State of Arizona Air Monitoring Network Plan

For the Year 2016

Arizona Department of Environmental Quality

Air Quality Division

Air Assessment Section

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Table of Contents

1.0 INTRODUCTION 1
1.1 Executive Summary 3
1.2 Site Closures 3
1.3 New Sites Planned 3
1.4 Past Network Changes 4
1.5 Planned Network Changes 5
2.0 ADEQ PROGRAM AND NETWORK DESCRIPTIONS 7
2.1 NAAQS Compliance Network 7
2.2 State Implementation Plan (SIP) and Maintenance Area Network 7
2.3 Source-Oriented Network 8
2.4 NCore Network 8
2.5 Meteorological Network 8
2.6 Photochemical Assessment Monitoring Stations (PAMS) 8
2.7 National Air Toxics Trend Sites (NATTS) 9
2.8 Chemical Speciation Network (CSN) 9
2.9 Class 1 Area Network and IMPROVE Program 9
2.10 AirNow Reporting 10
2.11 Urban Haze Network 10
2.12 E-BAM Network of $PM_{2.5}$ Special Purpose Monitors 10
2.13 Arizona / Mexico Border Network 11
3.0 MONITORING NETWORK EVALUATION 12
3.1 Site Closures 12
3.2 New Sites Planned 12
3.3 Past Network Changes 13
3.4 Planned Network Changes 14
4.0 ADEQ MONITORING NETWORKS 16
4.1 $PM_{2.5}$ Monitoring Network Requirements 16
4.2 PM_{10} Monitoring Network Requirements 18
4.3 O_3 Monitoring Network Requirements 19
4.4 Pb Monitoring Network Requirements 20
4.5 SO_2 Monitoring Network Requirements 21
4.6 NO_2 Monitoring Network Requirements 22
4.7 CO Monitoring Network Requirements 23
4.8 PAMS Monitoring Network Requirements 23
4.9 NCore Monitoring Network Requirements 25
4.10 NATTS Monitoring Network Requirements 26
4.11 CSN Monitoring Network Requirements 26
4.12 SIP Monitoring Network Requirements 27
4.13 Source Compliance Monitoring Network Requirements 28
4.14 Class 1 Visibility Network 29
4.15 Urban Haze Monitoring Network 29
4.16 Meteorology Monitoring Network 30
5.0 QUALITY ASSURANCE 32
5.1 EPA QA Reports and Network Performance 33
5.2 EPA Data Reports 33
Appendix A – Definitions and Abbreviations 1

Appendix B – Network Maps 1
Appendix C – Current Monitors by Program or Network 1
Appendix D – Site Information Data Tables 1
Appendix E – Criteria Pollutant Minimum Monitoring Requirements 1
Appendix F – Letters to EPA 1
Appendix G – ADEQ's Air Quality Monitoring Role in Arizona 1

1.0 INTRODUCTION

This document fulfills the obligation, under the Code of Federal Regulations (CFR), Title 40, § 58.10(a), requiring the Arizona Department of Environmental Quality (ADEQ) to complete and submit to the United States Environmental Protection Agency (EPA) an annual monitoring network plan for the year 2016.

This plan informs EPA Region 9 of the monitoring activities ADEQ has implemented since July 2014, as well as activities ADEQ will undertake through December 2016. However, some changes may occur after the plan is published and approved due to unforeseen events at monitoring sites, funding changes, or changes in EPA monitoring requirements. Data from ADEQ's monitors are reported to EPA's Air Quality System (AQS) database and to EPA's public air quality information website, AirNow. In 40 CFR Part 51, EPA requires states to create, submit, and adopt State Implementation Plans (SIPs) to address the various issues and responsibilities involved with creating and implementing air quality programs. 40 CFR Part 51 Subpart J specifies that 40 CFR Part 58 Subpart C contain the requirements for establishing air quality surveillance systems to monitor ambient air quality.

Air quality surveillance systems consist of networks of monitors located at carefully selected physical locations referred to as sites or stations. The networks, sites, and monitors include:

- NAAQS (National Ambient Air Quality Standards) Compliance network or the State and Local Air Monitoring Stations Network (SLAMS) – measures the criteria pollutants for demonstrating compliance to the standard
- State Implementation Plan (SIP) specific network – tracks compliance in areas that are currently in nonattainment or in areas where on-going demonstration of maintenance is required
- Source-Oriented network – requires several major point sources in the state to conduct ambient monitoring for criteria pollutants as outlined in their permit
- NCore (National core multipollutant monitoring stations) Network – a nationwide multipollutant network that integrates several advanced measurement systems for particles, pollutant gases, and meteorology (MET)
- Photochemical Assessment Monitoring Stations Network (PAMS) – enhanced monitoring of ozone (O_3) to obtain comprehensive and representative O_3 and precursor data
- National Air Toxics Trends Station Network (NATTS) – to monitor and record the concentrations of EPA identified air toxics on a national scale
- Chemical Speciation Network (CSN) – for monitoring speciated PM2.5 (particulate matter less than 2.5 microns) to determine the chemical composition of these particles on a national scale
- The Interagency Monitoring of Protected Visual Environments (IMPROVE) – tracks visual impairment in specified national parks and wilderness areas
- Phoenix Urban Haze Network – to provide State and Local policy-makers and the public with information regarding the urban haze levels
- ADEQ's Smoke Management Network – provide continuous, real-time particulate concentration data that is useful for making smoke management decisions related to prescribed burns and wildfire monitoring
- Arizona / Mexico Border Network – to review the air quality monitoring data and air monitoring networks in rural and urban areas along the border
- Meteorological Network – to support the analysis of ambient air quality data

This Annual Monitoring Network Plan identifies the purpose(s) of each monitor and provides evidence that both the siting and the operation of each monitor meets the requirements in 40 CFR Part 58 Appendices A, C, D, and E as follows:

- 40 CFR 58 Appendix A – Quality Assurance Requirements for SLAMS, special purpose monitors (SPMs), and Prevention of Significant Deterioration (PSD) Air Monitoring
- 40 CFR 58 Appendix C – Ambient Air Quality Monitoring Methodology
- 40 CFR 58 Appendix D – Network Design Criteria for Ambient Air Quality Monitoring
- 40 CFR 58 Appendix E – Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring

The results of the annual network review and planning are used to determine how well the networks are achieving their required air monitoring objectives, how well they meet data users' needs, and how they should be modified to continue meeting their objectives and data needs. Modifications can include the termination of existing stations, relocation of stations, establishment of new stations, monitoring of additional parameters, and/or changes to the sampling schedule. The annual network review and planning are performed for the purpose of improving the monitoring networks and ensuring that they provide adequate, representative, and regulatory compliant air quality data.

1.1 Executive Summary

The purpose of this executive summary is to state the status of the ADEQ's monitoring network, the compliance with regulatory requirements, and to outline any planned or past changes to the monitoring network.

ADEQ's main monitoring objective is to measure the criteria pollutants regulated under the Clean Air Act (CCA) as National Ambient Air Quality Standards (NAAQS). ADEQ supports or operates many different state and national networks which help improve air quality in Arizona and nationwide. ADEQ continually strives to protect and enhance public health and the environment in Arizona through ambient air quality monitoring.

ADEQ fulfills all the monitoring requirements as stated in 40 CFR Part 58, in any State or Local laws, and according to the EPA administrator with regards to data quality and assurance, siting and sampling criteria, annual data certification, and minimum monitoring requirements for all networks.

Past and future changes to the ambient monitoring network as outlined in this Annual Network Plan are for the time period of July 2015 – December 2017. Any additional changes not outlined here will be requested to EPA Region 9 for their approval. ADEQ may change the plans according to new rules or direction from ADEQ management or the EPA administrator and includes these changes in the subsequent Annual Network Plan. Also included in the 2016 Network Plan are the plans for network modifications based on the 2015 5-Year Network Assessment. These plans are included in Table 1.5-1 and 3.4-1 and noted as such.

1.2 Site Closures

Prescott College AQD – ADEQ plans to close the Prescott College site by January 1, 2017. The current building on the Prescott College campus is not a viable location for long term monitoring. The building is being considered for demolition and it is in the best interest of ADEQ to relocate the monitor elsewhere. A comparison study with the new site will be conducted if possible.

Vehicle Emissions Laboratory – Our Vehicle Emissions Laboratory site was sold and immediate removal of the equipment was necessary. The PAMS required equipment was relocated to JLG Supersite, a PAMS site, on April 28, 2016. The Delta Temperature system was discontinued as it is not part of PAMS requirements and is not being used internally or externally. The nephelometer is part of the ADEQ Urban Visibility network and was also relocated to JLG supersite. Since JLG Supersite already has an anemometer and Temp/RH probe, these sensors were not relocated.

Dysart and Estrella – ADEQ plans to discontinue monitoring at these sites on July 1, 2016. The nephelometers and Temp/RH probe at these sites are part of the ADEQ Urban Visibility network created for a visibility index in the Phoenix metropolitan area. The visibility index was created in 2003 by Arizona House Bill 2538. The Dysart and Estrella nephelometers are not used for the visibility index nor for quality assurance purposes and are not used internally or externally any longer. Therefore, eliminating these instruments will result in a cost savings without any reduction in data quality or data loss. The Dysart site is also a Maricopa County monitoring location which will continue to be operated and will be unaffected by the removal of ADEQ's equipment.

1.3 New Sites Planned

Prescott, AZ – ADEQ will open a new site in Prescott for the O_3 monitor. Approval from the Yavapai County Board of Supervisors was received on April 6, 2016 to place a monitor on county property. The new O_3 monitor is planned to be added by July 1, 2016. The location will be near the Pioneer Park at the Yavapai County Jeep Posse house, 1200 Commerce Drive, Prescott, AZ 86305. GPS coordinates are N 34.6122, W 112.4635. The new site will be able

to be accessed at any time without the need to enter another property which aids in increased instrument and data confidence. A comparison study with the Prescott College AQD will be conducted if possible.

1.4 Past Network Changes

Table 1.4-1 Instrument Changes Made from July 2015 through June 2016

Site Name	Monitors	Date of Change	Description
Nogales Post Office	PM_{10} and $PM_{2.5}$	6/30/15	Two of the collocated filter PM instruments were removed. The collocation requirements for both the PM_{10} and $PM_{2.5}$ networks are met without these instruments
Rillito	PM_{10}	9/19/15	Replaced TEOM (Tapered Element Oscillating Membrane) for BAM (Beta Attenuation Monitor). By unifying the PM sampling networks with the same instruments, ADEQ can better perform its mission and will save on operating and instrumentation costs
Miami Ridgeline	PM_{10}	10/1/15	Removed permit requirement for monitoring. See Appendix F of this document for removal request letter and EPA R9 response
Douglas-Nogales	IMPROVE	10/24/15	The IMPROVE was relocated to Nogales Post Office from Douglas Red Cross after stakeholder input
Miami Golf Course	PM_{10}	11/10/15	Replaced TEOM for BAM
Bullhead City	PM_{10}	12/16/15	Replaced TEOM for BAM
Hillcrest	Lead (Pb)	1/1/16	New site and Pb instrument. The Pb instrument is classified as an SPM to determine the max concentration area in Hayden, AZ. See Appendix D for a full site description and justification
Yuma	PM_{10}	1/21/16	Replaced TEOM for BAM
Hayden Old Jail	PM_{10}	2/11/16	Replaced TEOM for BAM
Paul Spur Chemical Lime Plant	PM_{10}	2/23/16	Replaced TEOM for BAM
Alamo Lake	SO_2 (sulfur dioxide)	3/22/16	Removed the SPM SO_2 at Alamo Lake prior to two years of monitoring
Vehicle Emissions Laboratory	Meteorological measurements	4/28/16	The equipment was either relocated to JLG Supersite or discontinued
Douglas Red Cross	PM_{10}	5/5/16	Replaced TEOM for BAM
Alamo Lake	NO_2 (nitrogen dioxide)	June 2016	Removed the SPM NO_2 at Alamo Lake prior to two years of monitoring

1.5 Planned Network Changes

Table 1.5-1 Instrument Changes Planned for July 2016 to December 2017

Site Name	Monitors	Planned Date of Change	Description
Alamo Lake	CO (carbon monoxide)	7/1/16	A Teledyne API T300u CO analyzer was installed in July 2016 and designated as a special purpose monitor (SPM)
Estrella and Dysart	Nephelometer	7/1/16	Planned closure of the Estrella site and the removal of ADEQ's equipment at the Dysart site
New Prescott Site	O_3	7/1/16	The still unnamed Prescott site will be located near Pioneer Park and is planned to start monitoring on July 1, 2016
JLG Supersite	PM_{10}-Pb	1/1/17	Removal of the certifying requirement for the PM10-Pb. The instrument and data will still remain due to NATTS requirements
Prescott College	O_3	1/1/2017	Closure of the Prescott College AQD site
Bullhead City*	$PM_{2.5}$	Starting 2017	ADEQ plans to conduct a $PM_{2.5}$ Study using low cost sensors to be located at the current Bullhead City site starting in 2017 for a minimum of 1 year. Study area based on the 5-Year Network Assessment
Miami, AZ Non-attainment area*	SO_2	Completed by 2020	Consolidation of the three sites in Miami based on the 5-Year Network Assessment
Quartzite*	PM_{10}	Completed by 2020	ADEQ plans to conduct a PM_{10} study using low cost sensors to be completed by 2020. Study area based on the 5-Year Network Assessment
Kingman*	PM_{10}	Completed by 2020	ADEQ plans to conduct a PM_{10} study using low cost sensors to be completed by 2020. Study area based on the 5-Year Network Assessment
Benson/Willcox*	PM_{10} and $PM_{2.5}$	Completed by 2020	ADEQ plans to conduct a western Cochise County PM study using low cost sensor to be completed by 2020. Study area based on the 5-Year Network Assessment

Statewide*	O_3	Completed by 2020	ADEQ acknowledges that O_3 is a local, regional, and international issue resulting in significant transport into and across much of Arizona. ADEQ also recognizes the importance of providing the public education regarding O_3 and what actions they can take to protect themselves and positively affect air quality. ADEQ will form a workgroup to determine the best course of action for O_3 outreach. We believe it prudent to perform outreach across the state, regardless of an areas' attainment status, in order to educate and encourage the public to take actions, even if only voluntary, to help minimize their O_3 contribution, improve air quality, and protect public health. We envision that the outreach may include coordination with other agencies and health departments inside and potentially outside of the state, education and promotion of O_3 data and forecasting resources available both from Arizona and from neighboring states, and the promotion of voluntary public measures to decrease local O_3 precursors. ADEQ will form the workgroup during the calendar year 2017 and implementation of the outreach program will be started by 2020

***These areas and pollutants of interest were identified by the 2015 5-Year Network Assessment**

2.0 ADEQ PROGRAM AND NETWORK DESCRIPTIONS

ADEQ operates ambient air quality equipment for a variety of Federal and State monitoring programs. Detailed descriptions of the equipment deployed for each monitoring program are presented in Appendix C of this Network Plan. The equipment is grouped by monitoring program or network to easily compare instrument specifics. Appendix D of this Network Plan lists information on each of ADEQ's current monitoring sites, including those sites which ADEQ shares with other agencies or serves as the local site operator. General information about the monitoring programs in which ADEQ participates is described in the following sections.

2.1 NAAQS Compliance Network

ADEQ's National Ambient Air Quality Standards (NAAQS) compliance network, also called State and Local Air Monitoring Stations (SLAMS), consists of monitoring sites operated for the purpose of demonstrating compliance with the NAAQS for the "criteria" pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). For each of these pollutants, EPA has established national air quality standards to protect public health. The criteria pollutants are measured using instruments designated by EPA as Federal Reference Methods (FRM) or Federal Equivalent Methods (FEM). 40 CFR Part 58 specifies the minimum requirements for determining NAAQS compliance including the following network and site criteria:

- Number and types of monitors required per Metropolitan Statistical Area (MSA) by pollutant
- Objectives and spatial scales
- Sampling frequency
- Collocation
- Special NCore-related requirements
- Meteorology
- Probe location and other restrictions within a site
- Periodic performance evaluations (PE)
- Quality Assurance
- Data reporting

2.2 State Implementation Plan (SIP) and Maintenance Area Network

ADEQ maintains several air monitoring sites for the purpose of tracking compliance in areas that are currently in nonattainment for one or more of the NAAQS, and in areas where the NAAQS have been met but on-going demonstration of maintenance is required. Specific monitoring requirements for each of these areas are described in their respective SIPs and/or Maintenance Plans.

2.3 Source-Oriented Network

Several major point sources in the state are required to conduct ambient monitoring for criteria pollutants, primarily PM_{10} and SO_2, as part of their air quality permit. ADEQ serves as the governing body for these sites and performs semi-annual and annual audits of some of the monitors. Some of the source-generated data from these sites have been submitted to AQS.

2.4 NCore Network

EPA describes the nationwide NCore network, which is composed of approximately 70 urban and 20 rural sites, as a multipollutant network that integrates several advanced measurement systems for particles, pollutant gases, and meteorology. Some objectives of the NCore network include:

- Tracking long-term trends of criteria and non-criteria pollutants;
- Support for long-term health assessments which contribute to ongoing reviews of the NAAQS;
- Support to scientific studies ranging across technological, health, and atmospheric process disciplines; and
- Support to ecosystem assessments recognizing that national air quality networks benefit ecosystem assessments and, in turn, benefit from data specifically designed to address ecosystem analyses.

As required by 40 CFR Part 58.13, ADEQ's NCore site, JLG Supersite, was operational by January 1, 2011. In addition to the above missions and the NCore monitoring requirements set forth in the 40 CFR Part 58.13, ADEQ will use the JLG Supersite to test new technologies in various ADEQ monitoring networks. Examples include advanced communications and serial data collection, remote zero/span/precision (Z/S/P) checks and calibrations, high sensitivity instruments, and instruments that monitor additional pollutants that may be added to current CFR requirements. Additional NCore information is available from the EPA website: http://www.epa.gov/ttn/amtic/ncore/index.html

2.5 Meteorological Network

ADEQ collects meteorological data at sites throughout the state to support the analysis of ambient air quality data and to provide support for exceptional event reporting. Meteorological measurements are also required for the NCore and PAMS networks. ADEQ continues to add meteorological instrumentation to most of ADEQ's monitoring sites that were not previously equipped, and for which there are adequate facilities to support the meteorological tower and equipment. ADEQ currently meets the meteorological monitoring requirements for the NCore and PAMS networks.

2.6 Photochemical Assessment Monitoring Stations (PAMS)

Section 182(c)(1) of the 1990 Clean Air Act (CAA) Amendments requires the Administrator to promulgate rules for enhanced monitoring of O_3 that includes concurrent monitoring of O_3, oxides of nitrogen (NO_x), total reactive nitrogen (NO_y), speciated volatile organic compounds (VOC), carbonyls, CO, and meteorology to obtain comprehensive and representative O_3 data. Immediately following the promulgation of those rules, ADEQ began to implement a program to improve ambient monitoring activities related to the precursors of O_3. The subsequent revisions to 40 CFR Part 58 (1993) required states to establish PAMS as part of their monitoring networks in O_3 nonattainment areas classified as serious, severe, or extreme. The principal reasons for requiring the collection of additional ambient air pollutants and meteorological data are the widespread nonattainment of the O_3 NAAQS and the need for a more comprehensive air quality database for O_3 and its precursors.

EPA issued a final rule for a reengineering as the PAMS program in October 2015 as part of the 2015 O_3 NAAQS Revision. ADEQ will continue to operate a PAMS program under this new rule at JLG Supersite which is collocated with the JLG Supersite NCore site as required. Additional monitoring for O_3 precursors will be addressed in an Enhanced monitoring plan for the Phoenix-Mesa-Scottsdale MSA.

2.7 National Air Toxics Trend Sites (NATTS)

The NATTS network was designed to monitor and record the concentrations of EPA identified air toxics on a national scale. Data from EPA's national monitoring activities are used to estimate national average concentrations for these air toxics compounds and to detect trends. Using this information, EPA, states, and local agencies can estimate changes to human exposure from air toxics. Detection of increased human toxicity risk can then be used to support changes in environmental policy. As part of the National Air Toxics Assessment (NATA) process, ambient air quality data are used to assess the national toxics inventory and long-term hazardous air pollutant (HAP) trends. ADEQ's JLG Supersite is the designated NATTS site for the Phoenix-Mesa-Scottsdale MSA with an additional site at South Phoenix designated as an urban air toxics monitoring program site.

2.8 Chemical Speciation Network (CSN)

The CSN was established to meet the regulatory requirements for monitoring speciated $PM_{2.5}$ to determine the chemical composition of these particles. The purpose of the CSN is to determine, over a period of several years, trends in concentration levels of selected ions, metals, carbon species, and organic compounds in the $PM_{2.5}$ samples collected at select sites throughout the country. The program began in 1999 with 54 Speciation Trends Network (STN) sites across the nation located primarily in or near larger MSAs. The network has increased to around 200 sites nationwide. $PM_{2.5}$ speciation monitoring at JLG Supersite includes two CSN $PM_{2.5}$ speciation samplers. The collocated IMPROVE samplers provide precision and bias information for the IMPROVE network and the data are reasonably comparable to the CSN speciation data. In 2009, the URG 3000N sampler was added at JLG Supersite for collecting the carbon sample in lieu of the Met One SuperSASS, which had been used to collect all three types of filter samples e.g. Quartz, Teflon, and Nylon. The laboratory analysis method for carbon samples collected by the URG also changed. These changes to the CSN program's monitoring and analytical design were geared toward more closely matching the carbon analytes from the CSN sampler to those collected via the IMPROVE network.

2.9 Class 1 Area Network and IMPROVE Program

The rural visibility monitoring network tracks visual impairment in specified national parks and wilderness areas. These parks and wilderness areas are called federally mandatory Class 1 areas and were designated based on an evaluation required by Congress in the 1977 Federal CAA Amendments. The evaluation, performed by the United States Forest Service (USFS) and National Park Service (NPS), reviewed the areas of parks and national forests, which were designated as wilderness before 1977, were larger than 6,000 acres, and to which visibility was an important resource for the visitor experience. Of the 156 Class 1 areas designated across the nation, 12 are located in Arizona. Nine Class 1 areas are located in USFS land and three in NPS land. EPA initiated the nationally-operated IMPROVE monitoring network in 1987, whose purpose is to characterize broad regional trends and visibility conditions using monitoring data collected in or near Class 1 wilderness areas across the United States. Ten Class 1 IMPROVE sites were originally placed in and around these Class 1 areas. Additionally, ADEQ has added five other IMPROVE sites identified as Protocol sites. Refer to section 4.14 and the map in Appendix B for additional details regarding ADEQ's Class 1 Visibility and IMPROVE networks. Additional resources can be found at http://vista.cira.colostate.edu/improve/.

2.10 AirNow Reporting

ADEQ reports near real-time data from its continuous air quality monitors to the AirNow system. The AirNow system is a set of near real-time public maps which report an Air Quality Index (AQI) for the six major air pollutants regulated by the CAA. These pollutants are: ground-level O_3, PM_{10}, $PM_{2.5}$, CO, SO_2, and NO_2. The purpose of the AQI is to help understand what local air quality means to your health. To make it easier to understand, the AQI is divided into six color coded categories: Good, Moderate, Unhealthy for Sensitive Groups, Unhealthy, Very Unhealthy and Hazardous. The AQI format is used by local weather forecasters, medical facilities, schools and the general public to make health-related activity decisions based on the reported local AQI.

2.11 Urban Haze Network

The purpose of the Urban Haze Network is to provide State and Local policy-makers and the public with information regarding the urban haze levels, track short-term and long-term trends, assess source contributions, and better evaluate the effectiveness of air pollution control strategies. ADEQ utilizes transmissometers, particulate monitors, and/or digital camera systems to evaluate urban visibility. More than a decade of urban visibility data has been collected for the Phoenix and Tucson area. Currently, only the Phoenix metropolitan area urban visibility is monitored using high resolution cameras. Additional details regarding ADEQ's Urban Haze Network can be found in section 4.15.

2.12 E-BAM Network of $PM_{2.5}$ Special Purpose Monitors

Environment-proof beta attenuation monitors (E-BAM) are special purpose monitors (SPM) which provide continuous, real-time particulate concentration data that are useful for making informed smoke management decisions related to prescribed burns and wildfire monitoring. The current network of special purpose continuous particulate monitors (listed in Table 2.12-1) is composed of lightweight, portable E-BAM monitors typically in self-contained, environmentally sealed enclosures. They can be battery or solar powered for operation at sites without fixed electrical power. Data are sampled every second and concentrations are calculated and recorded every minute. E-BAM monitors have been used by many agencies, particularly in the western United States. They are not classified as FRMs or FEMs and may not be used to demonstrate NAAQS compliance. ADEQ uses these monitors primarily in populated areas that could be impacted by smoke from prescribed burns and wildfires. In 2011 ADEQ configured the E-BAM monitors to measure $PM_{2.5}$ to be consistent with the National Forest Service monitors. Hourly $PM_{2.5}$ data from the E-BAM monitors can be viewed at: http://www.phoenixvis.net/PPMmain.aspx.

Table 2.12-1 Current Locations of E-BAM Monitors

Site Name	Address
Flagstaff Middle School	755 N. Bonito, Flagstaff, AZ 86001
Payson Well Site	204 W. Aero Dr., Payson, AZ 85541
Prescott College AQD	226 Grove Ave., Prescott, AZ 86301
Sedona Fire Station AQD	310 Forest Road, Sedona, AZ, 86336
Show Low	561 E. Deuce of Clubs, Show Low, AZ 85901
Springerville	323 S. Mountain Ave., Springerville, AZ 85936
Verde Ranger Station	300 E. Highway 260, Camp Verde, AZ 86322

2.13 Arizona / Mexico Border Network

ADEQ works with the EPA Border Program as part of the U.S. – Mexico Border Air Monitoring Working Group. This working group's primary priority is reviewing the air quality monitoring data and air monitoring networks in rural and urban areas along the border and evaluating the adequacy of these networks. The secondary priority of this group is to identify operational and maintenance needs, plan for future capabilities, and develop recommendations to resolve any inadequacies. Through this effort, relationships between EPA, ADEQ, Secretariat of Environment and Natural Resources (SEMARNAT), and Commission for Ecology and Sustainable Development (CEDES) are expected to develop, such that data are shared across the border and capacity is built to meet the needs of the air monitoring program objectives.

3.0 MONITORING NETWORK EVALUATION

This section provides a summary of changes to ADEQ's monitoring networks completed since the 2015 Network Plan submission, as well as changes planned for July 2016 through December 2017. Any occurrence of unplanned changes due to emerging needs, budget constraints, or other circumstances will be documented in next year's Air Monitoring Network Plan, and ADEQ will communicate with EPA Region 9 regarding any significant changes on a case-by-case basis. Below is a summary of the planned network changes.

Past and future changes to the ambient monitoring network as outlined in this Annual Network Plan are for the time period of July 2015 – December 2017. Any additional changes not outlined here will be requested to EPA Region 9 for their approval. ADEQ may change the plans according to new rules or direction from ADEQ management or the EPA administrator and includes these changes in the subsequent Annual Network Plan. Also included in the 2016 Network Plan are the plans for network modifications based on the 2015 5-Year Network Assessment. These plans are included in 3.4-1 and noted as such. The site closures, new sites planned, past and planned changes for July 2015 – December 2017 timeline are as follows:

3.1 Site Closures

Prescott College AQD – ADEQ plans to close the Prescott College site by January 1, 2017. The current building on the Prescott College campus is not a viable location for long term monitoring. The building is being considered for demolition and it is in the best interest of ADEQ to relocate the monitor elsewhere. A comparison study with the new site will be conducted if possible.

Vehicle Emissions Laboratory – Our Vehicle Emissions Laboratory site was sold and immediate removal of the equipment was necessary. The PAMS required equipment was relocated to JLG Supersite, a PAMS site, on April 28, 2016. The Ultra Violet and Horizontal Solar Radiation sensors are the required PAMS equipment that were moved. The Delta Temperature system was discontinued as it is not part of PAMS requirements and is not being used internally or externally. The nephelometer is part of the ADEQ Urban Visibility network and was also relocated to JLG supersite. Since JLG Supersite already has an anemometer and Temp/RH probe, these sensors were not relocated.

Dysart and Estrella – ADEQ plans to discontinue monitoring at these sites on July 1, 2016. The nephelometers and Temp/RH probe at these sites are part of the ADEQ Urban Visibility network created for a visibility index in the Phoenix metropolitan area. The visibility index was created in 2003 by Arizona House Bill 2538. The Dysart and Estrella nephelometers are not used for the visibility index nor for quality assurance purposes and are not used internally or externally any longer. Therefore, eliminating these instruments will result in a cost savings without any reduction in data quality or data loss. The Dysart site is also a Maricopa County monitoring location which will continue to be operated and will be unaffected by the removal of ADEQ's equipment.

3.2 New Sites Planned

Prescott, AZ – ADEQ will open a new site in Prescott for the O_3 monitor. Approval from the Yavapai County Board of Supervisors was received on April 6, 2016 to place a monitor on county property. The new O_3 monitor is planned to be added by July 1, 2016. The location will be near the Pioneer Park at the Yavapai County Jeep Posse house, 1200 Commerce Drive, Prescott, AZ 86305. GPS coordinates are N 34.6122, W 112.4635. The new site will be able to be accessed at any time without the need to enter another property which aids in increased instrument and data confidence. A comparison study with the Prescott College AQD will be conducted if possible.

