entities also support additional O_3 monitoring (sites shown in Figure D with O_3 noted by a light blue section) with nine non-regulatory monitors spread throughout the region in Bexar, Comal, and Guadalupe counties. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparing the data to the NAAQS, the TCEQ considers the data as supporting information for the area's air quality decisions. Data from these additional O_3 monitors are located on the TAMIS webpage.

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

The TCEQ does not agree with the comment that O_3 monitors should be added to New Braunfels due to the counties' growth rate. Federal O_3 monitoring requirements are triggered by the MSA population based on the latest available census figures (see 40 CFR Part 58.50(c) and Table D-2 of Appendix D to Part 58). The individual county populations of Comal and Guadalupe do not trigger additional O_3 monitoring requirements.

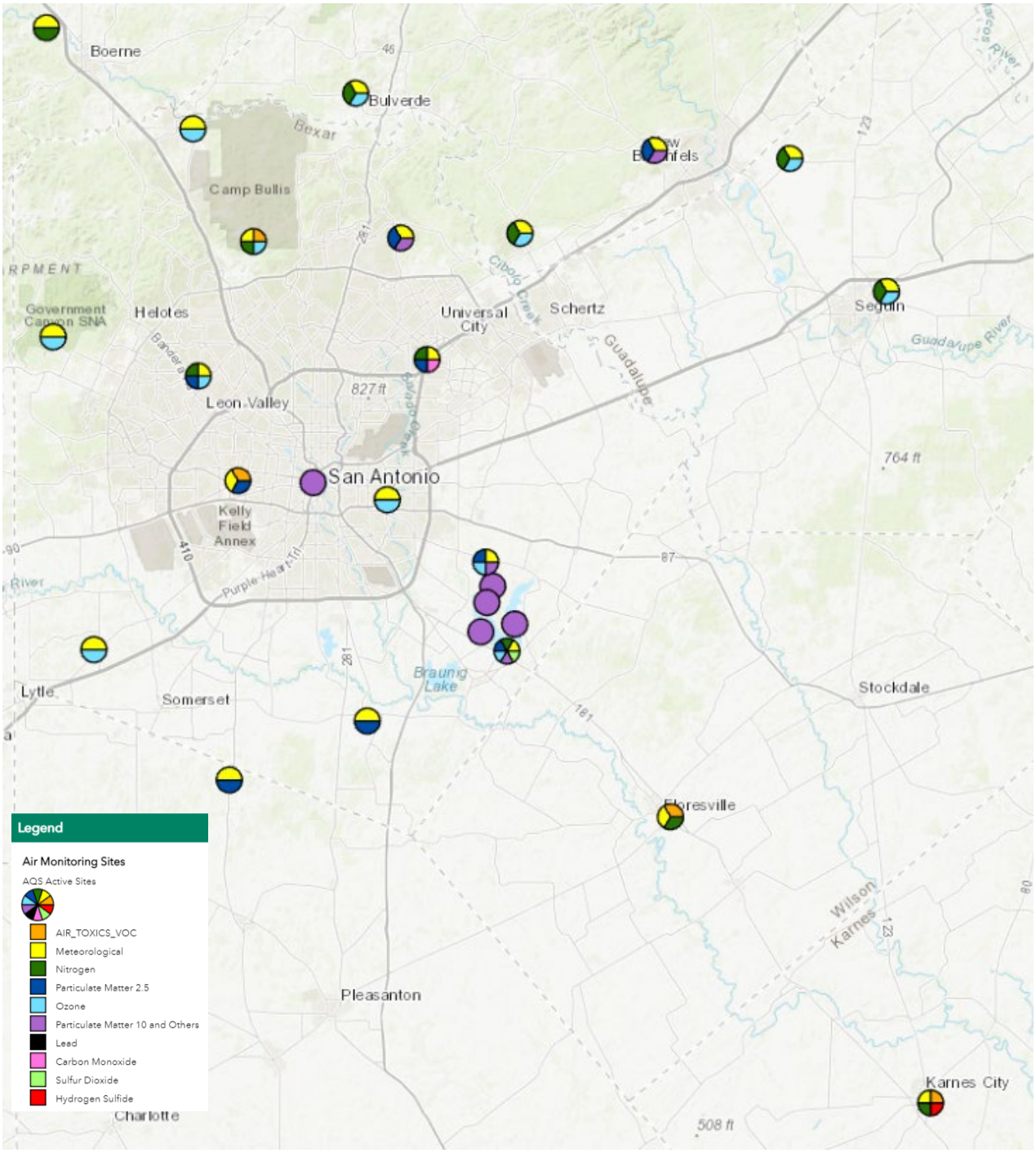

Figure D: San Antonio Area Active Sites and Ambient Air Monitors

Comment 11: Sierra Club commented that the TCEQ is required to operate, at a minimum, one O_3 monitor in the Midland-Odessa combined statistical area (CSA) because the Midland-Odessa metropolitan statistical area (MSA) has a population greater than 350,000. Sierra Club stated that Midland and Odessa are unquestionably part of the same metropolitan area and should be treated as such for purposes of air quality monitoring network design and that together, the Midland-Odessa CSA includes three counties: Martin, Midland and Ector Counties. Under longstanding EPA regulations, Midland and Odessa are included in the same Intrastate Air Quality Control Region. The commenter stated that failing to consider Midland and Odessa as a single unit would be arbitrary and capricious since other areas, including the Houston, Dallas-Fort Worth-Arlington, and San Antonio MSAs, are treated as such (single units). These metropolitan areas span much greater areas and are treated as a single unit for the purpose of 40 CFR Part 58, Appendix D, Section 4.1, Table D-2.

Sierra Club stated that TCEQ unlawfully ignores regulatory language providing that the total number of O_3 monitors must exceed the minimum required by 40 CFR Part 58, Appendix D, Section 4.1, and that installing at least one O_3 monitor in Midland-Odessa is necessary to meet the basic monitoring objectives of public data reporting, air quality mapping, compliance, and understanding ozone-related atmospheric processes.

The Sierra Club also commented that the total number of monitoring sites needed to support monitoring objectives will include more sites than minimum requirements in 40 CFR Part 58, Appendix D, Section 4.1. Sierra Club additionally commented that the most recent design value of 0.068 parts per million from the nearest O_3 monitor in Hobbs, New Mexico is 97 percent (%) of the 2015 eight-hour O_3 NAAQS and that by applying 40 CFR Part 58, Appendix D, it is clear that multiple O_3 monitors are needed in the Midland-Odessa area to serve basic monitoring objectives.

Response 11: The TCEQ does not agree with these comments. Minimum federal monitoring requirements for O_3 outlined under 40 CFR Part 58, Appendix D, Section 4.1(a) apply specifically to MSAs. According to the final rule, 71 *Federal Register* 61,236 (October 17, 2006), page 61,267, the EPA investigated the use of CSA versus MSA as the basis for applying the minimum network requirements across the current air monitoring network. The analysis demonstrated that using MSA as the basis for determining minimum network requirements would result in more sites in large CSAs with high populations and large geographical areas without unnecessarily requiring new sites in other areas. Since using MSAs would not impose a significant new burden on the States and would make it more likely that within-MSA O_3 gradient characterization would occur in high concentration areas, the EPA adopted MSAs as the appropriate unit of a metropolitan area to apply to the minimum O_3 monitoring requirements. In addition, while the final rule required fewer O_3 monitors, the EPA did not intend to encourage net reductions, but that the surplus in the existing networks relative to minimum requirements give States more flexibility to choose where to apply O_3 monitoring resources. The final rule further states that the EPA will work with each State to determine what affordable monitoring activities above minimum requirements would best meet the diverse needs of the program as well as the needs of other data users. The EPA Region 6 concurred with the TCEQ monitoring activities as listed in the 2021 AMNP, and the TCEQ concludes that the approved monitoring activities meet the diverse needs of the TCEQ program and data users.

MSAs are delineated by the OMB and used by the Census Bureau when reporting population estimates. The OMB delineated the Midland MSA as containing Midland and Martin Counties and a separate Odessa MSA as containing Ector County. Federal O_3 monitoring requirements are triggered by the MSA population based on the latest available census figures (see 40 CFR Part 8.50(c) and Table D-2 of Appendix D to Part 58) and comments unrelated to federally required monitoring are beyond the scope of this plan. The Midland and Odessa individual MSA populations do not trigger O_3 monitoring for MSA populations with greater than 350,000 persons. Hobbs, New Mexico, is delineated by the OMB as a micropolitan statistical area and is not associated with the Midland or Odessa MSAs. Comments related to out-of-state, micropolitan area design values are beyond the AMNP scope.

Comment 12: Sierra Club commented that the TCEQ must monitor and model sulfur dioxide (SO_2) emissions in the Permian Basin and install monitors at expected SO_2 hotspots. Sierra Club stated that the nearest SO_2 monitor was about 60 miles from Odessa in Ector County and that the existing monitoring network was inadequate to assess Ector County SO_2 levels. Sierra Club further commented that if modeling or monitoring showed violations of the NAAQS, TCEQ must take actions to fix them. Sierra Club urged the TCEQ to revise the Plan to include air quality monitoring around oil and gas production where flaring and venting were documented.

Sierra Club also stated that there was only one SO_2 monitor in Big Spring, Texas and one PM monitor in Odessa and that the most immediate need was for VOC, SO_2, and hydrogen sulfide (H_2S) monitors, though placing an O_3 monitor and an additional PM monitor in the Odessa-Midland area was also important. Sierra Club stated that TCEQ did not consider the magnitude of oil and gas well flaring emissions in drafting the 2020 Annual Monitoring Network Plan. The Sierra Club appreciated that the TCEQ had to make hard choices about where to measure air quality in Texas and that due to the most recent oil bust, urged TCEQ to take action and protect air quality in the oil and gas producing regions of the state.

Response 12: The TCEQ appreciates the Sierra Club acknowledgment regarding the difficult choices with selecting air quality monitoring locations with limited resources. As stated in the introduction, state-initiative monitoring is not included in this Plan; however, the TCEQ deployed three new Permian Basin state-initiative air monitoring sites that monitor for continuous VOC, SO_2, and H_2S in Goldsmith, west Odessa, and Midland in late 2020 and 2021. The Permian Basin air monitoring sites are illustrated in Figure E; VOCs monitors are noted with an orange section, SO_2 monitors are noted with a light green section, and H_2S monitors are noted with a red section. The latest information regarding the Texas air monitoring network and monitoring data, including information on the three new Permian Basin sites, are available on the TCEQ webpage Air Quality and Monitoring - Texas Commission on Environmental Quality - www.tceq.texas.gov. Comments related to modeling, oil and gas well flaring emissions, and actions to fix NAAQS violations are outside the scope of this Plan.

