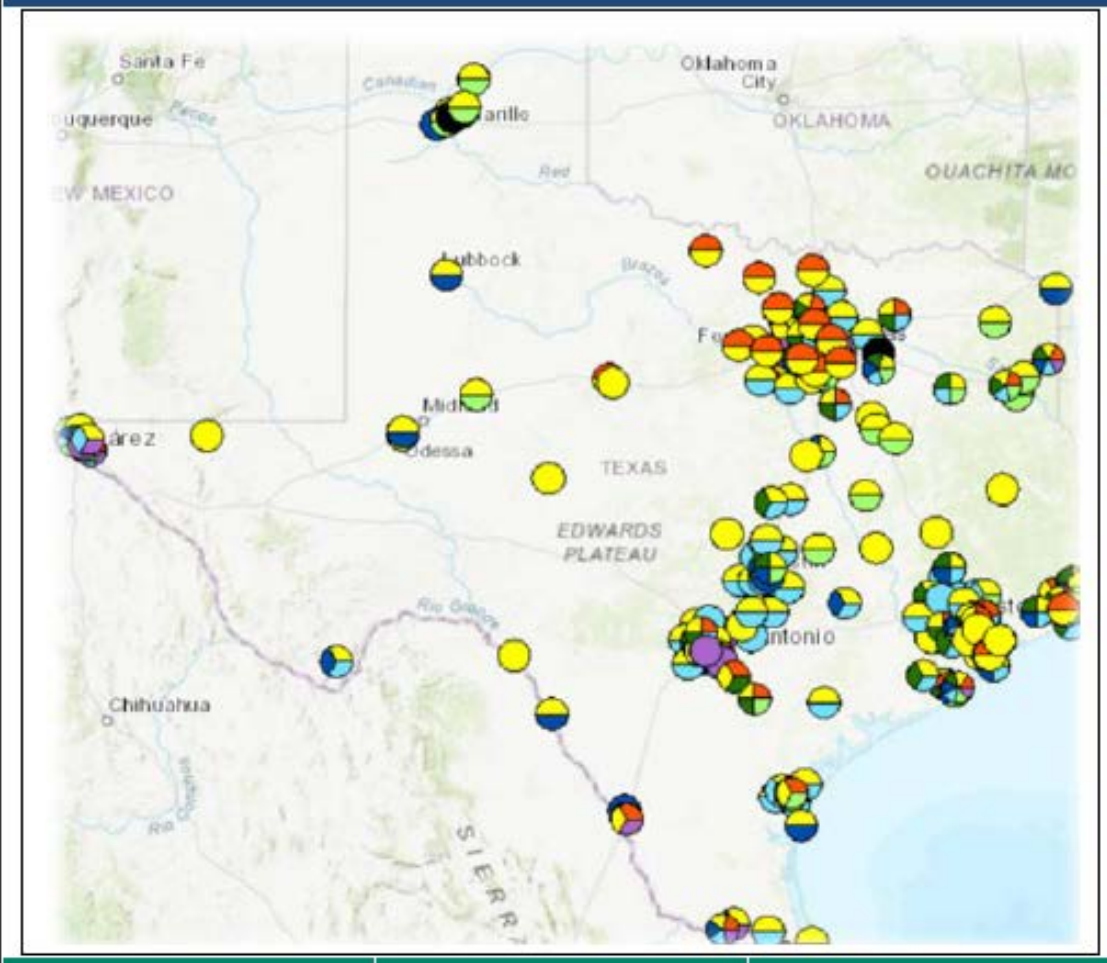
Texas Commission on Environmental Quality
Annual Monitoring Network Plan



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2019

TCEQ

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List of Acronyms and Abbreviations

– number

% – percent

> – greater than

≥ - greater than or equal to

< – less than

$\mu g/m^3$ – micrograms per cubic meter

AMNP – annual monitoring network plan

AQS – Air Quality System

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 – Environmental Protection Agency

EMP – Enhanced Monitoring Plan

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_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

PWEI – population weighted emissions index

QC – quality control

RA-40 – Regional Administrator 40

SE – southeast

SETRPC – South East Texas Regional Planning Commission

SH – State Highway

SLAMS – State or Local Air Monitoring Stations

SO_2 – sulfur dioxide

SPM – special purpose monitor

SVOC – semi-volatile organic compound

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) §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 AMNP must be available for public inspection and comment for at least 30 days prior to submission to the EPA. The Texas Commission on Environmental Quality (TCEQ) submits the AMNP to the EPA for final review and approval along with comments received during the 30-day inspection period.

The AMNP provides information on the TCEQ ambient air monitoring network established to meet the National Ambient Air Quality Standards (NAAQS) requirements in 40 CFR Part 50. The document presents the current Texas network, as well as recommended changes to the network, from July 1, 2018, through December 31, 2020.

Title 40 CFR §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 inclusive monitors with respective networks. Based on annual internal audits performed to date, all monitoring sites are meeting the requirements defined in 40 CFR §58 Appendices A, B, C, D, and E, with the following exceptions. The TCEQ continues to assess the location options for Midlothian OFW to meet siting criteria. The TCEQ is working with the park superintendent to meet siting criteria at the El Paso Chamizal site due to the distance between the monitoring probes and tree drip lines. The Austin Northwest air monitoring site will be relocated at the property owner's request by May 2020.

Title 40 CFR §58, Appendix D, Section 5(h) requires states with moderate and above eight-hour ozone (O_3) nonattainment areas to develop and implement an Enhanced Monitoring Plan (EMP) detailing enhanced O_3 and O_3 precursor monitoring activities. The EMP, included in this AMNP as Appendix M, describes monitoring activities deemed important to understanding O_3 concentrations in the Dallas-Fort Worth and Houston-Galveston-Brazoria nonattainment areas and in areas previously designated serious nonattainment for the revoked one-hour O_3 standard in Beaumont-Port Arthur and El Paso.

AMNP Appendix C lists Texas core based statistical areas (CBSAs) or metropolitan statistical areas (MSAs), 2017 U.S. Census Bureau population estimates, and required monitor counts. The TCEQ uses these data to evaluate the networks as documented in the AMNP. The U.S. Census Bureau defines CBSA as a collective term for MSAs, and the terms are used interchangeably in this plan according to usage in the federal regulations.

Regulatory Network Review

Nitrogen Dioxide

The TCEQ nitrogen dioxide (NO_2) network includes nitrogen oxide (NO), NO_2, and total reactive nitrogen compound (NO_y) monitoring requirements. The TCEQ NO_2 network is designed to meet area-wide, Regional Administrator 40 (RA-40), near-road, PAMS, and NCore monitoring requirements. The TCEQ is required to operate 19 NO, NO_2, true NO_2, and NO_y monitors and exceeds the requirements with 51. AMNP Appendix D lists the monitoring requirements in each Texas CBSA.

Monitoring Requirements

Area-Wide Monitoring Requirements

Title 40 CFR §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 §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 2017 U.S. Census Bureau population estimates for Texas, area-wide neighborhood or urban scale NO_2 monitoring is required in four CBSAs. The NO_2 monitors 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 Northwest

Regional Administrator Monitoring Requirements

Title 40 CFR §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. The TCEQ collaborated with the EPA to identify the four Texas monitoring sites listed below to meet this requirement.

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

Near-Road Monitoring Requirements

Title 40 CFR §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 current TCEQ near-road monitoring network meets requirements with the six near-road sites 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
- Austin CBSA: Austin North Interstate 35

NCore and PAMS Monitoring Requirements

The TCEQ meets NCore monitoring requirements listed in 40 CFR §58, Appendix D, Section 3(b) with NO and NO_y measured at the NCore sites listed in Table 1.

The EPA revisions to the PAMS program under the final rule published October 26, 2015, and listed in 40 CFR §58, Appendix D, Section 5, require state agencies to collect and report true NO_2, NO, and NO_y measurements at NCore sites in CBSAs with 1,000,000 or more persons. The TCEQ meets the PAMS network monitoring requirements with hourly averaged NO_2, NO, and NO_y measured at the Dallas Hinton and Houston Deer Park number (#) 2 sites.

Table 1: National Core Multipollutant Monitoring Stations

Core Based Statistical Area	Site Name	2017 Population Estimates*	PAMS
Dallas-Fort Worth-Arlington	Dallas Hinton	7,399,662	Yes
Houston-The Woodlands-Sugar Land	Houston Deer Park #2	6,892,427	Yes
El Paso	El Paso Chamizal	844,818	No

*United States Census Bureau population estimates as of July 1, 2017.
– number
PAMS – Photochemical Assessment Monitoring Stations

Previously Recommended Changes

The TCEQ 2018 AMNP recommended deploying true NO_2 analyzers at Dallas Hinton and Houston Deer Park #2 to meet PAMS requirements. The EPA approved the recommendation. Due to logistical constraints at these sites, the TCEQ requested to decommission the existing NO_x monitors to allow space for the required NO_2 monitors. The EPA approved the request in a letter dated February 5, 2019. The TCEQ decommissioned the NO_x monitor and replaced it with a Teledyne T500U cavity attenuated phase shift true NO_2 analyzer (EQNA-0514-212) at Houston Deer Park #2 on February 26, 2019. The TCEQ replaced the NO_x monitor with a true NO_2 analyzer at Dallas Hinton on May 30, 2019.

Regulatory NO_2 Monitoring Network Changes

The TCEQ proposes changing the network designation for the NO_x monitors at Camp Bullis and Eagle Mountain Lake from state initiative to federal special purpose monitors (SPM) and the NO_x monitor at Keller from state initiative to PAMS, and to add them to the EPA air quality system (AQS) database effective January 1, 2020, to support modeling and regional data analyses. The TCEQ proposes changing the network designation for the NO_x monitor at Corsicana Airport from state initiative to a federal SPM, effective January 1, 2020. Data from this monitor are currently submitted to the EPA AQS database to support modeling and regional data analyses. The TCEQ proposes changing the network designation for the NO_x monitors at Conroe Relocated and Dallas North #2 to PAMS, effective January 1, 2020, to support enhanced O_3 precursor monitoring activities. The TCEQ recommends deploying a NO_x monitor to the new Houston West End site, located on Harvard Street behind the West End Health Center in Houston, Texas, by August 31, 2020.

Sulfur Dioxide

The TCEQ sulfur dioxide (SO_2) network includes 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. The TCEQ is required to operate a total of 20 SO_2 monitors and exceeds the requirements with 32. A summary of the PWEI calculations, monitoring requirements, and current number of SO_2 monitors in each CBSA is shown in AMNP Appendix E.

Monitoring Requirements

Population Weighted Emissions Index Requirements

Title 40 CFR §58, Appendix D, Section 4.4.2, requires states to establish an SO_2 monitoring network based on the PWEI calculations. These indices are calculated by multiplying the CBSA population by the emissions inventory (EI) data for counties within that CBSA. The 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
- three monitors in CBSAs with a PWEI equal to or greater than 1,000,000

The TCEQ used 2017 U.S. Census Bureau population estimates and 2014 National Emissions Inventory (NEI) data with 2017 TCEQ point-source EI data to calculate the PWEIs and to determine the minimum monitoring requirements for each CBSA. The TCEQ meets the PWEI requirements with six monitors as shown in AMNP Appendix E.

nonattainment area. For air quality characterization in areas where applicable sources were identified for evaluation by monitoring, the TCEQ continues to meet DRR requirements with 11 SO_2 monitors located near 13 sources. Details for the TCEQ's SO_2 source evaluation, modeling, and monitoring recommendations are in the TCEQ 2017 AMNP.

Title 40 CFR §51.1205(b) requires the TCEQ to submit an annual report that documents the annual SO_2 emissions of each applicable source and provides an assessment of the cause of any emissions increase from the previous year. The DRR assessment is provided in AMNP Appendix F.

NCore Requirements

Title 40 CFR §58, Appendix D, Section 3 requires states to monitor SO_2 at NCore sites. The TCEQ meets this requirement with three high-sensitivity SO_2 monitors at the NCore sites listed in Table 1.

Previously Recommended Changes

The TCEQ 2018 AMNP recommended no changes to the SO_2 monitoring network; however, one site will be relocated at the property owner's request. The TCEQ will relocate the Port Arthur 7th Street air monitoring station to a temporary location approximately 0.3 miles to the north-northeast by July 30, 2019, and rename the site Port Arthur West 7th Street. The EPA concurred with the relocation in a letter dated March 20, 2019. The TCEQ is working with EPA Region 6 to evaluate relocation options for the Port Arthur West 7th street SO_2 air monitoring site based on updated emissions modeling.

Regulatory SO_2 Monitoring Network Changes

The TCEQ evaluated the current SO_2 monitoring network and determined the existing SO_2 network meets all federal monitoring requirements; therefore, no changes are recommended.

Lead

The TCEQ total suspended particulate (TSP) lead (Pb) network is designed to meet source-oriented SLAMS monitoring requirements. The TCEQ Pb monitoring network is required to operate three Pb monitors and exceeds this requirement with five. AMNP Appendix G lists the Pb monitoring requirements and the total number of TSP Pb monitors.

Monitoring Requirements

The TCEQ Pb network meets 40 CFR §58, Appendix D, Section 4.5 monitoring requirements. 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 §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 2015, 2016, and 2017 point source EI data. All sources continue to maintain emissions below the 0.50 tpy threshold, except for the Lower Colorado River Authority Fayette Power Plant discussed below. Table 2 includes information regarding Pb source-oriented monitoring.

Table 2: 2015-2017 Lead Point Source Emissions Inventory Data

Facility Name	County	2015 Pb Emissions (tpy)	2016 Pb Emissions (tpy)	2017 Pb Emissions (tpy)	TCEQ Comments
Lower Colorado River Authority	Fayette	0.4947	0.5580	0.6300	Pb waiver renewal approved on October 26, 2015
Conecsus, LLC	Kaufman	0.3373	0.3401	0.2617	Pb is currently monitored at the Terrell Temtex site

LLC – limited liability company
Pb – lead
TCEQ – Texas Commission on Environmental Quality
tpy – tons per year

Pb Waivers

Under 40 CFR §58, Appendix D, Section 4.5(a)(ii), the EPA Regional Administrator may waive the requirement in 40 CFR §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 percent (%) 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 §58.10(d).

Since 2010, the TCEQ has submitted five Pb waivers for source-oriented monitoring. The EPA Region 6 granted each request. Four of the waivers are no longer required due to a decrease in source emissions below the 0.50 tpy threshold. The remaining Pb waiver remains effective. The request to renew the Pb waiver for the Lower Colorado River Authority Fayette Power Plant in Fayette County was submitted in the 2015 TCEQ *Texas Five-Year Ambient Monitoring Network Assessment*. The waiver renewal request included information regarding a Pb modeling analysis indicating the predicted maximum ground level concentration for a rolling three-month average continued to remain below 50% of the NAAQS. The EPA Region 6 approved the waiver renewal request in the TCEQ *2015 Annual Monitoring Network Plan* response letter dated October 26, 2015. Applicable waivers will be submitted for renewal in the 2020 TCEQ *Texas Five-Year Ambient Monitoring Network Assessment*.

Collocation Requirements

Title 40 CFR §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 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 Pb monitor. The TCEQ operates collocated Pb monitors at Frisco Eubanks and Terrell Temtex. Terrell Temtex measured the highest 2018 network Pb concentrations.

Previously Recommended Changes

The TCEQ 2018 AMNP recommended decommissioning the Amarillo SH 136, Frisco 5th Street, Frisco 7, and the collocated Ojo De Agua TSP Pb monitors. The EPA approved the recommendations. The TCEQ decommissioned the Amarillo SH 136 monitor on November 29, 2018, the Frisco 5th Street and Frisco 7 monitors on December 31, 2018, and the collocated Ojo De Agua monitor on November 5, 2018.

Regulatory Pb Monitoring Network Changes

The TCEQ evaluated the current Pb monitoring network and determined the existing Pb network meets all federal monitoring requirements. As detailed in 40 CFR §58, Appendix A, 3.4.5.3(c), the TCEQ recommends reducing the sampling frequency of the Frisco Eubanks collocated quality control TSP Pb monitor to every 12th day by December 31, 2019.

Ozone

The TCEQ O_3 network is designed to meet SLAMS, PAMS, and NCore monitoring requirements. The TCEQ O_3 monitoring network is required to operate a total of 27 O_3 monitors and exceeds this requirement with 69 O_3 monitors. AMNP Appendix H lists the O_3 requirements and monitors in each MSA.

Monitoring Requirements

SLAMS Requirements

Title 40 CFR §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. Monitoring requirements are outlined in Table 3. According to 2017 U.S. Census Bureau population estimates and 2016-2018 eight-hour O_3 design values, the TCEQ must operate a minimum of 24 O_3 monitors to meet SLAMS network requirements. AMNP Appendix B lists the monitors in each MSA.

Table 3: Ozone Monitoring Requirements

MSA Population[1]	Most recent 3-year design value concentrations ≥85% of any O_3 NAAQS[2]	Most recent 3-year design value concentrations <85% of any O_3 NAAQS[3, 4]
>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]Minimum monitoring requirements apply to the metropolitan statistical area (MSA).
[2]The ozone (O_3) National Ambient Air Quality Standards (NAAQS) levels are defined in 40 CFR Part 50.
[3]These minimum monitoring requirements apply in the absence of a design value.
[4]MSA must contain an urbanized area of 50,000 or more population.
≥ - greater than or equal to
< - less than
> - greater than
% - percent

NCore and PAMS Requirements

In addition to SLAMS O_3 requirements, 40 CFR §58, Appendix D, Sections 3 and 5, require O_3 monitoring at NCore sites to meet NCore design criteria and at NCore sites in CBSAs with a population of 1,000,000 or more persons, to meet PAMS requirements. The TCEQ meets combined NCore and PAMS requirements with O_3 monitors at the three NCore sites listed in Table 1.

Previously Recommended Changes

The TCEQ 2018 AMNP recommended discontinuing data submissions to the EPA AQS database from the South East Texas Regional Planning Commission (SETRPC) Jefferson County Airport and SETRPC Sabine Pass monitors located near Beaumont, Texas. The 2018 data from these sites continue to be a valuable resource to data users, and the recommendation was not implemented.

Regulatory O_3 Monitoring Network Changes

The TCEQ recommends deploying an O_3 SPM monitor to the Ojo de Agua air monitoring site by March 31, 2020, to provide better area coverage in this diverse geographic terrain and to support modeling and exceptional event analyses. The TCEQ recommends deploying an O_3 SPM monitor to the new Houston West End site, located on Harvard Street behind the West End Health Center in Houston, Texas, by August 31, 2020. The TCEQ proposes changing the network designation for the O_3 monitor at Corsicana Airport from state initiative to a federal SPM, effective January 1, 2020. Data from this monitor are currently submitted to the EPA AQS database to support modeling and regional data analyses. The TCEQ proposes changing the network designation for the O_3 monitors at Dallas North #2, Cleburne Airport, and Keller to PAMS, effective January 1, 2020, to support enhanced photochemical monitoring activities.

Carbon Monoxide

The TCEQ carbon monoxide (CO) network includes ambient CO and high-sensitivity CO monitoring. The TCEQ CO network is designed to meet NCore and near-road monitoring requirements. The agency is required to operate seven CO monitors and exceeds the requirements with 12: eight CO monitors and four high-sensitivity CO monitors. AMNP Appendix I lists the required and current CO monitors in each CBSA.

Monitoring Requirements

NCore Monitoring Requirements

Title 40 CFR §58, Appendix D, Section 3.0 requires CO monitoring at NCore sites. The EPA's *Technical Assistance Document (TAD) for Precursor Gas Measurements in the NCore Multi-Pollutant Monitoring Network – Version 4* (September 2005) recommends high-sensitivity CO monitors at the NCore sites. The TCEQ meets this technical recommendation with high-sensitivity CO monitors at the three NCore sites listed in Table 1.

Near-Road Monitoring Requirements

Title 40 CFR §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 2018 AMNP recommended decommissioning the Beaumont Nederland CO monitor and changing the designation of the Clinton CO monitor from PAMS/SLAMS to SPM. The EPA approved these changes. The TCEQ decommissioned the Beaumont Nederland CO monitor effective November 15, 2018, and changed the designation of the Clinton CO monitor from PAMS/SLAMS to SPM effective January 1, 2019.

Regulatory CO Monitoring Network Changes

The TCEQ recommends replacing the San Antonio Interstate 35 CO monitor with a high-sensitivity CO monitor by December 31, 2019, to support exceptional event analyses in the San Antonio area.

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. The TCEQ is required to operate between 11 and 31 PM_{10} monitors and exceeds the minimum requirements with 21. AMNP Appendix J lists the required and current PM_{10} monitors in each MSA.

Monitoring Requirements

The TCEQ PM_{10} network is designed to meet the area requirements of 40 CFR §58, Appendix D, Section 4.6, specifying the number of PM_{10} monitors required in MSAs based on population and available measured concentrations. Monitoring requirements are listed in Table 4. Compliance with the PM_{10} standard is based on the number of measured exceedances of the 150 micrograms per cubic meter ($\mu g/m^3$) standard averaged over three years. The evaluation of PM_{10} monitoring requirements was completed using 2017 U.S. Census Bureau population estimates and 2016-2018 PM_{10} data. The evaluation and the associated maximum 2016-2018 concentrations for each MSA are listed in AMNP Appendix J, Table 1.

Table 4: Particulate Matter of 10 Micrometers or Less Minimum Monitoring Requirements

Population Category	High Concentration[1]	Medium Concentration[2]	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 §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 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 concentration measurement during the three-year period from 2016-2018 and includes the 2016, 2017, and 2018 annual mean concentrations for each PM_{10} site. The TCEQ evaluates the data annually to determine network efficacy for the collocated PM_{10} monitors. Based on the current network of PM_{10} samplers, the TCEQ is required to operate three PM_{10} collocated samplers and exceeds this requirement with four. AMNP Appendix J, Table 1 lists the current monitors.

The PM_{10} annual measured average concentration data were evaluated from 2016-2018 to determine network collocation sites. The PM_{10} measurement concentrations at Clinton, Socorro Hueco, and Ojo De Agua had 2018 annual mean concentrations among the highest in the network and continue to satisfy collocation requirements.

Previously Recommended Changes

The TCEQ 2018 AMNP recommended several PM_{10} changes that were approved by the EPA. The TCEQ decommissioned the Stage Coach PM_{10} monitor, the Houston Aldine PM_{10} monitor, and the Houston Deer Park #2 primary and collocated monitors effective October 30, 2018. The TCEQ also decommissioned the Karnack PM_{10} monitor effective October 31, 2018, and the Dallas North #2 PM_{10} monitor effective December 31, 2018. The EPA also approved the TCEQ recommendation to relocate the Riverside PM_{10} federal reference method (FRM) sampler less than one mile from the original site by December 31, 2019, to increase site accessibility. This relocation is pending final site construction.

As approved by the EPA in a letter dated March 28, 2019, the TCEQ will relocate the Selma PM_{10} FRM monitor to the new San Antonio Bulverde Parkway site by September 30, 2019, replacing the PM_{10} FRM with a PM_{10} continuous federal equivalent method (FEM).

Regulatory PM_{10} Monitoring Network Changes

As detailed in 40 CFR §58, Appendix A, 3.34.1(d), the TCEQ recommends reducing the sampling frequency of collocated quality control PM_{10} monitors at Clinton, Convention Center, Ojo De Agua, and Socorro Hueco to every 12th day by December 31, 2019.

Due to industrial and population growth in the Portland/Gregory area north of Corpus Christi, the TCEQ Monitoring Division, Toxicology Division, Air Quality Division, and TCEQ Corpus Christi Regional Office continue to evaluate the potential placement of PM_{10} monitors in San Patricio County. To improve population exposure coverage, the TCEQ recommends adding a PM_{10} continuous FEM monitor to Houston North Wayside by December 31, 2020.

Particulate Matter of 2.5 Micrometers or Less

The TCEQ particulate matter of 2.5 micrometers or less in diameter ($PM_{2.5}$) monitoring network includes a combination of non-continuous FRM, continuous FEM, and non-NAAQS comparable monitors designed to meet area, regional background, regional transport, NCore, and near-road network requirements. The TCEQ is required to operate 28 FRM, FEM, coarse particulate matter ($PM_{10-2.5}$), or speciated $PM_{2.5}$ monitors and exceeds the requirements with 71. An analysis of $PM_{2.5}$ monitoring and siting requirements using 2017 U.S. Census Bureau population estimates and 2018 measured $PM_{2.5}$ concentrations is provided in AMNP Appendix K.

Monitoring Requirements

General and Continuous Monitoring Requirements

Title 40 CFR §58, Appendix D, Section 4.7 requires $PM_{2.5}$ 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. Monitoring requirements are outlined in Table 5. Under 40 CFR §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. At least one of these required continuous analyzers in each MSA must be collocated with one of the required FRM/FEM monitors unless the FEM monitor is itself a continuous FEM monitor. Additionally, 40 CFR §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.

Table 5: Particulate Matter of 2.5 Micrometers or Less Minimum Monitoring Requirements

MSA population	Most recent 3-year design value ≥85% of any $PM_{2.5}$ NAAQS	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

NCore Monitoring Requirements

Title 40 CFR §58, Appendix D, Section 3 requires $PM_{2.5}$ FRM mass, $PM_{2.5}$ FEM mass continuous, speciated $PM_{2.5}$, and $PM_{10-2.5}$ mass monitoring at all NCore sites. The TCEQ meets this requirement with $PM_{2.5}$ monitors at the three NCore sites listed in Table 1.

Near-Road $PM_{2.5}$ Monitoring Requirements

Title 40 CFR §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.

- 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 §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 sampling. For each primary monitor designated as an FEM, 50% of the monitors designated for collocation shall be collocated with an FRM and 50% shall be collocated with a monitor having the same method designation as the FEM primary monitor (see Table 6). Fifty percent of the collocated quality control 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 16 FRM monitors, the TCEQ is required to operate two collocated $PM_{2.5}$ FRM (FRM/FRM collocation) monitors and exceeds this requirement with three.

To replace aging $PM_{2.5}$ equipment, the TCEQ began deploying $PM_{2.5}$ continuous FEM monitors (method code 209) in 2017. Based on the current $PM_{2.5}$ network of 24 FEM monitors, the TCEQ is required to operate three collocated monitors pursuant to 40 CFR §58, Appendix A, Section 3.2.3.2(b). For the first collocation requirement, a primary $PM_{2.5}$ FRM monitor must be collocated with a $PM_{2.5}$ FEM monitor (FEM/FRM collocation). The second pair must have a $PM_{2.5}$ FEM monitor collocated with another

$PM_{2.5}$ FEM monitor (FEM/FEM collocation). The third pair must have a primary $PM_{2.5}$ FEM monitor collocated with a $PM_{2.5}$ FRM monitor (FEM/FRM collocation).

The TCEQ operates four $PM_{2.5}$ FEM collocated monitor pairs, three $PM_{2.5}$ FEM/FRM monitor pairs, and one $PM_{2.5}$ FEM/FEM pair. Information regarding the $PM_{2.5}$ collocation designations is listed in AMNP Appendix C. A summary of current and future collocation deployments approved by the EPA in the TCEQ 2018 AMNP is listed in Table 6.

Table 6: Particulate Matter of 2.5 Micrometers or Less FEM Collocation Requirements

Number of Primary FEM Monitors (with unique method designation)	Number Collocated	Number Collocated with an FRM	Number Collocated with same Method Designation	Collocation Site and Method Designations
1-9	1	1	0	Austin Webberville Road FEM/FRM
10-16	2	1	1	Corpus Christi Huisache FEM/FEM
17-23	3	2	1	San Antonio Northwest FEM/FRM
24-29	4	2	2	Fort Worth California Parkway North* FEM/FEM
30-36	5	3	2	Houston Aldine FEM/FRM

*Future planned deployment as collocation thresholds are met
FEM – federal equivalent method
FRM – federal reference method

Previously Recommended Changes

The TCEQ 2018 AMNP recommended several $PM_{2.5}$ changes that were approved by the EPA. The non-NAAQS comparable Arlington Municipal Airport $PM_{2.5}$ continuous tapered element oscillating microbalance (TEOM) sampler was decommissioned on December 4, 2018. The sampling frequency of the Dallas Hinton $PM_{2.5}$ FRM monitor was reduced from daily to every third day on January 1, 2019. The TCEQ continues to replace aging $PM_{2.5}$ 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 the 2018 AMNP. The approved changes status is listed in Table 7.

The recommendation to relocate the Corpus Christi Huisache $PM_{2.5}$ FEM primary and collocated monitors to Corpus Christi West was not approved by the EPA. Air monitoring objectives require networks to be designed to provide information about peak air pollution levels in an area. Networks must include monitoring sites located to determine the highest concentration expected to occur in the areas covered by the network per 40 CFR §58, Appendix D Section 1.1.1. The Corpus Christi Huisache $PM_{2.5}$ monitors historically reflect the highest concentration for the Corpus Christi area. The $PM_{2.5}$ monitor at Corpus Christi West, in operation from 2000 to 2013, measured the

lowest $PM_{2.5}$ levels in the Corpus Christ area; therefore, the recommendation was not implemented.

The TCEQ deployed a $PM_{2.5}$ FEM monitor at the existing Temple Georgia site on March 15, 2019, to expand network coverage in the Killeen-Temple MSA. The EPA concurred with the recommendation in a letter dated February 20, 2019.

At the property owner's request, the TCEQ decommissioned the $PM_{2.5}$ TEOM at Fayette County and will relocate the monitor to the College Station-Bryan MSA. At the property owner's request, the TCEQ will move the $PM_{2.5}$ TEOM at the Isla Blanca Park site to a new site, Isla Blanca State Park Road, 0.3 miles northeast, by September 30, 2019. The EPA concurred with the relocation in a letter dated March 20, 2019.

Table 7: Particulate Matter of 2.5 Micrometers or Less Summary of Approved Changes

Site Name	Monitor(s) Replaced	New Monitor	Action	Status
Amarillo A&M	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed July 12, 2018
Arlington Municipal Airport	$PM_{2.5}$ TEOM	NA	Decommission	Completed December 4, 2018
Austin North Interstate 35	$PM_{2.5}$ FRM	$PM_{2.5}$ FEM continuous	Method code change	Completed October 25, 2018
Calaveras Lake	$PM_{2.5}$ FRM and $PM_{2.5}$ TEOM pair	$PM_{2.5}$ FEM continuous	Method code change	Completed November 8, 2018
Lubbock 12th Street	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed July 11, 2018
Odessa Gonzales	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed July 10, 2018
San Antonio Interstate 35	$PM_{2.5}$ FRM	$PM_{2.5}$ FEM continuous	Method code change	Completed November 8, 2018
San Antonio Northwest	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous pair	Method code change, new FEM/FRM collocation pair	Completed November 8, 2018
Texarkana New Boston	$PM_{2.5}$ FRM and $PM_{2.5}$ TEOM pair	$PM_{2.5}$ FEM continuous	Method code change	Completed January 9, 2019
Temple Georgia	NA	Add $PM_{2.5}$ FEM continuous	New monitor deployment	Completed March 15, 2019
Galveston 99th Street	$PM_{2.5}$ FRM and $PM_{2.5}$ TEOM pair	$PM_{2.5}$ FEM continuous	Method code change	Completed April 15, 2019
Fort Worth California Parkway North	$PM_{2.5}$ FRM	$PM_{2.5}$ FEM continuous collocated pair	Method code change, new FEM/FEM collocation pair	Pending

Site Name	Monitor(s) Replaced	New Monitor	Action	Status
Houston Aldine	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change, new FEM/FRM collocation pair	Completed May 22, 2019
Convention Center	$PM_{2.5}$ FRM	$PM_{2.5}$ FEM continuous	Method code change	Pending
Corsicana Airport	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending
Denton Airport South	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending
Fort Worth Northwest	$PM_{2.5}$ FRM	$PM_{2.5}$ FEM continuous	Method code change	Pending
Haws Athletic Center	$PM_{2.5}$ FRM and $PM_{2.5}$ TEOM pair	$PM_{2.5}$ FEM continuous	Method code change	Pending
Kaufman	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending
Houston North Loop	$PM_{2.5}$ FRM	$PM_{2.5}$ FEM continuous	Method code change	Pending
Isla Blanca Park	$PM_{2.5}$ TEOM	$PM_{2.5}$ TEOM	Site relocation	Pending
Palo Alto	$PM_{2.5}$ TEOM	$PM_{2.5}$ continuous	Decommission and relocate site to south San Antonio	Pending

FEM – federal equivalent method
FRM – federal reference method
NA – not applicable
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
TEOM – tapered element oscillating microbalance

Regulatory $PM_{2.5}$ Monitoring Network Changes

The TCEQ recommends decommissioning the Houston Deer Park #2 $PM_{2.5}$ non-NAAQS comparable continuous monitor ($PM_{2.5}$ TEOM) by December 31, 2019. This monitor has a 2018 annual average concentration of 7.9 µg/m^3. Houston Deer Park #2 will continue to operate a $PM_{2.5}$ FRM non-continuous and a $PM_{2.5}$ FEM continuous monitor to meet NCore requirements. The remaining monitors in the Houston MSA continue to exceed federal requirements.

The TCEQ will deploy a $PM_{2.5}$ FEM monitor at a new site, Bryan Finfeather Road, by December 31, 2019, to expand network coverage in the College Station-Bryan MSA. The EPA concurred with the recommendations in a letter dated February 20, 2019. To improve population exposure coverage, the TCEQ recommends adding a $PM_{2.5}$ continuous monitor to Houston North Wayside by December 31, 2020.

The TCEQ recommends decommissioning the collocated El Paso Chamizal $PM_{2.5}$ FRM by December 31, 2019, maintaining the primary $PM_{2.5}$ monitor. The collocated monitor is

beyond minimum requirements. The El Paso Chamizal site 2018 design value concentration is 9.1 µg/m^3, 76% of the standard. The collocated Clinton and Dallas Hinton $PM_{2.5}$ FRM monitors will remain.

