

Overview of Texas Air Quality Monitoring

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Laredo, Texas

June 27, 2019



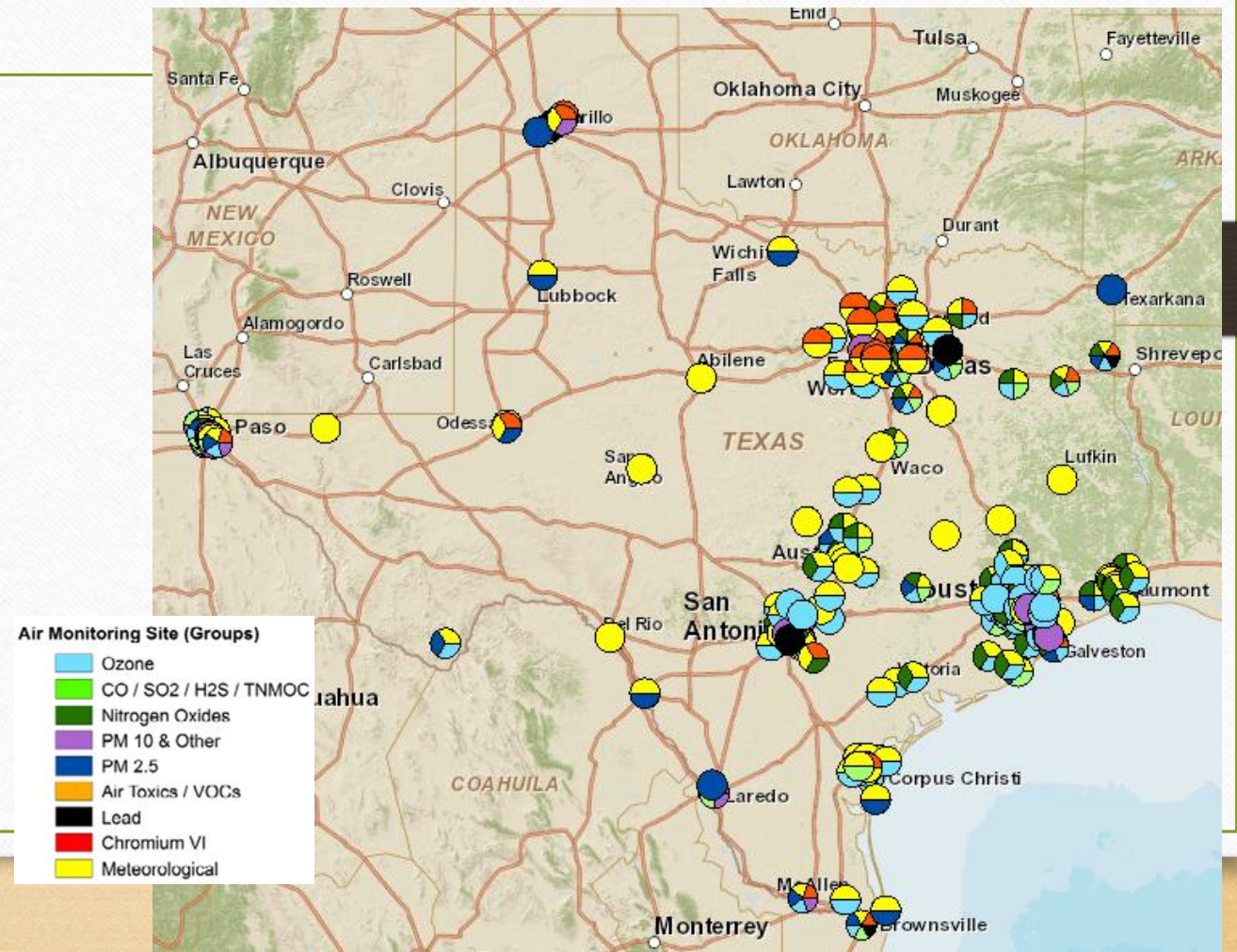
Monitoring Network Overview

- The Texas Air Monitoring Network consists of over 230 monitoring stations housing over 530 individual pollutant samplers across Texas.
- The State of Texas dedicates approximately \$13.5 million annually to air monitoring.