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

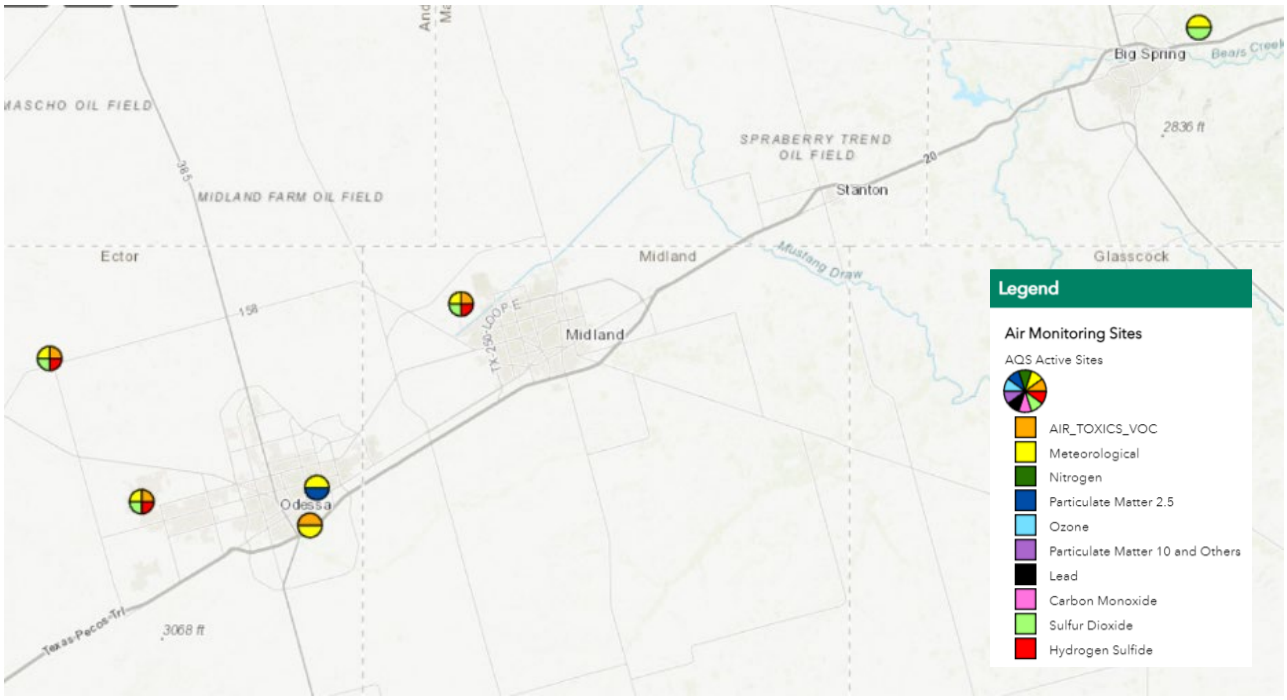

Figure E: Permian Basin Area Active Sites and Ambient Air Monitors

The TCEQ does not agree with the comment that SO_2 levels in Ector County must be modeled, along with the remainder of the Permian Basin, and that monitors should be installed at expected hot spots to meet the requirements under 40 CFR Part 58. The purpose of the 2022 AMNP is to demonstrate how the TCEQ air monitoring network complies with federal monitoring requirements detailed in 40 CFR Part 58. TCEQ meets or exceeds federal monitoring requirements for MSAs in the Permian Basin area, as detailed in the 2022 AMNP and in Appendix C of this Plan, and comments unrelated to federally required monitoring are beyond the scope of this plan.

Comment 13: Sierra Club commented that the TCEQ should require Western Refining (in the El Paso area) to implement real-time emissions fence-line monitoring so that residents and emergency personnel can be alerted of exceedances in time to take appropriate response measures and should require Western Refining to conduct a health impact study of the Sambrano neighborhood to determine if residents are suffering adverse health effects due to hydrogen cyanide (HCN) or other emissions.

Response 13: The purpose of the 2022 AMNP is to demonstrate how the TCEQ air monitoring network complies with federal monitoring requirements detailed in 40 CFR Part 58. The commenter's requests to require fence-line emission monitoring, exceedance alerts, and health impact studies are not required elements under 40 CFR Part 58 and are outside the scope of the AMNP.

Comment 14: Sierra Club commented that the TCEQ misread the near-road regulations and that a near-road monitor was required in the El Paso-Las Cruces Core Based Statistical Area (CBSA), including El Paso and Hudspeth Counties, Texas and Dona Ana County, New Mexico, due to an estimated population in excess of 1,000,000 people, and recommended that the site be located at Zavala Elementary School, adjacent to Interstate 110 Spur.

Response 14: The TCEQ does not agree with these comments. 40 CFR Part 58, Appendix D, Section 4.3.2, requires that near-road monitors be placed in applicable CBSAs. The OMB defines the El Paso CBSA as containing El Paso and Hudspeth Counties. The El Paso-Las Cruces area, referenced in the Sierra Club comment, is defined by the OMB as a combined statistical area or CSA, which is not applicable to near-road monitoring requirements. The EPA has concurred with the TCEQ review of Texas CBSA populations in past TCEQ AMNPs to assess and establish the required near-road monitors. The TCEQ is meeting federal requirements for near-road monitors.

Comment 15: Sierra Club commented that the TCEQ must install additional NO_2 monitors to Orange County to address the rapid expansion of liquified natural gas (LNG) and other industrial facilities and that given the nature of NO_2, it was important that TCEQ evaluate optimal NO_2 monitor locations to capture the highest measured concentrations and to inform and protect communities. Industrial source emissions (LNG build out) along the Gulf Coast have or will soon increase dramatically since the TCEQ's 2020 five-year monitoring plan review and it was imperative for protection of public health and welfare that LDEQ <sic> ensure the air monitoring network was sufficient to evaluate local compliance with the NAAQS. TCEQ's 2022 monitoring plan included the bare minimum number of Orange County monitors while federal monitoring regulations required more to achieve monitoring network objectives. Sierra Club claimed that the TCEQ's monitoring plan failed to demonstrate that current NO_2 monitors were placed in a location and manner that captured the peak predicted emissions concentrations based on an air dispersion modeling report submitted with their comments showing high one-hour average NO_2 predicted concentrations in Orange County, as well as values around the current TCEQ air monitor. Sierra Club urged TCEQ to install additional air quality monitors in economically disadvantaged areas to properly characterize ambient air quality and to inform the affected communities.

Sierra Club commented that even though expansion of some LNG sources were outside of TCEQ's jurisdiction, the agency had an obligation to coordinate with other states that may be causing unhealthy air conditions in Texas to develop emissions reductions strategies necessary to ensure attainment of the NAAQS. Texas should examine and comment on Louisiana proposed permits likely to impact Texas air quality. And if Louisiana fails to impose limitations on those sources, Texas should explore other opportunities for compelling Louisiana to reduce NO_2 emissions affecting Texas air quality. If air quality monitoring and modeling demonstrated violations of the standard, TCEQ must take steps to redesignate those areas as being in nonattainment with the NO_2 NAAQS. At a minimum, TCEQ must take appropriate action, including requiring adoption of enforceable emission limits to ensure attainment of the NAAQS in Orange County, or recommend that EPA redesignate the area to nonattainment.

Response 15: The TCEQ does not agree with these comments. 40 CFR Part 58, Appendix D, Section 4.3.3 requires one area-wide NO_2 ambient air quality monitor in each CBSA with a population of 1,000,000 or more persons; the required NO_2 monitor must be located in an area with the highest expected NO_2 concentration. Orange County is located in the Beaumont-Port Arthur (BPA) CBSA with a population less than 400,000; therefore, no BPA area-wide NO_2 ambient air quality monitor is

required. The TCEQ operates four BPA NO_2 monitors exceeding area requirements for Regional Administrator (RA-40) and PAMS; no further federal requirements are applicable to this area. As reported in the TCEQ 2020 Five Year Plan, the BPA annual and one-hour NO_2 design value trends are well below 50% of the NAAQS. According to the EPA 2021 Design Value Reports, no area in the United States violated the annual or the one-hour NO_2 standards. The TCEQ notes that the Sierra Club comment in reference to 40 CFR Part 58, Appendix D, Section 1.1.2, is incorrect. Section 1.1.2 states that the total number of monitoring sites that serve the variety of ambient air quality data needs will be higher than the minimum requirements and that the optimum network size is flexible and involves managing data needs and available resources. The TCEQ restates that the four BPA NO_2 monitors exceed area requirements. The TCEQ also notes that, if in fact the Sierra Club NO_2 modeling report and figures used in their comment were accurate, then the existing West Orange NO_2 monitor data would reflect exceedances of the one-hour NO_2 standard, and it does not. The EPA set the 2010 one-hour NO_2 NAAQS to 100 parts per billion (ppb) with a design value calculated as the annual 98th percentile of the daily maximum one-hour concentration values, averaged over three consecutive years. The EPA also maintained the level of the 1971 annual NO_2 NAAQS at 53 ppb with a design value calculated as the annual average of the hourly concentration values. The TCEQ West Orange NO_2 one-hour and annual NO_2 NAAQS 2021 design values are 26 ppb and 4 ppb, respectively, 26% and 7% of the NO_2 standard.

Figure F illustrates the TCEQ Beaumont area NO_2 monitors with a green section, including Orange and Jefferson Counties. Local and industry entities also support additional NO_2 monitoring (sites shown in Figure F) with four non-regulatory monitors in Orange and Jefferson Counties. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparing the data to the NAAQS, the TCEQ considers the data as supporting information for the area's air quality decisions. Data from these additional NO_2 monitors are located on the TAMIS webpage.

The TCEQ does not agree with the comment that NO_2 monitors should be added and/or relocated to achieve monitoring network objectives. The commentors request for the TCEQ to implement emissions reductions strategies, enforceable emission limits, and attainment designations are outside of the AMNP scope.