To improve El Paso area spatial coverage and to support exceptional event analyses, the TCEQ recommends decommissioning the Ascarate Park SE $PM_{2.5}$ non-NAAQS comparable monitor ($PM_{2.5}$ TEOM) and relocating it to Ojo de Agua as a $PM_{2.5}$ FEM continuous monitor by December 31, 2020. This relocation maximizes resources, expands regional coverage in a populated area, and supports exceptional event analyses.

The TCEQ recommends relocating the Houston Aldine $PM_{2.5}$ speciation monitor to Clinton by December 31, 2019, maintaining the collocated $PM_{2.5}$ FRM and the primary $PM_{2.5}$ FEM continuous monitors at Houston Aldine. Historically, the Houston Aldine $PM_{2.5}$ design values trend lower than the $PM_{2.5}$ FRM Clinton concentrations. Clinton $PM_{2.5}$ speciation data will be valuable in supporting continued efforts to reduce area $PM_{2.5}$ concentrations and analyzing exceptional events.

The TCEQ continues to replace aging $PM_{2.5}$ non-NAAQS comparable equipment with new FEM technology to provide hourly averaged public data, Air Quality Index support, and AirNow webpage support. In addition, data from the new FEM monitors are comparable to the NAAQS. The increase in NAAQS equivalent monitors optimizes the monitoring resources in affected MSAs. The TCEQ proposes to replace the $PM_{2.5}$ FRM non-continuous monitors or the non-NAAQS comparable $PM_{2.5}$ continuous monitors ($PM_{2.5}$ TEOM) with $PM_{2.5}$ FEM continuous monitors by December 31, 2020. The monitors recommended for replacement, relocation, deployment, or decommission are listed in Table 8.

Table 8: Particulate Matter of 2.5 Micrometers or Less Recommendations and Method Code Changes

Site Name	Monitor(s) to Change	Description	Current Method Code(s)	New Method Code
Houston Deer Park #2	$PM_{2.5}$ TEOM	Decommission	702*	NA
Bryan Finfeather Road	NA	Add $PM_{2.5}$ FEM continuous	NA	209
El Paso Chamizal	$PM_{2.5}$ FRM collocated QC	Decommission	145	NA
Ascarate Park SE	$PM_{2.5}$ TEOM	Decommission and relocate to Ojo De Agua	702*	NA
Ojo De Agua	$PM_{2.5}$ FEM	Deploy $PM_{2.5}$ FEM continuous	NA	209
Austin Northwest	$PM_{2.5}$ TEOM	Replace with $PM_{2.5}$ FEM continuous	702*	209
Houston Aldine	$PM_{2.5}$ speciation	Decommission and relocate to Clinton	Speciation codes	NA

Site Name	Monitor(s) to Change	Description	Current Method Code(s)	New Method Code
Houston North Wayside	$PM_{2.5}$ TEOM	Deploy	NA	702*
Clinton	$PM_{2.5}$ speciation	Deploy	NA	Speciation codes
Conroe Relocated	$PM_{2.5}$ TEOM	Replace with $PM_{2.5}$ FEM continuous	702*	209
Seabrook Friendship Park	$PM_{2.5}$ TEOM	Replace with $PM_{2.5}$ FEM continuous	702*	209
Socorro Hueco	$PM_{2.5}$ TEOM	Replace with $PM_{2.5}$ FEM continuous	702*	209
Edinburg East Freddy Gonzalez	$PM_{2.5}$ FRM	Replace with $PM_{2.5}$ FEM continuous	145	209
El Paso UTEP	$PM_{2.5}$ FRM and $PM_{2.5}$ TEOM pair	Replace with $PM_{2.5}$ FEM continuous	145 and 702*	209
Karnack	$PM_{2.5}$ FRM and $PM_{2.5}$ TEOM pair	Replace with $PM_{2.5}$ FEM continuous	145 and 702*	209

* - non-NAAQS comparable monitor
# - number
FRM – federal reference method
FEM – federal equivalent method
NA – not applicable
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
QC – quality control
SE – southeast
TEOM – tapered element oscillating microbalance
UTEP – University of Texas at El Paso

Volatile Organic Compounds

The TCEQ volatile organic compound (VOC) network is designed to meet PAMS requirements. The TCEQ is required to operate two VOC monitors and exceeds this requirement with 12. The TCEQ VOC network includes eight automated gas chromatograph (autoGC) continuous monitors and four non-continuous canister samplers. AMNP Appendix L, Table 1 lists the required and current VOC monitors in each CBSA.

Monitoring Requirements

Title 40 CFR §58, Appendix D, Section 5 requires state agencies to collect hourly averaged speciated VOC data 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 VOC monitoring requirements with autoGCs at the three NCore sites listed in Table 1.

Previously Recommended Changes

In the TCEQ 2018 AMNP, the TCEQ recommended removing the PAMS/SLAMS/SPM federal network designations and data submittal to AQS for the Johnson County Luisa, Fort Worth Northwest, and Dallas Hinton VOC canister samplers. The EPA approved the recommendations and the changes were effective December 31, 2018. The TCEQ continues to operate these monitors as state-initiative SPMs.

Regulatory VOC Monitoring Network Changes

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

Carbonyls

The TCEQ carbonyl monitoring network is designed to meet PAMS requirements. The TCEQ is required to operate two carbonyl monitors and exceeds this requirement with four. AMNP Appendix L, Table 2 lists the required and current carbonyl monitors in each CBSA.

Monitoring Requirements

Title 40 CFR §58, Appendix D, Section 5, requires state agencies to collect three eight-hour averaged carbonyl samples every third day at each NCore site located in a CBSA with a population of 1,000,000 or more persons. The TCEQ currently collects carbonyl samples at the sites listed below.

- DFW CBSA: Dallas Hinton
- Houston CBSA: Houston Deer Park #2

Previously Recommended Changes

The TCEQ 2018 AMNP recommended decommissioning the Ascarate Park SE carbonyl sampler. The EPA approved this change, and the monitor was decommissioned October 31, 2018. The TCEQ reduced Fort Worth Northwest and Clinton carbonyl collections to one 24-hour sample every sixth day only during ozone season, April through October, as of October 31, 2018. The TCEQ recommended collecting three eight-hour carbonyl samples every third day during June, July, and August at the Houston Deer Park #2 site to meet the requirements listed in 40 CFR §58, Appendix D, Section 5(b)(2) and implemented this change October 31, 2018. Additionally, the TCEQ recommended 24-hour carbonyl sampling every sixth day at Houston Deer Park #2 and Dallas Hinton during the months of April, May, September, and October, with no carbonyl sampling at these sites November through March. This change was implemented October 31, 2018.

Regulatory Carbonyl Monitoring Network Changes

The TCEQ evaluated the current carbonyl monitoring network. The TCEQ proposes changing the network designation for the Fort Worth Northwest carbonyl monitor to PAMS, effective January 1, 2020, to support enhanced O_3 precursor monitoring activities.

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. Surface meteorology is measured at most air monitoring stations, and additional meteorology parameters are required as PAMS measurements. All meteorology monitors in the TCEQ network are included in AMNP Appendix B.

Monitoring Requirements

Title 40 CFR §58, Appendix D, Section 5 requires state agencies to collect surface and upper air meteorology measurements at all NCore PAMS sites in CBSAs with a population of 1,000,000 or more persons. PAMS meteorology measurements include wind speed, wind direction, outdoor temperature, atmospheric pressure, relative humidity, precipitation, hourly averaged mixing-height, solar radiation, and ultraviolet radiation. The EPA PAMS program revisions published October 26, 2015, and listed in 40 CFR §58, Appendix D, Section 5, require PAMS measurements to begin June 1, 2019.

The TCEQ collects wind and outdoor temperature data at PAMS sites and most network sites. The TCEQ collects relative humidity and solar radiation data at PAMS sites and plans to deploy monitors to meet additional requirements as described below.

Previously Recommended Changes

To meet PAMS requirements, the TCEQ deployed ceilometers to the La Porte Airport on February 20, 2019, and to the Dallas Hinton site on January 9, 2019. The TCEQ deployed barometric pressure, precipitation, and ultraviolet radiation monitors to the Houston Deer Park #2 and Dallas Hinton sites on May 11, 2019, and May 8, 2019, respectively, to meet PAMS requirements.

The TCEQ will relocate the San Antonio Seale wind speed, wind direction, and outdoor temperature to the new San Antonio Bulverde Parkway site by September 30, 2019, as approved by EPA in a letter dated March 28, 2019. The TCEQ will relocate the Port Arthur 7th Street wind speed, wind direction, and outdoor temperature to Port Arthur West 7th Street by July 31, 2019, as requested by the property owner and approved by the EPA in a letter dated March 20, 2019. The TCEQ will relocate Isla Blanca Park wind speed, wind direction, and outdoor temperature to the new Isla Blanca State Park Road site by September 30, 2019, as requested by the property owner and approved by the EPA in a letter dated March 20, 2019.

Regulatory Meteorology Monitoring Network Changes

The TCEQ will deploy wind speed, wind direction, and outdoor temperature to the new Bryan Finfeather Road site by December 31, 2019.

The TCEQ recommends deploying a ceilometer to the San Antonio Northwest site by December 31, 2020, to provide upper air data to evaluate O_3 formation in the San Antonio MSA. The TCEQ proposes changing the network designation for the wind speed, wind direction, outdoor temperature, and solar radiation monitors at Keller and Dallas North #2 to PAMS, effective January 1, 2020, to support enhanced O_3 precursor monitoring activities. The TCEQ proposes changing the network designation for the Corsicana Airport wind speed, wind direction, outdoor temperature, relative humidity, and dew point monitors from state initiative to federal SPM, effective January 1, 2020. Data from these monitors are currently submitted to the EPA AQS database to support modeling and regional data analyses.

Non-Regulatory Network Review

Semi-Volatile Organic Compounds

The TCEQ has a robust state-wide air monitoring network that includes monitoring for non-criteria pollutants. The TCEQ recommends decommissioning the SPM semi-volatile organic compound (SVOC) samplers at the Socorro Hueco, Brownsville, and Mission air monitoring sites by September 1, 2019. The SVOC pollutant data from these compounds are not federally required, and trends indicate the data are no longer needed.

Conclusion

After consideration of the federal regulations, 2017 U.S. Census Bureau population data, and 2018 design values, the TCEQ will meet or exceed all monitoring requirements with the above-mentioned recommendations for the next calendar year.

Appendix A

2019 Summary of Proposed Network Changes

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Appendix A: 2019 Summary of Proposed Network Changes

Air Monitoring Site Name	Proposed Action	Parameter(s)	Estimated Date
Midlothian Old Fort Worth (OFW)	Relocate site	All existing	December 31, 2019
Austin Northwest	Relocate site	All existing	May 31, 2020
Corsicana Airport	Change network designation from state initiative to federal SPM	NO_x, O_3, wind speed, wind direction, outdoor temperature, and relative humidity	January 1, 2020
Eagle Mountain Lake	Change network designation to federal SPM and submit to the EPA AQS database	NO_x	January 1, 2020
Keller	Change network designation to PAMS and submit to the EPA AQS database	NO_x	January 1, 2020
Keller	Change network designation to PAMS	O_3, wind speed, wind direction, outdoor temperature, and solar radiation	January 1, 2020
Camp Bullis	Change network designation from state initiative to federal SPM and submit to the EPA AQS database	NO_x	January 1, 2020
Conroe Relocated	Change network designation to PAMS	NO_x	January 1, 2020
Dallas North #2	Change network designation to PAMS	NO_x, O_3, wind speed, wind direction, outdoor temperaure, and solar radiation	January 1, 2020
Houston West End	Deploy SPMs to new air monitoring site in Houston	NO_x and O_3	August 31, 2020
Frisco Eubanks	Reduce sampling frequency to every 12th day	TSP Pb	December 31, 2019
Ojo de Agua	Deploy SPM to existing site	O_3	March 31, 2020
Cleburne Airport	Change network designation to PAMS	O_3	January 1, 2020
San Antonio Interstate 35	Replace existing monitor with high-sensitivity monitor	CO	December 31, 2019

Appendix A: 2019 Summary of Proposed Network Changes

Air Monitoring Site Name	Proposed Action	Parameter(s)	Estimated Date
Clinton	Reduce sampling frequency to every 12th day	PM_{10} collocated quality control	December 31, 2019
Convention Center	Reduce sampling frequency to every 12th day	PM_{10} collocated quality control	December 31, 2019
Ojo de Agua	Reduce sampling frequency to every 12th day	PM_{10} collocated quality control	December 31, 2019
Socorro Hueco	Reduce sampling frequency to every 12th day	PM_{10} collocated quality control	December 31, 2019
Portland-Gregory Area	Deploy new air monitoring site	PM_{10}	Pending
Houston North Wayside	Deploy SPMs to existing site	PM_{10} FEM continuous and $PM_{2.5}$ TEOM continuous	December 31, 2020
Houston Deer Park #2	Decommission monitor	$PM_{2.5}$ non-NAAQS comparable continuous ($PM_{2.5}$ TEOM)	December 31, 2019
Bryan Finfeather Road	Deploy new air monitoring site	$PM_{2.5}$ FEM continuous, wind speed, wind direction, and outdoor temperature	December 31, 2019
El Paso Chamizal	Decommission monitor	$PM_{2.5}$ FRM collocated quality control	December 31, 2019
Ascarate Park SE	Decommission monitor	$PM_{2.5}$ TEOM continuous	December 31, 2020
Ojo de Agua	Deploy SPM to existing site	$PM_{2.5}$ FEM continuous	December 31, 2020
Houston Aldine	Decommission speciation	$PM_{2.5}$ speciation	December 31, 2019
Clinton	Deploy speciation	$PM_{2.5}$ speciation	December 31, 2019
Austin Northwest	Replace non-NAAQS comparable monitor	$PM_{2.5}$ FEM continuous	December 31, 2020
Conroe Relocated	Replace non-NAAQS comparable monitor	$PM_{2.5}$ FEM continuous	December 31, 2020

Appendix A: 2019 Summary of Proposed Network Changes

Air Monitoring Site Name	Proposed Action	Parameter(s)	Estimated Date
Seabrook Friendship Park	Replace non-NAAQS comparable monitor	$PM_{2.5}$ FEM continuous	December 31, 2020
Socorro Hueco	Replace non-NAAQS comparable monitor	$PM_{2.5}$ FEM continuous	December 31, 2020
Edinburg East Freddy Gonzalez	Replace FRM	$PM_{2.5}$ FEM continuous	December 31, 2020
El Paso UTEP	Replace FRM and non-NAAQS comparable monitor	$PM_{2.5}$ FEM continuous	December 31, 2020
Karnack	Replace FRM and non-NAAQS comparable monitor	$PM_{2.5}$ FEM continuous	December 31, 2020
Fort Worth Northwest	Change network designation to PAMS	Carbonyl	January 1, 2020
San Antonio Northwest	Deploy monitor	Ceilometer	December 31, 2020
Socorro Hueco	Decommission monitor	Semivolatile organic compounds	September 1, 2019
Brownsville	Decommission monitor	Semivolatile organic compounds	September 1, 2019
Mission	Decommission monitor	Semivolatile organic compounds	September 1, 2019

– number
AQS – EPA Air Quality System database
CO – carbon monoxide
EPA – United States Environmental Protection Agency
FEM – federal equivalent method
FRM – federal reference method
NA – not applicable
NAAQS – National Ambient Air Quality Standards
NO_x – oxides of nitrogen
O_3 – ozone
PM_{10} – particulate matter of 10 micrometers or less in diameter
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
PAMS – Photochemical Assessment Monitoring Stations
SE – southeast
SPM – special purpose monitor
TEOM – tapered element oscillating microbalance
TSP Pb– total suspended particulate lead
UTEP – University of Texas at El Paso

Appendix B

Ambient Air Monitoring Network Site List

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Appendix B: Ambient Air Monitoring Network Site List

Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Amarillo	483751025	Amarillo 24th Avenue	4205 Northeast 24th Avenue, Amarillo	35.2367	-101.7874	Suburban	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Amarillo	483751025	Amarillo 24th Avenue	4205 Northeast 24th Avenue, Amarillo	35.2367	-101.7874	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Amarillo	483751025	Amarillo 24th Avenue	4205 Northeast 24th Avenue, Amarillo	35.2367	-101.7874	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Amarillo	483750320	Amarillo A&M	6500 Amarillo Boulevard West, Amarillo	35.2016	-101.9093	Urban and Center City	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Population Exposure	Urban Scale
Amarillo	483751077	Amarillo Xcel El Rancho	Folsom Road and El Rancho Road, Amarillo	35.3165	-101.7418	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Amarillo	483751077	Amarillo Xcel El Rancho	Folsom Road and El Rancho Road, Amarillo	35.3165	-101.7418	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Amarillo	483751077	Amarillo Xcel El Rancho	Folsom Road and El Rancho Road, Amarillo	35.3165	-101.7418	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Austin-Round Rock	484530020	Austin Audubon Society	12200 Lime Creek Road, Leander	30.4832	-97.8723	Rural	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Austin-Round Rock	484530020	Austin Audubon Society	12200 Lime Creek Road, Leander	30.4832	-97.8723	Rural	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Austin-Round Rock	484530020	Austin Audubon Society	12200 Lime Creek Road, Leander	30.4832	-97.8723	Rural	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure	Urban Scale
Austin-Round Rock	484530020	Austin Audubon Society	12200 Lime Creek Road, Leander	30.4832	-97.8723	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Urban Scale
Austin-Round Rock	484530020	Austin Audubon Society	12200 Lime Creek Road, Leander	30.4832	-97.8723	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Urban Scale
Austin-Round Rock	484531068	Austin North Interstate 35	8912 North IH 35 South Bound Service Road, Austin	30.3539	-97.69166	Urban and Center City	CO	Near-Road/SLAMS	Gas Filter Correlation	Continuous	Maximum Precursor Emissions Impact	Microscale
Austin-Round Rock	484531068	Austin North Interstate 35	8912 North IH 35 South Bound Service Road, Austin	30.3539	-97.69166	Urban and Center City	NO/NO2/NOx	Near-Road/SLAMS	Chemi-luminescence	Continuous	Maximum Precursor Emissions Impact	Microscale

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Austin-Round Rock	484531068	Austin North Interstate 35	8912 North IH 35 South Bound Service Road, Austin	30.3539	-97.69166	Urban and Center City	PM2.5 (Beta)	Near-Road/SLAMS	Beta Attenuation	Continuous	Maximum Precursor Emissions Impact	Microscale
Austin-Round Rock	484531068	Austin North Interstate 35	8912 North IH 35 South Bound Service Road, Austin	30.3539	-97.69166	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Microscale
Austin-Round Rock	484531068	Austin North Interstate 35	8912 North IH 35 South Bound Service Road, Austin	30.3539	-97.69166	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Microscale
Austin-Round Rock	484530014	Austin Northwest	3724 North Hills Drive, Austin	30.3544	-97.76026	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Urban Scale
Austin-Round Rock	484530014	Austin Northwest	3724 North Hills Drive, Austin	30.3544	-97.76026	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Austin-Round Rock	484530014	Austin Northwest	3724 North Hills Drive, Austin	30.3544	-97.76026	Suburban	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Population Exposure	Neighborhood
Austin-Round Rock	484530014	Austin Northwest	3724 North Hills Drive, Austin	30.3544	-97.76026	Suburban	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Urban Scale
Austin-Round Rock	484530014	Austin Northwest	3724 North Hills Drive, Austin	30.3544	-97.76026	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Austin-Round Rock	484530014	Austin Northwest	3724 North Hills Drive, Austin	30.3544	-97.76026	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Austin-Round Rock	484530021	Austin Webberville Road	2600B Webberville Road, Austin	30.2632	-97.71288	Urban and Center City	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Austin-Round Rock	484530021	Austin Webberville Road	2600B Webberville Road, Austin	30.2632	-97.71288	Urban and Center City	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Austin-Round Rock	484530021	Austin Webberville Road	2600B Webberville Road, Austin	30.2632	-97.71288	Urban and Center City	PM2.5 (FRM)	QA Collocated SLAMS	Sequential FRM Gravimetric	24 Hours; 1/12 Days	Population Exposure	Neighborhood
Austin-Round Rock	484530021	Austin Webberville Road	2600B Webberville Road, Austin	30.2632	-97.71288	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Austin-Round Rock	484530021	Austin Webberville Road	2600B Webberville Road, Austin	30.2632	-97.71288	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	30.0364	-94.07106	Suburban	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	30.0364	-94.07106	Suburban	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	30.0364	-94.07106	Suburban	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	30.0364	-94.07106	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	30.0364	-94.07106	Suburban	Speciated VOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	30.0364	-94.07106	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	30.0364	-94.07106	Suburban	TNMOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Beaumont-Port Arthur	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	30.0364	-94.07106	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Beaumont-Port Arthur	482450022	Hamshire	12552 Second Street, Not In A City	29.864	-94.3178	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	General/Background; Regional Transport	Neighborhood / Urban Scale
Beaumont-Port Arthur	482450022	Hamshire	12552 Second Street, Not In A City	29.864	-94.3178	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	General/Background; Regional Transport	Urban Scale
Beaumont-Port Arthur	482450022	Hamshire	12552 Second Street, Not In A City	29.864	-94.3178	Suburban	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Beaumont-Port Arthur	482450022	Hamshire	12552 Second Street, Not In A City	29.864	-94.3178	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Neighborhood
Beaumont-Port Arthur	482450022	Hamshire	12552 Second Street, Not In A City	29.864	-94.3178	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Beaumont-Port Arthur	482450022	Hamshire	12552 Second Street, Not In A City	29.864	-94.3178	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Beaumont-Port Arthur	482450018	Jefferson County Airport	End of 90th Street at Jefferson County Airport, Port Arthur	29.9428	-94.00077	Suburban	Precipitation	PAMS/SLAMS	Rain Gauge	Continuous	General/Background	Neighborhood

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Beaumont-Port Arthur	482450018	Jefferson County Airport	End of 90th Street at Jefferson County Airport, Port Arthur	29.9428	-94.00077	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	General/Background	Neighborhood
Beaumont-Port Arthur	482450018	Jefferson County Airport	End of 90th Street at Jefferson County Airport, Port Arthur	29.9428	-94.00077	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	Barometric Pressure	PAMS/SLAMS	Barometric pressure transducer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	Speciated VOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	TNMOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	UV Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Beaumont-Port Arthur	482451035	Nederland High School	1800 North 18th Street, Nederland	29.9789	-94.01087	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Beaumont-Port Arthur	483611083	Orange 1st Street	2239 1st Street, Orange	30.1537	-93.7259	Urban and Center City	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Beaumont-Port Arthur	483611083	Orange 1st Street	2239 1st Street, Orange	30.1537	-93.7259	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood

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Beaumont-Port Arthur	483611083	Orange 1st Street	2239 1st Street, Orange	30.1537	-93.7259	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Beaumont-Port Arthur	482451071	Port Arthur 7th Street	7th Street and Texaco Island Road, Port Arthur	29.8486	-93.96219	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Beaumont-Port Arthur	482451071	Port Arthur 7th Street	7th Street and Texaco Island Road, Port Arthur	29.8486	-93.96219	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Beaumont-Port Arthur	482451071	Port Arthur 7th Street	7th Street and Texaco Island Road, Port Arthur	29.8486	-93.96219	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Beaumont-Port Arthur	482450021	Port Arthur Memorial School	2200 Jefferson Drive, Port Arthur	29.9229	-93.90902	Urban and Center City	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	29.8975	-93.99108	Urban and Center City	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	29.8975	-93.99108	Urban and Center City	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	29.8975	-93.99108	Urban and Center City	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure; Source Oriented	Neighborhood
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	29.8975	-93.99108	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Source Oriented	Neighborhood
Beaumont-Port Arthur	482450011	Port Arthur West	623 Ellias Street, Port Arthur	29.8975	-93.99108	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure; Source Oriented	Neighborhood
Beaumont-Port Arthur	482450101	SETRPC 40 Sabine Pass	5200 Mechanic, Not In A City	29.7279	-93.89408	Rural	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration	Neighborhood
Beaumont-Port Arthur	482450101	SETRPC 40 Sabine Pass	5200 Mechanic, Not In A City	29.7279	-93.89408	Rural	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Ozone Concentration	Neighborhood
Beaumont-Port Arthur	482450101	SETRPC 40 Sabine Pass	5200 Mechanic, Not In A City	29.7279	-93.89408	Rural	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Ozone Concentration	Neighborhood
Beaumont-Port Arthur	483611100	SETRPC 42 Mauriceville	Intersection of TX Hwys 62 & 12, Port Arthur	30.1946	-93.86724	Suburban	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Regional Transport; Upwind Background	Regional Scale
Beaumont-Port Arthur	482450102	SETRPC 43 Jefferson Co Airport	Jefferson County Airport, Port Arthur	29.9428	-94.00068	Suburban	O3	SPM	Ultraviolet Photometric	Continuous	Maximum Precursor Emissions Impact	Middle Scale

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Beaumont-Port Arthur	483611001	West Orange	2700 Austin Avenue, West Orange	30.0853	-93.76134	Urban and Center City	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood
Beaumont-Port Arthur	483611001	West Orange	2700 Austin Avenue, West Orange	30.0853	-93.76134	Urban and Center City	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Beaumont-Port Arthur	483611001	West Orange	2700 Austin Avenue, West Orange	30.0853	-93.76134	Urban and Center City	Solar Radiation	SPM	Photovoltaic	Continuous	Source Oriented	Neighborhood
Beaumont-Port Arthur	483611001	West Orange	2700 Austin Avenue, West Orange	30.0853	-93.76134	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Source Oriented	Neighborhood
Beaumont-Port Arthur	483611001	West Orange	2700 Austin Avenue, West Orange	30.0853	-93.76134	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Source Oriented	Neighborhood
Big Spring***	482271072	Big Spring Midway	1218 North Midway Road, Big Spring	32.2803	-101.4072	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Big Spring***	482271072	Big Spring Midway	1218 North Midway Road, Big Spring	32.2803	-101.4072	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Big Spring***	482271072	Big Spring Midway	1218 North Midway Road, Big Spring	32.2803	-101.4072	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Borger***	482331073	Borger FM 1559	19440 FM 1559, Borger	35.6762	-101.4401	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Borger***	482331073	Borger FM 1559	19440 FM 1559, Borger	35.6762	-101.4401	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Borger***	482331073	Borger FM 1559	19440 FM 1559, Borger	35.6762	-101.4401	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Brownsville-Harlingen	480610006	Brownsville	344 Porter Drive, Brownsville	25.8925	-97.49383	Urban and Center City	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Population Exposure	Regional Scale
Brownsville-Harlingen	480610006	Brownsville	344 Porter Drive, Brownsville	25.8925	-97.49383	Urban and Center City	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Neighborhood
Brownsville-Harlingen	480610006	Brownsville	344 Porter Drive, Brownsville	25.8925	-97.49383	Urban and Center City	SVOC	SPM	Hi-Vol PUF XAD GC-MS	24 Hours; 1/6 Days	Population Exposure; Upwind Background	Middle Scale
Brownsville-Harlingen	480610006	Brownsville	344 Porter Drive, Brownsville	25.8925	-97.49383	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Urban Scale

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Brownsville-Harlingen	480610006	Brownsville	344 Porter Drive, Brownsville	25.8925	-97.49383	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Neighborhood
Brownsville-Harlingen	480611023	Harlingen Teege	1602 West Teege Avenue, Harlingen	26.2003	-97.71268	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Brownsville-Harlingen	480611023	Harlingen Teege	1602 West Teege Avenue, Harlingen	26.2003	-97.71268	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Brownsville-Harlingen	480611023	Harlingen Teege	1602 West Teege Avenue, Harlingen	26.2003	-97.71268	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Brownsville-Harlingen	480612004	Isla Blanca Park	Lot B 69 1/2, South Padre Island	26.0696	-97.1622	Rural	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Regional Transport	Urban Scale
Brownsville-Harlingen	480612004	Isla Blanca Park	Lot B 69 1/2, South Padre Island	26.0696	-97.1622	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Regional Transport	Regional Scale
Brownsville-Harlingen	480612004	Isla Blanca Park	Lot B 69 1/2, South Padre Island	26.0696	-97.1622	Rural	Wind (3 meter)	SPM	Potentiometer Cup Anemometer	Continuous	Regional Transport	Regional Scale
College Station-Bryan	483951076	Franklin Oak Grove	8127 Oak Grove Road, Franklin	31.1689	-96.48194	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
College Station-Bryan	483951076	Franklin Oak Grove	8127 Oak Grove Road, Franklin	31.1689	-96.48194	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
College Station-Bryan	483951076	Franklin Oak Grove	8127 Oak Grove Road, Franklin	31.1689	-96.48194	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	27.8045	-97.43158	Urban and Center City	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	27.8045	-97.43158	Urban and Center City	PM2.5 (Beta)	QA Collocated SLAMS	Beta Attenuation	Continuous	Quality Assurance	Neighborhood
Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	27.8045	-97.43158	Urban and Center City	SO2	SLAMS	Pulsed Fluorescence	Continuous	Highest Concentration; Population Exposure	Neighborhood
Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	27.8045	-97.43158	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Middle Scale
Corpus Christi	483550032	Corpus Christi Huisache	3810 Huisache Street, Corpus Christi	27.8045	-97.43158	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Middle Scale

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Corpus Christi	483550026	Corpus Christi Tuloso	9860 La Branch, Corpus Christi	27.8324	-97.55538	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Corpus Christi	483550026	Corpus Christi Tuloso	9860 La Branch, Corpus Christi	27.8324	-97.55538	Suburban	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Corpus Christi	483550026	Corpus Christi Tuloso	9860 La Branch, Corpus Christi	27.8324	-97.55538	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Neighborhood
Corpus Christi	483550026	Corpus Christi Tuloso	9860 La Branch, Corpus Christi	27.8324	-97.55538	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Neighborhood
Corpus Christi	483550025	Corpus Christi West	Corpus Christi State School (Airport Road), 902 AIRPORT BLVD, Corpus Christi	27.7653	-97.43426	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Corpus Christi	483550025	Corpus Christi West	Corpus Christi State School (Airport Road), 902 AIRPORT BLVD, Corpus Christi	27.7653	-97.43426	Suburban	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Corpus Christi	483550025	Corpus Christi West	Corpus Christi State School (Airport Road), 902 AIRPORT BLVD, Corpus Christi	27.7653	-97.43426	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure	Neighborhood
Corpus Christi	483550025	Corpus Christi West	Corpus Christi State School (Airport Road), 902 AIRPORT BLVD, Corpus Christi	27.7653	-97.43426	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Corpus Christi	483550025	Corpus Christi West	Corpus Christi State School (Airport Road), 902 AIRPORT BLVD, Corpus Christi	27.7653	-97.43426	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Corpus Christi	483550034	Dona Park	5707 Up River Road, Corpus Christi	27.8118	-97.4657	Urban and Center City	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Corpus Christi	483550034	Dona Park	5707 Up River Road, Corpus Christi	27.8118	-97.4657	Urban and Center City	PM2.5 (Speciation)	CSN Supplemental SLAMS	Carbons, Elements, Ions (Quartz)	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Corpus Christi	483550034	Dona Park	5707 Up River Road, Corpus Christi	27.8118	-97.4657	Urban and Center City	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Regional Transport	Urban Scale

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Corpus Christi	483550034	Dona Park	5707 Up River Road, Corpus Christi	27.8118	-97.4657	Urban and Center City	PM2.5 Mass (Speciation)	CSN Supplemental SLAMS	Sequential FRM Gravimetric (Teflon)	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Corpus Christi	483550034	Dona Park	5707 Up River Road, Corpus Christi	27.8118	-97.4657	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Regional Scale
Corpus Christi	483550034	Dona Park	5707 Up River Road, Corpus Christi	27.8118	-97.4657	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Regional Scale
Corsicana***	483491051	Corsicana Airport	Corsicana Airport, Corsicana	32.0319	-96.39914	Rural	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Source Oriented	Neighborhood
Corsicana***	483491081	Richland Southeast 1220 Road	Southeast 1220 Road, Richland	31.9041	-96.352	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Corsicana***	483491081	Richland Southeast 1220 Road	Southeast 1220 Road, Richland	31.9041	-96.352	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Corsicana***	483491081	Richland Southeast 1220 Road	Southeast 1220 Road, Richland	31.9041	-96.352	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	32.6564	-97.08858	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	32.6564	-97.08858	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	32.6564	-97.08858	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Neighborhood
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	32.6564	-97.08858	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Neighborhood
Dallas-Fort Worth-Arlington	484393011	Arlington Municipal Airport	5504 South Collins Street, Arlington	32.6564	-97.08858	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Neighborhood
Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	32.3536	-97.43674	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	32.3536	-97.43674	Suburban	Radar Profiler	PAMS/SLAMS	Radar Profiler	Continuous	Regional Transport	Regional Scale
Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	32.3536	-97.43674	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Highest Concentration	Neighborhood

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Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	32.3536	-97.43674	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Highest Concentration	Neighborhood
Dallas-Fort Worth-Arlington	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	32.3536	-97.43674	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Neighborhood
Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	32.7743	-96.79769	Urban and Center City	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	32.7743	-96.79769	Urban and Center City	PM10 (FRM)	QA Collocated SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	32.7743	-96.79769	Urban and Center City	PM2.5 (FRM)	SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Highest Concentration; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	32.7743	-96.79769	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130050	Convention Center	717 South Akard, Dallas	32.7743	-96.79769	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Barometric Pressure	PAMS/SLAMS	Barometric pressure transducer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Carbonyl	PAMS/SLAMS	DNPH Silica HPLC	8 Hour; Seasonal, 24 Hours; Seasonal	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Ceilometer	PAMS/SLAMS	Ceilometer	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	CO (High-Sensitivity)	NCORE/SLAMS	Gas Filter Correlation	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	NO2 (Direct)	PAMS/SLAMS	Cavity Attenuated Phase Shift Spectroscopy	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	NOy (High-Sensitivity)	NCORE/PAMS/ SLAMS	Chemi-luminescence	Continuous	Highest Concentration	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	O3	NCORE/PAMS/ SLAMS	Ultraviolet Photometric	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood

