State of Arizona Air Monitoring Network Plan
For the Year 2013

Arizona Department of Environmental Quality
Air Quality Division
Air Assessment Section

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Final

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1.0 INTRODUCTION

This document fulfills the obligation, under the Code of Federal Regulations (CFR), Title 40, Section 58.10(a), requiring 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 2013.

This plan informs EPA (Region 9) of the monitoring activities ADEQ has implemented since July 2012, as well as activities ADEQ will undertake through December 2014. 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 AIRNow. In 40 CFR 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. Subpart J of Part 51 specifies that Part 58 Subpart B contain the requirements for establishing air quality surveillance systems to monitor ambient air quality.

Air quality surveillance systems consist of networks of monitors at carefully chosen physical locations referred to as sites or stations. Some of the networks, sites, and monitors are:

- State and Local Air Monitoring Stations (SLAMS)
- National Core multipollutant monitoring stations (NCore)
- Photochemical Assessment Monitoring Stations (PAMS)
- Chemical Speciation Network (CSN)
- National Air Toxics Trends Sites (NATTS)
- Special Purpose Monitors (SPM)
- Urban Haze monitoring sites
- Interagency Monitoring of PROtected Visual Environments (IMPROVE)
- AIRNow information sites
- Source-oriented monitoring sites operated independently by permittees (Industry)
- Meteorological sites

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 meet the requirements in 40 CFR Part 58 appendices A, C, D, and E as follows:

- Appendix A – Quality Assurance Requirements for SLAMS, SPMs, and Prevention of Significant Deterioration (PSD) Air Monitoring
- Appendix C – Ambient Air Quality Monitoring Methodology
- Appendix D – Network Design Criteria for Ambient Air Quality Monitoring
- 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 (through termination of existing stations, relocation of stations, establishment of new stations,

monitoring of additional parameters, and/or changes to the sampling schedule) in order to continue to meet their objectives and data needs. 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.

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. The equipment is grouped by monitoring program or network to easily compare instrument specifics across the programs or networks. Appendix D lists the information about each of ADEQ's current and recently closed monitoring sites including those sites that 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 compliance network consists of monitoring sites operated for the purpose of demonstrating compliance with the National Ambient Air Quality Standards (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). 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
- 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 non- attainment for one or more of the NAAQS and in areas where the NAAQS has 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. Some of the monitoring data from these sites are submitted to AQS. As indicated in the 2012 Network Plan, ADEQ met with Freeport-McMoRan Copper and Gold, Inc. (FMMI) to discuss the role of Primary Quality Assurance Organization (PQAO) for the Miami Golf Course PM_{10}, Miami Townsite SO_2, and Miami Jones Ranch SO_2 monitors. ADEQ collocated instruments at these sites to

meet the PQAO requirements for submittal of these data to AQS. ADEQ installed the PM_{10} monitor at the Miami Golf Course site in fall 2012, and the SO_2 monitors at the Miami Jones Ranch site and Miami Townsite in early 2013. Data are being collected from both the FMMI and ADEQ monitors at these sites for at least one year for comparability analysis and preparation of the comparative data analysis review for submittal to EPA

2.4 NCore Network

EPA describes the nationwide NCore network 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 of the objectives of the NCore network are:

- Tracking long-term trends of criteria and non-criteria pollutants;
- Support for long-term health assessments that 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 CFR, ADEQ will use the JLG Supersite to test new technologies in various ADEQ monitoring networks. Examples include advanced communications and serial data collection, remote span checks and calibrations, high sensitivity instrumentation, and instruments that monitor 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 currently meets the meteorological monitoring requirements for the NCore and PAMS networks. ADEQ added 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.

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 (NOx), total reactive nitrogen (NOy, 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 58 (1993) required states to establish PAMS as part of their monitoring networks in O_3 non-attainment 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 non-attainment of the O_3 NAAQS and the need for a more comprehensive air quality database for O_3 and its precursors. ADEQ

operates three PAMS sites to represent the Phoenix metropolitan area: JLG Supersite (type 2), Queen Valley (type 3), and VEI (meteorological).

EPA assembled a workgroup to evaluate the current PAMS program and consider the possible re-invention of the PAMS program. The scope of the evaluation was extensive and included PAMS objectives, methods, network design, and quality assurance. ADEQ participates in the PAMS re-invention process and will continue to follow its activity closely to be aware of possible future implications for the ADEQ network.

2.7 National Air Toxics Trend Sites (NATTS)

The NATTS network was designed to monitor and record the concentrations of certain 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 the human exposure risks from the various pollutants. 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. The ADEQ JLG Supersite is the designated NATTS site for the Phoenix metropolitan area.

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 and two IMPROVE samplers. The collocated IMPROVE samplers provide precision 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 for collecting the carbon sample in lieu of the Met One SuperSASS, which had been used to collect all three types of filter samples. 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 networks track 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 more than 6,000 acres, and to which visual air was an important resource for the visitor experience. Of the 156 Class 1 areas designated across the nation, 12 are located in Arizona. Nine sites are located in USFS areas and three in NPS areas. 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. In addition to the eleven Class 1 sites (two were combined in the past) ADEQ added six other IMPROVE sites identified as Protocol sites. Refer to section 4.12 and the map in Appendix B for additional details regarding ADEQ's Class 1 Visibility and IMPROVE networks.

2.10 AIRNow Reporting

ADEQ provides data to the AIRNow system. Data currently being submitted to AIRNow on a near-real time basis includes O_3, continuous PM_{10} and $PM_{2.5}$, and SO_2 data. ADEQ will continue to expand efforts for data submission to AIRNow to support the collection and dissemination of nationwide and consistently provided air quality data in the Air Quality Index (AQI) format that is being used by local weather forecasters, medical facilities, schools and the general public to make health-based 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. More than a decade of urban visibility data has been collected for the Phoenix and Tucson area. ADEQ utilizes transmissometers, particulate monitors, and/or digital camera systems to evaluate urban visibility. Currently, only the Phoenix metropolitan area urban visibility is monitored. The existing Phoenix area cameras sites were recently upgraded with higher resolution cameras. Additional details regarding ADEQ's Urban Haze Network can be found in section 4.13.

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

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 provide continuous, real-time particulate concentration data that are useful for making informed smoke management decisions related to prescribed burns and wildfire monitoring. E-BAM instruments are used only as special purpose monitors. 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	204 W. Aero Dr., Payson, AZ 85541
Prescott College AQD	336 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 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 second 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 2012 Network Plan submission; as well as changes planned for July 2013 through December 2014. Any occurrence of unplanned changes due to emerging need, budget constraints, or other circumstances will be documented in next year's Air Monitoring Network Plan. Below is a summary of the planned network changes. Details regarding these changes can be found in Section 4.

3.1 Site Closures

Prescott Valley – Although monitoring began in 2007, the MSA population does not require PM10 nor PM2.5 monitoring in Prescott Valley. Statistical analysis shows that these monitors are reporting concentrations significantly below the NAAQS. ADEQ is requesting to close both PM_{10} and $PM_{2.5}$ monitors at this site at the end of 2013. See Section 3.5 for statistical analysis in accordance with 40 CFR 58.14(c) (1).

3.2 New Sites Planned

Miami, AZ area SO_2 sites – ADEQ added SO_2 monitors at existing Freeport-McMoRan Copper & Gold, Inc (FMMI) sites, Miami Jones Ranch and Miami Townsite. These monitors will be concurrently run along side FMMI monitors until sufficient data is collected so a comparative analysis can be prepared and forwarded to EPA.

3.3 Network Changes – Current and Planned

Alamo Lake – This site is currently the background site for the O_3 network. The site is sufficiently remote that it is being configured to be the designated background site for several pollutants. ADEQ plans to begin operating a $PM_{2.5}$ FEM BAM 1020 at Alamo Lake by January 2014. ADEQ also plans to establish this site as a SO_2 background site so that data from this site can be used for background emissions in modeling. ADEQ is currently assessing the availability of trace-level SO_2 for placement at this site.

Bullhead City PM_{10} – ADEQ installed a continuous PM_{10} TEOM on July 1, 2012 to replace the filter-based Partisol 2000 FRM.

Douglas Red Cross PM_{10} and $PM_{2.5}$ – ADEQ installed a continuous PM_{10} TEOM at the Douglas Red Cross site in October 2012 to meet the required sampling frequency. It ran concurrently with the Partisol 2000 FRM until it was removed on January 1, 2013. ADEQ also installed a continuous $PM_{2.5}$ FEM BAM 1020 in April 2013, which ran concurrently with the Partisol 2000 FRM until it was removed in July 1, 2013.

Flagstaff PM_{10} and $PM_{2.5}$ – The statistical analysis for Flagstaff shows that PM_{10} and $PM_{2.5}$ concentrations are significantly below the NAAQS and the monitors are not required for this area based on MSA population. ADEQ is requesting to discontinue both the PM_{10} and $PM_{2.}$monitors at the end of 2013. See Section 3.5 for the statistical analysis in accordance with 40 CFR 58.14(c)(1).

Miami Jones Ranch and Miami Townsite SO_2 – ADEQ installed SO_2 analyzers at the Miami Jones Ranch and Miami Townsite in January 2013 to ensure the data are meeting the AQS quality assurance requirements. FMMI will continue to operate their SO_2 monitors until a correlation study between the two sets of monitors can be

made. ADEQ's data meet the PQAO requirements and will be used for submittal to AQS. ADEQ will prepare a report in the summer of 2014 comparing and analyzing these data for submittal to EPA for review and determination regarding the Miami Ridgeline design value and the continued need for collocated monitors at Miami Jones Ranch and Miami Townsite.

Nogales Post Office $PM_{2.5}$ – An FEM BAM 1020 continuous monitor replaced the $PM_{2.5}$ 1-in-6 day Partisol 2000 filter-based FRM as the primary monitor in April 2013. The Partisol 2000 FRM is the QA collocated monitor for the $PM_{2.5}$ network. This QA collocated monitor will operate on a 1-in-6 day sampling schedule. ADEQ will continue to operate the site's second $PM_{2.5}$ 1-in-6 day Partisol 2000 through December 2013.

Paul Spur Chemical Lime PM_{10} – An FEM PM_{10} TEOM continuous monitor replaced the PM_{10} 1-in-6 day Partisol 2000 filter-based FRM in April 2012.

Payson Well Site PM_{10} – Part of the network planning process is to assess the representativeness of the monitors for sampling ambient air. There have been several structural changes at the Payson Well Site that are limiting airflow around this monitor. These include construction of new buildings and growth of trees. ADEQ met with the site manager to define a more suitable location. By January 1, 2014, ADEQ plans to install a single PM_{10} FEM BAM 1020 at Payson Well Site, thereby replacing the collocated Partisol PM_{10} FRM monitors. As a result, this site will no longer be collocated for $PM_{10,}$ as there is no collocation requirement for PM_{10} FEM monitors. ADEQ is requesting approval by EPA Region 9 in the attached letter for the relocation of the current PM_{10} monitoring location (Lat: 34.2294; Long: -111.3297) to a parcel 90 meters to the east at location (Lat: 34.2296; Long: -111.3295). The PM_{10} monitoring will remain on the same property and better meet the required siting criteria. The AQS Site ID and Site Name will remain the same. Please see Figure 3.3-1 and Figure 3.3-2 below for aerial photographs of the site relocation schematic.

Figure 3.3-1 Aerial photograph of current PM_{10} monitor location at Payson Well Site

Figure 3.3-2 Google Earth Image of the proposed PM_{10} monitor location at Payson Well Site

Vehicle Emissions Laboratory - The PAMS re-engineering workgroup noted the high maintenance cost and limited use of the Radio Acoustic Sounding System (RASS) and wind profiler data. ADEQ has not been able to calibrate these instruments for a number of years due to the high cost for maintenance and calibrations (re-calibrations estimate is $30,000). ADEQ has discontinued data collection from these instruments, because the quality assurance requirements cannot be met resulting in unreliable data. Alternatives are being reviewed.

Yuma Supersite $PM_{2.5}$ - The $PM_{2.5}$ Partisol 2000 FRM was replaced by an FEM BAM 1020 in July 2013. This site is also designated as the ADEQ Transport site for the $PM_{2.5}$ monitoring network.

Table 3.3-1 Instruments Changes Made from July 2012 thru June 2013

Site Name	Monitors	Date of Change	Description
Vehicle Emissions Laboratory	RASS and Wind Profiler	30-Jun-2012	The RASS and Wind Profiler has been nonoperational for a number of years due to lack of calibration and cost of maintenance.
Bullhead City	PM_{10}	1-Jul-2012	Replaced Partisol 2000 filter-based FRM with a continuous FEM TEOM
Douglas Red Cross	PM_{10}	1-Jan-2013	Replaced Partisol 2000 filter-based FRM with a continuous FEM TEOM
Nogales Post Office	PM_{10}	1-Jan-2013	Replaced Partisol 2000 filter-based FRM with a continuous FEM BAM 1020 – the Partisol will continue to be operated until ADEQ determines the Partisol is fit for removal
Miami Jones Ranch	SO_2	1-Apr-2013	Installed ADEQ SO_2 analyzer to meet PQAO requirement for NAAQS determinations
Miami Townsite	SO_2	1-Apr-2013	Installed ADEQ SO_2 analyzer to meet PQAO requirement for NAAQS determinations

Site Name	Monitors	Date of Change	Description
Nogales Post Office	$PM_{2.5}$	1-Apr-2013	Replaced Partisol FRM with a continuous FEM BAM 1020 – this monitor is now the designated primary and operates with a collocated Partisol FRM. ADEQ will continue to operate the additional Partisol FRM at this site through December 2013.