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

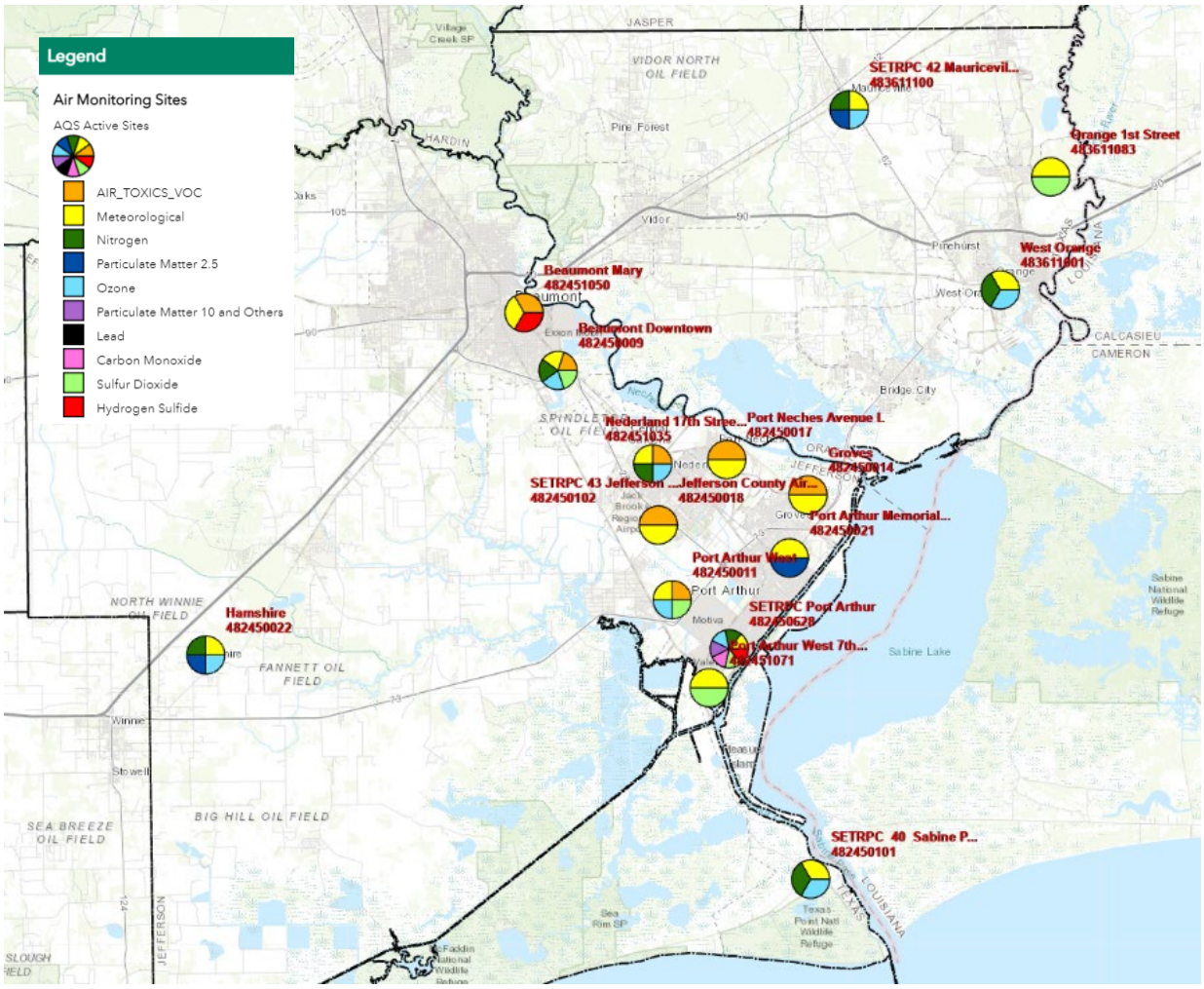

Figure F: Beaumont-Port Arthur Area Active Sites and Ambient Air Monitors

Comment 16: Sierra Club commented that TCEQ's monitoring and modeling plan was insufficient to demonstrate compliance with the 2010 one-hour SO_2 NAAQS and that the EPA concluded that the appropriate method for determining compliance, attainment, and nonattainment with the new NAAQS is modeling.

Response 16: The TCEQ does not agree with these comments. 40 CFR Section 51.1201 states that air agencies could model or monitor to characterize maximum one-hour SO_2 concentrations from sources subject to the Data Requirements Rule (DRR). The TCEQ's SO_2 monitoring plan complies with these requirements. The TCEQ continues to support the use of ambient air monitoring data, as appropriate, for making designation and attainment decisions and for meeting the requirements of the DRR, as well as 40 CFR Part 58 requirements.

Comment 17: Sierra Club commented that of the 25 Texas facilities subject to the DRR, the TCEQ operated SO_2 ambient air monitors in the vicinity of only nine of those plants and four of those plants, Big Brown, Monticello, Sandow, and J.T. Deely, ceased operations and that the TCEQ draft 2020<sic> AMNP failed (as did the 2020 plan) to demonstrate that the current SO_2 monitors were placed in a location and manner that captured the peak predicted emissions concentrations, as required by EPA

regulations. Sierra Club noted that the TCEQ's monitoring placement for the Martin Lake power plant and Harrington power plant were not located in areas with the highest predicted concentration of SO_2 pollution from the respective sources.

Response 17: The TCEQ does not agree with these comments. As stated in the 2022 AMNP on pages 14-15, the TCEQ identified 24 sources for air quality characterization subject to the DRR, including 13 sources identified for evaluation by monitoring. Areas around three of the 24 sources were initially designated nonattainment in fulfillment of the DRR. To meet the DRR requirements around the sources not designated nonattainment, before January 2017, the TCEQ deployed 11 SO_2 source-oriented monitors, located near the 13 sources identified for evaluation by monitoring, as detailed in the TCEQ 2016 AMNP. In addition to the 11 source-oriented SO_2 monitors deployed around the 13 sources, the TCEQ deployed an SO_2 monitor near Big Brown (Big Brown ceased operations in 2018 and was demolished in April 2021) to support SO_2 air quality characterization, as detailed in the TCEQ 2017 AMNP. The Rockdale John D. Harper air monitor was decommissioned in June 2020 due to the shutdown of the associated DRR facilities originally requiring air quality characterization in 2017. The TCEQ currently operates 10 DRR source-oriented monitors located near 11 remaining DRR sources.

The TCEQ details relating to the site evaluation and selection process (monitor placement evaluations) for DRR source-oriented monitors were outlined in the TCEQ 2016 and 2017 AMNPs and continued to be reflected in subsequent AMNPs, with which the EPA concurred. As detailed in these AMNPs, the site evaluation and selection process considered the peak modeled impacts along with other monitor siting criteria, including power availability, site access, and 40 CFR Part 58, Appendix E siting criteria requirements. Based on the information provided in the monitor placement evaluations, the EPA approved the monitor placement for all TCEQ DRR SO_2 monitors. The TCEQ is meeting all regulatory SO_2 requirements in the DRR and in 40 CFR Part 58, Appendix D, Section 4.4.2.

Comment 18: Sierra Club commented that TCEQ's EPA-approved monitoring data demonstrated that the design value for the air quality monitor near Martin Lake is violating the 2010 SO_2 standard. TCEQ must take appropriate action, including requiring adoption of enforceable emission limits to ensure attainment of the 2010 SO_2 NAAQS near Martin Lake, and the Sierra Club urged the TCEQ to install additional air quality monitors in the areas around Martin Lake and Harrington to properly characterize air quality near those plants and inform the communities.

Response 18: The TCEQ does not agree with the commenter's assertion that additional air quality monitors are needed in these areas to properly characterize ambient air quality. Details relating to the site evaluation and selection process (monitor placement evaluations) for DRR source-oriented monitors were outlined in the TCEQ 2016 and 2017 AMNPs and continued to be reflected in subsequent AMNPs, with which the EPA concurred. As detailed in these AMNPs, the site evaluation and selection process considered the peak modeled impacts along with other monitor siting criteria, including power availability, site access, and 40 CFR Part 58, Appendix E siting criteria requirements. Based on the information provided in the monitor placement evaluations, the EPA approved the monitor placement for Harrington Station and Martin Lake Electrical Station. The TCEQ is meeting all regulatory SO_2 requirements in the DRR and in 40 CFR Part 58, Appendix D, Section4.4.2. Further,

enforceable emission limits and area designations are not components of the AMNP review required under 40 CFR Section 58.10 and are beyond the scope of this Plan.

Comment 19: Sierra Club commented that the TCEQ failed to properly address increases in emissions at the San Miguel Electric Plant, WA Parish Electric Generating Station, and Coleto Creek Power Station in the *SO_2 Ongoing Data Requirements Annual Report*. Sierra Club noted the TCEQ acknowledgement of the emissions increases and the assertion that no further evaluation was needed since the original designation modeling evaluated higher average emissions for WA Parish and Coleto Creek, providing reasonable assurances that the areas continue to meet the 2010 one-hour SO_2 NAAQS. Sierra Club also noted that TCEQ acknowledged that for San Miguel, recent average emissions exceeded the designation modeling levels by 1.7 percent, and this small increase would not be expected to change the designation determined by the original modeling. Sierra Club stated that these conclusions and refusal to conduct additional modeling were insufficient and did not adequately protect the surrounding communities against the associated SO_2 pollution concentrations from uncontrolled coal plants. Sierra Club asserted that the TCEQ should conduct additional modeling based on the most recent three-years of actual hourly emissions and meteorological data at San Miguel, WA Parish, and Coleto Creek or impose more stringent emissions limitations under 40 CFR Part 1204 to ensure compliance with the standard.

Response 19: The TCEQ does not agree with these comments. 40 CFR Section 51.1205(b) requires agencies to submit an annual ongoing data requirements report to the EPA documenting each applicable DRR source's annual SO_2 emissions for areas designated attainment/unclassifiable for the 2010 one-hour SO_2 NAAQS where the designations were based on modeling actual SO_2 emissions. If an emissions increase is recorded from the previous year, the CFR further requires agencies to provide an assessment of the emissions increase cause and make a recommendation if additional modeling is needed in the report. The TCEQ has fulfilled this federal requirement with the *TCEQ SO_2 Ongoing Data Requirements Annual Report* for each facility designated based on modeled actual SO_2 emissions.

In the EPA's preamble to the DRR, the EPA recommended that agencies conduct additional modeling for an area if the original modeling level was equal to or greater than 90% of the standard, or, if the original modeling level was between 50-90% of the standard, and emissions in the area increased by 15% or more. The preamble also stated that in other cases where air quality has been modeled to be well below the standard and annual emissions increased only slightly in the following year, the air agency would be able to exercise judgment regarding whether additional modeling would be needed. Since the original modeling results for the San Miguel Power Plant reviewed by the EPA to make an attainment determination were 57% of the standard and the annual emissions increase in 2018 was 1.7%, no additional modeling is necessary. The very small increase in emissions from the original designation modeling inputs would not be expected to change the attainment/unclassifiable designation, and the area would be expected to continue meeting the 2010 one-hour SO_2 NAAQS. Additionally, as stated in TCEQ *2020 Sulfur Dioxide Ongoing Data Requirements Annual Report*, the emissions inventory comparison for Coleto Creek and WA Parish show that the original designation modeling evaluated higher average emissions, providing reasonable assurance that these three areas continue to meet

the 2010 one-hour SO_2 primary NAAQS. The TCEQ concludes that no additional SO_2 air quality modeling is needed to determine compliance with the 2010 SO_2 NAAQS for any of the seven Texas counties listed in the TCEQ *2020 Sulfur Dioxide Ongoing Data Requirements Annual Report*, including the areas around WA Parish, San Miguel, and Coleto Creek, as the EPA concurred with the TCEQ's recommendation in a letter dated October 22, 2020 .

The imposition of more stringent emission limits is outside the scope of the AMNP.