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Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	PM10-2.5	NCORE/SLAMS	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	PM2.5	NCORE/SLAMS	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	PM2.5 (FRM)	NCORE/SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	PM2.5 (FRM)	QA Collocated SLAMS	Sequential FRM Gravimetric	24 Hours; 1/12 Days	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	PM2.5 (Speciation)	CSN STN NCORE SLAMS	Carbons, Elements, Ions, Non-FRM Gravimetric (Quartz)	24 Hours; 1/3 Days	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Precipitation	PAMS/SLAMS	Rain Gauge	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Relative Humidity	NCORE/PAMS/ SLAMS	Humidity Sensor	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	SO2 (High-Sensitivity)	NCORE/SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Speciated VOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Highest Concentration; Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	TNMOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Highest Concentration; Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	UV Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood

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Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Visibility	SPM	Visibility Sensor	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130069	Dallas Hinton	1415 Hinton Street, Dallas	32.8201	-96.86012	Urban and Center City	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	481131067	Dallas LBJ Freeway	8652 LBJ Freeway, Dallas	32.9212	-96.75355	Urban and Center City	NO/NO2/NOx	Near-Road/SLAMS	Chemi-luminescence	Continuous	Maximum Precursor Emissions Impact	Microscale
Dallas-Fort Worth-Arlington	481131067	Dallas LBJ Freeway	8652 LBJ Freeway, Dallas	32.9212	-96.75355	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Microscale
Dallas-Fort Worth-Arlington	481131067	Dallas LBJ Freeway	8652 LBJ Freeway, Dallas	32.9212	-96.75355	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Microscale
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	32.9192	-96.8085	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	32.9192	-96.8085	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	32.9192	-96.8085	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	32.9192	-96.8085	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	481130075	Dallas North #2	12532 1/2 Nuestra Drive, Dallas	32.9192	-96.8085	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	481130087	Dallas Redbird Airport Executive	3277 West Redbird Lane, Dallas	32.6765	-96.87206	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	481130087	Dallas Redbird Airport Executive	3277 West Redbird Lane, Dallas	32.6765	-96.87206	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	481130087	Dallas Redbird Airport Executive	3277 West Redbird Lane, Dallas	32.6765	-96.87206	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	481130087	Dallas Redbird Airport Executive	3277 West Redbird Lane, Dallas	32.6765	-96.87206	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Urban Scale

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Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Maximum Ozone Concentration; Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	NOy (High-Sensitivity)	PAMS/SLAMS	Chemi-luminescence	Continuous	Maximum Ozone Concentration; Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration; Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	Precipitation	PAMS/SLAMS	Rain Gauge	Continuous	Maximum Ozone Concentration	Urban Scale
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Ozone Concentration	Urban Scale
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Ozone Concentration	Urban Scale
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	Speciated VOC (Canister)	PAMS/SLAMS	Canister GC-MS	24 Hours; 1/6 Days	Maximum Ozone Concentration; Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Ozone Concentration	Urban Scale
Dallas-Fort Worth-Arlington	481210034	Denton Airport South	Denton Airport South, Denton	33.2191	-97.19628	Rural	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Ozone Concentration	Urban Scale
Dallas-Fort Worth-Arlington	484390075	Eagle Mountain Lake	14290 Morris Dido Newark Road, Eagle Mountain	32.9879	-97.47718	Rural	O3	SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration	Neighborhood
Dallas-Fort Worth-Arlington	484390075	Eagle Mountain Lake	14290 Morris Dido Newark Road, Eagle Mountain	32.9879	-97.47718	Rural	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Middle Scale
Dallas-Fort Worth-Arlington	484390075	Eagle Mountain Lake	14290 Morris Dido Newark Road, Eagle Mountain	32.9879	-97.47718	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Middle Scale
Dallas-Fort Worth-Arlington	484390075	Eagle Mountain Lake	14290 Morris Dido Newark Road, Eagle Mountain	32.9879	-97.47718	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Middle Scale
Dallas-Fort Worth-Arlington	481130061	Earhart	3434 Bickers (Earhart Elementary School), Dallas	32.7854	-96.87657	Urban and Center City	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood

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Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North,	32.6647	-97.33806	Urban and Center City	CO	Near-Road/SLAMS	Gas Filter Correlation	Continuous	Maximum Precursor Emissions Impact	Microscale
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North,	32.6647	-97.33806	Urban and Center City	NO/NO2/NOx	Near-Road/SLAMS	Chemi-luminescence	Continuous	Maximum Precursor Emissions Impact	Microscale
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North,	32.6647	-97.33806	Urban and Center City	PM2.5 (FRM)	Near-Road/SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Maximum Precursor Emissions Impact	Microscale
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North,	32.6647	-97.33806	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Microscale
Dallas-Fort Worth-Arlington	484391053	Fort Worth California Parkway North	1198 California Parkway North,	32.6647	-97.33806	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Microscale
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	Carbonyl	SPM	DNPH Silica HPLC	24 Hours; Seasonal	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Middle Scale
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	PM2.5 (FRM)	SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	Speciated VOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Neighborhood

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Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	TNMOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484391002	Fort Worth Northwest	3317 Ross Avenue, Fort Worth	32.8058	-97.35657	Urban and Center City	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Dallas-Fort Worth-Arlington	480850005	Frisco	6590 Hillcrest Road, Frisco	33.1324	-96.78642	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	480850005	Frisco	6590 Hillcrest Road, Frisco	33.1324	-96.78642	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Urban Scale
Dallas-Fort Worth-Arlington	480850005	Frisco	6590 Hillcrest Road, Frisco	33.1324	-96.78642	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Urban Scale
Dallas-Fort Worth-Arlington	480850005	Frisco	6590 Hillcrest Road, Frisco	33.1324	-96.78642	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Urban Scale
Dallas-Fort Worth-Arlington	480850009	Frisco Eubanks	6601 Eubanks, Frisco	33.1447	-96.82881	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure; Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	480850009	Frisco Eubanks	6601 Eubanks, Frisco	33.1447	-96.82881	Suburban	TSP (Pb)	SLAMS	Hi-Vol ICP-MS	24 Hours; 1/6 Days	Population Exposure; Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	480850009	Frisco Eubanks	6601 Eubanks, Frisco	33.1447	-96.82881	Suburban	TSP (Pb)	QA Collocated SLAMS	Hi-Vol ICP-MS	24 Hours; 1/6 Days	Population Exposure; Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	480850009	Frisco Eubanks	6601 Eubanks, Frisco	33.1447	-96.82881	Suburban	Wind (3 meter)	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	480850029	Frisco Stonebrook	7202 Stonebrook Parkway, Frisco	33.136	-96.82447	Suburban	TSP (Pb)	SPM	Hi-Vol ICP-MS	24 Hours; 1/6 Days	Population Exposure; Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	32.9843	-97.06372	Suburban	Barometric Pressure	PAMS/SLAMS	Barometric pressure transducer	Continuous	Maximum Ozone Concentration	Neighborhood
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	32.9843	-97.06372	Suburban	Dew Point	SPM	Derived at site	Continuous	Highest Concentration; Maximum Ozone Concentration	Neighborhood
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	32.9843	-97.06372	Suburban	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Maximum Ozone Concentration; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	32.9843	-97.06372	Suburban	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration; Population Exposure	Neighborhood

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Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	32.9843	-97.06372	Suburban	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Ozone Concentration	Neighborhood
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	32.9843	-97.06372	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Ozone Concentration	Neighborhood
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	32.9843	-97.06372	Suburban	Speciated VOC (Canister)	PAMS/SLAMS	Canister GC-MS	24 Hours; 1/6 Days	Maximum Ozone Concentration; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	32.9843	-97.06372	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Ozone Concentration	Neighborhood
Dallas-Fort Worth-Arlington	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	32.9843	-97.06372	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Ozone Concentration	Neighborhood
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	33.1531	-96.11557	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure; Upwind Background	Neighborhood
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	33.1531	-96.11557	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure; Upwind Background	Neighborhood
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	33.1531	-96.11557	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	33.1531	-96.11557	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	482311006	Greenville	824 Sayle Street, Greenville	33.1531	-96.11557	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	484391006	Haws Athletic Center	600 1/2 Congress Street, Fort Worth	32.7591	-97.34233	Urban and Center City	PM2.5 (FRM)	SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Highest Concentration; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484391006	Haws Athletic Center	600 1/2 Congress Street, Fort Worth	32.7591	-97.34233	Urban and Center City	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Highest Concentration	Neighborhood
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	32.1754	-96.87019	Rural	Dew Point	SPM	Derived at site	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	32.1754	-96.87019	Rural	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	32.1754	-96.87019	Rural	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Upwind Background	Urban Scale

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	32.1754	-96.87019	Rural	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	32.1754	-96.87019	Rural	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	32.1754	-96.87019	Rural	Speciated VOC (Canister)	PAMS/SLAMS	Canister GC-MS	24 Hours; 1/6 Days	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	32.1754	-96.87019	Rural	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	32.1754	-96.87019	Rural	UV Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	481391044	Italy	900 FM 667 Ellis County, Italy	32.1754	-96.87019	Rural	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	482511008	Johnson County Luisa	2420 Luisa Lane, Alvarado	32.4697	-97.16927	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	482511008	Johnson County Luisa	2420 Luisa Lane, Alvarado	32.4697	-97.16927	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 South Houston Street, Kaufman	32.565	-96.31769	Suburban	Dew Point	SPM	Derived at site	Continuous	Highest Concentration	Neighborhood
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 South Houston Street, Kaufman	32.565	-96.31769	Suburban	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Population Exposure; Upwind Background	Neighborhood / Urban Scale
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 South Houston Street, Kaufman	32.565	-96.31769	Suburban	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Population Exposure; Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 S Houston Street, Kaufman	32.565	-96.31769	Suburban	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Upwind Background	Regional Scale
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 South Houston Street, Kaufman	32.565	-96.31769	Suburban	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 South Houston Street, Kaufman	32.565	-96.31769	Suburban	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure; Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 South Houston Street, Kaufman	32.565	-96.31769	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Upwind Background	Urban Scale

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Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 South Houston Street, Kaufman	32.565	-96.31769	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	482570005	Kaufman	3790 South Houston Street, Kaufman	32.565	-96.31769	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Upwind Background	Urban Scale
Dallas-Fort Worth-Arlington	484392003	Keller	FAA Site off Alta Vista Road, Fort Worth	32.9225	-97.28209	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration; Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	484392003	Keller	FAA Site off Alta Vista Road, Fort Worth	32.9225	-97.28209	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Urban Scale
Dallas-Fort Worth-Arlington	484392003	Keller	FAA Site off Alta Vista Road, Fort Worth	32.9225	-97.28209	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Urban Scale
Dallas-Fort Worth-Arlington	484392003	Keller	FAA Site off Alta Vista Road, Fort Worth	32.9225	-97.28209	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Urban Scale
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	32.4821	-97.0269	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	32.4821	-97.0269	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	32.4821	-97.0269	Suburban	PM2.5 (Speciation)	SPM	Carbons, Elements, Ions (Quartz)	24 Hours; 1/6 Days	Population Exposure; Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	32.4821	-97.0269	Suburban	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Regional Transport	Regional Scale
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	32.4821	-97.0269	Suburban	PM2.5 Mass (Speciation)	SPM	Sequential FRM Gravimetric (Teflon)	24 Hours; 1/6 Days	Population Exposure; Source Oriented	Microscale
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	32.4821	-97.0269	Suburban	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	32.4821	-97.0269	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	32.4821	-97.0269	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Dallas-Fort Worth-Arlington	481390016	Midlothian OFW	2725 Old Fort Worth Road, Midlothian	32.4821	-97.0269	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Dallas-Fort Worth-Arlington	483670081	Parker County	3033 New Authon Road, WeatherfoRoad	32.8688	-97.90593	Rural	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Dallas-Fort Worth-Arlington	483670081	Parker County	3033 New Authon Road, WeatherfoRoad	32.8688	-97.90593	Rural	Solar Radiation	SPM	Photovoltaic	Continuous	Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	483670081	Parker County	3033 New Authon Road, WeatherfoRoad	32.8688	-97.90593	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	483670081	Parker County	3033 New Authon Road, WeatherfoRoad	32.8688	-97.90593	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	481211032	Pilot Point	792 East Northside Drive, Pilot Point	33.4106	-96.94459	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Regional Scale
Dallas-Fort Worth-Arlington	481211032	Pilot Point	792 East Northside Drive, Pilot Point	33.4106	-96.94459	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	Upwind Background	Regional Scale
Dallas-Fort Worth-Arlington	481211032	Pilot Point	792 East Northside Drive, Pilot Point	33.4106	-96.94459	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Upwind Background	Regional Scale
Dallas-Fort Worth-Arlington	481211032	Pilot Point	792 East Northside Drive, Pilot Point	33.4106	-96.94459	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Upwind Background	Regional Scale
Dallas-Fort Worth-Arlington	483970001	Rockwall Heath	100 East Heath Street, Rockwall	32.9365	-96.45921	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	483970001	Rockwall Heath	100 East Heath Street, Rockwall	32.9365	-96.45921	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	483970001	Rockwall Heath	100 East Heath Street, Rockwall	32.9365	-96.45921	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	483970001	Rockwall Heath	100 East Heath Street, Rockwall	32.9365	-96.45921	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Dallas-Fort Worth-Arlington	482570020	Terrell Temtex	2988 Temtex Boulevard, Terrell	32.7319	-96.31791	Rural	TSP (Pb)	SLAMS	Hi-Vol ICP-MS	24 Hours; 1/6 Days	Population Exposure; Source Oriented	Neighborhood
Dallas-Fort Worth-Arlington	482570020	Terrell Temtex	2988 Temtex Boulevard, Terrell	32.7319	-96.31791	Rural	TSP (Pb)	QA Collocated SLAMS	Hi-Vol ICP-MS	24 Hours; 1/12 Days	Population Exposure; Source Oriented	Neighborhood
Eagle Pass***	483230004	Eagle Pass	265 Foster Maldonado, Eagle Pass	28.7046	-100.4512	Urban and Center City	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Regional Transport	Regional Scale

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Eagle Pass***	483230004	Eagle Pass	265 Foster Maldonado, Eagle Pass	28.7046	-100.4512	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Regional Transport	Regional Scale
Eagle Pass***	483230004	Eagle Pass	265 Foster Maldonado, Eagle Pass	28.7046	-100.4512	Urban and Center City	Visibility	SPM	Visibility Sensor	Continuous	Regional Transport	Regional Scale
Eagle Pass***	483230004	Eagle Pass	265 Foster Maldonado, Eagle Pass	28.7046	-100.4512	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Regional Transport	Regional Scale
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	Barometric Pressure	PAMS/SLAMS	Barometric pressure transducer	Continuous	Maximum Ozone Concentration; Upwind Background	Neighborhood
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	Dew Point	SPM	Derived at site	Continuous	Highest Concentration; Upwind Background	Urban Scale
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Highest Concentration; Upwind Background	Neighborhood / Urban Scale
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration; Upwind Background	Neighborhood
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Population Exposure	Neighborhood
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Ozone Concentration; Upwind Background	Neighborhood
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Ozone Concentration; Upwind Background	Neighborhood
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Ozone Concentration; Upwind Background	Neighborhood
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	Visibility	SPM	Visibility Sensor	Continuous	Highest Concentration; Population Exposure	Urban Scale
El Paso	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	31.7468	-106.4028	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Ozone Concentration; Upwind Background	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	CO (High-Sensitivity)	NCORE/SLAMS	Gas Filter Correlation	Continuous	Highest Concentration	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	Dew Point	SPM	Derived at site	Continuous	Highest Concentration; Maximum Precursor Emissions Impact	Neighborhood

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El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Highest Concentration; Maximum Precursor Emissions Impact	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	NOy (High-Sensitivity)	NCORE/SLAMS	Chemi-luminescence	Continuous	Highest Concentration	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	O3	NCORE/PAMS/ SLAMS	Ultraviolet Photometric	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	PM10-2.5	NCORE/SLAMS	Beta Attenuation	Continuous	Highest Concentration; Population Exposure	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	PM2.5	NCORE/SLAMS	Beta Attenuation	Continuous	Highest Concentration; Population Exposure	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	PM2.5 (FRM)	NCORE/SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Highest Concentration; Population Exposure	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	PM2.5 (FRM)	QA Collocated SLAMS	Sequential FRM Gravimetric	24 Hours; 1/6 Days	Highest Concentration; Population Exposure	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	PM2.5 (Speciation)	CSN STN NCORE SLAMS	Carbons, Elements, Ions, Non-FRM Gravimetric (Quartz)	24 Hours; 1/6 Days, 24 Hours; 1/3 Days	Highest Concentration	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Precursor Emissions Impact	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	SO2 (High-Sensitivity)	NCORE/SLAMS	Pulsed Fluorescence	Continuous	Highest Concentration	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	Speciated VOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Highest Concentration; Maximum Precursor Emissions Impact	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Neighborhood
El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	TNMOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Highest Concentration; Maximum Precursor Emissions Impact	Neighborhood

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El Paso	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	31.7657	-106.4552	Urban and Center City	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	CO	SPM	Gas Filter Correlation	Continuous	Highest Concentration	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	Dew Point	SPM	Derived at site	Continuous	Maximum Ozone Concentration; Population Exposure	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Maximum Ozone Concentration; Population Exposure	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration; Population Exposure	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	PM2.5 (FRM)	SLAMS/Spm	Sequential FRM Gravimetric	24 Hours; 1/6 Days	General/Background; Population Exposure	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Highest Concentration	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	Precipitation	PAMS/SLAMS	Rain Gauge	Continuous	Maximum Ozone Concentration	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Ozone Concentration	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Ozone Concentration	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Ozone Concentration	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	TSP (Pb)	SLAMS	Hi-Vol ICP-MS	24 Hours; 1/6 Days	Population Exposure	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	UV Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Ozone Concentration	Neighborhood
El Paso	481410037	El Paso UTEP	250 Rim Road, El Paso	31.7683	-106.5013	Urban and Center City	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Ozone Concentration	Neighborhood
El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	31.7858	-106.3236	Suburban	O3	SPM	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood

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El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	31.7858	-106.3236	Suburban	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	31.7858	-106.3236	Suburban	Relative Humidity	Border Grant/SLAMS	Humidity Sensor	Continuous	General/Background	Neighborhood
El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	31.7858	-106.3236	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
El Paso	481410029	Ivanhoe	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	31.7858	-106.3236	Suburban	Wind	Border Grant/SLAMS	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	31.8625	-106.5473	Suburban	CO	SLAMS	Gas Filter Correlation	Continuous	Population Exposure	Neighborhood
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	31.8625	-106.5473	Suburban	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	31.8625	-106.5473	Suburban	PM10 (FRM)	QA Collocated SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	31.8625	-106.5473	Suburban	TSP (Pb)	SLAMS	Hi-Vol ICP-MS	24 Hours; 1/6 Days	Population Exposure	Neighborhood
El Paso	481411021	Ojo De Agua	6767 Ojo De Agua, El Paso	31.8625	-106.5473	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
El Paso	481410038	Riverside	301 Midway Drive (Riverside High School), El Paso	31.7338	-106.3721	Suburban	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
El Paso	481410058	Skyline Park	5050A Yvette Drive, El Paso	31.8939	-106.4258	Suburban	O3	Border Grant/SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
El Paso	481410058	Skyline Park	5050A Yvette Drive, El Paso	31.8939	-106.4258	Suburban	Temperature (Outdoor)	Border Grant/SLAMS	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
El Paso	481410058	Skyline Park	5050A Yvette Drive, El Paso	31.8939	-106.4258	Suburban	Wind	Border Grant/SLAMS	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	31.6675	-106.288	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	31.6675	-106.288	Suburban	PM10 (FRM)	Border Grant/SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	General/Background; Population Exposure	Neighborhood

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	31.6675	-106.288	Suburban	PM10 (FRM)	Border Grant QA Collocated SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	31.6675	-106.288	Suburban	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Population Exposure	Neighborhood
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	31.6675	-106.288	Suburban	Radar Profiler	SPM	Radar Profiler	Continuous	Regional Transport	Regional Scale
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	31.6675	-106.288	Suburban	SVOC	SPM	Hi-Vol PUF XAD GC-MS	24 Hours; 1/6 Days	Population Exposure	Neighborhood
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	31.6675	-106.288	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
El Paso	481410057	Socorro Hueco	320 Old Hueco Tanks Road, El Paso	31.6675	-106.288	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
El Paso	481410693	Van Buren	2700 Harrison Avenue, El Paso	31.8134	-106.4645	Urban and Center City	PM10 (FRM)	SPM	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
El Paso	481410693	Van Buren	2700 Harrison Avenue, El Paso	31.8134	-106.4645	Urban and Center City	Relative Humidity	SPM	Humidity Sensor	Continuous	Population Exposure	
El Paso	481410693	Van Buren	2700 Harrison Avenue, El Paso	31.8134	-106.4645	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	
El Paso	481410693	Van Buren	2700 Harrison Avenue, El Paso	31.8134	-106.4645	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	
Granbury*, DFW	482210001	Granbury	200 North Gordon Street, Granbury	32.4423	-97.80353	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Granbury*, DFW	482210001	Granbury	200 North Gordon Street, Granbury	32.4423	-97.80353	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Middle Scale
Granbury*, DFW	482210001	Granbury	200 North Gordon Street, Granbury	32.4423	-97.80353	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Middle Scale
Granbury*, DFW	482210001	Granbury	200 North Gordon Street, Granbury	32.4423	-97.80353	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Middle Scale
Houston-The Woodlands-Sugar Land	482010058	Baytown	7210 1/2 Bayway Drive, Baytown	29.7707	-95.03123	Suburban	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Population Exposure	Neighborhood

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Houston-The Woodlands-Sugar Land	482010058	Baytown	7210 1/2 Bayway Drive, Baytown	29.7707	-95.03123	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482010058	Baytown	7210 1/2 Bayway Drive, Baytown	29.7707	-95.03123	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482011017	Baytown Garth	8622 Garth Road Unit A, Baytown	29.8233	-94.98379	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482011017	Baytown Garth	8622 Garth Road Unit A, Baytown	29.8233	-94.98379	Suburban	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011017	Baytown Garth	8622 Garth Road Unit A, Baytown	29.8233	-94.98379	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011017	Baytown Garth	8622 Garth Road Unit A, Baytown	29.8233	-94.98379	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011017	Baytown Garth	8622 Garth Road Unit A, Baytown	29.8233	-94.98379	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	29.8027	-95.12549	Suburban	Dew Point	SPM	Derived at site	Continuous	Highest Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	29.8027	-95.12549	Suburban	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Population Exposure	Middle Scale / Neighborhood
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	29.8027	-95.12549	Suburban	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	29.8027	-95.12549	Suburban	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	29.8027	-95.12549	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	29.8027	-95.12549	Suburban	Speciated VOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	29.8027	-95.12549	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	29.8027	-95.12549	Suburban	TNMOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Population Exposure	Neighborhood

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Houston-The Woodlands-Sugar Land	482010026	Channelview	1405 Sheldon Road, Channelview	29.8027	-95.12549	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	Barometric Pressure	PAMS/SLAMS	Barometric pressure transducer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	Carbonyl	PAMS/SLAMS	DNPH Silica HPLC	8 Hour; Seasonal, 24 Hours; Seasonal	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	CO (High-Sensitivity)	SPM	Gas Filter Correlation	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	PM10 (FRM)	QA Collocated SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Highest Concentration; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Highest Concentration; Source Oriented	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	PM2.5 (FRM)	SLAMS	Sequential FRM Gravimetric	24 Hours; 1/1 Days	Highest Concentration; Population Exposure; Source Oriented	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	PM2.5 (FRM)	QA Collocated SLAMS	Sequential FRM Gravimetric	24 Hours; 1/6 Days	Highest Concentration; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	Precipitation	SPM	Rain Gauge	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Precursor Emissions Impact	Neighborhood

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Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	Speciated VOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Highest Concentration; Population Exposure; Source Oriented	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	TNMOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Highest Concentration; Population Exposure; Source Oriented	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	UV Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011035	Clinton	9525 1/2 Clinton Drive, Houston	29.7337	-95.25759	Urban and Center City	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	30.3503	-95.42513	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	General/Background; Population Exposure	Urban Scale
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	30.3503	-95.42513	Suburban	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	General/Background; Population Exposure	Urban Scale
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	30.3503	-95.42513	Suburban	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	30.3503	-95.42513	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Highest Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	30.3503	-95.42513	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Highest Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	483390078	Conroe Relocated	9472A Hwy 1484, Conroe	30.3503	-95.42513	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	29.2545	-94.86129	Suburban	Dew Point	SPM	Derived at site	Continuous	General/Background; Upwind Background	Middle Scale

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Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	29.2545	-94.86129	Suburban	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	General/Background; Upwind Background	Middle Scale / Urban Scale
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	29.2545	-94.86129	Suburban	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	29.2545	-94.86129	Suburban	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Regional Transport	Regional Scale
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	29.2545	-94.86129	Suburban	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Ozone Concentration; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	29.2545	-94.86129	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Ozone Concentration; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	29.2545	-94.86129	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Ozone Concentration; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	29.2545	-94.86129	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Ozone Concentration; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	Barometric Pressure	PAMS/SLAMS	Barometric pressure transducer	Continuous	Maximum Ozone Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Urban Scale
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Maximum Ozone Concentration; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	NOy (High-Sensitivity)	PAMS/SLAMS	Chemi-luminescence	Continuous	Maximum Ozone Concentration; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	PM2.5 (Speciation)	SPM	Carbons, Elements, Ions (Quartz)	24 Hours; 1/6 Days	Population Exposure	Neighborhood

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Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	PM2.5 Mass (Speciation)	QA Collocated/ SLAMS	Sequential FRM Gravimetric (Teflon)	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Maximum Ozone Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Ozone Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Maximum Ozone Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	29.901	-95.32614	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Ozone Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	29.6957	-95.49922	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Middle Scale / Neighborhood
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	29.6957	-95.49922	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Middle Scale
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	29.6957	-95.49922	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background; Maximum Precursor Emissions Impact	Middle Scale
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	29.6957	-95.49922	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background; Maximum Precursor Emissions Impact	Middle Scale
Houston-The Woodlands-Sugar Land	482010055	Houston Bayland Park	6400 Bissonnet Street, Houston	29.6957	-95.49922	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background; Maximum Precursor Emissions Impact	Middle Scale
Houston-The Woodlands-Sugar Land	482010051	Houston Croquet	13826 1/2 Croquet, Houston	29.6239	-95.47417	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010051	Houston Croquet	13826 1/2 Croquet, Houston	29.6239	-95.47417	Suburban	SO2	SPM	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010051	Houston Croquet	13826 1/2 Croquet, Houston	29.6239	-95.47417	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010051	Houston Croquet	13826 1/2 Croquet, Houston	29.6239	-95.47417	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	Barometric Pressure	PAMS/SLAMS	Barometric pressure transducer	Continuous	General/Background	Neighborhood

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Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	Carbonyl	PAMS/SLAMS	DNPH Silica HPLC	24 Hours; Seasonal, 8 Hour; Seasonal	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	CO (High-Sensitivity)	NCORE/SLAMS	Gas Filter Correlation	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	NO2 (Direct)	PAMS/SLAMS	Cavity Attenuated Phase Shift Spectroscopy	Continuous	Population Exposure; Source Oriented	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	NOy (High-Sensitivity)	NCORE/PAMS/ SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	O3	NCORE/PAMS/ SLAMS	Ultraviolet Photometric	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	PM10-2.5	NCORE/SLAMS	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	PM2.5	NCORE/SLAMS	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	PM2.5 (FRM)	NCORE/SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	PM2.5 (Speciation)	CSN STN NCORE SLAMS	Carbons, Elements, Ions, Non-FRM Gravimetric (Quartz)	24 Hours; 1/3 Days, 24 Hours; 1/6 Days	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	PM2.5 (Speciation)	CSN STN QA Collocated SLAMS	Carbons, Elements, Ions, Non-FRM Gravimetric (Quartz)	24 Hours; 1/6 Days, 24 Hours; 1/3 Days	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	Precipitation	PAMS/SLAMS	Rain Gauge	Continuous	General/Background	Neighborhood

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	Relative Humidity	NCORE/PAMS/ SLAMS	Humidity Sensor	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	SO2 (High-Sensitivity)	NCORE/SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	Speciated VOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	Temperature (Outdoor)	NCORE/PAMS/ SLAMS	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	TNMOC (AutoGC)	PAMS/SLAMS	GC	Continuous	Maximum Precursor Emissions Impact; Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	UV Radiation	PAMS/SLAMS	Photovoltaic	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	29.67	-95.12851	Urban and Center City	Wind	NCORE/PAMS/ SLAMS	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Neighborhood
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	29.768	-95.22058	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Highest Concentration; Population Exposure	Middle Scale / Neighborhood
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	29.768	-95.22058	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	29.768	-95.22058	Suburban	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	29.768	-95.22058	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Urban Scale
Houston-The Woodlands-Sugar Land	482011034	Houston East	1262 1/2 Mae Drive, Houston	29.768	-95.22058	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010060	Houston Kirkpatrick	5565 Kirkpatrick, Houston	29.8074	-95.29362	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010060	Houston Kirkpatrick	5565 Kirkpatrick, Houston	29.8074	-95.29362	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood

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Houston-The Woodlands-Sugar Land	482010062	Houston Monroe	9726 1/2 Monroe, Houston	29.6256	-95.26722	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010062	Houston Monroe	9726 1/2 Monroe, Houston	29.6256	-95.26722	Suburban	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010062	Houston Monroe	9726 1/2 Monroe, Houston	29.6256	-95.26722	Suburban	Precipitation	SPM	Rain Gauge	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	29.8145	-95.38769	Urban and Center City	CO	Near-Road/SLAMS	Gas Filter Correlation	Continuous	Maximum Precursor Emissions Impact	Microscale
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	29.8145	-95.38769	Urban and Center City	NO/NO2/NOx	Near-Road/SLAMS	Chemi-luminescence	Continuous	Maximum Precursor Emissions Impact	Microscale
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	29.8145	-95.38769	Urban and Center City	PM2.5 (FRM)	Near-Road/SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Maximum Precursor Emissions Impact	Microscale
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	29.8145	-95.38769	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Microscale
Houston-The Woodlands-Sugar Land	482011052	Houston North Loop	822 North Loop, Houston	29.8145	-95.38769	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Microscale
Houston-The Woodlands-Sugar Land	482010046	Houston North Wayside	7330 1/2 North Wayside, Houston	29.8281	-95.2841	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011066	Houston Southwest Freeway	5617 Westward Avenue, Houston	29.7216	-95.49265	Urban and Center City	NO/NO2/NOx	Near-Road/SLAMS	Chemi-luminescence	Continuous	Maximum Precursor Emissions Impact	Microscale
Houston-The Woodlands-Sugar Land	482011066	Houston Southwest Freeway	5617 Westward Avenue, Houston	29.7216	-95.49265	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Microscale
Houston-The Woodlands-Sugar Land	482011066	Houston Southwest Freeway	5617 Westward Avenue, Houston	29.7216	-95.49265	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Microscale
Houston-The Woodlands-Sugar Land	482010066	Houston Westhollow	3333 1/2 Hwy 6 South, Houston	29.7233	-95.63583	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010066	Houston Westhollow	3333 1/2 Hwy 6 South, Houston	29.7233	-95.63583	Suburban	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010066	Houston Westhollow	3333 1/2 Hwy 6 South, Houston	29.7233	-95.63583	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Houston-The Woodlands-Sugar Land	482010066	Houston Westhollow	3333 1/2 Hwy 6 South, Houston	29.7233	-95.63583	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011043	La Porte Airport C243	La Porte Airport, 2434 Buchanan Street, La Porte	29.672	-95.0647	Suburban	Ceilometer	PAMS/SLAMS	Ceilometer	Continuous	Regional Transport	Regional Scale
Houston-The Woodlands-Sugar Land	482011043	La Porte Airport C243	La Porte Airport, 2434 Buchanan Street, La Porte	29.672	-95.0647	Suburban	Precipitation	PAMS/SLAMS	Rain Gauge	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482011043	La Porte Airport C243	La Porte Airport, 2434 Buchanan Street, La Porte	29.672	-95.0647	Suburban	Radar Profiler	PAMS/SLAMS	Radar Profiler	Continuous	Regional Transport	Regional Scale
Houston-The Woodlands-Sugar Land	482011043	La Porte Airport C243	La Porte Airport, 2434 Buchanan Street, La Porte	29.672	-95.0647	Suburban	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482011043	La Porte Airport C243	La Porte Airport, 2434 Buchanan Street, La Porte	29.672	-95.0647	Suburban	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	29.0438	-95.47295	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure; Source Oriented	Middle Scale / Neighborhood
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	29.0438	-95.47295	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure; Source Oriented	Neighborhood
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	29.0438	-95.47295	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Middle Scale
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	29.0438	-95.47295	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Middle Scale
Houston-The Woodlands-Sugar Land	480391016	Lake Jackson	109B Brazoria Hwy 332 West, Lake Jackson	29.0438	-95.47295	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Middle Scale
Houston-The Woodlands-Sugar Land	482010047	Lang	4401 1/2 Lang Road, Houston	29.8342	-95.48917	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Middle Scale / Urban Scale
Houston-The Woodlands-Sugar Land	482010047	Lang	4401 1/2 Lang Road, Houston	29.8342	-95.48917	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Houston-The Woodlands-Sugar Land	482010047	Lang	4401 1/2 Lang Road, Houston	29.8342	-95.48917	Suburban	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	29.7589	-95.07944	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Source Oriented	Middle Scale / Neighborhood