Table 3.4-2 Instruments Changes Planned for July 2013 to December 2014

Site Name	Monitors	Date of Change	Description
Douglas Red Cross	$PM_{2.5}$	1-Jul-2013	Replaced Partisol 2000 filter-based FRM with a continuous FEM BAM 1020
Yuma Supersite	$PM_{2.5}$	1-Jul-2013	Partisol 2000 FRM was replaced by an FEM BAM 1020. This site is the $PM_{2.5}$ designated Transport site.
Alamo Lake	$PM_{2.5}$	1-Jan-2014	An FEM BAM 1020 will be deployed to the site by January 1, 2014. This is the $PM_{2.5}$ designated Background site.
Flagstaff Middle School	PM_{10}, $PM_{2.5}$	1-Jan-2014	Monitors will be discontinued as of January 1, 2014 since multiple years of data shows that the site is significantly below the NAAQS. System modification (closure) is being made in compliance with 40CFR 58.14(C)(1). See Figure 3.5-1. A special purpose $PM_{2.5}$ monitor (E-BAM) will continue to be used for smoke management, population exposure monitoring and reporting to the website. Ozone monitoring will continue at this site.
Payson Well Site	PM_{10}	1-Jan-2014	Currently collocated Partisol FRM PM_{10} monitors will be replaced with a PM_{10} FEM BAM 1020. Collocation is not required at this site. Monitoring to be relocated within site property.
Prescott Valley	PM_{10}, $PM_{2.5}$	1-Jan-2014	Monitors will be discontinued as of January 1, 2014 since multiple years of data shows that the site is significantly below the NAAQS. System modification (closure) is being made in compliance with 40CFR 58.14(C)(1). See Figure 3.5-1. A special purpose $PM_{2.5}$ monitor (E-BAM) will continue to be used for smoke management, population exposure monitoring and reporting to the website.

3.5 Requests for EPA Region 9 Approval to Discontinue Particulate Monitoring at Flagstaff Middle School and Prescott Valley

In conformance with 40 CFR 58.14(c)(1), ADEQ requests EPA Region 9 Administrator's approval for the following network changes:

- The discontinuation of PM_{10} SLAMS monitors at the Flagstaff Middle School (AQS ID 04-005-1008) and Prescott Valley (AQS 04-025-2002) sites,
- The discontinuation of $PM_{2.5}$ SLAMS monitors at the Flagstaff Middle School (AQS ID 04-005-1008) and Prescott Valley (AQS 04-025-2002) sites. These monitors are "not specifically required by an attainment plan or maintenance plan."

For the PM_{10} monitor discontinuations, according to 40 CFR Part 58 Appendix D Table D-5, for Flagstaff Middle School and Prescott Valley, the minimum required number of PM_{10} monitors for each city is zero. This is based on populations (MSA) <250,000 (134,421 and 211,033 respectively) and the ambient PM_{10} data showing ambient concentrations <120 µg/m^3, which is 80% of PM_{10} NAAQS (150 µg/m^3). The most recent five-year average maximum ambient concentration is 43.4 µg/m^3 at Flagstaff and 54.6 µg/m^3 at Prescott Valley, see Figure 3.5-1. For the $PM_{2.5}$ monitor discontinuation, according to 40 CFR Part 58 Appendix D Table D-5, for Flagstaff Middle School and Prescott Valley, the minimum required number of $PM_{2.5}$ monitors for each city is zero. This is based on a population (MSA) <500,000 (134,421 and 211,033 respectively) and the most recent three-year design value <85% of any $PM_{2.5}$ NAAQS. Eighty-five percent of the $PM_{2.5}$ 24-hour NAAQS is 29.75 µg/m^3 (0.85 x 35 µg/m^3) and eighty-five-percent of the annual $PM_{2.5}$ NAAQS is 10.2 µg/m^3 (0.85 x 12 µg/m^3). Flagstaff Middle School's most recent three-year $PM_{2.5}$ 24-hour design value is 5.2 µg/m^3 and the three-year $PM_{2.5}$ annual design value is 12 µg/m^3. Prescott Valley's most recent three-year $PM_{2.5}$ 24-hour design value is 9.0 µg/m^3 and the three-year $PM_{2.5}$ annual design value is 4.0 µg/m^3.

Using the last five-years of certified data and Formula 1 shown below with the appropriate *t*-value from section 4.1 of the *Network Assessment Guidance 2007* document, Table 3.5-1 shows that these four monitors each have a probability of less than 10% of exceeding 80% of the applicable NAAQS during the next three years based on trends, concentrations, and variability observed in the past.

Formula 1

$$\overline{X} + \frac{t * s}{\sqrt{n}} < 0.8 * NAAQS$$

t = 2.132 (4 degrees of freedom)

Where $\overline{X}$ is the average design value for the last 5 years, *t* is the student's t value for n-1 degrees of freedom at the 90% Upper Confidence Limit, *s* is the standard deviation of the design values, *n* is the number of records (i.e., number of design values), and NAAQS is the standard of interest.

Table 3.5-1 PM_{10} & $PM_{2.5}$ Monitor Discontinuance Statistical Support

Site Monitor	2008	2009	2010	2011	2012	5-Year Avg. Max Conc.	s	t	n	90% UCL	NAAQS 80% NAAQS	90%UCL is <80%
Flagstaff PM 10 Annual Max Conc. Value	45	47	26	61	38	43.40	12.82	2.132	5	55.6	120	YES
Prescott Valley PM 10 Annual Max Conc. Value	42.3	59.9	41	90.8	39	54.60	21.90	2.132	5	75.5	120	YES
Flagstaff PM 2.5 24Hr Design Value	18	19	13	14	12	15.20	3.11	2.132	5	18.2	28	YES
Flagstaff PM 2.5 Annual Design Value	6.8	7.1	6.1	5.9	5.2	6.22	0.75	2.132	5	6.9	9.6	YES
Prescott Valley PM 2.5 24Hr Design Value	12	13	11	10	9	11.00	1.58	2.132	5	12.5	28	YES
Prescott Valley PM 2.5 Annual Design Value	5.9	5.5	5.0	4.3	4.0	4.94	0.80	2.132	5	5.7	9.6	YES

4.0 ADEQ MONITORING NETWORKS

The monitoring requirements for the number of sites in the SLAMS networks (including PAMS and NCore) 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.

Table 4.0-1 Metropolitan Statistical Areas as of the 2010 Census

Metropolitan Statistical Area	Area included	Population
Flagstaff	Coconino County	134,421
Lake Havasu City – Kingman	Mohave County	200,186
Phoenix – Mesa – Scottsdale	Maricopa & Pinal Counties	4,192,887
Prescott	Yavapai County	211,033
Sierra Vista-Douglas	Cochise	131,346
Tucson	Pima County	980,263
Yuma	Yuma County	195,751

Table 4.0-2 Micropolitan Statistical Areas as of the 2010 Census

Micropolitan Statistical Area	County	Population
Nogales	Santa Cruz	47,420
Payson	Gila	53,597
Safford	Graham	37,220
Show Low	Navajo	107,449

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 *
>1,000,000	3	2
500,000 – <1,000,000	2	1
50,000 – <500,000	1	0

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 Part 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 FRM/FEM Sites

AQS Site ID	Site Name	2010-2012 24-Hour Design Value (µg/m^3)	2010-2012 Annual Design Value (µg/m^3)	Sample Frequency
04-003-1005	Douglas Red Cross	13	6.7	Continuous
04-005-1008	Flagstaff Middle School	12	5.2	1-in-6 Day
04-012-8000	Alamo Lake[1]	N/A[1]	N/A[1]	Continuous
04-013-9997	JLG Supersite	20	8.2	Continuous
04-023-0004	Nogales Post Office	28	9.8	Continuous
04-025-2002	Prescott Valley	9	4.0	1-in-6 Day
04-027-8011	Yuma Supersite[2]	15	7.8	Continuous

[1] $PM_{2.5}$ monitoring will begin on Jan. 1, 2014 and be designated as the Background site for the $PM_{2.5}$ Network

[2] Designated Transport site in the $PM_{2.5}$ Network

ADEQ currently operates EPA-approved FEM monitors at six $PM_{2.5}$ monitoring sites. An additional EPA-approved FEM monitor will be deployed to the Alamo Lake site in January 2014 and this site will be the designated $PM_{2.5}$ Background site in the $PM_{2.5}$ monitoring network. Yuma Supersite is designated as the required $PM_{2.5}$ Transport site. ADEQ operates both an EPA-approved FEM continuous monitor and a Partisol 2000 $PM_{2.5}$ FRM at the JLG Supersite fulfilling an NCore 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.

As previously stated, the FRM monitors at Flagstaff Middle School and Prescott Valley are scheduled to operate through the end of 2013 and be discontinued. ADEQ evaluated the need for $PM_{2.5}$ monitors at Flagstaff Middle School and Prescott Valley and determined that both monitors can be removed due to the long history of low concentrations at both sites.

4.1.1 $PM_{2.5}$ Collocation Requirements

For the ADEQ $PM_{2.5}$ network, one site is required to have collocated monitoring. The Nogales Post Office site has the highest $PM_{2.5}$ design value in ADEQ's $PM_{2.5}$ network and is therefore the designated $PM_{2.5}$ collocated site. ADEQ operates both an EPA-approved FEM continuous instrument and two Partisol 2000 $PM_{2.5}$ FRM instrument at the Nogales Post Office site. The FEM BAM 1020 is designated as the primary $PM_{2.5}$ monitor for this site enabling ADEQ to exceed the required 1-in-3 day monitoring frequency. This combination of instruments also fulfills the collocation requirement of the $PM_{2.5}$ network for ADEQ. The second Partisol 2000 PM2.5 FRM instrument will operate through December 2013. 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 2000)	2	0	0	0
170 (Met One BAM 1020)	5	5	1	2

4.1.2 Relocating Any Violating $PM_{2.5}$ Monitors

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 or the creation/change to a community monitoring zone. 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.

ADEQ does not have any violating $PM_{2.5}$ monitors that are being considered for relocation.

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} non-attainment areas in those counties. ADEQ operates a PM_{coarse} monitor (difference method using paired FEM BAM 1020 instruments) in the Phoenix metropolitan area at the JLG Supersite NCore site. JLG Supersite PM_{10} concentrations for NCore are provided by the PM_{10} FEM BAM 1020.

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)
>1,000,000	6-10	4-8	2-4
500,000 – <1,000,000	4-8	2-4	1-2
250,000 – <500,000	3-4	1-2	0-1
100,000 – <250,000	1-2	0-1	0

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 several PM_{10} monitors from filter-based methods to continuous methods and by January 1, 2014 all the primary PM_{10} monitors in the ADEQ PM_{10} network will be 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 (Est. Exceedances) and Annual Means for ADEQ Sites

AQS Site ID	Site Name	2010 - 2012 Average Estimated Days PM_{10}>150 µg/m^3 Including Events	2010 – 2012 Average Estimated Days PM_{10}>150 µg/m^3 Excluding Events	2012 Annual Mean Concentration (µg/m^3)
04-003-0011	Paul Spur Chemical Lime Plant	0.3[1]	0	25.4
04-003-1005	Douglas Red Cross	0*	0	31.2
04-005-1008	Flagstaff Middle School	0	0	17.3
04-007-0008	Payson Well Site	0	0	20.4
04-007-1001	Hayden Old Jail	1	0.3	43.2
04-007-8000	Miami Golf Course	0*	0*	23.9

04-012-8000	Alamo Lake	N/A[2]	N/A[2]	N/A[2]
04-013-9997	JLG Supersite	0	0	34.9
04-015-1003	Bullhead City	0.3[1]	0	21.8[1]
04-019-0001	Ajo	1.4	0	33.7
04-019-0020	Rillito	2.7*	*	43.6
04-023-0004	Nogales Post Office	3.8*	3.8*	36.7
04-025-2002	Prescott Valley	0	0	12.5
04-027-8011	Yuma Supersite	4.1	0	47.8

* Annual values not meeting completeness criteria; ADEQ monitoring at Miami Golf Course began July 27, 2012

[1] Filter-based and continuous records were merged to calculate value

[2] Monitoring at Alamo Lake is scheduled to begin Jan. 1, 2014

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. ADEQ does operate an additional Partisol 2000 FRM at the Nogales Post Office site. While the FEM is designated as the primary PM_{10} monitor, the Partisol monitor is designated a QA collocated PM_{10} instrument. 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
126 (Partisol 2000)	5	2*	1*	1*
079 (TEOM)	8	8	0	0
122 (BAM)	2	2	0	0

* The Partisol 2000 monitors at the Payson Well Site will be replaced with a single FEM BAM 1020 beginning January 2014

4.3 O_3 Monitoring Network Requirements

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

Population (MSA)	Most recent 3 year 8-hour Design Value ≥ 85% of NAAQS (0.06375 ppm) or no Design Value available	Most recent 3 year 8-hour Design Value <85% NAAQS (0.06375 ppm)
>10 Million	4	2
4 – <10 Million	3	1
350,000 – <4 Million	2	1
50,000 – <350,000	1	0

The minimum monitoring requirements for O_3 are shown above 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, the Counties of Maricopa, Pima, and Pinal also operate O_3 monitors.