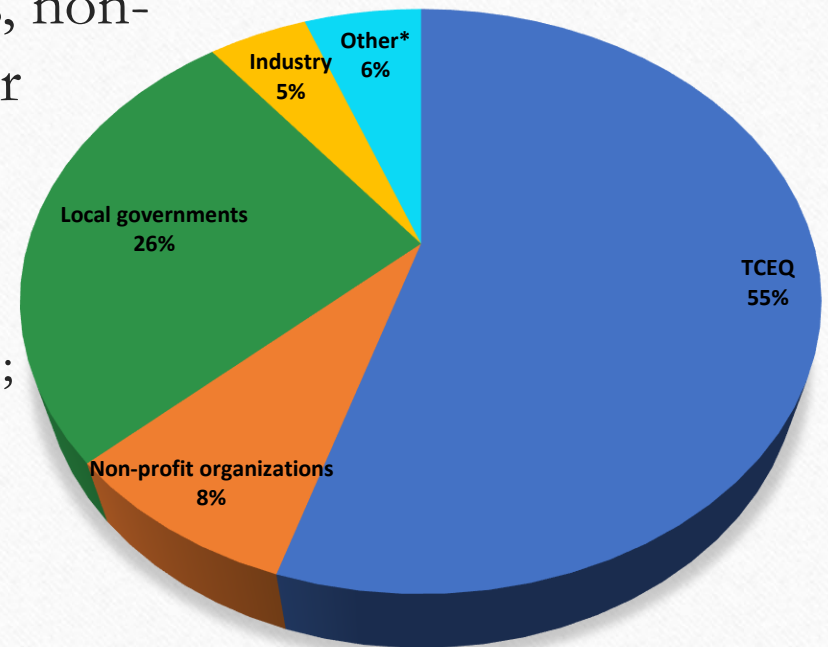
Monitoring Network Overview

- Monitoring is focused in areas with the highest population (Dallas- Fort Worth, Houston, Beaumont, El Paso).
- These are also areas with a heavy industrial presence and historical air quality issues.



Monitoring Network Overview

- TCEQ partners with local governments, universities, non-profit organizations, and industry to expand monitor coverage within the Texas Air Monitoring Network.
- Coordination with partner organizations includes:
 - operation of monitoring sites through contracts or grants;
 - data management;
 - data display; and
 - air monitoring studies.



* Other: US EPA, Universities, etc.

Monitored Pollutants

- Criteria Pollutants

- Ozone
- Nitrogen dioxide
- Carbon monoxide
- Lead
- Particulate matter
- Sulfur dioxide

- Air Toxics Pollutants

- Volatile organic compounds
- Metals
- Carbonyls
- Hydrogen sulfide
- Polycyclic aromatic hydrocarbons

Monitoring Objectives

- Each monitor is sited to achieve specific monitoring objective(s).
- Monitoring objectives may include:
 - assessing regional or area-wide pollutant concentrations;
 - measuring pollutant concentrations in populated areas; or
 - measuring pollutant concentrations near specific emission sources based on source type or size.

Monitor Placement

- Siting Criteria
 - Vertical/Horizontal
 - Sources
 - Obstructions
 - Roadways
- Logistics
 - Access
 - Space
 - Electrical power
 - Terrain



Types of Air Monitoring

- Continuous
 - Gaseous pollutants
 - Particulate Matter
 - Volatile Organic Compounds
 - Meteorology
- Non-Continuous
 - Particulate Matter
 - Air Toxics



Continuous Pollutant Monitoring



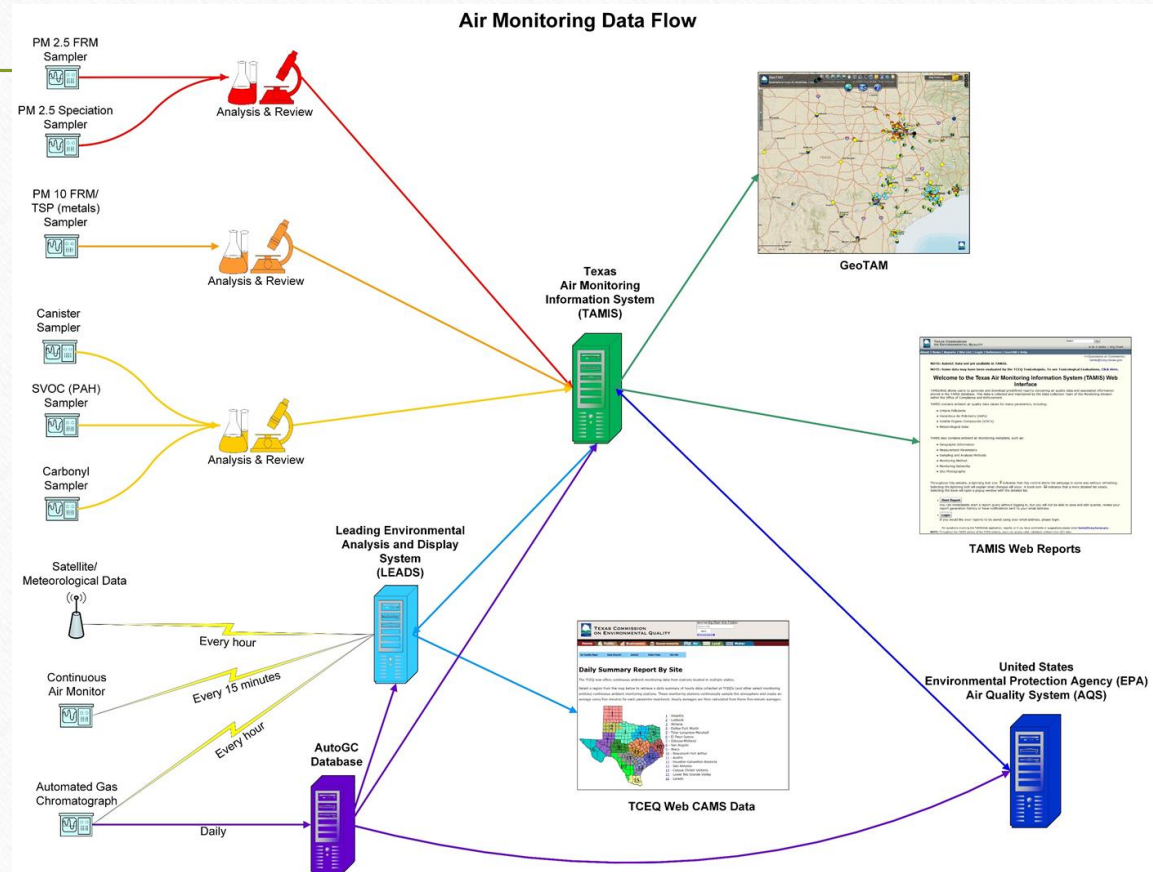
- Monitors continuously collect and analyze air samples to provide measurements in near-real time.
- Data are collected as 5-minute or hourly averages.
- Every 15 minutes, data are transmitted from the station to the TCEQ's database by wired or wireless connection.