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	29.7589	-95.07944	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Source Oriented	Middle Scale
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	29.7589	-95.07944	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	29.7589	-95.07944	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	482011015	Lynchburg Ferry	4364 Independence Parkway South, Baytown	29.7589	-95.07944	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Neighborhood
Houston-The Woodlands-Sugar Land	480391004	Manvel Croix Park	4503 Croix Parkway, Manvel	29.5204	-95.39251	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Urban Scale
Houston-The Woodlands-Sugar Land	480391004	Manvel Croix Park	4503 Croix Parkway, Manvel	29.5204	-95.39251	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Houston-The Woodlands-Sugar Land	480391004	Manvel Croix Park	4503 Croix Parkway, Manvel	29.5204	-95.39251	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	480391004	Manvel Croix Park	4503 Croix Parkway, Manvel	29.5204	-95.39251	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	30.0395	-95.67395	Rural	Dew Point	SPM	Derived at site	Continuous	Source Oriented	Microscale
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	30.0395	-95.67395	Rural	NO/NO2/NOx	PAMS/SLAMS	Chemi-luminescence	Continuous	Extreme Downwind; Population Exposure; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	30.0395	-95.67395	Rural	O3	PAMS/SLAMS	Ultraviolet Photometric	Continuous	Extreme Downwind; Population Exposure; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	30.0395	-95.67395	Rural	Relative Humidity	PAMS/SLAMS	Humidity Sensor	Continuous	Extreme Downwind; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	30.0395	-95.67395	Rural	Solar Radiation	PAMS/SLAMS	Photovoltaic	Continuous	Extreme Downwind; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	30.0395	-95.67395	Rural	Temperature (Outdoor)	PAMS/SLAMS	Aspirated Thermister	Continuous	Extreme Downwind; Upwind Background	Urban Scale
Houston-The Woodlands-Sugar Land	482010029	Northwest Harris County	16822 Kitzman, Tomball	30.0395	-95.67395	Rural	Wind	PAMS/SLAMS	Potentiometer Cup Anemometer	Continuous	Extreme Downwind; Upwind Background	Urban Scale

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	Barometric Pressure	SPM	Barometric pressure transducer	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	Dew Point	SPM	Derived at site	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	NO/NO2/NOx	SPM	Chemi-luminescence	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	O3	SPM	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	Precipitation	SPM	Rain Gauge	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	Relative Humidity	SPM	Humidity Sensor	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	SO2	SPM	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	UV Radiation	SPM	Photovoltaic	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482010416	Park Place	7421 Park Place Boulevard, Houston	29.6864	-95.29472	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Road, Seabrook	29.583	-95.01554	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Middle Scale / Neighborhood
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Road, Seabrook	29.583	-95.01554	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Road, Seabrook	29.583	-95.01554	Suburban	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Highest Concentration	Middle Scale
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Road, Seabrook	29.583	-95.01554	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Middle Scale

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Road, Seabrook	29.583	-95.01554	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Middle Scale
Houston-The Woodlands-Sugar Land	482011050	Seabrook Friendship Park	4522 Park Road, Seabrook	29.583	-95.01554	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Middle Scale
Houston-The Woodlands-Sugar Land	480710013	Smith Point Hawkins Camp	1850 Hawkins Camp Road, Anahuac	29.5462	-94.78697	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Source Oriented	Neighborhood
Houston-The Woodlands-Sugar Land	480710013	Smith Point Hawkins Camp	1850 Hawkins Camp Road, Anahuac	29.5462	-94.78697	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Source Oriented	Neighborhood
Houston-The Woodlands-Sugar Land	481670004	Texas City Fire Station	2516 Texas Avenue, Texas City	29.3844	-94.93083	Urban and Center City	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Highest Concentration	Neighborhood
Killeen-Temple-Fort Hood	480271047	Killeen Skylark Field	1605 Stone Tree Drive, Killeen	31.088	-97.67973	Urban and Center City	NO/NO2/NOx	SPM	Chemi-luminescence	Continuous	General/Background	Urban Scale
Killeen-Temple-Fort Hood	480271047	Killeen Skylark Field	1605 Stone Tree Drive, Killeen	31.088	-97.67973	Urban and Center City	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Killeen-Temple-Fort Hood	480271047	Killeen Skylark Field	1605 Stone Tree Drive, Killeen	31.088	-97.67973	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Urban Scale
Killeen-Temple-Fort Hood	480271047	Killeen Skylark Field	1605 Stone Tree Drive, Killeen	31.088	-97.67973	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Urban Scale
Killeen-Temple-Fort Hood	480271045	Temple Georgia	8406 Georgia Avenue, Temple	31.1224	-97.43105	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Urban Scale
Killeen-Temple-Fort Hood	480271045	Temple Georgia	8406 Georgia Avenue, Temple	31.1224	-97.43105	Suburban	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Population Exposure	Urban Scale
Killeen-Temple-Fort Hood	480271045	Temple Georgia	8406 Georgia Avenue, Temple	31.1224	-97.43105	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Killeen-Temple-Fort Hood	480271045	Temple Georgia	8406 Georgia Avenue, Temple	31.1224	-97.43105	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Kingsville	482730314	National Seashore	20420 Park Road, Corpus Christi	27.427	-97.29869	Rural	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Regional Transport	Regional Scale
Kingsville	482730314	National Seashore	20420 Park Road, Corpus Christi	27.427	-97.29869	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Regional Transport	Regional Scale

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Kingsville	482730314	National Seashore	20420 Park Road, Corpus Christi	27.427	-97.29869	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Regional Transport	Regional Scale
Laredo	484790017	Laredo Bridge	700 Zaragosa Street, Laredo	27.5018	-99.50298	Urban and Center City	PM10 (FRM)	Border Grant/SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Highest Concentration	Microscale
Laredo	484790017	Laredo Bridge	700 Zaragosa Street, Laredo	27.5018	-99.50298	Urban and Center City	Speciated VOC (Canister)	Border Grant SLAMS/Spm	Canister GC-MS	24 Hours; 1/6 Days	Highest Concentration	Neighborhood
Laredo	484790017	Laredo Bridge	700 Zaragosa Street, Laredo	27.5018	-99.50298	Urban and Center City	Temperature (Outdoor)	Border Grant/SLAMS	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Laredo	484790017	Laredo Bridge	700 Zaragosa Street, Laredo	27.5018	-99.50298	Urban and Center City	Wind	Border Grant/SLAMS	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Laredo	484790016	Laredo Vidaurri	2020 Vidaurri Avenue, Laredo	27.5175	-99.51522	Suburban	CO	Border Grant/SLAMS	Gas Filter Correlation	Continuous	Population Exposure	Neighborhood
Laredo	484790016	Laredo Vidaurri	2020 Vidaurri Avenue, Laredo	27.5175	-99.51522	Suburban	O3	Border Grant/SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Laredo	484790016	Laredo Vidaurri	2020 Vidaurri Avenue, Laredo	27.5175	-99.51522	Suburban	PM10 (FRM)	Border Grant/SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Laredo	484790016	Laredo Vidaurri	2020 Vidaurri Avenue, Laredo	27.5175	-99.51522	Suburban	Temperature (Outdoor)	Border Grant/SLAMS	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Laredo	484790016	Laredo Vidaurri	2020 Vidaurri Avenue, Laredo	27.5175	-99.51522	Suburban	Wind	Border Grant SLAMS/Spm	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
Laredo	484790313	World Trade Bridge	Mines Road 11601 FM 1472, Laredo	27.5994	-99.53333	Suburban	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Source Oriented	Microscale
Longview	481830001	Longview	Gregg County Airport near Longview, Longview	32.3787	-94.71181	Rural	NO/NO2/NOx	SPM	Chemi-luminescence	Continuous	Population Exposure	Neighborhood
Longview	481830001	Longview	Gregg County Airport near Longview, Longview	32.3787	-94.71181	Rural	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Longview	481830001	Longview	Gregg County Airport near Longview, Longview	32.3787	-94.71181	Rural	Precipitation	SPM	Rain Gauge	Continuous	General/Background	Neighborhood

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Longview	481830001	Longview	Gregg County Airport near Longview, Longview	32.3787	-94.71181	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	General/Background; Population Exposure	Neighborhood
Longview	481830001	Longview	Gregg County Airport near Longview, Longview	32.3787	-94.71181	Rural	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Neighborhood
Longview	481830001	Longview	Gregg County Airport near Longview, Longview	32.3787	-94.71181	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Longview	481830001	Longview	Gregg County Airport near Longview, Longview	32.3787	-94.71181	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Longview	484011082	Tatum CR 2181d Martin Creek Lake	9515 County Road 2181d, Tatum	32.2778	-94.5708	Rural	SO2	SPM	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Longview	484011082	Tatum CR 2181d Martin Creek Lake	9515 County Road 2181d, Tatum	32.2778	-94.5708	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Longview	484011082	Tatum CR 2181d Martin Creek Lake	9515 County Road 2181d, Tatum	32.2778	-94.5708	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Lubbock	483031028	Lubbock 12th Street	3901 East 12th Street, Lubbock	33.5855	-101.787	Urban and Center City	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Population Exposure	Urban Scale
Lubbock	483031028	Lubbock 12th Street	3901 East 12th Street, Lubbock	33.5855	-101.787	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Regional Scale
Lubbock	483031028	Lubbock 12th Street	3901 East 12th Street, Lubbock	33.5855	-101.787	Urban and Center City	Wind (3 meter)	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Regional Scale
Marshall***	482031079	Hallsville Red Oak Road	9206 Red Oak Road, Hallsville	32.4702	-94.4815	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Marshall***	482031079	Hallsville Red Oak Road	9206 Red Oak Road, Hallsville	32.4702	-94.4815	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Marshall***	482031079	Hallsville Red Oak Road	9206 Red Oak Road, Hallsville	32.4702	-94.4815	Rural	Wind (3 meter)	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Marshall***	482030002	Karnack	Hwy 134 and Spur 449, Not In A City	32.669	-94.16746	Rural	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	General/Background	Regional Scale / Urban Scale

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Marshall***	482030002	Karnack	Hwy 134 and Spur 449, Not In A City	32.669	-94.16746	Rural	O3	SLAMS	Ultraviolet Photometric	Continuous	General/Background	Regional Scale
Marshall***	482030002	Karnack	Hwy 134 and Spur 449, Not In A City	32.669	-94.16746	Rural	PM2.5 (FRM)	SPM	Sequential FRM Gravimetric	24 Hours; 1/6 Days	General/Background	Regional Scale / Urban Scale
Marshall***	482030002	Karnack	Hwy 134 and Spur 449, Not In A City	32.669	-94.16746	Rural	PM2.5 (Speciation)	CSN Supplemental/ SLAMS	Carbons, Elements, Ions, Non-FRM Gravimetric (Quartz)	24 Hours; 1/6 Days, 24 Hours; 1/3 Days	General/Background; Regional Transport	Regional Scale
Marshall***	482030002	Karnack	Hwy 134 and Spur 449, Not In A City	32.669	-94.16746	Rural	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	General/Background	Regional Scale
Marshall***	482030002	Karnack	Hwy 134 and Spur 449, Not In A City	32.669	-94.16746	Rural	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Urban Scale
Marshall***	482030002	Karnack	Hwy 134 and Spur 449, Not In A City	32.669	-94.16746	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Urban Scale
Marshall***	482030002	Karnack	Hwy 134 and Spur 449, Not In A City	32.669	-94.16746	Rural	Visibility	SPM	Visibility Sensor	Continuous	General/Background	Urban Scale
Marshall***	482030002	Karnack	Hwy 134 and Spur 449, Not In A City	32.669	-94.16746	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Urban Scale
McAllen-Edinburg-Mission	482151046	Edinburg East Freddy Gonzalez Drive	1491 East Freddy Gonzalez Drive, Edinburg	26.2886	-98.15207	Urban and Center City	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Regional Scale
McAllen-Edinburg-Mission	482151046	Edinburg East Freddy Gonzalez Drive	1491 East Freddy Gonzalez Drive, Edinburg	26.2886	-98.15207	Urban and Center City	PM2.5 (FRM)	SLAMS	Sequential FRM Gravimetric	24 Hours; 1/3 Days	Population Exposure	Regional Scale
McAllen-Edinburg-Mission	482151046	Edinburg East Freddy Gonzalez Drive	1491 East Freddy Gonzalez Drive, Edinburg	26.2886	-98.15207	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Regional Scale
McAllen-Edinburg-Mission	482151046	Edinburg East Freddy Gonzalez Drive	1491 East Freddy Gonzalez Drive, Edinburg	26.2886	-98.15207	Urban and Center City	Wind (3 meter)	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Regional Scale
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	26.2262	-98.29107	Suburban	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Urban Scale

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	26.2262	-98.29107	Suburban	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Population Exposure	Urban Scale
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	26.2262	-98.29107	Suburban	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure	Microscale
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	26.2262	-98.29107	Suburban	SVOC	SPM	Hi-Vol PUF XAD GC-MS	24 Hours; 1/6 Days	Population Exposure	Microscale
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	26.2262	-98.29107	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Microscale
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	26.2262	-98.29107	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Microscale
McAllen-Edinburg-Mission	482150043	Mission	2300 North Glasscock, Mission	26.2262	-98.29107	Suburban	Wind (3 meter)	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Mount Pleasant***	484491078	Cookville FM 4855	385 CR 4855, Not In A City	33.0752	-94.8474	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
Mount Pleasant***	484491078	Cookville FM 4855	385 CR 4855, Not In A City	33.0752	-94.8474	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Mount Pleasant***	484491078	Cookville FM 4855	385 CR 4855, Not In A City	33.0752	-94.8474	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
None****	480430101	Bravo Big Bend	Big Bend National Park, Big Bend Nat Park	29.3026	-103.1779	Rural	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	General/Background	Neighborhood
None****	480430101	Bravo Big Bend	Big Bend National Park, Big Bend Nat Park	29.3026	-103.1779	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Microscale
None****	480430101	Bravo Big Bend	Big Bend National Park, Big Bend Nat Park	29.3026	-103.1779	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Regional Scale
None****	481611084	Fairfield FM 2570 Ward Ranch	488 FM 2570, Fairfield	31.7978	-96.1031	Rural	SO2	SPM	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
None****	481611084	Fairfield FM 2570 Ward Ranch	488 FM 2570, Fairfield	31.7978	-96.1031	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Source Oriented	Neighborhood
None****	481611084	Fairfield FM 2570 Ward Ranch	488 FM 2570, Fairfield	31.7978	-96.1031	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Source Oriented	Neighborhood

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
None****	483311075	Rockdale John D. Harper Road	3990 John D Harper Road, Rockdale	30.5694	-97.07611	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
None****	483311075	Rockdale John D. Harper Road	3990 John D Harper Road, Rockdale	30.5694	-97.07611	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
None****	483311075	Rockdale John D. Harper Road	3990 John D Harper Road, Rockdale	30.5694	-97.07611	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
Odessa	481351014	Odessa Gonzales	2700 Disney, Odessa	31.8703	-102.3348	Suburban	PM2.5 (Beta)	SPM	Beta Attenuation	Continuous	Highest Concentration	Regional Scale
Odessa	481351014	Odessa Gonzales	2700 Disney, Odessa	31.8703	-102.3348	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood
Odessa	481351014	Odessa Gonzales	2700 Disney, Odessa	31.8703	-102.3348	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood
San Antonio	480290059	Calaveras Lake	14620 Laguna Road, San Antonio	29.2754	-98.31169	Rural	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Source Oriented; Upwind Background	Urban Scale
San Antonio	480290059	Calaveras Lake	14620 Laguna Road, San Antonio	29.2754	-98.31169	Rural	O3	SLAMS	Ultraviolet Photometric	Continuous	Source Oriented; Upwind Background	Urban Scale
San Antonio	480290059	Calaveras Lake	14620 Laguna Road, San Antonio	29.2754	-98.31169	Rural	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Population Exposure; Source Oriented	Urban Scale
San Antonio	480290059	Calaveras Lake	14620 Laguna Road, San Antonio	29.2754	-98.31169	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure; Source Oriented	Neighborhood
San Antonio	480290059	Calaveras Lake	14620 Laguna Road, San Antonio	29.2754	-98.31169	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Source Oriented	Urban Scale
San Antonio	480290059	Calaveras Lake	14620 Laguna Road, San Antonio	29.2754	-98.31169	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Source Oriented	Urban Scale
San Antonio	480290052	Camp Bullis	F Range (1000 yard marker off Wilderness Trail), Near Wilderness	29.6321	-98.56494	Rural	O3	SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration; Population Exposure	Urban Scale
San Antonio	480290052	Camp Bullis	F Range (1000 yard marker off Wilderness Trail), Near Wilderness	29.6321	-98.56494	Rural	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Urban Scale
San Antonio	480290052	Camp Bullis	F Range (1000 yard marker off Wilderness Trail), Near Wilderness	29.6321	-98.56494	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Urban Scale

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
San Antonio	480290052	Camp Bullis	F Range (1000 yard marker off Wilderness Trail), Near Wilderness	29.6321	-98.56494	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Urban Scale
San Antonio	480290060	Frank Wing Municipal Court	401 South Frio St, San Antonio	29.4222	-98.50538	Urban and Center City	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Middle Scale
San Antonio	480290677	Old Hwy 90	911 Old Hwy 90 West, San Antonio	29.4239	-98.5805	Urban and Center City	PM2.5 (TEOM)**	SPM	Gravimetric	Continuous	Population Exposure	Neighborhood
San Antonio	480290676	Palo Alto	9011 Poteet Jourdanton Hwy, San Antonio	29.3328	-98.55138	Urban and Center City	PM2.5 (TEOM)**	SPM	TEOM Gravimetric	Continuous	Population Exposure	Neighborhood
San Antonio	480290676	Palo Alto	9011 Poteet Jourdanton Hwy, San Antonio	29.3328	-98.55138	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
San Antonio	480290676	Palo Alto	9011 Poteet Jourdanton Hwy, San Antonio	29.3328	-98.55138	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
San Antonio	480291080	San Antonio Gardner Road	7145 Gardner Road, San Antonio	29.3529	-98.33281	Suburban	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood
San Antonio	480291080	San Antonio Gardner Road	7145 Gardner Road, San Antonio	29.3529	-98.33281	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
San Antonio	480291080	San Antonio Gardner Road	7145 Gardner Road, San Antonio	29.3529	-98.33281	Suburban	Wind (3 meter)	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood
San Antonio	480291069	San Antonio Interstate 35	9904 IH 35 North, San Antonio	29.5294	-98.39139	Urban and Center City	NO/NO2/NOx	Near-Road/SLAMS	Chemi-luminescence	Continuous	Maximum Precursor Emissions Impact	Microscale
San Antonio	480291069	San Antonio Interstate 35	9904 IH 35 North, San Antonio	29.5294	-98.39139	Urban and Center City	PM2.5 (Beta)	Near-Road/SLAMS	Beta Attenuation	Continuous	Maximum Precursor Emissions Impact	Microscale
San Antonio	480291069	San Antonio Interstate 35	9904 IH 35 North, San Antonio	29.5294	-98.39139	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Maximum Precursor Emissions Impact	Microscale
San Antonio	480291069	San Antonio Interstate 35	9904 IH 35 North, San Antonio	29.5294	-98.39139	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Maximum Precursor Emissions Impact	Microscale
San Antonio	480291069	San Antonio Interstate 35	9904 IH 35 North, San Antonio	29.5294	-98.39139	Urban and Center City	Wind (3 meter)	Near-Road/SLAMS	Gas Filter Correlation	Continuous	Maximum Precursor Emissions Impact	Microscale

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
San Antonio	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	29.5151	-98.62017	Suburban	NO/NO2/NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood
San Antonio	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	29.5151	-98.62017	Suburban	O3	SLAMS	Ultraviolet Photometric	Continuous	Maximum Ozone Concentration; Population Exposure	Urban Scale
San Antonio	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	29.5151	-98.62017	Suburban	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Population Exposure	Urban Scale
San Antonio	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	29.5151	-98.62017	Suburban	PM2.5 (FRM)	QA Collocated SLAMS	Sequential FRM Gravimetric	24 Hours; 1/12 Days	Population Exposure; Quality Assurance	Urban Scale
San Antonio	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	29.5151	-98.62017	Suburban	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Urban Scale
San Antonio	480290032	San Antonio Northwest	6655 Bluebird Lane, San Antonio	29.5151	-98.62017	Suburban	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Urban Scale
San Antonio	480290053	Selma	16289 North Evans Road #2, Selma	29.5877	-98.31251	Suburban	PM10 (FRM)	SLAMS	Hi-Vol Gravimetric	24 Hours; 1/6 Days	Population Exposure	Neighborhood
Texarkana, TX-Texarkana, AR	480371031	Texarkana New Boston	2700 New Boston Road, Texarkana	33.4361	-94.07778	Urban and Center City	PM2.5 (Beta)	SLAMS	Beta Attenuation	Continuous	Population Exposure	Urban Scale
Texarkana, TX-Texarkana, AR	480371031	Texarkana New Boston	2700 New Boston Road, Texarkana	33.4361	-94.07778	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Urban Scale
Texarkana, TX-Texarkana, AR	480371031	Texarkana New Boston	2700 New Boston Road, Texarkana	33.4361	-94.07778	Urban and Center City	Wind (3 meter)	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Urban Scale
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	32.344	-95.41575	Rural	O3	SLAMS	Ultraviolet Photometric	Continuous	General/Background	Urban Scale
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	32.344	-95.41575	Rural	Precipitation	SPM	Rain Gauge	Continuous	General/Background	Neighborhood
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	32.344	-95.41575	Rural	Solar Radiation	SPM	Photovoltaic	Continuous	General/Background	Neighborhood
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	32.344	-95.41575	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General/Background	Neighborhood
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	32.344	-95.41575	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General/Background	Neighborhood

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Texas MSA/CBSA	AQS Site ID	Site Name	Address/Location	Latitude	Longitude	Location Setting	Sampler Type	AQS Network & Monitor Type	Methods	Operating Schedule	Monitoring Objective	Spatial Scale
Tyler	484230007	Tyler Airport Relocated	14790 County Road 1145, Tyler	32.344	-95.41575	Rural	Wind (3 meter)	SPM	Chemi-luminescence	Continuous	General/Background	Urban Scale
Victoria	484690003	Victoria	106 Mockingbird Lane, Victoria	28.8362	-97.00553	Urban and Center City	O3	SLAMS	Ultraviolet Photometric	Continuous	Population Exposure	Neighborhood
Victoria	484690003	Victoria	106 Mockingbird Lane, Victoria	28.8362	-97.00553	Urban and Center City	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Neighborhood
Victoria	484690003	Victoria	106 Mockingbird Lane, Victoria	28.8362	-97.00553	Urban and Center City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Neighborhood
Victoria	484690003	Victoria	106 Mockingbird Lane, Victoria	28.8362	-97.00553	Urban and Center City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Neighborhood
Waco	483091037	Waco Mazanec	4472 Mazanec Road, Waco	31.653	-97.07068	Rural	CO	SLAMS	Gas Filter Correlation	Continuous	Upwind Background	Urban Scale
Waco	483091037	Waco Mazanec	4472 Mazanec Road, Waco	31.653	-97.07068	Rural	O3	SLAMS	Ultraviolet Photometric	Continuous	Upwind Background	Regional Scale
Waco	483091037	Waco Mazanec	4472 Mazanec Road, Waco	31.653	-97.07068	Rural	PM2.5 (TEOM)**	SPM	Gravimetric	Continuous	Regional Transport	Regional Scale
Waco	483091037	Waco Mazanec	4472 Mazanec Road, Waco	31.653	-97.07068	Rural	SO2	SLAMS	Pulsed Fluorescence	Continuous	Upwind Background	Urban Scale
Waco	483091037	Waco Mazanec	4472 Mazanec Road, Waco	31.653	-97.07068	Rural	Solar Radiation	SPM	Photovoltaic	Continuous	Regional Transport	Urban Scale
Waco	483091037	Waco Mazanec	4472 Mazanec Road, Waco	31.653	-97.07068	Rural	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Regional Transport	Urban Scale
Waco	483091037	Waco Mazanec	4472 Mazanec Road, Waco	31.653	-97.07068	Rural	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Regional Transport	Urban Scale

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Symbol/Acronym	Description
*	Granbury, Texas, is not a Metropolitan Statistical Area on the US Census Bureaus's list, but is designated as such in AQS, Grandbury, Texas is located in Hood County, Texas and in the Dallas-Fort Worth-Arlington MSA
**	Monitor is not suitable for comparison against the annual $PM_{2.5}$ NAAQS as described in 40 Code of Federal Regulations §58.30
***	Micropolitan Statistical Area
****	County is not a Metropolitan or Micropolitan Statistical Area
@	at
24-Hour Avg, 1/6 Days	1 24-Hour Average, Once every Sixth Day
24-Hour; 1/3 Days	1 24-Hour Sample, Once every Third Day
24-Hours, Daily	1 24-Hour Sample, Daily
24 1-Hour Avg; Daily	24 1-Hour Average, Daily
3 8-Hours; 1/3 Days (Jun - Aug)	8 3-Hour Samples, Once every Third Day from June through August
24-Hour; 1/6 Days	1 24-Hour Sample, Once every Sixth Day
AMNP	Annual Monitoring Network Plan
AQS	Air Quality System
Ar	Arkansas
AutoGC	automated gas chromatograph
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
CSN STN	Chemical Speciation Network Speciation Trends Network site (includes NCore monitors/requirements, samples analyzed by EPA contracted laboratory)
CSN Supplemental	Chemical Speciation Network supplemental speciation site (samples analyzed by TCEQ contracted laboratory)
CO	carbon monoxide
FM	Farm-to-Market
FRM	federal reference method
GC-MS	Gas chromatograph mass spectrometry
Hi-Vol	High-Volume
Hwy	Highway
IH	Interstate Highway
MSA	metropolitan statistical area/micropolitan statistical area
NCore	National Core Multipollutant Monitoring Stations
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
PM_{10}	particulate matter of 10 micrometers or less in diameter

Appendix B: Ambient Air Monitoring Network Site List

Symbol / Acronym	Description
$PM_{10-2.5}$	coarse particulate matter
$PM_{2.5}$	particulate matter of 2.5 micrometers or less in diameter
QA Collocated	quality assurance collocated monitor
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
SVOC	semi-volatile organic compound
TCEQ	Texas Commission on Environmental Quality
TEOM	tapered element oscillating microbalance (not NAAQS comparablie)
TSP (Pb)	total suspended particulate (lead)
TX	Texas
VOC	volatile organic compound
Wind	All wind sampler types produce data for parameters 61101, 61103, 61104, 61105, and 61106.

Appendix C

Population and Criteria Pollutant Monitor Status by Metropolitan Statistical Area

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Appendix C: Population and Criteria Pollutant Monitor Status by Metropolitan Statistical Area[6]

Texas Metropolitan Statistical Area	2017 Population Estimate[2]	NO_2 and NO/NO_y Required[6]	NO_2 and NO/NO_y Existing[1,6]	SO_2 Required[6]	SO_2 Existing[1,6]	Pb Required[3]	Pb Existing[3]	O_3 Required	O_3 Existing	CO Required[6]	CO Existing[1,6]	PM_{10} Required[3]	PM_{10} Existing[3]	$PM_{2.5}$ Required[3]	$PM_{2.5}$ Existing[1,3]
Dallas-Fort Worth-Arlington	7,399,662	6	15	2	3	3	3	4	19	2	2	2-4	2	7	14
Houston-The Woodlands-Sugar Land	6,892,427	6	19	3	5	0	0	4	20	2	3	2-4	5	8	16
San Antonio-New Braunfels	2,473,974	2	3	2	2	0	0	2	3	1	1	2-4	2	3	5
Austin-Round Rock	2,115,827	2	2	0	1	0	0	2	2	1	1	2-4	2	3	3
McAllen-Edinburg-Mission	860,661	0	0	0	0	0	0	1	1	0	0	1-2	2	2	2
El Paso	844,818	2	4	1	1	0	2	3	6	1	3	2-4	5	5	8
Corpus Christi	454,008	0	0	0	3	0	0	2	2	0	0	0-1	1	0	4
Killeen-Temple	443,773	0	1	0	0	0	0	2	2	0	0	0-1	0	0	1
Brownsville-Harlingen	423,725	0	0	0	0	0	0	1	1	0	0	0-1	0	0	2
Beaumont-Port Arthur	412,437	1	4	3	4	0	0	2	7	0	0	0-1	0	0	3
Lubbock	316,983	0	0	0	0	0	0	0	0	0	0	0-1	0	0	1
Laredo	274,794	0	0	0	0	0	0	0	1	0	1	0-1	2	0	1
Waco	268,696	0	0	0	1	0	0	1	1	0	1	0-1	0	0	1
Amarillo	264,925	0	0	1	2	0	0	0	0	0	0	0-1	0	0	1
College Station-Bryan	258,044	0	0	1	1	0	0	0	0	0	0	0-1	0	0	0
Tyler	227,727	0	1	0	0	0	0	1	1	0	0	0	0	0	0
Longview	217,481	0	1	1	2	0	0	1	1	0	0	0	0	0	0
Midland	170,675	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Abilene	170,219	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Odessa	157,087	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Wichita Falls	151,230	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Texarkana	150,355	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sherman-Denison	131,140	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Angelo	119,535	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Victoria	99,646	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Marshall[4]	66,661	0	1	1	1	0	0	0	1	0	0	0	0	0	3
Eagle Pass[4]	58,216	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Corsicana[4]	48,701	0	0	1	1	0	0	0	0	0	0	0	0	0	1
Big Spring[4]	37,388	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Mount Pleasant[4]	32,904	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Kingsville[4]	31,505	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Milam County[4]	25,053	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Borger[4]	21,375	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Freestone County[5]	19,625	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Big Bend National Park[5]	not available	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Totals[3]		**19**	**51**	**20**	**32**	**3**	**5**	**27**	**69**	**7**	**12**	**11-31**	**21**	**28**	**71**

[1]Individual monitors may fulfill multiple requirements and are only counted once.
[2]United States Census Bureau population estimates as of July 1, 2017.
[3]Totals do not include collocated quality control monitors
[4]Area is classified as a micropolitan statistical area and not subject to SLAMS requirements.
[5]Area not classified as a metropolitan or micropolitan statistical area. No population data is available for Big Bend National Park.
[6]Required and existing monitor counts include NO_y, high-sensitivity SO_2, and high-sensitivity CO.
Planned required monitor deployment is discussed in the applicable AMNP section.

CO - carbon monoxide
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 Status

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Appendix D: Nitrogen Dioxide, Nitrogen Oxide, and Total Reactive Nitrogen Monitor Status

Core Based Statistical Areas	2017 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	7,399,662	1	1	2	1	1	6	15
Houston-The Woodlands-Sugar Land	6,892,427	1	1	2	1	1	6	19
San Antonio-New Braunfels	2,473,974	1	0	1	0	0	2	3
Austin-Round Rock	2,115,827	1	0	1	0	0	2	2
McAllen-Edinburg-Mission	860,661	0	0	0	0	0	0	0
El Paso	844,818	0	1	0	0	1	2	4
Corpus Christi	454,008	0	0	0	0	0	0	0
Killeen-Temple	443,773	0	0	0	0	0	0	1
Brownsville-Harlingen	423,725	0	0	0	0	0	0	0
Beaumont-Port Arthur	412,437	0	1	0	0	0	1	4
Lubbock	316,983	0	0	0	0	0	0	0
Laredo	274,794	0	0	0	0	0	0	0
Waco	268,696	0	0	0	0	0	0	0
Amarillo	264,925	0	0	0	0	0	0	0
College Station-Bryan	258,044	0	0	0	0	0	0	0
Tyler	227,727	0	0	0	0	0	0	1
Longview	217,481	0	0	0	0	0	0	1
Midland	170,675	0	0	0	0	0	0	0
Abilene	170,219	0	0	0	0	0	0	0
Odessa	157,087	0	0	0	0	0	0	0
Wichita Falls	151,230	0	0	0	0	0	0	0
Texarkana	150,355	0	0	0	0	0	0	0
Sherman-Denison	131,140	0	0	0	0	0	0	0
San Angelo	119,535	0	0	0	0	0	0	0
Victoria	99,646	0	0	0	0	0	0	0
Marshall[3]	66,661	0	0	0	0	0	0	1
Totals		**4**	**4**	**6**	**2**	**3**	**19**	**51**

[1]United States Census Bureau population estimates as of July 1, 2017.

[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.