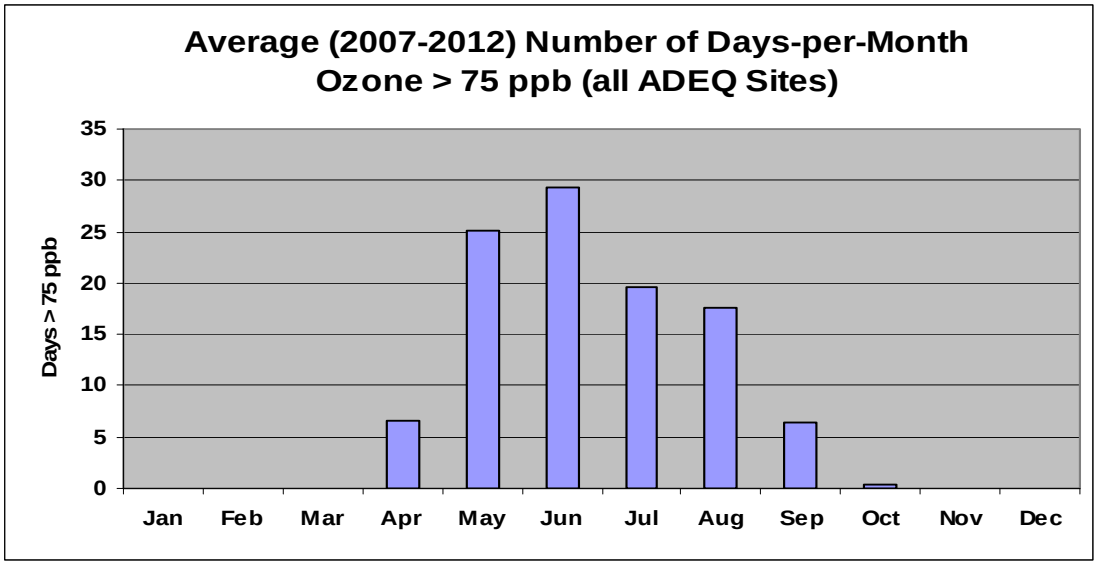
Table 4.3-2 ADEQ O_3 Sites and Design Values

AQS Site ID	Site	Current Operating Schedule	2010-2012 Design Value (ppm)
04-005-1008	Flagstaff Middle School	March - October	0.069
04-007-0010	Tonto National Monument	March - October	0.074
04-012-8000	Alamo Lake	March - October	0.072
04-013-9997	JLG Supersite	January - December	0.076
04-021-8001	Queen Valley	March - October	0.076
04-025-8033	Prescott College AQD	March - October	0.069
04-027-8011	Yuma Supersite	March - October	0.077

4.3.1 O_3 Season

In accordance with 40 CFR Part 58, Appendix D, Paragraph 4.1(i), *"Deviation from the [January-to-December] O_3 monitoring season must be approved by the EPA Regional Administrator, documented in the annual network plan, and updated in AQS. Information on how to analyze O_3 data to support a change to the O_3 season in support of the 8-hour standard for a specific state can be found in reference 8 to this appendix"* Reference 8 refers to the Guideline for Selecting and Modifying the Ozone Monitoring Season Based on an 8-hour Ozone Standard. In compliance with this document, ADEQ analyzed the most recent six years of O_3 data (2007-2012 O_3 data from ADEQ sites) to create the chart in Figure 4.3-1, which is the basis of ADEQ's request for modifying the O_3 season to March through October. The only two days in October > 75 ppb occurred in 2009, which included an unusually high number of exceedance days. The O_3 season was extended in 2012 to include March because some parts of Arizona begin experiencing low concentrations of O_3 in March. ADEQ does additional monitoring in the off-season of November – February for its own purposes; however, those data are not being reported to the AQS database. The JLG Supersite will continue to operate on a January to December schedule.

Figure 4.3-1 Average Number of Days O_3 > 75 ppb all ADEQ Sites Combined



4.4 Pb Monitoring Network Requirements

ADEQ has operated three source-oriented TSP Hi-Vol Pb monitors between the Globe Highway site (collocated) and the Miami Golf Course site since January 2011. For the NCore-Pb requirement, ADEQ uses the same PM_{10} metals speciation sample that is used for the NATTS program. Eastern Research Group (ERG) currently analyzes these samples and on June 1, 2012 received EPA approval for the ICP-MS analysis method for lead in PM_{10}. No changes in the actual monitoring or analysis method will occur for Pb-PM_{10} data collected at JLG Supersite; however, parameter code 85129 and method code 202 are now associated with these data in AQS.

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)	2	2	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	2010-2012 Design Value ($\mu g/m^3$)
04-007-1002	Globe Highway [1]	0.27
04-007-8000	Miami Golf Course [2]	0.06
04-013-9997	JLG Supersite	--*

* Design Value not available; PM_{10} Metals (low-Vol., filter-based) analysis method approved June 2012

[1] Design Value based on 2 years of data, but is valid due to NAAQS violation

[2] Design Value based on 2 years of data

4.5 SO_2 Monitoring Network Requirements

ADEQ operates a network of five SO_2 monitors throughout Arizona. Authority to operate SO_2 monitors has also been delegated to Maricopa and Pima counties. Sources, ASARCO LLC and Freeport-McMoRan Copper & Gold, Inc., also operate SO_2 monitoring networks in Gila County for permit compliance and to support SIP requirements. ADEQ is currently negotiating with both companies to ensure that the monitors are operated under the required quality assurance requirements. For Miami, ADEQ runs the Miami Ridgeline site and recently added collocated SO_2 monitors at the Miami Townsite and Jones Ranch sites, which FMMI has been monitoring. For Hayden, ADEQ currently operated a SO_2 monitors at Hayden Old Jail. ADEQ initiated discussions with ASARCO LLC regarding Globe Highway and Montgomery Ranch on the best means to meet the PQAO requirements.

Table 4.5-1 SO_2 Design Values at ADEQ Sites

AQS Site ID	Site Name	2010-2012 1-Hour Design Value (ppb)
04-007-0011	Miami Jones Ranch	--*
04-007-0009	Miami Ridgeline	107
04-007-0012	Miami Townsite	--*
04-007-1001	Hayden Old Jail	285
04-013-9997	JLG Supersite	6

*Design Value not available; monitoring began February 2013

The SO_2 monitoring requirements in 40 CFR Part 58 Appendix D are based on a Population Weighted Emissions Index (PWEI) calculated for each CBSA. CBSAs with PWEIs greater than 5,000 require at least one SO_2 monitor while CBSAs with PWEIs greater than 100,000 require a minimum of two SO_2 monitors. The Phoenix and Tucson metropolitan areas are the only areas within the state of Arizona that require ambient monitoring of SO_2. These SO_2 monitors are operated by Maricopa County and Pima County respectively. ADEQ installed SO_2 monitors at Freeport McMoRan's Jones Ranch and Miami Townsite sites in February 2013. Data from these monitors will be reported quarterly to EPA's AQS database. ADEQ does operate a trace-level SO_2 monitor at its NCore site (JLG Supersite), as required by 40 CFR Part 58 Appendix D.

4.6 NO_2 Monitoring Network Requirements

ADEQ operates only one NO_2 monitor throughout the state of Arizona. This NO_2 monitor is located at the JLG Supersite and is operated to fulfill a PAMS requirement.

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 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. The NO_2 monitor at JLG Supersite has an annual mean of 18 ppb and a three-year 1-hour design value of 55 ppb; see Table 4.6-1.

Table 4.6-1 NO_2 Design Values at ADEQ Sites

AQS Site ID	Site Name	2010-2012 1-Hour Design Value (ppb)	2012 Annual Mean (ppb)
04-013-9997	JLG Supersite	55	18.0

4.7 CO Monitoring Network Requirements

ADEQ operates only one CO (carbon monoxide) monitor throughout Arizona. This 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. Due to the low range at which the JLG COTL analyzer operates, ADEQ urges some caution be exercised when utilizing these data for the purpose of NAAQS compliance. Under most circumstances, the data would be used to determine compliance with the CO NAAQS. However, due to the consistently low ambient concentrations, the trace-level analyzer's operating range is set at 0-5 ppm, which is the range most frequently measured at JLG. This operating range is well below the CO NAAQS of 9 ppm, therefore, when/if under certain rare circumstances, the CO concentrations are > 5 ppm, determining compliance with the CO NAAQS may not be possible, because measurement uncertainty increases and becomes challenging to statistically quantify. 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	2012 CO 1-Hour Max. Value (ppm)	2012 CO 8-Hour Max. Value (ppm)
04-013-9997	JLG Supersite	2.9	1.8

4.8 PAMS Monitoring Network Requirements

Network design and monitoring requirements for PAMS stations are provided in 40 CFR 58 Appendix D for areas classified as serious, severe, or extreme non-attainment for O_3. Two sites are required for each area, providing all chemical measurements are made. Measurements include speciated VOCs, Carbonyls, NO_x, trace-level reactive oxides of nitrogen (NO_y), CO, O_3, surface meteorology, and upper air meteorology. In 2008, EPA shortened the PAMS monitoring season to June through August.

ADEQ's PAMS network consists of two ambient air monitoring sites in the Phoenix-Mesa-Scottsdale MSA and a meteorological site for the collection of upper air meteorological data and solar radiation data.

JLG Supersite – Type 2 PAMS Site

The JLG Supersite was designated a PAMS site in 1999. Since the required manual method of eight three-hour canisters running daily is impractical due to increased expenses for staff, shipping, and analysis, ADEQ returned in 2008 to the 2006 monitoring schedule of a 24-hour canister sample every sixth day at the JLG Supersite during PAMS season for VOCs. This will be reviewed when the final results of the PAMS re-engineering program are available which is anticipated to include recommendations for changes to monitoring and new types of instruments. ADEQ also operates carbonyl, O_3, CO, NOx, and surface meteorological monitoring equipment at JLG Supersite (see Table 4.8-1). Carbonyl monitoring at JLG Supersite is not currently required for PAMS, but because carbonyls are considered important for PAMS, there are no current plans to discontinue carbonyl monitoring at JLG Supersite.

Table 4.8-1 JLG Supersite PAMS Instrumentation

Parameter	Period of Operation	Collection Method	Frequency and Duration
VOC *	June – August	Canister Sampler	Every 6th day, 24 hrs.
Carbonyl *	June – August	Multi-port Carbonyl Sampler	Every 6th day, 3 – 3 hr samples (0500-0800, 0800-1100, 1100-1400)
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	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 NOx, and surface meteorology measurements. ADEQ's Five-Year Network Assessment identified the Queen Valley site as not meeting PAMS monitoring requirements due to the lack of meteorological measurements. Meteorological instrumentation was added during the second quarter of 2011. Carbonyl samples are not required at Type 3 sites. 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	Every 6th day, 24 hrs, and 3 – 3 hr samples (0500-0800, 1300-1600, 1600-1900)
O_3	March – October	O_3 Analyzer	Hourly average
NOy	June – August	NOy Analyzer	Hourly average
Meteorology	Jan – Dec	• Wind speed/direction • Temperature • Relative humidity	Hourly average

Vehicle Emissions Laboratory – Upper Air Meteorology Site

This site is intended to be a meteorological 'supersite' and includes 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. A Radio Acoustic Sounding System (RASS) and a Wind Profiler had also been collecting continuous upper air meteorological data for determination of mixing heights since 1998 until July 2012. The PAMS re-engineering workgroup noted the high maintenance cost and very limited use of the RASS and Wind Profiler data and unofficially recommended against its continued use – particularly if usable data is available from other sources. ADEQ considered the high operational cost and very limited data use when deciding to discontinue its operation. EPA is currently exploring the possibility of using mixing height data from some of the 1,000 ceilometers recently placed in use by NOAA.

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. EPA approved ADEQ's NCore monitoring plan submitted in 2009, but did not grant the waiver requesting to substitute NOx monitoring for NOy. The NCore-Pb requirement is being met by using the current PM_{10} metals speciation sampler (PM_{10} Partisol 2000) and associated samples. ADEQ recently received notice that the ERG analysis method for PM_{10} metals speciation was approved as a Federal Equivalent Method (FEM) for the analysis of Pb. While there will be no physical changes to the instrumentation or analysis method for Pb at the NCore site, the parameter code 85129 and method code 202 are now associated with Pb-PM_{10} data in AQS.