3.3 Past Network Changes

Table 3.3-1 Instrument Changes Made from July 2015 through June 2016

Site Name	Monitors	Date of Change	Description
Nogales Post Office	PM_{10} and $PM_{2.5}$	6/30/15	Two of the collocated filter PM instruments were removed. The collocation requirements for both the PM_{10} and $PM_{2.5}$ networks are met without these instruments
Rillito	PM_{10}	9/19/15	Replaced TEOM (Tapered Element Oscillating Membrane) for BAM (Beta Attenuation Monitor). By unifying the PM sampling networks with the same instruments, ADEQ can better perform its mission and will save on operating and instrumentation costs
Miami Ridgeline	PM_{10}	10/1/15	Removed permit requirement for monitoring. See Appendix F of this document for removal request letter and EPA R9 response
Douglas-Nogales	IMPROVE	10/24/15	The IMPROVE was relocated to Nogales Post Office from Douglas Red Cross after stakeholder input
Miami Golf Course	PM_{10}	11/10/15	Replaced TEOM for BAM
Bullhead City	PM_{10}	12/16/15	Replaced TEOM for BAM
Hillcrest	Lead (Pb)	1/1/16	New site and Pb instrument. The Pb instrument is classified as an SPM to determine the max concentration area in Hayden, AZ. See Appendix D for a full site description and justification
Yuma	PM_{10}	1/21/16	Replaced TEOM for BAM
Hayden Old Jail	PM_{10}	2/11/16	Replaced TEOM for BAM
Paul Spur Chemical Lime Plant	PM_{10}	2/23/16	Replaced TEOM for BAM
Alamo Lake	SO_2 (sulfur dioxide)	3/22/16	Removed the SPM SO_2 at Alamo Lake prior to two years of monitoring
Vehicle Emissions Laboratory	Meteorological measurements	4/28/16	The equipment was either relocated to JLG Supersite or discontinued
Douglas Red Cross	PM_{10}	5/5/16	Replaced TEOM for BAM
Alamo Lake	NO_2 (nitrogen dioxide)	June 2016	Removed the SPM NO_2 at Alamo Lake prior to two years of monitoring

3.4 Planned Network Changes

Table 3.4-1 Instrument Changes Planned for July 2016 to December 2017

Site Name	Monitors	Planned Date of Change	Description
Alamo Lake	CO (carbon monoxide)	7/1/16	A Teledyne API T300u CO analyzer was installed in July 2016 and designated as a special purpose monitor (SPM)
Estrella and Dysart	Nephelometer	7/1/16	Planned closure of the Estrella site and the removal of ADEQ's equipment at the Dysart site
New Prescott Site	O_3	7/1/16	The still unnamed Prescott site will be located near Pioneer Park and is planned to start monitoring on July 1, 2016
JLG Supersite	PM_{10}-Pb	1/1/17	Removal of the certifying requirement for the PM10-Pb. The instrument and data will still remain due to NATTS requirements
Prescott College	O_3	1/1/2017	Closure of the Prescott College AQD site
Bullhead City*	$PM_{2.5}$	Starting 2017	ADEQ plans to conduct a $PM_{2.5}$ Study using low cost sensors to be located at the current Bullhead City site starting in 2017 for a minimum of 1 year. Study area based on the 5-Year Network Assessment
Miami, AZ Non-attainment area*	SO_2	Completed by 2020	Consolidation of the three sites in Miami based on the 5-Year Network Assessment
Quartzite*	PM_{10}	Completed by 2020	ADEQ plans to conduct a PM_{10} study using low cost sensors to be completed by 2020. Study area based on the 5-Year Network Assessment
Kingman*	PM_{10}	Completed by 2020	ADEQ plans to conduct a PM_{10} study using low cost sensors to be completed by 2020. Study area based on the 5-Year Network Assessment
Benson/Willcox*	PM_{10} and $PM_{2.5}$	Completed by 2020	ADEQ plans to conduct a western Cochise County PM study using low cost sensor to be completed by 2020. Study area based on the 5-Year Network Assessment

Statewide*	O_3	Completed by 2020	ADEQ acknowledges that O_3 is a local, regional, and international issue resulting in significant transport into and across much of Arizona. ADEQ also recognizes the importance of providing the public education regarding O_3 and what actions they can take to protect themselves and positively affect air quality. ADEQ will form a workgroup to determine the best course of action for O_3 outreach. We believe it prudent to perform outreach across the state, regardless of an areas' attainment status, in order to educate and encourage the public to take actions, even if only voluntary, to help minimize their O_3 contribution, improve air quality, and protect public health. We envision that the outreach may include coordination with other agencies and health departments inside and potentially outside of the state, education and promotion of O_3 data and forecasting resources available both from Arizona and from neighboring states, and the promotion of voluntary public measures to decrease local O_3 precursors. ADEQ will form the workgroup during the calendar year 2017 and implementation of the outreach program will be started by 2020

***These areas and pollutants of interest were identified by the 2015 5-Year Network Assessment**

4.0 ADEQ MONITORING NETWORKS

The minimum monitoring requirements for each pollutant are described in 40 CFR Part 58 Appendix D and are typically based on the population of urban areas. Current minimum monitoring requirements are only associated with MSAs, and there are no minimum monitoring requirements for Micropolitan Statistical Areas. Tables 4.0-1 and 4.0-2 outline metropolitan and micropolitan statistical areas in Arizona as identified by the U.S. Census Bureau.

Table 4.0-1 Metropolitan Statistical Areas (2015 Population Estimate)

Metropolitan Statistical Area	Area included	Population
Flagstaff	Coconino County	139,097
Lake Havasu City – Kingman	Mohave County	204,737
Phoenix – Mesa – Scottsdale	Maricopa & Pinal Counties	4,574,531
Prescott	Yavapai County	222,255
Sierra Vista – Douglas	Cochise	126,427
Tucson	Pima County	1,010,025
Yuma	Yuma County	204,275

Table 4.0-2 Micropolitan Statistical Areas (2015 Population Estimate)

Micropolitan Statistical Area	County	Population
Nogales	Santa Cruz	46,461
Payson	Gila	53,159
Safford	Graham & Greenlee Counties	37,666
Show Low	Navajo	108,277

4.1 $PM_{2.5}$ Monitoring Network Requirements

The number of $PM_{2.5}$ samplers required in urban areas is based on population (see Table 4.0-1) and design values for $PM_{2.5}$ concentrations (see Table 4.1-1).

Table 4.1-1 Minimum Number of $PM_{2.5}$ Monitors Required (40 CFR 58 Appendix D)

Population (MSA)	Most recent 3-Yr design value ≥ 85% of any $PM_{2.5}$ NAAQS *	Most recent 3-Yr design value <85% any $PM_{2.5}$ NAAQS * or no Design Value Available
>1,000,000	3 monitors	2 monitors
500,000 – <1,000,000	2 monitors	1 monitors
50,000 – <500,000	1 monitors	0 monitors

*85% Annual NAAQS (12 µg/m^3) = 10.2 µg/m^3; 85% 24-Hour NAAQS (35 µg/m^3) = 29.75 µg/m^3 The required sample collection frequency is based on the type of sampler and the design value calculated from data collected at each FRM (filter-based) or FEM (continuous) sampler (see Table 4.1-2). 40 CFR §58.12 (d)(1) states the manual $PM_{2.5}$ sample collection frequency requirement at required SLAMS stations as every third day at sites without a collocated continuously operating $PM_{2.5}$ monitor.

Table 4.1-2 $PM_{2.5}$ Design Values and Sampling Frequencies at ADEQ Sites

AQS Site ID	Site Name	2013-2015 24-Hour Design Value (µg/m³)	2013-2015 Annual Design Value (µg/m³)	Sample Frequency
04-003-1005	Douglas Red Cross	13	6.5	Continuous
04-012-8000	Alamo Lake[1]	8	1.5	Continuous
04-013-9997	JLG Supersite	22	7.3	Continuous
04-023-0004	Nogales Post Office	28	9.1	Continuous
04-027-8011	Yuma Supersite[2]	18	6.4	Continuous

[1] Alamo Lake is designated as the Background site for the $PM_{2.5}$ Network

[2] Yuma Supersite is designated as the Transport site in the $PM_{2.5}$ Network

ADEQ currently operates EPA-approved FEM monitors at five $PM_{2.5}$ monitoring sites. An EPA-approved FEM monitor was deployed to the Alamo Lake site and designated as the $PM_{2.5}$ monitoring network's Background site. Yuma Supersite is designated as the required $PM_{2.5}$ Transport site. ADEQ operates both an EPA-approved FEM continuous monitor and a Partisol 2000i $PM_{2.5}$ FRM at the JLG Supersite fulfilling an NCore collocation requirement. The EPA-approved FEM sampler is designated the primary $PM_{2.5}$ monitor for NAAQS compliance purposes.

Several non-FEM continuous $PM_{2.5}$ monitors are also in operation throughout the state, most of which are associated with the Smoke Management E-BAM network. See Section 2.12 for additional details on the E-BAM network.

4.1.1 $PM_{2.5}$ Collocation Requirements

The ADEQ $PM_{2.5}$ network is required to have collocated monitoring at one site. The Nogales Post Office site has the highest $PM_{2.5}$ design value in ADEQ's $PM_{2.5}$ network and is therefore a $PM_{2.5}$ collocated site. ADEQ operates both an EPA-approved FEM continuous instrument and a Partisol 2000i $PM_{2.5}$ FRM instrument at the Nogales Post Office site. The FEM BAM 1020 is designated as the primary $PM_{2.5}$ monitor for this site, thus enabling ADEQ to exceed the required 1-in-3 day monitoring frequency. The QA collocated Partisol $PM_{2.5}$ FRM operates on a 1-in-6 day monitoring frequency rather than the required 1-in-12 day monitoring frequency.

Additionally, ADEQ operates one Partisol 2000 $PM_{2.5}$ FRM instrument and one continuous $PM_{2.5}$ FEM monitor at the JLG Supersite. This $PM_{2.5}$ FEM is designated the primary instrument as required by NCore. The $PM_{2.5}$ FEM monitor is also labeled as an NCore PM_{coarse} paired monitor. The $PM_{2.5}$ FRM instrument is labeled as a QA collocated instrument for the site. Table 4.1-3 summarizes ADEQ's $PM_{2.5}$ collocation requirements.

Table 4.1-3 $PM_{2.5}$ FRM/FEM Collocation Details

Method Code (Instrument Type)	# of Sites	# of Primary Monitors	# of Required Collocated Monitors	# of Active Collocated Monitors
143 (Partisol 2000i)	2	0	0	0
170 (Met One BAM 1020)	5	5	1	2

4.1.2 Relocating Any Violating $PM_{2.5}$ Monitors

ADEQ does not have any violating $PM_{2.5}$ monitors that are being considered for relocation. A process for relocating violating $PM_{2.5}$ monitors is required and described in 40 CFR Part 58.10 (c). It requires the annual monitoring network plan to document how state and local agencies provide for the review of changes to a $PM_{2.5}$ monitoring network that impact the location of a violating $PM_{2.5}$ monitor. The analysis includes a description of the proposed use of spatial averaging for purposes of making comparisons to the annual $PM_{2.5}$ NAAQS as set forth in Appendix N to Part 50. The affected agency must document the process for obtaining public comment and include any comments received through the public notification process within their submitted plan. ADEQ does not intend to establish community monitoring zones as described in the rule or utilize spatial averaging for comparison to the $PM_{2.5}$ NAAQS. A public comment procedure is required prior to relocation of a violating monitor and ADEQ will utilize the following procedure:

1. Evaluation of the potential replacement site will include review and comparison of available pollutant data, meteorology, climatology, terrain, and siting characteristics. This information will be documented in a brief report.
2. Make notice of such a change in the annual monitoring network plan.
3. If the change must be accomplished prior to annual monitoring network plan submittal, ADEQ will make appropriate notice via the agency Web page and invite participation from the public prior to relocation of the affected site.
4. Relocation of the monitor.

4.2 PM_{10} Monitoring Network Requirements

The number of PM_{10} samplers required in urban areas is based on the population of the area (see Table 4.2-1) and design values for PM_{10} 24-hour concentrations (see Table 4.2-2). Maricopa, Pinal, and Pima Counties have delegated authority for their monitoring networks and AQS reporting. ADEQ's PM_{10} monitoring network includes the MSAs in all other Arizona counties, as well as the PM_{10} nonattainment areas in those counties.

Table 4.2-1 Minimum Number of PM_{10} Monitors Required (40 CFR 58 Appendix D)

MSA Population	High Concentration Exceeds 24-Hour NAAQS by 20% or more (>180µg/m^3)	Medium Concentration Exceeds 80% of 24-Hour NAAQS (>120µg/m^3)	Low Concentration Less than 80% of 24-Hour NAAQS (<120 µg/m^3) or no Design Value Available
>1,000,000	6-10 monitors	4-8 monitors	2-4 monitors
500,000 – <1,000,000	4-8 monitors	2-4 monitors	1-2 monitors
250,000 – <500,000	3-4 monitors	1-2 monitors	0-1 monitors
100,000 – <250,000	1-2 monitors	0-1 monitors	0 monitors

The monitoring rule in 40 CFR Part 58.12(e) states that for PM_{10} sites, "…the minimum monitoring schedule for the site in the area of expected maximum concentration shall be based on the relative level of that monitoring site concentration with respect to the 24-hour standard." ADEQ has transitioned all PM_{10} monitors from filter-based methods to continuous methods. Table 4.2-2 lists the PM_{10} network site Design Values and Annual Means.

Table 4.2-2 PM_{10} Design Values (Estimated Exceedances) and Annual Means for ADEQ Sites

AQS Site ID	Site Name	2013 - 2015 Average Estimated Days PM_{10}>150 µg/m^3 Including Events	2013 – 2015 Average Estimated Days PM_{10}>150 µg/m^3 Excluding Events	2015 Annual Mean Concentration (µg/m^3)
04-003-0011	Paul Spur Chemical Lime Plant	1.6	1.6	14.8
04-003-1005	Douglas Red Cross	1.7	1.7	26.8
04-007-0008	Payson Well Site	0*	0*	15.7
04-007-1001	Hayden Old Jail	0.3	0.3	26.3
04-007-8000	Miami Golf Course	0*	0*	17.4*
04-012-8000	Alamo Lake	0*	0*	11.8
04-013-9997	JLG Supersite	1.0	1.0	25.2
04-015-1003	Bullhead City	0.3	0.3	18.9
04-019-0001	Ajo	0.3	0.3	17.7
04-019-0020	Rillito	2.0	2.0	36.6*
04-023-0004	Nogales Post Office	1.3	1.3	30.7*
04-027-8011	Yuma Supersite	6.3	6.3	38.4

* Annual values not meeting completeness criteria

4.2.1 PM_{10} Collocation Requirements

There are no collocation requirements for EPA-approved PM_{10} FEM monitors. ADEQ has transitioned the PM_{10} network to continuous FEM monitors. Table 4.2-3 summarizes ADEQ's PM_{10} collocation requirements.

Table 4.2-3 PM_{10} FRM/FEM Collocation Details

Method Code	# of Sites	# of Primary Monitors	# of Required Collocated Monitors	# of Active Collocated Monitors
122 (BAM)	12	12	0	0

4.3 O_3 Monitoring Network Requirements

The minimum monitoring requirements for O_3 are shown below in Table 4.3-1. ADEQ operates a network of seven O_3 monitors throughout Arizona (see Table 4.3-2). ADEQ is updating the O_3 network with remote zero/span/precision checks utilizing the Teledyne T703 UV Photometric O_3 Calibrator with Internal Zero Air Pump and External Zero Air Shut-Off Valve. This will allow air monitoring staff to more efficiently maintain the O_3 network while minimizing travel time during the O_3 season, and avoiding calibration during the peak hours of the day when O_3 levels are highest. Additionally, Maricopa, Pima, and Pinal Counties operate O_3 monitors.

Table 4.3-1 Minimum Number of O_3 Monitors Required (40 CFR Part 58 Appendix D)

Population (MSA)	Most recent 3 year 8-hour Design Value ≥ 85% of NAAQS (0.0595 ppm)	Most recent 3 year 8-hour Design Value <85% NAAQS (0.0595 ppm) or no Design Value available
>10 Million	4 monitors	2 monitors
4 – <10 Million	3 monitors	1 monitors
350,000 – <4 Million	2 monitors	1 monitors
50,000 – <350,000	1 monitors	0 monitors

Table 4.3-2 ADEQ O_3 Sites and Design Values

AQS Site ID	Site	Current Operating Schedule	2013-2015 Design Value (ppm)
04-005-1008	Flagstaff Middle School	January - December	0.070
04-007-0010	Tonto National Monument	January - December	0.072
04-012-8000	Alamo Lake	January - December	0.070
04-013-9997	JLG Supersite	January - December	0.077
04-021-8001	Queen Valley	January - December	0.071
04-025-8033	Prescott College AQD	January - December	0.069
04-027-8011	Yuma Supersite	January - December	0.076

4.3.1 O_3 Season

In accordance with 40 CFR Part 58, Appendix D, ADEQ started year round monitoring on March 1, 2015.

4.4 Pb Monitoring Network Requirements

ADEQ has operated three source-oriented total suspended particles (TSP) Hi-Vol Pb monitors between the Globe Highway site (collocated) and the Miami Golf Course site since January 2011. Starting January 1, 2016 upon the request of EPA Region 9, ADEQ started operating an additional source oriented SPM monitor in Hayden, AZ at a location thought to have higher concentrations than the Globe Highway site. 40 CFR Part 58 Appendix D states that at a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport source which emits 0.50 or more tons per year and each airport source which emits 1.0 or more tons per year. Per the National Emissions Inventory (NEI) 2011, there are no non-airport sources in the 0.5-1.0 ton per year category. There is no longer an NCore requirement for Pb, but ADEQ will continue to report Pb data using the same PM_{10} metals speciation sample that is used for the NATTS program.

4.4.1 Pb Collocation Requirements

ADEQ's Pb network requires only one collocated site. The Globe Highway site located in Hayden, AZ has the highest design value in the Pb network and is therefore the collocated site. Although ADEQ monitors NCore-Pb

at the JLG Supersite, collocated NCore-Pb sites are determined by the EPA and JLG Supersite is not a designated NCore-Pb collocated site. Table 4.4-1 summarizes ADEQ's Pb collocation requirements.

Table 4.4-1 Pb FRM/FEM Collocation Details

Method Code	# of Sites	# of Primary Monitors	# of Required Collocated Monitors	# of Active Collocated Monitors
191 (Pb-TSP ICP/MS)	3	3	1	1
202 (Pb-PM_{10} ICP/MS)	1	1	0*	0

*Pb-PM_{10} monitor is located at an NCore site and does not require collocation

Table 4.4-2 Pb Design Values at ADEQ Sites

AQS Site ID	Site Name	2013-2015 Design Value (µg/m^3)
04-007-1002	Globe Highway	0.17
04-007-1003	Hillcrest	--*
04-007-8000	Miami Golf Course	0.05
04-013-9997	JLG Supersite	--*

* Design Value not available

4.5 SO_2 Monitoring Network Requirements

ADEQ operates a network of six SO_2 monitors throughout Arizona. Authority to operate SO_2 monitors has also been delegated to Maricopa and Pima Counties. Additionally **A**merican **S**melting **A**nd **R**efining **CO**mpany (ASARCO) operates SO_2 monitoring networks in Gila County for permit compliance and to support SIP rule requirements. ADEQ is currently negotiating with ASARCO to ensure that the monitors are operated under the required quality assurance requirements. In Miami, ADEQ runs the Miami Ridgeline site, the Miami Townsite, and the Miami Jones Ranch site. In Hayden, ADEQ currently operates an SO_2 monitor at Hayden Old Jail. ADEQ initiated discussions with ASARCO regarding Globe Highway and Montgomery Ranch on the best means to meet the primary quality assurance organization (PQAO) requirements. ADEQ also operates a trace-level SO_2 monitor at its NCore site (JLG Supersite), as required by 40 CFR Part 58 Appendix D. The SO_2 SPM monitor at Alamo Lake was removed in March 2016.

The SO_2 monitoring requirements in 40 CFR Part 58 Appendix D are based on a Population Weighted Emissions Index (PWEI) calculated for each core-based statistical area (CBSA). CBSAs with PWEIs greater than 5,000 require at least one SO_2 monitor, PWEIs greater than 100,000 require a minimum of two SO_2 monitors, and PWEIs greater than 1,000,000 require three SO_2 monitors. There are no PWEI greater than 5,000 in Arizona, but there are other SO_2 monitors in Arizona, which are operated by Maricopa County and Pima County.

Table 4.5-1 SO_2 Design Values at ADEQ Sites

AQS Site ID	Site Name	2013-2015 1-Hour Design Value (ppb)
04-007-0009	Miami Ridgeline	145

04-007-0011	Miami Jones Ranch	199
04-007-0012	Miami Townsite	196
04-007-1001	Hayden Old Jail	246
04-012-8000	Alamo Lake	2*
04-013-9997	JLG Supersite	5

* Design value does not meet completeness criteria

Additionally, SO_2 monitoring requirements from the August 21, 2015 data requirements rule for the 2010 1-hour SO_2 primary NAAQS requires, at a minimum, characterization of air quality around sources that emit 2,000 tons per year or more of SO_2. Pursuant to rule requirements, ADEQ submitted on January 13, 2016 to EPA Region 9, a list of five sources that need to be addressed. Table 4.5-2 lists these sources and their associated tons per year. A letter indicating whether these five areas will be monitored or modeled with the modeling protocols will be submitted in addition to ADEQ's 2016 Network Plan pursuant to the data requirements rule.

Table 4.5-2 SO2 Sources >2,000 Tons per year

Facility Name	2014 SO2 (Tons per year)
ASARCO Hayden Smelter	17,432
Freeport Miami Smelter	4,505
APS – Cholla	3,806
Tucson Electric Power Co. – Springerville Generating Station	6,221
Arizona Electric Power Cooperative – Apache Generating Station	4,811

4.6 NO_2 Monitoring Network Requirements

ADEQ currently operates one NO_2 monitor in Arizona located at the JLG Supersite to fulfill a PAMS requirement. The Alamo Lake SPM monitor was removed in June 2016.

The NO_2 monitoring requirements set forth in 40 CFR Part 58 Appendix D are based on a combination of CBSA population and Annual Average Daily Traffic (AADT) counts. The first requirement to be considered is the CBSA population. CBSAs with populations greater than 500,000 are required to operate one near-roadway monitor, while CBSAs with populations greater than 2.5 million are required to operate two near-roadway monitors. Additionally, CBSAs with populations greater than 500,000 and containing roadway segments with 250,000 or greater AADT require two near-roadway monitors. As can be seen in Table 4.0-1, two CBSAs within Arizona (Phoenix and Tucson Metro areas) contain populations greater than 500,000, and therefore, require at least one NO_2 near-roadway monitor. The Phoenix CBSA exceeds 2.5 million in population; therefore, two near-roadway monitors are needed in the Phoenix CBSA. Pima and Maricopa Counties will operate the required near-roadway monitors in Tucson and Phoenix, respectively.

In addition to the near-roadway monitoring requirements set forth in 40 CFR Part 58 Appendix D, there is also a requirement for area-wide NO_2 monitoring. CBSAs with populations of one million or more require one NO_2 monitor to measure NO_2 concentrations that represent neighborhood or larger spatial scales. The Phoenix

metropolitan area is the only area within the state of Arizona that requires ambient monitoring of NO_2. The current NO_2 monitors operated by Maricopa and Pima Counties are meeting the current monitoring requirements set forth in 40 CFR Part 58 Appendix D. ADEQ will continue to monitor NO_2 at JLG Supersite as part of the NO_x measurements required by the PAMS program. See Table 4.6-1 for design values.

Table 4.6-1 NO_2 Design Values at ADEQ Sites

AQS Site ID	Site Name	2013-2015 1-Hour Design Value (ppb)	2015 Annual Mean (ppb)
04-013-9997	JLG Supersite	53*	10.35
04-012-8000	Alamo Lake	6*	1.36

* Design values not meeting completeness criteria

4.7 CO Monitoring Network Requirements

ADEQ operates only one CO monitor throughout Arizona, with plans to operate a second at Alamo Lake as a background SPM starting July 2017. The current CO monitor is located at the JLG Supersite and has sufficient sensitivity to monitor trace levels. This CO monitor fulfills NCore as well as PAMS monitoring requirements. Maricopa and Pima Counties operate the other required CO monitors within the State of Arizona. The Phoenix population exceeds the one million population requirement set forth in 40 CFR Part 58 Appendix D, therefore one CO monitor is required to be collocated with a near-road NO_2 monitor. The required near-roadway monitor in Phoenix will be operated by Maricopa County. The most recent census data show the Tucson MSA is below one million and therefore near-road CO monitoring is not required. The Trace-Level CO (COTL) analyzer that is currently operated by ADEQ exceeds the minimum monitoring requirements for the NCore and PAMS network design criteria set forth in 40 CFR Part 58 Appendix D. Table 4.7-1 contains the most recent design values for CO at JLG Supersite.

Table 4.7-1 CO Design Values at ADEQ Sites

AQS Site ID	Site Name	2015 CO 1-Hour Max. Value (ppm)	2015 CO 8-Hour Max. Value (ppm)
04-013-9997	JLG Supersite	2.378	1.9

4.8 PAMS Monitoring Network Requirements

On October 26, 2015 EPA promulgated a new O_3 standard along with final changes to the PAMS program. Starting on June 1, 2019, PAMS measurements will be required at all NCore sites in CBSAs with a population of 1,000,000 people or more, irrespective of O_3 attainment status. Required monitoring at this site includes hourly VOC (volatile organic compounds) measurements, three 8-hour carbonyl samples, a direct NO_2 measurement, hourly mixing height, atmospheric pressure, precipitation, solar radiation, UV radiation, wind speed, wind direction, temperature, and relative humidity. Additionally, the EPA is requiring enhanced monitoring plans (EMP) in areas classified as Moderate or above O_3 nonattainment. These EMPs will allow states to identify enhanced monitoring needs and will be approved by the regional administrator. ADEQ will continue to monitor under the PAMS program at JLG Supersite which is the NCore site in the Phoenix-Mesa-Scottsdale MSA. Until that time, ADEQ will continue to operate the current PAMS network.

Currently, ADEQ's PAMS network consists of two ambient air monitoring sites in the Phoenix-Mesa-Scottsdale MSA. This network remains after the 2015 rule promulgation. Measurements include speciated VOCs, Carbonyls, NO_x, trace-level reactive oxides of nitrogen (NO_y), CO, O_3, surface meteorology, and upper air meteorology.

JLG Supersite – Type 2 PAMS Site

The JLG Supersite was designated a PAMS site in 1999. The site is located near downtown Phoenix in a neighborhood. ADEQ operates carbonyl, VOC, O_3, CO, NOx, and surface meteorological monitoring equipment at JLG Supersite (see Table 4.8-1).

Table 4.8-1 JLG Supersite PAMS Instrumentation

Parameter	Period of Operation	Collection Method	Frequency and Duration
VOC *	Jan – Dec	Canister Sampler	1-in-6, one – 24 hr sample
Carbonyl *	Jan – Dec	Multi-port Carbonyl Sampler	• 1-in-6, one – 24 hr sample • 1-in-6, three – 3 hr samples (0500-0800, 0800-1100, 1100-1400)(June-August)
CO	Jan – Dec	Trace CO	Hourly average
O_3	Jan – Dec	O_3 Analyzer	Hourly average
NOx	Jan – Dec	NOx Analyzer	Hourly average
Meteorology	Jan – Dec	• Wind speed/direction • Temperature • Relative humidity • Pyranometer (total solar radiation) • Ultra-violet (UV solar)	Hourly average

* 24-hour VOC and Carbonyl measurements are also part of the NATTS program and collected year-round

Queen Valley – Type 3 PAMS Site

Queen Valley was designated a PAMS site in 2001. The site is located near the southeastern edge of the photochemical modeling grid domain and is considered to be downwind of the source of maximum precursor emissions in the Phoenix metropolitan area. Pollutants collected at the site include speciated PAMS VOCs, O_3, total reactive NOy, and surface meteorology measurements. Table 4.8-2 lists the instrumentation and monitoring schedule at the Queen Valley site.

Table 4.8-2 Queen Valley PAMS Instrumentation

Parameter	Period of Operation	Collection Method	Frequency and Duration
VOC	June – August	Multi-port sampler	1-in-6, one – 24 hr sample 1-in-6, three – 3 hr samples (0500-0800, 1300-1600, 1600-1900)
O_3	Jan – Dec	O_3 Analyzer	Hourly average
NOy	June – August	NOy Analyzer	Hourly average
Meteorology	Jan – Dec	• Wind speed/direction • Temperature	Hourly average

		• Relative humidity	

Vehicle Emissions Laboratory – Upper Air Meteorology Site

This site was shut down on April 28, 2016 due to the property being sold. The pyranometers for total solar and UV radiation were relocated to JLG Supersite. The site was intended to be a meteorological site and included a pyranometer to measure total solar radiation, UV solar radiation, wind speed, wind direction, differential temperature (2 meters and 10 meters), and relative humidity. The National Weather Service (NWS) site at nearby Sky Harbor Airport collects barometric pressure and precipitation measurements.

Table 4.8-3 Vehicle Emissions Laboratory PAMS Instrumentation

Parameter	Period of Operation	Method	Duration
Meteorology	Jan – Dec	• Pyranometer (total solar radiation) • Ultra-violet (UV solar) • Wind speed/direction • Temperature • Relative humidity	Hourly average

4.9 NCore Monitoring Network Requirements

EPA has identified JLG Supersite as the required NCore site for the Phoenix metropolitan area. JLG Supersite has been a multipollutant monitoring site since its establishment in 1993. Currently, several monitoring programs are supported at this site, including: SLAMS, PAMS, NATTS, CSN, and meteorology. The required NCore parameters are listed in Table 4.9-1. The required NCore monitors were operational by January 1, 2011. The NCore-Pb requirement is being met by using the current Partisol 2000 PM_{10} sample filter for metals speciation.

Table 4.9-1 JLG Supersite NCore Requirements

Required Measurement	Frequency/Duration	Status
$PM_{2.5}$ FEM mass	Hourly	Met One BAM 1020 FEM pair, designated primary
$PM_{2.5}$ FRM mass	1-in-3	Thermo Partisol 2000i is current instrument; $PM_{2.5}$ samples collected since 1999
PM_{10} FEM mass	Hourly	Met One BAM 1020 FEM pair
PM_{coarse} FEM mass	Hourly	Met One BAM 1020 FEM pair, difference method
$PM_{2.5}$ speciation - organic and elemental carbon, major ions, and trace metals	1-in-3	Met One SuperSASS with URG module is current instrument; STN/CSN samples collected since 1999
Pb	1-in-6	A final rule for ambient monitoring QA was promulgated March 28, 2016 and effective April 27, 2016 removing the Pb requirement from NCore
O_3	Hourly	API Teledyne 400E
CO (Trace Level)	Hourly	Ecotech EC9830T

SO_2 (Trace Level)	Hourly	Ecotech EC9850T
$NO/NO_2/NOx$	Hourly	Ecotech EC9841
NO/NOy	Hourly	Ecotech EC9843
Surface meteorology	Hourly	RM Young anemometer, Vaisala temperature/relative humidity probe

4.10 NATTS Monitoring Network Requirements

EPA has designated JLG Supersite to be part of the 27-site national network of air toxics monitoring stations. There are currently 187 hazardous air pollutants (HAPs), or air toxics, regulated under the CAA that have been associated with a wide variety of adverse health effects. The program was developed by EPA to fulfill the need of long-term HAP monitoring data of consistent quality. The primary purpose is tracking trends to facilitate measuring progress toward emission and risk reduction goals. Additionally, ADEQ operates a monitor for the Urban Air Toxics Monitoring Program (UATMP) at the South Phoenix site, whose purpose is to characterize the composition and magnitude of air toxics pollution. The required NATTS and UATMP parameters are listed in Table 4.10-1.