Non-Continuous Pollutant Sampling

- Discrete samples taken over a set period of time on scheduled sample days.
- Filters and/or sample media are picked up from the air monitoring site and sent to a lab.
- The lab analyzes the sample and the data are loaded into the TCEQ's air monitoring database.



Data Collection



Air Monitoring Data Products

- Texas Air Monitoring Information System
 - Site Information
 - Data Reports
- Near-Real Time Data
- Air Quality Forecast
- GeoTAM

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Air Monitoring Home / Air Quality / Air Monitoring >> Questions or Comments: monops@tceq.texas.gov

Air Monitoring

The latest forecast for air quality conditions in Texas' metropolitan areas, and links to monitoring sites, meteorological and climatological data, data reports, ozone monitoring and chromatography satellite imaging.

Today's Air Quality

- Today's Texas Air Quality Forecast
- Air Quality Index: Table of Today's Pollution Levels in Texas' Metro Areas
- Current Texas Ozone Levels
- Current PM-2.5 Levels - Soot, Dust, and Smoke in Your Metro Area

✉ Air Quality Forecast and Ozone Action Day E-Mail Alerts
Sign up to receive e-mail alerts for several metropolitan areas throughout Texas.

Air Monitoring Sites

Maps, tables, and photos of air quality monitoring sites, plus parameters and measurements.

Data Reports

Air quality index reports; how to interpret them; search for hourly, daily, and monthly data by site, including particulate averages, lows, highs and summaries.

Ozone Monitoring

Learn about ozone reduction successes, actions to take that can help reduce ozone pollution, and find summaries and reports on one hour and eight hour standards, concentrations and averages.

Automated Gas Chromatography

Automated gas chromatographic data and monitoring site details, maps and images. Learn how AutoGCs work, their value and limitations.

Meteorological and Climatological Data

Current and historic air pollution and climatologic and meteorological data from monitoring networks; web camera images of visibility; and geostationary operational environmental and moderate resolution spectroradiometer satellite images, and wind data.

TCEQ Monitoring Network Plans and Lead Waiver Requests

Historical air-monitoring network plans, lead waivers, and EPA responses.

Air Quality Forecast

- Daily forecast for air quality conditions in Texas' metropolitan areas.
- Informs the public when conditions for elevated air pollution levels are expected.

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Today's Texas Air Quality Forecast

The latest forecast for air quality conditions in Texas' metropolitan areas.