Comment 20: Lone Star Legal Aid and its organizational clients, Port Arthur Community Action Network, Westry Mouton Project, Super Neighborhood 47, Super Neighborhood 48 Trinity Gardens/Houston Gardens, Super Neighborhoods 49 and 50, Pleasantville Area Super Neighborhood 57, Progressive Fifth Ward Community Association, Prince Square Civic Association, and Citizens for Clean Air and Clean Water (collectively, LSLA), commented that the TCEQ should view the 2022 AMNP as an important opportunity to fulfill TCEQ's obligations under Title VI of the Civil Rights Act of 1964. LSLA noted that TCEQ had declined to perform any type of environmental justice analysis when implementing programs and policies and urged the TCEQ to recognize that TCEQ always had an obligation under the law to ensure programs and policies do not have discriminatory effects, that air monitoring was a vital piece of protecting burdened communities, and that the significant presence of air pollution sources near low-income communities and people of color required a proportionate increased presence of comprehensive air monitoring.

Response 20: The TCEQ 2022 Annual Monitoring Network Plan provides information on the current TCEQ ambient air monitoring network established to determine compliance with federal monitoring requirements specified in 40 CFR Part 58 and its appendices. At the heart of the TCEQ's mission and philosophy is the goal of protecting all Texans while preserving our state's natural resources in a sustainable economic manner. To accomplish this goal, TCEQ strives to ensure that all Texans can participate in TCEQ programs and activities. TCEQ aims to work with communities to provide reasonable access to decision-making processes and a healthy environment in which to live, learn, and work. To support this goal, the TCEQ draft 2022 Plan request for public comment was provided in Spanish and English and a summary of the TCEQ draft 2022 Plan was also provided in two languages.

While the inclusion of an analysis focused specifically on environmental justice is not required under 40 CFR Part 58, the Plan does include examples of air monitoring in fence line communities and underserved areas, such as the Houston Fifth Ward, Houston Pleasantville neighborhood, Houston Ship Channel communities, Charlton-Pollard community in Beaumont, west Port Arthur, and Corpus Christi Ship Channel communities.

The TCEQ's air monitoring network, which meets all federal requirements, is designed to measure pollutant concentrations that are representative of regional areas. These areas include many minority and low-income communities located near heavily industrialized areas. TCEQ has always met its legal requirements to ensure that the network provides the information necessary to properly monitor and regulate all communities within Texas.

Comment 21: LSLA recognized there were a number of monitors in the BPA and Houston-Galveston-Brazoria (HGB) metropolitan areas but stated that there were

holes in the network resulting in the potential to miss air pollution from many of Texas' largest pollution sources. LSLA noted that the TCEQ draft 2022 Plan also had holes potentially harmful to the regions' environmental justice communities in northeast Houston, Pleasantville, Beaumont's east side, and Port Arthur's west side. These holes included the fact that not all monitoring stations monitored for all criteria pollutants; there were not enough monitors within the communities for people to know if they were impacted by emissions from facilities that are clustered in and around their respective neighborhoods; and that the monitor information should be more publicly accessible for real-time events and a stronger mobile monitoring system was needed to be deployed in emergencies so that the public could be aware of public health risks during the event. LSLA further noted that there was historic siting of hazardous facilities that should be considered and recognized by TCEQ as it produces the final 2022 Plan and that it was important for TCEQ to recognize potential air pollution health impacts to fence line communities.

LSLA acknowledged that the TCEQ has more than double the monitors required by federal rule, but the sheer number of monitors does not ensure adequate monitoring of all six criteria pollutants across the state to best protect the people of Texas from NAAQS violations, and the TCEQ must ensure monitors are placed where they will best capture emissions and concentrations where people live.

Additionally, LSLA noted limitations on TCEQ's existing monitoring technology since it was not recorded in real-time; did not identify sources of the pollution; and only measured emissions at the fence line, and the air monitoring network should be able to measure emissions related to major events. LSLA commented that the TCEQ must realize monitoring program insufficiencies given the number and size of industrial facilities and the associated potential threats to human health every day, during emission upsets, fires, or other disasters.

Response 21: As previously stated, the purpose of the 2022 AMNP is to demonstrate how the TCEQ air monitoring network complies with federal monitoring requirements detailed in 40 CFR Part 58. The BPA and HGB areas meet or exceed all federal monitoring requirements as detailed in the 2022 AMNP and in Appendix C of this Plan and comments unrelated to federally required monitoring are beyond the scope of this Plan.

Texas has one of the most robust air monitoring networks in the country consisting of over 200 monitoring stations serving over 25 million Texans statewide in areas where the presence of industry intersects with large segments of the state's population. This network assists the TCEQ in monitoring compliance with federal air quality standards, providing information in response to localized air quality concerns, evaluating air pollution trends, and studying air pollution formation and behavior.

Placement of air monitors is determined consistent with federal air monitoring rules using population trends, reported emissions inventory data, local meteorological data, and, if available, existing air monitoring data for a given area. The TCEQ may prioritize monitor placement in areas with potential air quality issues, or to address local air quality concerns. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources.

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

Air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring emissions (pollution) from specific sources. Each specific monitor location must meet strict siting criteria that include minimum spacing from trees or other obstructions, free of influences from specific sources, and logistical considerations, such as available space, power, and level terrain. Final site selection is contingent on the TCEQ receiving proper access authorization from property owners for properties that meet these siting criteria. Continuous data are available in near real-time on the TAMIS database webpage, TAMIS webpage.

The TCEQ acknowledges the importance of monitoring beyond federal requirements as demonstrated by extensive state-funded monitoring, conducted throughout Texas as state initiatives, which has been in place for many years. The TCEQ federal monitoring network includes more than double the number of monitors required by federal rule, in addition to the numerous state-initiative monitors. Comments related to pollution source identification, fence line emission monitoring, and mobile monitoring systems are beyond the scope of this plan.

Comment 22: LSLA commended the TCEQ's attention to the Houston Fifth Ward by acknowledging previous concerns submitted in the 2020 and 2021 Plans to deploy air monitors in the Houston Fifth Ward. LSLA noted it was imperative that the Houston Fifth Ward new monitors be placed in locations that reflected the community's air pollution concerns caused by local concrete batch plants and metal recycling facilities and to ensure sensitive population concerns were addressed. LSLA requested details regarding the TCEQ air monitoring site determination process, requested updates regarding the proposed locations, and urged the TCEQ consider the community's geography, land use, and demographics. Lastly, LSLA requested the TCEQ place a lead (Pb) monitor or evaluate lead monitoring needs in the area due to the number of metal recycling facilities surrounding the less than five square mile community.

Response 22: The TCEQ appreciates the LSLA support to deploy new air monitors in the Houston Fifth Ward. As discussed in a meeting with community members on April 18, 2022, the new air monitoring site must meet federal siting criteria with regard to spacing from obstructions, trees, and roadways. Logistical factors, such as local terrain, power availability, property owner cooperation, and safe vehicle access and parking, are also considered. The TCEQ continues to work with the community and area property owners in identifying the ideal air monitoring site location to ensure sensitive population concerns are addressed. Federal Pb monitoring rules under 40 CFR Part 58 require monitoring near Pb sources with emissions greater than 0.50 tons per year (tpy) or near sources expected to exceed the Pb NAAQS. No sources meeting these criteria are in the Houston Fifth Ward or all of Harris County. The TCEQ is meeting federal requirements for Pb monitoring.

Comment 23: LSLA expressed that the Pleasantville neighborhood was glad the TCEQ recognized the need for more air monitoring in the Pleasantville area in the 2022 Plan and further advocated for the TCEQ to add a VOC monitor to capture emissions from the Houston Ship Channel and industrial activity that were likely to impact the neighborhood's health. LSLA commented that TCEQ must consider the precarious situation of Houston Ship Channel communities that see their public health compromised in favor of industrial interests and implement the CAA's objectives by adding more monitors closer to the heavily-health compromised communities like Pleasantville and east Houston.

Response 23: The TCEQ appreciates the LSLA support to deploy new air monitors in the Houston Pleasantville neighborhood. As previously stated, this plan addresses federally required monitoring and demonstrates the TCEQ's compliance with requirements under 40 CFR Part 58. The TCEQ also operates a robust network of state-initiative monitors that support a variety of purposes. Though the TCEQ state-initiative monitors are outside of the scope of this document, this state-initiative monitoring network provides valuable information for assessing public health. As mentioned earlier in this document, the TCEQ significantly enhanced its state-initiative air monitoring capabilities along the Houston ship channel with three new autoGC sites capable of continuous VOC measurement, has plans to add a new VOC monitor at the Houston Fifth Ward new air monitoring site, and is considering options to add a VOC monitor to the existing Houston East site.

Comment 24: LSLA noted that the TCEQ should ensure there was adequate monitoring in northeast Houston neighborhoods to determine if area facilities were in compliance with permits and to monitor human health impacts due to the number of permitted facilities. LSLA commented that one monitor at Houston North Wayside, evaluating only PM_{10}, $PM_{2.5}$, O_3, wind, and temperature, was insufficient to assess emissions from different industrial facilities in a 25 square mile area, and that due to an uptick in $PM_{2.5}$ area values, the northeast Houston neighborhoods additionally requested a VOC canister, metal emissions monitoring, and PM_{10} and $PM_{2.5}$ speciated monitoring in northeast Houston where the industrial facilities have congregated.

Response 24: The TCEQ federally funded ambient air monitoring sites, for example Houston North Wayside, operate ambient air monitors that conform to EPA methods for measuring ambient concentrations of specified air pollutants designated as FRM or FEM in accordance with 40 CFR Part 53. The TCEQ clarifies that comments referencing "one monitor," such as the statement above "one monitor at Houston North Wayside, evaluating only PM_{10}, $PM_{2.5}$, O_3, wind, and temperature," implies that one monitor can analyze multiple pollutants. This statement is inherently incorrect, as the federally approved methods require one monitoring instrument for each pollutant in most cases. In 2021 the TCEQ expanded ambient air monitoring at the Houston North Wayside site by deploying additional PM_{10}, $PM_{2.5}$, wind, and temperature monitors.

As previously stated, the purpose of the 2022 AMNP is to demonstrate how the TCEQ air monitoring network complies with federal monitoring requirements detailed in 40 CFR Part 58, and comments unrelated to federally required monitoring are beyond the scope of this Plan.

Comment 25: LSLA acknowledged that Port Arthur's city limits included five TCEQ network air monitors; however, the proximity of major air pollution to a vulnerable and susceptible environmental justice community posed exceptional risks that required exceptional levels of air monitoring to ensure protection from poor air quality. LSLA commented that the TCEQ should make several additions to the air monitoring network in and around Port Arthur to ensure compliance with the NAAQS, civil rights laws, and so that the local community understands what is in the air.