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 Status

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Appendix E: Sulfur Dioxide Monitor Status

Core Based Statistical Area	County	2017 Population Estimates[1]	2014 Point Source (tpy)	2014 NEI Data (tpy)	2017 Point Source Data (tpy)	2014 NEI Non-Point Source Data with 2017 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors in CBSAs	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Dallas-Fort Worth-Arlington		**7,399,662**				**4,041**	**29,899**	**1**	**0**	**1**	**2**	**3**
	Collin		21	171	6	156						
	Dallas		322	1,103	347	1,128						
	Denton		345	439	340	434						
	Ellis		2,194	2,267	1,561	1,634						
	Hunt		0	63	1	64						
	Kaufman		63	120	91	148						
	Rockwall		0	11	0	11						
	Johnson		84	133	78	127						
	Parker		180	211	234	265						
	Tarrant		26	42	1	17						
	Wise		109	128	9	27						
	Hood		9	16	18	25						
	Somervell		0	4	0	4						
Houston-The Woodlands-Sugar Land		**6,892,427**				**51,808**	**357,082**	**2**	**0**	**1**	**3**	**5**
	Austin		74	144	32	102						
	Brazoria		554	703	585	733						
	Chambers		392	437	191	235						
	Fort Bend		42,700	42,799	37,736	37,835						
	Galveston		1,326	2,791	1,819	3,284						
	Harris		7,238	9,130	7,546	9,438						
	Liberty		16	42	15	41						
	Montgomery		13	106	23	116						
	Waller		0	22	1	23						
San Antonio-New Braunfels		**2,473,974**				**24,447**	**60,482**	**1**	**1**	**0**	**2**	**2**
	Atascosa		5,596	7,210	8,779	10,392						
	Bandera		0	4	0	4						
	Bexar		10,948	11,351	12,724	13,126						
	Comal		420	452	407	439						
	Guadalupe		110	159	109	158						
	Kendall		0	10	2	12						
	Medina		0	12	0	12						
	Wilson		321	516	109	304						
Austin-Round Rock		**2,115,827**				**2,352**	**4,976**	**0**	**0**	**0**	**0**	**1**
	Bastrop		296	313	292	309						
	Caldwell		323	336	338	351						
	Hays		1,104	1,138	1,164	1,199						
	Travis		63	367	119	424						
	Williamson		3	67	5	68						

Appendix E: Sulfur Dioxide Monitor Status

Core Based Statistical Area	County	2017 Population Estimates[1]	2014 Point Source (tpy)	2014 NEI Data (tpy)	2017 Point Source Data (tpy)	2014 NEI Non-Point Source Data with 2017 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors in CBSAs	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
El Paso		**844,818**				**433**	**366**	**0**	**0**	**1**	**1**	**1**
	El Paso		295	438	282	424						
	Hudspeth		6	8	7	9						
Corpus Christi		**454,008**				**962**	**437**	**0**	**0**	**0**	**0**	**3**
	Aransas		0	76	0	76						
	Nueces		694	786	689	780						
	San Patricio		28	106	28	107						
Beaumont-Port Arthur		**412,437**				**20,565**	**8,482**	**1**	**2**	**0**	**3**	**4**
	Hardin		1	17	1	17						
	Jefferson		12,055	12,383	13,849	14,177						
	Orange		5,225	5,279	6,300	6,354						
	Newton		15	19	14	17						
Waco		**268,696**				**3,235**	**869**	**0**	**0**	**0**	**0**	**1**
	McLennan		1,787	1,910	3,100	3,224						
	Falls		0	11	0	11						
Amarillo		**264,925**				**13,145**	**3,482**	**0**	**1**	**0**	**1**	**2**
	Armstrong		0	3	0	3						
	Carson		0	4	0	4						
	Potter		15,187	15,268	12,937	13,017						
	Randall		100	119	93	112						
	Oldham		0	8	0	8						
College Station-Bryan		**258,044**				**11,408**	**2,944**	**0**	**1**	**0**	**1**	**1**
	Brazos		12	98	12	98						
	Burleson		0	20	0	20						
	Robertson		9,097	9,139	11,248	11,290						
Longview		**217,481**				**36,904**	**8,026**	**1**	**0**	**0**	**1**	**2**
	Gregg		40	282	23	266						
	Rusk		23,175	23,224	36,578	36,627						
	Upshur		36	47	1	12						
Marshall[3]		**66,661**				**4,433**	**296**	**0**	**1**	**0**	**1**	**1**
	Harrison		3,441	3,511	4,363	4,433						
Corsicana[3]		**48,701**				**3,831**	**187**	**0**	**1**	**0**	**1**	**1**
	Navarro		3,748	3,787	3,792	3,831						
Big Spring[3]		**37,388**				**7,263**	**272**	**0**	**1**	**0**	**1**	**1**
	Glassock		779	1,138	254	613						
	Howard		7,594	7,899	6,346	6,650						
Mount Pleasant[3]		**32,904**				**43,523**	**1,432**	**0**	**1**	**0**	**1**	**1**
	Titus		32,649	32,684	43,487	43,523						

Appendix E: Sulfur Dioxide Monitor Status

Core Based Statistical Area	County	2017 Population Estimates[1]	2014 Point Source (tpy)	2014 NEI Data (tpy)	2017 Point Source Data (tpy)	2014 NEI Non-Point Source Data with 2017 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors in CBSAs	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Borger[3]		**21,375**				**11,666**	**249**	**0**	**1**	**0**	**1**	**1**
	Hutchinson		9,145	9,163	11,648	11,666						
None							**NA**	**NA**	**NA**	**0**	**0**	**2**
	Freestone[4]	19,625	50,020	50,030	47,645	47,656			**0**	**0**	**0**	
	Milam[4]	25,053	22,720	22,733	19,900	19,913			**1**	**0**	**1**	
Total Monitors								**6**	**11**	**3**	**20**	**32**

[1]United States Census Bureau population estimates as of July 1, 2017.
[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.
This list does not include metropolitan statistical areas with zero requirements and zero monitors.
CBSA - core based statistical area
DRR - Data Requirements Rule
NA - not applicable
NCore - National Core Multipollutant Monitoring Stations
NEI - National Emissions Inventory
PWEI - population weighted emission index (Population*[2014 NEI non-point source data and 2017 point source data]/1,000,000)
SO_2 - sulfur dioxide
tpy - tons per year

Appendix F

Sulfur Dioxide Ongoing Data Requirements Annual Report

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Appendix F: Sulfur Dioxide Ongoing Data Requirements Annual Report

As required by 40 Code of Federal Regulations (CFR) §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 modeling actual SO_2 emissions.

Out of the 245 Texas counties (or portions of counties) currently designated attainment/unclassifiable for the 2010 SO_2 NAAQS, the seven counties shown in Table 1 were designated based on modeled actual SO_2 emissions. Table 1 lists the most recent (2017) quality assured data available showing total estimated SO_2 emissions from the relevant sources in each county. The table includes emissions from the previous year (2016), the change in SO_2 emissions from 2016 to 2017, and the cause for any emissions increase.

The relevant sources in Lamb, Limestone, Robertson, and Wilbarger counties had emission decreases from the previous year. Since the emissions have decreased for these locations, the original designation modeling provides reasonable assurance that the areas continue to meet the 2010 one-hour SO_2 primary NAAQS.

The relevant sources in Atascosa, Fort Bend, and Goliad counties had emission increases from the previous year. Table 2 shows a comparison of the original designation modeling emissions data for years 2012-2014 to the most recent emissions data for 2015-2017. This comparison shows that the original designation modeling evaluated higher emissions for each area. Since higher emissions were evaluated, the original designation modeling provides reasonable assurance that the areas continue to meet the 2010 one-hour SO_2 primary NAAQS.

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.

Table 1: 2016 to 2017 Emissions Comparisons

County	Relevant Source	2016 SO_2 (tpy)	2017 SO_2 (tpy)	Difference 2016 to 2017	Cause for Emission Increase
Atascosa	San Miguel Electric Plant	6,814	8,584	1,770	Increased operation
Fort Bend	W.A. Parish Electric Generating Station	34,137	37,651	3,514	Increased operation from some units
Goliad	Coleto Creek Power Station	8,231	12,202	3,971	Increased operation
Lamb	Tolk Station Power Plant	14,968	13,625	-1,343	NA
Limestone	Limestone Electric Generating Station	20,829	10,240	-10,589	NA

Appendix F: Sulfur Dioxide Ongoing Data Requirements Annual Report

County	Relevant Source	2016 SO_2 (tpy)	2017 SO_2 (tpy)	Difference 2016 to 2017	Cause for Emission Increase
Robertson	Twin Oaks Power Station	3,187	2,472	-715	NA
Wilbarger	Oklaunion Power Station	1,530	988	-542	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)	2015-2017 SO_2 Average (tpy)	Three Year Average SO_2 Comparison Change
Atascosa	San Miguel Electric Plant	8,942	6,973	-1,969
Fort Bend	W.A. Parish Electric Generating Station	41,520	38,159	-3,361
Goliad	Coleto Creek Power Station	15,832	9,564	-6,267

SO_2 – sulfur dioxide
tpy – tons per year

Appendix G

Total Suspended Particulate Lead Monitor Status

Texas Commission on Environmental Quality
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Appendix G: Total Suspended Particulate Lead Monitor Status

County	Metropolitan Statistical Area	Pb Source (Facility Name)	2015 Pb Source Emissions (tpy)	2016 Pb Source Emissions (tpy)	2017 Pb Source Emissions (tpy)	Site Name	Required Monitors*	Existing Monitors*
Collin	Dallas-Fort Worth-Arlington	Maintenance Area	NA	NA	NA	Frisco Eubanks**	1	1
Collin	Dallas-Fort Worth-Arlington	Maintenance Area	NA	NA	NA	Frisco Stonebrook**	1	1
Kaufman	Dallas-Fort Worth-Arlington	Conecsus, LLC	0.3373	0.3401	0.2617	Terrell Temtex	1	1
El Paso	El Paso	None	NA	NA	NA	El Paso UTEP	0	1
El Paso	El Paso	None	NA	NA	NA	Ojo De Agua	0	1
Totals							3	5

*Collocated quality control monitors are not counted.
**Monitor required to fulfill State Implementation Plan commitments.
LCC - Limited Liability Company
NA - not applicable
Pb - lead
tpy - tons per year
UTEP - University of Texas at El Paso

Appendix H

Ozone Monitor Status

Texas Commission on Environmental Quality
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Appendix H: Ozone Monitor Status

Metropolitan Statistical Area	2017 Population Estimates[1]	2016-2018 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	7,399,662	0.076	109%	3	1	4	19
Houston-The Woodlands-Sugar Land	6,892,427	0.078	111%	3	1	4	20
San Antonio-New Braunfels	2,473,974	0.072	103%	2	0	2	3
Austin-Round Rock	2,115,827	0.068	97%	2	0	2	2
McAllen-Edinburg-Mission	860,661	0.055	79%	1	0	1	1
El Paso	844,818	0.073	104%	2	1	3	6
Corpus Christi	454,008	0.061	87%	2	0	2	2
Killeen-Temple	443,773	0.068	97%	2	0	2	2
Brownsville-Harlingen	423,725	0.057	81%	1	0	1	1
Beaumont-Port Arthur	412,437	0.067	96%	2	0	2	7
Lubbock	316,983	NA	NA	0	0	0	0
Laredo	274,794	0.053	76%	0	0	0	1
Waco	268,696	0.064	91%	1	0	1	1
Amarillo	264,925	NA	NA	0	0	0	0
College Station-Bryan	258,044	NA	NA	0	0	0	0
Tyler	227,727	0.065	93%	1	0	1	1
Longview	217,481	0.065	93%	1	0	1	1
Midland	170,675	NA	NA	0	0	0	0
Abilene	170,219	NA	NA	0	0	0	0
Odessa	157,087	NA	NA	0	0	0	0
Wichita Falls	151,230	NA	NA	0	0	0	0
Texarkana	150,355	NA	NA	0	0	0	0
Sherman-Denison	131,140	NA	NA	0	0	0	0
San Angelo	119,535	NA	NA	0	0	0	0
Victoria	99,646	0.064	91%	1	0	1	1
Marshall[5]	66,661	0.061	87%	0	0	0	1
Totals				**24**	**3**	**27**	**69**

[1]United States Census Bureau population estimates as of July 1, 2017.
[2]2015 eight-hour ozone National Ambient Air Quality Standard (NAAQS) is 0.070 parts per million (ppm).
[3]Total Required Monitors is a count of individual requirements for SLAMS, PAMS, and NCore.
[4]Monitors may fulfill multiple monitoring requirements and are only counted once.
[5]Classified as micropolitan statistical area and SLAMS requirements do not apply.
NA - not applicable
NCore - National Core Multipollutant Monitoring Stations
PAMS - Photochemical Assessment Monitoring Stations
SLAMS - State or Local Air Monitoring Stations

Appendix I

Carbon Monoxide Monitor Status

Texas Commission on Environmental Quality
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Appendix I: Carbon Monoxide Monitor Status

Core Based Statistical Area	2017 Population Estimates[1]	Site Name	Required CO NCore Monitors	Required CO Near-Road Monitors	Total Required Monitors	Total Existing Monitors[2]
Dallas-Fort Worth-Arlington	7,399,662				2	2
		Dallas Hinton[3]	1	0	1	1
		Fort Worth California Parkway	0	1	1	1
Houston-The Woodlands-Sugar Land	6,892,427				2	3
		Clinton[3]	0	0	0	1
		Houston Deer Park #2[3]	1	0	1	1
		Houston North Loop	0	1	1	1
San Antonio-New Braunfels	2,473,974				1	1
		San Antonio Interstate 35	0	1	1	1
Austin-Round Rock	2,115,827				1	1
		Austin North Interstate 35	0	1	1	1
El Paso	844,818				1	3
		El Paso Chamizal[3]	1	0	1	1
		El Paso UTEP	0	0	0	1
		Ojo De Agua	0	0	0	1
Laredo	274,794				0	1
		Laredo Vidaurri	0	0	0	1
Waco	268,696				0	1
		Waco Mazanec	0	0	0	1
Totals			**3**	**4**	**7**	**12**

[1]United States Census Bureau population estimates as of July 1, 2017.
[2]Monitors may fulfill multiple monitoring requirements and are only counted once.
[3]High-Sensitivity CO monitor (High-Sensitivity CO monitors are recommended at NCore sites)
This list does not include metropolitan statistical areas with zero requirements and zero monitors.
- 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 Status

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Status

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

Metropolitan Statistical Area	2017 Population Estimates[1]	Site Name	2016-2018 Maximum Concentration (µg/m^3)	Percent of NAAQS[2] (%)	Required Monitors[3]	Existing Monitors[3]
Dallas-Fort Worth-Arlington	7,399,662				2-4	2
		Earhart	83	55		
		Convention Center (collocated pair)	102	68		
Houston-The Woodlands-Sugar Land	6,892,427				2-4	5
		Clinton (collocated pair)	111	74		
		Houston Monroe	97	65		
		Houston Westhollow	95	63		
		Lang	101	67		
		Texas City Fire Station	105	70		
San Antonio-New Braunfels	2,473,974				2-4	2
		Selma	91	61		
		Frank Wing Municipal Court	117	78		
Austin-Round Rock	2,115,827				2-4	2
		Austin Webberville Road	97	65		
		Austin Audubon Society	90	60		
McAllen-Edinburg-Mission	860,661				1-2	2
		Mission	93	62		
		Edinburg East Freddy Gonzalez Drive	90	60		
El Paso	844,818				2-4	5
		Ivanhoe	85	57		
		Ojo De Agua (collocated pair)	137	91		
		Riverside	126	84		
		Socorro Hueco[4] (collocated pair)	114	76		
		Van Buren	134	89		

Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Status

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

Metropolitan Statistical Area	2017 Population Estimates[1]	Site Name	2016-2018 Maximum Concentration (µg/m^3)	Percent of NAAQS[2] (%)	Required Monitors[3]	Existing Monitors[3]
Corpus Christi	454,008				0-1	1
		Dona Park	84	56		
Laredo	274,794				0-1	2
		Laredo Vidaurri	81	54		
		Laredo Bridge	75	50		
Killeen-Temple	443,773			0	0-1	0
Brownsville-Harlingen	423,725			0	0-1	0
Beaumont-Port Arthur	412,437			0	0-1	0
Lubbock	316,983			0	0-1	0
Waco	268,696			0	0-1	0
Amarillo	264,925			0	0-1	0
College Station-Bryan	258,044			0	0-1	0
Totals					**11-31**	**21**

[1]United States Census Bureau population estimates as of July 1, 2017.
[2]Current PM_{10} NAAQS is 150 micrograms per cubic meter (µg/m^3).
[3]Collocated quality control monitors are not counted.
[4]The second highest measurement is listed. The maximum concentration measured on May 2, 2018, has been excluded and will be submitted to the EPA with an exceptonal event package.
This list does not include metropolitan statistical areas with zero requirements and zero monitors.
% - percent
NAAQS - National Ambient Air Quality Standards
PM_{10} - particulate matter of 10 micrometers or less

Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Satus

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

Site Name	2016-2018 Maximum Concentration (µg/m³)	2018 Annual Mean Concentration (µg/m³)	2017 Annual Mean Concentration (µg/m³)	2016 Annual Mean Concentration (µg/m³)
Socorro Hueco** (collocated pair)	114	34.4*	32.1*	24.5*
Van Buren	134	30.6*	20.4	14.0
Riverside	126	29.3*	27.8*	22.8
Clinton (collocated pair)	111	29.2*	27.4*	44.4*
Laredo Vidaurri	81	25.1*	22.0*	19.6
Edinburg East Freddy Gonzalez Drive	90	24.9*	22.9*	22.2
Ojo De Agua (collocated pair)	137	24.8*	21.3	23.6
Mission	93	24.8*	24.8*	26.3*
Convention Center (collocated pair)	102	24.6	20.9	24.0*
Earhart	83	23.8	23.6*	24.1*
Houston Monroe	97	22.9	21.4	25.2*
Austin Webberville Road	97	22.6	22.0	23.6
Lang	101	22.2	21.2	25.1*
Laredo Bridge	75	21.9	18.7	19.5
Frank Wing Municipal Court	117	20.8	21.7	21.9
Ivanhoe	85	20.7	19.4	18.6
Texas City Fire Station	105	20.6	13.6	18.5
Dona Park	84	20.3	19.9	23.3
Selma	91	19.9	19.7	18.4
Austin Audubon Society	90	17.5	14.8	16.8
Houston Westhollow	95	16.5	16.2	20.6

*Top 33% of sites with ranked highest concentractions

**The second highest measurement is listed. The maximum concentration measured on May 2, 2018, has been excluded and will be submitted to the EPA with an exceptonal event package.

µg/m³ - micrograms per cubic meter

Appendix K

Particulate Matter of 2.5 Micrometers or Less Monitor Status

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Status

Table 1: Particulate Matter of 2.5 Micrometers or Less Monitor Status

Metropolitan Statistical Area	2017 Population Estimates[1]	2016-2018 DV (µg/m^3) Annual (for Area)	2016-2018 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[2]	Total Required Monitors[4]	Total Existing Monitors[4]
Dallas-Fort Worth-Arlington	7,399,662	8.9	20	74	57	2	4	1	7	14
Houston-The Woodlands-Sugar Land	6,892,427	10.2	25	85	71	3	4	1	8	16
San Antonio-New Braunfels	2,473,974	8.1	24	68	69	2	0	1	3	5
Austin-Round Rock	2,115,827	9.8	22	82	63	2	0	1	3	3
McAllen-Edinburg-Mission	860,661	10.7	28	89	80	2	0	0	2	2
El Paso	844,818	9.1	24	76	69	1	4	0	5	8
Corpus Christi	454,008	9.1	25	76	71	0	0	0	0	4
Killeen-Temple[5]	443,773	NA	NA	NA	NA	0	0	0	0	1
Brownsville-Harlingen	412,437	9.9	25	83	71	0	0	0	0	2
Beaumont-Port Arthur[5]	316,983	NA	NA	NA	NA	0	0	0	0	3
Lubbock[5]	274,794	NA	NA	NA	NA	0	0	0	0	1
Laredo[5]	268,696	NA	NA	NA	NA	0	0	0	0	1
Waco	264,925	NA	NA	NA	NA	0	0	0	0	1
Amarillo[5]	258,044	NA	NA	NA	NA	0	0	0	0	1
Odessa[5]	157,087	NA	NA	NA	NA	0	0	0	0	1
Texarkana	150,355	8.9	19	74	54	0	0	0	0	1
Marshall[6]	66,661	8.5	18	71	51	0	0	0	0	3
Eagle Pass[5,6]	58,216	NA	NA	NA	NA	0	0	0	0	1
Corsicana[6]	48,701	NA	NA	NA	NA	0	0	0	0	1
Kingsville[6]	31,505	NA	NA	NA	NA	0	0	0	0	1
Big Bend National Park[5,7]	not available	NA	NA	NA	NA	0	0	0	0	1
Totals*						**12**	**12**	**4**	**28**	**71**

[1]United States Census Bureau population estimates as of July 1, 2017.

[2]Current $PM_{2.5}$ Annual NAAQS is 12 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 counted.

[5]Annual values do not meet completeness criteria; monitors deployed in 2017, 2018, or 2019. 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

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Status

Table 2: Particulate Matter of 2.5 Micrometers or Less Monitor Locations and Method Codes

Metropolitan Statistical Area	2017 Population Estimates[1]	Site Name	Method Code(s)	2016-2018 Annual DV ($\mu g/m^3$)	2016-2018 24-Hour DV ($\mu g/m^3$)	Percent of NAAQS (Annual[2])	Percent of NAAQS (24-Hour[3])	Required SLAMS FRM/FEM Monitors[4]	Continuous Requirement Met[10] (Y/N)	Required NCore Monitors	Required Near-Road Monitors	Total Required Monitors[4]	Total Existing Monitors[4]
Dallas-Fort Worth-Arlington	7,399,662			8.9	20	74	57	2	Y	4	1	7	14
		Convention Center	145	8.9	19	74	54	1	N	0	0	1	1
		Dallas Hinton[5] (collocated pair)	145, (145), 170, 185, [810, 811, 812, 838]	8.9	20	74	57	0	Y	4	0	4	4
		Denton Airport South	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
		Fort Worth California Parkway North	145	8.6	18	72	51	0	N	0	1	1	1
		Fort Worth Northwest	145	8.2	18	68	51	1	N	0	0	1	1
		Haws Athletic Center	145, 702[6]	8.4	18	70	51	0	Y	0	0	0	2
		Kaufman	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
		Midlothian OFW[5]	145, 702[6], [826, 831, 838, 839, 840, 841, 842, 846, 849]	8.4	20	70	57	0	Y	0	0	0	3
Houston-The Woodlands-Sugar Land	6,892,427			10.2	25	85	71	3	Y	4	1	8	16
		Baytown	209	9.3	24	78	69	1	Y	0	0	1	1
		Clinton (collocated pair)	145, (145), 702[6]	10.2	22	85	63	1	Y	0	0	1	2
		Conroe Relocated	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
		Galveston 99th Street	209	6.6	22	55	63	0	Y	0	0	0	1

Table 2: Particulate Matter of 2.5 Micrometers or Less Monitor Locations and Method Codes

Metropolitan Statistical Area	2017 Population Estimates[1]	Site Name	Method Code(s)	2016-2018 Annual DV (µg/m^3)	2016-2018 24-Hour DV (µg/m^3)	Percent of NAAQS (Annual[2])	Percent of NAAQS (24-Hour[3])	Required SLAMS FRM/FEM Monitors[4]	Continuous Requirement Met[10] (Y/N)	Required NCore Monitors	Required Near-Road Monitors	Total Required Monitors[4]	Total Existing Monitors[4]
		Houston Aldine[5]	209, (145), [826, 831, 838, 839, 840, 841, 842, 846, 849]	9.4	25	78	71	1	Y	0	0	1	3
		Houston Deer Park #2[5]	145, 170, 185, 702[6], [810, 811, 812, 838]	8.2	20	68	57	0	Y	4	0	4	5
		Houston East[7]	209	NA	NA	NA	NA	0	Y	0	0	0	1
		Houston North Loop	145	9.9	23	83	66	0	N	0	1	1	1
		Seabrook Friendship Park	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
San Antonio-New Braunfels	2,473,974			8.1	24	68	69	2	Y	0	1	3	5
		Calaveras Lake	209	7.7	24	64	69	1	Y	0	0	1	1
		Old Hwy 90	178[6]	NA	NA	NA	NA	0	Y	0	0	0	1
		Palo Alto	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
		San Antonio Interstate 35[7]	209	NA	NA	NA	NA	0	Y	0	1	1	1
		San Antonio Northwest (collocated pair)	209, (145)	8.1	19	68	54	1	Y	0	0	1	1

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Status

Table 2: Particulate Matter of 2.5 Micrometers or Less Monitor Locations and Method Codes

Metropolitan Statistical Area	2017 Population Estimates[1]	Site Name	Method Code(s)	2016-2018 Annual DV ($\mu g/m^3$)	2016-2018 24-Hour DV ($\mu g/m^3$)	Percent of NAAQS (Annual[2])	Percent of NAAQS (24-Hour[3])	Required SLAMS FRM/FEM Monitors[4]	Continuous Requirement Met[10] (Y/N)	Required NCore Monitors	Required Near-Road Monitors	Total Required Monitors[4]	Total Existing Monitors[4]
Austin-Round Rock	2,115,827			9.8	22	82	63	2	Y	0	1	3	3
		Austin North Interstate 35[7]	209	NA	NA	NA	NA	1	Y	0	1	2	1
		Austin Northwest	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
		Austin Webberville Road (collocated pair)	209, (145)	9.8	22	82	63	1	Y	0	0	1	1
McAllen-Edinburg-Mission	860,661			10.7	28	89	80	2	Y	0	0	2	2
		Edinburg East Freddy Gonzalez Drive	145	9.3	25	78	71	1	N	0	0	1	1
		Mission	209	10.7	28	89	80	1	Y	0	0	1	1
El Paso	844,818			9.1	24	76	69	1	Y	4	0	5	8
		Ascarate Park SE	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
		El Paso Chamizal[5] (collocated pair)	145, (145), 170, 185, [810, 811, 812, 838]	9.1	24	76	69	0	Y	4	0	4	4
		El Paso UTEP	145, 702[6]	7.7	17	64	49	1	Y	0	0	1	2
		Socorro Hueco	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
Corpus Christi	454,008			9.1	25	76	71	0	Y	0	0	0	4
		Corpus Christi Huisache (collocated pair)	209, (209)	9.1	25	76	71	0	Y	0	0	0	1

Table 2: Particulate Matter of 2.5 Micrometers or Less Monitor Locations and Method Codes

Metropolitan Statistical Area	2017 Population Estimates[1]	Site Name	Method Code(s)	2016-2018 Annual DV (µg/m^3)	2016-2018 24-Hour DV (µg/m^3)	Percent of NAAQS (Annual[2])	Percent of NAAQS (24-Hour[3])	Required SLAMS FRM/FEM Monitors[4]	Continuous Requirement Met[10] (Y/N)	Required NCore Monitors	Required Near-Road Monitors	Total Required Monitors[4]	Total Existing Monitors[4]
		Dona Park[5]	145, 702[6], [826, 831, 838, 839, 840, 841, 842, 846, 849]	8.0	24	67	69	0	Y	0	0	0	3
Killeen-Temple	443,773			NA	NA	NA	NA	0	Y	0	0	0	1
		Temple Georgia[7]	209	NA	NA	NA	NA	0	Y	0	0	0	1
Brownsville-Harlingen	423,725			9.9	25	83	71	0	Y	0	0	0	2
		Brownsville	209	9.9	25	83	71	0	Y	0	0	0	1
		Isla Blanca Park	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
Beaumont-Port Arthur	412437			NA	NA	NA	NA	0	Y	0	0	0	3
		Hamshire[7]	209	NA	NA	NA	NA	0	Y	0	0	0	1
		Port Arthur Memorial School[7]	209	NA	NA	NA	NA	0	Y	0	0	0	1
		SETRPC 42 Mauriceville[7]	209	NA	NA	NA	NA	0	Y	0	0	0	1
Lubbock	316,983			NA	NA	NA	NA	0	Y	0	0	0	1
		Lubbock 12th Street[7]	209	NA	NA	NA	NA	0	Y	0	0	0	1
Laredo	274,794			NA	NA	NA	NA	0	Y	0	0	0	1
		World Trade Bridge[7]	209	NA	NA	NA	NA	0	Y	0	0	0	1
Waco	268,696			NA	NA	NA	NA	0	Y	0	0	0	1

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Status

Table 2: Particulate Matter of 2.5 Micrometers or Less Monitor Locations and Method Codes

Metropolitan Statistical Area	2017 Population Estimates[1]	Site Name	Method Code(s)	2016-2018 Annual DV (µg/m^3)	2016-2018 24-Hour DV (µg/m^3)	Percent of NAAQS (Annual[2])	Percent of NAAQS (24-Hour[3])	Required SLAMS FRM/FEM Monitors[4]	Continuous Requirement Met[10] (Y/N)	Required NCore Monitors	Required Near-Road Monitors	Total Required Monitors[4]	Total Existing Monitors[4]
		Waco Mazanec	178[6]	NA	NA	NA	NA	0	Y	0	0	0	1
Amarillo	264,925			NA	NA	NA	NA	0	Y	0	0	0	1
		Amarillo A&M[7]	209	NA	NA	NA	NA	0	Y	0	0	0	1
Odessa	157,087			NA	NA	NA	NA	0	Y	0	0	0	1
		Odessa Gonzales[7]	209	NA	NA	NA	NA	0	Y	0	0	0	1
Texarkana	150,355			8.9	19.0	74	54	0	Y	0	0	0	1
		Texarkana New Boston	209	8.9	19	74	54	0	Y	0	0	0	1
Marshall	66,661			8.5	18	71	51	0	Y	0	0	0	3
		Karnack[5,8]	145, 702[6], [810, 811, 812, 838]	8.5	18	71	51	0	Y	0	0	0	3
Eagle Pass	58,216			NA	NA	NA	NA	0	Y	0	0	0	1
		Eagle Pass[7,9]	209	NA	NA	NA	NA	0	Y	0	0	0	1
Corsicana	48,701			NA	NA	NA	NA	0	Y	0	0	0	1
		Corsicana Airport[9]	702[6]	NA	NA	NA	NA	0	Y	0	0	0	1
Kingsville	31,505			NA	NA	NA	NA	0	Y	0	0	0	1
		National Seashore[7,9]	209	NA	NA	NA	NA	0	Y	0	0	0	1
Big Bend National Park	not available			NA	NA	NA	NA	0	Y	0	0	0	1

Table 2: Particulate Matter of 2.5 Micrometers or Less Monitor Locations and Method Codes

Metropolitan Statistical Area	2017 Population Estimates[1]	Site Name	Method Code(s)	2016-2018 Annual DV (µg/m^3)	2016-2018 24-Hour DV (µg/m^3)	Percent of NAAQS (Annual[2])	Percent of NAAQS (24-Hour[3])	Required SLAMS FRM/FEM Monitors[4]	Continuous Requirement Met[10] (Y/N)	Required NCore Monitors	Required Near-Road Monitors	Total Required Monitors[4]	Total Existing Monitors[4]
		Bravo Big Bend[7,9]	209	NA	NA	NA	NA	0	Y	0	0	0	1
Totals								**12**	**NA**	**12**	**4**	**28**	**71**

[1]United States Census Bureau population estimates as of July 1, 2017.
[2]Current $PM_{2.5}$ Annual NAAQS is 12 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 counted.
[5]Speciation monitor for Ncore, Chemical Speciation Network (CSN), or special purpose requirements.
[6]Method code identifies a $PM_{2.5}$ TEOM which is non-FEM/FRM (non-NAAQS comparable)
[7]Annual values do not meet completeness criteria; monitors deployed in 2017, 2018, or 2019. Incomplete design value information is not used for regulatory compliance.
[8]Area is classified as a micropolitan area and is not subject to SLAMS requirements.
[9]Area not classified as a metropolitan or micropolitan statistical area.
[10]Continuous $PM_{2.5}$ monitors must equal at least one-half the required number of SLAMS-required sites.
This list does not include metropolitan statistical areas with no requirement and no monitors.

- number
[ ] - include $PM_{2.5}$ speciation method codes
DV - design value
FEM - federal equivalent method
FRM - federal reference method
Hwy - highway
NA - not applicable
NAAQS - National Ambient Air Quality Standards
NCore - National Core Multipolutant 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
$PM_{2.5}$ FEM mass method codes 170 and 209
$PM_{2.5}$ non-regulatory mass method code 702
$PM_{2.5}$ speciation method codes 810, 811, 812, 826, 831, 838, 839, 840, 841, 842, 846, and 849
$PM_{10-2.5}$ coarse method code 185
SETRPC - Southeast Texas Regional Planning Commission
SE - southeast
SLAMS - State or Local Air Monitoring Stations
UTEP - University of Texas at El Paso
Y - yes

Appendix L

Volatile Organic Compound and Carbonyl Monitor Status

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Appendix L: Volatile Organic Compound and Carbonyl Monitor Status

Table 1: Volatile Organic Compound Monitor Status

Core Based Statistical Area	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**

This list does not include metropolitan 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 Status

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

This list does not include metropolitan statistical areas with zero requirements and zero monitors.
PAMS – Photochemical Assessment Monitoring Stations

Appendix M

Enhanced Monitoring Plan for Ozone

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Introduction

Title 40 Code of Federal Regulations (CFR) §58.10 a(11) and Appendix D 5(h) require states with moderate or above eight-hour O_3 nonattainment areas to submit an Enhanced Monitoring Plan (EMP) by October 1, 2019. The EMP must detail enhanced ozone (O_3) and O_3 precursor monitoring activities deemed important to understanding the state O_3 challenges. Such activities can include the following.

- additional O_3 monitors beyond minimally required
- additional oxides of nitrogen (NO_x) or total reactive nitrogen compounds (NO_y) monitors beyond those required
- additional volatile organic compound (VOC) or carbonyl measurements beyond those required
- enhanced upper air measurements of meteorology or pollution concentrations

Currently, the Dallas-Fort Worth and Houston-Galveston-Brazoria areas are designated nonattainment for the 2008 eight-hour O_3 standard. The Beaumont-Port Arthur and El Paso areas are currently designated attainment; however, these areas were previously designated serious nonattainment for the revoked one-hour O_3 standard. The Beaumont-Port Arthur and El Paso areas have not formally been redesignated to attainment for the revoked one-hour O_3 standard. Enhanced monitoring efforts are currently in place for these areas. Maps detailing the designated O_3 nonattainment counties with the enhanced monitoring activities are included in Figures 1 through 6.

This EMP provides information on the TCEQ O_3 and O_3 precursor monitoring efforts.