Table 4.10-1 NATTS and UATMP Requirements

Site	Required Measurement	Frequency/Duration	Status
JLG Supersite	Carbonyl	1-in-6	ATEC 8000 multi-port cartridge sampler
JLG Supersite	Volatile Organic Compounds (VOC)	1-in-6	ATEC 2200 canister sampler
JLG Supersite	Polycyclic Aromatic Hydrocarbons (PAH) or Semi-Volatile Organic Compounds (SVOC)	1-in-6	Tisch Polyurethane Foam (PUF) sampler
JLG Supersite	Metals Speciation	1-in-6	Thermo 2000i PM sampler, local conditions
South Phoenix	VOC	1-in-12	ATEC 8001 multi-port canister sampler

4.11 CSN Monitoring Network Requirements

Each state shall conduct chemical speciation monitoring and analyses at sites designated to be part of the $PM_{2.5}$ Speciation Trends Network (STN). The selection and modification of these STN sites must be approved by the Administrator. Samples must be collected using approved monitoring methods and the sampling schedules. ADEQ operates a CSN station at its JLG Supersite. The required CSN parameters are listed in Table 4.11-1

Table 4.11-1 CSN Requirements

Required Measurement	Frequency/Duration	Status

$PM_{2.5}$ Speciation, Teflon and Nylon Filters for Metals and Ions	1-in-3	MetOne SuperSASS
$PM_{2.5}$ Speciation, Quartz Filter for Carbon	1-in-3	URG 3000N

4.12 SIP Monitoring Network Requirements

ADEQ, along with other delegated agencies, is responsible for the preparation and submittal of SIPs for nonattainment and maintenance areas in Arizona. ADEQ is responsible for conducting ambient air monitoring for areas not included within Maricopa, Pima, and Pinal Counties or tribal lands. Permitted sources are also responsible for monitoring air quality, if it is included in their air quality permit. Some monitoring sites are specifically named in the area's SIP; other monitoring sites are not specifically named, but are representative of the air quality in that SIP area. Table 4.12-1 lists the ADEQ and source-operated monitors used to determine SIP compliance.

Table 4.12-1 SIP Network Monitoring Requirements

Area and County	Pollutant	Classification	ADEQ SIP Sites
Phoenix, Maricopa	CO	Maintenance/Attainment	*JLG Supersite*
Phoenix, Maricopa	O_3 1-hr	Maintenance/Attainment	*JLG Supersite, Tonto National Monument*
Phoenix-Apache Junction, Maricopa and Pinal	O_3 8-hr	"Basic" Nonattainment	Alamo Lake, *JLG Supersite*, Queen Valley, *Tonto National Monument*
Ajo, Pima	PM_{10}	Moderate Nonattainment	*Ajo*
Bullhead City, Mohave	PM_{10}	Maintenance/Attainment	*Bullhead City (Post Office)*
Douglas-Paul Spur, Cochise	PM_{10}	Moderate Nonattainment	Douglas Red Cross*, Paul Spur Chemical Lime Plant*
Hayden, Gila and Pinal	PM_{10}	Moderate Nonattainment	*Hayden Old Jail*
Miami, Gila	PM_{10}	Moderate Nonattainment	Miami Golf Course
Nogales, Santa Cruz	PM_{10}	Moderate Nonattainment	*Nogales Post Office*
Payson, Gila	PM_{10}	Maintenance/Attainment	*Payson Well Site*
Phoenix, Maricopa, and Pinal (Apache Junction portion) Phoenix (Salt River Area)	PM_{10}	Serious Nonattainment	*JLG Supersite*
Rillito, Pima	PM_{10}	Moderate Nonattainment	*Rillito*
Yuma, Yuma	PM_{10}	Moderate Nonattainment	Yuma Supersite
Nogales, Santa Cruz	$PM_{2.5}$	Nonattainment	Nogales Post Office
Ajo, Pima	SO_2	Maintenance/Attainment	No network or commitment
Douglas, Cochise	SO_2	Maintenance/Attainment	No network or commitment
Hayden, Gila and Pinal	SO_2	Nonattainment – Primary	*ADEQ (SO_2, MET): Hayden Old Jail* *ASARCO (5 SO_2, 3 MET [no MET at Jail or Garfield]): Globe Hwy, Garfield Ave., Montgomery Ranch, Hayden Old Jail, Hayden Junction*
Miami, Gila	SO_2	Maintenance/Attainment	*ADEQ: Miami Ridgeline, Miami Jones Ranch, Miami Townsite* *FMMI (SO_2, MET) Miami Jones Ranch, Miami Townsite*
Morenci, Greenlee	SO_2	Maintenance/Attainment	No network or commitment

Area and County	Pollutant	Classification	ADEQ SIP Sites
San Manuel, Pima and Pinal	SO_2	Maintenance/Attainment	No network or commitment
Regional Haze, 12 Class 1 areas	Visibility Impairing pollutants (VOC, NOx, SO_2, PM_{10}, $PM_{2.5}$, $PM_{2.5}$ species)	Statewide – IMPROVE monitors	**ADEQ Protocol sites:** Nogales Post Office, Organ Pipe National Monument, JLG Supersite, Saguaro West National Monument, Meadview **NPS / USFS sites:** Chiricahua Entrance Station, Greer Water Treatment Plant, Grand Canyon - Hance Camp, Ike's Backbone, Petrified Forest National Park, Pleasant Valley Ranger Station, Saguaro National Park-East, Sycamore Canyon, Tonto National Monument

Note: *Sites in italics are specifically required in SIP*; others meet the general SIP requirement that representative monitoring be conducted (no specific monitoring sites are named in SIP).

4.13 Source Compliance Monitoring Network Requirements

ADEQ requires select major and minor point sources in the state to conduct ambient monitoring for selected pollutants in and around their sources. Some requirements are for prevention of significant deterioration (PSD) monitoring prior to operation of the facility. Other monitoring requirements are for the duration of the permit or timeframe specified therein. ADEQ activities have been limited to regular performance audits of instruments at some of these sites and review of ambient monitoring data submitted according to the permit requirements. Sources are required to review and validate their data and submit quality assurance documents to ADEQ with the data. Table 4.13-1 lists the monitors operated by ADEQ permitted sources.

Table 4.13-1 Source Compliance Monitoring Network

Site Name	City	Pollutant(s)	AQS Submittal
Globe Highway	Winkelman	SO_2	No
ASARCO – Hayden – Garfield Ave.	Hayden	SO_2	No
ASARCO – Montgomery Ranch	Hayden	SO_2	No
ASARCO – Hayden Junction	Hayden Junction	SO_2	No
Hayden Old Jail [1]	Hayden	SO_2	No
Chemical Lime Plant	Nelson	Meteorology	No
Drake Cement	Sycamore Canyon	PM_{10}, $PM_{2.5}$ mass and ammonium speciation, Meteorology	No
PCC – Clarkdale NW	Clarkdale	PM_{10} mass and metals speciation, Meteorology	No
PCC – Clarkdale SE	Clarkdale	PM_{10} mass and metals speciation, Meteorology	No
Carlota Mine – Sanctuary	Globe	PM_{10}, H_2SO_4, Meteorology	No

[1] ADEQ also operates an SO_2 monitor at this site. The ADEQ data are submitted to AQS while the facility data are not.

4.14 Class 1 Visibility Network

As stated previously, visibility monitoring networks track impairment in specified national parks and wilderness areas called Class 1 areas based on designations made by the 1977 CAA Amendments. The evaluations, performed by the USFS and NPS, reviewed the wilderness areas of parks and national forests which were designated as wilderness before 1977, were more than 6,000 acres in size, and had visual air quality as an important resource for visitors. Of the 156 Class 1 areas designated across the nation, 12 are located in Arizona.

For the Class 1 area designations, EPA initiated a nationally operated monitoring network in 1987 called the Interagency Monitoring of PROtected Visual Environments (IMPROVE) program. The purpose of this network is to characterize broad regional trends in visibility conditions using monitoring data collected in or near Class 1 areas across the United States. Originally, the national IMPROVE network was made up of approximately 30 sites at Class 1 areas. During 1999-2000 the number of sites increased to approximately 110. ADEQ, Pima County, and federal land managers at Arizona's Class 1 areas cooperatively operate the visibility monitoring network in Arizona. The current network is described in Table 4.14-1. In addition to the Class 1 IMPROVE monitors listed in Table 4.14-1, ADEQ also operates protocol IMPROVE monitors at the Nogales Post Office site, two collocated IMPROVE monitors at the JLG Supersite, one in Meadview, AZ, one at the west side of the Saguaro National Park, and one at the Organ Pipe National Monument. The Douglas Red Cross protocol site was relocated to the Nogales Post Office site in October, 2015. The Queen Valley protocol site was shut down starting January 1, 2016 after an EPA network assessment determined it was not necessary. The JLG Supersite serves as an urban IMPROVE monitor and has been used to provide comparative analysis with data from the CSN network. See the IMPROVE map in Appendix B for a spatial representation of the IMPROVE monitoring network and Class 1 areas within the state of Arizona.

Table 4.14-1 2015 Arizona Class 1 Visibility Monitoring Network

Geographic Area Represented	Monitoring Location
Background	Meadview, Organ Pipe National Monument
Chiricahua National Monument, Chiricahua Wilderness Area and Galiuro USFS Wilderness	Chiricahua Entrance Station
Grand Canyon National Park	Hance Camp
Mazatzal and Pine Mountain USFS Wilderness	Ike's Backbone
Mount Baldy	Greer Water Treatment Plant
Petrified Forest National Park	Petrified Forest
Saguaro National Park	East Unit and West Unit
Sierra Ancha USFS Wilderness	Pleasant Valley Ranger Station
Superstition USFS Wilderness	Tonto National Monument, Queen Valley
Sycamore Canyon USFS Wilderness	Sycamore Canyon (Garland Prairie)

4.15 Urban Haze Monitoring Network

ADEQ began studying the nature and causes of urban haze by conducting studies during the winter of 1989-90 in Phoenix and during the winter of 1992-93 in Tucson. These studies recommended long-term, year-round monitoring of visibility in both areas. In 1993, ADEQ began deploying visibility monitoring equipment in Phoenix

and Tucson. The purpose of Executive Order 2000-3 directed by the Governor's Brown Cloud Summit was to establish options for a visibility standard or other method to track progress in improving visibility in the Phoenix area. The Summit concluded that a daily visibility index for the metropolitan area should have its characteristics defined through a public survey process. This process called for a representative cross-section of residents of Area A (as described in House Bill 2538, roughly the Phoenix metropolitan area), to determine what visual air qualities are desirable, what visual range is acceptable, and how often the combination of acceptable visual range and air quality is preferred. Through a series of meetings in 2002 and early 2003, ADEQ and the Visibility Index Oversight Committee designed the visibility survey, selected a contractor to conduct the survey, oversaw the completion of the field portion of the survey, and defined a recommended visibility index. The Visibility Index Oversight Committee Final Report was issued in early 2003 summarizing the visibility index.

Equipment currently used to evaluate urban visibility includes transmissometers, nephelometers, and digital camera systems. The Phoenix urban haze network consists of a transmissometer for measuring light extinction along a fixed path length of four and a half kilometers, three nephelometers for measuring light scattering, and five digital camera systems to record visual characteristics of the urban area.

The current Phoenix urban haze sites (and their status) are described in Table 4.15-1. ADEQ continues to evaluate the Urban Haze program. The high-resolution images from these cameras can be viewed online at http://www.phoenixvis.net.

Table 4.15-1 Phoenix Urban Haze Monitoring Network

Site Name	Parameter(s) Measured
ADEQ Building	High Resolution Digital Camera
Banner Mesa Medical Center	High Resolution Digital Camera
Dysart	Light Scattering (Bscat) Nephelometer
Estrella	Light Scattering (Bscat) Nephelometer
Estrella Mountain Community College	High Resolution Digital Cameras
JLG Supersite	IMPROVE
JLG Supersite	Light Scattering (Bscat) Nephelometer
North Mountain Summit	2 High Resolution Digital Cameras
Phoenix Transmissometer (Phoenix Baptist Hospital to Holiday Inn Hotel)	Total Light Extinction (Bext) Transmissometer

4.16 Meteorology Monitoring Network

ADEQ operates meteorological equipment at selected sites throughout its network (see Table 4.16-1). Some sites were originally established because other meteorology networks (NWS, AZMet, etc.) were not located near ADEQ's ambient air quality sites. ADEQ has begun to expand the meteorology monitoring network and standardize the meteorological measurements so that all sites collect measurements of wind speed, wind direction, temperature, and relative humidity.

Except for the items mentioned above, ADEQ does not have any specific plans to make changes to the meteorological network, but may add additional meteorological equipment at existing SLAMS sites as resources

permit. At this time, ADEQ plans to only submit meteorological data that are required by 40 CFR Part 58.16 to EPA's AQS database. If future resources allow additional meteorological data submittals to the AQS database, ADEQ may do so on a voluntary basis. A spatial representation of ADEQ's meteorological monitoring network can be found in Appendix B.

Table 4.16-1 Meteorology Monitoring Network

Site	Temp	Temp. Lapse Rate System	Relative Humidity	Wind	Total Horizontal Solar Radiation	Ultraviolet Solar Radiation	Report to AQS	Comments
Alamo Lake	X		X	X			No	
Ajo	X		X	X			No	
Douglas Red Cross	X		X	X			No	
Globe Highway	X		X	X			No	
Hayden Old Jail	X		X	X			No	
JLG Supersite	X		X	X			Yes	For NCore / PAMS support
Miami Golf Course	X		X	X			No	
Nogales Post Office	X		X	X			No	
Paul Spur Chemical Lime Plant	X		X	X			No	
Payson Well Site	X		X	X			No	
Queen Valley	X		X	X			Yes	For PAMS support
Rillito	X		X	X			No	
Vehicle Emissions Laboratory	X	X	X	X	X	X	Solar only	For PAMS support
Yuma Supersite	X		X	X			No	

5.0 QUALITY ASSURANCE

ADEQ sustains a quality system as required by EPA to ensure high quality data are produced that meet the users' needs. The EPA primarily specifies the quality assurance (QA) requirements for operating SLAMS, SPM, CSN, NCore, NATTS, PAMS, and prevention of significant deterioration (PSD) air monitors in 40 CFR Part 58 Appendix A, the Quality Assurance Handbook for Air Pollution Measurement Systems: Volume II: Ambient Air Quality Monitoring Program, technical assurance documents (TADs), and other supporting guidance documents. In response, ADEQ develops quality assurance plans for air monitoring networks, which provide detailed information regarding the specifics of each air monitoring network and how data will be managed. Components of ADEQ's quality system include, but are not limited to:

- ADEQ being established as the primary quality assurance organization (PQAO) for the criteria and non-criteria pollutant air monitoring data collected and reported to EPA's air quality system (AQS).

- An agency-level Quality Management Plan (QMP), which is an "umbrella" document that details, in broad terms, the strategies used to carry out QA/QC in environmental data collection activities.

- Division-level quality assurance program plans (QAPPs) for each major, ongoing air monitoring network. Each QAPP describes:

    - purpose for operating the monitoring station or network
    - data quality objectives (DQOs) and/or measurement quality objectives (MQOs) along with data quality indicators (DQIs) that specify the amount of tolerable error in the data using statistical metrics
    - variety of regularly occurring quality control (QC) checks along with pass/fail criteria
    - types of QA assessments and reports needed from the network
    - data validation processes and data reporting requirements

- Unit-level standard operating procedures (SOPs) that document procedures to assure that work products are reliable, reproducible, and consistent in quality. SOPs also serve to clearly communicate any process customizations in-use, providing a means of attesting that work products are credible, legally defensible, and meet or exceed our customers' and/or stakeholders' needs or requirements.

- A comprehensive audit and data assessment program.

    - PE audits on a quarterly, semi-annual, or annual basis
    - Technical system audits (TSA) performed every three years by EPA Region 9 and annually by ADEQ
    - Audits of data quality
    - Data quality assessments
    - Corrective action process

ADEQ uses a multi-tiered approach to data validation to ensure consistent quality. It requires all data to move through different levels of QA by separate reviewers. ADEQ has five different stages which data may be categorized.

- Raw – Original unchanged data recorded by the sampler or produced by laboratory analysis.
- QA Level 1 – Data are reviewed programmatically using software written to flag data. The data are flagged valid or invalid based on instrumentation parameters.
- QA Level 2 – Data are reviewed manually on a daily to weekly basis by an initial data reviewer to flag any discrepancies found. This gives the data a preliminary verification decision and identifies outliers, anomalous data and instrumentation/laboratory problems.
- QA Level 3 – Data are reviewed manually on a monthly to quarterly basis by the final data reviewer by looking at the data spatially and temporally. QC measures are incorporated, environmental events are identified, and a final determination on the validity of data is made.
- Certified – Data are uploaded to AQS and are certified annually by ADEQ.

5.1 EPA QA Reports and Network Performance

Periodically, EPA publishes reports for some of the criteria pollutant networks, and potentially non-criteria pollutant networks, that rate and/or rank monitoring organizations' performance over a three year period. ADEQ's air assessment section personnel review these reports to gauge how well our networks are performing with those across the nation. If needed, corrective actions are taken to ensure data of the highest quality possible are collected.

5.2 EPA Data Reports

The 2015 Data Certification Letter and adjoining AMP 600 report were submitted to Region 9 on April 27th, 2016. The data certification sections of AQS were also updated reflecting ADEQ's recommendations for certifying the data.

Appendix A – Definitions and Abbreviations

AADT	Annual Average Daily Traffic
ADEQ	Arizona Department of Environmental Quality
AQI	Air Quality Index
ARM	Approved Regional Methods
ASARCO	American Smelting and Refining Company, LLC
ATEC	Atmospheric Technologies, Inc.
AQS	Air Quality System (EPA database)
BAM	Beta Attenuation Monitor
Bext	Total Light Extinction
Bscat	Light Scattering
CAA	Clean Air Act
CBSA	Core Based Statistical Area
CEDES	Commission for Ecology and Sustainable Development
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COTL	Carbon Monoxide Trace Level
CSN	Chemical Speciation Network
DQO	Data Quality Objective
E-BAM	Environment Proof - Beta Attenuation Monitor
EPA	Environmental Protection Agency
ERG	Eastern Research Group, Inc.
FEM	Federal Equivalent Method
FMMI	Freeport McMoRan Copper and Gold Inc.
FRM	Federal Reference Method
HAP	Hazardous Air Pollutant
ICP-MS	Inductively Coupled Plasma Mass Spectrometry
IMPROVE	Interagency Monitoring of PROtected Visual Environments

MCAQD	Maricopa County Air Quality Department
MET	Meteorological Measurements (wind, temperature, relative humidity)
MQO	Measurement Quality Objective
MSA	Metropolitan Statistical Area
$\mu g/m^3$	Micrograms per Cubic Meter
NAAQS	National Ambient Air Quality Standard
NATA	National Air Toxics Assessment
NATTS	National Air Toxics Trends Station
NCore	National Core multipollutant monitoring stations
NEI	National Emissions Inventory
NM	National Monument
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxides
NOy	Reactive Nitrogen Oxides
NPAP	National Performance Audit Program
NPEP	National Performance Evaluation Program
NPS	National Park Service
NWS	National Weather Service
O_3	Ozone
PAHs	Polycyclic Aromatic Hydrocarbons
PAMS	Photochemical Assessment Monitoring Station
Pb	Lead
PE	Performance Evaluation
PEP	Performance Evaluation Program
PM	Particulate Matter
PM_{10}	Particulate Matter ≤ 10 microns
PM_{coarse}	Coarse Particulate Matter between 2.5 to 10 micrometers aerodynamic diameter, may also be denoted as $PM_{10-2.5}$
$PM_{2.5}$	Particulate Matter ≤ 2.5 microns

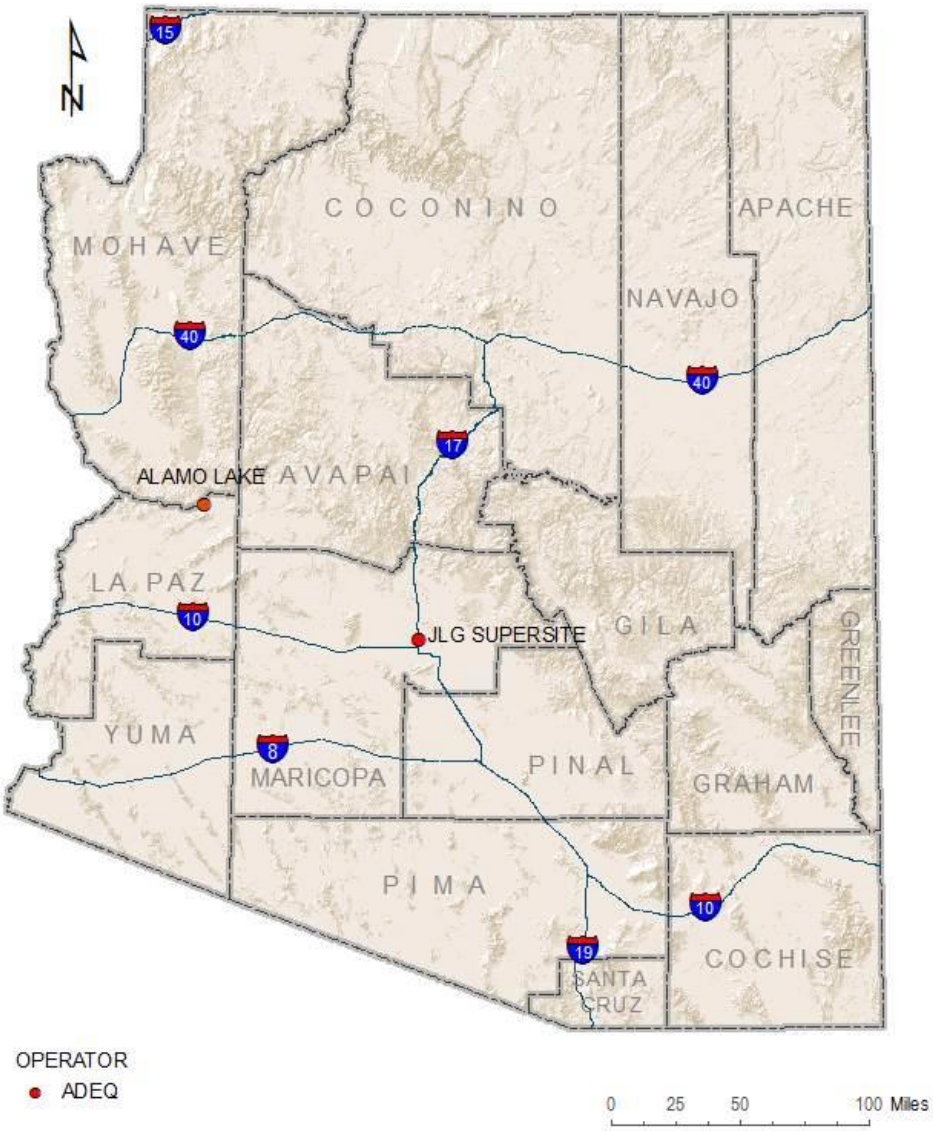
POC	Parameter Occurrence Code
ppb	Parts Per Billion
ppm	Parts Per Million
PQAO	Primary Quality Assurance Organization
PSD	Prevention of Significant Deterioration
PUF	Polyurethane Foam Sampler
PWEI	Populated Weighted Emissions Index
QA	Quality Assurance
QAPP	Quality Assurance Program Plan
QC	Quality Control
QMP	Quality Management Plan
RH	Relative Humidity
SEMARNAT	Secretariat of Environment and Natural Resources
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Stations
SO_2	Sulfur Dioxide
SOP	Standard Operating Procedure
SPM	Special Purpose Monitor
SR	State Route
STN	Speciation Trends Network
SVOC	Semi-Volatile Organic Compounds
TAD	Technical Assistance Document
TEOM	Tapered Element Oscillating Microbalance
TSA	Technical System Audit
TSP	Total Suspended Particles
UATMP	Urban Air Toxics Monitoring Program
USFS	United States Forest Service
VOC	Volatile Organic Compound

Appendix B – Network Maps

There are ten maps in this section illustrating the location of ADEQ monitors:

- CO Network
- NO_2 Network
- O_3 Network
- SO_2 Network
- Pb Network
- PM_{10} Network
- $PM_{2.5}$ Network
- Meteorological Network
- Urban Visibility Network
- IMPROVE Network & Class I Wilderness areas

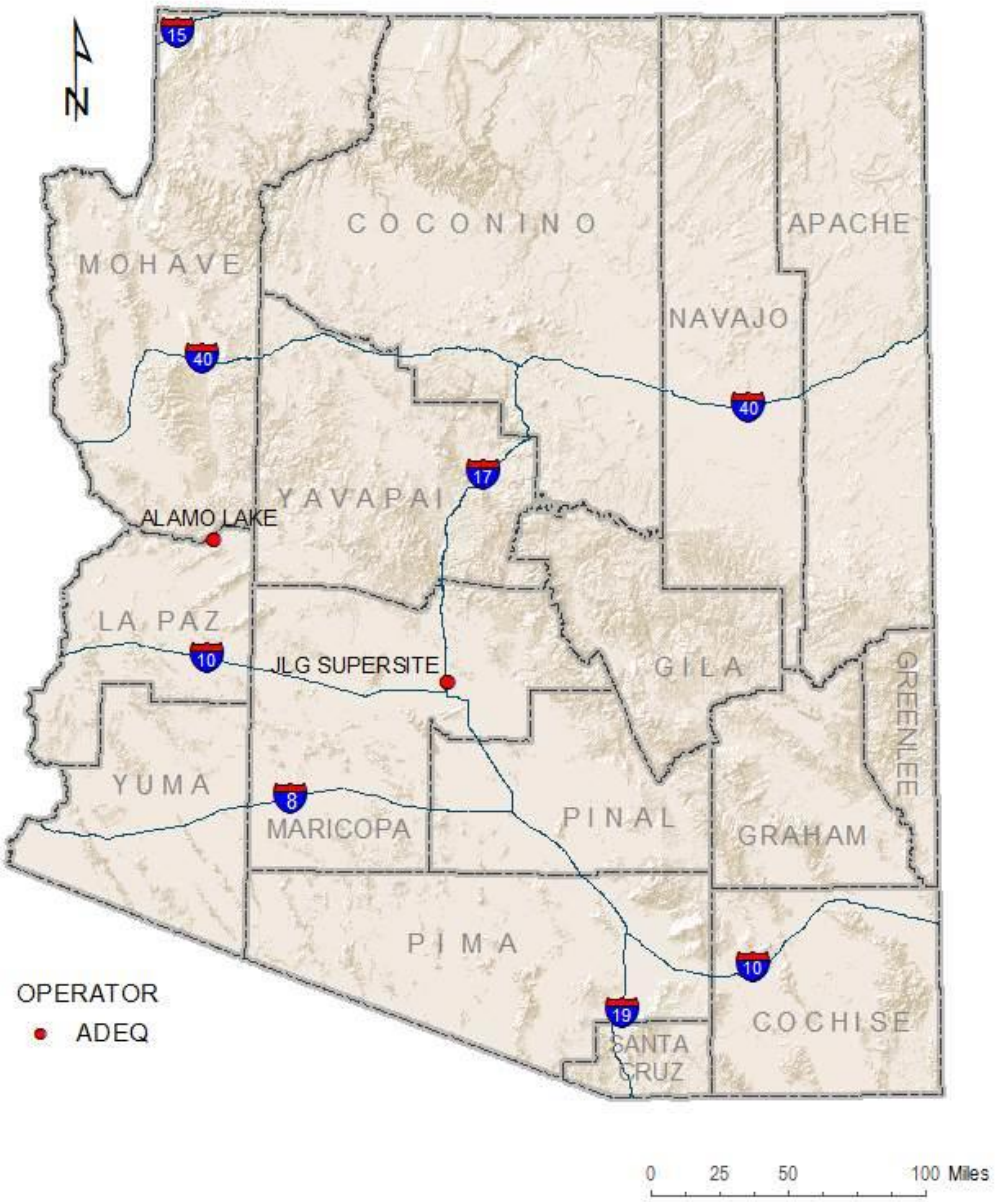
CO Network



ADEQ Arizona Department of Environmental Quality

2016-04-05

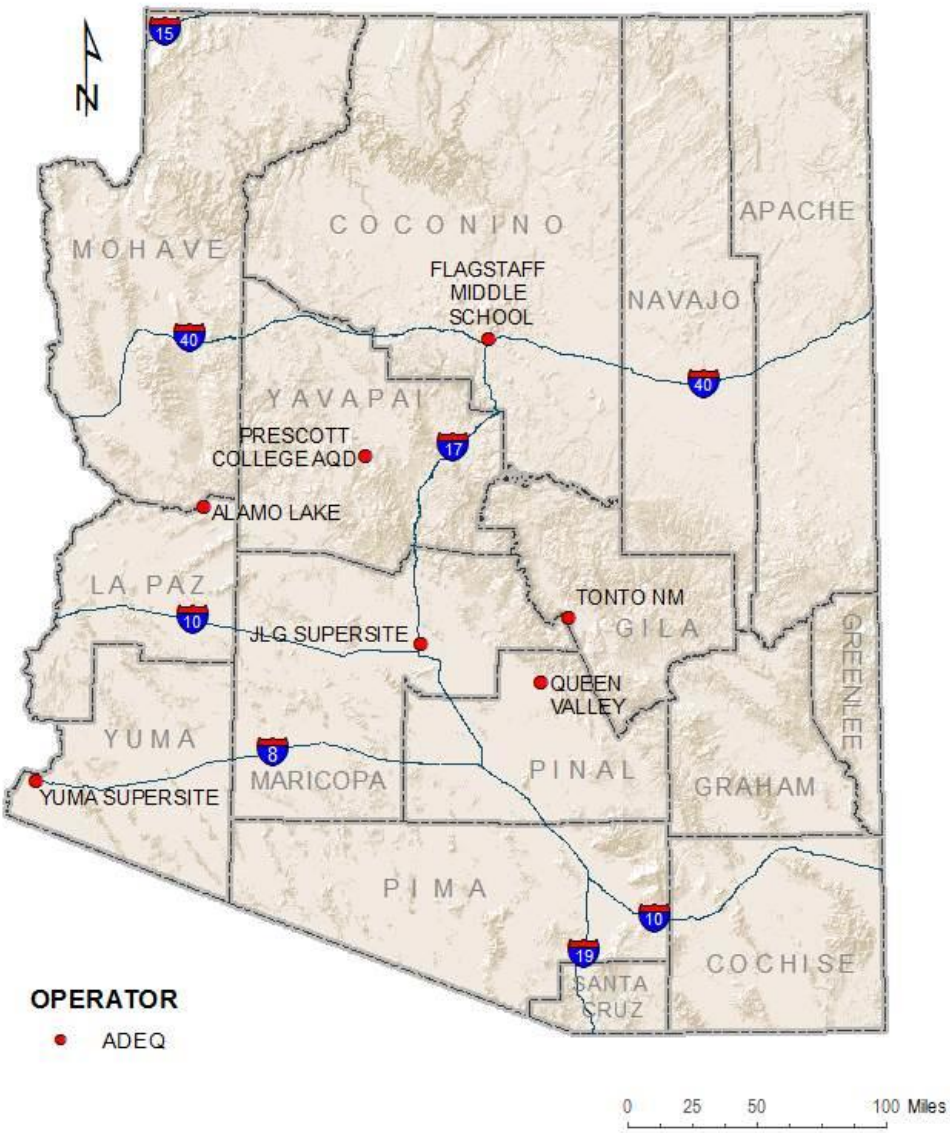
NO_2 Network



ADEQ Arizona Department of Environmental Quality

2016-04-05

O_3 Network



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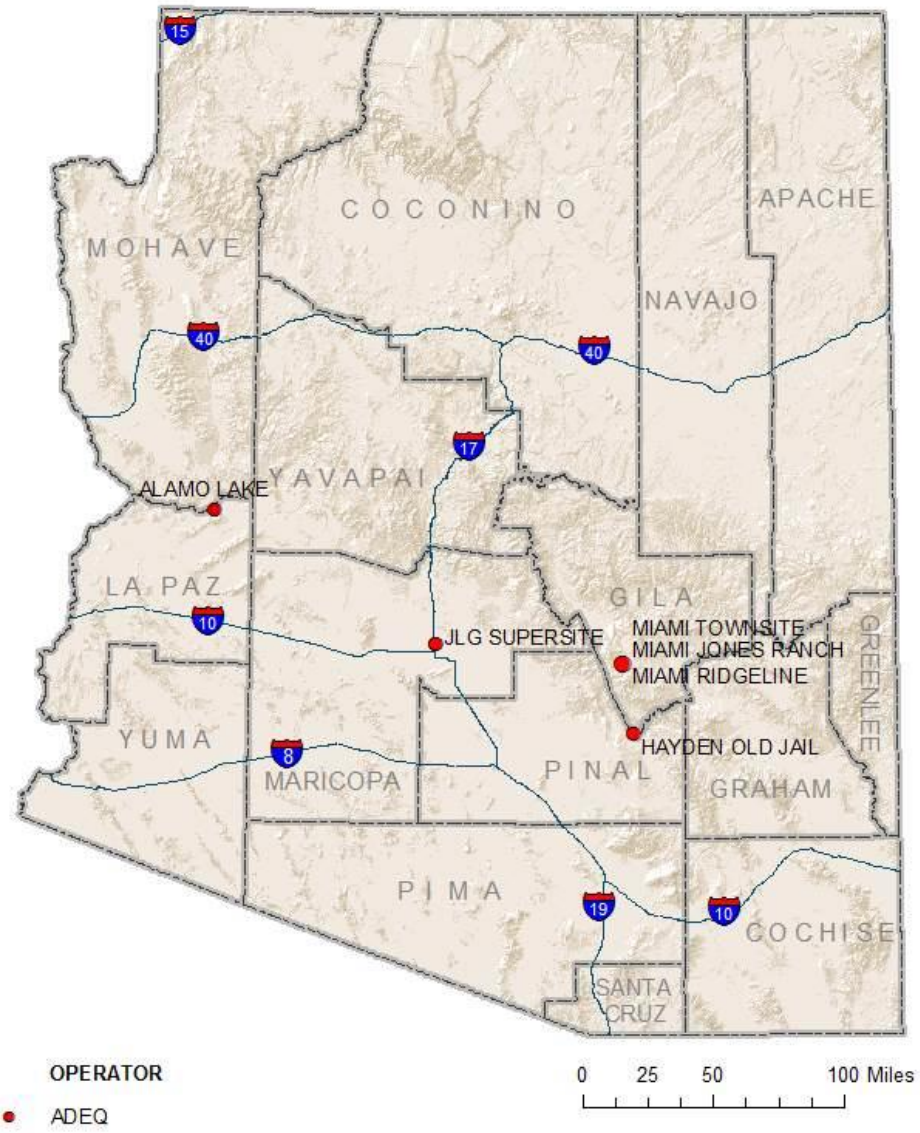
2016-04-05