Response 25: The TCEQ does not agree with these comments. The TCEQ is exceeding federal requirements with 20 federally supported monitors in the BPA MSA, based on

the most recent MSA population estimates and design values. LSLA stated correctly that the TCEQ has five air monitoring stations in the city of Port Arthur with one O_3, two SO_2, two $PM_{2.5}$, two state-initiative VOC canister monitors, and additional site meteorological monitors. City of Port Arthur active air monitoring sites are included in the BPA area map illustrated in Figure F (above). Local and industry entities also support additional Port Arthur ambient air monitoring (sites shown in Figure F) with one SO_2 and three O_3 non-regulatory monitors). Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparing the data to the NAAQS, the TCEQ considers the data as supporting information for the area's air quality decisions. Data from these additional Port Arthur monitors are located on the TAMIS webpage. The TCEQ 2022 AMNP demonstrates that the TCEQ complies with the federal air monitoring requirements specified in 40 CFR Part 58 and its appendices; no changes are recommended at this time.

Comment 26: LSLA commented that, despite health challenges faced by vulnerable and susceptible populations, the presence of the Port of Beaumont, heavy industrial facilities, and Interstate-10, there were only two Beaumont area air monitors in the TCEQ Plan. LSLA stated that the Beaumont Mary monitor, in central Beaumont, only monitored for two pollutants and while the Beaumont Downtown monitor monitored more pollutants, it was located on the south side of the city and not in downtown. It was noted that the Beaumont Downtown air monitor was not well positioned to pick up emissions from the largest area emitters; and that the area prevailing winds come from the south and southwest and thus the Beaumont Downtown monitor would not be expected to pick up emissions from inside Beaumont where some of the area's largest polluter are located. The LSLA noted that the TCEQ's Plan focused on county level populations and this approach could lead to air monitoring holes like in Beaumont, a large vulnerable area with major polluters. LSLA commented that more monitors, or more capabilities at the Beaumont Mary monitor, were necessary to ensure the TCEQ best complies with air monitoring regulations, ensure the air quality is accurately monitored, and to help protect vulnerable Beaumont east side residents.

Response 26: As stated in the introduction, the 2022 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. The City of Beaumont is delineated by the OMB as a part of the BPA MSA. The BPA area meets or exceeds federal monitoring requirements as detailed in the 2022 AMNP and in Appendix C of this Plan. Comments unrelated to federally required monitoring are beyond the scope of this Plan. Federal air monitoring objectives determine site locations, and sites are generally placed to be representative of regional air quality, rather than monitoring or measuring emissions from specific sources. The spatial distribution of the monitoring network and the data from the monitors (see Figure F), meet these monitoring objectives and provide air monitoring data to the public in a timely manner, support compliance with ambient air quality standards and emissions strategy development, support air pollution research studies, and provide information about air pollution transport into and around the area. The TCEQ air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public and to provide information about compliance with the NAAQS. Monitors can measure the impact on air quality from industrial sources present in an area, but do not measure the emissions from individual sources. Emissions measurement is

outside of the scope of this Plan.

The Beaumont Downtown air monitoring site began in the 1980s. The site was relocated slightly to the current location in mid-2006 and currently monitors for VOCs by autoGC and by canister, NO, NO_2, NO_x, O_3, SO_2, and meteorology. TCEQ site naming conventions differed in the 1980s, but the TCEQ retains site names for trends purposes when relocations are less than one mile. The LSLA incorrectly stated that the Beaumont Mary air monitoring site only monitored for two pollutants. The Beaumont Mary VOC canister monitor actually measures ambient levels of 84 hazardous air pollutants (also known as air toxics). The Beaumont Mary site's VOC canister and H_2S monitor support state initiatives, and as stated in the introduction, these monitors are not included and are outside of the scope of this Plan.

Comment 27: LSLA commented that Freeport has growing concerns about adequate regional monitoring and advocated for the existing historic Clute monitor to additionally monitor for O_3 pollution to evaluate the region's compliance with the NAAQS due to the pending re-designation from serious nonattainment to severe and due to the high number of pipelines and chemical plants, contributors of major emissions that increase O_3 pollution. LSLA supported the TCEQ's recommendation to change the Freeport South Avenue I data for $PM_{2.5}$, SO_2, and speciated metals to the federal air monitoring network.

Response 27: The TCEQ does not agree that adding an O_3 monitor at the Clute air monitoring site is required by federal monitoring requirements. The TCEQ is federally required to operate a minimum of four O_3 monitors in the Houston-The Woodlands-Sugar Land MSA (sometimes referred to as HGB area) based on the most recent MSA population estimates and the three-year O_3 design value, and currently operates 21 O_3 monitors in the area. The Lake Jackson O_3 monitor design value trends (0.065 ppm for 2021 and 2022) do not indicate a need for additional area monitoring. In addition, local entities support ambient air monitoring at Oyster Creek (site shown in Figure G) with carbon monoxide (CO), H_2S, NO_2, SO_2 O_3, PM_{10}, and $PM_{2.5}$ non-regulatory monitors. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparing the data to the NAAQS, the TCEQ considers the data as supporting information for the area's air quality decisions. Data from these additional Freeport monitors are located on the TAMIS webpage. The TCEQ appreciates the support to add the Freeport South Avenue I state-initiative air monitoring data to the federal network. At this time, the TCEQ does not recommend adding additional O_3 monitors to the Freeport area based on area O_3 design value trends and will continue to assess the area in future Plans.

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

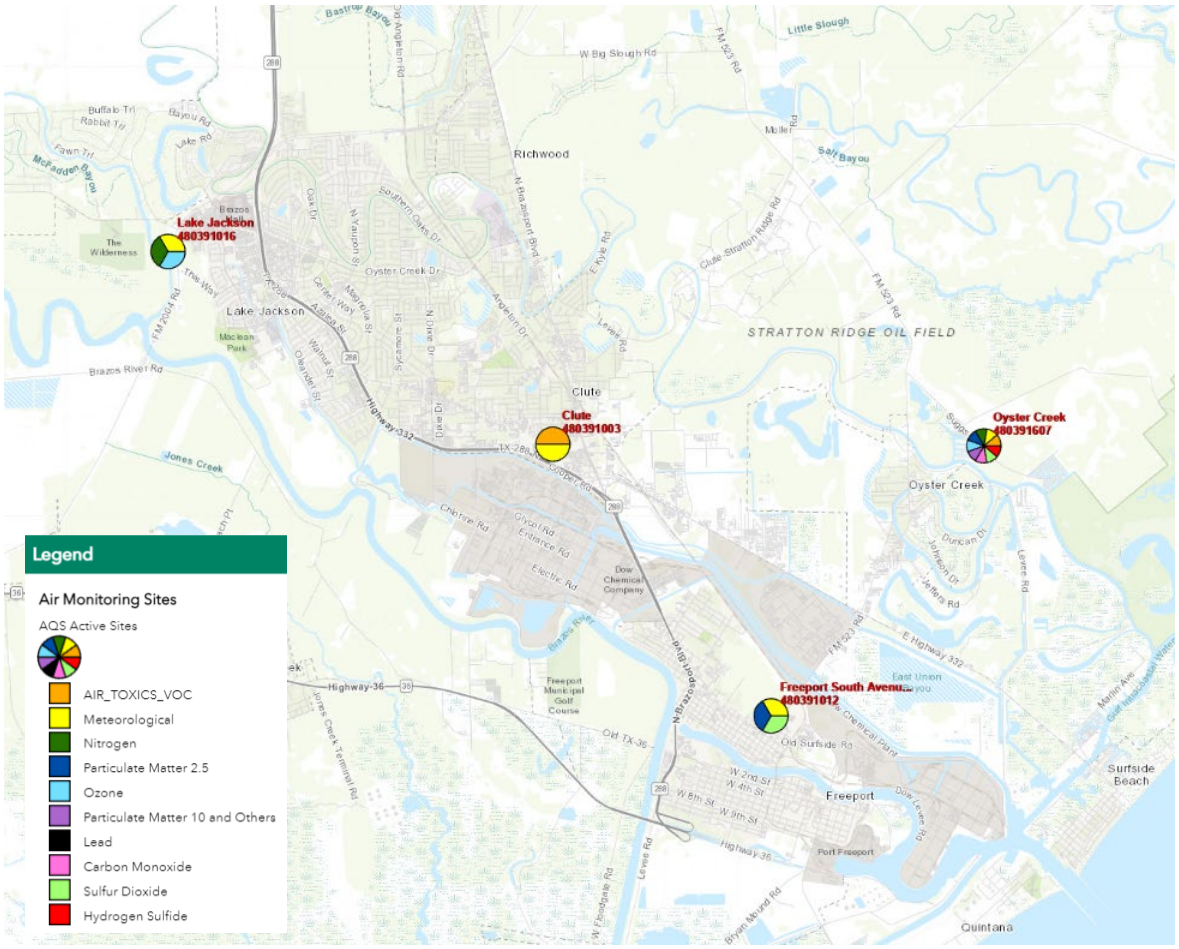

Figure G: Freeport Area Active Sites and Ambient Air Monitors

Comment 28: LSLA commented that the BPA NO_x monitoring system design was insufficient, specifically that the RA-40 monitor at Nederland 17th Street was not appropriately located to protect the area's sensitive and vulnerable populations, was not located near the area's highest concentration of NO_x emitters, and should be moved or added to the Beaumont Mary monitoring location, an area with vulnerable and susceptible population near some of Jefferson County's highest NO_x emitters. LSLA et al further urged the TCEQ to add NO_x monitoring to the Port Arthur West monitoring location since it was better located to capture the highest levels of area NO_x emissions and would help better inform residents.

Response 28: The TCEQ does not agree that the BPA NO_X monitoring system design is insufficient. The intent of the AMNP is to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58 and its monitoring objectives. The current RA-40 NO_2 monitor (measuring NO, NO_2, and NO_x) in Nederland was approved by the EPA Regional Administrator as meeting the RA-40 federal monitoring objectives. The Beaumont Downtown NO_2 monitor continues to meet its monitoring objectives and supports regional air quality needs for Beaumont and the surrounding MSA. The TCEQ is required to operate one NO_2 monitor in the BPA CBSA supporting RA-40 requirements and exceeds the requirement with four monitors measuring NO, NO_2, and NO_x. Figure E (above) illustrates the TCEQ BPA area NO_2 monitors with a green section. Local and industry entities also support additional

NO_2 monitoring (sites also shown in Figure E above) with four area non-regulatory monitors and one of the four is also located in Port Arthur. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparing the data to the NAAQS, the TCEQ considers the data as supporting information for the area's air quality decisions. Data from these additional NO_2 monitors are located on the TAMIS webpage.

The TCEQ air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public and to provide information about compliance with the NAAQS. Monitors can measure the impact on air quality from industrial sources present in an area, but do not generally measure the emissions from individual sources. Comments unrelated to federally required monitoring are beyond the scope of this Plan. The TCEQ does not agree with the comment that NO_2 monitors should be added and/or relocated in BPA or Port Arthur to achieve monitoring network objectives.