Table 4.9-1 JLG Supersite NCore Instrumentation

Required Measurement	Frequency/Duration	Status
$PM_{2.5}$ FEM mass	Hourly	Met One BAM 1020 FEM pair, designated primary
$PM_{2.5}$ FRM mass	24 hour average every 3rd day	Thermo Partisol 2000 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	24 hour average; every 3rd day	Met One SuperSASS with URG module is current instrument; STN/CSN samples collected since 1999

trace metals		
Pb	24 hour average; every 6th day	Currently Pb measurements are from the NATTS PM_{10} metals sampler. EPA recently approved ERG's ICP-MS analysis method as an FEM.
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, Rotronics temperature/relative humidity probe currently in operation

4.10 SIP Monitoring Network Requirements

ADEQ, along with other delegated agencies, are responsible for the preparation and submittal of SIPs for non-attainment 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 4.10-1 lists the ADEQ and source-operated monitors used to determine SIP compliance.

Table 4.10-1 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" Non-attainment	Alamo Lake, *JLG Supersite*, Queen Valley, *Tonto National Monument*
Ajo, Pima	PM_{10}	Moderate Non-attainment	*Ajo*
Bullhead City, Mohave	PM_{10}	Maintenance/Attainment	*Bullhead City (Post Office)*
Douglas-Paul Spur, Cochise	PM_{10}	Moderate Non-attainment	Douglas Red Cross*, Paul Spur Chemical Lime Plant*

Area and County	Pollutant	Classification	ADEQ SIP Sites
Hayden, Gila and Pinal	PM_{10}	Moderate Nonattainment	*Hayden Old Jail*
Miami, Gila	PM_{10}	Moderate Non-attainment	*Freeport McMoRan sites: Golf Course & Miami Ridgeline*
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 Non-attainment	*JLG Supersite*
Rillito, Pima	PM_{10}	Moderate Non-attainment	*Rillito*
Yuma, Yuma	PM_{10}	Moderate Non-attainment	Yuma Supersite
Nogales, Santa Cruz	$PM_{2.5}$	Non-attainment	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	Non-attainment – 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* *Freeport McMoRan (SO_2, MET) Miami Jones Ranch, Miami Townsite*
Morenci, Greenlee	SO_2	Maintenance/Attainment	No network or commitment
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: Douglas Red Cross, Organ Pipe National Monument, JLG Supersite, Queen Valley, Saguaro West National Monument, Meadview NPS / USFS sites: Chiricahua Entrance Station, Greer Water Treatment Plant, Grand Canyon - Indian Gardens, Grand Canyon - Hance Camp, Ike's Backbone, Meadview, 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).

4.11 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 facilities. 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 4.11-1 lists the monitors operated by ADEQ permitted sources.

Any data submitted to AQS needs to be performed by a Primary Quality Assurance Organization (PQAO) that meets all the quality assurance requirements. Data from the ASARCO and FMMI monitors are being submitted to AQS to use for regulatory decisions. In spring 2012, ADEQ send letters to ASARCO and FMMI discussion the PQAO requirements and suggesting that they meet with ADEQ to discuss options. FMMI representatives met with ADEQ, and in January 2013, ADEQ collocated monitors at the existing FMMI's Miami Jones Ranch and Miami Townsite sites in the Miami, AZ area. ADEQ has also contacted ASARCO LLC to discuss similar changes.

Except for potential changes to the Miami and Hayden area networks noted above, the only other change in the source compliance monitoring network includes the discontinuation of source operated PM_{10} monitors in Rillito. ADEQ has operated a continuous PM_{10} TEOM in Rillito for several years; therefore, PM_{10} monitoring conducted by the source was determined to be redundant and unnecessary.

Table 4.11-1 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
Miami Ridgeline	Miami	PM_{10} mass and metals	Yes (PM_{10} mass only)

Site Name	City	Pollutant(s)	AQS Submittal
		speciation	
Miami Golf Course	Miami	PM_{10} mass and metals speciation, collocated	Yes (PM_{10} mass only)
Miami Jones Ranch [1]	Miami	SO_2	No
Miami Townsite [1]	Miami	SO_2	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.

4.12 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 areas 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 4.12-1. In addition to the Class 1 IMPROVE monitors listed in Table 4.12-1, ADEQ also operates one IMPROVE monitor at the Douglas Red Cross site, and two collocated IMPROVE monitors at the JLG Supersite. The JLG Supersite serves as an urban IMPROVE monitor and has been

used to provide comparative analysis with data from the CSN network. The Douglas Red Cross site may serve multiple objectives. In 2012, a review of the data from the Douglas Red Cross site was prepared by Air Resource Specialists and provided to ADEQ. These data will be used to evaluate if this site should be continued or if it could be better utilized at another location. 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 4.12-1 2012 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 and Indian Gardens
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 (Camp Raymond)

4.13 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 1993, ADEQ began deploying visibility monitoring equipment in Phoenix and Tucson. 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 Tucson urban haze network was shutdown in September 2010. In early 2011, a draft summary report was written which summarizes the nephelometer and transmissometer data that were collected since 1997. The report provides summaries and trends in urban visibility data, as well as meteorological data summaries in the form of wind roses. This report is meant to serve as a final data summary for the Tucson Urban Haze network. Information from this report may be utilized in the future if further modifications are needed to the Urban Haze Network.

The current Phoenix urban haze sites (and their status) are described in Table 4.13-1. 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 4.13-1 Urban Haze Monitoring Network

Site Name	Parameter(s) Measured
Phoenix Network – Operational	
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
North Mountain Summit	2 High Resolution Digital Cameras
Phoenix Transmissometer (Phoenix Baptist Hospital to Holiday Inn Hotel)	Transmissometer (Bext)
Vehicle Emissions Laboratory	Light Scattering (Bscat) Nephelometer

4.14 Meteorology Monitoring Network

ADEQ operates meteorological equipment at selected sites throughout its network; see Table 4.14-1. Some sites were originally established because other meteorology networks (NWS, AZMet, etc.) were not located near ADEQ's ambient air quality sites. As recommended in ADEQ's Five-Year Network Assessment, 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. Currently, Ajo and Douglas Red Cross are the only meteorological sites that do not have the full suite of meteorological instruments. A temperature and/or RH probe may be added to these sites within the next year to compliment the current measurements of wind speed and wind direction.

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 4.14-1 Meteorology Monitoring Network

Site	Temp.	Temp. Lapse Rate System	Relative Humidity	Wind	Total Horizontal Solar Radiation	Ultraviolet Solar Radiation	Report to AQS	Comments
Ajo				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	X		X	X			No	

Site	Temp.	Temp. Lapse Rate System	Relative Humidity	Wind	Total Horizontal Solar Radiation	Ultraviolet Solar Radiation	Report to AQS	Comments
Lime Plant								
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 MONITORING PLAN QUALITY ASSURANCE

All environmental data operations (EDOs) contain some level of uncertainty or error. The total measure of uncertainty is the sum of measurement and population uncertainty. Measurement uncertainty relates to how accurately a pollutant's concentration was measured, or sampled, and occurs during the data collection process. Population uncertainty relates to how well the measurements of a pollutant from a particular air monitoring station represent the population deemed at risk. Measurement uncertainty is kept within tolerable limits by adhering to stringent operating requirements established by the EPA, or in-house by ADEQ, for each specific air monitoring network. Population uncertainty is kept within tolerable limits by establishing monitoring sites at the best possible location to achieve the monitoring objective.

5.1 The Quality System

To ensure high quality data are produced, ADEQ maintains a quality system as required by EPA. EPA specifies the quality assurance (QA) requirements for SLAMS, SPMs, and PSD air monitoring programs in 40 CFR 58 Appendix A. Components of the Air Assessment Section's (AAS) quality system include, but are not limited to, the use of:

- Quality assurance program/project plans (QAPP) with supporting standard operating procedures,
- Data quality objectives (DQOs) and/or data quality indicators (DQIs) that specify the amount of tolerable error and establish the precision, bias and completeness requirements for the data,
- Measurement quality objectives (MQO) and associated quality control (QC) checks on air monitoring instruments,
- Data quality assessments that provide statistical evaluation of data collected and certified annually for the specific purpose of each air monitoring station or network,
- A variety of regularly occurring audits, or assessments, for technical and/or management systems, and
- Data validation and reporting requirements that keep data comparable with other air monitoring organizations' networks.

ADEQ is the primary quality assurance organization (PQAO) for the criteria pollutant air monitors operating at ADEQ's SLAMS and SPM network stations unless otherwise noted. The precision and bias results from QC checks such as verifications, performance evaluation (PE) audits, and national performance evaluation program audits apply to ADEQ's data only. Maricopa, Pima, and Pinal Counties are each designated as a PQAO by EPA Region 9 for the data they produce and the Tribal monitoring organizations work with EPA directly to establish PQAO designations for data produced on Tribal Land. ADEQ uses precision and bias data from air monitoring instruments to assess how well they achieve established DQOs. Precision is defined as the measure of mutual agreement among individual measurements of the same property usually under prescribed similar conditions, and it is the random component of error. Precision data are generated from collocated sites and QC checks performed by the Air Monitoring Unit (AMU). Bias is the systematic or persistent distortion of a measurement process, which causes error in one direction. It is determined by estimating the positive and negative deviation from the true value as a percentage of the true value. Bias data are generated from EPA and in-house PE audits.

The measurement uncertainty among ADEQ stations monitoring for the same pollutant is expected to be reasonably homogeneous because such stations operate under a set of common factors needed to effectively operate as a PQAO. Common factors typically include:

- Stations being operated by a common team of field operators and according to a common set of field standard operating procedures (SOPs),
- Common calibration facilities and standards,
- Use of a common quality assurance program/project plan (QAPP),
- Oversight by a common quality assurance organization, and
- Support by a common management, laboratory, or headquarters.

5.1.1 ADEQ Quality Assurance Staff

The AAS QA Team is housed in the Data Management & Quality Assurance (DM&QA) Unit and is composed of two full-time employees dedicated to QA/QC activities. The QA/QC Lead is a member of ADEQ's agency level QA team. The QA Team provides oversight and guidance on air monitoring activities to help ensure EPA's QA requirements are met. The QA Team primarily interacts with personnel from the AMU, which includes the Air Filter Laboratory (AFL). Detailed information on the QA Team's activities is documented via an Annual Audit Report. The QA Team responsibilities include, but are not limited to:

- Coordinating the preparation of quality documents such as Quality Assurance Program or Project Plans (QAPPs). QAPPs are supported by SOPs that define how to operate air monitoring instruments, handle and process samples, and manage data. Two variations of QAPPs apply to ADEQ:
    - Program plans, which describe the air monitoring networks that are essentially "permanent" with no known end dates and are associated with data used for NAAQS compliance or for other national programs with specialized purposes, and
    - Project Plans, which describe the air monitoring stations or networks that are limited in scope and duration and are usually operated for special projects
- Reviewing documents such as chain-of-custody forms, air sample records, and various instrument performance reports that relate to DQOs and/or MQOs.
- Managing the field audit program, which include conducting PE audits and coordinating with the EPA national performance evaluation program auditors for $PM_{2.5}$, Pb, and gaseous monitors,
- Conducting Technical Systems Audits (TSAs) on ADEQ air monitoring programs and laboratory services, and
- Monitoring third-party laboratory performance on TSAs conducted by EPA or other government agencies such as the Arizona Department of Health Services.

5.1.2 ADEQ Quality Documents

<u>The Quality Management Plan</u>

ADEQ has an agency-level Quality Management Plan (QMP), managed by the ADEQ Safety and Quality Management Specialist, who report to the Office of Administrative Counsel in the Administrative Services

Division. In 2010, the QA/QC Laboratory Services Manager submitted an updated QMP to EPA Region 9. The Region 9 Quality Assurance Administrator approved this version in November 2010. The QMP describes the management processes ADEQ uses to maintain a quality system that supports programs involving environmental data and technology. The QMP is an "umbrella" document that details, in broad terms, the strategies used to carry out QA/QC in environmental data collection activities conducted by ADEQ.

The Quality Assurance Program/Project Plans

Per EPA Region 9 guidance, a draft comprehensive program plan was submitted to EPA Region 9 in November 2001, but this document was never approved. This document provided a broad overview of all air monitoring programs AAS operates. This document is being replaced by individual program plans, which provide more details for each major air monitoring program, or network. ADEQ develops project plans as needed for special studies, but these plans do not necessarily have to be submitted to EPA Region 9 for approval. Project plans may involve single or multi-pollutant monitoring and they may refer to the appropriate program plan(s) for the pollutant(s) being measured to reduce duplication of effort. In 2013, personnel within the AAS are diligently working to meet EPA's requirement of all program QAPPs updated or developed and approved by EPA Region 9 as soon as possible. EPA requires that QAPPs be updated every five years.

ADEQ developed an Interim Final Pb QAPP that was approved by EPA Region 9 in October 2011 and the Final Pb QAPP was completed and approved by Region 9 in January 2013.

ADEQ submitted a Final PM QAPP to Region 9 in June 2013 and Region 9 approved this QAPP in August 2013. ADEQ plans on adding any supplemental PM speciation air monitoring information as an addendum in 2014.

In 2013, ADEQ plans to produce individual gaseous pollutant network QAPPs for SO_2, O_3, NO_2, and CO. We anticipate that producing a smaller QAPP for each gaseous network will be more expedient than trying to develop a comprehensive gaseous pollutant network QAPP.