SO_2 Network



OPERATOR

● ADEQ

0 25 50 100 Miles

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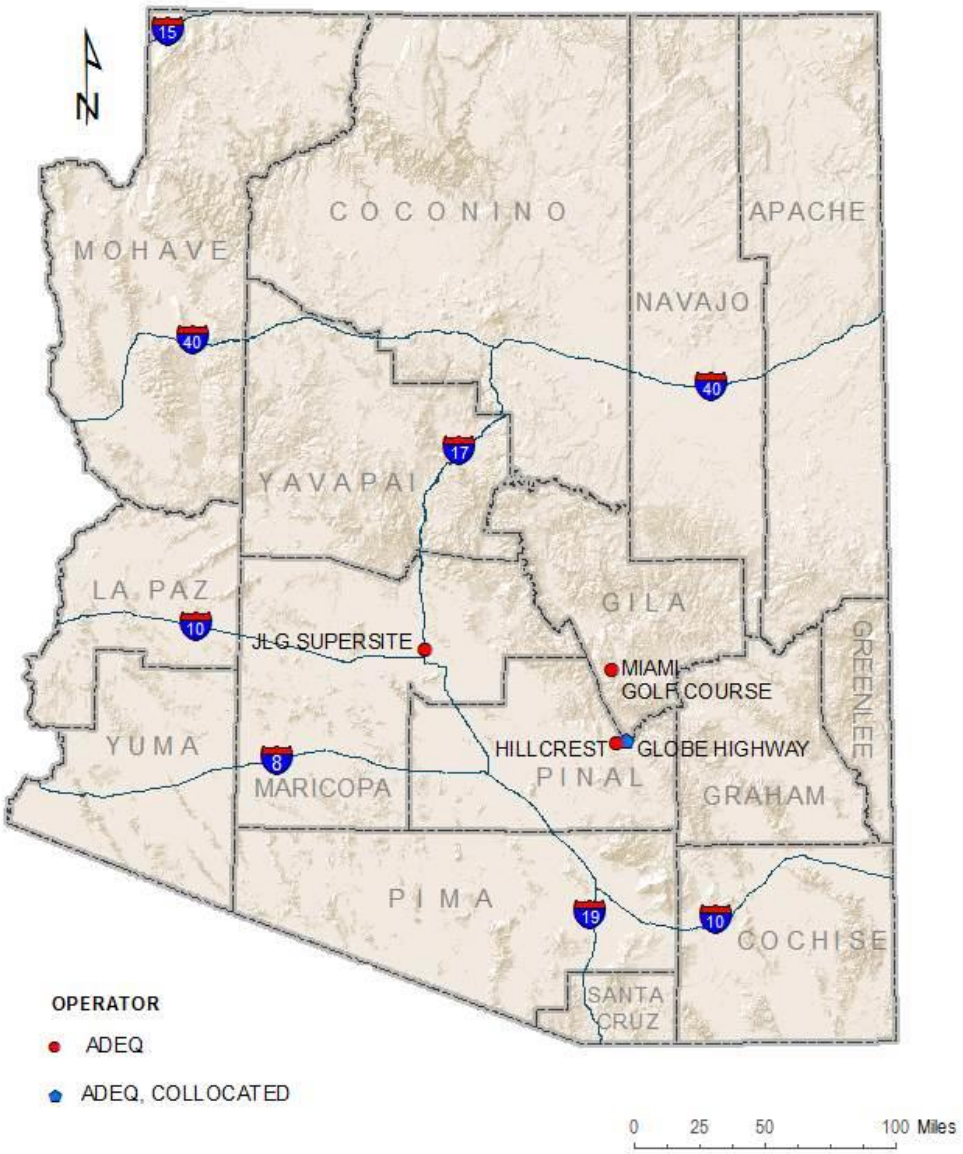
2016-04-05

Pb Network



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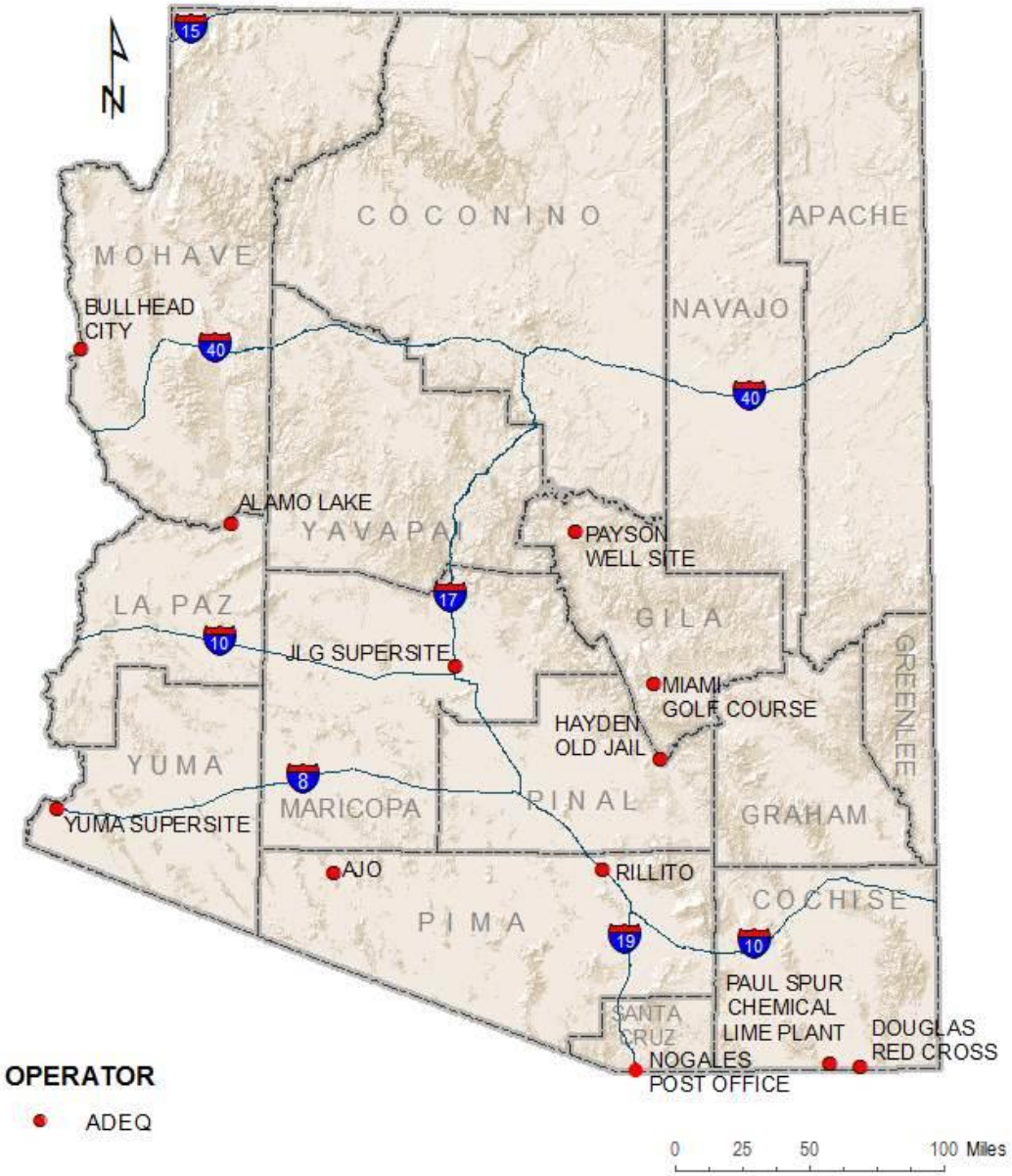
Arizona Department of Environmental Quality
2016-04-05

PM_{10} Network



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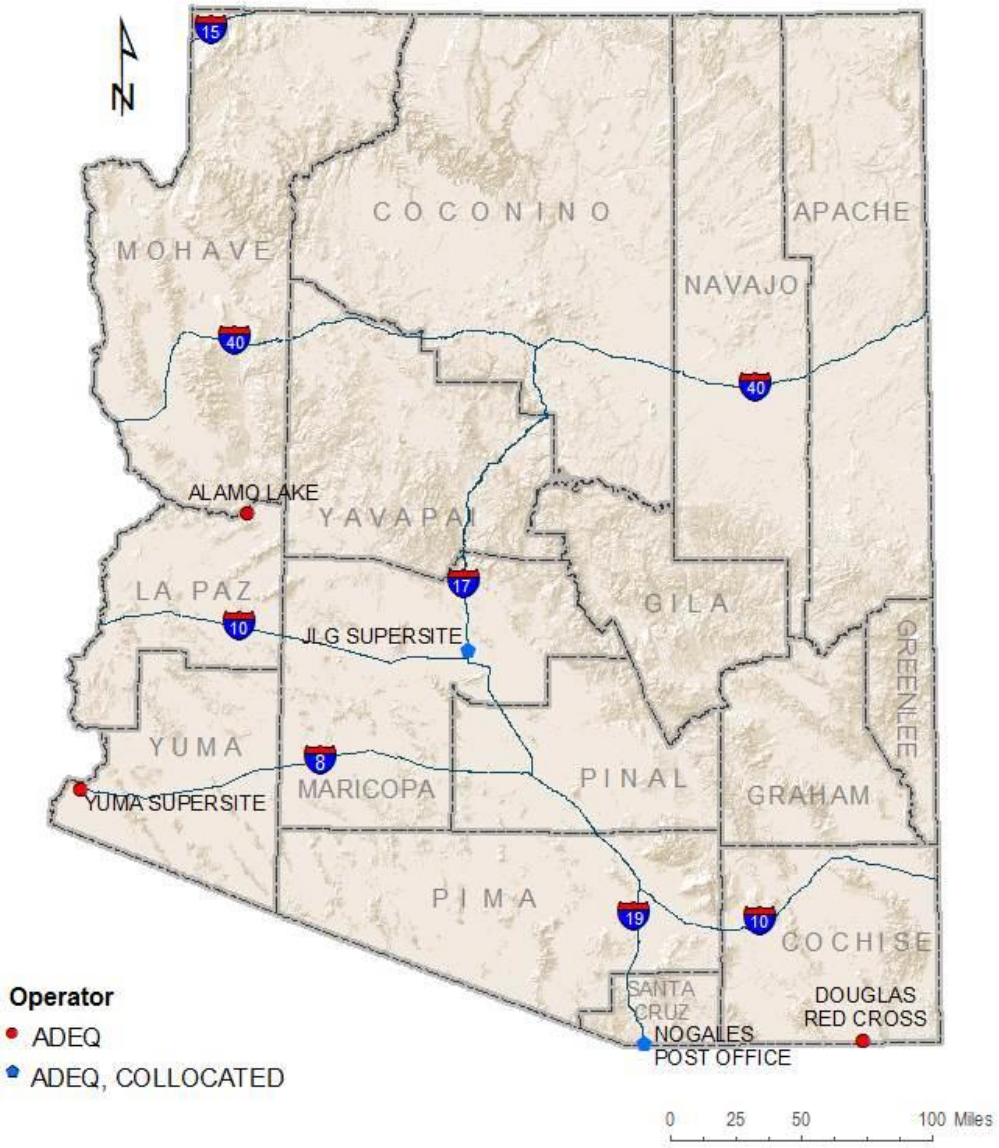
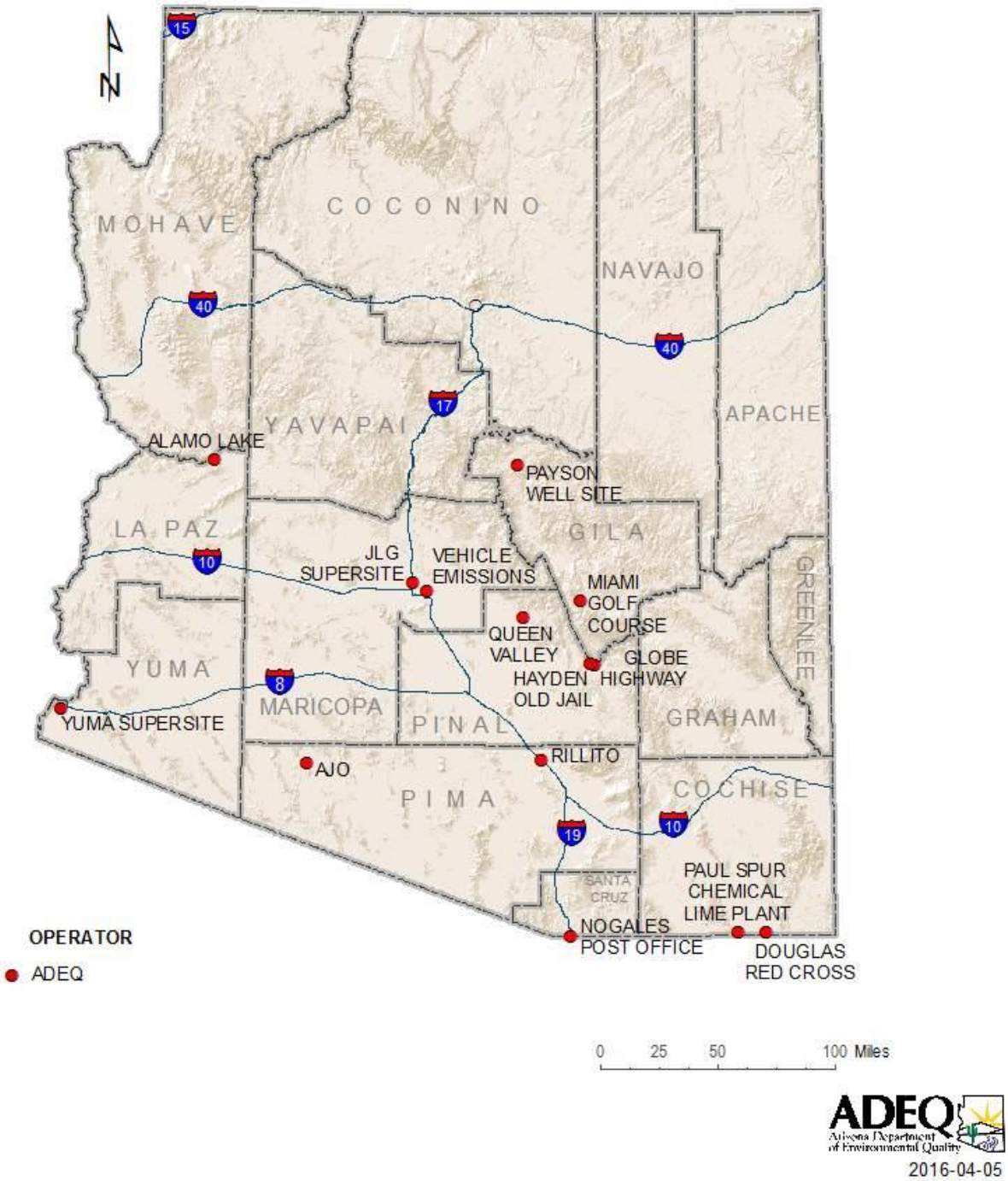
$PM_{2.5}$ Network



2016-04-05

Meteorological Network



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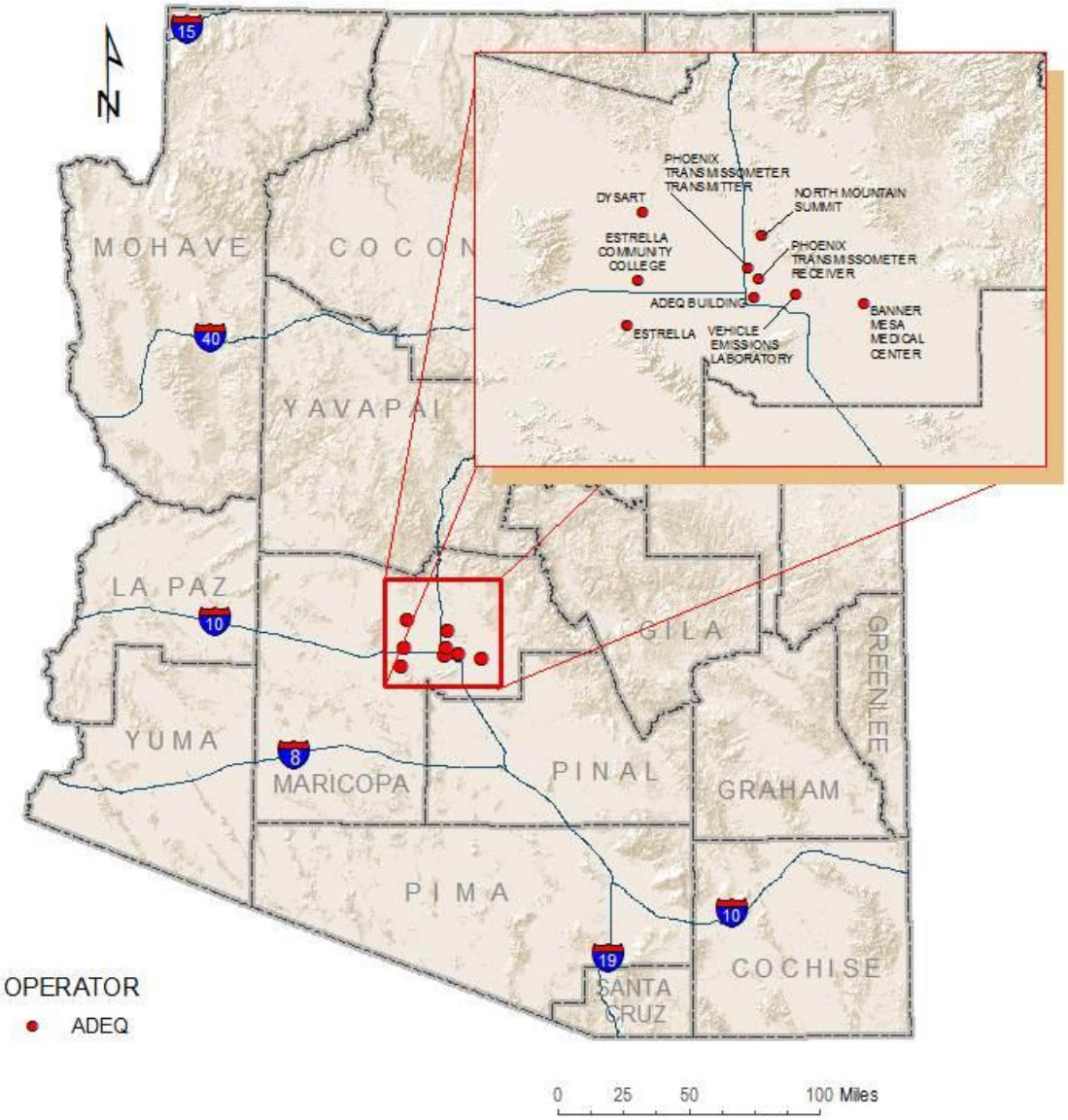
2016-04-05

Urban Visibility Network



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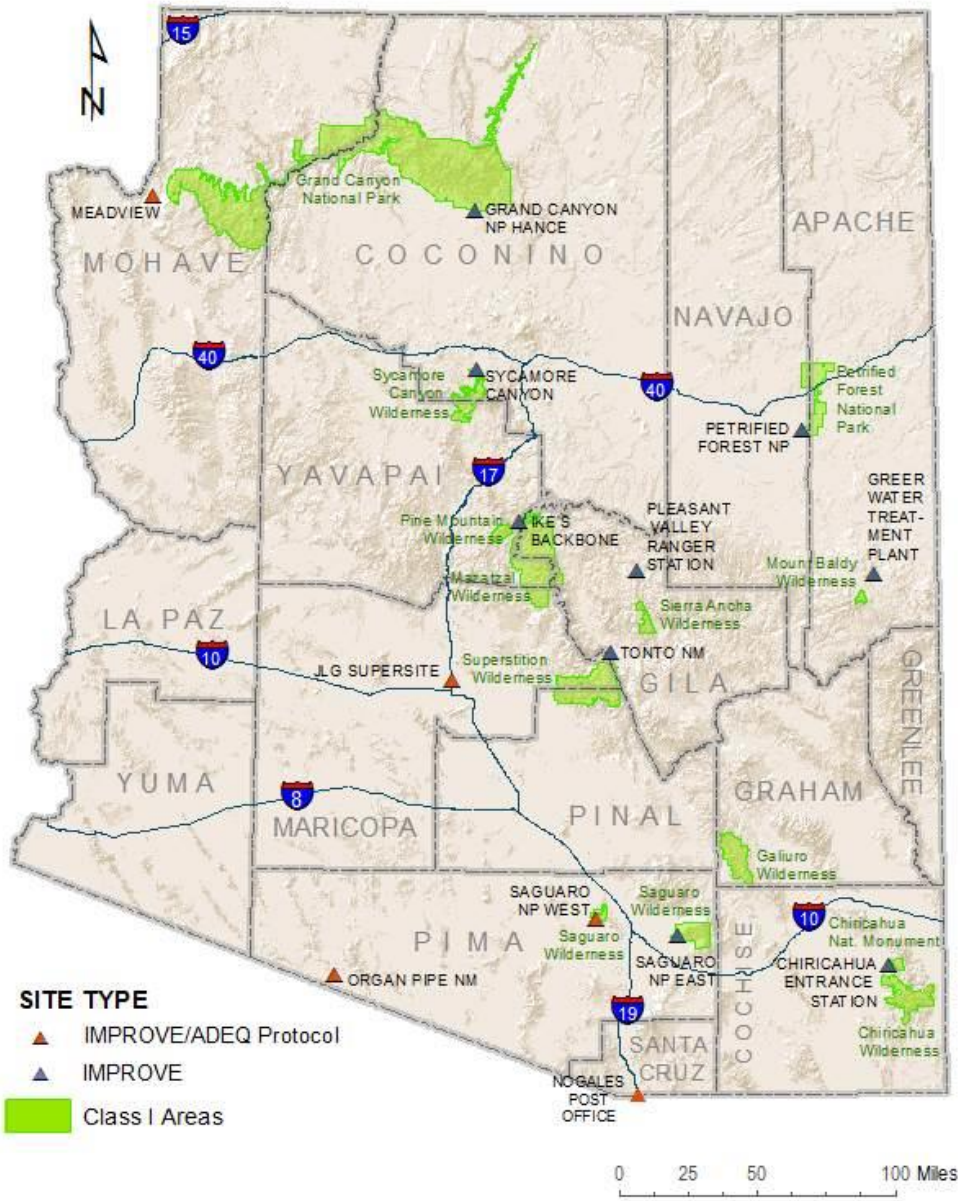
2016-04-05

IMPROVE Network & Class I Areas



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2016-04-05

Appendix C – Current Monitors by Program or Network

This appendix contains detailed information about monitors that are operated by ADEQ, or monitors that ADEQ has a strong association with (e.g. IMPROVE monitors). Only those monitors that were at some point in operation during July 1, 2015 – July 1, 2016 are included in this appendix. Monitors that are proposed to be installed or those that were discontinued prior to the creation of this network plan are not included in this appendix. Since individual pollutants or networks have specific monitoring or siting criteria, this appendix was created so that siting criteria can be easily identified and evaluated throughout a program or network. See Appendix D for detailed information on specific monitoring sites.