Comment 29: LSLA continued to advocate for increased and better SO_2 monitoring near the Oxbow facility. LSLA noted that in order to comply with the DRR and ensure SO_2 levels are not exceeding the NAAQS, the TCEQ must include better placed monitors near Oxbow to fully reflect the reality of area emissions, included suggested modeled locations (included in Figure H below) and urged the TCEQ to place additional SO_2 monitors in accordance with modeling report results showing areas where receptors were predicted to exceed the SO_2 NAAQS.

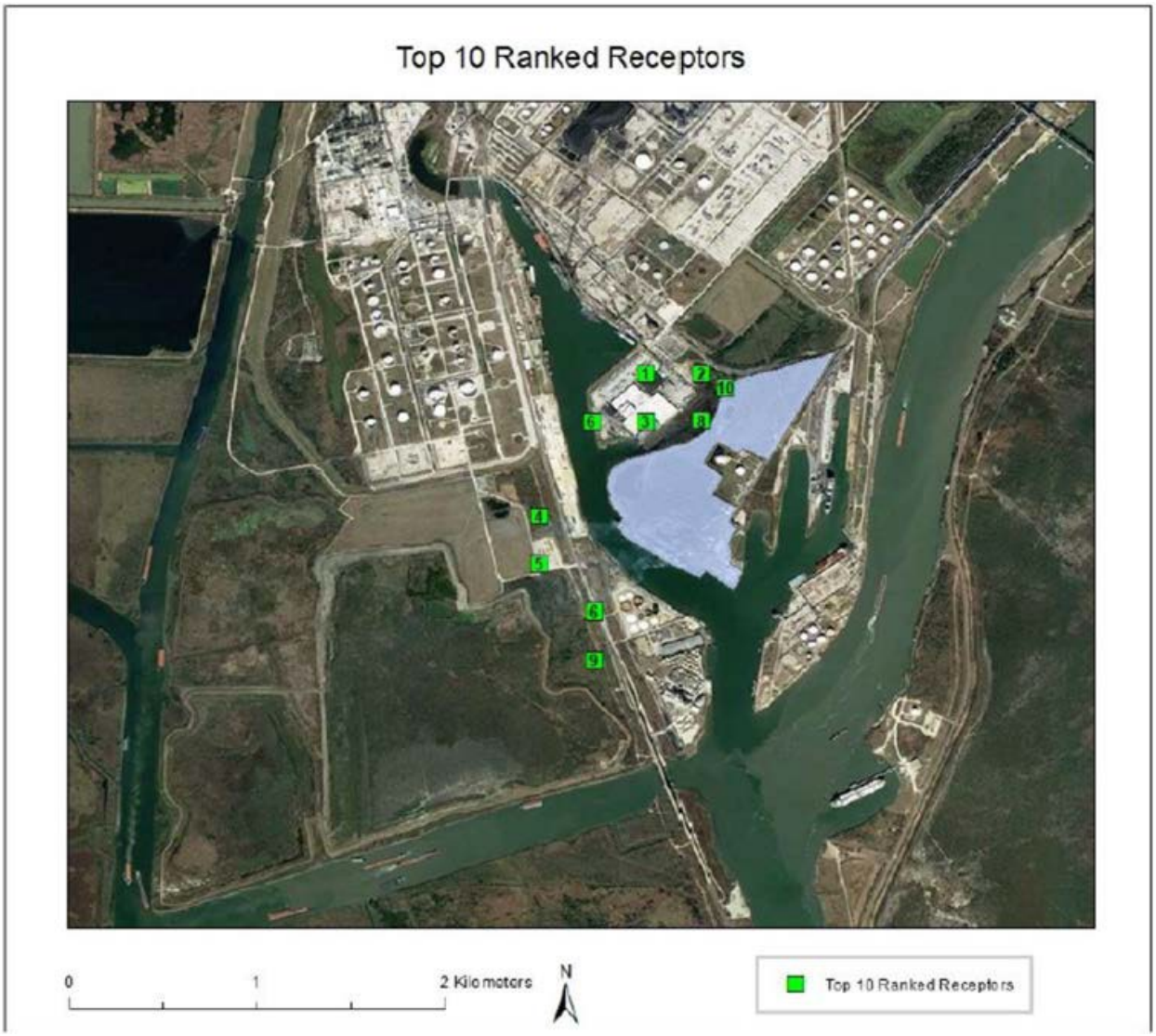

Figure H: LSLA Top Modeling Receptors Near the Oxbow Facility in Port Arthur

Response 29: The TCEQ does not agree with these comments. The TCEQ performed additional modeling in July 2019 based on the current permitted Oxbow emissions (accounting for Oxbow's current operations, stack parameters, and recent meteorological data). The new 2019 model followed the recommended procedures outlined in the EPA's *SO_2 NAAQS Designations Source-Oriented Monitoring Technical Assistance Document* and showed peak concentrations located closer to the source than the original monitor location. The new model showed that the new site location at Port Arthur West 7th Street Gate 2 (shown in Figure I) was predicted to monitor concentrations 91 to 100% relative to the maximum normalized design value (NDV) concentration. Areas south of the facility, where the model indicated locations likely to experience both high NDV and high frequencies of one-hour daily maximum concentrations during favorable wind conditions, were not viable for a monitoring site due to property access restrictions or lack of available power.

The TCEQ emphasizes that the location of the Port Arthur West 7th Street Gate 2 air monitoring site (Figure I) is located directly adjacent to the area indicated by the LSLA

model (see Figure H) as the number one top receptor predicted to exceed the SO_2 NAAQS. The areas surrounding the remaining receptors, numbered 2-10, were not viable for an air monitoring site due to property access restrictions or lack of available power. The TCEQ is in compliance with the DRR as evidenced by the EPA approval of the current location in a letter dated August 23, 2019.

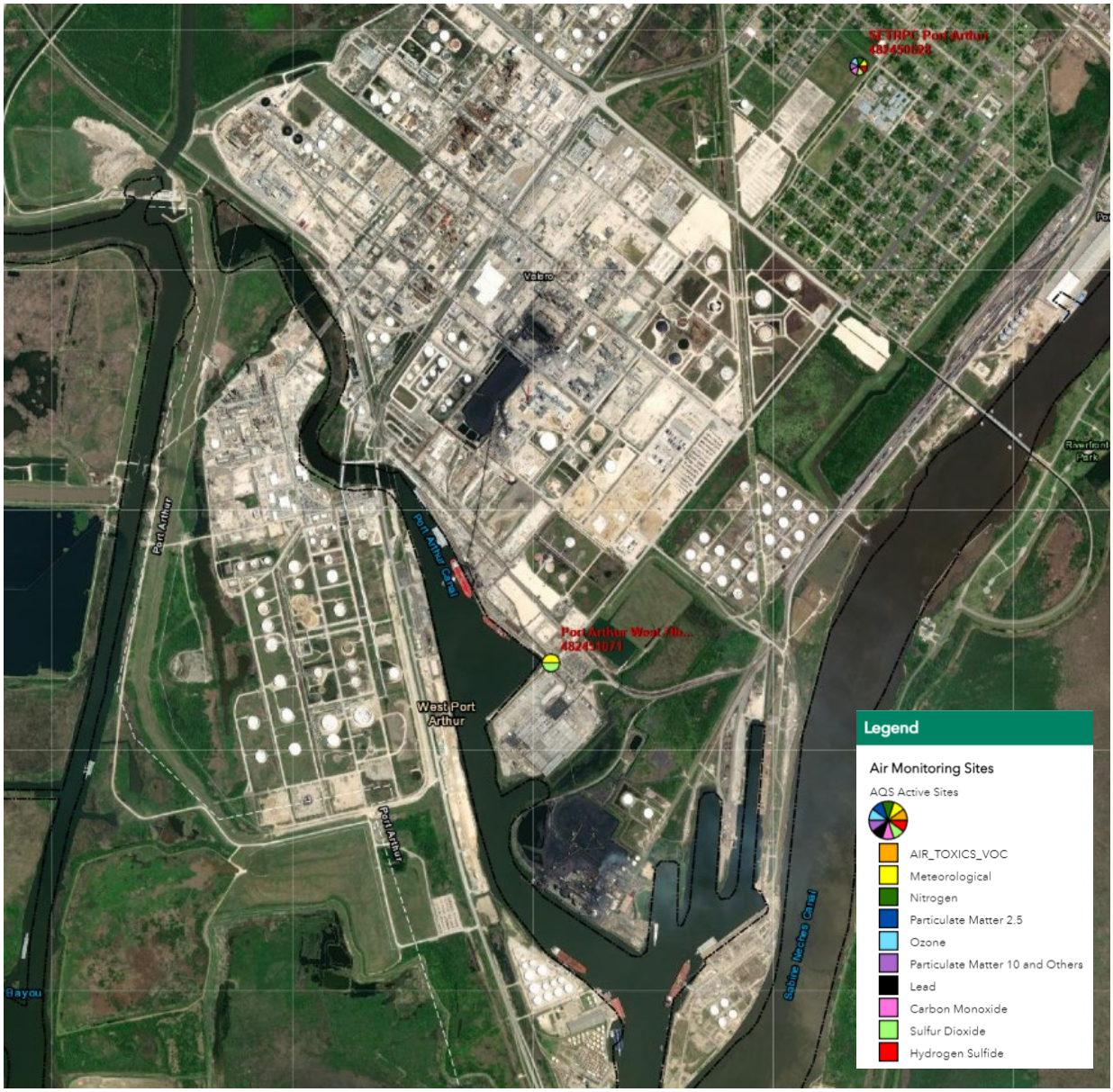

Figure I: Port Arthur West 7th Street Gate 2 Air Monitoring Site Location

Comment 30: LSLA commented that the Beaumont Mary monitor should be equipped with SO_2 capabilities to better protect the people of Beaumont from SO_2 emissions.

Response 30: 40 CFR Part 58, Appendix D, Section 4.4.2, requires states to establish an SO_2 monitoring network using population weighted emissions index (PWEI) calculations. Based on Census Bureau population estimates and 2017 national emissions inventory (NEI) data with 2019 TCEQ point-source emissions inventory

data, one PWEI SO_2 monitor is required in the BPA MSA; the TCEQ exceeds the requirement with four SO_2 monitors, including one located in Beaumont at the Beaumont Downtown location. Although beyond the scope of this document, the state-initiative Beaumont Mary site also monitors for H_2S.

Comment 31: The LSLA noted particular concern regarding the effects of Pb in Jefferson County on the Beaumont area's children, suffering from educational challenges and struggles to graduate from high school, and potential for Pb exposure due to exceptionally high rates of Pb paint in the area. The commentor acknowledged the Plan was not responsible for indoor air quality; however, the combination of Pb exposures from various sources, including the refinery and port a few blocks away, raised significant health concerns due to the location of the nearby Charlton-Pollard neighborhood and elementary school. LSLA et al commented that TCEQ could alleviate these concerns by monitoring Pb concentrations outside of the home at the Beaumont Mary monitor.