November 27, 2017

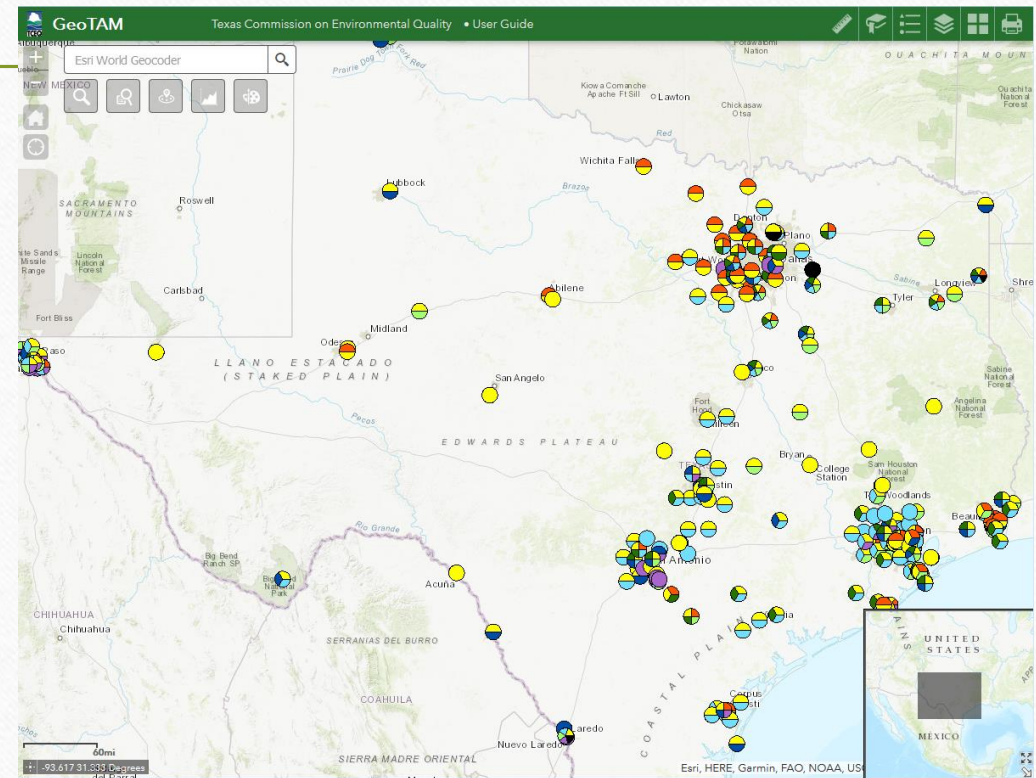
Forecast based on EPA's Air Quality Index (AQI)

Forecast Region (Click name for AIRNOW version)	Air Quality Index			
	Mon 11/27/2017	Tue 11/28/2017	Wed 11/29/2017	Thu 11/30/2017
Austin	PM2.5	Good	Good	Good
Beaumont-Port Arthur	PM2.5	Good	Good	PM2.5
Brownsville-McAllen	Good	Good	Good	Good
Corpus Christi	Good	Good	Good	Good
Dallas-Fort Worth	PM2.5	Good	Good	Good
El Paso	PM2.5/PM10	Good	PM2.5	Good
Houston	PM2.5	Good	Good	Good
Laredo	Good	Good	Good	Good
Lubbock	Good	Good	Good	Good
Midland-Odessa	Good	Good	Good	Good
San Antonio	Good	Good	Good	Good
Tyler-Longview	Good	Good	Good	Good
Victoria	PM2.5	Good	Good	Good
Waco-Killeen	Good	Good	Good	Good

http://www.tceq.texas.gov/airquality/monops/forecast_today.html

GeoTAM

- Interactive mapping application for Texas air quality monitoring
- Perform spatial searches for air monitoring sites from any coordinate or address
- View detailed information about air monitoring sites



Data Quality

- Calibrations and quality control checks are performed routinely to ensure data are of sufficient quality.
- Independent audits of instruments and operators conducted annually.



Control Checks & Audits



2.6 Equipment Calibration


Table 2.E lists the field equipment, calibration responsibility, calibration frequency, and the related SOPs. Analytical support equipment calibration is documented in associated laboratory SOPs, the DRI Quality Manual, and the DRI QAPP.

Table 2.E: Field Equipment Calibration Requirements

Equipment	Calibration Responsibility	Frequency	Standard Operating Procedure
Monthly Verification and Quarterly Audit Kits (includes reference orifices, thermometer, barometer, and manometer)	Equipment in the monthly verification and quarterly audit kits are calibrated by the DQT	Annually	CL-006-PAR, <i>Calibration and Verification of Barometers, Thermometers, Manometers, and White and Black Orifices</i>
BGI TetraCal for Monthly Verification and Quarterly Audit of URG3000N and Met One SuperSASS monitors	BGI TetraCals are calibrated by the DQT	Annually	CL-008-PAR (formerly CALP-027), <i>Flow Rate Verification and/or Calibration of a BGI TetraCal</i>



Meteostar [Click for forecast](#)



81°

Austin, TX
 Cloudy
 DEWPOINT: 68 °F
 PRESSURE: 30.07"
 WIND: SSE 9 mph
 VISIBILITY: 9.9 miles
 TIME: 12:53 PM CDT

[Set Different City](#)

Monitoring Division

Calibrations	Air Quality Maps	Data Reports	AutoGC	Water Data	Comms	Log Files	Configuration	Site Info
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Data Reporting Pages

Calibration Status Pages

- [LEADS Network Status Reports](#)
- [Last Cal/Span Report](#)
- [Cal/Span History](#)
- [Data Problems](#)
- [Upcoming/Overdue Cals](#)