EPA Region 9 approved the *National Air Toxics Trends Stations, (Urban) Air Toxics Monitoring Program, & Photochemical Assessment Monitoring Stations (NATTS/ATMP/PAMS) QAPP* in February 2008. This QAPP is scheduled for update and submittal in 2013 and will include the QA/QC for the meteorological network.

ADEQ plans to use the pollutant-specific QAPPs for each parameter measured at its NCore station.

The EPA produces a QAPP for the Chemical Speciation Network (CSN) $PM_{2.5}$ monitoring program. In 2010, the QA Lead at EPA OAQPS updated the 2001 version of the speciation trends network QAPP with input from the air monitoring community. The draft of this QAPP was made available to the air monitoring community at Research Triangle Institute's (RTI) website and is also saved on ADEQ's shared drive with other program QAPPs. ADEQ follows the EPA QAPP for operating this network; however, any specific information regarding how ADEQ operates the two Met One samplers used for collecting these filter samples will be provided in ADEQ's technical SOPs and addendums added to the PM QAPP regarding any specifics for this EDO.

Air Monitoring SOPs for ambient air monitors are either stored at monitoring sites with storage capability or in the AMU technician's service vehicle. Air Assessment Section SOPs are scheduled for update annually and follow

the format provided by EPA in the *Guidance for Preparing Standard Operating Procedures (SOPs) EPA QA/G-6*. SOPs are submitted for EPA Region 9 review with their relevant QAPP.

The Document Control System

In 2012, the DM&QA Unit produced two new administrative SOPs regarding the SOP development and document control processes. The SOPs provide guidance to personnel creating, editing, and archiving SOPs. These documents included a new alphanumeric identification system and use a centralized storage location for the electronic versions of QAPPs and SOPs. This was implemented to ensure QA documents are easily assessable for all AAS personnel and will improve the usability of each SOP while streamlining the writing and review efforts. In 2013, the DM&QA Unit produced a new administrative SOP for the corrective action program.

5.2 Measurement Quality Checks

Precision, Bias, and Completeness Measurements

QC checks are performed by the DM&QA Unit's QA Auditor and generate data used to assess the quality of the ambient air data collected by AAS. As previously stated, these QC checks assess how well an air monitoring network is operating in order to quantify the amount of measurement error present in the data from field operations. EPA publishes the requirements for measurement quality checks in 40 CFR Part 58 Appendix A.

The verifications and PE audits generate quality control data used to assess the amount of precision and bias introduced into air quality data by the monitoring process. Collocated monitors generate precision data as well. These data are reviewed regularly to determine if the quality of the ambient air data meet their intended purpose and to survey how well monitoring networks are meeting the QA requirements for precision, bias, and completeness as required in 40 CFR Part 58. The information gained from precision and bias data is important for data certification and user purposes. Following reviews, the data are uploaded to the AQS database per 40 CFR 58 requirements for criteria pollutants. Statistical evaluations of the QC data are available in several reports generated by the EPA's AQS database. These reports include the AMP 255 - Data Quality Indicator Report, the AMP 455 NC - Quick Look All Parameters and the AMP 600 - Data Certification Report.

Currently, the digital flow and gas standards used by AMU and QA are annually certified, or verified, to the National Institute of Standards and Technology (NIST) traceable standard. The standards used by QA for criteria pollutant gases are NIST-certified annually and the O_3 standards are NIST-certified twice per year. The VOC samplers are calibrated annually by ATEC and NIST-certified annually by ERG. The carbonyl samplers are currently calibrated annually by ATEC and NIST-certified annually by either ATEC or ERG. For detailed information on the air monitoring instrument, or method, used at each site, see Appendix C and D. Table 5.1 shows the frequency and type of measurement quality checks performed on ADEQ monitors.

5.3 Calculations and Reporting

ADEQ submits the required precision and bias report(s) to Region 9 in the annual Certification Letter per certification guidelines and CFR requirements. As stated above, all collocated particulate mater (PM) measurements are submitted quarterly to AQS as POC 2. AQS then calculates the precision statistics. The PM flow verification data and gaseous biweekly precision check data are submitted quarterly as precision records.

Audit data for both PM and gas monitors are also submitted quarterly. ERG and RTI laboratories submit QC check information for the NATTS and CSN program, respectively. The EPA reports the NPAP and PEP QC results to AQS.

ADEQ Rankings in EPA Program Reports

Periodically, EPA publishes reports for some of the criteria pollutant networks, and potentially non-criteria pollutant networks, that rank U.S. monitoring organizations' performance over a three year period. The QA Team as well as other personnel in DM&QA 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 are of the highest quality possible. ADEQ is monitoring the $PM_{2.5}$ network to see how it performs nationally based on the results published in the most recent EPA report, the *3-Year Quality Assurance Report Calendar Years 2005, 2006, and 2007 The SLAMS PM2.5 Ambient Air Monitoring Program (February 2009).*

5.4 The Audit Program

Several types of quality control audits and assessments are performed on ADEQ's air monitoring networks. ADEQ performs the PE audits as per CFR 40 Part 58 Appendix A, Section 3.2.2. For information specific to each network or pollutant, see the applicable ADEQ quality assurance program plan (QAPP).

5.4.1 Summary of Audits Conducted by ADEQ

Surveillance

ADEQ AAS routinely observes how well a monitor is functioning and takes timely action to mitigate any performance issues to monitoring instruments and/or networks.

PE Audits

In addition to ADEQ instruments, the QA Team conducts PE audits of PCAQCD monitors that are included in the interagency agreement and some source monitors.

Internal Audits

Technical Systems Audits (TSA) - The QA Team plans on conducting a comprehensive internal TSA every three years or more frequently if needed; however, the TSA may be more focused on a particular air monitoring network(s) if changes to regulations, noted performance concerns, or emerging issues are occurring. The internal TSAs will alternate with the EPA TSA schedule.

Audits of Data Quality (ADQ) - The QA Team plans on conducting an ADQ twice per year.

Data Quality Assessments (DQA) - The DM&QA Unit Manager conducts the DQA as part of the annual data certification process.

5.4.2 Summary of Audits Conducted by EPA

EPA Headquarters and Region 9 each have authority to audit ADEQ's ambient air monitoring program.

The National Performance Evaluation Program (NPEP)

The EPA's Office of Air Quality Planning and Standards (OAQPS) at Headquarters oversee the NPEP program, which includes a number of QC evaluations. These include, but are not limited to:

- Performance Evaluation Program (PEP)– for ADEQ this applies to the $PM_{2.5}$ and Pb TSP monitors and analytical laboratory (Pb only),
- National Performance Audit Program (NPAP) – for ADEQ this applies to the gaseous pollutant monitors, Ambient Air – Protocol Gas Verificaiton Program – for ADEQ this applies to the gaseous pollutant monitors and participation is voluntary – ADEQ participated in 2011.
- Gravimetric Inter-lab Study for $PM_{2.5}$ by the EPA's National Air and Radiation Environmental Laboratory – the ADEQ Air Filter Laboratory has been voluntarily participating in this performance test since 2009.

Note that ADEQ will continue to participate in the NPAP and PEP audit programs using EPA's services versus conducting this test independently.

EPA Technical Systems Audits

In conformance with 40 CFR Part 58 App. A Section 2.5, EPA Region 9 conducts a TSA on ADEQ's air monitoring program every three years and the results are reported to the AQS.

EPA Region 9 most recently conducted a TSA of ADEQ's air monitoring program in April 2012. Findings and recommendations from the TSA along with corrective action plans have been documented in a report for EPA Region 9. ADEQ is working with EPA Region 9 on the findings from the 2012 TSA and is constantly progressing with corrective actions since 2012.

In April 2010, ADEQ underwent a TSA of the NATTS program. The TSA was conducted by RTI, a contractor for EPA, and corrective actions were put in-place for the findings and recommendations. We anticipate another NATTS TSA will take place in the future.

Appendix A – Definitions and Abbreviations

AAAD	Air Assessment Ambient Database
AAS	Air Assessment Section
AADT	Annual Average Daily Traffic
ADEQ	Arizona Department of Environmental Quality
AFL	Air Filter Lab
AMU	Air Monitoring Unit
ASARCO	American Smelting and Refining Company, LLC
ATEC	Atmospheric Technologies, Inc.
Auto GC/MS	Automated Gas Chromatograph/Mass Spectrometer
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
CSN	Chemical Speciation Network
DCS	Data Collection System
DM&QA	Data Management & Quality Assurance Unit
DQO	Data Quality Objective
E-BAM	Environment Proof - Beta Attenuation Monitor
EDO	Environmental Data Operation
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
NAREL	National Air and Radiation Environmental Laboratory
NATA	National Air Toxics Assessment

NATTS	National Air Toxics Trends Station
NCore	National Core multipollutant monitoring stations
NIST	National Institute of Standards and Technology
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
OAQPS	Office of Air Quality Planning and Standards
PAHs	Polycyclic Aromatic Hydrocarbons
PAMS	Photochemical Assessment Monitoring Station
Pb	Lead
PCAQCD	Pinal County Air Quality Control District
PDEQ	Pima County Department of Environmental Quality
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
PWEI	Populated Weighted Emissions Index
QA	Quality Assurance
QAPP	Quality Assurance Program Plan
QC	Quality Control
QMP	Quality Management Plan
RASS	Radar Acoustic Sounding System
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

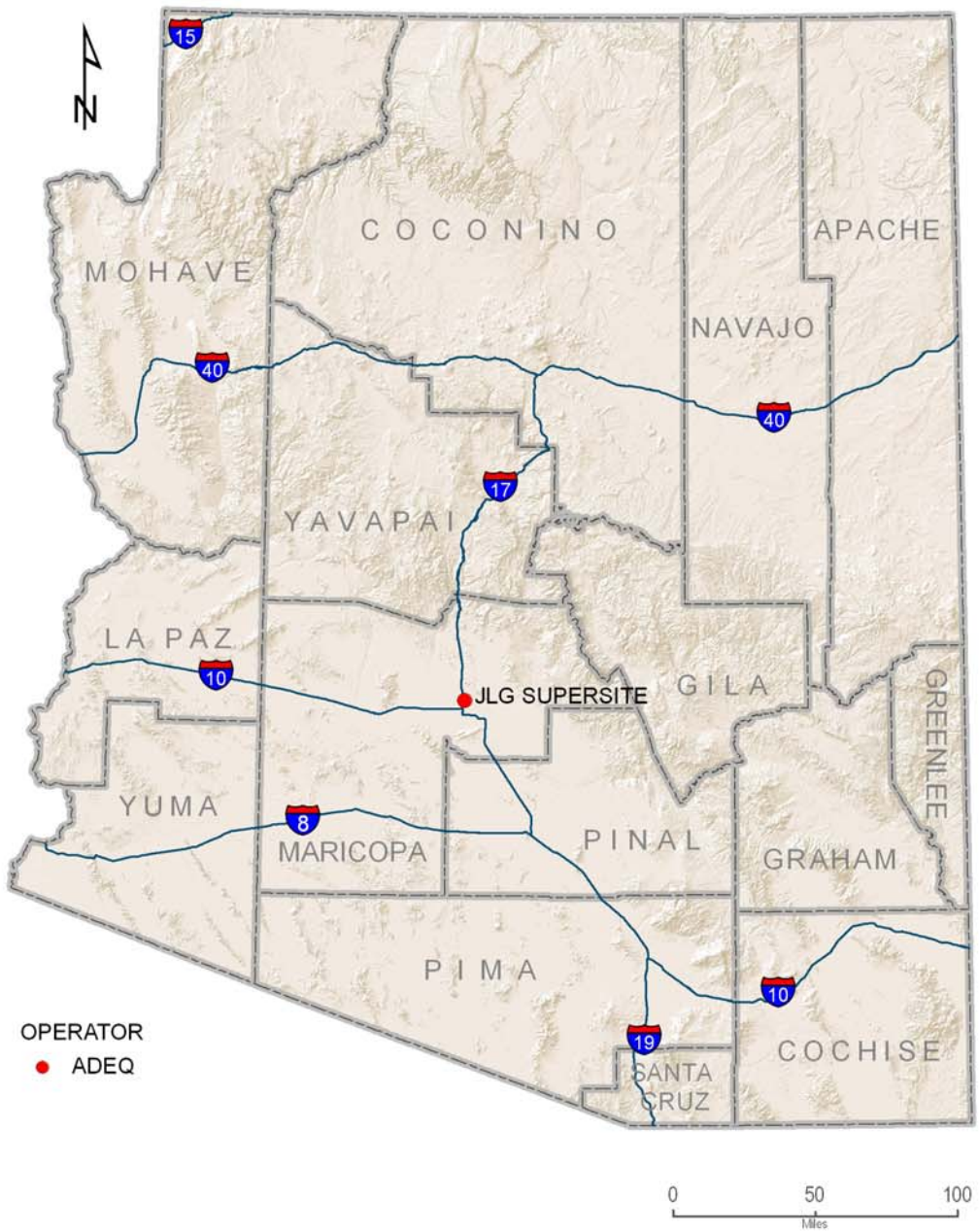
SRO	Southern Regional Office
STN	Speciation Trends Network
TAD	Technical Assistance Document
TEOM	Tapered Element Oscillating Microbalance
TSA	Technical System Audit
USFS	United States Forest Service
VOC	Volatile Organic Compound