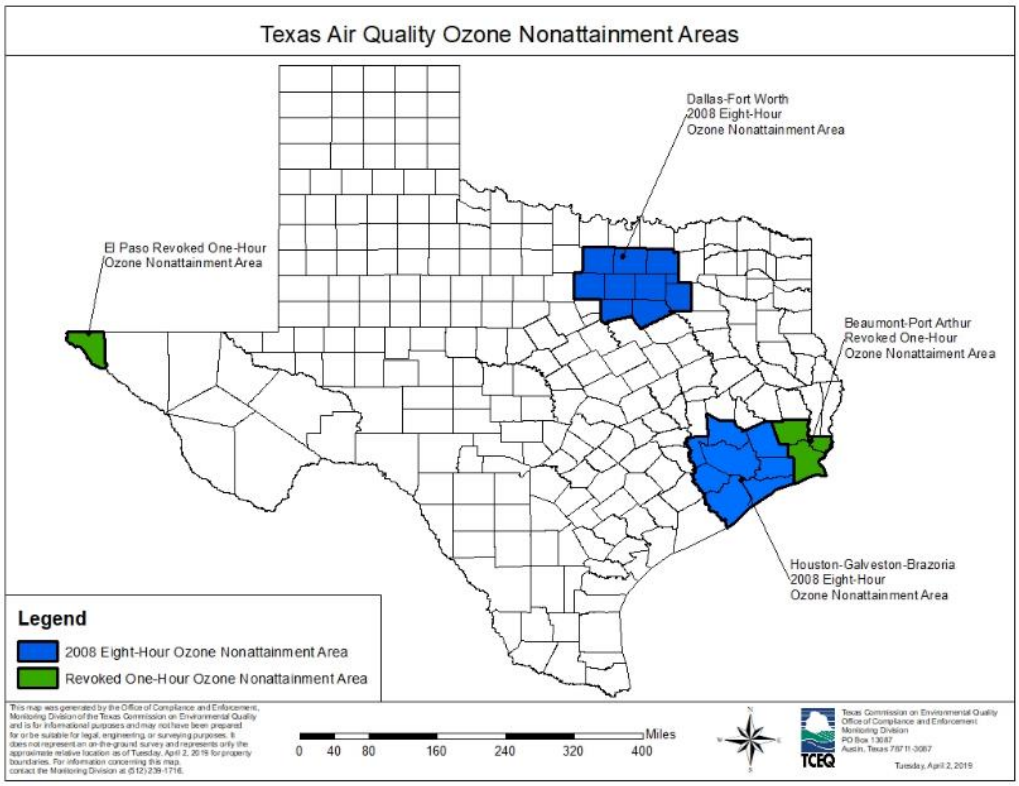

Figure 1: Texas Air Quality Ozone Nonattainment Areas

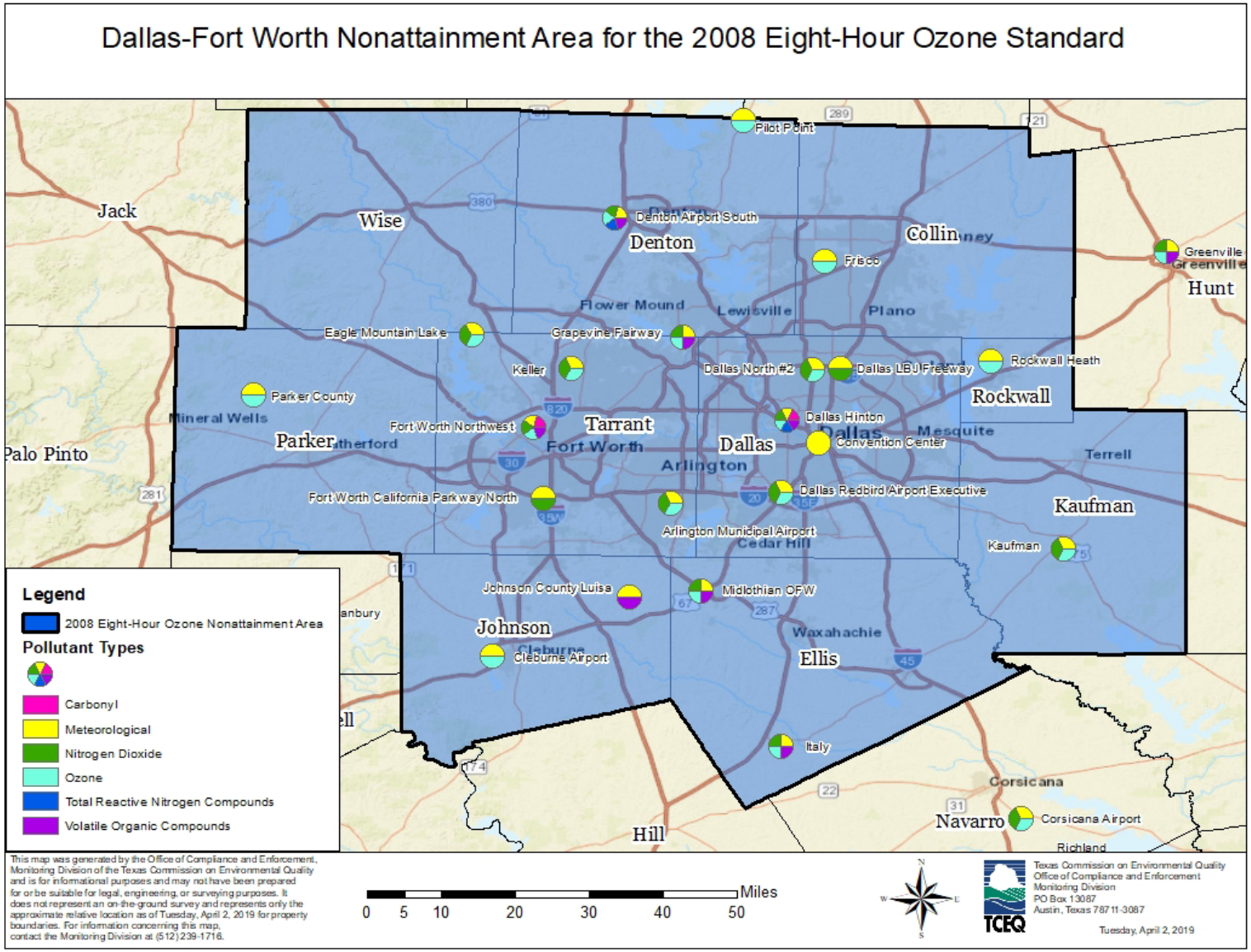

Figure 2: Dallas-Fort Worth Nonattainment Area for the 2008 Eight-Hour Ozone Standard

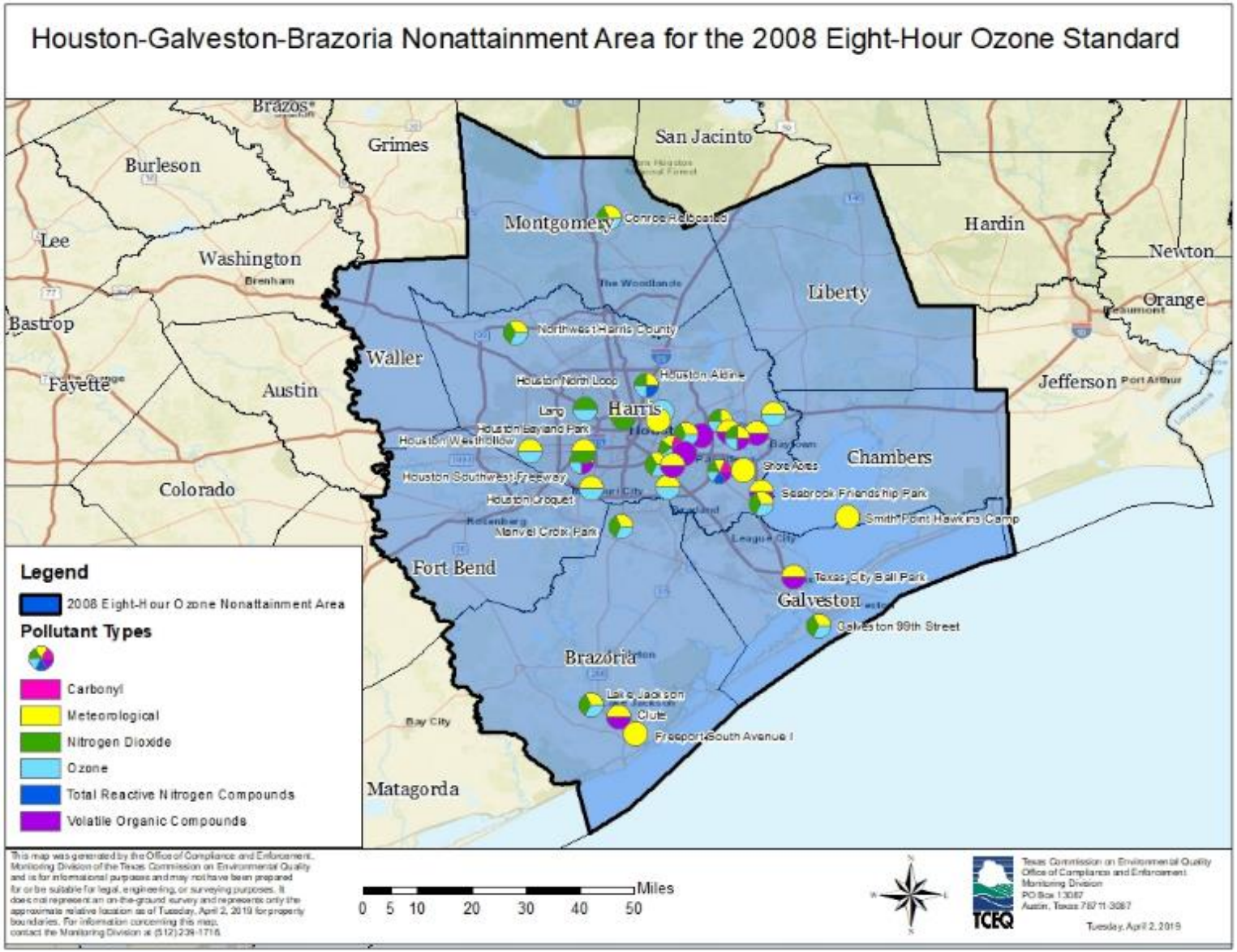

Figure 3: Houston-Galveston-Brazoria Nonattainment Area for the 2008 Eight-Hour Ozone Standard

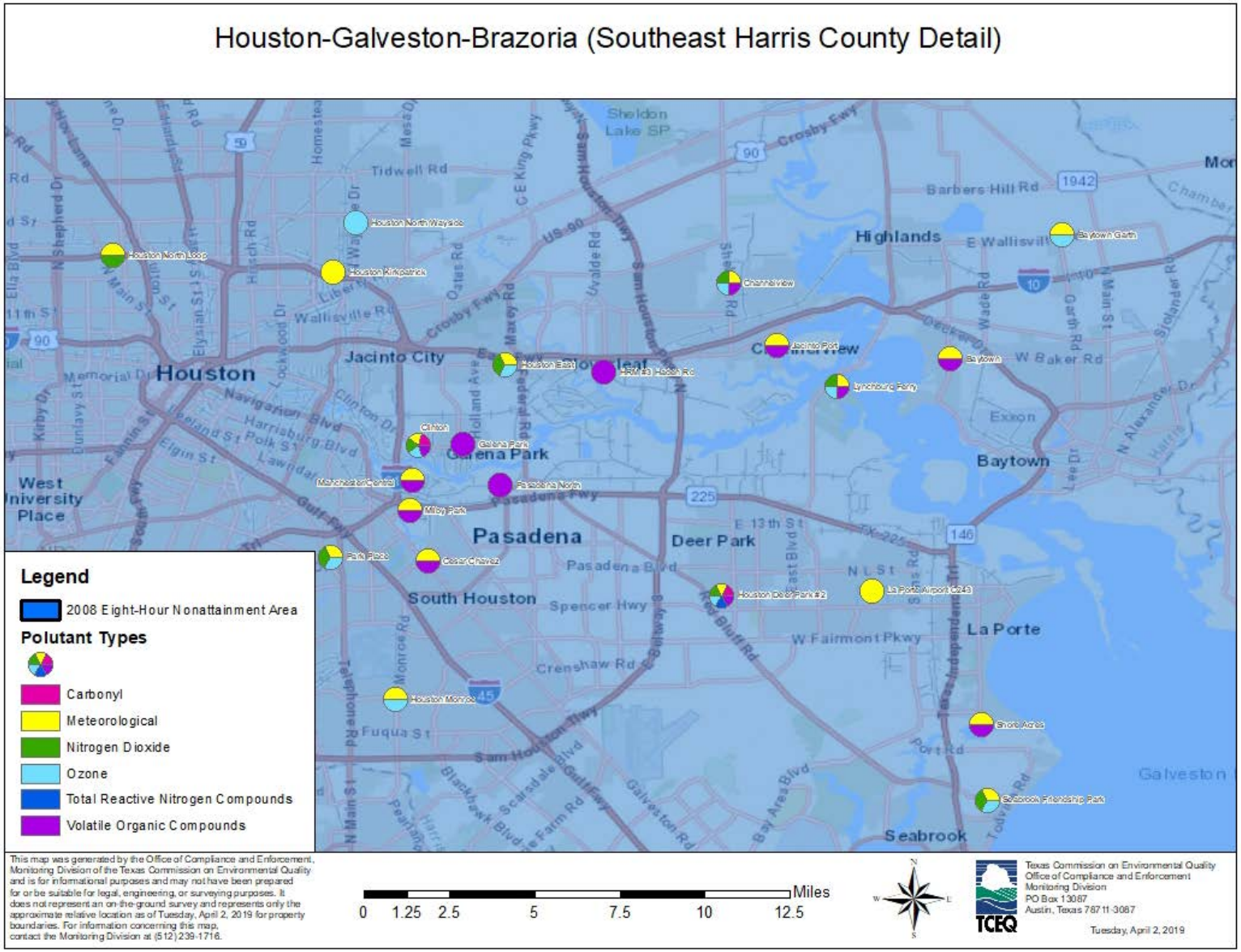

Figure 4: Houston-Galveston-Brazoria (Southeast Harris County Detail)

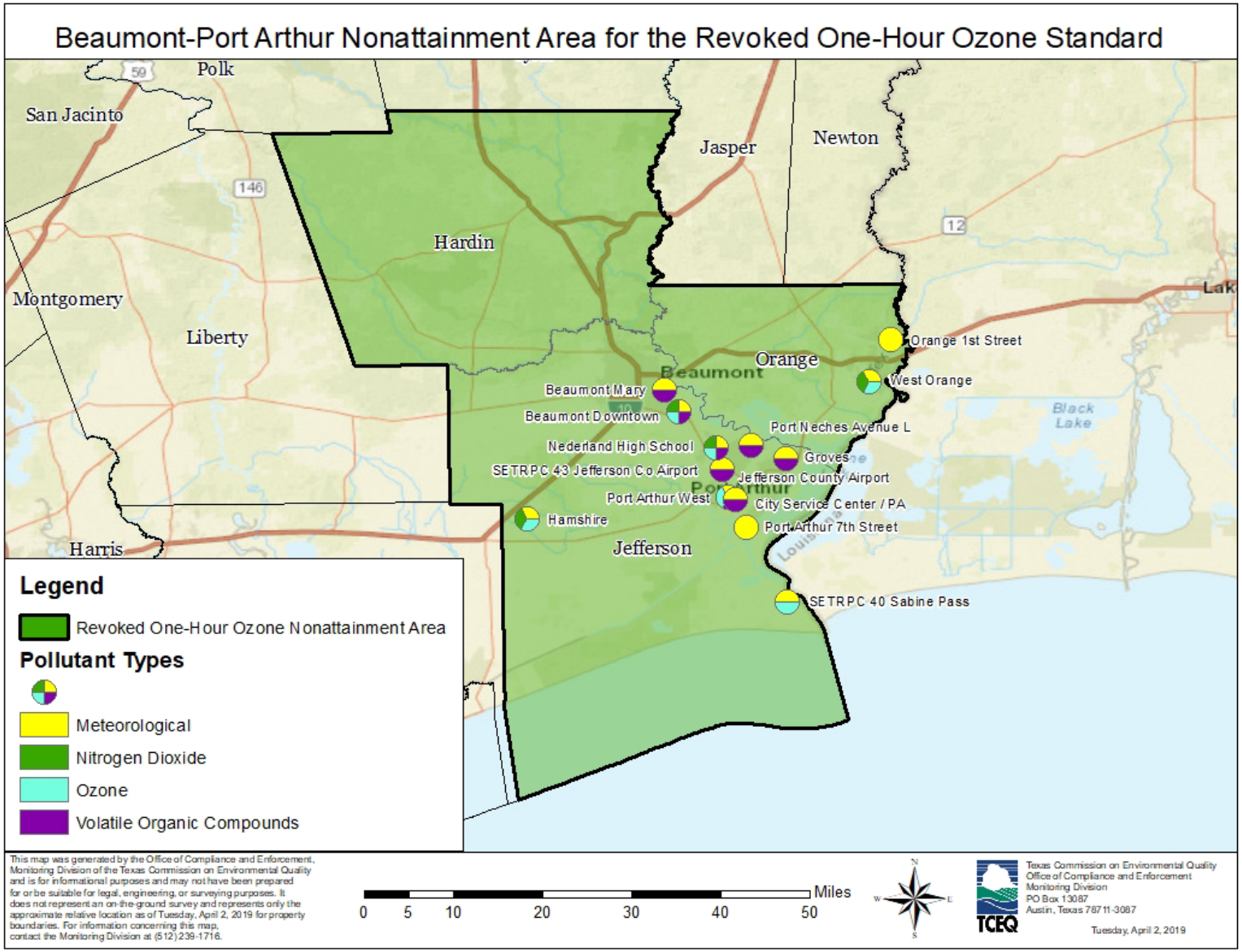

Figure 5: Beaumont-Port Arthur Nonattainment Area for the Revoked One-Hour Ozone Standard

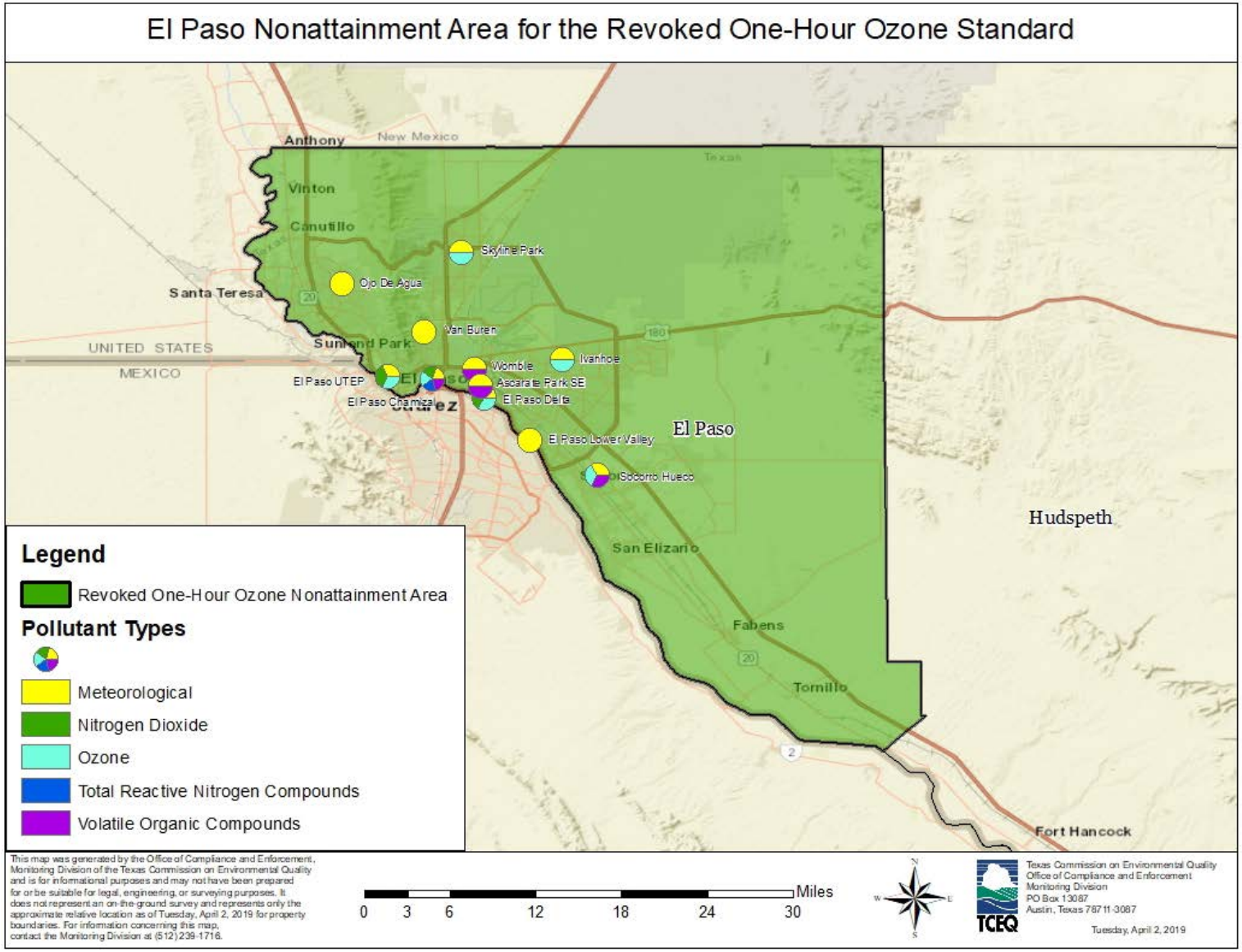

Figure 6: El Paso Nonattainment Area for the Revoked One-Hour Ozone Standard

Photochemical Assessment Monitoring Stations

The TCEQ Photochemical Assessment Monitoring Stations (PAMS) network is designed to meet requirements and support enhanced O_3 and O_3 precursor monitoring activities. The PAMS network includes monitoring in currently designated O_3 nonattainment areas in addition to areas with previous O_3 nonattainment designations that have not been formally redesignated to attainment.

Monitoring Requirements

The EPA revisions to the PAMS program under the final rule published October 26, 2015, and listed in 40 CFR §58, Appendix D, Section 5, require state agencies to collect and report PAMS measurements at NCore sites in core based statistical areas with 1,000,000 or more persons. The TCEQ meets the PAMS network monitoring requirements with the required measurements performed at the Dallas Hinton and Houston Deer Park number (#) 2 sites. The required PAMS measurements include the following.

- hourly averaged speciated volatile organic compounds (VOCs) by automated gas chromatography
- three eight-hour averaged carbonyl samples per day on a one-in-three-day schedule during June, July, and August
- hourly averaged O_3
- hourly averaged nitrogen oxide (NO), true nitrogen dioxide (NO_2), and total reactive oxides of nitrogen (NO_y)
- hourly averaged ambient temperature
- hourly vector-averaged wind direction and wind speed
- hourly averaged atmospheric pressure
- hourly averaged relative humidity
- hourly precipitation
- hourly averaged mixing-height
- hourly averaged solar radiation
- hourly averaged ultraviolet radiation

The TCEQ exceeds PAMS monitoring requirements with enhanced monitoring at multiple sites, beyond those minimally required, throughout Texas as summarized in Table 1 and detailed in Table 2.

Table 1: Photochemical Assessment Monitoring Summary

Photochemical Assessment Monitoring Stations Measurements	BPA Required	BPA Existing	DFW Required	DFW Existing	ELP Required	ELP Existing	HGB Required	HGB Existing
Barometric Pressure	0	1	1	2*	0	1	1	3*
Carbonyl	0	0	1	1	0	0	1	2
Ceilometer	0	0	1	1	0	0	1	1
$NO/NO_2/NO_x$	0	2	0	5	0	3	0	5
NO_2 (True)	0	0	1	1	0	0	1	1
NO_y (High-Sensitivity)	0	0	1	2	0	0	1	2
O_3	0	3	1	6	0	3	1	7
Precipitation	0	1	1	2*	0	1	1	2*
Radar Profiler	0	0	0	1	0	0	0	1
Relative Humidity	0	1	1	6	0	3	1	6
Solar Radiation	0	2	1	7	0	3	1	7
Speciated VOC (AutoGC)	0	2	1	2	0	1	1	3
Speciated VOC (Canister)	0	0	0	3	0	0	0	0
Temperature (Outdoor)	0	3	1	7	0	3	1	8
Ultraviolet radiation	0	1	1	2*	0	1	1	2*
Wind speed and direction	0	3	1	7	0	3	1	8

autoGC – automated gas chromatograph
BPA – Beaumont-Port Arthur
DFW – Dallas-Fort Worth
HGB – Houston-Galveston-Brazoria
ELP – El Paso
NO_2 – nitrogen dioxide
NO – nitrogen oxide
NO_x – oxides of nitrogen
NO_y – total reactive nitrogen compounds
O_3 – ozone
VOC – volatile organic compound
*additional monitor will be deployed by June 1, 2019

Changes to the Enhanced Photochemical Assessment Monitoring Stations Network

The TCEQ evaluated the current PAMS monitoring network. The TCEQ proposes changing the monitor network designation to PAMS effective January 1, 2020, to support enhanced O_3 precursor monitoring activities for the following monitors.

- Cleburne Airport - O_3
- Fort Worth Northwest - carbonyl
- Keller - NO_x, O_3, wind speed, wind direction, outdoor temperature, and solar radiation
- Conroe Relocated - NO_x
- Dallas North #2 - NO_x, O_3, wind speed, wind direction, outdoor temperature, and solar radiation

Summary

After consideration of federal regulations and current enhanced O_3 and O_3 precursor monitoring activities, the TCEQ PAMS network, with the changes noted in this plan, will continue to provide the necessary information to understand state O_3 concentrations.

Table 2: Photochemical Assessment Monitoring Stations and Monitors

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
Beaumont-Port Arthur, Texas	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	$NO/NO_2/NO_x$	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	O_3	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	Solar Radiation	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	Speciated VOC (AutoGC)	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	Temperature (Outdoor)	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482450009	Beaumont Downtown	1086 Vermont Avenue, Beaumont	Wind direction and speed	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482450018	Jefferson County Airport	End of 90th Street at Jefferson County Airport, Port Arthur	Precipitation	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482450018	Jefferson County Airport	End of 90th Street at Jefferson County Airport, Port Arthur	Temperature (Outdoor)	PAMS/SLAMS

Appendix M: Enhanced Monitoring Plan for Ozone

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
Beaumont-Port Arthur, Texas	482450018	Jefferson County Airport	End of 90th Street at Jefferson County Airport, Port Arthur	Wind direction and speed	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482451035	Nederland High School	1800 North 18th Street, Nederland	Barometric Pressure	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482451035	Nederland High School	1800 North 18th Street, Nederland	$NO/NO_2/NO_x$	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482451035	Nederland High School	1800 North 18th Street, Nederland	O_3	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482451035	Nederland High School	1800 North 18th Street, Nederland	Relative Humidity	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482451035	Nederland High School	1800 North 18th Street, Nederland	Solar Radiation	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482451035	Nederland High School	1800 North 18th Street, Nederland	Speciated VOC (AutoGC)	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482451035	Nederland High School	1800 North 18th Street, Nederland	Temperature (Outdoor)	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482451035	Nederland High School	1800 North 18th Street, Nederland	UV Radiation	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482451035	Nederland High School	1800 North 18th Street, Nederland	Wind direction and speed	PAMS/SLAMS
Beaumont-Port Arthur, Texas	482450101	SETRPC 40 Sabine Pass	5200 Mechanic, Not in a city	O_3	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	Radar Profiler	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	Solar Radiation	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	Temperature (Outdoor)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482510003	Cleburne Airport	1650 Airport Drive, Cleburne	Wind direction and speed	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Barometric Pressure*	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Carbonyl	PAMS/SLAMS

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Ceilometer	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	NO_2 (True)*	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	NO_y (High-Sensitivity)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	O_3	NCORE/PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Precipitation*	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Relative Humidity	NCORE/PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Solar Radiation	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Speciated VOC (AutoGC)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Temperature (Outdoor)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	UV Radiation*	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481130069	Dallas Hinton	1415 Hinton Street, Dallas	Wind direction and speed	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481210034	Denton Airport South	Denton Airport South, Denton	$NO/NO_2/NO_x$	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481210034	Denton Airport South	Denton Airport South, Denton	NO_y (High-Sensitivity)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481210034	Denton Airport South	Denton Airport South, Denton	O_3	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481210034	Denton Airport South	Denton Airport South, Denton	Precipitation	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481210034	Denton Airport South	Denton Airport South, Denton	Relative Humidity	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481210034	Denton Airport South	Denton Airport South, Denton	Solar Radiation	PAMS/SLAMS

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
Dallas-Fort Worth-Arlington, Texas	481210034	Denton Airport South	Denton Airport South, Denton	Speciated VOC (Canister)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481210034	Denton Airport South	Denton Airport South, Denton	Temperature (Outdoor)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481210034	Denton Airport South	Denton Airport South, Denton	Wind direction and speed	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	$NO/NO_2/NO_x$	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	O_3	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Relative Humidity	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Solar Radiation	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Speciated VOC (AutoGC)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Temperature (Outdoor)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484391002	Fort Worth Northwest	3317 Ross Ave, Fort Worth	Wind direction and speed	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	Barometric Pressure	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	$NO/NO_2/NO_x$	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	O_3	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	Relative Humidity	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	Solar Radiation	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	Speciated VOC (Canister)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	Temperature (Outdoor)	PAMS/SLAMS

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
Dallas-Fort Worth-Arlington, Texas	484393009	Grapevine Fairway	4100 Fairway Drive, Grapevine	Wind direction and speed	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481391044	Italy	900 Farm-to-Market 667 Ellis County, Italy	$NO/NO_2/NO_x$	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481391044	Italy	900 Farm-to-Market 667 Ellis County, Italy	O_3	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481391044	Italy	900 Farm-to-Market 667 Ellis County, Italy	Relative Humidity	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481391044	Italy	900 Farm-to-Market 667 Ellis County, Italy	Solar Radiation	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481391044	Italy	900 Farm-to-Market 667 Ellis County, Italy	Speciated VOC (Canister)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481391044	Italy	900 Farm-to-Market 667 Ellis County, Italy	Temperature (Outdoor)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481391044	Italy	900 Farm-to-Market 667 Ellis County, Italy	UV Radiation	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	481391044	Italy	900 Farm-to-Market 667 Ellis County, Italy	Wind direction and speed	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482570005	Kaufman	3790 South Houston Street, Kaufman	$NO/NO_2/NO_x$	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482570005	Kaufman	3790 South Houston Street, Kaufman	O_3	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482570005	Kaufman	3790 South Houston Street, Kaufman	Relative Humidity	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482570005	Kaufman	3790 South Houston Street, Kaufman	Solar Radiation	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482570005	Kaufman	3790 South Houston Street, Kaufman	Temperature (Outdoor)	PAMS/SLAMS
Dallas-Fort Worth-Arlington, Texas	482570005	Kaufman	3790 South Houston Street, Kaufman	Wind direction and speed	PAMS/SLAMS
El Paso, Texas	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Barometric Pressure	PAMS/SLAMS
El Paso, Texas	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	$NO/NO_2/NO_x$	PAMS/SLAMS

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
El Paso, Texas	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	O_3	PAMS/SLAMS
El Paso, Texas	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Relative Humidity	PAMS/SLAMS
El Paso, Texas	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Solar Radiation	PAMS/SLAMS
El Paso, Texas	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Temperature (Outdoor)	PAMS/SLAMS
El Paso, Texas	481410055	Ascarate Park SE	650 R E Thomason Loop, El Paso	Wind direction and speed	PAMS/SLAMS
El Paso, Texas	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	$NO/NO_2/NO_x$	PAMS/SLAMS
El Paso, Texas	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	O_3	NCORE/PAMS/ SLAMS
El Paso, Texas	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	Relative Humidity	PAMS/SLAMS
El Paso, Texas	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	Solar Radiation	PAMS/SLAMS
El Paso, Texas	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	Speciated VOC (AutoGC)	PAMS/SLAMS
El Paso, Texas	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	Temperature (Outdoor)	PAMS/SLAMS
El Paso, Texas	481410044	El Paso Chamizal	800 South San Marcial Street, El Paso	Wind direction and speed	PAMS/SLAMS
El Paso, Texas	481410037	El Paso UTEP	250 Rim Road, El Paso	$NO/NO_2/NO_x$	PAMS/SLAMS
El Paso, Texas	481410037	El Paso UTEP	250 Rim Road, El Paso	O_3	PAMS/SLAMS
El Paso, Texas	481410037	El Paso UTEP	250 Rim Road, El Paso	Precipitation	PAMS/SLAMS
El Paso, Texas	481410037	El Paso UTEP	250 Rim Road, El Paso	Relative Humidity	PAMS/SLAMS
El Paso, Texas	481410037	El Paso UTEP	250 Rim Road, El Paso	Solar Radiation	PAMS/SLAMS
El Paso, Texas	481410037	El Paso UTEP	250 Rim Road, El Paso	Temperature (Outdoor)	PAMS/SLAMS

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
El Paso, Texas	481410037	El Paso UTEP	250 Rim Road, El Paso	UV Radiation	PAMS/SLAMS
El Paso, Texas	481410037	El Paso UTEP	250 Rim Road, El Paso	Wind direction and speed	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010026	Channelview	1405 Sheldon Road, Channelview	$NO/NO_2/NO_x$	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010026	Channelview	1405 Sheldon Road, Channelview	O_3	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010026	Channelview	1405 Sheldon Road, Channelview	Relative Humidity	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010026	Channelview	1405 Sheldon Road, Channelview	Solar Radiation	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010026	Channelview	1405 Sheldon Road, Channelview	Speciated VOC (AutoGC)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010026	Channelview	1405 Sheldon Road, Channelview	Temperature (Outdoor)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010026	Channelview	1405 Sheldon Road, Channelview	Wind direction and speed	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	Barometric Pressure	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	Carbonyl	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	$NO/NO_2/NO_x$	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	O_3	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	Relative Humidity	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	Solar Radiation	PAMS/SLAMS

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	Speciated VOC (AutoGC)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	Temperature (Outdoor)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	UV Radiation	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011035	Clinton	9525 1/2 Clinton Drive, Houston	Wind direction and speed	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	483390078	Conroe Relocated	9472A Highway 1484, Conroe	O_3	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	483390078	Conroe Relocated	9472A Highway 1484, Conroe	Solar Radiation	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	483390078	Conroe Relocated	9472A Highway 1484, Conroe	Temperature (Outdoor)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	483390078	Conroe Relocated	9472A Highway 1484, Conroe	Wind direction and speed	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	$NO/NO_2/NO_x$	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	O_3	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	Relative Humidity	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	Solar Radiation	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	Temperature (Outdoor)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	481671034	Galveston 99th Street	9511 Avenue V 1/2, Galveston	Wind direction and speed	PAMS/SLAMS

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
Houston-The Woodlands-Sugar Land, Texas	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	Barometric Pressure	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	$NO/NO_2/NO_x$	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	NO_y (High-Sensitivity)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	O_3	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	Relative Humidity	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	Solar Radiation	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	Temperature (Outdoor)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010024	Houston Aldine	4510 1/2 Aldine Mail Road, Houston	Wind direction and speed	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	Barometric Pressure*	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	Carbonyl	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	NO_2 (True)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	NO_y (High-Sensitivity)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	O_3	NCORE/PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	Precipitation*	PAMS/SLAMS

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	Relative Humidity	NCORE/PAMS/ SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	Solar Radiation	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	Speciated VOC (AutoGC)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	Temperature (Outdoor)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	UV Radiation*	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011039	Houston Deer Park #2	4514 1/2 Durant Street, Deer Park	Wind direction and speed	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011043	La Porte Airport	La Porte Airport, 2434 Buchanan Street, La Porte	Ceilometer	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011043	La Porte Airport	La Porte Airport, 2434 Buchanan Street, La Porte	Radar Profiler	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011043	La Porte Airport	La Porte Airport, 2434 Buchanan Street, La Porte	Precipitation	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011043	La Porte Airport	La Porte Airport, 2434 Buchanan Street, La Porte	Temperature (Outdoor)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482011043	La Porte Airport	La Porte Airport, 2434 Buchanan Street, La Porte	Wind direction and speed	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010029	Northwest Harris County	16822 Kitzman, Tomball	$NO/NO_2/NO_x$	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010029	Northwest Harris County	16822 Kitzman, Tomball	O_3	PAMS/SLAMS

Metropolitan Statistical Area	AQS Number	Site Name	Address	Sampler Type	Network
Houston-The Woodlands-Sugar Land, Texas	482010029	Northwest Harris County	16822 Kitzman, Tomball	Relative Humidity	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010029	Northwest Harris County	16822 Kitzman, Tomball	Solar Radiation	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010029	Northwest Harris County	16822 Kitzman, Tomball	Temperature (Outdoor)	PAMS/SLAMS
Houston-The Woodlands-Sugar Land, Texas	482010029	Northwest Harris County	16822 Kitzman, Tomball	Wind direction and speed	PAMS/SLAMS

- number
AQS – Environmental Protection Agency Air Quality System database
autoGC – automated gas chromatograph
Ave – avenue
NO_2 – nitrogen dioxide
NO – nitrogen oxide
NO_x – oxides of nitrogen
NO_y – total reactive nitrogen compounds
O_3 – ozone
SE – southeast
UTEP – University of Texas at El Paso
UV – ultraviolet
VOC – volatile organic compound
NCore – National Core Multipollutant Monitoring Stations
PAMS – Photochemical Assessment Monitoring Stations
SLAMS – State or Local Air Monitoring Stations
*additional monitor will be deployed by June 1, 2019

Appendix N

TCEQ Response to Comments Received on the 2019 Annual Monitoring Network Plan

Texas Commission on Environmental Quality
2019 Annual Monitoring Network Plan

Appendix N: TCEQ Response to Comments Received on the 2019 Annual Monitoring Network Plan

Introduction

As required by 40 Code of Federal Regulations (CFR) §58.10, the Texas Commission on Environmental Quality (TCEQ) posted the *2019 Annual Monitoring Network Plan* (AMNP) for public inspection for 30 days prior to submittal to the United States (U.S.) Environmental Protection Agency (EPA). In fulfillment of 40 CFR §58.10, the TCEQ provided a detailed analysis of Appendix D network design requirements and how the network meets these requirements. The 2019 AMNP presented the current Texas federal network with completed or proposed network changes from July 1, 2018, through December 31, 2020.