NON-REGULATORY NETWORKS
- Meteorology
  - Temp/RH....Appendix C Page 4
  - Wind ....Appendix C Page 6
- Special Purpose Monitors (SPM) ....Appendix C Page 8

NAAQS-RELATED NETWORKS
- State & Local Air Monitoring Stations (SLAMS)
  - CO ....Appendix C Page 9
  - NO_2 ....Appendix C Page 10
  - O_3 .... Appendix C Page 11
  - SO_2 ....Appendix C Page 12
  - Pb....Appendix C Page 13
  - PM_{10}....Appendix C Page 14
  - $PM_{2.5}$ ....Appendix C Page 16
- Chemical Speciation Network (CSN) ....Appendix C Page 17
- National Core Multi-Pollutant Monitoring Stations (NCore) ....Appendix C Page 18
- Photochemical Assessment Monitoring Stations (PAMS) ....Appendix C Page 20

AIR TOXICS
- National Air Toxics Trends Sites (NATTS) ....Appendix C Page 23
- Urban Air Toxics Monitoring Program (UATMP)....Appendix C Page 24

VISIBILITY
- Urban Haze
  - Camera ....Appendix C Page 25
  - Nephelometer ....Appendix C Page 26
  - Transmissometer....Appendix C Page 27
  - Temp/RH....Appendix C Page 28
- ADEQ Interagency Monitoring of Protected Visual Environments (IMPROVE) Protocol .....Appendix C Page 29

Definitions for Appendix C – Current Monitors by Program or Network

Metadata Type	Description
Local site name	Official name for the site as written in ADEQ's AirVision Database
Pollutant (POC)	The pollutant(s) or parameter(s) being collected or measured at the site and the POC is the Primary Occurrence Code for the instrument, as it is in ADEQ's AirVision Database
Parameter code	The AQS code representing a specific pollutant being measured or monitored
Basic monitoring objective	Purpose of monitoring for the parameter at the site (Public Information, NAAQS Comparison, or Research)
Site type(s)	A brief description of the intended purpose of the monitor's measurements (Extreme Downwind, Highest Concentration, Max Ozone Concentration, Max Precursor Impact, Population Exposure, Source Oriented, Upwind Background, General / Background, Regional Transport, Welfare-Related Impacts, Quality Assurance, or Other)
Monitor type(s)	The associated monitoring type for the monitor (SLAMS, SPM, Industrial, Non-EPA Federal, Tribal, EPA, Other)
Network affiliation(s)	The associated network affiliations for the monitor (Border Grant, CASTNET, CSN STN, CSN Supplemental, IMPROVE, NATTS, NCore, Near Road, PAMS, Proposed NCore, PSD, School Air Toxics, Unofficial PAMS, Voluntary School Air Toxics)
Collocation designation	For all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb, and NO_2 monitors, the associated collocation designation (Primary, QA Collocated, or Other)
Instrument manufacturer and model	The specific make and model of the monitor or instrument used in the network
Method code	The AQS code representing the particular method for collecting samples of the specified instrument
FRM/FEM/ARM/other	Denotes if the instrument is a Federal Reference Method, Federal Equivalency Method, Approved Regional Method (for continuous $PM_{2.5}$ only), or other according to the Federal Registry
Collecting agency	Name of agency collecting data
Analytical Lab (weight, toxics, other)	Name of laboratory performing sample analysis
Reporting Agency	Name of agency reporting the data
Spatial scale (micro, neighborhood)	Area represented by an air quality monitor (microscale: 0 – 100 m, middle scale: 0.1 – 0.5 km, neighborhood: 0.5 – 4 km, urban: 4 – 50 km, regional: ~50 – 500 km, or national/global)
Monitoring start date (MM/DD/YYYY)	Date that the monitor was started at the site
Current sampling frequency (1:3, continuous)	Frequency the instrument collects samples or measurements (e.g. hourly, daily, 1:3, 1:6, etc.)
Calculated sampling frequency (1:3 / 1:1)	Theoretical frequency for particular matter instrument based on Ratio to Standard Figure in 40 CFR Part 58.12 (e.g. hourly, daily, 1:3, 1:6)
Sampling season (MM/DD-MM/DD)	Period that the instrument collects samples or measurements throughout a given year (expressed as a range of months)
Probe height (meters)	Distance the probe is from the ground in meters (O_3 and SO_2 probes must be between 2 and 15 meters; others pollutants must be between 2 and 7 meters; meteorology typically 2 or 10 meters)
Distance from supporting structure (meters)	For rooftop probe(s) only. The separation distance is in reference to walls, parapets, or penthouses located on roof

Distance from obstructions on roof (meters)	Distance the instrument inlet is from the closest obstruction on the roof in meters (probes and inlets must be at least 1 meter from obstructions)
Distance from obstructions not on roof (meters)	Distance the instrument inlet is from the closest obstruction not on the roof in meters (probes and inlets must be at least 1 meter from obstructions)
Distance from trees (meters)	Distance the instrument inlet is from the nearest tree in meters (must be a minimum of 10 meters from drip line)
Obstruction Height above Probe (meters)	Height the obstruction is above the inlet (distance from the obstruction to the inlet must be at least 2x the height that the obstacle protrudes above the inlet). Trees can be considered obstructions depending on density of foliage, therefore the same obstruction requirements apply to trees
Tree Height above Probe (meters)	Height the tree is above the inlet. Trees that are within 10 meters of inlet may not cause issue if the tree height is at or below the inlet height. Furthermore, as trees grow they may become obstructions, therefore it is important to capture the height of trees
Distance to furnace or incinerator flue (meters)	Distance the instrument inlet is from the nearest furnace or incinerator flue in meters (for Pb and SO_2; designed to avoid undue influences from minor sources)
Distance between collocated monitors (meters)	Distance between the centers of collocated instruments in meters (must be between 1 and 4 meters)
Distance to closest monitor	Distance to closest monitor for all PM and Hi-vol instruments
Unrestricted airflow (degrees)	Angular measure (in degrees) of the area around an instrument that is free from obstructions (minimum of 180°)
Restricted airflow (degrees)	Direction the airflow is restricted in degrees (i.e. 90° = E) (must not be in the direction of the prevailing winds)
Prevailing wind direction (degrees)	Direction the wind predominately comes from in degrees during the season of greatest pollutant concentration. Used to determine if restricted airflow is in the direction of the prevailing wind
Probe material for reactive gases	Type of probe material (SO_2, NO_2, O_3 must have FEP Teflon or borosilicate glass; PAMS and VOCs must be borosilicate glass or stainless steel)
Residence time for reactive gases (seconds)	Number of seconds it takes a sample of air to travel from the inlet to the instrument (reactive gases must be less than 20 seconds)
Changes within the next 18 months? (Y/N)	Are there any planned changes to the monitor in the next 18 months? (Y or N)
Comparison against the annual PM2.5? (Y/N)	Are the data being compared against the annual $PM_{2.5}$ NAAQS standards? (Y or N)
Frequency of flow rate verification manual PM and Pb samplers	Frequency at which flow rate verifications occur for manual particulate matter and lead instruments (daily, weekly, bi-weekly, monthly)
Frequency of flow rate verification automated PM analyzers	Frequency at which flow rate verifications occur for automated particulate matter instrument (daily, weekly, bi-weekly, monthly)
Frequency of one-point QC check gaseous instruments	Frequency at which zero/span/precision checks occur for gaseous instruments (daily, weekly, bi-weekly, monthly)
Last Annual PE audit for gaseous parameters	Date the last Performance Evaluation audit was performed on the gaseous instrument. (SO_2, NO_2, O_3, CO, etc.) (MM/DD/YYYY)
Last two semi-annual flow rate audits PM and Pb	Dates of the last two audits on the particulate matter and lead instruments flow rate (MM/DD/YYYY, MM/DD/YYYY)

Non-Regulatory - Meteorology - Temp/RH

Local site name	Ajo	Alamo Lake	Douglas Red Cross	Globe Highway	Hayden Old Jail	JLG Supersite	Miami Golf Course
Pollutant (POC)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)
Parameter code	62101, 62201	62101, 62200	62101, 62201	62101, 62201	62101, 62201	62101, 62201	62101, 62201
Basic monitoring objective	--	--	--	--	--	--	--
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Highest Concentration, Source Oriented	Source Oriented	Population Exposure	Source Oriented
Monitor type	--	--	--	--	--	SLAMS	--
Network affiliation(s)	--	--	--	--	--	NCore, PAMS	--
Collocation designation	--	--	--	--	--	--	--
Instrument manufacturer and model	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe
Method code	040	040	040	040	040	040	040
FRM/FEM/ARM/other	--	--	--	--	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	02/11/2014	07/09/2015	08/16/2012	04/15/2011	02/02/2011	07/01/1993	06/08/2011
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	2.3	2.2	2.8	2	2.1	2	2
Distance from supporting structure (meters)	1.2	1	1.0	--	0.5	1	--
Distance from obstructions on roof (meters)	--	--	--	--	--	2	--
Distance from obstructions not on roof (meters)	--	--	--	--	--	20	--
Distance from trees (meters)	14	--	11.5	3.6	12	20	6
Obstruction height above probe (meters)	--	--	--	--	--	1	--
Tree height above probe (meters)	--	--	--	--	--	8	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	360	270	150	330
Restricted airflow (degrees)	--	--	--	--	250-340	140-350	310-350
Prevailing wind direction (degrees)	--	--	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	--	--

Non-Regulatory - Meteorology - Temp/RH continued							
Local site name	Nogales Post Office	Paul Spur Chemical Lime Plant	Payson Well Site	Queen Valley	Rillito	Vehicle Emissions Laboratory	Yuma Supersite
Pollutant (POC)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)	Temp/RH (1)
Parameter code	62101, 62201	62101, 62201	62101, 62201	62101, 62201	62101, 62201	62101, 62201	62101, 62201
Basic monitoring objective	--	--	--	--	--	--	--
Site type(s)	Population Exposure	Source Oriented	Population Exposure	Downwind	Source Oriented	Population Exposure	Population Exposure
Monitor type	--	--	--	SLAMS	--	--	--
Network affiliation(s)	--	--	--	PAMS	--	--	--
Collocation designation	--	--	--	--	--	--	--
Instrument manufacturer and model	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe
Method code	040	040	040	040	040	040	040
FRM/FEM/ARM/other	--	--	--	--	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Middle	Neighborhood	Regional	Middle	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	08/11/2011	12/01/2011	05/30/1991	06/23/2003	03/30/2010	05/11/1999	03/17/2010
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	5.2	2.4	2	2.6	2.4	4.5	2
Distance from supporting structure (meters)	--	1.0	--	0.50	--	--	1
Distance from obstructions on roof (meters)	--	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	5	--	--	--	1
Distance from trees (meters)	5	--	1	1.2	19	10	--
Obstruction height above probe (meters)	--	--	--	--	--	--	--
Tree height above probe (meters)	--	--	--	--	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	250	180	290	360	270
Restricted airflow (degrees)	--	--	--	90-270	35-105	--	0-90
Prevailing wind direction (degrees)	--	--	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	--	--

Non-Regulatory - Meteorology - Wind

Local site name	Ajo	Alamo Lake	Douglas Red Cross	Globe Highway	Hayden Old Jail	JLG Supersite	Miami Golf Course
Pollutant (POC)	Wind (1)	Wind (1)	Wind (1)	Wind (1)	Wind (1)	Wind (1)	Wind (1)
Parameter code	61103, 61104	61103, 61103	61103, 61104	61103, 61104	61103, 61104	61103, 61104	61103, 61104
Basic monitoring objective	--	--	--	--	--	--	--
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Highest Concentration, Source Oriented	Source Oriented	Population Exposure	Source Oriented
Monitor type	--	--	--	--	--	SLAMS	--
Network affiliation(s)	--	--	--	--	--	NCore, PAMS	--
Collocation designation	--	--	--	--	--	--	--
Instrument manufacturer and model	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer
Method code	020	020	020	020	020	020	020
FRM/FEM/ARM/other	--	--	--	--	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	07/01/1969	07/09/2015	08/06/2012	04/15/2011	02/02/2011	07/01/1993	06/08/2011
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	10	11	10	10	10	11.5	10.5
Distance from supporting structure (meters)	--	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	--	--	--	--	--
Distance from trees (meters)	14	--	11.5	--	--	20	--
Obstruction height above probe (meters)	--	--	--	--	--	--	--
Tree height above probe (meters)	--	--	--	--	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	--	--

Non-Regulatory - Meteorology - Wind continued

Local site name	Nogales Post Office	Paul Spur Chemical Lime Plant	Payson Well Site	Queen Valley	Rillito	Vehicle Emissions Laboratory	Yuma Supersite
Pollutant (POC)	Wind (1)	Wind (1)	Wind (1)	Wind (1)	Wind (1)	Wind (1)	Wind (1)
Parameter code	61103, 61104	61103, 61104	61103, 61104	61103, 61104	61103, 61104	61103, 61104	61103, 61104
Basic monitoring objective	--	--	--	--	--	--	--
Site type(s)	Population Exposure	Source Oriented	Population Exposure	Downwind	Source Oriented	Population Exposure	Population Exposure
Monitor type	--	--	--	SLAMS	--	--	--
Network affiliation(s)	--	--	--	PAMS	--	--	--
Collocation designation	--	--	--	--	--	--	--
Instrument manufacturer and model	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer
Method code	020	020	020	020	020	020	020
FRM/FEM/ARM/other	--	--	--	--	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Middle	Neighborhood	Regional	Middle	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	01/01/1980	12/01/2011	05/30/1991	06/23/2003	01/08/2004	05/11/1999	03/17/2010
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/32
Probe height (meters)	12	10	10	9	10.4	10	10
Distance from supporting structure (meters)	--	--	--	6.5	--	--	6.3
Distance from obstructions on roof (meters)	--	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	--	--	--	30	--
Distance from trees (meters)	--	--	2	--	20	50	--
Obstruction height above probe (meters)	--	--	--	--	--	--	--
Tree height above probe (meters)	--	--	--	--	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	270	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	--	--

Non-Regulatory - SPM

Local site name	Flagstaff Middle School	Payson Well Site	Prescott College AQD	Sedona Fire Station AQD
Pollutant (POC)	$PM_{2.5}$ (1)	$PM_{2.5}$ (1)	$PM_{2.5}$ (1)	$PM_{2.5}$ (1)
Parameter code	--	--	--	--
Basic monitoring objective	Public Information	Public Information	Public Information	Public Information
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	Special Purpose	Special Purpose	Special Purpose	Special Purpose
Network affiliation(s)	--	--	--	--
Collocation designation	--	--	--	--
Instrument manufacturer and model	Met One E-BAM	Met One E-BAM	Met One E-BAM	Met One E-BAM
Method code	--	--	--	--
FRM/FEM/ARM/other	--	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	09/09/1999	05/16/2012	07/13/2011	12/16/2011
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	6.8	2	4.5	3.6
Distance from supporting structure (meters)	--	--	1.5	--
Distance from obstructions on roof (meters)	--	--	--	--
Distance from obstructions not on roof (meters)	--	6	28.0	3
Distance from trees (meters)	31	4	--	--
Obstruction height above probe (meters)	--	--	11.0	--
Tree height above probe (meters)	5.7	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--
Unrestricted airflow (degrees)	270	90	360	300
Restricted airflow (degrees)	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--
Probe material for reactive gases	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	N	N	N	N
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--
Frequency of flow rate verification automated PM analyzers	Monthly	Monthly	Monthly	Monthly
Frequency of one-point QC check gaseous instruments	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--

NAAQS - SLAMS - CO	
Local site name	JLG Supersite
Pollutant (POC)	CO (1)
Parameter code	42101
Basic monitoring objective	NAAQS Comparison
Site type(s)	Highest Concentration
Monitor type	SLAMS
Network affiliation(s)	NCore, PAMS
Collocation designation	--
Instrument manufacturer and model	Ecotech EC9830T
Method code	588
FRM/FEM/ARM/other	FEM
Collecting agency	ADEQ
Analytical lab (weight, toxics, other)	--
Reporting agency	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood
Monitoring start date (MM/DD/YYYY)	07/01/1993
Current sampling frequency (1:3, continuous)	Continuous
Calculated sampling frequency (1:3 / 1:1)	--
Sampling season (MM/DD-MM/DD)	01/01-12/31
Probe height (meters)	4.1
Distance from supporting structure (meters)	1.2
Distance from obstructions on roof (meters)	--
Distance from obstructions not on roof (meters)	20
Distance from trees (meters)	20
Obstruction height above probe (meters)	6
Tree height above probe (meters)	6
Distance to furnace or incinerator flue (meters)	--
Distance between collocated monitors (meters)	--
Distance to closest monitor (meters)	--
Unrestricted airflow (degrees)	360
Restricted airflow (degrees)	--
Prevailing wind direction (degrees)	--
Probe material for reactive gases	Glass, Teflon
Residence time for reactive gases (seconds)	1.73
Changes within the next 18 months? (Y/N)	N
Comparison against the annual PM2.5? (Y/N)	--
Frequency of flow rate verification manual PM and Pb samplers	--
Frequency of flow rate verification automated PM analyzers	--
Frequency of one-point QC check gaseous instruments	Bi-Weekly
Last annual PE audit for gaseous parameters	12/16/2015
Last two semi-annual flow rate audits PM and Pb	--

NAAQS - SLAMS - NO_2		
Local site name	Alamo Lake	JLG Supersite
Pollutant (POC)	NO_2 (1)	NO_2 (1)
Parameter code	42602	42602
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison
Site type(s)	Background	Highest Concentration
Monitor type	SPM	SLAMS
Network affiliation(s)	--	NCore
Collocation designation	Primary	Primary
Instrument manufacturer and model	Ecotech EC9841B	Ecotech EC9841B
Method code	090	090
FRM/FEM/ARM/other	FRM	FRM
Collecting agency	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--
Reporting agency	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Regional	Neighborhood
Monitoring start date (MM/DD/YYYY)	07/01/2014	07/01/1993
Current sampling frequency (1:3, continuous)	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	4.1	4.1
Distance from supporting structure (meters)	1.6	1.2
Distance from obstructions on roof (meters)	--	--
Distance from obstructions not on roof (meters)	--	20
Distance from trees (meters)	--	20
Obstruction height above probe (meters)	--	6
Tree height above probe (meters)	--	6
Distance to furnace or incinerator flue (meters)	--	--
Distance between collocated monitors (meters)	--	--
Distance to closest monitor (meters)	--	--
Unrestricted airflow (degrees)	360	360
Restricted airflow (degrees)	--	--
Prevailing wind direction (degrees)	--	--
Probe material for reactive gases	Teflon	Glass, Teflon
Residence time for reactive gases (seconds)	3.6	1.94
Changes within the next 18 months? (Y/N)	N	N
Comparison against the annual PM2.5? (Y/N)	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--
Frequency of flow rate verification automated PM analyzers	--	--
Frequency of one-point QC check gaseous instruments	Bi-Weekly	Bi-Weekly
Last annual PE audit for gaseous parameters	02/26/2015	12/03/2015
Last two semi-annual flow rate audits PM and Pb	--	--

NAAQS - SLAMS - O_3

Local site name	Alamo Lake	Flagstaff Middle School	JLG Supersite	Prescott College AQD	Queen Valley	Tonto National Monument	Yuma Supersite
Pollutant (POC)	O_3 (1)	O_3 (1)	O_3 (1)	O_3 (1)	O_3 (1)	O_3 (1)	O_3 (1)
Parameter code	44201	44201	44201	44201	44201	44201	44201
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Regional Transport	Max O_3 Concentration	Max O_3 Concentration	Max O_3 Concentration	Extreme Downwind	Extreme Downwind	Max O_3 Concentration
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	--	--	NCore, PAMS	--	PAMS	--	--
Collocation designation	--	--	--	--	--	--	--
Instrument manufacturer and model	Teledyne API 400E	Teledyne API 400E	Teledyne API 400E	Teledyne API 400E	Teledyne API 400E	Teledyne API 400E	Teledyne API 400E
Method code	087	087	087	087	087	087	087
FRM/FEM/ARM/other	FEM	FEM	FEM	FEM	FEM	FEM	FEM
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Regional	Neighborhood	Neighborhood	Neighborhood	Regional	Regional	Neighborhood
Monitoring start date (MM/DD/YYYY)	05/20/2005	03/13/2008	07/01/1993	03/25/2008	01/01/1998	05/22/2002	05/06/2008
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	03/01-10/31	03/01-10/31	01/01-12/31	03/01-10/31	03/01-10/31	03/01-10/31	03/01-10/31
Probe height (meters)	4.1	9.5	4.1	4.0	4.5	4.1	4.3
Distance from supporting structure (meters)	1.6	1.5	1.2	1.0	2	1.4	1.6
Distance from obstructions on roof (meters)	--	0	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	20	27	--	--	65
Distance from trees (meters)	--	21.5	20	--	--	--	--
Obstruction height above probe (meters)	--	--	6	11.5	--	--	0
Tree height above probe (meters)	--	3	6	--	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--	--
Probe material for reactive gases	Teflon	Teflon	Glass, Teflon	Teflon	Teflon	Teflon	Teflon
Residence time for reactive gases (seconds)	3.78	8.72	1.94	6.0	3.65	3.24	5.02
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	Bi-Weekly	Bi-Weekly	Bi-Weekly	Bi-Weekly	Bi-Weekly	Bi-Weekly	Bi-Weekly
Last annual PE audit for gaseous parameters	09/01/2015	05/14/2015	12/16/2015	06/11/2015	08/26/2015	08/20/2015	04/23/2015
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	--	--

NAAQS - SLAMS - SO_2

Local site name	Alamo Lake	Hayden Old Jail	JLG Supersite	Miami Jones Ranch	Miami Ridgeline	Miami Townsite
Pollutant (POC)	SO_2 (1)	SO_2 (1)	SO_2 (1)	SO_2 (1)	SO_2 (1)	SO_2 (1)
Parameter code	42401	42401	42401	42401	42401	42401
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Background	Source Oriented	Population Exposure	Source Oriented	Source Oriented	Source Oriented
Monitor type	SPM	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	--	--	NCore	--	--	--
Collocation designation	--	--	--	--	--	--
Instrument manufacturer and model	Ecotech EC9850T	Ecotech EC9850T	Ecotech EC9850T	Ecotech EC9850T	Thermo 43C	Ecotech EC9850T
Method code	592	592	592	592	592	592
FRM/FEM/ARM/other	FEM	FEM	FEM	FEM	FEM	FEM
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Regional	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	01/14/2014	01/01/1975	03/03/2005	02/01/2013	10/05/1995	02/01/2013
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	4.1	4.7	4.1	3.5	3.5	3.7
Distance from supporting structure (meters)	1.6	2.1	1.2	1	1.1	1
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	20	--	10	26.4
Distance from trees (meters)	--	12	20	--	--	14
Obstruction height above probe (meters)	--	--	6	--	1.5	10.9
Tree height above probe (meters)	--	0	6	--	--	7
Distance to furnace or incinerator flue (meters)	--	280	--	3081	1411	2300
Distance between collocated monitors (meters)	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--
Probe material for reactive gases	Teflon	Teflon	Glass, Teflon	Teflon	Teflon	Teflon
Residence time for reactive gases (seconds)	3.76	4.54	1.94	4.08	4.1	3.96
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	Bi-Weekly	Bi-Weekly	Bi-Weekly	Bi-Weekly	Bi-Weekly	Bi-Weekly
Last annual PE audit for gaseous parameters	02/26/2015	02/03/2015	12/03/2015	07/22/2015	04/29/2015	11/05/2015
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	--

NAAQS - SLAMS - Pb

Local site name	Globe Highway	Globe Highway	Hillcrest	JLG Supersite	Miami Golf Course
Pollutant (POC)	Pb (1)	Pb (2)	Pb (1)	Pb-PM_{10} (1)	Pb (1)
Parameter code	14129	14129	14129	85129	14129
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Highest Concentration, Source Oriented	Highest Concentration, Source Oriented	Highest Concentration, Source Oriented	Population Exposure, Non Source Oriented	Source Oriented
Monitor type	SLAMS	SLAMS	SPM	SLAMS	SLAMS
Network affiliation(s)	--	--	--	NCore	--
Collocation designation	Primary	QA Collocated	Primary	Primary	Primary
Instrument manufacturer and model	Tisch TE-8550-BL TSP	Tisch TE-8550-BL TSP	Tisch TE-8550-BL TSP	Thermo Partisol 2000	Tisch TE-8550-BL TSP
Method code	191	191	191	202	191
FRM/FEM/ARM/other	FEM	FEM	FEM	FEM	FEM
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	PCRWRD	PCRWRD	PCRWRD	ERG	PCRWRD
Reporting agency	ADEQ	ADEQ	ADEQ	ERG	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	10/01/2010	10/01/2010	01/01/2016	01/01/2005	10/01/2010
Current sampling frequency (1:3, continuous)	1:6	1:6	1:6	1:6	1:6
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/32	01/01-12/31	01/01-12/31
Probe height (meters)	2	2	3	4.7	3
Distance from supporting structure (meters)	1.1	1.1	1.2	2	1.1
Distance from obstructions on roof (meters)	--	--	--	--	--
Distance from obstructions not on roof (meters)	65	65	--	20	--
Distance from trees (meters)	3	3	--	20	7
Obstruction height above probe (meters)	23	23	--	6	--
Tree height above probe (meters)	-1	-1	--	6	0
Distance to furnace or incinerator flue (meters)	1043	1043	526	--	2635
Distance between collocated monitors (meters)	2.7	2.7	--	--	--
Distance to closest monitor (meters)	2.7	2.7	--	1.0	3.5
Unrestricted airflow (degrees)	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	Monthly	Monthly	Monthly	Monthly	Monthly
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	05/05/2015, 12/09/2015	05/05/2015, 12/09/2015	N/A	05/25/2015, 11/10/2015	04/29/2015, 11/05/2015

NAAQS - SLAMS - PM_{10}

Local site name	Ajo	Alamo Lake	Bullhead City	Douglas Red Cross	Hayden Old Jail	JLG Supersite
Pollutant (POC)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)
Parameter code	81102	81102	81102	81102	81102	81102
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Population Exposure	Background	Population Exposure	Population Exposure	Source Oriented	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	--	--	--	--	--	NCore
Collocation designation	Primary	Primary	Primary	Primary	Primary	Primary
Instrument manufacturer and model	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020
Method code	122	122	122	122	122	122
FRM/FEM/ARM/other	FEM	FEM	FEM	FEM	FEM	FEM
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Regional	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	02/11/1991	10/30/2013	11/05/1997	09/02/1998	01/06/1981	07/01/1993
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	1:1	1:1	1:1	1:6	1:6	1:2
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	3.7	4.4	8	3.1	4.6	4.9
Distance from supporting structure (meters)	2.6	2	2	2.1	2	2.5
Distance from obstructions on roof (meters)	--	--	6.3	--	--	--
Distance from obstructions not on roof (meters)	--	--	--	--	--	15
Distance from trees (meters)	12	--	--	10	12	15
Obstruction height above probe (meters)	--	--	0	--	--	5
Tree height above probe (meters)	0	--	--	1	0	5
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Distance to closest monitor (meters)	--	1.0	--	1.0	--	1.0
Unrestricted airflow (degrees)	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	
Last two semi-annual flow rate audits PM and Pb	05/28/2015, 10/28/2015	02/26/2015, 09/01/2015	06/01/2015, 12/02/2015	01/28/2015, 08/05/2015	02/03/2015, 08/12/2015	05/28/2015, 12/01/2015

NAAQS - SLAMS - PM_{10} continued

Local site name	Miami Golf Course	Nogales Post Office	Paul Spur Chemical Lime Plant	Payson Well Site	Rillito	Yuma Supersite
Pollutant (POC)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)
Parameter code	81102	81102	81102	81102	81102	81102
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Source Oriented	Population Exposure	Source Oriented	Population Exposure	Source Oriented	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	--	--	--	--	--	--
Collocation designation	Primary	Primary	Primary	Primary	Primary	Primary
Instrument manufacturer and model	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020
Method code	122	122	122	122	122	122
FRM/FEM/ARM/other	FEM	FEM	FEM	FRM	FEM	FEM
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Middle	Neighborhood	Middle	Neighborhood
Monitoring start date (MM/DD/YYYY)	7/26/2012	01/01/1980	01/06/1991	01/01/1991	01/03/1985	12/01/2009
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	1:6	1:1	1:2	1:6	1:6	1:6
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	4	8	3.1	4.75	4.3	5
Distance from supporting structure (meters)	2	2.7	2	2.1	2	2.2
Distance from obstructions on roof (meters)	--	11	--	--	--	--
Distance from obstructions not on roof (meters)	--		--	--	3	65
Distance from trees (meters)	6	10	--	17.4	20	--
Obstruction height above probe (meters)	--	2	--	--	0	0
Tree height above probe (meters)	0	0	--	1	0	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	3	--	--	--	--
Distance to closest monitor (meters)	--	1.0	--	--	--	1.0
Unrestricted airflow (degrees)	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	02/12/2015, 07/22/2015	01/29/2015, 08/06/2015	01/28/2015, 08/05/2015	05/13/2015, 11/17/2015	04/22/2015, 10/28/2015	04/23/2015, 10/29/2015

NAAQS - SLAMS - $PM_{2.5}$

Local site name	Alamo Lake	Douglas Red Cross	JLG Supersite	JLG Supersite	Nogales Post Office	Nogales Post Office	Yuma Supersite
Pollutant (POC)	$PM_{2.5}$ (3)	$PM_{2.5}$ (3)	$PM_{2.5}$ (3)	$PM_{2.5}$ (1)	$PM_{2.5}$ (3)	$PM_{2.5}$ (1)	$PM_{2.5}$ (3)
Parameter code	88101	88101	88101	88101	88101	88101	88101
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Background	Population Exposure	Population Exposure	Population Exposure	Highest Concentration	Highest Concentration	Regional Transport
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	--	--	NCore	NCore	--	--	--
Collocation designation	Primary	Primary	Primary	QA Collocated	Primary	QA Collocated	Primary
Instrument manufacturer and model	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020	Thermo Partisol 2000i	Met One BAM 1020	Thermo Partisol 2000i	Met One BAM 1020
Method code	170	170	170	143	170	143	170
FRM/FEM/ARM/other	FEM	FEM	FEM	FRM	FEM	FRM	FEM
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	IML	--	IML	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Regional	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	11/15/2013	11/02/2000	07/01/2003	07/01/2003	04/01/1999	04/01/1999	01/01/2010
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	1:3	Continuous	1:6	Continuous
Calculated sampling frequency (1:3 / 1:1)	1:3	1:3	1:3	1:3	1:3	1:3	1:3
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	4.5	3.9	5	4.7	8.3	7.3	5.1
Distance from supporting structure (meters)	2.1	2.9	2.5	2	3	2	2.3
Distance from obstructions on roof (meters)	--	--	--	--	12	9	--
Distance from obstructions not on roof (meters)	--	--	15	20			65
Distance from trees (meters)	--	10.5	15	20	10	10	--
Obstruction height above probe (meters)	--	--	5	6	1.7	2.7	0
Tree height above probe (meters)	--	0	5	6	0	0	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	3.8	3.8	3.0	3.0	--
Distance to closest monitor (meters)	1.0	1.0	1.0	2.0	1.0	3.0	1.0
Unrestricted airflow (degrees)	360	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	180	180	--
Probe material for reactive gases	--	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	Y	Y	Y	Y	Y	Y	Y
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	Monthly	--	Monthly	--
Frequency of flow rate verification automated PM analyzers	Monthly	Monthly	Monthly	--	Monthly	--	Monthly
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	02/26/2015, 09/01/2015	01/28/2015, 08/05/2015	05/28/2015, 12/01/2015	05/28/2015, 11/10/2015	01/29/2015, 08/06/2015	01/29/2015, 08/06/2015	04/23/2015, 10/29/2015

NAAQS - CSN		
Local site name	JLG Supersite	JLG Supersite
Pollutant (POC)	$PM_{2.5}$ Speciation (7)	$PM_{2.5}$ Speciation (7)
Parameter code	Multiple	Multiple
Basic monitoring objective	Research	Research
Site type(s)	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS
Network affiliation(s)	CSN STN, NCore	CSN STN, NCore
Collocation designation	--	--
Instrument manufacturer and model	Met One SuperSASS	URG 3000N
Method code	Various	Various
FRM/FEM/ARM/other	--	--
Collecting agency	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	RTI	RTI
Reporting agency	RTI	RTI
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	02/21/2000	02/21/2000
Current sampling frequency (1:3, continuous)	1:3	1:3
Calculated sampling frequency (1:3 / 1:1)	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	4.7	4.9
Distance from supporting structure (meters)	2	2.2
Distance from obstructions on roof (meters)	--	--
Distance from obstructions not on roof (meters)	20	15
Distance from trees (meters)	20	15
Obstruction height above probe (meters)	6	5
Tree height above probe (meters)	6	5
Distance to furnace or incinerator flue (meters)	--	--
Distance between collocated monitors (meters)	--	--
Distance to closest monitor (meters)	--	--
Unrestricted airflow (degrees)	360	360
Restricted airflow (degrees)	--	--
Prevailing wind direction (degrees)	--	--
Probe material for reactive gases	--	--
Residence time for reactive gases (seconds)	--	--
Changes within the next 18 months? (Y/N)	N	N
Comparison against the annual PM2.5? (Y/N)	--	--
Frequency of flow rate verification manual PM and Pb samplers	Monthly	Monthly
Frequency of flow rate verification automated PM analyzers	--	--
Frequency of one-point QC check gaseous instruments	--	--
Last annual PE audit for gaseous parameters	--	--
Last two semi-annual flow rate audits PM and Pb	9/10/2015	9/10/2015