Response 31: The TCEQ evaluated 2020 Jefferson County total point-source Pb emissions and Beaumont area facility Pb emissions; no Beaumont facility emissions triggered the federal monitoring requirements detailed in 40 CFR Part 58, Appendix D, Section 4.5. The Beaumont area refinery and chemical plant's combined 2020 Pb emissions were 0.1155 tpy, 75% below the monitoring threshold of 0.5 tpy. The TCEQ is meeting the federal requirements for Pb monitoring in this area and comments unrelated to federally required monitoring are beyond the scope of this Plan.

Comment 32: The LSLA commented that since the BPA area has long struggled with maintaining O_3 attainment, there was continued concern even though the TCEQ Plan included a number of Jefferson County O_3 monitors and believed the Beaumont Mary monitor should monitor for O_3 due to several large O_3 precursor emitters located near the monitor. The LSLA urged the TCEQ to conduct air monitoring to ensure the highest predicted levels of O_3 were well monitored in the Beaumont area. The LSLA also reiterated that the Beaumont Mary monitor was best positioned to capture major pollution in Beaumont and advocated for the Beaumont Mary monitor to be equipped with CO capabilities and for the TCEQ to model CO in and around the Charlton-Pollard neighborhood.

Response 32: The TCEQ operates seven O_3 monitors in the BPA MSA (two in Port Arthur and one in Beaumont), five of which exceed federal requirements (see Figure F above for Jefferson County O_3 monitors located in the BPA MSA indicated with a light blue section). Local and industry entities also support the area with two additional non-regulatory O_3 monitors in Port Arthur (shown in Figure F). Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for determining compliance with the NAAQS, the TCEQ considers the data as supporting information for the area's air quality decisions. Data from these additional O_3 monitors are located on the TAMIS webpage.

Federal air monitoring sites are generally placed to be representative of regional air quality and the lack of a certain pollutant monitor does not indicate a lack of information for an area. The TCEQ is exceeding federal monitoring requirements for O_3 in the BPA MSA; all of these monitors provide data that are helpful in assessing O_3 precursors and O_3 levels in the BPA area. Comments unrelated to federally required monitoring are beyond the scope of this Plan.

Comment 33: The LSLA commented that even though there was a high concentration of PM precursor emitting facilities, multiple highways, seaports, and railroads in and near the Beaumont east side and Port Arthur west side, there was a lack of PM_{10} monitors. LSLA stated the TCEQ must ensure its monitoring plan adequately monitors for both $PM_{2.5}$ and PM_{10}. LSLA further advocated for increased $PM_{2.5}$ monitoring in the BPA area, that the three BPA $PM_{2.5}$ monitors were not well positioned, and only one, at Port Arthur Memorial School, was located in Port Arthur and none were in Beaumont. Therefore, the TCEQ must include $PM_{2.5}$ monitoring within these communities to ensure compliance with the NAAQS and inform and protect the most vulnerable and susceptible residents.

Response 33: Federal regulations require PM_{10} monitoring in MSAs based on population and available measured concentration and require $PM_{2.5}$ monitoring in MSAs based on population and the most recent three-year design values. The TCEQ air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public and to provide information about compliance with the NAAQS. Monitors can measure the impact on air quality from industrial sources present in an area but do not measure the emissions from individual sources. Previously measured PM_{10} concentrations in Beaumont do not indicate a need for BPA PM_{10} monitoring. Current PM monitors provide data supporting area-wide air quality throughout the BPA MSA that includes Beaumont and Port Arthur. As shown in the 2022 AMNP, the TCEQ is meeting or exceeding federal requirements for PM_{10} and $PM_{2.5}$ monitoring in the BPA MSA.

Comment 34: LSLA commented that the TCEQ should conduct monitoring for HCN in Pasadena, along the Houston Ship Channel, and in areas where facilities generate HCN even though it is not a criteria pollutant since HCN has a variety of adverse health effects. LSLA commented that while the EPA and TCEQ have set HCN health-based effects screening levels, neither has adopted emission control technology standards, and while facilities must conduct stack testing to determine emissions, no off-site monitoring has been conducted. LSLA further commented that the TCEQ must not downplay HCN risks, quantify the risk for the people living near these facilities, and monitor for this pollutant. Additionally, the TCEQ must conduct an in-depth review of the effects of HCN exposure on the surrounding population, effectively convey that information to the public, and implement techniques that yield monitoring data.

Response 34: The intent of the AMNP is to demonstrate the TCEQ's compliance with federal air monitoring requirements in 40 CFR Part 58. Monitoring for HCN and the evaluation of exposure effects are not a federal requirement under 40 CFR Part 58 and are beyond the scope of the AMNP.

Comment 35: The Allied Organizations of the Coastal Alliance to Protect Our Environment (CAPE) noted that the South Texas Coastal Bend region was experiencing rapid petrochemical industrial expansion affecting the City of Corpus Christi and several smaller Texas cities whose citizens may not be aware of the health and environmental impacts. CAPE noted that population-based federal regulation methods for determining air monitor placement do not take into account industrial emissions in lower populated areas and their impact on global warming. CAPE expressed concern that TCEQ is not taking a holistic and equitable view of the state in the AMNP, that communities were left unmonitored or under-monitored, and that AMNP monitors mostly represented the bare minimum. CAPE stated the TCEQ needed

a more aggressive and inclusive approach by significantly exceeding the minimum federal requirements to adequately protect human health and the environment.

CAPE was pleased the TCEQ planned to implement a new air monitoring site in the Gregory-Portland area and asked the TCEQ to expand the site to include continuous NO_x and O_3 monitoring, in addition to continuous VOCs and methane, and suggested obtaining assistance from Texas A&M to determine the site's location.

Response 35: The TCEQ does not agree with these comments. The TCEQ summarized the purpose of the AMNP in the Introduction and clarifies that the TCEQ must meet federal air monitoring requirements specified in 40 CFR Part 58 and its appendices. The TCEQ use of MSAs and CBSAs and associated populations is not arbitrary or chosen, but set by the EPA and federally required under 40 CFR Part 58, Appendix D. The TCEQ federal monitoring network includes more than double the number of monitors required by federal rule (shown in AMNP Appendix C). The number, type, and location of monitors within the network is sufficient to characterize area air quality for all areas required within Texas. The TCEQ also operates a robust network of state-initiative monitors that support a variety of purposes, including potential health effects evaluation; however, since these monitors are not federally required, they are outside the scope of this document and are not included. The latest information regarding the Texas air monitoring network, monitoring data, and air quality forecast conditions for Texas' metropolitan areas is featured on the TCEQ webpage Air Quality and Monitoring - Texas Commission on Environmental Quality - www.tceq.texas.gov.

The TCEQ appreciates the support to add a new air monitoring site in the Gregory-Portland area and reiterates that the Plan includes a proposal for VOCs and $PM_{2.5}$ monitoring at this new site (see AMNP page 25 and AMNP Appendix A). No additional monitoring is under consideration at this time; however, area needs will be further evaluated in future Plans. Other comments are beyond the scope of this AMNP.

Comment 36: CAPE requested the reference and link to the additional state-initiated monitoring mentioned in the AMNP, requested more information about state-initiative special studies under consideration, and requested details on the process to request special studies outside of the 30-day public comment period.

Response 36: As stated in the AMNP Introduction, the latest information regarding the Texas air monitoring network, monitoring data, and air quality forecast conditions for Texas' metropolitan areas is featured on the TCEQ webpage Air Quality and Monitoring - Texas Commission on Environmental Quality - www.tceq.texas.gov. TCEQ state-initiative monitors are included in the network link. Also posted on the TCEQ Air Quality and Monitoring webpage is a link to submit questions or comments regarding the Texas ambient air monitoring network, monops@tceq.texas.gov. State-Initiative special studies and requests are outside of the AMNP scope.

Comment 37: CAPE commented that 40 CFR Part 58 represented the bare minimum of required monitoring and asked how TCEQ ensured that primary quality assurance organizations (PQAO) were doing above the bare minimum as encouraged in 40 CFR Part 58. CAPE asked who the PQAOs were in Texas and noted that due to the state's geographic variability and homogenous air quality shouldn't Texas have more than one PQAO. CAPE noted that TCEQ did not clearly define or justify what constituted a PQAO. CAPE referenced that the AMNP identified PQAO collocation monitoring

requirements incrementally based on pre-existing insufficient network size and poor federal requirements for adequate coverage and that TCEQ simply invoked the 15% required of PQAOs in 40 CFR Part 58 to determine the minimum number of collocated quality control (QC) monitors.

Response 37: The TCEQ does not agree with these comments. As discussed in the AMNP Introduction, the TCEQ federal monitoring network includes more than double the number of monitors required by federal rule (shown in AMNP Appendix C). The number, type, and location of monitors within the network is sufficient to characterize area air quality for all areas required within Texas. 40 CFR Part 58, Appendix A, Section 1.2 defines a PQAO as a monitoring organization, a group of monitoring organizations or other organization that is responsible for a set of stations that monitor the same pollutant and for which data quality assessments can be pooled. Further, each PQAO is defined so that organizational air monitoring station data measurement uncertainty can be expected to be reasonably homogeneous as a result of:

a) common set of procedures followed by a team of field operators;
b) common quality assurance project plan (QAPP) and/or standard operating procedure usage;
c) common calibration facilities and standards;
d) common quality assurance organization oversight; and
e) support by a common management organization (state agency) or laboratory.

The TCEQ meets these defining factors and is the PQAO for all TCEQ air monitoring stations and data fulfilling requirements in 40 CFR Part 58. A state's geographic or air quality variability does not determine PQAO assignment.

The TCEQ further clarifies that required collocated monitoring supports monitoring data QC and quality assurance (QA) (see 40 CFR Part 58, Appendix A) and the requirements are independent from federal monitoring requirements under 40 CFR Part 58, Appendix D. The TCEQ must follow the QC requirements listed in 40 CFR Part 58, Appendix A and emphasizes that QC collocated monitoring is performed in addition to the federally required monitoring. As defined under 40 CFR Part 58 Appendix A, for each pair of collocated monitors, one sampler is designated as the primary monitor whose concentrations are used to report air quality for the site, and the other is designated as the QC monitor (i.e., there are two monitors at the site, the primary monitor reports site air quality data and the QC collocated monitor provides QA and QC data to ensure data quality objectives are met). The EPA set the network requirement of 15 percent collocated QC monitors to be in addition to the primary monitors. Details regarding the TCEQ additional collocated QC monitors for PM_{10}, $PM_{2.5}$, and Pb are shown in AMNP Appendix B under the Network column as QA collocated.

Comment 38: CAPE noted it might be more appropriate to use the EPA's intrastate and interstate Air Quality Control Regions (AQCRs) for siting and monitoring and that this may help to ensure that susceptible and vulnerable populations within a common airshed have more say so no communities would be left out.