As outlined under 40 CFR §58.10, submittal of the AMNP is required to demonstrate the TCEQ compliance with federal air monitoring requirements under 40 CFR Part 58, and is limited to federally-funded monitors. The TCEQ also operates state-funded monitors and often locates these monitors to address local public health and welfare concerns; however, these monitors are outside the scope of the AMNP. Information and data from both federal and state-funded monitors are available to the public from the TCEQ Texas Air Monitoring Information System (TAMIS) database.

During the public comment period from April 22, 2019, to May 21, 2019, the TCEQ received 59 sets of comments 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.

Comment Summaries and TCEQ Responses

Comment 1: More than 60 commenters, some of which commented on behalf of multiple members, requested that the TCEQ implement air quality monitoring in Comal County. Most commenters requested at least six air quality monitors in central and southern Comal County (in the area between Bulverde, Canyon Lake, New Braunfels, and Garden Ridge) to measure $PM_{2.5}$ and PM_{10}. One citizen requested at least seven official air quality monitors. One citizen requested PM monitoring in addition to the standard TCEQ monitors. Of particular concern to the commenters are the industrial growth and expansion of quarry, cement, asphalt, and concrete operations in the area. Commenters recommended that monitors be placed in multiple locations, including Davenport High School, Smithson Valley High School, Rim Rock Ranch Community Center, Vintage Oaks Community Center, Danville Middle School, Oak Run Middle School, the Garden Ridge area, the Heritage Oaks area, the Rim Rock subdivision, the Vintage Oaks subdivision, along the State Highway 46 corridor, the corner of Farm-to-Market (FM) road 3009 and State Highway 46, near the Dry Comal Creek flood retarding structure, Fey Property at 6028 FM 482, Saint John Paul Catholic High School, Solms Park, locations along FM 482, and downwind of existing and proposed quarries.

Response 1: As stated in the introduction, the 2019 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. The federal regulatory requirements for $PM_{2.5}$ and PM_{10} monitoring are

based on the metropolitan statistical area (MSA) population estimates from the U.S. Census Bureau (Census Bureau) and measured area concentrations. Based on federally-required monitoring objectives, these monitors are generally located to represent regional air quality where people commonly live and work and to provide information about compliance with federal air quality standards.

Current PM monitoring in the San Antonio-New Braunfels area meets federal requirements. However, due to industrial and population growth, additional monitors are being deployed in northern Bexar and Comal Counties to assess regional air quality downwind of area rock quarry activity. Since federal monitoring requirements are already met by the current network, the TCEQ assessed the availability of other state monitoring resources, to maximize limited resources. To address the concerns of the commenters, the TCEQ is relocating the PM_{10} monitor from Selma, Texas, to a new air monitoring site, San Antonio Bulverde Parkway, located west of the suggested Davenport High School and the City of Garden Ridge and approximately one mile downwind of area rock quarries. This site will monitor for federal PM_{10} continuous and meteorological parameters, as noted in the 2019 AMNP, and will also include a state-funded $PM_{2.5}$ continuous monitor.

Another new state-funded air monitoring site, New Braunfels Oak Run Parkway, will be located in Comal County at the intersection of Independence Drive and Oak Run Parkway, in close proximity to Oak Run Middle School and downwind of area rock quarries. The New Braunfels Oak Run Parkway site will monitor for continuous PM_{10} and $PM_{2.5}$ and meteorological parameters. These new sites are pending construction and should be operational by September 30, 2019.

Comment 2: One citizen requested that monitoring in Comal County be in place before Vulcan is issued a permit and requested Vulcan be required to have a structured monitoring plan. One citizen requested particulate matter monitors be in place before any more permits are issued.

Response 2: The intent of the AMNP is to demonstrate the TCEQ's compliance with federal air monitoring requirements rather than assessing the monitoring network in relation to specific sources such as permitted facilities. Therefore, comments related to specific permitting matters are outside the scope of the AMNP.

Comment 3: Regarding air quality monitoring in Comal County, one citizen commented that unannounced compliance inspections should be performed at aggregate related businesses and that the Occupational Safety and Health Administration (OSHA) permissible exposure limits should be implemented immediately, starting with the largest operations and continuing until all facilities are complying. This commenter also requested that air quality monitoring efforts be designed by independent third-party engineers, that data be available via live feed, that monitoring equipment comply with EPA specifications, and that readings be certified by a third-party. The commenter recommended that monitors be placed in secure locations. The commenter requested that all emissions from a site be included in the total emissions data for the facility. The commenter also requested that the TCEQ consider the effects of combined emissions from multiple aggregate operations. The commenter requested that each facility be monitored and that additional monitors be placed away from the areas of operations to read the ambient air quality.

Response 3: The TCEQ conducts air quality monitoring consistent with EPA requirements, including specific federally-required quality assurance and quality control procedures. The TCEQ air quality monitoring program details are described in quality assurance project plans approved by the EPA. All operations are performed by trained TCEQ staff or third-party contractors using EPA designated equipment and methods in accordance with 40 CFR Part 53 and 40 CFR Part 58. Monitors are sited in secure locations. Resulting data are reviewed, validated, and certified by the TCEQ in accordance with 40 CFR Part 58 and subsequently assessed and certified by the EPA in the EPA Air Quality System (AQS) database.

Continuous data are available in near real-time on the TCEQ TAMIS database webpage (https://www17.tceq.texas.gov/tamis/index.cfm?fuseaction=home.welcome). EPA AQS procedures dictate that continuous data be reported in one-hour averages. To meet that requirement, hourly averages from continuous monitors are calculated from five-minute averages and are publicly available after the collection hour. Although these are the most current data, they are not official until validated by technical staff, certified, and submitted to the EPA. Noncontinuous criteria pollutant data are collected in the field, transferred to a laboratory, analyzed, validated, and then uploaded to the TAMIS database, certified, and submitted to the EPA. As required by 40 CFR §58.16, all data must be received in the EPA AQS within 90 days after each calendar quarter.

As mentioned previously, the scope of this plan is limited to demonstrating TCEQ's compliance with federal air monitoring requirements. Comments related to OSHA permissible exposure limits, inspections, and facility-specific emissions reporting and monitoring are outside the plan scope.

Consideration of the effects of combined emissions from multiple facilities, such as multiple aggregate facilities, is one of the functions of the monitoring network, which, as discussed in the AMNP and this response to comments, meets federal requirements. As discussed in Response 1, the TCEQ is deploying additional PM monitors in northern Bexar and Comal Counties to measure ambient air quality downwind of area rock quarries.

Comment 4: One citizen commented that air monitors need to be located close to all rock quarry operations and at least as close as homes within the area. The commenter requested that the TCEQ consider changing the requirements, along with penalties for violations. Another citizen commented that there should be downwind fence line monitors at each quarry.

Response 4: The AMNP details how the TCEQ network meets federal requirements. Based on the monitoring objectives, these monitors are generally located to represent area-wide regional air quality where people commonly live and work and are not sited to evaluate specific sources.

As discussed in Response 1, the TCEQ is deploying PM monitors in northern Bexar and Comal Counties to assess regional air quality downwind of area rock quarries. As stated previously, this AMNP is limited in scope to demonstrating compliance with federal air monitoring requirements under 40 CFR Part 58. Comments relating to violation penalties, fence line monitoring, and changes to federal monitoring requirements are outside the scope of this plan.

Comment 5: The Alamo Group of the Lone Star Chapter of the Sierra Club (Alamo Sierra Club) commented on the ruling of O_3 nonattainment only being applied to Bexar County and requested that monitoring be expanded throughout the region. In addition to $PM_{2.5}$ and PM_{10} monitoring, the Alamo Sierra Club requested that O_3 be evaluated in the region.

Response 5: The TCEQ will deploy additional $PM_{2.5}$ and PM_{10} continuous monitors in northern Bexar and Comal Counties as discussed in Response 1. The TCEQ is federally required to operate two O_3 monitors in the San Antonio-New Braunfels MSA, based on the most recent MSA population estimates and the three-year O_3 design value, and currently operates three O_3 monitors: one upwind and one downwind of the greater San Antonio area and one downwind of city center. The TCEQ is exceeding the federal requirements for O_3 monitoring in this area.

Alamo Sierra Club's comments regarding NAAQS designations are outside the scope of this AMNP.

Comment 6: Earthjustice on behalf of the Coalition of Community Organizations, Texas Environmental Justice Advocacy Services, Achieving Community Tasks Successfully, and the Sierra Club (Earthjustice) commented that additional O_3 monitoring is needed in San Antonio and the surrounding counties (minimally in New Braunfels) to ensure that emission control strategies solve the region's smog problem. Earthjustice also commented that an O_3 monitor north of the San Miguel Electric Plant was needed to help evaluate the plant's impact on Bexar County's O_3 levels.

Response 6: As stated in Response 5, the TCEQ is currently exceeding federal requirements for O_3 monitoring in the San Antonio-New Braunfels MSA with the operation of three monitors: one upwind and one downwind of the greater San Antonio area and one downwind of city center.

Comment 7: One citizen commented that surface water monitoring should be included in the AMNP.

Response 7: The AMNP is required to demonstrate compliance with federal air monitoring requirements. The TCEQ's surface water monitoring program is not addressed under this plan.

Comment 8: One citizen commented that because PM concentrations must be considered along with O_3 to solve regional air pollution problems, the existing PM_{10} and $PM_{2.5}$ monitors in Bexar County are not correctly positioned or are not collecting the data that should be collected. This commenter suggested a three-year monitoring program for all air components. The commenter also requested that PM monitors be deployed in Guadalupe and Wilson Counties because of industry to the south.

Response 8: As discussed in Response 1, the TCEQ meets the federal PM monitoring requirements in the San Antonio area, but to address comments will deploy additional $PM_{2.5}$ and PM_{10} monitoring in northern Bexar and Comal Counties. No monitors are federally required for Guadalupe and Wilson Counties. The TCEQ operates most air monitoring stations for extended lengths of time, typically greater than three years, and in several cases well over 20 years.

Comment 9: The Capital Area Council of Governments Clean Air Coalition and the Clean Air Coalition commented that relocating the Austin Northwest O_3 monitor too

far from its current location could result in the loss of data continuity, which they consider important because this monitor currently records the region's highest ground-level O_3, and therefore will make it harder for the region to remain designated "attainment" for federal O_3 quality standards. They requested relocating the site either on the middle school property or within one-mile of the existing location. They also requested that relocation of the monitor enable as much data collection as possible for the 2019 O_3 season and that the final AMNP include as many details as possible about the station relocation.

Response 9: The TCEQ will continue to work with the Austin Independent School District to determine if a suitable location can be found on the existing school property. If this is not feasible, the TCEQ will evaluate relocation options as close to the current site as possible. Details regarding the site relocation will be included in the applicable AMNP based on the timing of the site relocation.

Comment 10: Earthjustice asserted that the 2019 AMNP is a revision to the State Implementation Plan (SIP) and should be subject to notice and comment rulemaking pursuant to the Administrative Procedure Act and 42 U.S. Code §7410(a)(2). Earthjustice requested that the TCEQ remand the AMNP to allow the public to participate through notice and comment rulemaking and hold public hearings in Houston and El Paso. Earthjustice also commented that the TCEQ webpage notice for comment does not explain whether the TCEQ will respond to comments or make AMNP changes in response to any comments.

Response 10: The 2019 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*, Number 16-1158, 2019 WL 2306752. Sierra Club petitioned for review of EPA's Revision to Ambient Monitoring Quality Assurance and Other Requirements, 81 *Federal Register* 17248 (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 place 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 EPA intended to address or change the non-SIP approach for annual monitoring network plans.

Therefore, because it is clear that the EPA regulations do not require SIP notice and comment procedures for the AMNP, the TCEQ will not hold public hearings on the AMNP. The TCEQ is responding to the comments that were received during the

provided notice period for the plan and is submitting all comments and responses to the EPA.

The TCEQ acknowledges that the AMNP webpage notice did not indicate that the TCEQ would make changes to the plan based on comments, if deemed appropriate. The TCEQ complies with 40 CFR §58.10(a)(1). The webpage language for future plans will clarify the TCEQ response to comment procedure.

Comment 11: Earthjustice urged the TCEQ to look beyond federal standards minimum criteria and evaluate pressing public health threats to assess the air quality monitoring need of Texans.

Response 11: The TCEQ acknowledges the importance of monitoring beyond federal requirements as demonstrated by the extensive state-funded monitoring, conducted throughout Texas as state initiatives, which has been in place for many years. The AMNP is required to demonstrate the TCEQ's compliance with federal air monitoring requirements and, therefore, only includes federally-required air monitors. As detailed in the 2019 AMNP, the TCEQ is meeting all federal monitoring requirements under 40 CFR Part 58. State-funded air quality monitoring beyond what is federally-required is not within the scope of the AMNP.

Comment 12: Earthjustice appreciated the enhanced PM_{10} monitoring proposed in the Portland-Gregory area but commented that recent permitting actions urgently warranted enhanced VOC monitoring.

Response 12: No current federal VOC monitoring requirements are applicable for the Portland-Gregory area; however, the TCEQ will continue to evaluate the need for additional area monitors, including pollutants other than PM. Facility-specific monitoring is beyond the AMNP scope.

Comment 13: The Environmental Integrity Project (EIP) urged the TCEQ to include SO_2 monitoring in the Permian Basin due to rapid area population growth and oil and gas production expansion, noting perceived shortfalls in the EPA's population weighted emissions index (PWEI) formula. The EIP commented that Midland and Odessa (Ector) counties are considered to be a single census based statistical area, according to the Census Bureau. According to the commenter, recent studies demonstrated that there is an SO_2 air emission problem in Ector County due to unauthorized emissions from oil and gas production and processing facilities.

The EIP pointed out alleged shortfalls in the EPA's PWEI formula and the DRR. The EIP stated that the TCEQ conducted the PWEI calculations on a county by county basis and that the TCEQ should adjust its approach in calculating the PWEI for the Permian Basin by treating the region as a single, large, multi-county area. The EIP commented that reliance solely on National Emissions Inventory (NEI) in PWEI calculations excludes minor sources in the calculations.

The EIP commented that the EPA DRR single source threshold of 2,000 tons per year (tpy) is a shortcoming as hundreds of small sources cumulatively emit thousands of tons of SO_2. The EIP commented that TCEQ has access to all these reported emissions in the State of Texas Environmental Electronic Reporting System (STEERS) database.

Response 13: In accordance with 40 CFR Part 58, Appendix D Section 4.4.2, the TCEQ calculated the PWEI by multiplying the CBSA population estimate by the total SO_2 emitted within the CBSA area, using an aggregate of the most recent county level NEI

data available for each inclusive CBSA county. The NEI is calculated every three years and includes all county point sources, non-point sources (including oil and gas sources), on-road mobile sources, and non-road mobile sources. Annual point sources data are substituted in the calculations to provide the most recent aggregate county level emissions.

Core-based statistical areas (CBSA) are defined by the U.S. Office of Management and Budget (OMB) and used by the Census Bureau to report annual population estimates. The CBSA classification is provided to form a nationally consistent set of geographic entities for use in tabulating and presenting statistical federal data. In the Permian Basin, the OMB included Midland and Martin Counties in the Midland CBSA and Ector County in the Odessa CBSA.

The TCEQ evaluated the Midland and Odessa CBSAs estimated populations, associated combined county point source inventories, and NEI, in accordance with federal PWEI requirements listed in 40 CFR Part 58, Appendix D Section 4.4.2. Based on the applicable PWEI calculations, no SO_2 monitoring is required in the Midland or Odessa CBSAs. As outlined in the plan, the TCEQ is complying with all federal SO_2 monitoring requirements.

The TCEQ acknowledges that the PWEI calculations do not include unplanned startups, shutdowns, maintenance, upsets and other unauthorized emissions since these malfunctions are, by nature, unpredictable. Texas' emission inventory (EI) calculations are consistent with EPA EI guidance regarding unplanned episodic/non-authorized/malfunction emissions.

With regard to EIP's comment on the DRR, the TCEQ meets requirements in 40 CFR §51.1200 for the required characterization of air quality around SO_2 sources emitting 2,000 tpy or more annually that are not located in a previously designated nonattainment area. Comments regarding DRR requirements are beyond the AMNP scope.

Comment 14: Earthjustice commented that additional SO_2 modeling and possibly monitoring are necessary in the Permian Basin based on a recent report by EIP alleging that SO_2 levels in Ector County exceed the NAAQS based on industry self-reported data on unauthorized releases. Earthjustice commented that the TCEQ must model and site monitors at expected SO_2 hotspots. Earthjustice also commented that the TCEQ must act to fix violations, including requesting a nonattainment designation.

Response 14: As discussed in Response 13, the TCEQ meets all federal SO_2 monitoring requirements in the Midland and Odessa CBSAs. Modeling SO_2 concentrations based on alleged NAAQS exceedances, the TCEQ's actions in response to violations, and area designations are outside the scope of this plan.

Comment 15: Earthjustice commented that the TCEQ should consider the Midland-Odessa combined statistical area (CSA) as if it were a single MSA to determine O_3 federal monitoring requirements. Earthjustice additionally commented that Midland and Odessa each have a population greater than 50,000, and the nearest O_3 monitor in Hobbs, New Mexico has a design value greater than 85 percent (%) of the NAAQS. Earthjustice asserts that two O_3 monitors must be added in the Midland-Odessa area.

Response 15: Minimum federal monitoring requirements for O_3 outlined under 40

CFR Part 58, Appendix D, Section 4.1(a) apply specifically to MSAs. MSAs are delineated by the OMB and used by the Census Bureau when reporting population estimates. The OMB delineates the Midland MSA as containing Midland and Martin Counties and a separate Odessa MSA as containing Ector County. Federal O_3 monitoring requirements are not triggered based on the current population in the Midland and Odessa MSAs. 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 16: Earthworks commented that the air monitoring stations currently in and around the Permian Basin are insufficient. Earthworks commented that the TCEQ's MSA information does not list the Midland and Odessa areas together out of convenience. Earthworks commented that the increasing populations justify the inclusion of at least one area O_3 monitor. Earthworks also requested that the EPA and/or the TCEQ use federal or state funds to create a robust Permian Basin air monitoring network. Earthworks commented that two upwind and two downwind stations would be prudent, including VOCs, SO_2, and H_2S, and that specific siting should be based on historical wind-rose information. Earthworks also commented that three locations along the Texas/New Mexico border would be prudent for interstate cooperation to better protect residents.

Response 16: The 2019 AMNP demonstrates the TCEQ's compliance with federal ambient air monitoring requirements under 40 CFR Part 58. As outlined under this plan, the TCEQ is meeting or exceeding all monitoring requirements for the areas described by the commenter. Monitoring beyond that required under 40 CFR Part 58 is outside the scope of this plan.

Comment 17: Earthworks commented that the TCEQ should increase mobile monitoring efforts and use current tools (optical gas imaging camera, emission monitors, gas chromatographs, and canisters) to more fully characterize emissions in the Odessa-Midland/Permian Basin.

Response 17: As stated previously, the AMNP is required to demonstrate compliance with federal ambient air monitoring requirements under 40 CFR Part 58. Comments related to mobile monitoring and emission characterization tools are outside the scope of the AMNP.

Comment 18: Earthworks requested TCEQ to continue to actively assess environmental/toxicological conditions in the Odessa-Midland area, noting that assessments were completed from 2003 to 2016. Earthworks also suggested that the TCEQ actively use enforcement tools on hand to improve the Permian Basin air quality, including 30 Texas Administrative Code (TAC) Chapter 112 and Chapter 70.

Response 18: These comments do not relate to the TCEQ's compliance with federal ambient air monitoring requirements under 40 CFR Part 58 and are outside the scope of this plan.

Comment 19: The 8-Hour Ozone SIP Coalition (Coalition) concurred with the priorities and network changes proposed in the AMNP. The Coalition recommended that the TCEQ evaluate the feasibility of adding monitoring in key nonattainment areas, like HGB, to capture O_3 precursor emissions from wildfires to support

exceptional event analyses.

Response 19: The TCEQ appreciates the Coalition's concurrence with the AMNP priorities and proposed network changes. Monitoring to characterize O_3 precursor emissions from wildfires are not required under 40 CFR Part 58 and are outside the scope of this plan.

Comment 20: Lone Star Legal Aid and its organizational clients, Caring for Pasadena Communities, Port Arthur Community Action Network, and Pleasantville Civic League (LSLA), commented that Caring for Pasadena Communities was pleased that 20 existing O_3 monitors are located in the HGB O_3 nonattainment area, well above the required four monitors, but encouraged the deployment of more O_3 monitors to track the levels, extent, and concentration leading to area nonattainment. LSLA requested O_3 monitors in Pasadena, east of the greater Houston area, and in communities bordering Buffalo Bayou and the Houston Ship Channel. LSLA also urged the TCEQ to add additional O_3 monitors in Port Arthur to ensure the area remains in attainment and to perform additional future emissions modeling to mitigate industry expansion impacts.

Response 20: The TCEQ appreciates the LSLA comment regarding the 20 HGB area O_3 monitors (listed in Appendix H for the Houston-The Woodlands-Sugar Land MSA [Houston Metro area]), 16 of which exceed federal requirements. In addition to the TCEQ monitors, other entities also monitor for O_3 in the Houston Metro area with the TCEQ hosting the data in the TAMIS database. These additional monitors include 12 operated by Harris County Health and Human Services, five operated by the University of Houston, and five operated by industry, for a total of 42 area monitors. Specifically, ten O_3 monitors are located in the eastern portion of Houston, including the areas surrounding Pasadena, Buffalo Bayou, and the Houston Ship Channel.

Likewise, the TCEQ operates seven O_3 monitors in Beaumont-Port Arthur (BPA) (two in Port Arthur), five of which exceed federal requirements, and the South East Texas Regional Planning Committee (SETRPC) operates an additional two monitors. The TCEQ is exceeding federal monitoring requirements for O_3 in the Houston Metro and BPA areas; all of these monitors provide data that are helpful in assessing O_3 precursors and O_3 levels in the Houston Metro and BPA areas.

The AMNP demonstrates the TCEQ's compliance with federal ambient air monitoring requirements. Comments related to attainment status and future emissions modeling do not fall within the scope of this plan.

Comment 21: The Air Alliance Houston (AAH) acknowledged that the AMNP appears to exceed the 40 CFR Part 58 monitoring requirement guidelines. The AAH requested a reassessment of the regional air monitoring network consistent with the TCEQ mission to protect public health and to include data that are easily accessible with clearly defined actionable exposure thresholds, and relevant community chemical risk profiles.

Response 21: The TCEQ appreciates the AAH comments. As described in Response 3, data from the TCEQ's air monitoring network, including those owned and operated by partner organizations, are publicly available online through the TAMIS database.

The AMNP demonstrates the TCEQ's compliance with federal ambient air monitoring requirements. However, in 2020, the TCEQ will conduct a five-year assessment to

determine if the existing network meets federal requirements, meets local air monitoring priorities, and whether new technologies may be appropriate.

Comment 22: LSLA commented that the recent fire in Houston raised public awareness and exposed gaps in the existing monitoring systems to deliver real-time information about VOC exposure. LSLA commented that the monitoring response needed to begin faster and that more fixed-site monitors are needed to generate faster data output. LSLA commented that SIP and Texas Emission Reduction Plan (TERP) funds should be used to purchase more stationary VOC monitors given the number of Toxic Release Inventory (TRI) Program reporting facilities in Beaumont and Houston.

Response 22: The AMNP is required to demonstrate the TCEQ's compliance with federal ambient air monitoring requirements and is not intended to assess the network for monitoring capabilities during emergency situations. LSLA's comments related to emergency response, monitoring response timing, VOC exposure, and use of TERP funding are beyond the scope of this plan.

Comment 23: Earthjustice commented that additional VOC monitors are needed along the Houston Ship Channel, specifically in Manchester, Pasadena, Deer Park, and Baytown, due to the number of facilities, the toxicity of the emissions from these facilities, and underreported or unauthorized air emissions. Earthjustice commented that no VOC monitors are located along the Houston Ship Channel on the south side, near the Pleasantville community. Earthjustice questioned how the TCEQ was meeting Photochemical Assessment Monitoring Stations (PAMS) requirements since the Pleasantville and Fifth Ward do not have air monitors. Earthjustice commented that enhanced VOC monitoring in the Houston Ship Channel communities is necessary to fill regulatory gaps.

Response 23: As previously stated, this plan addresses federally-required monitoring and demonstrates the TCEQ's compliance with requirements under 40 CFR Part 58. Due to this defined scope, only PAMS-related VOC monitoring is included in this plan.

PAMS monitoring objectives include collecting data to evaluate and support air quality model development and O_3 precursor concentration trend assessment for O_3 NAAQS attainment efforts. The 2015 PAMS revisions require measurements during the PAMS summer season at National Core Multipollutant Monitoring Stations (NCore) located in populations with one million or more persons. The TCEQ is required to have one Houston Metro area PAMS automated gas chromatograph (autoGC) for speciated VOCs at the TCEQ NCore site, Houston Deer Park #2. The TCEQ operates two additional area autoGCs at Clinton and Channelview, exceeding federal PAMS VOC monitoring requirements.

While non-PAMS VOC monitoring is outside the scope of this AMNP, the TCEQ is evaluating the deployment of additional autoGCs in the Houston Ship Channel area as a state-funded initiative.

Comment 24: LSLA commented on the number of industrial facilities near the Pleasantville neighborhood in Houston. LSLA commented that no air monitors are operated by the TCEQ in the Pleasantville community. LSLA commented on whether the TCEQ would accept $PM_{2.5}$ data generated from community-placed monitors in the event of an enforcement action, permitting challenge, or other air quality complaint.

LSLA commented on the importance of the TCEQ accepting data generated through less formal community monitoring efforts if the TCEQ monitoring system is not supplemented.

Response 24: The Houston area monitoring exceeds federal $PM_{2.5}$ requirements with 16 monitors (only eight are federally required). The TCEQ operates the Clinton site to the south-southeast of the Pleasantville neighborhood. The Clinton site monitors for VOCs, carbon monoxide (CO), carbonyls, oxides of nitrogen (NO_x), O_3, PM_{10}, $PM_{2.5}$, and SO_2. The Houston East site, located to the east of the neighborhood, monitors for NO_x, O_3 and, $PM_{2.5}$. The Houston North Wayside site, located to the north of the neighborhood, monitors for O_3 with the addition of continuous PM_{10} and $PM_{2.5}$ proposed in the AMNP. The distribution of these monitors provides data representative of the general geographic area, including Pleasantville.

Community-placed monitors, which are not required and may not be NAAQS comparable, and the use of less formal data for enforcement, permitting, and complaints are beyond the scope of the AMNP.

Comment 25: Earthjustice requested that the TCEQ place Pb and VOC monitors in the Fifth Ward, a community in east Houston near a Superfund site. Earthjustice stated that the residents need air quality data to protect their health from contamination, to access air pollution data in a timely manner, and to inform public health policy decisions. Earthjustice noted that the Fifth Ward is within Harris County, stating that this county is out of compliance with the 2008 and 2015 O_3 NAAQS and subject to enhanced PAMS monitoring.

Response 25: Federal Pb monitoring regulations require monitoring near Pb sources with emissions greater than 0.50 tpy or near sources expected to exceed the Pb NAAQS. No sources meeting these criteria are located in the Fifth Ward. The Pb regulations in 40 CFR Part 58 do not include requirements related to Superfund sites. The TCEQ is meeting federal requirements for Pb monitoring.

As discussed in Response 23, PAMS air monitoring objectives include collecting data to evaluate and support development of air quality models and to track O_3 precursor concentration trends. The TCEQ is required to have one Houston Metro area PAMS autoGC for speciated VOCs and operates three, exceeding federal PAMS VOC monitoring requirements. The detailed TCEQ enhanced O_3 and O_3 precursor monitoring activities are included in the AMNP Appendix M.

Comment 26: Harris County Precinct 2 Commissioner (HC Commissioner) Adrian Garcia commented that the numerous, frequent, large-scale pollution events negatively impact regional air quality and requested that the TCEQ consider placing monitors at locations that would fulfill federal requirements and aid and inform first responders and the public during emergency events. The HC Commissioner commented that a more comprehensive stationary monitoring network should be designed to inform and protect vulnerable communities with easily accessible real-time information and that additional monitors could alleviate gaps caused by maintenance or instrument issues.

Response 26: While the TCEQ acknowledges the potential benefit of ambient air monitors during emergencies, the placement of monitors to meet federal monitoring objectives is not always consistent with the most suitable placement for emergency

response. As shown in Appendix C of this plan, the TCEQ meets and exceeds all Houston Metro area federal monitoring requirements. An explanation of data availability is located in Response 3.

The design of a stationary emergency response monitoring network is not a requirement under 40 CFR Part 58 and is beyond the scope of this plan.

Comment 27: The HC Commissioner understood the reason for moving the speciated $PM_{2.5}$ monitor from Aldine to Clinton but commented that both communities need access to this type of monitoring. The HC Commissioner encouraged additional monitoring in the network rather than moving monitors away from communities.