NAAQS - NCore

Local site name	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite
Pollutant (POC)	CO (1)	NOy (1)	O3 (1)	SO2 (1)	Pb-PM10 (1)	$PM_{10-2.5}$ (1)
Parameter code	42101	42600	44201	42401	85129	86101
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	Research
Site type(s)	Highest Concentration	Population Exposure	Max O3 Concentration	Population Exposure	Population Exposure, Non Source Oriented	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	NCore, PAMS	NCore	NCore, PAMS	NCore	NCore	NCore
Collocation designation	--	--	--	--	Primary	Primary
Instrument manufacturer and model	Ecotech EC9830T	Ecotech 9843	Teledyne API 400E	Ecotech EC9850T	Thermo Partisol 2000	Met One BAM 1020
Method code	588	591	087	592	202	185
FRM/FEM/ARM/other	FEM	FEM	FEM	FEM	FEM	FEM
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	ERG	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ERG	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	7/1/1993	01/01/2011	7/1/1993	38414	1/1/2005	11/10/2010
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous	1:6	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	4.1	10	4.1	4.1	4.7	4.9
Distance from supporting structure (meters)	1.2	7	1.2	1.2	2	2.5
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	20	20	20	20	20	15
Distance from trees (meters)	20	20	20	20	20	15
Obstruction height above probe (meters)	6	0	6	6	6	5
Tree height above probe (meters)	6	0	6	6	6	5
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	1.0	2.0
Unrestricted airflow (degrees)	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--
Probe material for reactive gases	Glass, Teflon	Glass, Teflon	Glass, Teflon	Glass, Teflon	--	--
Residence time for reactive gases (seconds)	1.73	14.39	1.94	1.94	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	Monthly	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	Monthly
Frequency of one-point QC check gaseous instruments	Bi-Weekly	Bi-Weekly	Bi-Weekly	Bi-Weekly	--	--
Last annual PE audit for gaseous parameters	12/16/2015	12/16/15	12/16/2015	12/3/2015	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	05/25/2015, 11/10/2015	--

NAAQS - NCore continued						
Local site name	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite
Pollutant (POC)	PM2.5 (3)	PM2.5 (1)	$PM_{2.5}$ Speciation (7)	$PM_{2.5}$ Speciation (7)	Temp/RH (1)	Wind (1)
Parameter code	88101	88101	Multiple	Multiple	62101, 62201	61103, 61104
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	Research	Research	--	--
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	NCore	NCore	CSN STN, NCore	CSN STN, NCore	NCore, PAMS	NCore, PAMS
Collocation designation	Primary	QA Collocated	--	--	--	--
Instrument manufacturer and model	Met One BAM 1020	Thermo Partisol 2000i	Met One SuperSASS	URG 3000N	Vaisala HMP 155 Probe	RM Young 5305 Anemometer
Method code	170	143	Various	Various	040	020
FRM/FEM/ARM/other	FEM	FRM	--	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	IML	RTI	RTI	--	--
Reporting agency	ADEQ	ADEQ	RTI	RTI	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	7/1/2003	7/1/2003	02/21/2000	02/21/2000	7/1/1993	7/1/1993
Current sampling frequency (1:3, continuous)	Continuous	1:3	1:3	1:3	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	1:3	1:3	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	5	4.7	4.7	4.9	2	11.5
Distance from supporting structure (meters)	2.5	2	2	2	1	--
Distance from obstructions on roof (meters)	--	--	--	--	2	--
Distance from obstructions not on roof (meters)	15	20	20	15	20	--
Distance from trees (meters)	15	20	20	15	20	20
Obstruction height above probe (meters)	5	6	6	5	1	--
Tree height above probe (meters)	5	6	6	5	8	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	3.8	3.8	--	--	--	--
Distance to closest monitor (meters)	1.0	2.0	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	360	150	360
Restricted airflow (degrees)	--	--	--	--	140-350	--
Prevailing wind direction (degrees)	--	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	Y	Y	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	Monthly	Monthly	Monthly	--	--
Frequency of flow rate verification automated PM analyzers	Monthly	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	05/28/2015, 12/01/2015	05/28/2015, 11/10/2015	9/10/2015	9/10/2015	--	--

NAAQS - PAMS

Local site name	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite
Pollutant (POC)	CO (1)	NO2 (1)	O3 (1)	Carbonyl (30,31)	Carbonyl (32)	VOC (6)
Parameter code	42101	42602	44201	Multiple	Multiple	Multiple
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	Research	Research	Research
Site type(s)	Highest Concentration	Highest Concentration	Max O3 Concentration	Max Precursor Impact	QA Collocated	Max Precursor Impact
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	NCore, PAMS	NCore	NCore, PAMS	PAMS, NATTS	PAMS, NATTS	PAMS, NATTS
Collocation designation	--	Primary	--	--	--	--
Instrument manufacturer and model	Ecotech EC9830T	Ecotech EC9841B	Teledyne API 400E	ATEC 8000	ATEC 8000	ATEC 2200
Method code	588	090	087	202	202	126
FRM/FEM/ARM/other	FEM	FRM	FEM	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	ERG	ERG	ERG
Reporting agency	ADEQ	ADEQ	ADEQ	ERG	ERG	ERG
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	07/01/1993	07/01/1993	07/01/1993	05/15/1999	05/15/1999	05/15/1999
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	1:6	1:6	1:6
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	06/01-08/31	06/01-08/31	06/01-08/31
Probe height (meters)	4.1	4.1	4.1	4.7	4.7	4.7
Distance from supporting structure (meters)	1.2	1.2	1.2	2	2	2
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	20	20	20	20	20	20
Distance from trees (meters)	20	20	20	20	20	20
Obstruction height above probe (meters)	6	6	6	6	6	6
Tree height above probe (meters)	6	6	6	6	6	6
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--
Probe material for reactive gases	Glass, Teflon	Glass, Teflon	Glass, Teflon	Stainless Steel	Stainless Steel	Stainless Steel
Residence time for reactive gases (seconds)	1.73	1.94	1.94	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	Bi-Weekly	Bi-Weekly	Bi-Weekly	--	--	--
Last annual PE audit for gaseous parameters	12/16/2015	12/03/2015	12/16/2015	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	--

NAAQS - PAMS continued

Local site name	JLG Supersite	JLG Supersite	JLG Supersite	Queen Valley	Queen Valley	Queen Valley
Pollutant (POC)	VOC (7)	Temp/RH (1)	Wind (1)	O3 (1)	NOy (1)	VOC (6)
Parameter code	Multiple	62101, 62201	61103, 61104	44201	42600	Multiple
Basic monitoring objective	Research	--	--	NAAQS Comparison	Research	Research
Site type(s)	QA Collocated	Population Exposure	Population Exposure	Extreme Downwind	Downwind	Downwind
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	PAMS, NATTS	NCore, PAMS	NCore, PAMS	PAMS	PAMS	PAMS
Collocation designation	--	--	--	--	--	--
Instrument manufacturer and model	ATEC 2200	Vaisala HMP 155 Probe	RM Young 5305 Anemometer	Teledyne API 400E	Thermo 42C TL Reactive	ATEC 8001
Method code	126	040	020	087	574	126
FRM/FEM/ARM/other	--	--	--	FEM	FEM	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	ERG	--	--	--	--	ERG
Reporting agency	ERG	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Regional	Regional	Regional
Monitoring start date (MM/DD/YYYY)	05/15/1999	07/01/1993	07/01/1993	01/01/1998	01/01/1998	05/20/2001
Current sampling frequency (1:3, continuous)	NATTS not PAMS	Continuous	Continuous	Continuous	Continuous	1:6
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	06/01 - 08/31	01/01-12/31	01/01-12/31	03/01-10/31	06/01-08/31	06/01-08/31
Probe height (meters)	4.7	2	11.5	4.5	5.1	4.5
Distance from supporting structure (meters)	2	1	--	2	2.6	2
Distance from obstructions on roof (meters)	--	2	--	--	--	--
Distance from obstructions not on roof (meters)	20	20	--	--	--	--
Distance from trees (meters)	20	20	20	--	--	--
Obstruction height above probe (meters)	6	1	--	--	--	--
Tree height above probe (meters)	6	8	--	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	150	360	360	360	360
Restricted airflow (degrees)	--	140-350	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--
Probe material for reactive gases	Stainless Steel	--	--	Teflon	Glass, Teflon	Stainless Steel
Residence time for reactive gases (seconds)	--	--	--	3.65	13.8	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	Bi-Weekly	Bi-Weekly	--
Last annual PE audit for gaseous parameters	--	--	--	08/26/2015	08/26/2015	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	--

NAAQS - PAMS continued

Local site name	Queen Valley	Queen Valley	Vehicle Emissions Laboratory	Vehicle Emissions Laboratory	Vehicle Emissions Laboratory	Vehicle Emissions Laboratory	Vehicle Emissions Laboratory
Pollutant (POC)	Temp/RH (1)	Wind (1)	Delta Temp (1)	Horizontal Solar Raditation (1)	Ultraviolet Solar Radiation (1)	Temp/RH (1)	Wind (1)
Parameter code	62101, 62201	61103, 61104	62101, 61202	63301	63302, 63304	62101, 62201	61103, 61104
Basic monitoring objective	--	--	Research	Research	Research	--	--
Site type(s)	Downwind	Downwind	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS				--	--
Network affiliation(s)	PAMS	PAMS	PAMS	PAMS	PAMS	--	--
Collocation designation	--	--	--	--	--	--	--
Instrument manufacturer and model	Vaisala HMP 155 Probe	RM Young 5305 Anemometer	RM Young 7627	Li-Cor 200S2	Epply TUVR UV	Vaisala HMP 155 Probe	RM Young 5305 Anemometer
Method code	040	020	810	011	011	040	020
FRM/FEM/ARM/other	--	--	--	--	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Regional	Regional	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	6/23/2003	6/23/2003	08/20/2004	06/18/1999	08/20/2004	36291	36291
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	2.6	9	2.5 - 10	5	5	4.5	10
Distance from supporting structure (meters)	0.5	6.5	.5	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	--	--	--	--	30
Distance from trees (meters)	1.2	--	10	10	10	10	50
Obstruction height above probe (meters)	--	--	--	--	--	--	--
Tree height above probe (meters)	--	--	--	--	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	180	360	360	360	360	360	360
Restricted airflow (degrees)	90-270	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--		--	--	--	--

Air Toxics -NATTS

Local site name	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite
Pollutant (POC)	Carbonyl (6)	Carbonyl (7)	VOC (6)	VOC (7)	HAP/SVOC/PAH (6)	PM_{10} metals speciation (1)
Parameter code	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple
Basic monitoring objective	Research	Research	Research	Research	Research	Research
Site type(s)	Population Exposure	QA Collocated	Population Exposure	QA Collocated	Population Exposure	Population Exposure
Monitor type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Network affiliation(s)	PAMS, NATTS	PAMS, NATTS	PAMS, NATTS	PAMS, NATTS	NATTS	NATTS
Collocation designation	--	--	--	--	--	--
Instrument manufacturer and model	ATEC 8000	ATEC 8000	ATEC 2200	ATEC 2200	Tisch PUF+	Thermo Partisol 2000
Method code	202	202	101	101	118	202
FRM/FEM/ARM/other	--	--	--	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	ERG	ERG	ERG	ERG	ERG	ERG
Reporting agency	ERG	ERG	ERG	ERG	ERG	ERG
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	05/15/1999	05/15/1999	06/06/2001	06/06/2001	07/08/2007	01/01/2005
Current sampling frequency (1:3, continuous)	1:6	Every other month	1:6	Every other month	1:6	1:6
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	4.7	4.7	4.7	4.7	4.1	4.7
Distance from supporting structure (meters)	2	2	2	2	1.2	2
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	20	20	20	20	20	20
Distance from trees (meters)	20	20	20	20	20	20
Obstruction height above probe (meters)	6	6	6	6	6	6
Tree height above probe (meters)	6	6	6	6	6	6
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	2.0	--
Unrestricted airflow (degrees)	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--
Probe material for reactive gases	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	Monthly
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	05/25/2015, 11/10/2015

Air Toxics - UATMP	
Local site name	South Phoenix
Pollutant (POC)	VOC (6)
Parameter code	Multiple
Basic monitoring objective	Research
Site type(s)	Population Exposure
Monitor type	SLAMS
Network affiliation(s)	NATTS
Collocation designation	--
Instrument manufacturer and model	ATEC 8001
Method code	101
FRM/FEM/ARM/other	--
Collecting agency	ADEQ
Analytical lab (weight, toxics, other)	ERG
Reporting agency	ERG
Spatial scale (micro, neighborhood)	Neighborhood
Monitoring start date (MM/DD/YYYY)	8/5/2001
Current sampling frequency (1:3, continuous)	1:12
Calculated sampling frequency (1:3 / 1:1)	--
Sampling season (MM/DD-MM/DD)	01/01-12/31
Probe height (meters)	4.6
Distance from supporting structure (meters)	1.6
Distance from obstructions on roof (meters)	--
Distance from obstructions not on roof (meters)	8.0
Distance from trees (meters)	4.8
Obstruction height above probe (meters)	8.0
Tree height above probe (meters)	8.0
Distance to furnace or incinerator flue (meters)	--
Distance between collocated monitors (meters)	--
Distance to closest monitor (meters)	--
Unrestricted airflow (degrees)	335
Restricted airflow (degrees)	240-265
Prevailing wind direction (degrees)	250-260
Probe material for reactive gases	Stainless Steel
Residence time for reactive gases (seconds)	--
Changes within the next 18 months? (Y/N)	N
Comparison against the annual PM2.5? (Y/N)	--
Frequency of flow rate verification manual PM and Pb samplers	--
Frequency of flow rate verification automated PM analyzers	--
Frequency of one-point QC check gaseous instruments	--
Last annual PE audit for gaseous parameters	--
Last two semi-annual flow rate audits PM and Pb	--

Visibility - Urban Haze - Camera

Local site name	ADEQ Building	Banner Mesa Medical Center	Estrella Mountain Community College	North Mountain Summit	North Mountain Summit
Pollutant (POC)	Visibility (1)	Visibility (1)	Visibility (1)	Visibility (1)	Visibility (2)
Parameter code	--	--	--	--	--
Basic monitoring objective	Public Information	Public Information	Public Information	Public Information	Public Information
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type	--	--	--	--	--
Network affiliation(s)	--	--	--	--	--
Collocation designation	--	--	--	--	--
Instrument manufacturer and model	CANON EOS Rebel T2i	CANON EOS Rebel T2i	CANON EOS Rebel T2i	CANON EOS Rebel T2i	CANON EOS Rebel T2i
Method code	--	--	--	--	--
FRM/FEM/ARM/other	--	--	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Urban	Urban	Urban	Urban	Urban
Monitoring start date (MM/DD/YYYY)	07/01/2002	01/01/1993	01/01/1993	01/01/1993	01/01/1993
Current sampling frequency (1:3, continuous)	Every 5 min.	Every 5 min.	Every 5 min.	Every 5 min.	Every 5 min.
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	--	--	--	--	--
Distance from supporting structure (meters)	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	--	--	--
Distance from trees (meters)	--	--	--	--	--
Obstruction height above probe (meters)	--	--	--	--	--
Tree height above probe (meters)	--	--	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--
Unrestricted airflow (degrees)	--	--	--	--	--
Restricted airflow (degrees)	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--

Visibility - Urban Haze - Nephelometer			
Local site name	Dysart	Estrella	Vehicle Emissions Laboratory
Pollutant (POC)	Bscat/$PM_{2.5}$ (1)	Bscat/$PM_{2.5}$ (1)	Bscat/$PM_{2.5}$ (1)
Parameter code	--	--	--
Basic monitoring objective	Public Information	Public Information	Public Information
Site type(s)	Population Exposure	Population Exposure	Population Exposure
Monitor type	--	--	--
Network affiliation(s)	--	--	--
Collocation designation	--	--	--
Instrument manufacturer and model	Optec NGN 2 Nephelometer	Optec NGN 2 Nephelometer	Optec NGN 2 Nephelometer
Method code	--	--	--
FRM/FEM/ARM/other	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Urban	Urban	Urban
Monitoring start date (MM/DD/YYYY)	01/01/2003	01/01/2003	06/25/2003
Current sampling frequency (1:3, continuous)	Every 5 min.	Every 5 min.	Every 5 min.
Calculated sampling frequency (1:3 / 1:1)	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	5	5	5
Distance from supporting structure (meters)	--	--	--
Distance from obstructions on roof (meters)	--	--	--
Distance from obstructions not on roof (meters)	--	--	--
Distance from trees (meters)	--	5	10
Obstruction height above probe (meters)	--	--	--
Tree height above probe (meters)	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--
Distance between collocated monitors (meters)	--	--	--
Distance to closest monitor (meters)	--	--	--
Unrestricted airflow (degrees)	360	360	360
Restricted airflow (degrees)	--	--	--
Prevailing wind direction (degrees)	--	--	--
Probe material for reactive gases	--	--	--
Residence time for reactive gases (seconds)	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--
Last annual PE audit for gaseous parameters	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--

Visibility - Urban Haze - Transmissometer

Local site name	Phoenix Transmissometer Receiver	Phoenix Transmissometer Transmitter
Pollutant (POC)	B_{ext} (1)	B_{ext} (1)
Parameter code	--	--
Basic monitoring objective	Public Information	Public Information
Site type(s)	Population Exposure	Population Exposure
Monitor type	--	--
Network affiliation(s)	--	--
Collocation designation	--	--
Instrument manufacturer and model	Optec LVP-2 Transmissometer Receiver	Optec LVP-2 Transmissometer Transmitter
Method code	--	--
FRM/FEM/ARM/other	--	--
Collecting agency	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--
Reporting agency	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Urban	Urban
Monitoring start date (MM/DD/YYYY)	12/01/1992	12/01/1992
Current sampling frequency (1:3, continuous)	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	30	27
Distance from supporting structure (meters)	--	--
Distance from obstructions on roof (meters)	5	--
Distance from obstructions not on roof (meters)	--	--
Distance from trees (meters)	--	--
Obstruction height above probe (meters)	--	--
Tree height above probe (meters)	--	--
Distance to furnace or incinerator flue (meters)	--	--
Distance between collocated monitors (meters)	--	--
Distance to closest monitor (meters)	--	--
Unrestricted airflow (degrees)	240	360
Restricted airflow (degrees)	--	--
Prevailing wind direction (degrees)	--	--
Probe material for reactive gases	--	--
Residence time for reactive gases (seconds)	--	--
Changes within the next 18 months? (Y/N)	N	N
Comparison against the annual PM2.5? (Y/N)	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--
Frequency of flow rate verification automated PM analyzers	--	--
Frequency of one-point QC check gaseous instruments	--	--
Last annual PE audit for gaseous parameters	--	--
Last two semi-annual flow rate audits PM and Pb	--	--

Visibility - Urban Haze - Temp/RH

Local site name	Dysart	Estrella	Phoenix Transmissometer Receiver
Pollutant (POC)	Temp R/H (1)	Temp R/H (1)	Temp R/H (1)
Parameter code	62101, 62201	62101, 62201	62101, 62201
Basic monitoring objective	--	--	--
Site type(s)	Population Exposure	Population Exposure	Population Exposure
Monitor type	--	--	--
Network affiliation(s)	--	--	--
Collocation designation	--	--	--
Instrument manufacturer and model	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe	Vaisala HMP 155 Probe
Method code	040	040	040
FRM/FEM/ARM/other	--	--	--
Collecting agency	ADEQ	ADEQ	ADEQ
Analytical lab (weight, toxics, other)	--	--	--
Reporting agency	ADEQ	ADEQ	ADEQ
Spatial scale (micro, neighborhood)	Urban	Urban	Urban
Monitoring start date (MM/DD/YYYY)	07/16/2003	02/11/2003	01/01/1994
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	5	5	32
Distance from supporting structure (meters)	--	--	--
Distance from obstructions on roof (meters)	--	--	10
Distance from obstructions not on roof (meters)	--	--	--
Distance from trees (meters)	--	5	--
Obstruction height above probe (meters)	--	--	--
Tree height above probe (meters)	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--
Distance between collocated monitors (meters)	--	--	--
Distance to closest monitor (meters)	--	--	--
Unrestricted airflow (degrees)	360	360	360
Restricted airflow (degrees)	--	--	--
Prevailing wind direction (degrees)	--	--	--
Probe material for reactive gases	--	--	--
Residence time for reactive gases (seconds)	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--
Frequency of flow rate verification manual PM and Pb samplers	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--
Last annual PE audit for gaseous parameters	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--

Visibility - ADEQ IMPROVE Protocol

Local site name	JLG Supersite	JLG Supersite	Meadview	Nogales Post Office	Organ Pipe National Monument	Saguaro National Park West
Pollutant (POC)	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE
Parameter code	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple
Basic monitoring objective	Research	Research	Research	Research	Research	Research
Site type(s)	Other	Other	Background	Background	Other	Other
Monitor type	--	--	--	--	--	--
Network affiliation(s)	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE
Collocation designation	--	--	--	--	--	--
Instrument manufacturer and model	--	--	--	--	--	--
Method code	Various	Various	Various	Various	Various	Various
FRM/FEM/ARM/other	Other	Other	Other	Other	Other	Other
Collecting agency	ADEQ	ADEQ	NFS	ADEQ	NPS	NPS
Analytical lab (weight, toxics, other)	--	--	--	--	--	--
Reporting agency	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis
Spatial scale (micro, neighborhood)	Neighborhood	Neighborhood	Regional	Regional	Regional	Regional
Monitoring start date (MM/DD/YYYY)	04/25/2001	04/25/2001	09/04/1991	10/24/2015	01/15/2003	04/19/2001
Current sampling frequency (1:3, continuous)	1:3	1:3	1:3	1:3	1:3	1:3
Calculated sampling frequency (1:3 / 1:1)	--	--	--	--	--	--
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	5.5	5.5	4.5	8.3	3.4	3.3
Distance from supporting structure (meters)	--	--	--	--	1.4	1
Distance from obstructions on roof (meters)	--	--	--	16.0	--	--
Distance from obstructions not on roof (meters)	15	15	--	--	--	--
Distance from trees (meters)	15	15	--	--	13	15
Obstruction height above probe (meters)	5	5	--	1.7	--	--
Tree height above probe (meters)	5	5	--	--	--	2
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	4	4	--	--	--	--
Distance to closest monitor (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	360	360	360
Restricted airflow (degrees)	--	--	--	--	--	--
Prevailing wind direction (degrees)	--	--	--	--	--	--
Probe material for reactive gases	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	N	N	N	N	N	N
Frequency of flow rate verification manual PM and Pb samplers	--	--	--	--	--	--
Frequency of flow rate verification automated PM analyzers	--	--	--	--	--	--
Frequency of one-point QC check gaseous instruments	--	--	--	--	--	--
Last annual PE audit for gaseous parameters	--	--	--	--	--	--
Last two semi-annual flow rate audits PM and Pb	--	--	--	--	--	--

Appendix D – Site Information Data Tables

Note: Some measurements are rounded and/or estimations

This appendix contains detailed information about sites that are fully or partially operated by ADEQ. All sites that were operational between July 1, 2015 and July 1, 2016 are included in this appendix. Sites that were closed after July 1, 2015 contain a note indicating so in the site summary section. This appendix also contains general information about the air quality monitors at each site. See Appendix C for more detailed information on specific monitors and networks.

AQS ID	SITE NAME	Appendix D PAGE #
	ADEQ Building	3
04-019-0001	Ajo	4
04-012-8000	Alamo Lake	5
	Banner Mesa Medical Center	6
04-015-1003	Bullhead City	7
04-003-1005	Douglas Red Cross	8
04-013-4010	Dysart	9
04-013-8005	Estrella	10
	Estrella Mountain Community College	11
04-005-1008	Flagstaff Middle School	12
04-007-1002	Globe Highway	13
04-007-1001	Hayden Old Jail	14
04-025-8104	Hillcrest	15
04-013-9997	JLG Supersite	16
04-015-9000	Meadview	17
04-007-8000	Miami Golf Course	18
04-007-0011	Miami Jones Ranch	19
04-007-0009	Miami Ridgeline	20
04-007-0012	Miami Townsite	21
04-023-0004	Nogales Post Office	22
	North Mountain Summit	23
04-019-0005	Organ Pipe National Monument	24
04-003-0011	Paul Spur Chemical Lime Plant	25
04-007-0008	Payson Well Site	26
	Phoenix Transmissometer Receiver	27
	Phoenix Transmissometer Transmitter	28
04-025-8033	Prescott College AQD	29
04-021-8001	Queen Valley	30
04-019-0020	Rillito	31
04-019-9000	Saguaro National Park West	32
	Sedona Fire Station AQD	33
04-013-4003	South Phoenix	34
04-007-0010	Tonto National Monument	35
04-013-9998	Vehicle Emissions Laboratory	36
04-027-8011	Yuma Supersite	37

Definitions for Appendix D – Site Information Data Tables

Local Site Name	Official name for the site as written in ADEQ's AirVision Database
Site Narrative	Brief summary of the site location and surroundings

Site Information

AQS ID	Unique identifier from EPA's Air Quality System database
Street Address	Physical Street Address or cross streets of the monitoring site
County	Arizona county the monitor is located within
CBSA	Core Based Statistical Area that the site is located within. A CBSA is a U.S. geographic area defined by the Office of Management and Budget based around an urban center of at least 10,000 people and adjacent areas that are socioeconomically tied to the urban center by commuting
Surrounding Area	Description of area around monitoring site (residential, commercial, industrial, agricultural, desert, forest, mobile, blighted area, and military reservation)
Roadway Info	Distance and direction from the edge of the nearest roadway to the instrument in meters
Nearest Assessed Roadway Info	ADOT supplied traffic count for the nearest major roadway. Includes distance and direction of roadway if differs from the nearest roadway
Groundcover	Type of surface at the base of the instrument (e.g. sand, cement, rooftop, metal, asphalt, etc.)
Latitude	The North/South geographic location of a site in decimal degrees
Longitude	The East/West geographic location of a site in decimal degrees
Elevation	The vertical distance above sea level of the site in meters
Site Established Date	Date site was first used as a monitoring site

Parameters Monitored

Bulleted list of all parameters monitored at the site

Site Photos

Aerial View	Image of site and the surrounding area (using Google Earth)
Site View	Most current photo of monitors at the site

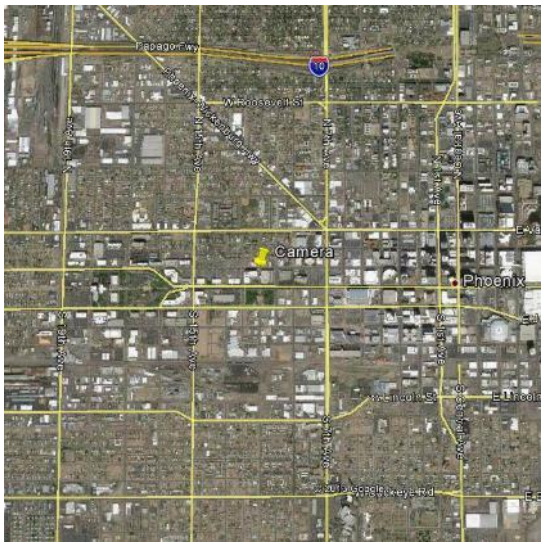
ADEQ Building

The high-resolution digital camera sits on the northeast corner of ADEQ's main campus building in Phoenix and points toward Camelback Mountain, which lies 13.4 km to the northeast. The pictures of the local view are updated every 15 minutes and can be viewed on the internet at http://phoenixvis.net/index.aspx. The area between the site and Camelback Mountain is primarily residential with some commercial areas. The camera is part of the Visibility network.

Site Information			
AQS ID	None		
Street Address	1110 W. Washington St. Phoenix, AZ 85007		
County	Maricopa	Groundcover	Rooftop
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.4483
Surrounding Area	Residential/Commercial	Longitude	-112.0878
Adjacent Roadway Info	84 m – S – Washington St. AADT Count – 10,852	Elevation	329 m
Nearest Assessed Roadway Info	Same	Site Established Date	07/01/2002

Parameters Monitored
• Visibility (Camelback Mountain View)

Site Photos



Aerial view of ADEQ Building

Camera on rooftop of ADEQ Building – 4/2010

Ajo

The site is located at the Pima County Maintenance Yard, with the wind system mounted to the north of the instruments. The closest structure to the site is an east-west oriented ADOT office/trailer to the southeast. To the east lies the stabilized tailings pile associated with the Ajo mining operation that closed in 1985. The parameters measured are part of the SLAMS and meteorological networks.

Site Information			
AQS ID	04-019-0001		
Street Address	1211 Well Rd. Ajo, AZ 85321		
County	Pima	Groundcover	Gravel
CBSA	Tucson	Latitude	32.3820
Surrounding Area	Residential/Commercial	Longitude	-112.8575
Adjacent Roadway Info	109 m – E – Ajo Well Rd. 1 AADT Count – 500	Elevation	515 m
Nearest Assessed Roadway Info	Same	Site Established Date	07/01/1969

Parameters Monitored

- PM_{10}
- Wind
- Temp/RH

Site Photos

Aerial view of Ajo

Ajo fenced area and meteorological tower 5/2014

Alamo Lake

The site was established to replace the Hillside site and is located in Alamo Lake State Park, which is approximately 49 km north of Wenden, AZ. The surrounding area consists of mostly desert, with a lake about 1 km to the northeast. A small water pump/storage tank (1,000 gallon) lies 7 meters to the east of the shelter. The parameters measured are part of the SLAMS, SPM, and meteorological networks.

Site Information			
AQS ID	04-012-8000		
Street Address	Alamo Lake State Park		
County	La Paz	Groundcover	Gravel
CBSA	None	Latitude	34.2439
Surrounding Area	Desert	Longitude	-113.5586
Adjacent Roadway Info	80 m – NE – Alamo Rd. AADT Count – 230	Elevation	403 m
Nearest Assessed Roadway Info	Same	Site Established Date	05/20/2005

Parameters Monitored	
• NO_2 • SO_2 • O_3 • PM_{10}	• $PM_{2.5}$ • Wind • Temp/RH

Site Photos

Regional view of Alamo Lake

Alamo Lake shelter with PM inlets – 7/2014

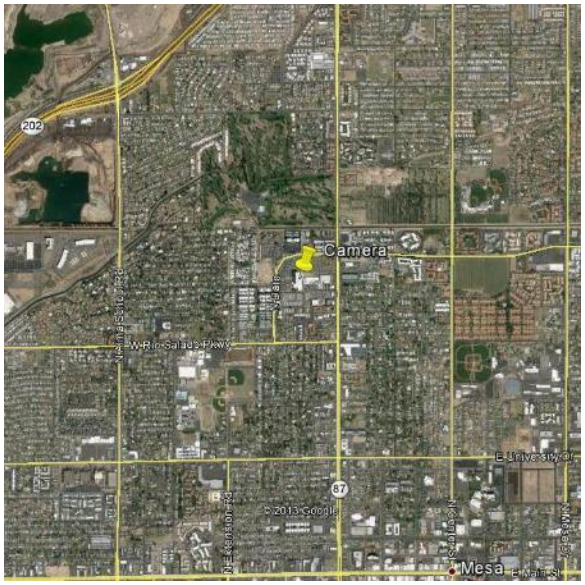
Banner Mesa Medical Center

The high-resolution digital camera sits on the east side of the Banner Mesa Medical Center and points to the Superstition Mountains, which lie 32 km east of the site. The pictures of the local views are updated every 15 minutes and can be viewed on the internet at http://phoenixvis.net/index.aspx. The area between the site and the mountains is primarily residential with some commercial areas. The camera is part of the Visibility network.