Response 38: The TCEQ is required by federal rule to follow 40 CFR Part 58, set by

the EPA. The EPA specified that CBSAs or MSAs are the appropriate area designations to determine monitoring requirements. As stated in the AMNP Introduction, the TCEQ continues to support that the number, type, and location of monitors within the network is sufficient to characterize area air quality for all areas required within Texas. Comments related to the use of AQCRs for siting and monitoring are outside of the AMNP scope and should be directed to the EPA.

Comment 39: CAPE noted that the TCEQ AMNP Table 1 indicated that NCore instruments were unable to measure trace levels of PM and requested that TCEQ deploy instruments that have high sensitivity PM capability to be protective of public health.

Response 39: The TCEQ does not agree with this comment. The TCEQ is required to use EPA-specified methods for measuring ambient air concentrations designated as federal reference or equivalent methods (FRM or FEM) in accordance with 40 CFR Part 53; these FRM and FEM methods (and associated instrumentation) are listed on the EPA webpage Air Monitoring Methods - Criteria Pollutants | US EPA and further discussed in the AMNP General Monitoring Requirements section. NCore guidance (but not requirements) suggests monitoring instruments supporting the program be capable of measuring trace levels (high sensitivity). The TCEQ operates EPA-designated monitoring equipment in fulfillment of federal requirements, and not all pollutant specific monitors are capable of trace level detection, including PM.

Comment 40: CAPE commented that since San Antonio and Austin both have more than 2,000,000 in population these cities should also have PAMS monitoring and that by limiting TAMS<sic> to Dallas and Houston, TCEQ was again performing at the bare minimum and ignoring the spirit of the requirement.

Response 40: The TCEQ disagrees with the comments and notes that CAPE has misread the federal requirements. The PAMS network is an O_3 precursor monitoring network operated by state and local agencies. The PAMS program was originally started in the early 1990s to meet the requirements of the CAA. Significant revisions to the PAMS requirements were made as part of the 2015 O_3 NAAQS review. The revised PAMS requirements call for O_3 precursor measurements to be made at existing NCore sites (a multi-pollutant monitoring network also required in 40 CFR Part 58) in CBSAs with a population of one million or more. The main objective of the required PAMS sites is to develop a database of O_3 precursors and meteorological measurements to support O_3 model development and track the trends of important O_3 precursor concentrations. The TCEQ PAMS network is designed to meet requirements and support enhanced O_3 and O_3 precursor monitoring activities. Two of the three TCEQ NCore sites are located in CBSAs with populations meeting the requirement. There are no NCore air monitoring sites in San Antonio or Austin, hence no PAMS monitoring requirements. The TCEQ emphasizes that TCEQ PAMS monitoring exceeds minimum monitoring requirements. The TCEQ 2019 AMNP included an appendix with an Enhanced Monitoring Plan. The 2019 TCEQ Enhanced Monitoring Plan expanded on all of the PAMS monitoring completed in addition to the minimum requirements. The 2019 TCEQ AMNP is located on the TCEQ webpage TCEQ Air Monitoring Network Plans - Texas Commission on Environmental Quality - www.tceq.texas.gov. Details regarding the TCEQ monitors supporting the PAMS network are shown in AMNP Appendix B under the Network column as PAMS.

Appendix M: TCEQ Response to Comments Received on the draft 2022 Annual Monitoring Network Plan

Comment 41: CAPE commented that to be more protective and representative of sites most at risk for harmful industrial NO_2 and SO_2 emissions, ambient air monitoring sites could be selected within each of the EPA's 12 AQCRs and asked when the most heavily industrialized locations would get air monitors for NO_2 and SO_2.

Response 41: The TCEQ is required by federal rule to follow 40 CFR Part 58, set by the EPA. The EPA specified that CBSAs or MSAs are the appropriate area designations to determine monitoring requirements. The TCEQ notes that use of AQCRs is not approved by the EPA. As stated in the AMNP Introduction, the TCEQ continues to support that the number, type, and location of monitors within the network is sufficient to characterize area air quality for all areas required within Texas. The TCEQ air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public and to provide information about compliance with the NAAQS. Monitors can measure the impact on air quality from industrial sources present in an area but do not measure the emissions from individual sources. The TCEQ is meeting NO_2 and SO_2 monitoring requirements in all areas and exceeding in others; no additional monitors are currently planned.

Comment 42: CAPE commented that relying on 2010 and 2014 data to characterize SO_2 emissions seemed dated since many new facilities had been permitted since that time and asked for assurances that the TCEQ AMNP Appendix F was complete. CAPE noted that the AMNP should acknowledge new sources and review those emissions during the updates. CAPE asked for the TCEQ to create a tool, that showed permitted emissions for each industrial plant regulated. CAPE asked what the TCEQ does to notify communities of violations and penalty enforcements related to the AMNP.

Response 42: The TCEQ does not agree with these comments. The TCEQ AMNP Appendix F is the TCEQ's *SO2 Ongoing Data Requirements Annual Report* required under 40 CFR Section 51.1205(b). This report provides the annual assessment of SO_2 emissions changes for areas designated attainment/unclassifiable for the 2010 SO_2 NAAQS, where the designations were based on characterization of air quality by modeling actual SO_2 emissions. The most recent (2020) total estimated SO_2 emissions, based on quality assured data from the relevant designated sources in each county, are listed in the report along with emissions from the previous year (2019) and the change in SO_2 emissions. Information regarding the EPA's Final Data Requirements Rule (DRR) for the 2010 1-Hour SO_2 Data Requirements Rule and implementation requirements can be found here Final Data Requirements Rule for the 2010 1-Hour SO_2 Primary National Ambient Air Quality Standards (NAAQS) | US EPA. The final rule established minimum criteria for identifying the emissions sources and associated areas for which air agencies were required to characterize SO_2 air quality. Comments related to the EPA's final DRR, permitted emissions, and penalty enforcements associated with violations are outside of the AMNP scope.

Comment 43: One individual commented that the 2022 draft Plan did not include monitoring in Corpus Christi where many people live, work, and shop. The individual noted submitting previous comments and proposed a $PM_{2.5}$ monitor within a tenth of a mile from the La Palmera Mall to monitor pollution during winter events, since that location is roughly in the center of the city population where many people work and shop. The individual noted that the current monitors were around the refineries, the airport, and on the island and were not located where the people live. The individual

noted that the area had a larger than normal percentage of polluters caused by aging vehicles in poor repair, lack of zero-emission charging, no vehicle emissions testing, and a lack of air quality public outreach and education.

Response 43: The TCEQ disagrees with these comments. The 2022 AMNP includes ambient air monitoring in Corpus Christi where many people live, work, and shop as shown in Figure J below. The TCEQ Corpus Christi West air monitoring site is located in the vicinity of La Palmera Mall off of South Padre Island Drive. The TCEQ previously monitored for $PM_{2.5}$ at Corpus Christi West from 2000 to 2013, and due to low annual concentration data, the resource was reallocated. Comments related to pollution caused by aging vehicles, zero-emission charging, and vehicle emissions testing are outside of the AMNP scope. The TCEQ expanded outreach to non-English speaking communities in 2022 by publishing the 2022 Plan request for comment announcement in Spanish (and English) and by including a Spanish (and English) summary of the Plan.

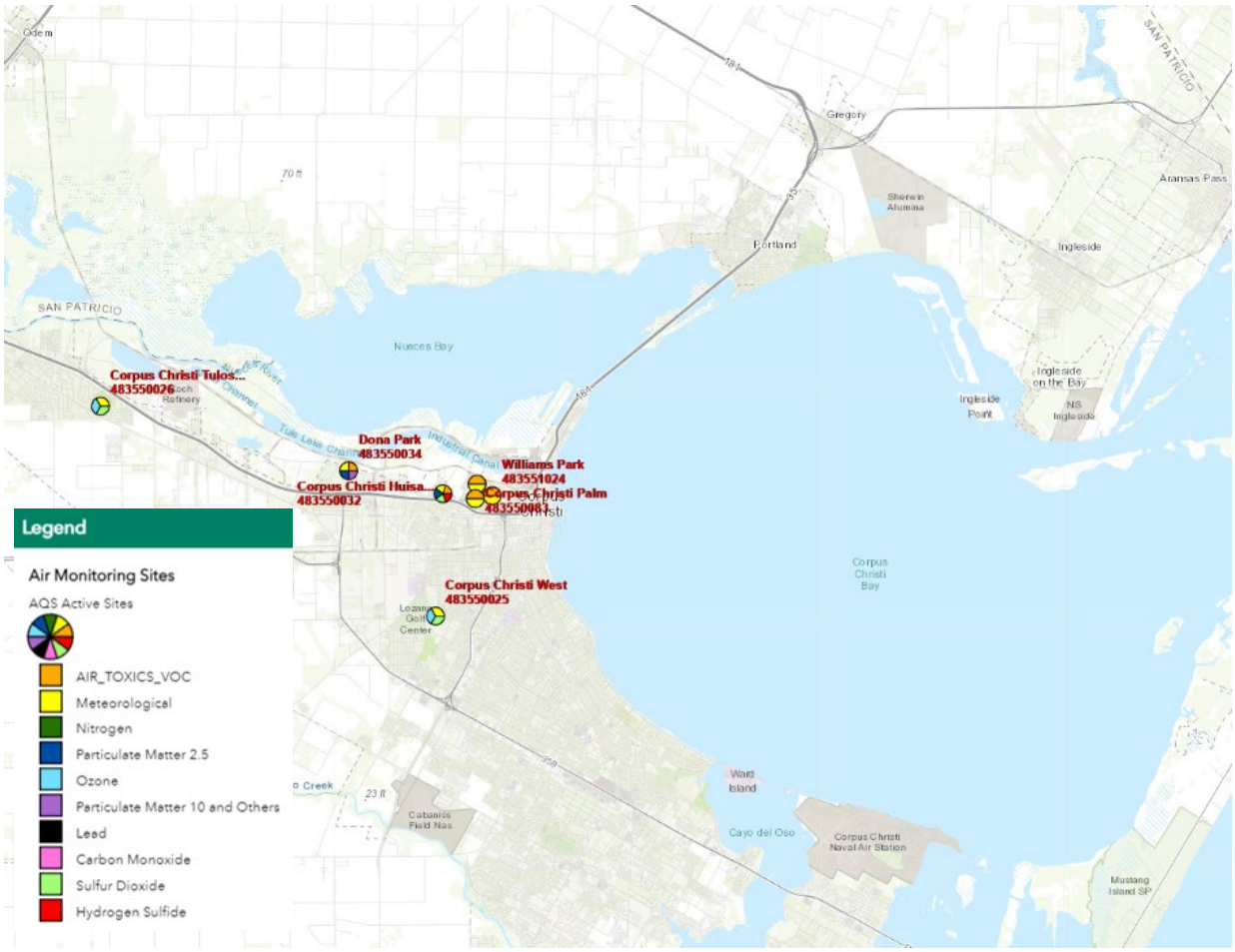

Figure J: Corpus Christi Area Active Sites and Ambient Air Monitors