Response 27: $PM_{2.5}$ federal reference method (FRM) filter-based and $PM_{2.5}$ continuous monitoring will remain at Houston Aldine. As approved in the 2018 AMNP, the TCEQ added a $PM_{2.5}$ federal equivalent method (FEM) continuous monitor to replace the non-NAAQS comparable $PM_{2.5}$ TEOM at Houston Aldine. Houston Metro area $PM_{2.5}$ design values have decreased 25%-30% over the last ten years. Historically, the Houston Aldine $PM_{2.5}$ concentrations trend lower than the Clinton $PM_{2.5}$ concentrations. To maximize limited resources, routine Clinton $PM_{2.5}$ speciation data will be more valuable than Houston Aldine data in supporting efforts to reduce area $PM_{2.5}$ concentrations and analyze exceptional events. Even though speciation analysis will not be routinely performed on $PM_{2.5}$ filters collected at Houston Aldine, all $PM_{2.5}$ filters are archived for a minimum of five years allowing for future speciation analysis, if needed at Houston Aldine. In addition, continuous $PM_{2.5}$ and PM_{10} monitors are proposed for the Houston North Wayside site to provide better area population exposure coverage in the Houston Metro.

Comment 28: The HC Commissioner encouraged the TCEQ to explore the addition of a near-road monitoring station on the east side of Harris County, around Highway 225 or Interstate 10, to gather a better understanding of the impact of significant heavy truck traffic to nearby communities.

Response 28: The TCEQ is meeting federal requirements for near-road monitoring. Title 40 CFR Part 58, Appendix D, Section 4.3.2, requires one near-road nitrogen dioxide (NO_2) monitor located near a major road with high annual average daily traffic (AADT) counts in each CBSA with a population of one million or more persons. Required near-road monitoring sites were deployed to meet requirements and evaluate air quality in communities near these roadways.

To choose these sites, the TCEQ evaluated Houston Metro top-ranked AADT counts and identified air monitoring site locations adjacent to the highest ranked road segments where maximum hourly NO_2 concentrations were expected to occur. The evaluations also considered fleet mix, roadway design, congestion patterns, terrain, and meteorology. The TCEQ meets Houston Metro federal near-road monitoring requirements with two near-road monitoring stations at Houston North Loop, at Loop 610 east of Interstate 45, and at Houston Southwest Freeway, off of Southwest Freeway.

Current AADT counts for roadways adjacent to Houston North Loop and Houston Southwest Freeway are 202,112 and 262,055, respectively. AADT counts in eastern Houston along Interstate 10 and Highway 225 range from 190,808 to 152,235, indicating that the current monitoring sites continue to meet the federal monitoring

requirements for the highest ranked area road segments. Both Houston near-road sites monitor for NO_x, and the Houston North Loop site also monitors for CO and $PM_{2.5}$. These Houston near-road monitoring data have shown criteria pollutant concentrations 50% below the NAAQS, which does not indicate cause for concern for potential near-road exposures at these sites or at other locations with lower traffic counts.

Comment 29: The HC Commissioner commented that the TCEQ should develop a robust outreach program to encourage community input during the AMNP notice and comment period.

Response 29: The TCEQ encourages community input on the AMNP. The TCEQ currently places a notice on the TCEQ Spotlight webpage and notifies citizens subscribed to receive Air Monitoring Network Announcements by email. Citizens can subscribe to the TCEQ announcements at https://public.govdelivery.com/accounts/TXTCEQ/subscriber/new.

Comment 30: Earthjustice commented that the Houston Aldine $PM_{2.5}$ FRM data were not publicly available, not reported to the EPA, or the monitor is nonfunctional. Earthjustice supported the new $PM_{2.5}$ speciation monitor at Clinton but opposed the discontinuation of $PM_{2.5}$ speciation monitoring at Houston Aldine.

Response 30: See Response 27 for information regarding Houston Aldine $PM_{2.5}$ speciation monitoring. The TCEQ appreciates the commenter's support for adding speciation analyses for Clinton $PM_{2.5}$ filters. However, the TCEQ does not agree that the Houston Aldine $PM_{2.5}$ FRM data are not publicly available. This monitor is functional, the data are publicly available, and data are reported to the EPA. TCEQ $PM_{2.5}$ FRM noncontinuous data, are available on the TAMIS database webpage, under the Site List tab, by selecting the site and the associated validated data tab at https://www17.tceq.texas.gov/tamis/index.cfm?fuseaction=report.site_list. $PM_{2.5}$ FRM data are submitted to the EPA AQS and listed on the EPA Design Value webpage at https://www.epa.gov/air-trends/air-quality-design-values#report. Noncontinuous data are collected in the field, transferred to a laboratory, analyzed, validated, and then uploaded to the TAMIS database, certified, and submitted to the EPA. As required by 40 CFR §58.16, all data, including the Houston Aldine $PM_{2.5}$ FRM data, must be received in the EPA AQS within 90 days after each calendar quarter.

Comment 31: Harris County Pollution Control Services Department (HPCSD) urges the TCEQ to ensure that one-hour $PM_{2.5}$ monitoring data at Houston Deer Park #2, Aldine, and Clinton continue to be publicly available. $PM_{2.5}$ monitoring data from these sites are of great interest to local governments and the public and were useful in monitoring the smoke plume from the recent Intercontinental Terminals (ITC) fire.

Response 31: The TCEQ appreciates the HPCSD interest in Houston area $PM_{2.5}$ air monitoring data. The TCEQ currently plans to continue operation of the continuous $PM_{2.5}$ monitors at Houston Aldine, Houston Deer Park #2, and Clinton sites. In addition, the TCEQ has proposed adding continuous PM_{10} and $PM_{2.5}$ monitoring at the Houston North Wayside site. All data will continue to be publicly available on the TAMIS database webpage, as discussed previously.

Comment 32: One citizen requested more monitors in or near Deer Park and that the TCEQ not decommission an air monitor near Deer Park because of the ITC fire.

Response 32: The TEOM monitor recommended for decommissioning at Houston Deer Park #2 is duplicative of other continuous $PM_{2.5}$ monitoring at this monitoring station and is not needed. Continuous $PM_{2.5}$ air monitoring data will continue to be collected at Houston Deer Park #2.

Comment 33: Earthjustice stated that the Houston Ship Channel needs more monitoring, not less, and opposed the reduction of the Clinton PM_{10} sampling frequency. Earthjustice commented that the TCEQ gave no other reason for the reduced monitoring frequency other than the collocation of another monitor.

Response 33: Collocated quality control monitor data are required by 40 CFR Part 58 Appendix A, Section 3.3.4.2(d) to be collected on a 1-in-12-day schedule and is used to calculate and evaluate data precision. The TCEQ is aligning the collocated Clinton PM_{10} monitor with federal regulations and maximizing resources with no resulting reduction in federal monitoring data, as the primary sampler will continue to collect samples on a 1-in-6-day schedule.

Comment 34: Earthjustice opposed decommissioning the Houston Deer Park #2 collocated $PM_{2.5}$ monitor as it could provide data during emergencies and could be useful for verification.

Response 34: See Response 32.

Comment 35: Regarding the TCEQ's proposal to reduce the sampling frequency of the collocated quality control PM_{10} monitor at Clinton, LSLA commented that it opposes any reduction in sampling that would compromise the validity, integrity, or trustworthiness of the data. LSLA urged the TCEQ to ensure that after removing the $PM_{2.5}$ TEOM at Houston Deer Park #2, $PM_{2.5}$ data currently provided to the Air Quality Index (AQI) will continue to be supplied.

Response 35: Collocated quality control monitor data are required to be collected on a 1-in-12-day schedule, and the TCEQ is aligning the collocated Clinton PM_{10} monitor with federal regulations with no resulting reduction in federal monitoring data since the primary sampler will continue to collect samples on a 1-in-6-day schedule. Implementation of quality control requirements detailed in 40 CFR Part 58 Appendix A, Section 3.3.4.2(d) will continue to ensure data validity. Houston Deer Park #2 $PM_{2.5}$ continuous data will continue to be supplied to the TAMIS database, to the EPA AQS, and to the AQI. The changes will not comprise validity, integrity, or trustworthiness of the data.

Comment 36: LSLA commented that there are currently no PM_{10} monitors in the Beaumont-Port Arthur MSA and only three monitors for $PM_{2.5}$. LSLA encouraged the TCEQ to increase the amount of both PM_{10} and $PM_{2.5}$ monitors in the area. LSLA commented that the City of Pasadena does not currently have any PM monitors within its city limits except for a single monitor on the north end of the City. LSLA requested that the TCEQ add PM_{10} and $PM_{2.5}$ monitors in Pasadena, Deer Park, La Porte, Galena Park, and Manchester. LSLA commented that these monitors should be placed along the Ship Channel but also away from the Ship Channel and within residential areas. LSLA also commented that the monitor currently deployed in Manchester to measure non-methane organic compounds is often not functional.

Response 36: 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. Monitors are generally placed to represent area-wide air quality where people commonly live and work and to provide information about compliance with the NAAQS. Current PM monitors provide data supporting area-wide air quality throughout the greater Houston Metro area that includes Pasadena, Deer Park, La Porte, Galena Park, and Manchester. As shown in the 2019 AMNP, the TCEQ is meeting or exceeding federal requirements for PM_{10} and $PM_{2.5}$ monitoring in both the Houston Metro and BPA MSAs. The TCEQ has proposed additional PM_{10} and $PM_{2.5}$ monitoring at Houston North Wayside to improve population exposure coverage.

The total non-methane organic compound monitor at Manchester Park is a state-funded monitor and outside the AMNP scope. However, the TCEQ acknowledges the inconsistent performance of this instrument and has purchased a replacement unit for installation pending testing.

Comment 37: LSLA commented that one monitor, the Pasadena North VOC monitor, in Pasadena was insufficient based on the city population, geographic square miles, number of facilities reporting to the TRI program, and other facilities emitting particulate matter. LSLA commented that more monitoring is needed within Pasadena's borders for other criteria pollutants. LSLA noted the other air monitors surrounding the City of Pasadena but commented that these monitors were not sufficient to monitor the air quality for Pasadena residents. LSLA commented that more efforts were needed to increase monitoring in the areas near the Houston Ship Channel ensuring the public could easily access the information.

Response 37: The City of Pasadena has multiple federally-required and state-funded air monitoring sites with a variety of pollutant monitoring within a three-to-five-mile radius of the City. These sites include Clinton, Milby Park, Cesar Chavez, Houston East, Houston Regional Monitoring (HRM) #3, Houston Deer Park #2, Houston Monroe, and Park Place. As discussed in this response to comments, federal monitors are placed to represent regional air quality throughout the greater Houston area, which includes Pasadena. The TCEQ is meeting or exceeding federal monitoring requirements in the Houston Metro, and no additional criteria pollutant monitoring is required to meet federal requirements.

While state-initiative VOC monitoring is outside the scope of this plan, the TCEQ is evaluating additional VOC monitoring in the Houston Ship Channel area, including Pasadena. Monitoring data are publicly available on the TAMIS database webpage.

Comment 38: LSLA commented that at least one SO_2 monitor should be added to the City of Pasadena based on the number of facilities in the area that emit SO_2 and sulfur compounds. LSLA commented that the closest SO_2 monitors to Pasadena were Manchester and Deer Park.

Response 38: Title 40 CFR Part 58, Appendix D, Section 4.4.2, requires states to establish an SO_2 monitoring network using the PWEI calculations. Based on Census Bureau population estimates and 2014 NEI data with 2017 TCEQ point-source EI data, three SO_2 monitors are required in the Houston Metro area, and the TCEQ exceeds the requirement with five. Three of these monitors are located at sites in the vicinity of Pasadena near local schools including: Houston Deer Park #2 (three miles to the east), Park Place (six miles to the west), and Clinton (six miles to the northwest). The TCEQ SO_2 monitoring network in the Houston Metro is representative of the regional area,

including Pasadena, and exceeds the federal requirements.

Comment 39: One citizen was concerned about the air quality in Houston and believes stronger monitors are needed for SO_2 and smog going into the O_3. The citizen commented that the TCEQ plan is not strong enough on following EPA guidelines for locating air monitors to protect the public and commented that stronger regulations are needed.

Response 39: The TCEQ contends that the 2019 AMNP demonstrates full compliance with all federal ambient air monitoring requirements. As detailed in Appendix C of this AMNP, the TCEQ operates more criteria pollutant monitors in the Houston area than are federally required, including for SO_2 (see Response 38) and O_3 precursors (see AMNP Appendix M).

Changes to federal regulations are outside the authority of the TCEQ.

Comment 40: LSLA acknowledged the large number of air monitors in the BPA and Houston Metro regions. They commented that the TCEQ monitoring network in Port Arthur is inadequate for environmental justice communities surrounded by industrial facilities. LSLA considers the number of monitors located in these communities insufficient and commented that monitoring information should be publicly accessible in real-time. LSLA commented that limitations on the TCEQ's existing monitoring technology include: information is not recorded in real-time, the source of pollution is not identified, and emissions are measured at the fence line as opposed to requiring monitoring systems in communities. LSLA also commented that a stronger mobile monitoring system was needed in the event of emergencies.

Response 40: The purpose of the 2019 AMNP is to demonstrate how the TCEQ air monitoring network complies with federal monitoring requirements detailed in 40 CFR Part 58. The BPA area meets or exceeds federal monitoring requirements as detailed in the 2019 AMNP and in Appendix C of this plan. Air monitoring objectives determine site locations, and sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific sources.

As discussed in Response 3, continuous data are available in near real-time on the TAMIS database webpage (https://www17.tceq.texas.gov/tamis/index.cfm?fuseaction=home.welcome).

Comments regarding pollution source identification, fence line emission monitoring, and mobile monitoring systems are beyond the scope of this plan. Comments regarding environmental justice issues are also outside the scope of the AMNP.

Comment 41: A citizen commented that a $PM_{2.5}$ monitor collocated with the O_3 and NO_x monitors at the Houston West End site would provide valuable data for the region. Additionally, the citizen recommended adding SO_2 monitors in the Permian Basin area referencing an EIP report that claims unpermitted sources in the area exceed the 2,000 tpy limit stated in the DRR. The citizen commented that data for the determination should not be limited to permitted sources only.

Response 41: Houston Metro area monitoring exceeds federal $PM_{2.5}$ requirements with 16 monitors (only eight are federally required). Additionally, the TCEQ proposed adding PM monitoring at the Houston North Wayside site for area population exposure coverage in the 2019 AMNP.

SO_2 monitoring in the Permian Basin is addressed in Responses 13 through 16.

The EPA's SO_2 DRR is a federal rule. The applicability requirements under this rule are outside of the TCEQ's authority.

Comment 42: LSLA commented that the TCEQ should monitor for HCN, even though not a criteria pollutant, in Pasadena and along the Houston Ship Channel and that the TCEQ must conduct an in-depth review of the effects of HCN exposure and effectively convey the information to the public.

Response 42: As previously stated, the AMNP demonstrates the TCEQ's compliance with federal air monitoring requirements under 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 43: The Lone Star Chapter of the Sierra Club (LS Sierra Club) with the Community In-powerment [sic] Development Association in Port Arthur commented that Oxbow, the largest source of SO_2 pollution in West Port Arthur, made illegal operational changes and intentionally deceived the TCEQ and EPA by using dispersion techniques to prevent air quality standard violations and recommended that the TCEQ enforce the Federal Clean Air Act (FCAA) and declare a nonattainment designation.

Response 43: Specific facility operations and NAAQS area designations are not components of the AMNP review required under 40 CFR §58.10 and are beyond the scope of this plan.

Comment 44: LSLA commented that the SO_2 monitor in Port Arthur is no longer sited appropriately to capture peak concentrations due to operational changes at Oxbow Calcining (Oxbow). LSLA commented that modeling used by the TCEQ to place the SO_2 monitor is no longer valid. LSLA commented on the TCEQ New Source Review permit approved replacement stack for Kiln 4 and stated that the stack is higher and has a smaller diameter than the previous stack. LSLA commented that the TCEQ must conduct additional modeling of Oxbow's emissions to determine where SO_2 monitors should be sited to capture peak concentrations and that the TCEQ should add SO_2 monitoring to the existing SETRPC Port Arthur site in a residential neighborhood.

Response 44: The TCEQ performed additional modeling based on the current permitted Oxbow emissions (which accounted for Oxbow's current operations, stack parameters, and more recent meteorological data) to assess potential monitor relocation for peak SO_2 concentrations. The AERMOD model shows peak concentrations located closer to the source than the current monitor location. The TCEQ is working with EPA Region 6 to evaluate relocation options for the Port Arthur 7th street SO_2 air monitoring site.

The South East Texas Regional Planning Commission (SETRPC) owns and operates the SETRPC Port Arthur site at 6956 James Gamble Boulevard, Port Arthur Texas. This monitoring station has included the operation of a private SO_2 monitor since 2007. The TCEQ coordinated with the SETRPC to make these data available to the public through the TCEQ's TAMIS database. When winds place this monitor directly downwind of the Oxbow facility, measured SO_2 concentrations at this monitor have not demonstrated exceedances of the one-hour SO_2 standard.

Comment 45: Two citizens commented on the operations of Oxbow. One citizen

commented that when running the hot stacks, the gases are released hotter and faster and can run farther up into the atmosphere and pass over the air monitor in place.

Response 45: See Responses 43 and 44.

Comment 46: A former congressman requested that the TCEQ limit the quantities of SO_2 and Pb that Oxbow Carbon LCC (limited liability company) allegedly emits.

Response 46: Facility emission limits are not a monitoring requirement and are beyond the scope of the AMNP.

Comment 47: The former congressman also requested the TCEQ to investigate Oxbow's operations, to avoid detection of its pollutants by allowing the heat in its operation to carry the pollutants high enough to blow over the TCEQ air monitor.

Response 47: Specific facility operations are not components of the AMNP review required under 40 CFR §58.10 and are beyond the scope of this plan. Response 44 includes information regarding monitor placement.

Comment 48: The LS Sierra Club commented that the TCEQ needs to address the West Port Arthur SO_2 emissions based on the number of one-hour SO_2 exceedances at TCEQ continuous air monitoring station (CAMS) 1071 and CAMS 28 in Port Arthur. Comments included that air permitting has failed to address local environmental justice complaints, that the TCEQ has been ineffective in investigating complaints, and that the TCEQ needed to carry out more rigorous reviews due to the high levels of air pollution in Port Arthur and Port Neches. The LS Sierra Club questioned if there are other area SO_2 exceedances not being monitored.

Response 48: In accordance with 40 CFR Part 58, Appendix D, Section 4.4.2, the TCEQ established an SO_2 monitoring network using the PWEI calculations with additional requirements in the DRR. Based on the population estimates and EI data presented in Appendix E, one PWEI SO_2 monitor and two DRR SO_2 monitors are required in the BPA area. The TCEQ exceeds federal monitoring requirements with four monitors.

Source emissions, measured exceedances, facility air permitting, and complaint investigation effectiveness are outside the scope of the AMNP.

Comment 49: LSLA commented that the four stationary monitors in Port Arthur were not sufficient given the number of industrial facilities in the area. LSLA noted the need for at least one PM_{10} monitor in Port Arthur given the amount of particulate pollution in the area. LSLA commented that air in the Westside community met health-based standards because the air quality has been in attainment since 2005 and requested that VOC monitoring in the area should continue.

Response 49: As discussed in Response 48, one PWEI SO_2 monitor and two DRR SO_2 monitors are required in the BPA area. The TCEQ SO_2 monitoring in BPA exceeds the federal requirements with four monitors providing data representative of the regional area, including Port Arthur.

Federal regulations require PM_{10} monitoring in MSAs based on population and available measured concentrations. Based on the latest concentration and population data, the BPA area is not federally required to have a PM_{10} monitor and meets requirements. The TCEQ does operate three $PM_{2.5}$ monitors in BPA (exceeding the federal requirement).

The TCEQ PAMS monitoring and the TCEQ Enhanced Monitoring Plan, including VOCs, applicable to BPA are outlined in the 2019 AMNP and AMNP Appendix M. No VOC monitoring reductions in the BPA area were proposed in the 2019 AMNP.

Comment 50: The LS Sierra Club commented that the TCEQ needed to address the large volume of uncontrolled Pb particulate pollution emitted in West Port Arthur and that inadequate lead air monitoring was performed in the area due to the discovery of West side lead soil contamination. The LS Sierra Club stated the TCEQ has not attempted to track the airborne Pb particle pollution levels in West Port Arthur despite large area Pb stack emissions. The Oxbow facility was noted by LS Sierra Club as the largest area Pb pollution source in West Port Arthur.

Response 50: The TCEQ evaluated 2017 Port Arthur facility Pb emissions; no Port Arthur facility emissions triggered the federal monitoring requirements detailed in 40 CFR Part 58, Appendix D, Section 4.5. The highest area Pb emissions were 40% below the monitoring threshold of 0.5 tpy. The TCEQ is meeting the federal requirements for Pb monitoring in this area.

Comment 51: LSLA commented that the TCEQ should investigate using drones to conduct readings of air toxics given the safety risk of using hand-held monitors.

Response 51: While the TCEQ appreciates LSLA's consideration of monitoring staff safety, drone surveillance of air toxics is beyond the scope of this plan.

Comment 52: The Marathon El Paso Refinery (Marathon) supported the TCEQ AMNP planned changes for El Paso and recommends continuing the non-AMNP special purpose brown carbon monitoring at the University of Texas at El Paso during the months of May through September in future years to support wildfire impacts on O_3 concentrations in El Paso. Marathon also recommended that the TCEQ consider adding continuous $PM_{2.5}$ to Skyline and/or Chamizal, $PM_{2.5}$ speciation to UTEP or Skyline, and additional ceilometers to provide mixing height at various sites to analyze potential wildfire-impacted dates for El Paso. Marathon further commented these additions could be added as a seasonal research project and only operated May through September to save resources. Marathon recommended that the TCEQ consider decommissioning the PAMS gas chromatograph (GC) monitor at Chamizal to provide cost savings as the data may no longer be providing useful information.

Response 52: The TCEQ appreciates Marathon's support of the 2019 AMNP. The TCEQ notes the request for additional monitoring to support wildfire impacts; however, these requests are outside the scope of this plan.

The El Paso Chamizal autoGC supports PAMS enhanced monitoring; therefore, no changes for this monitor are planned at this time.

Comment 53: Earthjustice commented that it believes the near-road regulations listed in 40 CFR Part 58, Appendix D, Section 4.3.2(a) require a minimum of one near-road site in the El Paso-Las Cruces CBSA, recommending that the site be located at Zavala Elementary School adjacent to Interstate 110 Spur.

Response 53: Title 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 El Paso and Hudspeth Counties. The El Paso-Las Cruces area, referenced in the comment, is defined by the OMB as a combined statistical area or CSA, which is not applicable to near-road monitoring requirements. The TCEQ is meeting federal requirements for

near-road monitors.

Comment 54: Earthjustice commented that the TCEQ cannot use its monitoring network as the primary means of evaluating SO_2 standard compliance but should rely on lower cost and more accurate air dispersion modeling. Earthjustice further states that the TCEQ failed to meet the deadlines set forth in 40 CFR §51.1203 through monitoring and must demonstrate attainment through modeling and cannot rely on monitoring for any of the 18 sources for which the state did not submit modeling demonstrations, including Martin Lake and W.A. Parish. Earthjustice also commented that TCEQ's failure to develop a monitoring plan for those sources precludes it from demonstrating attainment through monitoring.

Response 54: The TCEQ does not agree with these comments. Air agencies were given the option to model or monitor emissions impacts from sources subject to the DRR. The TCEQ's SO_2 monitoring plan is in compliance with the options and requirements in the DRR and 40 CFR Part 58, Appendix D, Section 4.4.2. The EPA promulgated a DRR schedule in which July 1, 2016, was the deadline for selecting between monitoring, modeling, or establishing source emission requirements. The 2016 AMNP included proposed SO_2 monitoring locations for the characterization of air quality relevant to those DRR sources required to be operational by January 1, 2017. The EPA subsequently approved these monitoring locations and all were operational by the January 1, 2017, deadline. The TCEQ met all DRR deadlines including EPA notification regarding the monitoring plan to characterize air quality by July 1, 2016.

Comment 55: Earthjustice commented that monitors alone cannot accurately evaluate compliance with the SO_2 standard. Earthjustice commented that TCEQ should focus on modeling DRR sources to ensure the protections promised by the NAAQS are met in a cost-effective and expeditious manner.

Response 55: The TCEQ does not agree with these comments. Title 40 CFR §51.1201 states that air agencies could model or monitor to characterize maximum one-hour SO_2 concentrations from sources subject to DRR requirements. The TCEQ's SO_2 monitoring plan is in compliance with these requirements. The TCEQ continues to support the use of ambient air monitoring data as appropriate for making designation decisions.

Modeling for the determination of NAAQS compliance are beyond the scope of the AMNP.

Comment 56: Earthjustice commented that the TCEQ operates SO_2 monitors near only nine of the 25 power plants subject to the DRR, and two of those plants, Big Brown and Monticello, have ceased operations. Earthjustice commented that the TCEQ's monitoring plan serves to distort and minimize the extent of SO_2 pollution in Texas. Earthjustice further commented that the monitoring plan fails to demonstrate that the current SO_2 monitors are placed in a location and manner that captures the peak predicted emissions concentrations. Earthjustice commented that EPA regulations require the TCEQ to use modeling and place monitors in a location that will capture the peak pollution concentrations.

Response 56: The TCEQ does not agree with these comments. On January 15, 2016, the TCEQ provided the EPA with a list of 25 SO_2 sources exceeding the DRR emissions applicability threshold. The TCEQ 2016 AMNP listed the DRR required sources, 2015

EI data, and information regarding whether air quality would be characterized through monitoring or modeling at each source. The TCEQ met the DRR monitoring requirements by deploying source-oriented SO_2 monitors near 13 required sources by the January 1, 2017, deadline. Details relating to the site evaluation and selection process for these monitors were outlined in the TCEQ 2016 AMNP, which was approved by the EPA on October 27, 2016. The specific facilities, station names, and activation dates were listed in the 2016 AMNP, Table 2. The remaining 12 sources were characterized with modeling, designated nonattainment, or exempted from the DRR.

In the 2017 AMNP, the TCEQ proposed monitoring station deployments in areas designated nonattainment by the EPA near Big Brown Steam Electric Station, Monticello Steam Electric Station, and Martin Lake Electrical Station and included details related to the site evaluation and selection process for these three monitors. Due to the operational shut down of Monticello Steam Electric Station, no monitoring station was deployed near that facility. The EPA approved the monitor placement for Big Brown Steam Electric Station and Martin Lake Electrical Station on October 3, 2017.

As stated in Response 54, the EPA did not require modeling for DRR sources but allowed states to choose between monitoring, modeling, or establishing source emission requirements. The TCEQ established an SO_2 monitoring network and used modeling for monitor placement as recommended in the *SO_2 NAAQS Designations Source-Oriented Monitoring Technical Assistance Document*.

Comment 57: Earthjustice commented that monitoring placement for Martin Lake and Harrington Stations does not capture the maximum predicted SO_2 peak source impacts and were approximately a half mile from the modeled peak impacts. Earthjustice commented that both monitoring and modeling for the Martin Lake and Harrington power plants suggest the areas are violating the NAAQS. Earthjustice further commented that if monitoring in 2019 continues to demonstrate violations, the TCEQ must take steps to redesignate those areas as nonattainment. Earthjustice commented that TCEQ must conduct additional modeling and reevaluate its monitor placement and requested that the TCEQ site additional monitors in these areas to characterize air quality near the plants.

Response 57: Details related to the site evaluation and selection process for monitoring placement for Harrington Station and Martin Lake are outlined in the TCEQ 2016 and 2017 AMNPs, respectively and are discussed in Responses 55 and 56. The EPA approved the monitor placement for Harrington Station and Martin Lake Electrical Station. The TCEQ acknowledges that the area surrounding Martin Lake was designated nonattainment in December 2016 and that a monitor was deployed to determine compliance or progress towards compliance with the 2010 one-hour SO_2 primary standard. The TCEQ is meeting all regulatory SO_2 requirements in the DRR and in 40 CFR Part 58, Appendix D, Section 4.4.2.

The TCEQ does not agree with the commenter's assertion that additional modeling or a reevaluation of monitor placement is required under 40 CFR Part 51, Subpart BB or Part 58. Further, modeling and area designations are not components of the AMNP review required under 40 CFR §58.10 and are beyond the scope of this plan.

Comment 58: Earthjustice commented that the TCEQ should conduct additional

modeling based on the most recent three years of actual hourly emissions and meteorological data to ensure compliance with the SO_2 standard for W.A. Parish, San Miguel, and Coleto Creek or impose more stringent emission limits since the emissions have increased.

Response 58: Title 40 CFR §51.1205(b) requires agencies to annually assess SO_2 emissions changes for areas designated attainment/unclassifiable for the 2010 SO_2 NAAQS, where the designations were based on modeling actual SO_2 emissions; to provide an assessment of the cause of any emissions increase from the previous year; and to report a recommendation regarding whether additional modeling is needed. As stated in Appendix F of this plan, the emission data used for the original designation modeling were higher than subsequent year's reported emissions for the facilities in Atascosa, Fort Bend, and Goliad Counties. Since the higher emissions were modeled, the original designation modeling provides reasonable assurance that the areas continue to meet the 2010 SO_2 NAAQS. The TCEQ continues to recommend 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 AMNP Appendix F.

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

Comment 59a: A citizen commented that the TCEQ plan does not account for recent events revealing flaws in monitor placement and lack of understandable reporting. The citizen recommended installing monitors upwind and downwind of locations where the public needed medical attention and to analyze compounds and elements that are causing medical conditions. The citizen also recommended to install monitoring systems downwind of industrial point sources.

Response 59a: As stated in the introduction, the purpose of the AMNP is to demonstrate how the TCEQ network of federal air monitors meets federal air monitoring requirements. The AMNP is limited to federally funded monitors. The TCEQ also operates state-funded monitors and often locates these monitors to address local public health and welfare concerns; however, these monitors are outside the scope of the AMNP. Information and data from both federal and state-funded monitors are available to the public from the TAMIS database. Monitor placement for medical needs, emergency response, and point source monitoring is outside the scope of the AMNP.

Comment 59b: A citizen expressed concern about lead pollution, asking if aviation gasoline and octane improving products were produced at the sites of these recent events. The citizen advocated for carbon dioxide (CO_2) monitors for source identification and path. The citizen advocated reactivating the Kingwood (CAMS 309) particulate monitor and Kingwood Library (CAMS 0555) O_3 monitors.

Response 59b: These comments are outside the scope of the AMNP. The TCEQ acknowledges that monitoring was discontinued at Kingwood, as approved by the EPA in the 2016 AMNP, due to low concentrations and an assessment of area monitoring coverage. The Kingwood Library site, owned by Harris County, is not subject to this AMNP review.

Comment 59c: A citizen advocated measuring all emissions sources and reporting detailed health effects to the public. The citizen also recommended installing more GCs and $PM_{2.5}$ monitors in Houston due to the size of the city and amount of

petroleum processing in the area. The citizen commented that monitoring in Houston should be increased, not reduced.

Response 59c: Emission source measurements and health effects reporting are not components of the AMNP review under 40 CFR §58.10 and are outside the scope of this plan. Federal $PM_{2.5}$ requirements are based on population and the most recent three-year design value. As shown in AMNP Appendix C, monitoring in the Houston Metro area is exceeding federal monitoring requirements with 16 monitors. The TCEQ is also proposing the addition of a $PM_{2.5}$ continuous monitor to the Houston North Wayside site to improve population exposure coverage.

The TCEQ operates three federal and three state-funded autoGCs in addition to 12 state-funded VOC canister samplers in the Houston Metro area. The TCEQ also hosts autoGC data in TAMIS from four industry supported monitors. The TCEQ is exceeding the federal requirements for VOC monitoring in this area.

Comment 59d: A citizen requested that TCEQ not count meteorological stations as pollutant monitors and requested that real-time wind direction and wind speed be provided with every monitor.

Response 59d: The TCEQ does not count meteorological stations as pollutant monitors. The TCEQ has meteorological sensors at most air monitoring stations and provides sufficient meteorological data to support pollutant monitoring. The display and timing of air monitoring data are discussed in Response 3.

Comment 59e: A citizen requested that the TCEQ perform elemental analysis on all TEOM filters. The citizen requested particle size analyzers at all TEOM locations and that all filters be retained and analyzed for particle size distribution. The citizen requested that equipment be installed to measure ultrafine particles.

Response 59e: No federal regulations require speciation analysis of TEOM filters. This comment and comments related to particle size distribution analyses and ultrafine monitoring are beyond the scope of this plan.

Comment 59f: A citizen requested the TCEQ to monitor DIAL LIDAR (differential absorption light absorption and ranging) at all pollutant emitter fence lines and commented that recent emissions events show the need for current measurement systems such as remote sensing drones, DIAL LIDAR, and solar occultation.

Response 59f: This plan demonstrates the TCEQ's compliance with federal air monitoring requirements. Remote sensing drones, DIAL LIDAR, and solar occultation are beyond the scope of this plan.

Comment 59g: A citizen requested that the TCEQ release, report, and chart all data from all monitors in the AMNP. The citizen asked that the TCEQ report all monitoring data in real-time and 5-minute averages, in addition to the current 1-hour averages reported. The citizen requested that all numbers be shown and requested mapping for all pollutant source releases to landing destination in real-time and 5-minute, 15-minute, and 1-hour averages. The citizen commented that references to the Air Quality Index (AQI) should be stopped. The citizen recommended that TCEQ acquire and report all industry self-monitoring data. The citizen requested that the TCEQ publish all elemental and particle analyses performed using Texas funds. The citizen commented that vast amounts of data are not reported to the public.

Response 59g: Information regarding access and monitoring data reporting is included in Response 3. All federal $PM_{2.5}$ speciated data are available in the TCEQ TAMIS database. The EPA's AQI system and industry self-monitored data are not components of the AMNP review and are outside the scope of this plan.

Appendix O

Comments Received on the 2019 Annual Monitoring Network Plan

To View the Comments, see the Comments Section of this Portfolio