Site Information			
AQS ID	None		
Street Address	525 W. Brown Rd. Mesa, AZ 85201		
County	Maricopa	Groundcover	Rooftop
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.4335
Surrounding Area	Residential	Longitude	-111.8428
Adjacent Roadway Info	170 m – N – W Brown St. AADT Count – Not Counted	Elevation	454 m
Nearest Assessed Roadway Info	260m – E – Country Club Dr. AADT Count – 32,760	Site Established Date	01/01/1993

Parameters Monitors
• Visibility (Superstition Mountain View)

Site Photos



Aerial view of Banner Mesa Medical Center

Banner Mesa Medical Center Camera– 05/2013

Bullhead City

The site is located on the rooftop of the U.S. Post Office Building, northeast of SR 95 and 7th Street. The surrounding area is commercial and residential to the west and south. The Colorado River lies to the west less than 300 meters. To the northeast/east, about 675 meters, is the Bullhead City Airport. The parameter monitored is part of the SLAMS network.

Site Information			
AQS ID	04-015-1003		
Street Address	990 Highway 95 Bullhead City, AZ 86429		
County	Mohave	Groundcover	Rooftop
CBSA	Lake Havasu City-Kingman	Latitude	35.1538
Surrounding Area	Commercial/Residential	Longitude	-114.5668
Adjacent Roadway Info	40 m – W – SR 95 AADT Count – 25,500	Elevation	167 m
Nearest Assessed Roadway Info	Same	Site Established Date	11/01/1997

Parameters Monitors
• PM_{10}

Site Photos

Aerial view of Bullhead City

Roof of Bullhead City Post Office– 06/2012

Douglas Red Cross

The site is located at the Red Cross building on the south side of 15th Street. The surrounding area is a mix of residential and commercial land use. The site is about 1,685 meters from the Arizona/Mexico border. The IMPROVE protocol monitor was relocated to Nogales in 2015. The parameters monitored are part of the SLAMS and meteorological networks.

Site Information			
AQS ID	04-003-1005		
Street Address	1445 E. 15th St. Douglas, AZ 85607		
County	Cochise	Groundcover	Dirt/Grass
CBSA	Sierra Vista-Douglas	Latitude	31.3492
Surrounding Area	Commercial/Residential	Longitude	-109.5397
Adjacent Roadway Info	30 m – N – 14th St. AADT Count – 2,474	Elevation	1,224 m
Nearest Assessed Roadway Info	Same	Site Established Date	09/01/1998

Parameters Monitors

- PM_{10}
- $PM_{2.5}$
- Temp/RH
- Wind

Site Photos

Aerial view of Douglas Red Cross

Douglas Red Cross fenced site – 03/2016

Dysart

The site is located in the Maricopa County Facility Maintenance Yard at the southeast corner of Bell Road and Dysart Road and is shared with MCAQD. The surrounding area is commercial and residential. The parameters monitored are part of the Visibility and meteorological networks. ADEQ's equipment was removed at this site on June 30, 2016. Maricopa County will continue to operate at this site.

Site Information			
AQS ID	04-013-4010		
Street Address	16825 N. Dysart Rd. Surprise, AZ 85374		
County	Maricopa	Groundcover	Gravel
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.6370
Surrounding Area	Commercial/Residential	Longitude	-112.3393
Adjacent Roadway Info	14 m – W – Dysart Rd AADT Count – Not Counted	Elevation	357 m
Nearest Assessed Roadway Info	150m – N – Bell Rd. AADT Count – 51,673	Site Established Date	01/01/2003

Parameters Monitors
• Bscat/PM2.5 • Temp/ RH

Site Photos

Aerial view of Dysart

Dysart ADEQ Nephelometer tower attached to county shelter – 03/2013

Estrella

The site is located in the southeast corner of the Maricopa County Maintenance Yard at Estrella Park. The surrounding area consist of the Estrella Mountains to the east, south, and west; a golf course 256 meters to the west; and a mixture of open land, agricultural lands, residential, and commercial activity to the north. The parameters monitored are part of the Visibility and meteorological networks. This site was shut down on June 30, 2016.

Site Information			
AQS ID	04-013-8005		
Street Address	15099 W. Casey Abbott Rd. Goodyear, AZ 85338		
County	Maricopa	Groundcover	Grass/Gravel
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.3833
Surrounding Area	Desert/Recreation Area	Longitude	-112.3728
Adjacent Roadway Info	258m – N – W. Vineyard Ave AADT Count – 910	Elevation	277 m
Nearest Assessed Roadway Info	Same	Site Established Date	01/01/1995

Parameters Monitors

- Bscat/PM2.5
- Temp/ RH

Site Photos

Aerial view of Estrella

Estrella Nephelometer tower – 06/2012

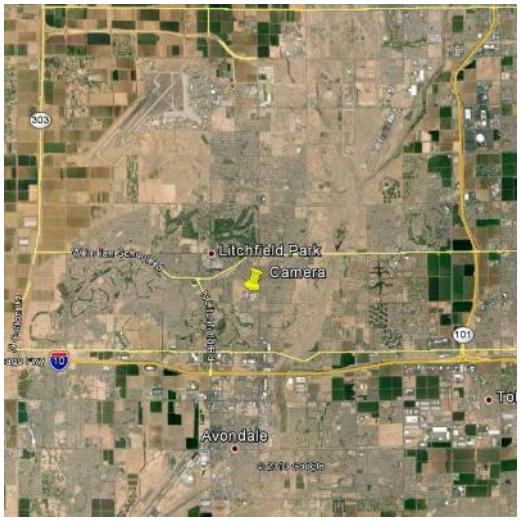
Estrella Mountain Community College

The high-resolution digital camera points to the White Tanks mountain range which is 20 km to the northeast. The pictures of the local views are updated every 15 minutes and can be viewed on the internet at http://phoenixvis.net/index.aspx. The area between the site and the mountain ranges is a mixture of residential, commercial, and agricultural uses. The camera is part of the Visibility network.

Site Information			
AQS ID	None		
Street Address	3000 N. Dysart Rd. Avondale, AZ 85323		
County	Maricopa	Groundcover	Rooftop
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.4836
Surrounding Area	Residential	Longitude	-112.3503
Adjacent Roadway Info	155 m – S – Thomas Rd. AADT Count – 9,798	Elevation	305 m
Nearest Assessed Roadway Info	Same	Site Established Date	01/01/1993

Parameters Monitors
• Visibility (White Tanks View)

Site Photos



Aerial view of Estrella Mountain Community College

View of Camera on Rooftop

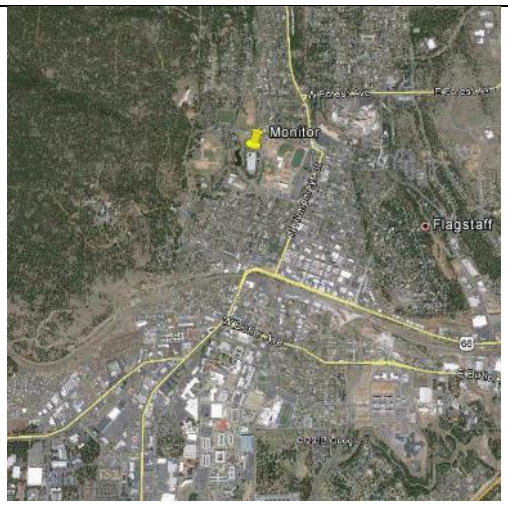
Flagstaff Middle School

The site is west of Bonito Street on the west side of the rooftop on the Flagstaff Middle School building. The surrounding area is generally residential, with Thorpe Park located about 800 meters to the west, and US Route 180 approximately 415 meters to the east. The parameters monitored are part of the SLAMS and SPM networks.

Site Information			
AQS ID	04-005-1008		
Street Address	755 N. Bonito St. Flagstaff, AZ 86001		
County	Coconino	Groundcover	Rooftop
CBSA	Flagstaff	Latitude	35.2061
Surrounding Area	Residential	Longitude	-111.6528
Adjacent Roadway Info	80 m – E – N. Bonito St. AADT Count – 3,200	Elevation	2,126 m
Nearest Assessed Roadway Info	Same	Site Established Date	10/29/1996

Parameters Monitors
• O_3 • $PM_{2.5}$ (EBAM)

Site Photos



Aerial view of Flagstaff Middle School

O_3 sample cane at Flagstaff – 11/2012

Globe Highway

This site is the location of the collocated TSP Pb monitors in Hayden, AZ. ASARCO mine also maintains an SO_2 analyzer, Pb sampler, PM sampler, wind monitor, rain gage, and temp/RH at the site. The site is located on the southwest end of a small canyon and may be influenced by both broad and local meteorological conditions. Approximately 10 m to the west lies State Route 77. The site is located approximately 1 km to the east/southeast of the ASARCO smelting facility and 300 m to the east of the ASARCO slag pile. A roadway AADT count of 2,700 that is 10 meters from the closest monitor would classify the Pb monitor as a micro or middle scale but the neighborhood scale more accurately represents the siting of the monitor. The roadway is not the predominant source of Pb in the area and therefore does not impact area concentrations. For these reasons, the Pb monitor will still be classified as neighborhood scale. The parameters monitored are part of the SLAMS and meteorological networks.

Site Information			
AQS ID	04-007-1002		
Street Address	SR 77 Winkelman, AZ 85292		
County	Gila	Groundcover	Gravel
CBSA	Payson	Latitude	33.002
Surrounding Area	Desert/Residential	Longitude	-110.765
Adjacent Roadway Info	10 m – W – SR 77 AADT Count – 2,700	Elevation	602 m
Nearest Assessed Roadway Info	Same	Site Established Date	01/01/1975

Parameters Monitors

- Pb
- Pb-Secondary
- Temp/RH
- Wind

Site Photos

Aerial view of Globe Highway

Shelter, towers, and TSP monitors at Globe Highway – 07/2013

Hayden Old Jail

The site is located in a shelter next to the old Hayden Jail building near the center of town. The instruments were previously located in the jail building and were moved to a shelter next to the jail due to safety and siting concerns. The surrounding area consists mainly of residential and commercial buildings. The site is located approximately 1 km to the west of the ASARCO smelting facility. ASARCO mine also maintains an SO_2 analyzer in the old Hayden Jail building next to the new shelter. The parameters monitored are part of the SLAMS and meteorological networks.

Site Information			
AQS ID	04-007-1001		
Street Address	Canyon Dr. & Kennecott Ave. Hayden, AZ 85235		
County	Gila	Groundcover	Shelter
CBSA	Payson	Latitude	33.0062
Surrounding Area	Residential	Longitude	-110.7864
Adjacent Roadway Info	10 m – E – Canyon Dr. AADT Count – Not Counted	Elevation	625 m
Nearest Assessed Roadway Info	242m – E – Velasco Ave. AADT Count – 1,790	Site Established Date	01/01/1969

Parameters Monitors

- SO_2
- PM_{10}
- Temp/RH
- Wind

Site Photos

Aerial view of Hayden Old Jail

Hayden Old Jail shelter, PM inlet and meteorological tower – 05/2014

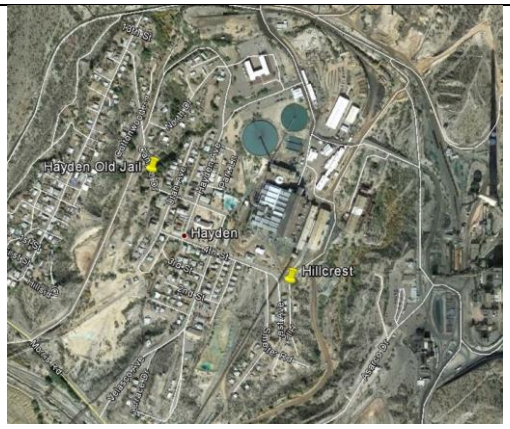
Hillcrest

The site is located just outside the ASARCO smelter property line. The site is a micro scale specifically located for Pb maximum concentration determination and was chosen in response to elevated readings from an EPA superfund monitor. EPA requested ADEQ to monitor at the Hillcrest location in order to determine the location of maximum Pb concentrations. To the east 10m is the ASARCO smelting operations property with an overhead conveyer belt located 15m to the west. The area to the south and west is residential neighborhood. This site is started as an SPM to determine if this is the location of maximum concentration. Directly to the south is a mine operated Superfund site. The Pb instrument is part of the SPM network.

Site Information			
AQS ID	04-007-1003		
Street Address	123 S. Hillcrest Ave. Hayden, AZ 85235		
County	Gila	Groundcover	Dirt
CBSA	Payson	Latitude	33.0035
Surrounding Area	Residential	Longitude	-110.7822
Adjacent Roadway Info	18 m – W – S. Hillcrest Ave. AADT Count – Not Counted	Elevation	643 m
Nearest Assessed Roadway Info	226m – W – Velasco Ave. AADT Count – 1,790	Site Established Date	01/01/2016

Parameters Monitors
• Pb

Site Photos



Aerial view of Hillcrest

Hillcrest Pb sampler and stand. The ASARCO stack is in the background – 03/2016

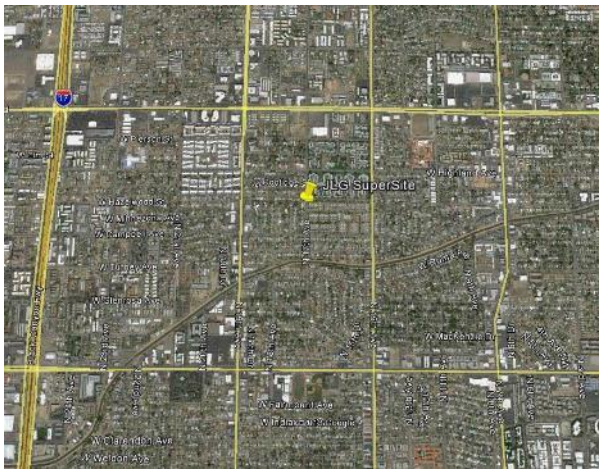
JLG Supersite

The site was established to represent air quality in the central core of the Phoenix metropolitan area. The surrounding area is primarily residential neighborhoods, with I-17 approximately 1.6 km to the west. The parameters measured cover multiple networks including SLAMS, NCore, PAMS, NATTS, CSN, meteorology, and IMPROVE. This is ADEQ's main test site for various instruments and networks.

Site Information			
AQS ID	04-013-9997		
Street Address	4530 N. 17th Ave. Phoenix, AZ 85015		
County	Maricopa	Groundcover	Gravel
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.5038
Surrounding Area	Residential	Longitude	-112.0957
Adjacent Roadway Info	10 m – E – 17th Ave. AADT Count – Not Counted	Elevation	354 m
Nearest Assessed Roadway Info	158m – S – Campbell Ave. AADT Count – 1,557 367m – W – N 19th Ave. AADT Count – 17,639	Site Established Date	07/01/1993

Parameters Monitors		
• CO • NO_2 / NOx • NOy • O_3 • SO_2 • Carbonyl	• VOC • SVOC (PUF) • Pb-PM_{10} / PM_{10} metals speciation • PM_{10} • $PM_{10-2.5}$ (Coarse) • $PM_{2.5}$ Continuous	• $PM_{2.5}$ Filter • $PM_{2.5}$ Speciation (SASS) • $PM_{2.5}$ Speciation (URG) • Temp/RH • Wind • IMPROVE • IMPROVE Secondary

Site Photos



Aerial view of JLG Supersite

Eastern side of JLG Supersite two shelters, roof top, and meteorological tower – 06/2015

Meadview

The site is located within the Lake Mead National Recreation Area on the north end of Meadview, AZ, where the Grand Canyon meets Lake Mead. The surrounding area is primarily desert. To the southwest 50 km is US 93, which is the closest highway to the site and about 96.5 km to the south is downtown Kingman. This is an IMPROVE protocol site.

Site Information			
AQS ID	04-015-9000		
Street Address	36 Whitmore Dr. Meadview, AZ 86444		
County	Mohave	Groundcover	Gravel/Desert
CBSA	Lake Havasu City-Kingman	Latitude	36.0194
Surrounding Area	Desert/Residential	Longitude	-114.0685
Adjacent Roadway Info	50 m – NE – Whitmore Dr. AADT Count – Not Counted	Elevation	907 m
Nearest Assessed Roadway Info	50 km – SW – US 93 AADT Count – 13,300	Site Established Date	09/04/1991

Parameters Monitors
• IMPROVE

Site Photos

Regional view of Meadview

Photo of Meadview shelter – 06/2015

Miami Golf Course

This site is the location of the TSP-Pb and PM_{10} monitors in Miami, AZ. The site is located near the Cobre Valley Country Club with residential areas to the south and east and the Freeport McMoRan facility approximately 2 km to the west/southwest and tailings ponds less than 1 km to the west. Surrounding trees are below inlet height and have no vegetation. The parameters monitored are part of the SLAMS and meteorological networks.

Site Information			
AQS ID	04-007-8000		
Street Address	SR 188 and US 60 Miami, AZ 85539		
County	Gila	Groundcover	Gravel
CBSA	Payson	Latitude	33.4190
Surrounding Area	Residential	Longitude	-110.8296
Adjacent Roadway Info	220 – SE – SR 188 AADT Count – 3,300	Elevation	1000 m
Nearest Assessed Roadway Info	Same	Site Established Date	01/01/1997

Parameters Monitors

- Pb
- PM_{10}
- Temp/RH
- Wind

Site Photos

Aerial view of Miami Golf Course

Fenced Miami Golf Course site – 05/2014

Miami Jones Ranch

This site is one of three SO_2 sites in the Miami area. Freeport McMoRan Copper and Gold Inc. operate an SO_2 instrument at this site as well. The site is located south of the town of Miami and is over 3 km south/southwest of the smelter. The site located in the desert hills overlooking the town and is off a gravel/dirt road. The SO_2 instrument is part of the SLAMS network.

Site Information			
AQS ID	04-007-0011		
Street Address	Cherry Flats Rd. Miami, AZ 85539		
County	Gila	Groundcover	Gravel
CBSA	Payson	Latitude	33.3853
Surrounding Area	Residential	Longitude	-110.8673
Adjacent Roadway Info	15m – SE – Cherry Flats Rd. AADT Count – Not Counted	Elevation	1,242 m
Nearest Assessed Roadway Info	1300 m – NW – US 60 AADT Count – 9,069	Site Established Date	01/01/1997

Parameters Monitors
• SO_2

Site Photos

Aerial view of Miami Jones Ranch

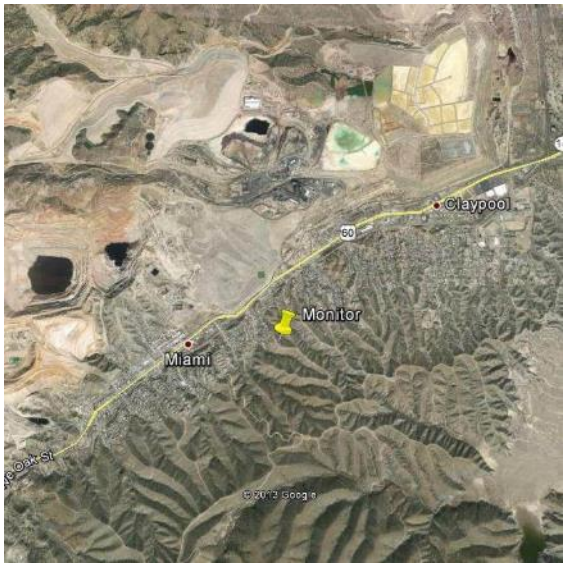
Fenced Miami Jones Ranch site – 05/2014

Miami Ridgeline

This is one of three SO_2 sites in the Miami area. The site is located inside on private property off of Linden Road and sits on the side of a north-south oriented ridge, which slopes in a northerly direction toward the town of Miami. The surrounding area is desert. The Freeport McMoRan smelter is 1.6 km to the north of the site. The SO_2 instrument is part of the SLAMS network.

Site Information			
AQS ID	04-007-0009		
Street Address	4030 Linden St. Miami, AZ 85539		
County	Gila	Groundcover	Dirt
CBSA	Payson	Latitude	33.3992
Surrounding Area	Residential	Longitude	-110.8589
Adjacent Roadway Info	40 m – N – Linden St. AADT Count – Not Counted	Elevation	1,085 m
Nearest Assessed Roadway Info	230m – W – Loomis Ave. AADT Count – 510 450m – NW – US 60 AADT Count – 11,695	Site Established Date	01/01/1993

Parameters Monitors
• SO_2

Site Photos	
 Aerial view of Miami Ridgeline	 Fenced Miami Ridgeline site – 05/2014

Miami Townsite

This site is one of three SO_2 sites in the Miami area. Freeport McMoRan Copper and Gold Inc. run a SO_2 instrument at this site as well. This site is located on the western side of Miami, near the center of the town. There is a church and a police station to the west with residential to the north and south. The road is located to the south of the site. The smelter is over 2 km to the northeast of the site. The SO_2 instrument is part of the SLAMS network.

Site Information			
AQS ID	04-007-0012		
Street Address	Sullivan ST & Davis Canyon Miami, AZ 85539		
County	Gila	Groundcover	Gravel
CBSA	Payson	Latitude	33.3973
Surrounding Area	Residential	Longitude	-110.8744
Adjacent Roadway Info	16.5m – SE – Sullivan St. AADT Count - 470	Elevation	1,042 m
Nearest Assessed Roadway Info	113m – SE – US 60 AADT Count – 9,069	Site Established Date	0/01/1997

Parameters Monitors
• SO_2

Site Photos

Aerial view of Miami Townsite

Fenced Miami Townsite – 05/2014

Nogales Post Office

The site is located on the rooftop of the U.S. Post Office building, which lies approximately 670 meters north from the Arizona/Mexico Border. The surrounding area is a mixture of commercial and residential land use. This site is used to meet the $PM_{2.5}$ collocation requirement. The parameters monitored are part of the SLAMS, IMPROVE, and meteorological networks.

Site Information			
AQS ID	04-023-0004		
Street Address	300 N. Morley Ave. Nogales, AZ 85621		
County	Santa Cruz	Groundcover	Rooftop
CBSA	Nogales	Latitude	31.3372
Surrounding Area	Residential/Commercial	Longitude	-110.9367
Adjacent Roadway Info	37.6 m – NW – Morley Ave. AADT Count – 7,199	Elevation	1,176 m
Nearest Assessed Roadway Info	Same	Site Established Date	01/01/1980

Parameters Monitors	
• PM_{10} (Continuous) • $PM_{2.5}$ (Continuous) • $PM_{2.5}$ (Filter)	• Temp/RH • Wind • IMPROVE

Site Photos

Aerial view of Nogales Post Office

Particulate and meteorological monitors on roof of Nogales Post Office – 04/2013

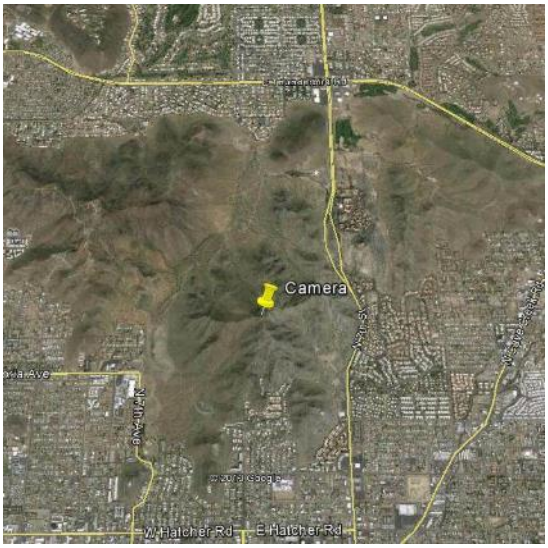
North Mountain Summit

The site is located on a mountaintop in the North Mountain Recreation Area of Phoenix. One high-resolution digital camera faces South Mountain, which lies 27 km to the south. Another camera faces the Estrella Mountains, which lie 35 km to the southwest. The pictures of the local views are updated every 15 minutes and can be viewed on the internet at http://phoenixvis.net/index.aspx. The surrounding area is desert recreation area to the north and west and residential with some commercial activity to the south and east. The cameras are part of the Visibility network.

Site Information			
AQS ID	None		
Street Address	West side of 7th St. in North Mountain Recreation Area Phoenix, AZ		
County	Maricopa	Groundcover	Dirt/Desert
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.5855
Surrounding Area	Residential/Desert	Longitude	-112.0722
Adjacent Roadway Info	850 m – E – 7th St. AADT Count – 28,210	Elevation	625 m
Nearest Assessed Roadway Info	Same	Site Established Date	01/01/1993

Parameters Monitors
• Visibility (South Mountain View) • Visibility (Estrella Mountain View)

Site Photos



Aerial view of North Mountain Summit

Camera located on tower at North Mountain Summit – 04/2013

Organ Pipe National Monument

The site is owned by the NPS, who operates the monitor at the site. The site is located 1 km south/southwest of the national monument visitor center, which is about 35.4 km south of Why, AZ. The site is about seven meters from a water pump house and lies about 540 meters east of a small mountain range. The surrounding area is predominately desert. This is an IMPROVE protocol site.

Site Information			
AQS ID	04-019-0005		
Street Address	SR 85 & Puerto Blanco Rd. Ajo, AZ 85321		
County	Pima	Groundcover	Gravel
CBSA	Tucson	Latitude	31.9499
Surrounding Area	Desert	Longitude	-112.8010
Adjacent Roadway Info	400 m – E – SR 85 AADT Count – 1,525	Elevation	505 m
Nearest Assessed Roadway Info	Same	Site Established Date	01/01/1971

Parameters Monitors
• IMPROVE

Site Photos

Regional view of Organ Pipe NM

Shelter at Organ Pipe NM – 04/2014

Paul Spur Chemical Lime Plant

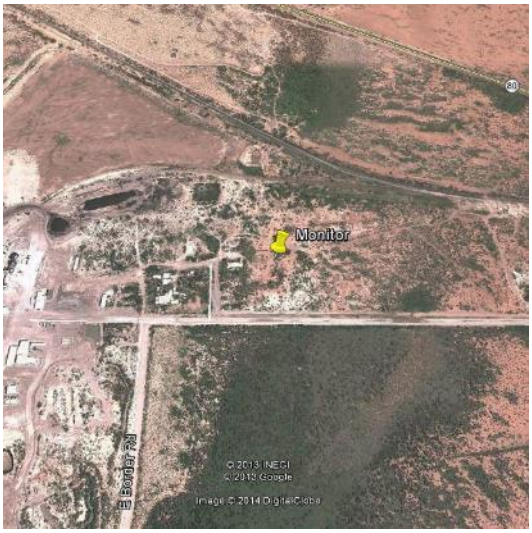
The site is located approximately 1 km to the northeast of the Chemical Lime Plant, just south of SR 80 between Bisbee and Douglas, and 3.5 km north of the Arizona/Mexico border. The surrounding area is predominately desert. The Chemical Lime Plant is not operational at this time. The parameters monitored are part of the SLAMS and meteorological networks.

Site Information			
AQS ID	04-003-0011		
Street Address	SR 80 & Paul Spur Rd. Paul Spur, AZ 85603		
County	Cochise	Groundcover	Dirt
CBSA	Sierra Vista-Douglas	Latitude	31.3658
Surrounding Area	Desert	Longitude	-109.7308
Adjacent Roadway Info	107 m – S – Paul Spur Rd. AADT Count – Not Counted	Elevation	1,280 m
Nearest Assessed Roadway Info	230m – N – SR 80 AADT Count – 4,920	Site Established Date	01/01/1985

Parameters Monitors

- PM_{10}
- Temp/RH
- Wind

Site Photos



Aerial view of Paul Spur Chemical Lime Plant

Particulate monitors and meteorological tower at Paul Spur Chemical Lime Plant – 02/2016

Payson Well Site

The site is located in the southern area of Payson, in a field at a well water site. To the south of the site are two tanks. In general, the surrounding area is commercial with some residential land use and 200 m to the south east is SR 87. Site was moved 90m NE on the same parcel to meet siting requirements in 2014. The parameters monitored are part of the SLAMS and meteorological networks.

Site Information			
AQS ID	04-007-0008		
Street Address	204 W. Aero Dr. Payson, AZ 85541		
County	Gila	Groundcover	Gravel
CBSA	Payson	Latitude	34.2297
Surrounding Area	Residential/Commercial	Longitude	-111.3295
Adjacent Roadway Info	134 m – S – Aero Dr. AADT Count – 1,724	Elevation	1,501 m
Nearest Assessed Roadway Info	Same	Site Established Date	01/01/1991

Parameters Monitors

- PM_{10}
- $PM_{2.5}$ (EBAM)
- Temp/RH
- Wind

Site Photos

Aerial view of Payson Well Site

Payson Well Site continuous particulate monitor probe and shelter – 07/2014

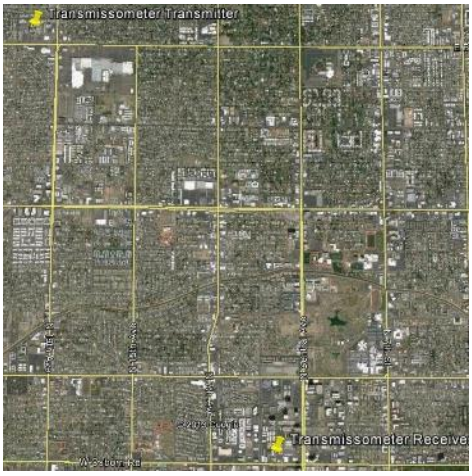
Phoenix Transmissometer Receiver

The site is located in downtown Phoenix on the North side of the rooftop of the Holiday Inn Hotel near 2nd Avenue and Osborn Road. The transmitter is located on top of the Phoenix Baptist Hospital 4.5 km to the northwest. The area between the two sites is a mix of residential and commercial. This instrument is part of the Visibility network.

Site Information			
AQS ID	None		
Street Address	3600 N. 2nd Ave. Phoenix, AZ 85013		
County	Maricopa	Groundcover	Rooftop
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.4901
Surrounding Area	Commercial/Residential	Longitude	-112.0767
Adjacent Roadway Info	25 m – E – Central Ave. AADT Count – 15,470	Elevation	337 m
Nearest Assessed Roadway Info	Same	Site Established Date	12/01/1992

Parameters Monitors
• Bext • Temp R/H

Site Photos



Aerial view of Phoenix Transmissometer Receiver

Phoenix Transmissometer Receiver on hotel rooftop – 12/2012

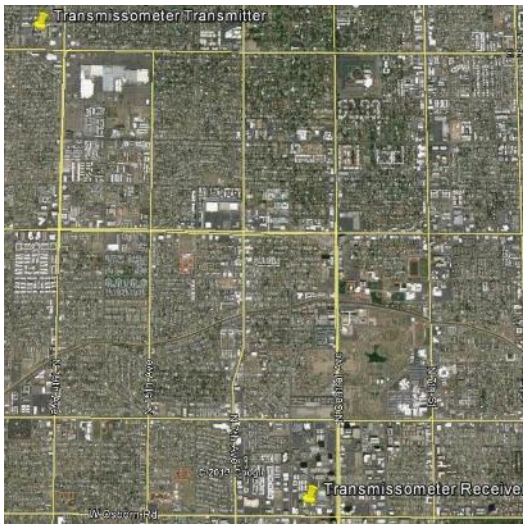
Phoenix Transmissometer Transmitter

The transmitter is located on the southeast side of the rooftop of Phoenix Baptist Hospital at 19th Avenue and Bethany Home Road. The receiver is located at the Holiday Inn Hotel 4.5 km to the southeast. The area between the two sites is a mix of residential and commercial. A new long lasting LED bulb was installed in May 2014. This instrument is part of the Visibility network.