Appendix B – Network Maps

There are eleven maps in this section illustrating the location of ADEQ and Source 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



Source: AAAD

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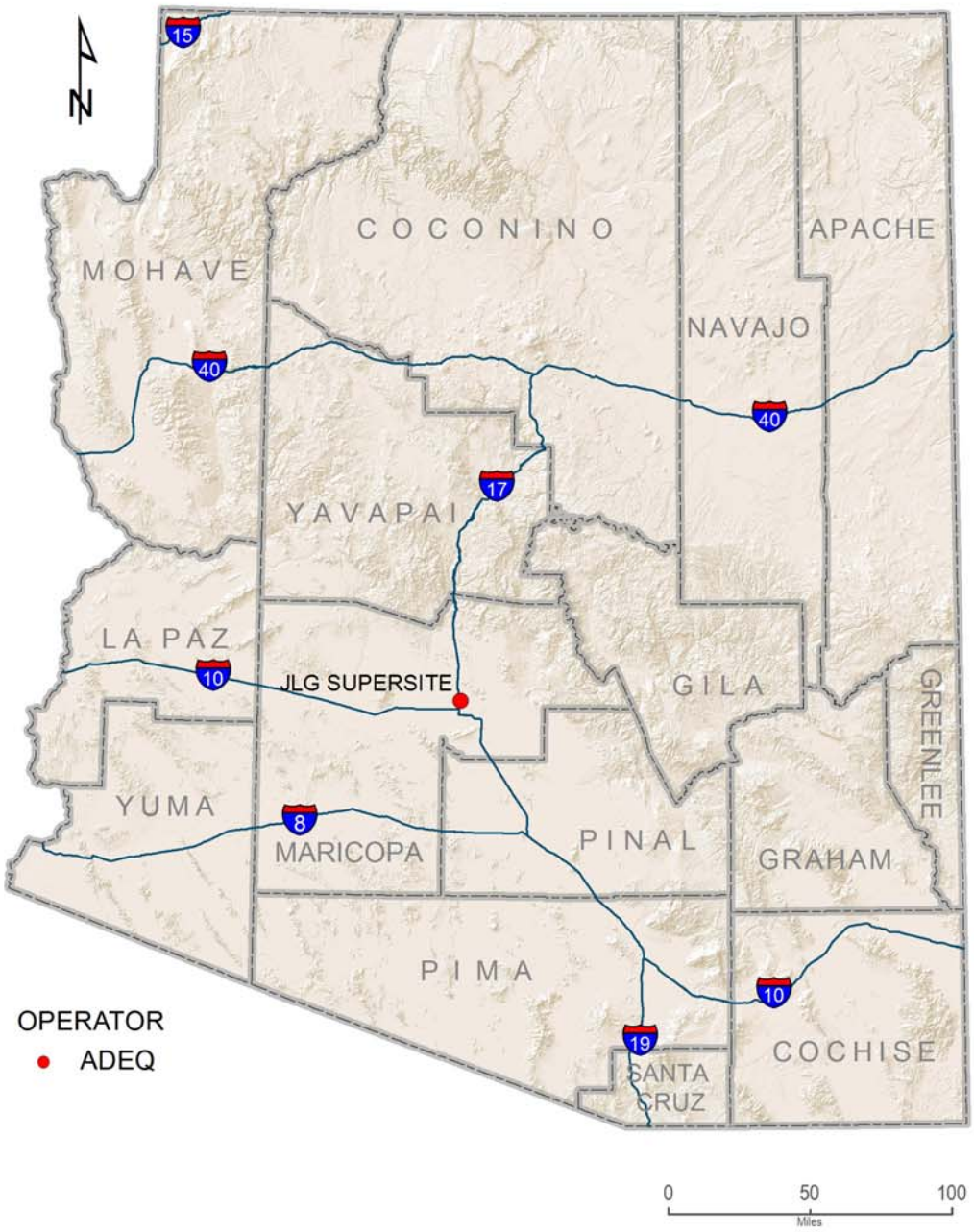
NO_2 Network



Source: AAAD

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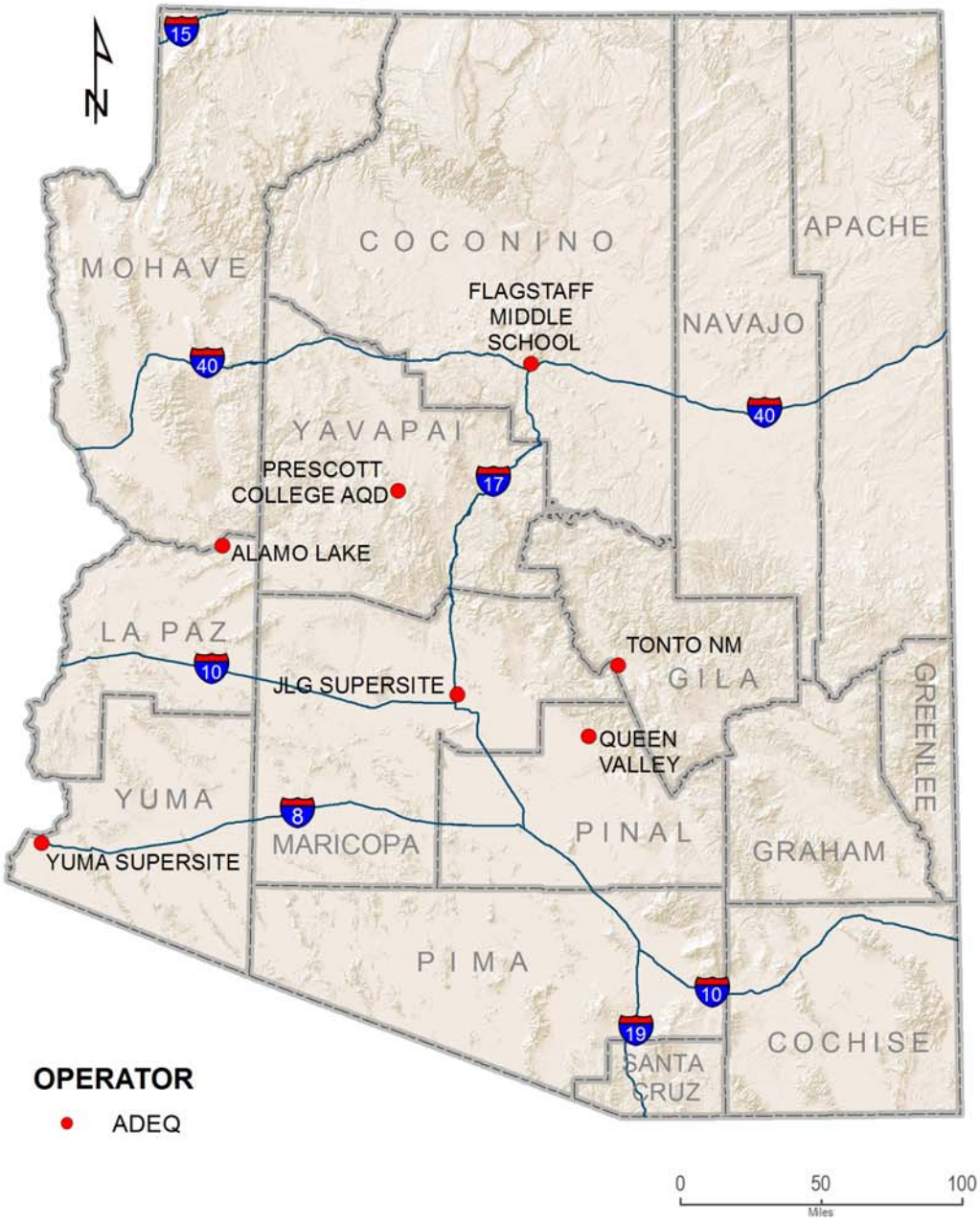
O_3 Network



Source: AAAD

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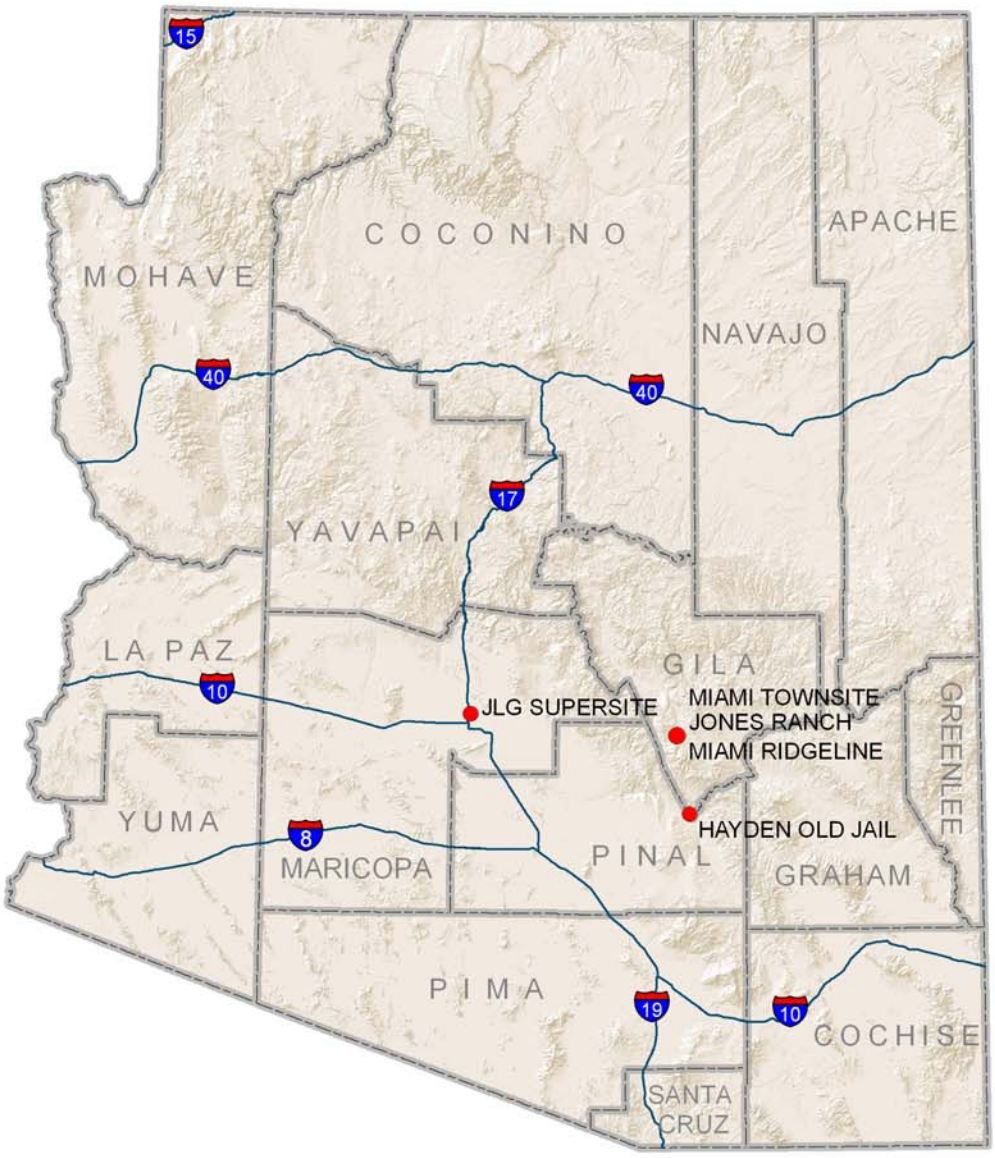
SO_2 Network