[AQS Precision Transactions File](#)

General Reports

- [AQI \(Air Quality Index\) Ratings](#)
- [AQI Yearly Summary](#)
- [Current Values](#)
- [Current Hourly Averages](#)
- [Hourly Averages By Parameter](#)
- [Daily Summary By Site](#)
- [Daily Summary By Site \(map select\)](#)
- [Monthly Summaries](#)
- [Monthly Summaries \(map select\)](#)
- [Yearly Summaries](#)
- [Yearly Summaries \(map select\)](#)
- [Plot Hourly Values](#)
- [Plot Hourly Values - All Sites](#)
- [Pollution Data By Parameter](#)
- [CAMS Data Printout](#)
- [Five-Minute Quick Look](#)

Ozone Specific Reports

- [Map of Current Ozone Levels](#)
- [Map of Current 8-hr Ozone Levels](#)
- [Ozone Summary](#)
- [Ozone 1-Hour High Value Days](#)
- [Peak One-Hour Ozone](#)
- [8-hr Ozone Attainment](#)
- [Ozone 8-Hour 4 Highest](#)
- [Ozone 8-Hour Monthly Summary](#)
- [Ozone 8-Hour High Value Days](#)

Targeted Reports

- [SO2 Maximum 5-Minute Daily Values](#)
- [SO2 99th Percentile](#)
- [Map of Current 8-hr Carbon Monoxide Levels](#)
- [Map of Current SO2 Levels](#)
- [Map of Current NO2 Levels](#)
- [Map of Current 24-hr PM-2.5 Values](#)

AutoGC Data

- [Main AutoGC Data Pages](#)
- [Hourly Averages By Parameter](#)
- [Daily Summary By Site](#)
- [Monthly Summaries](#)
- [Yearly Summaries](#)

Water Data

- [Daily Report](#)
- [Current Values](#)
- [Current Hourly Averages](#)
- [Hourly Averages By Parameter](#)
- [Daily Summary By Site](#)
- [Daily Summary By Site \(map select\)](#)

Special Studies

[Helotes PM-2.5 Levels](#)
[Near Real-Time Cameras](#)
[Test Area](#)
[Fuel Cell Demo](#)
[Air Conditioner Study](#)

Data Return/Loss

[Data Return](#)
[Data Loss](#)
[Discrete Data Loss](#)
[Missing/Unexpected Data](#)

Validator Tools

[Create AQS Reports](#)
[Maintain AQS Exclusions](#)
[Retrieve AQS Reports](#)

[Manual Override](#)

Status Pages**On-Line Documentation****Communications**

[Comm Problems](#)
[Comms Report](#)
[Connectivity](#)
[Instant Net Status](#)
[Raw Comms Log](#)
[CAMS Phone List](#)

[Comm Problems Exclusions](#)

[AIRNow Export Status](#)

Log Files

[Error Logs](#)

[Air Operator Logs](#)
[Add Air Operator Log](#)
[Water Operator Logs](#)
[CAMS Operator Logbook Report](#)
[Add CAMS Operator Logbook Entry](#)

[Validator Notes](#)

[Current Status](#)

[EMRS Alert Stats](#)

Configuration

[EPA Site Definitions](#)
[CAMS Definitions](#)
[Noncontinuous Monitor Assignments](#)
[Legacy EPA Site Defs](#)
[Legacy CAMS Defs](#)
[Site Type Definitions](#)

[Mapping Configuration](#)
[Water Mapping Configuration](#)

[Ozone Forecast Seasons](#)
[EMRS Alert Configuration](#)

[Maintenance Messages](#)

Site Info

[Air Site Info](#)
[Air Site Photos](#)
[Air Monitors](#)

[Water Site Info](#)
[Water Site Photos](#)
[Water Monitors](#)

[Monitor Status](#)
[Settings Status](#)
[Shutdown Range Status](#)
[Monitor Summary](#)
[Site Summary](#)
[Metro Areas](#)

System Tools

[Reset DigestAuth Password](#)
[Check Validation Status](#)
[Contact Manager](#)
[H/W Tracker](#)
[LEADS Derived Config](#)
[Who Is Logged In](#)
[Compiled File Status](#)
[Audit File Status](#)
[Data Extractor](#)
[Database Dump](#)
[AQI Calculator](#)
[Elevation Data](#)
[Data Logger Checksum](#)
[Error Word Decoder](#)

Training Material

[Operating Procedures](#)
[Worksheets and Docs](#)
[PMI Manual](#)
[Site AutoCAD Schematics](#)
[Air Laboratory Forms !\[\]\(693cd06aa2257bed54e2c00e9f50c2b6_img.jpg\)](#)
[IMD Link !\[\]\(0bcfa979f4064ffb5064c6dd16fe00ac_img.jpg\)](#)