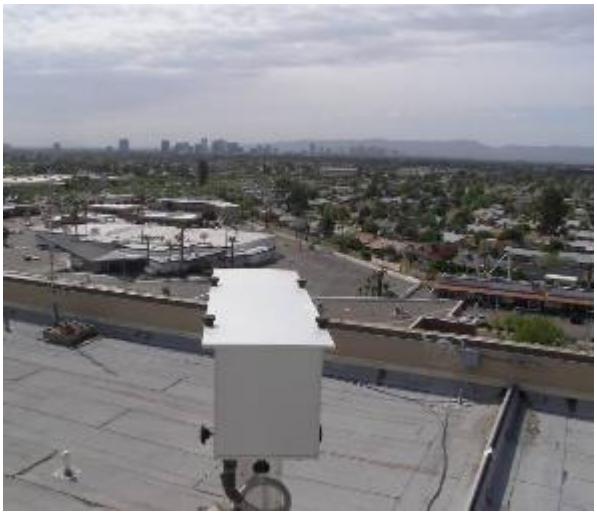
Site Information			
AQS ID	None		
Street Address	2000 W. Bethany Home Rd. Phoenix, AZ 85015		
County	Maricopa	Groundcover	Rooftop
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.5253
Surrounding Area	Commercial/Residential	Longitude	-112.1019
Adjacent Roadway Info	120 m – S – Beth. Home Rd. AADT Count – 40,950	Elevation	340 m
Nearest Assessed Roadway Info	Same	Site Established Date	12/01/1992

Parameters Monitors
• Bext

Site Photos



Aerial view of Phoenix Transmissometer Transmitter



Phoenix Transmissometer Transmitter Pathway – 2005

Prescott College AQD

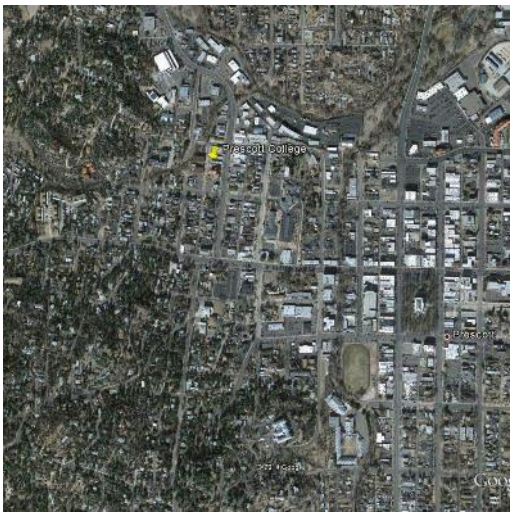
The site was relocated at Prescott College from the Mogollon Building to the Penstemon Building due to Mogollon Building's renovation and to meet siting requirements in 2013. The surrounding area is residential and commercial, with Grove Ave. approximately 45 m to the east. The O_3 instrument is part of the SLAMS network.

Site Information			
AQS ID	04-025-8033		
Street Address	330 Grove Ave., Prescott, AZ 86301		
County	Yavapai	Groundcover	Rooftop
CBSA	Prescott	Latitude	34.5451
Surrounding Area	Residential/Commercial	Longitude	-112.4768
Adjacent Roadway Info	45m – E – Grove Ave. AADT Count – 13,300	Elevation	1,636 m
Nearest Assessed Roadway Info	Same	Site Established Date	12/05/2006

Parameters Monitors

- O_3
- $PM_{2.5}$ (E-BAM)

Site Photos



Aerial view of Prescott College AQD

Prescott College AQD – 06/2015

Queen Valley

The site is located in northern Pinal County on the far east/southeastern outskirts of the Phoenix metropolitan area. It is located 635 m southeast of the small town of Queen Valley, AZ and the surrounding area is primarily desert. This is a downwind PAMS Type 3 site. The IMPROVE protocol monitor was defunded starting January 2016. The parameters monitored are part of the SLAMS, PAMS, and meteorological networks.

Site Information			
AQS ID	04-021-8001		
Street Address	10 S. Queen Anne Dr. Queen Valley, AZ 85219		
County	Pinal	Groundcover	Gravel
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.2938
Surrounding Area	Desert	Longitude	-111.2857
Adjacent Roadway Info	87 m – E – Queen Anne Dr. AADT Count – 1,284	Elevation	668 m
Nearest Assessed Roadway Info	Same	Site Established Date	01/01/1998

Parameters Monitors

- O_3
- NOy
- VOC
- Temp/RH
- Wind

Site Photos

Regional view of Queen Valley

Shelter and meteorological tower at Queen Valley site – 08/2014

Rillito

The site is located at a city water pumping station. The surrounding area is primarily residential and industrial, with I-10 approximately 260 meters to the northeast. The site is located within the small town of Rillito, AZ and is approximately 500 m to the north/northwest of the Cal Portland Rillito Cement Plant. The parameters monitored are part of the SLAMS and meteorological networks.

Site Information			
AQS ID	04-019-0020		
Street Address	8840 W. Robinson St. Rillito, AZ 85653		
County	Pima	Groundcover	Dirt
CBSA	Tucson	Latitude	32.4143
Surrounding Area	Residential	Longitude	-111.1545
Adjacent Roadway Info	10 m – S – Robinson St. AADT Count – Not Counted	Elevation	626 m
Nearest Assessed Roadway Info	240m – NE – Frontage Rd. AADT Count – 2,634 260m – NE – I10 AADT Count – 63,463	Site Established Date	01/01/1985

Parameters Monitors
• PM_{10} • Temp/RH • Wind

Site Photos	
 Aerial view of Rillito	 Rillito meteorological tower and particulate monitors on platform – 01/2015

Saguaro National Park West

The site is located within the Saguaro National Park West. The site is operated by the NPS. The area surrounding the site is residential to the northwest and south/southeast and desert to the northeast. The site lies approximately 17 km southwest of I-10. This is an IMPROVE protocol site.

Site Information			
AQS ID	04-019-9000		
Street Address	N. Sandario Rd. and W. Mile Wide Rd. Tucson, AZ		
County	Pima	Groundcover	Gravel
CBSA	Tucson	Latitude	32.2485
Surrounding Area	Desert	Longitude	-111.2175
Adjacent Roadway Info	27 m – W – Mile Wide Rd. AADT Count – 1,889	Elevation	718 m
Nearest Assessed Roadway Info	Same	Site Established Date	12/29/1996

Parameters Monitors
• IMPROVE

Site Photos

Regional view of Saguaro NP West

Shelters at Saguaro NP West site – 07/2012

Sedona Fire Station AQD

In 2011, the E-BAM instrument in Sedona was moved from the Sedona Post Office site to the Sedona Fire Station site. The Sedona Fire Station site is located approximately 300 m to the northeast of the Sedona Post Office site and 150 m west of State Route 89A. The surrounding area is composed of residential and commercial use. The E-BAM instrument is part of the SPM network.

Site Information			
AQS ID	None		
Street Address	310 Forest Rd, Sedona, AZ 86336		
County	Coconino	Groundcover	Rooftop
CBSA	Flagstaff	Latitude	34.8683
Surrounding Area	Commercial/Residential	Longitude	-111.7633
Adjacent Roadway Info	50m – N – Forest Rd AADT Count – Not Counted	Elevation	1,326 m
Nearest Assessed Roadway Info	150m – E – SR 89A AADT Count – 5,689	Site Established Date	12/16/2011

Parameters Monitors
• $PM_{2.5}$ (E-BAM)

Site Photos

Aerial view of Sedona Fire Station

E-BAM on roof at Sedona Fire Station – 3/2012

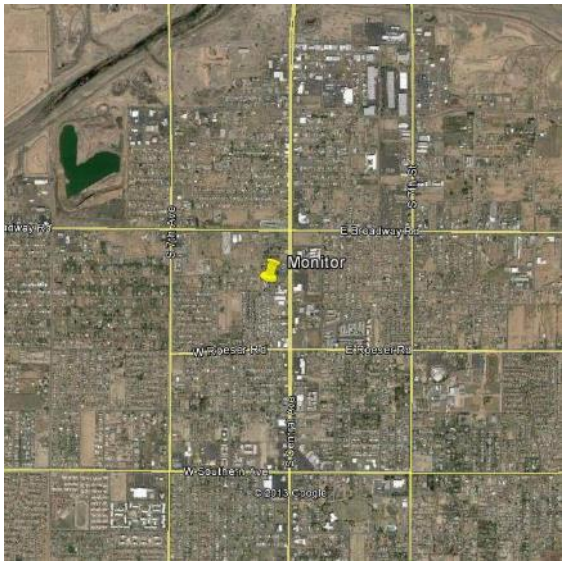
South Phoenix

The site is owned by MCAQD. ADEQ operates the toxics sampler at the site as part of the Urban Air Toxics Monitoring Program (UATMP). The site is situated in South Phoenix, at the edge of a high population area, bordering a mixture of residential and commercial properties. Two high population areas are located north and west of the site.

Site Information			
AQS ID	04-013-4003		
Street Address	33 W. Tamarisk St. Phoenix, AZ 85041		
County	Maricopa	Groundcover	Asphalt
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.4030
Surrounding Area	Residential/Commercial	Longitude	-112.0750
Adjacent Roadway Info	83 m – N – Tamarisk St. AADT Count – Not Counted	Elevation	330 m
Nearest Assessed Roadway Info	165m – E – Central Ave. AADT Count – 19,110	Site Established Date	01/01/1997

Parameters Monitors
• VOC

Site Photos



Aerial view of South Phoenix

Shelter and meteorological tower at South Phoenix site – 04/2005

Tonto National Monument

The site is jointly operated by ADEQ and USFS. The site is located within the Tonto National Forest at the base of Tonto National Monument, about 58 m south of SR 188. The area surrounding the site is desert with Roosevelt Lake about 1 km to the north. The O_3 instrument is part of the SLAMS network.

Site Information			
AQS ID	04-007-0010		
Street Address	South of SR 188 Roosevelt, AZ 85545		
County	Gila	Groundcover	Dirt/Rock
CBSA	Payson	Latitude	33.6547
Surrounding Area	Desert	Longitude	-111.1075
Adjacent Roadway Info	17 m – NE – SR 188 AADT Count – 800	Elevation	730 m
Nearest Assessed Roadway Info	Same	Site Established Date	04/23/1988

Parameters Monitors
• O_3 • IMPROVE (not a protocol site)

Site Photos

Regional view of Tonto NM

Shelter at Tonto NM site – 01/2016

Vehicle Emissions Laboratory

The site is located in the northwest corner of the Vehicle Emissions Laboratory property. The surrounding area is a both residential and commercial, with an open field directly to the northwest. The site is about 415 m south of Red Mountain Freeway (Loop 202). The parameters monitored are part of the PAMS and meteorological networks. This site was shut down on April 28, 2016 and the equipment was relocated to JLG Supersite.

Site Information			
AQS ID	04-013-9998		
Street Address	600 N. 40th St. Phoenix, AZ 85008		
County	Maricopa	Groundcover	Gravel
CBSA	Phoenix-Mesa-Scottsdale	Latitude	33.4553
Surrounding Area	Residential/Commercial	Longitude	-111.9961
Adjacent Roadway Info	66 m – E – 40th St. AADT Count – 10,740	Elevation	356 m
Nearest Assessed Roadway Info	Same	Site Established Date	04/01/1987

Parameters Monitors
• Temp/RH • Bscat/PM2.5 • Delta Temp • Horizontal Solar Radiation • Ultraviolet Solar Radiation • Wind

Site Photos

Aerial view of Vehicle Emissions Laboratory

Meteorological tower, and shelter at VEL – 12/2012

Yuma Supersite

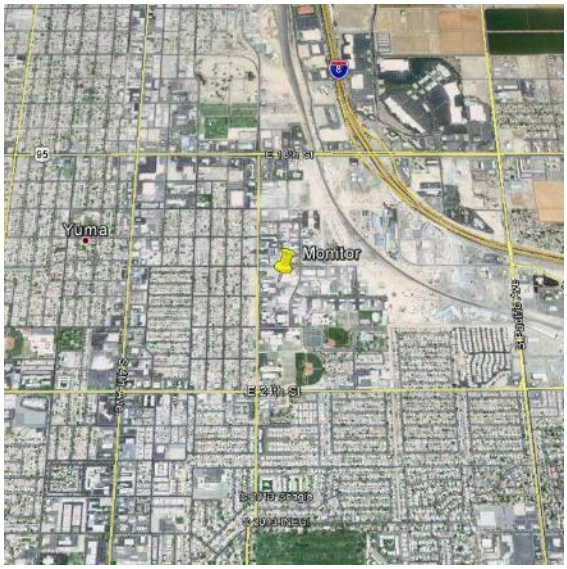
The site is located on the southeast corner of the Rural Metro Administration Facility property. The surrounding area is commercial and industrial, with a dirt lot adjacent to the south and I-8 1 km to the northeast. In addition to NAAQS compliance, the site is also used to help understand transport of PM and O_3. The parameters monitored are part of the SLAMS and meteorological networks.

Site Information			
AQS ID	04-027-8011		
Street Address	2323 S. Arizona Ave. Yuma, AZ 85364		
County	Yuma	Groundcover	Gravel
CBSA	Yuma	Latitude	32.6903
Surrounding Area	Commercial/Industrial	Longitude	-114.6144
Adjacent Roadway Info	91 m – W – Arizona Ave. AADT Count – 12,302	Elevation	60 m
Nearest Assessed Roadway Info	Same	Site Established Date	02/01/2006

Parameters Monitors

- Wind
- O_3
- PM_{10}
- $PM_{2.5}$
- Temp/RH

Site Photos



Aerial view of Yuma Supersite

Shelter and Meteorological Tower at Yuma Supersite – 4/2014

Appendix E – Criteria Pollutant Minimum Monitoring Requirements

This appendix contains tables that summarize the criteria pollutant minimum monitoring requirements for each MSA or CBSA that ADEQ is designated as the Primary Quality Assurance Organization (PQAO). Minimum monitoring requirements for the Phoenix-Mesa-Scottsdale and Tucson MSAs are not included within this appendix as ADEQ is not the PQAO for these MSAs.

O_3
(Note: Refer to section 4.1 and Table D-2 of Appendix D to 40 CFR Part 58)

Table 1. Minimum Monitoring Requirements for O_3.

MSA	County	2015 Census Population Estimates	2013-2015 O_3 8-hr Design Value (ppb)	Design Value Site	# of Required Monitors	# of Active Monitors	# of Additional Monitors Needed
Flagstaff	Coconino	139,097	70	Flagstaff Middle School	1	1	0
Prescott	Yavapai	222,255	69	Prescott College AQD	1	1	0
Yuma	Yuma	204,275	76	Yuma Supersite	1	1	0
Lake Havasu-Kingman	Mohave	204,737	N/A	N/A	0	0	0
Sierra Vista - Douglas	Cochise	126,427	N/A	N/A	0	0	0

Monitors required for SIP or Maintenance Plan: Alamo Lake, JLG Supersite, Queen Valley, and Tonto National Monument.

$PM_{2.5}$
(Note: Refer to sections 4.7.1, 4.7.2 and Table D-5 of Appendix D to 40 CFR Part 58)

Table 2 Minimum Monitoring Requirements for $PM_{2.5}$ SLAMS. (FRM/FEM/ARM, see 40CFR 58 App D Section 4.7.1 and Table D-5)

MSA	County	2015 Census Population Estimates	2013-2015 $PM_{2.5}$ Annual Design Value (µg/m³)	Annual Design Value Site	2013-2015Daily Design Value (µg/m³)	Daily Design Value Site	# of Required Monitors	# of Required Continuous Monitors	# of Active Continuous Monitors	# of Additional Monitors Needed
Flagstaff	Coconino	139,097	N/A	N/A	N/A	N/A	0	0	1*	0
Prescott	Yavapai	222,255	N/A	N/A	N/A	N/A	0	0	1*	0
Yuma	Yuma	204,275	6.4	Yuma Supersite	18	Yuma Supersite	0	0	1	0
Lake Havasu-Kingman	Mohave	204,737	N/A	N/A	N/A	N/A	0	0	0	0
Sierra Vista - Douglas	Cochise	126,427	6.5	Douglas Red Cross	13	Douglas Red Cross	0	0	1	0

* Continuous monitors are not FRMs, FEMs, or ARMs
Monitors required for SIP or Maintenance Plan: Nogales Post Office.

PM_{10}
(Note: Refer to section 4.6 and Table D-4 of Appendix D to 40 CFR Part 58)

Table 3. Minimum Monitoring Requirements for PM_{10}.

MSA	County	2015 Census Population Estimates	2015 PM_{10} Max Concentration [µg/m³]	Max Concentration Site	# of Required Monitors	# of Active Monitors	# of Additional Monitors Needed
Flagstaff	Coconino	139,097	N/A	N/A	0	0	0
Prescott	Yavapai	222,255	N/A	N/A	0	0	0
Yuma	Yuma	204,275	400	Yuma Supersite	1-2	1	0
Lake Havasu-Kingman	Mohave	204,737	69	Bullhead City	1-2	1	0
Sierra Vista - Douglas	Cochise	126,427	89	Douglas Red Cross	1-2	2	0

Monitors required for SIP or Maintenance Plan: Ajo, Bullhead City, Douglas Red Cross, Hayden Old Jail, JLG Supersite, Miami Golf Course, Miami Ridgeline, Nogales Post Office, Paul Spur Chemical Lime Plant, Payson Well Site, Rillito, and Yuma Supersite.

NO_2
(Note: Refer to section 4.3 of Appendix D to 40 CFR Part 58)

Table 4. Minimum Monitoring Requirements for NO_2.

CBSA	2015 Census Population Estimates	2014 Max AADT Counts	# of Required Near-road Monitors	# of Active Near-road Monitors	# of Additional Near-road Monitors Needed	# of Required Area-wide Monitors	# of Active Area-wide Monitors	# of Additional Area-wide Monitors Needed
Flagstaff	139,097	41,400	0	0	0	0	0	0
Prescott	222,255	43,200	0	0	0	0	0	0
Yuma	204,275	44,500	0	0	0	0	0	0
Lake Havasu – Kingman	204,737	35,000	0	0	0	0	0	0
Sierra Vista - Douglas	126,427	28,600	0	0	0	0	0	0

Monitors required for SIP or Maintenance Plan: None
Monitors required for PAMS: JLG Supersite
EPA Regional Administrator-required monitors per 40 CFR 58, App. D 4.3.4: None

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SO_2
(Note: Refer to section 4.4 of Appendix D to 40 CFR Part 58)

Table 5a. Minimum Monitoring Requirements for SO_2.

CBSA	County	2015 Census Population Estimates	2011 Total SO_2[1] [tons/year]	Population Weighted Emissions Index[2] [million persons-tons per year]	# of Required Monitors	# of Active Monitors	# of Additional Monitors Needed
Flagstaff	Coconino	139,097	10	1.39	0	0	0
Prescott	Yavapai	222,255	2000	445	0	0	0
Yuma	Yuma	204,275	12.6	2.57	0	0	0
Lake Havasu – Kingman	Mohave	204,737	14.44	2.96	0	0	0
Sierra Vista - Douglas	Cochise	126,427	3922	496	0	0	0

[1]Using 2011 NEI data
[2]Calculated by multiplying CBSA population and total SO_2 and dividing product by one million
Monitors required for SIP or Maintenance Plan: Hayden Old Jail and Miami Ridgeline.
EPA Regional Administrator-required monitors per 40 CFR 58, App. D 4.4.3: None

Table 5b. Minimum Monitoring Requirements for Source SO_2 Monitoring.

Source Name	SO_2 2014 Emissions (tons per year)	Emission Inventory Source & Data Year	Monitoring or Modeling	SO_2 Maximum Design Value (in ppb)	# of Required Monitors	# of Active Monitors	# of Additional Monitors Needed
ASARCO LLC	17,433	ADEQ 2014	Monitoring	246	1	1	0
TEP CO – Springerville	6,221	ADEQ 2014	Modeling*	N/A	0	0	0
AEPCO – Apache	4,812	ADEQ 2014	Modeling*	N/A	0	0	0
FMMI Inc.	4,505	ADEQ 2014	Monitoring	199	1	3	0
APS – Cholla	3,807	ADEQ 2014	Modeling*	N/A	0	0	0

*Planned modeling. The final letter to EPA pursuant to the SO_2 Data Requirements Rule will be submitted with the 2016 Network Plan

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CO

(Note: Refer to section 4.2 of Appendix D to 40 CFR Part 58)

Table 6. Minimum Monitoring Requirements for CO.

CBSA	2015 Census Population Estimates	# of Required Near-Road Monitors	# of Active Near-Road Monitors	# of Additional Monitors Needed
Flagstaff	139,097	0	0	0
Prescott	222,255	0	0	0
Yuma	204,275	0	0	0
Lake Havasu – Kingman	204,737	0	0	0
Sierra Vista - Douglas	126,427	0	0	0

Monitors required for SIP or Maintenance Plan: JLG Supersite

EPA Regional Administrator-required monitors per 40 CFR 58, App. D 4.2.2: None

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Pb

(Note: Refer to section 4.5 of Appendix D to 40 CFR Part 58)

Table 7a. Minimum Source-Oriented Pb Monitoring above 0.5 Tons Per Year (including airports)[2]

Source Name	Address	Pb Emissions (tons per year)*	Max 3-Month Design Value[1] [µg/m³]	Design Value Date (third month, year)	# of Required Monitors	# of Active Monitors	# of Additional Monitors Needed
ASARCO LLC	--	3.88	0.17	June, 2014	1	1	0
Freeport McMoRan Copper and Gold Inc.	--	4.87	0.05	August, 2014	1	1	0
Ernest A. Love Field	--	0.89	--	--	0	0	0
Falcon Field	--	0.77	--	--	0	0	0
Chandler Municipal	--	0.58	--	--	0	0	0
Phoenix Goodyear	--	0.50	--	--	0	0	0
Phoenix Deer Valley[3]	--	1.16	--	--	0	0	0

*data taken from the 2011 NEI

[1]consider data from the past 3 years.

[2]Monitoring required on all non-airport sources above 0.5 TPY and on Airports above 1.0 TPY

[3]Phoenix Deer Valley is not on the list of Airports to be monitored for Pb

Monitors required for SIP or Maintenance Plan: None

EPA Regional Administrator-required monitors per 40 CFR 58, App. D 4.5(c): None

Appendix F – Letters to EPA

This appendix may contain letters to EPA that have occurred during current Network Plan time period. The letters may include siting waivers, requests for system modifications, and other communications outside of the Annual Network Plan.

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Douglas A. Ducey
Governor

Misael Cabrera
Director

August 21, 2015

Deborah Jordan, Director
Air Division
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105

Subject: Removal of Miami Ridgeline PM_{10}

Dear Ms. Jordan:

Pursuant to 40 CFR Part 58.14(c)(2), Arizona Department of Environmental Quality (ADEQ) and Freeport-McMoRan Miami Inc. (FMMI) jointly request EPA Region 9 approve a modification of the PM_{10} Miami planning area network through the removal of the monitor at the Miami "Ridgeline" site in Miami, AZ. The Miami Ridgeline monitor is one of two PM_{10} monitors in the planning area. As demonstrated by the attachment, PM_{10} concentrations at the Miami Ridgeline monitor have been statistically lower than the PM_{10} concentrations at the Miami Golf Course monitor for the past five years (see Attachment 1 for the detailed analytical report performed by ADEQ). ADEQ and FMMI request that FMMI be allowed to remove its PM_{10} sampler at the Miami Ridgeline site by October 1, 2015.

Sincerely,

Eric C. Massey, Director
ADEQ Air Quality Division

Jay Spehar, Manager Environmental
Freeport-McMoRan Miami Inc.

Main Office
1110 W. Washington Street • Phoenix, AZ 85007
(602) 771-2300

Southern Regional Office
400 W. Congress Street • Suite 433 • Tucson, AZ 85701
(520) 628-6733

www.azdeq.gov
printed on recycled paper

ADEQ and Freeport-McMoRan Miami Inc. sent the above letter to EPA Region 9 to request a network modification for the Miami Ridgeline site. EPA Region 9 granted the network modification request in their response to ADEQ's 2015 Air Monitoring Network Plan.

Appendix G – ADEQ's Air Quality Monitoring Role in Arizona

This appendix contains a document to outline the responsibilities delineated to each monitoring agency in Arizona. This document was approved by ADEQ in 2015 with their commitment to follow the minimum monitoring responsibilities.

Interagency Air Quality Monitoring for the State of Arizona

Purpose:

40 CFR Part 58 Appendix D(e) states that "Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator." EPA Region 9 indicated in their response to the 2013 Network Plan that an interagency document should be in place to delineate the shared monitoring requirements by overlapping agencies. This document is to fulfill this CFR requirement, to clarify the monitoring requirements, and to support requirements for the monitoring networks in Arizona.

The following table outlines Minimum Monitoring Requirements in the State of Arizona as required in 40 CFR 58 Appendix D. This does not take into account the breadth of monitoring that is required by the EPA Regional Administrator for the design of a complete monitoring program. Each State or local agency must work with the EPA Regional Administrator to develop a monitoring program for their area.

Agreement:

Arizona Department of Environmental Quality (ADEQ) assumes full responsibility for their minimum monitoring requirements outlined in Table 1. ADEQ is meeting the minimum monitoring for each requirement and will augment its monitoring network to fulfill future needs in all of its areas.

Sincerely,

FOR ERIC MASSEY

Eric C. Massey, Director

Air Quality Division

cc: Jennifer Williams, US EPA, Region 9

Bradley Busby, ADEQ

Heather Colson, ADEQ

Mark Carrel, ADEQ

Craig Pearson, ADEQ

Table 1: Minimum Monitoring Requirements in Arizona

Pollutant/ Station	CFR Reference	CBSA/ Source required to monitor	Requirement Type	Minimum # Required	Agency fulfillment
Ncore	40 part 58 app D 3.0	State Requirement	1 Per State	1	ADEQ and PDEQ
O_3	40 part 58 app D 4.1	Phoenix-Mesa-Scottsdale MSA	Population/Design Value Based	3	MCAQD and PCAQCD
O_3	40 part 58 app D 4.1	Tucson MSA	Population/Design Value Based	2	PDEQ
O_3	40 part 58 app D 4.1	Yuma MSA	Population/Design Value Based	1	ADEQ
O_3	40 part 58 app D 4.1	Flagstaff MSA	Population/Design Value Based	1	ADEQ
O_3	40 part 58 app D 4.1	Prescott MSA	Population/Design Value Based	1	ADEQ
O_3	40 part 58 app D 4.1	Sierra-Vista MSA	Population/Design Value Based	1	ADEQ
O_3	40 part 58 app D 4.1	Lake Havasu City MSA	Population/Design Value Based	1	ADEQ
CO	40 part 58 app D 4.2	Phoenix-Mesa-Scottsdale MSA	Collocated with NO_2 by Population	1	MCAQD
NO_2	40 part 58 app D 4.3	Phoenix-Mesa-Scottsdale MSA	Near-Road Population/Traffic Based	2	MCAQD
NO_2	40 part 58 app D 4.3	Tucson MSA	Near-Road Population/Traffic Based	1	PDEQ
NO_2	40 part 58 app D 4.3	Phoenix-Mesa-Scottsdale MSA	Population Based	1	MCAQD
SO_2	40 part 58 app D 4.4	None	Weighted Population Index Based	0	None
Pb	40 part 58 app D 4.5	FMMI Smelter	Source Oriented	1	ADEQ
Pb	40 part 58 app D 4.5	ASARCO Hayden Smelter	Source Oriented	1	ADEQ
PM_{10}	40 part 58 app D 4.6	Phoenix-Mesa-Scottsdale MSA	Population/Design Value Based	6-10	MCAQD and PCAQCD
PM_{10}	40 part 58 app D 4.6	Tucson MSA	Population/Design Value Based	4-8	PDEQ
PM_{10}	40 part 58 app D 4.6	Yuma MSA	Population/Design Value Based	1	ADEQ
PM_{10}	40 part 58 app D 4.6	Flagstaff MSA	Population/Design Value Based	0	ADEQ
PM_{10}	40 part 58 app D 4.6	Prescott MSA	Population/Design Value Based	0	ADEQ
PM_{10}	40 part 58 app D 4.6	Sierra-Vista MSA	Population/Design Value Based	1	ADEQ
PM_{10}	40 part 58 app D 4.6	Lake Havasu City MSA	Population/Design Value Based	1	ADEQ
$PM_{2.5}$	40 part 58 app D 4.7	Phoenix-Mesa-Scottsdale MSA	Population/Design Value Based	3	MCAQD and PCAQCD
$PM_{2.5}$	40 part 58 app D 4.7	Tucson MSA	Population/Design Value Based	2	PDEQ
$PM_{2.5}$	40 part 58 app D 4.7	Yuma MSA	Population/Design Value Based	1	ADEQ
$PM_{2.5}$	40 part 58 app D 4.7	Flagstaff MSA	Population/Design Value Based	0	ADEQ
$PM_{2.5}$	40 part 58 app D 4.7	Prescott MSA	Population/Design Value Based	0	ADEQ
$PM_{2.5}$	40 part 58 app D 4.7	Sierra-Vista MSA	Population/Design Value Based	1	ADEQ
$PM_{2.5}$	40 part 58 app D 4.7	Lake Havasu City MSA	Population/Design Value Based	1	ADEQ
$PM_{2.5}$	40 part 58 app D 4.7	Background Station	1 Per State	1	ADEQ
$PM_{2.5}$	40 part 58 app D 4.7	Transport Station	1 Per State	1	ADEQ
$PM_{2.5}$	40 part 58 app D 4.7	State STN Station	1 Per State	1	ADEQ
PM Coarse	40 part 58 app D 4.8	Required at Ncore Station	1 Per Ncore Station	2	ADEQ and PDEQ
PAMS	40 part 58 app D 5.0	Ozone Area Requirement	Per EPA Admin for Ozone Area	Per PAMS Plan	ADEQ