OPERATOR

ADEQ

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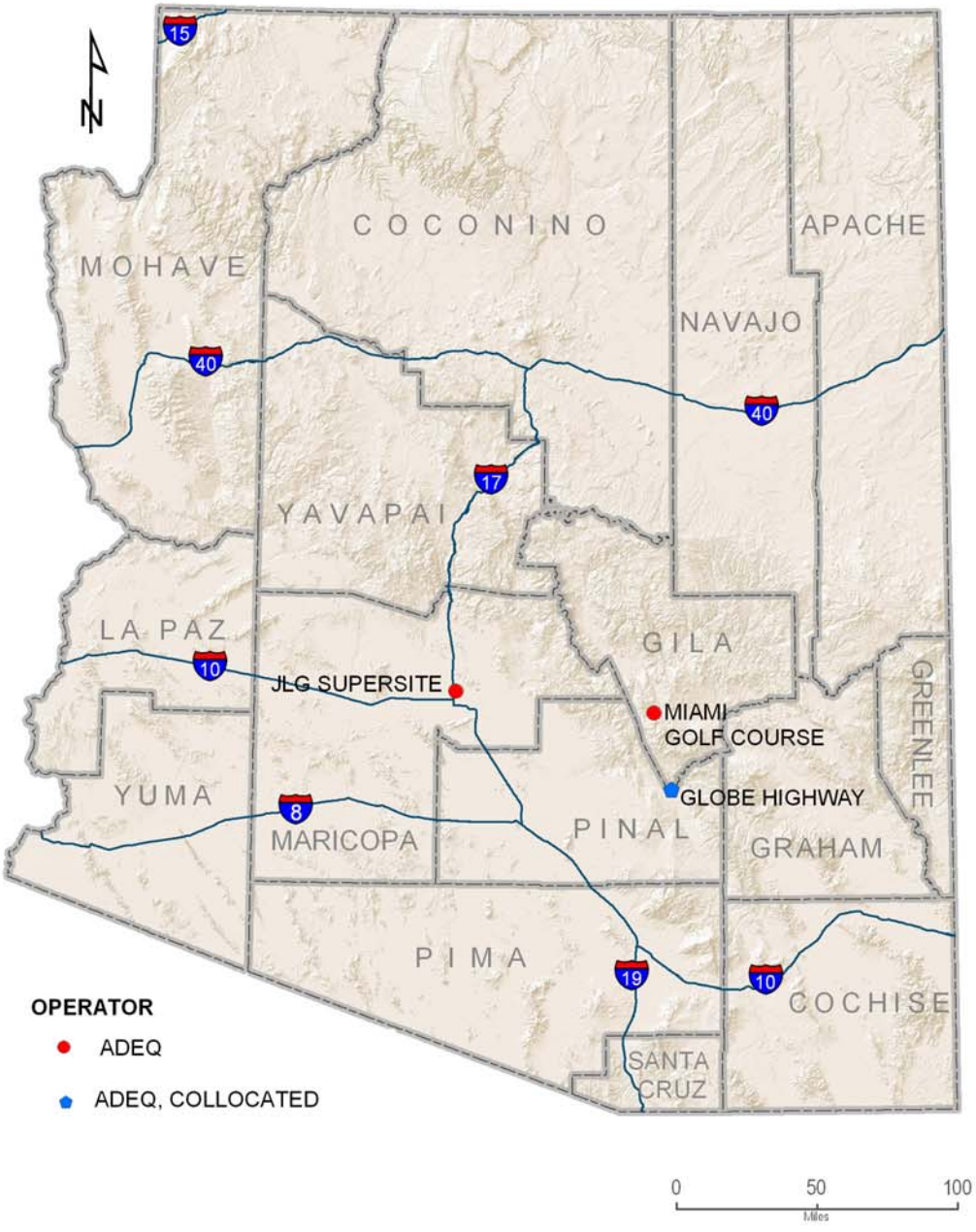
Pb Network



Source: AAAD

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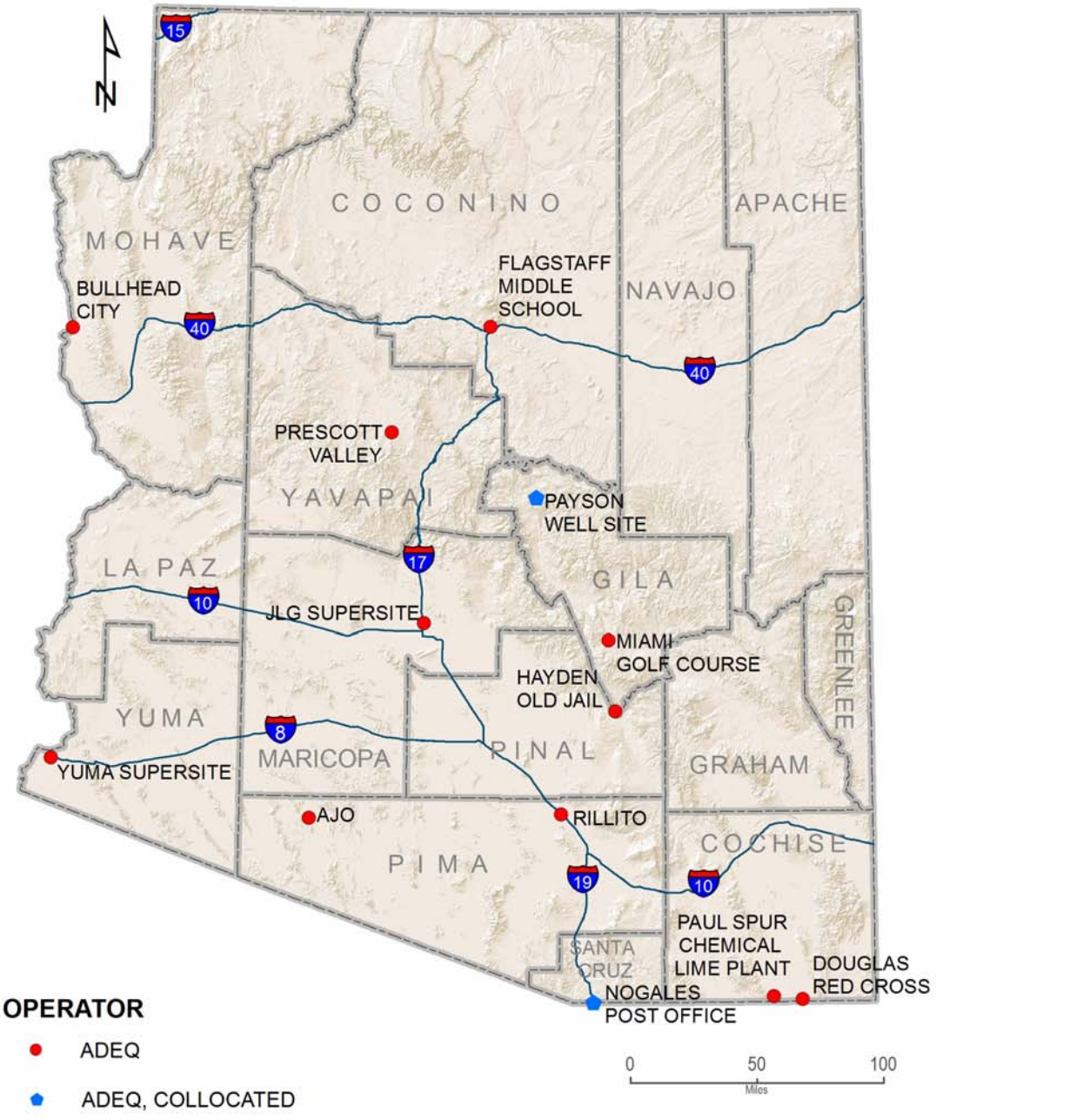
PM_{10} Network



Source: AAAD

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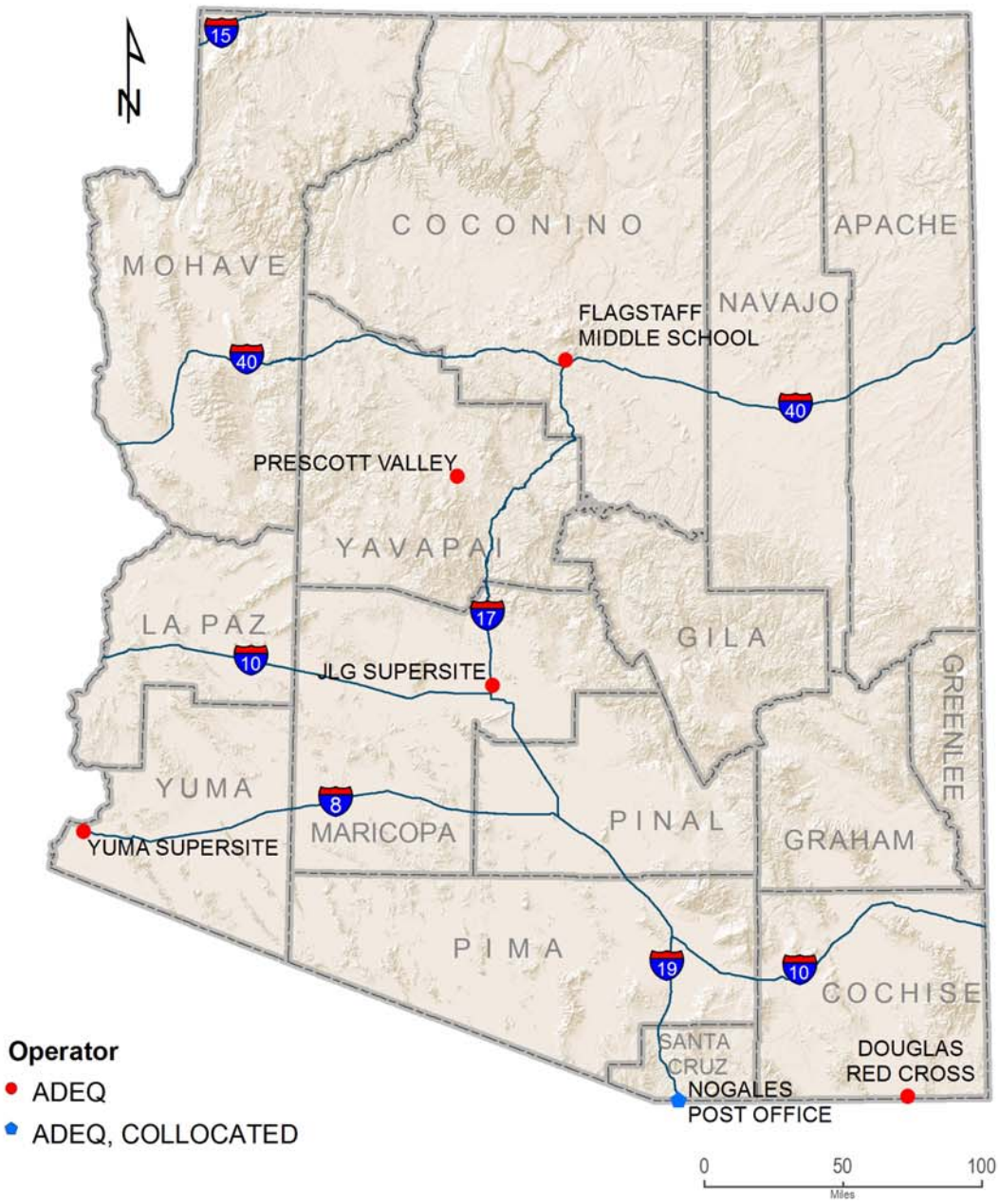
$PM_{2.5}$ Network



Source: AAAD

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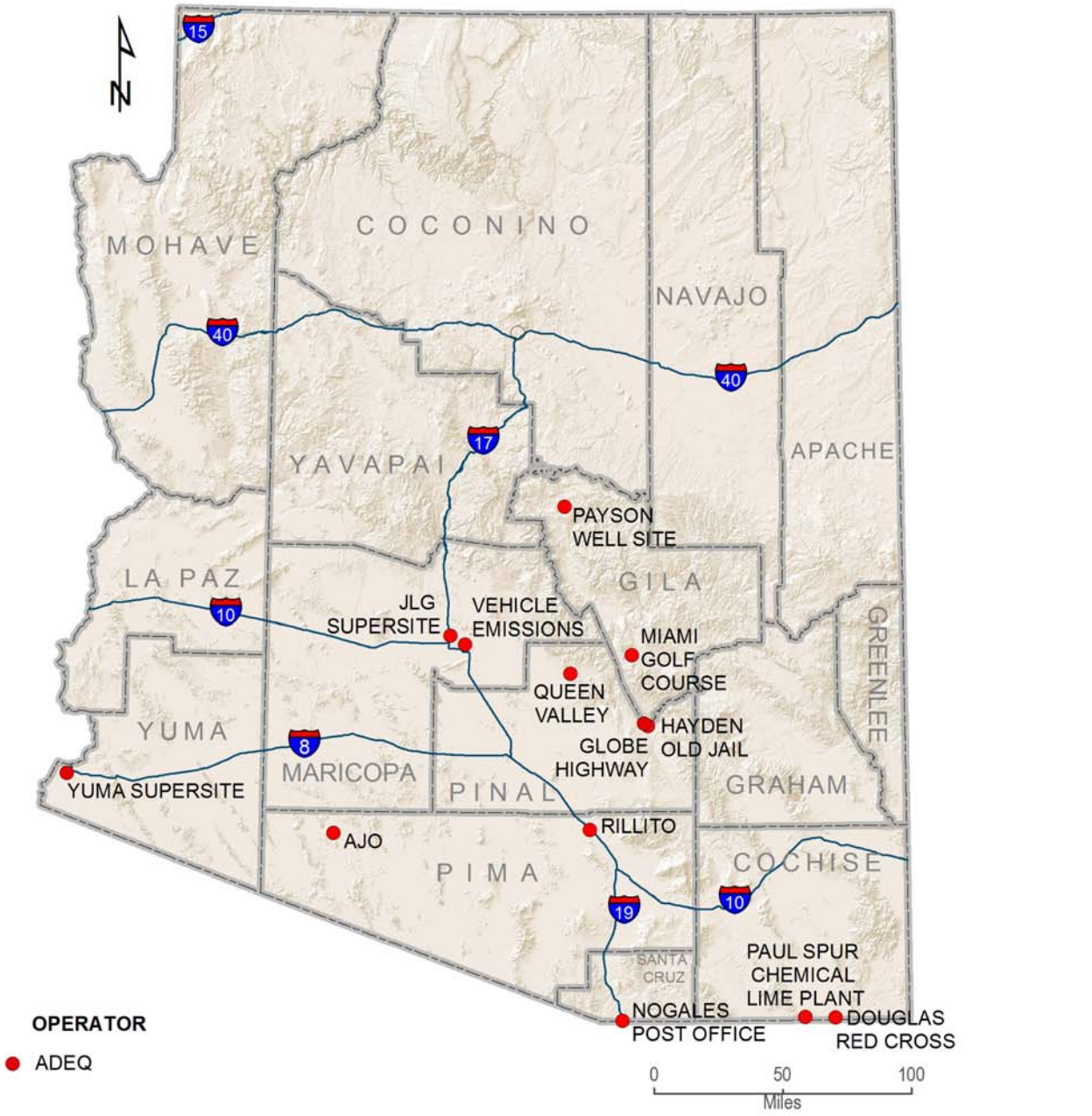
Meteorological Network