[Warehouse Requisition Form Rev1 !\[\]\(61d64536e85739322d9c2bb1cdaa1535_img.jpg\)](#)
[Warehouse Requisition Form Part Numbers !\[\]\(6731cebf3d558bbe868b6913b543cb90_img.jpg\)](#)



[New LEADS Server !\[\]\(3f5cedcd326f2732e525cd3d4d897525_img.jpg\)](#)
[VPN Access Levels !\[\]\(006ac65e6831adafe231ea8b16534dd3_img.jpg\)](#)



Preventive Maintenance Instructions

The following table is a listing of Preventive Maintenance Instructions that are available on-line. Please check this page regularly for updates. Compare the revision and older document, you must replace it with the new revision. Remember, you must have a complete and current copy of the PMI manual available in every station, or it will not work.

You can download any of the LEADS on-line documents in one or more formats: portable document format (PDF) or in the native document format (if available). Native formats include Microsoft Word 97/2003, Microsoft PowerPoint 2007+, Microsoft Excel 97/2003, Microsoft Excel 2007+, Quattro Pro, Corel WordPerfect 8, or Corel Presentation 8, ASCII text, and several other formats. You will need a computer that can read the native formatted documents in order to see them.

Section No.	Title	Pages	Revision	Date
	00-PMI Manual Cover Download it: Word (283,648 bytes)	1	2016	0416
	01-Introduction Download it: Word 2007+ (28,401 bytes)	2	2016	0416
	02-Equipment List Download it: Word (29,696 bytes) Word 2007+ (18,679 bytes)	2	2017	1217
	PMI Manual Back Cover Download it: Word 2007+ (11,196 bytes)	1	2016	0416
	Table of Contents Download it: Word 2007+ (25,745 bytes)	2	2018	0417 
PMI 03	pmi03-Replacement of Air Conditioning Unit Return Air Filter Download it: Word 2007+ (20,651 bytes)	1	3	0416
PMI 04	pmi04-Ambient Sample Line Replacement Download it: Word 2007+ (21,072 bytes)	1	5	0416
PMI 04	pmi04-Analyzer Sample Inlet Particulate Filter Replacement O3 NOx SO2 CO H2S TNMOC Download it: Word 2007+ (23,650 bytes)	1	6	0618 
PMI 05	pmi05-Exhaust Scrubber Download it: Word 2007+ (22,522 bytes)	1	3	0416
PMI 06	pmi06-Column Conditioning Routine Download it: Word 2007+ (22,459 bytes)	1	3	0416
PMI 07	pmi07-UPS Battery Test Download it: Word 2007+ (23,112 bytes)	1	4	0416
PMI 08	pmi08-BAM 1020 Air Conditioner Cleaning Download it: Word 2007+ (17,989 bytes)	1	1	0416
PMI 08	pmi08-BAM 1020 Air Conditioner Filter Replacement and Cleaning Download it: Word 2007+ (16,905 bytes)	1	1	0416
PMI 08	pmi08-BAM 1022 1st Stage PM10 Inlet Cleaning Download it: Word 2007+ (29,535 bytes)	1		1217
PMI 08	pmi08-BAM 1022 Background Testing Download it: Word 2007+ (31,592 bytes)	1		1217

Preventive Maintenance Instructions (PMI)

Texas Commission on Environmental Quality
Preventive Maintenance Instruction Manual

PMI #08-030

Maintenance Instruction 08-030: BAM 1020 Air Conditioner Filter Replacement and Cleaning

Frequency: Monthly

Time required at site: 5 minutes for filter check/change

Time required off-site for filter cleaning: 15 minutes

Supplies Necessary:

Spare filter part #26-020, 2)

A/C filter spray cleaner part #26-021

Water

Water hose.

Safety: 1) Safety glasses or face shield. 2) Rubber or latex gloves

Procedure:

1. Determine if both sides of the filter have been used. Only the top half of the filter is used. If the bottom half has not yet been used, flip the filter to use the clean half.
2. If both halves of the filter have been used, replace the filter.
3. Transport the used filter to a location with water source and clean the filter.

PMI 08-090 Internal Nozzle Cleaning



Data Uses

- Determining compliance with federal air quality standards
- Evaluating pollutant trends or behavior
- Forecasting daily air quality conditions
- Performing air quality and human health impact studies
- Informing regulatory decisions
- Unexpected events

Data Limitations

- Specific source contributions
 - Ambient monitors are impacted by all sources
- Concentrations between monitors
- Concentrations on non-sampling days
- Lag time
- Available technology










Current Air Monitoring Sites in the Border

- El Paso
- Big Bend National Park
- Eagle Pass
- Laredo
- Rio Grande Valley

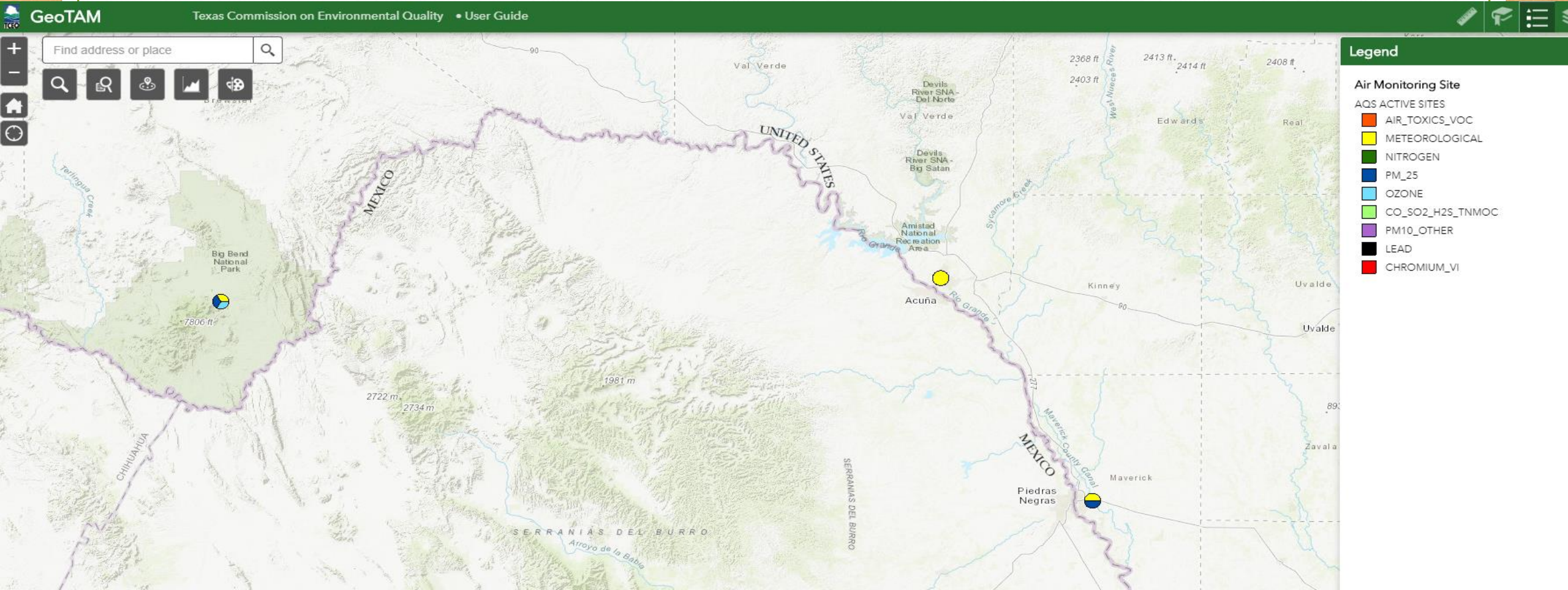
Legend

Air Monitoring Site

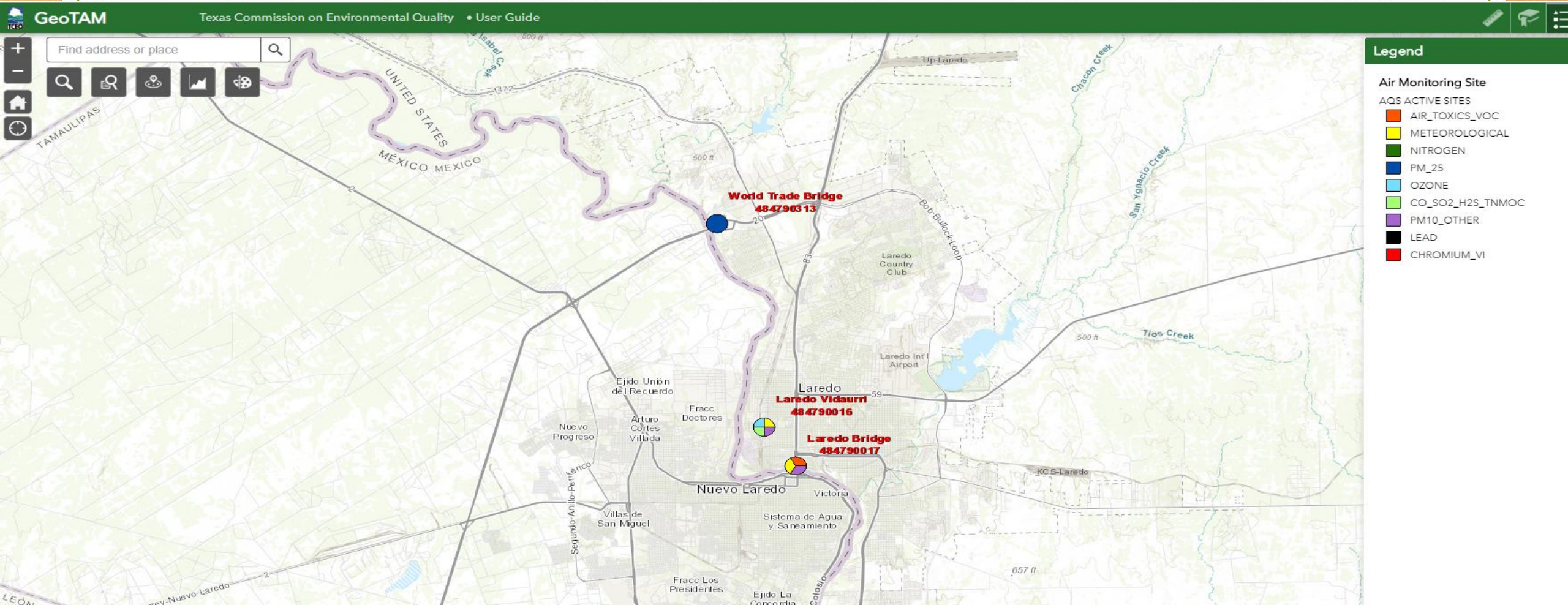
AQS ACTIVE SITES

-  AIR_TOXICS_VOC
-  METEOROLOGICAL
-  NITROGEN
-  PM_25
-  OZONE
-  CO_SO2_H2S_TNMOC
-  PM10_OTHER
-  LEAD
-  CHROMIUM_VI

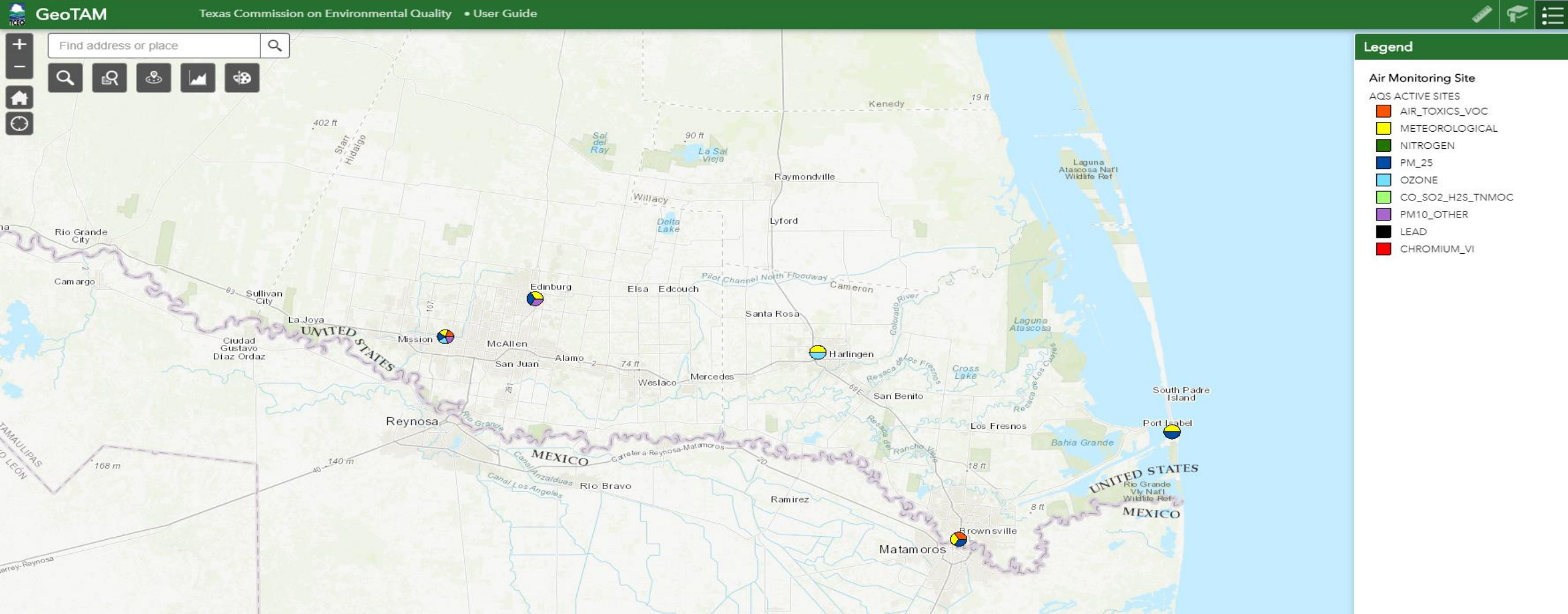
Big Bend and Eagle Pass



Laredo



Rio Grande Valley



Questions?

Patricia De La Cruz

Patricia.delacruz@tceq.texas.gov

512-230-3610



*“As long as we continue to breath,
we have the responsibility to monitor the quality of
the air we and our children will continue to breath”*