Source: AAAD

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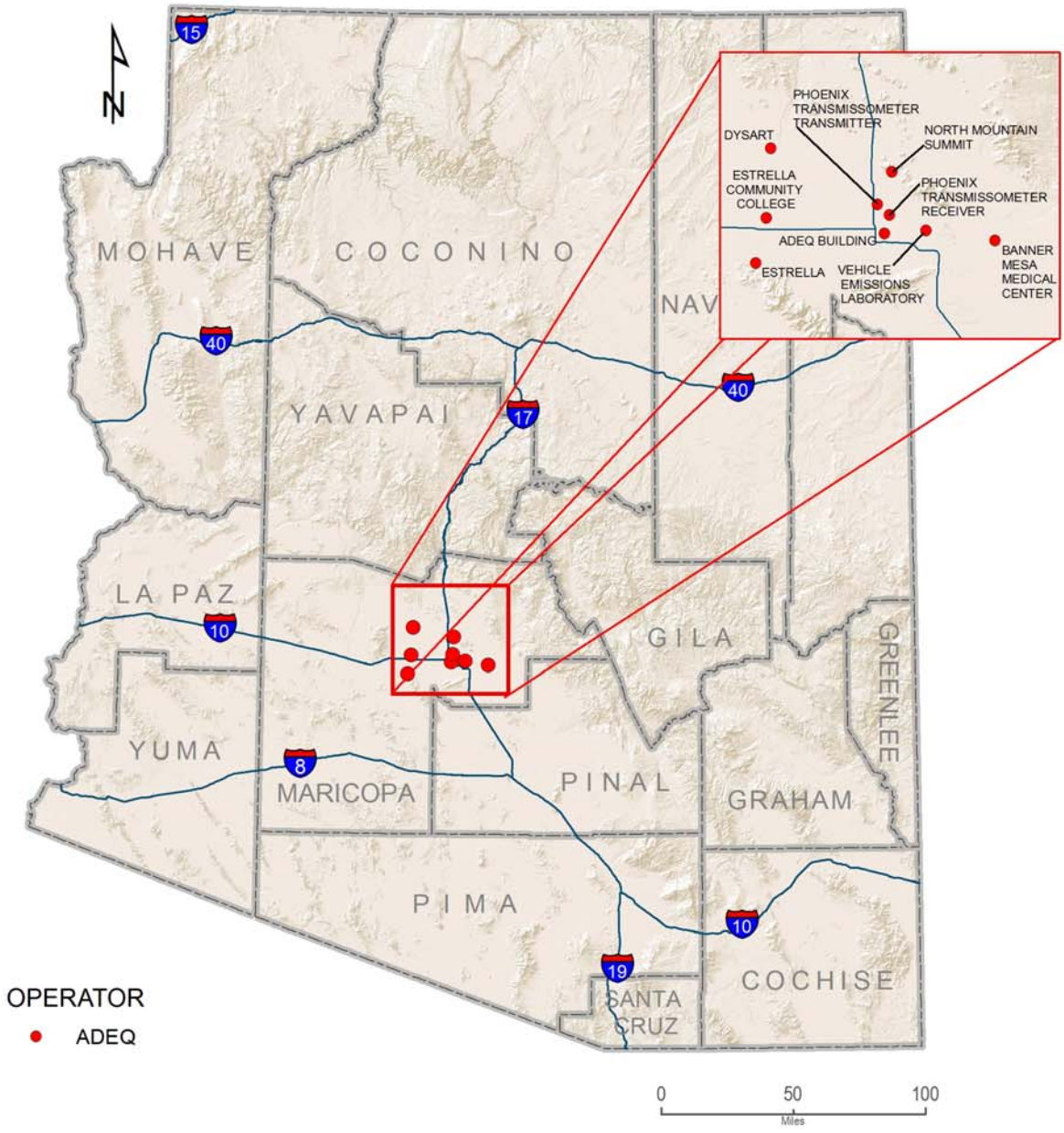
Urban Visibility Network



URBAN VISIBILITY NETWORK			
SITE	MONITOR TYPE	SITE	MONITOR TYPE
ADEQ BUILDING	CAMERA	NORTH MOUNTAIN SUMMIT	CAMERA
BANNER MESA MEDICAL CENTER	CAMERA	PHOENIX TRANSMISSOMETER RECEIVER	TRANSMISSOMETER
DYSART	NEPHELOMETER	PHOENIX TRANSMISSOMETER TRANSMITTER	TRANSMISSOMETER
ESTRELLA	NEPHELOMETER	VEHICLE EMISSIONS LABORATORY	NEPHELOMETER
ESTRELLA COMMUNITY COLLEGE	CAMERA		

Source: AAD

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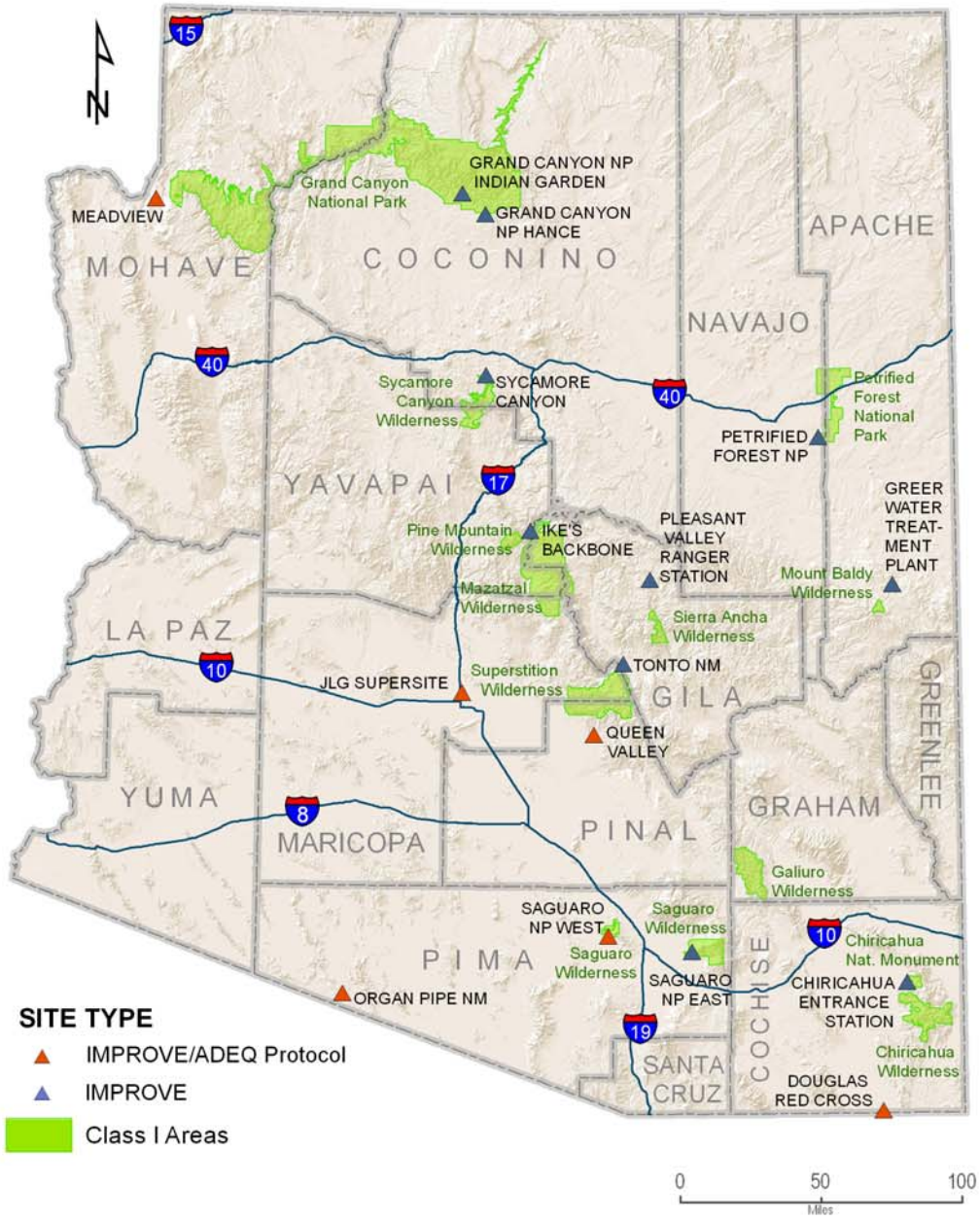
IMPROVE Network & Class I Areas



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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 are in operation at the time that this network plan was created 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.

Definitions for Appendix C – Current Monitors by Program or Network

Local Site Name	Official name for the site as written in ADEQ's AZURITE / AAAD 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 AZURITE / AAAD
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 network for the monitor (IMPROVE, Index Site, Industrial, NATTS, NCore, Non-EPA Federal, PAMS, Proposed NCore, QA Collocated, SLAMS,Special Purpose, Supplemental Speciation, Trends Speciation, Tribal Monitor, Unofficial PAMS)
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 40CFR 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 to 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)
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)
Unrestricted airflow (degrees)	Angular measure (in degrees) of the area around an instrument that is free from obstructions (minimum of 180°)
Probe material for reactive gases	Type of material probe is made of (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 monitoring 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 samplers	Frequency at which flow rate verifications occur for manual particulate matter instrument (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	Dates of the last two audits on the particulate matter instrument flow rate. (MM/DD/YYYY, MM/DD/YYYY)

Non-Regulatory - Meteorology - Temp/RH

Local Site Name	Douglas Red Cross	Globe Highway	Hayden Old Jail	JLG Supersite	Miami Golf Course	Nogales Post Office
Pollutant (POC)	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
Basic monitoring objective	--	--	--	--	--	--
Site type(s)	Population Exposure	Highest Concentration, Source Oriented	Source Oriented	Population Exposure	Source Oriented	Population Exposure
Monitor type(s)	--	--	--	--	--	--
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
Method code	040	040	040	040	040	040
FRM/FEM/ARM/other	--	--	--	--	--	--
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	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	08/16/2012	04/15/2011	02/02/2011	07/01/1993	06/08/2011	08/11/2011
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)	2	2	2	2	2	5.2
Distance from supporting structure (meters)	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	--	--	--	--
Distance from trees (meters)	13	3.6	12	6	6	5
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	180	300	360
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 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	--	--	--	--	--	--

Non-Regulatory - Meteorology - Temp/RH continued						
Local Site Name	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 R/H (1)	Temp/RH (1)
Parameter code	62101, 62201	62101, 62201	62101, 62201	62101, 62201	62101, 62201	62101, 62201
Basic monitoring objective	--	--	--	--	--	--
Site type(s)	Source Oriented	Population Exposure	Downwind	Source Oriented	Population Exposure	Population Exposure
Monitor type(s)	--	--	--	--	--	--
Instrument manufacturer and model	Vaisala HMP 155 Probe	Vaisala HMP 45C Probe	Vaisala HMP 45C Probe	Vaisala HMP 45C Probe	Rotronics MP101A Probe	Vaisala HMP 155 Probe
Method code	040	040	040	040	040	040
FRM/FEM/ARM/other	--	--	--	--	--	--
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)	Middle	Neighborhood	Regional	Middle	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	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
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)	2	2	2.4	2.4	4.5	2
Distance from supporting structure (meters)	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	5	--	--	--	1
Distance from trees (meters)	9	1	1.2	19	10	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	250	180	270	360	220
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 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	--	--	--	--	--	--

Non-Regulatory - Meteorology - Wind

Local Site Name	Ajo	Douglas Red Cross	Globe Highway	Hayden Old Jail	JLG Supersite	Miami Golf Course	Nogales Post Office
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	Population Exposure	Highest Concentration, Source Oriented	Source Oriented	Population Exposure	Source Oriented	Population Exposure
Monitor type(s)	--	--	--	--	--	--	--
Instrument manufacturer and model	RM Young 5103 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	08/06/2012	04/15/2011	02/02/2011	07/01/1993	06/08/2011	01/01/1980
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)	11.3	10	10	10	11.5	10.5	12
Distance from supporting structure (meters)	--	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	--	--	--	--	--
Distance from trees (meters)	42	13	--	--	12	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	360	360	360	360
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 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	--	--	--	--	--	--	--

Non-Regulatory - Meteorology - Wind continued

Local Site Name	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)
Parameter code	61103, 61104	61103, 61104	61103, 61104	61103, 61104	61103, 61104	61103, 61104
Basic monitoring objective	--	--	--	--	--	--
Site type(s)	Source Oriented	Population Exposure	Downwind	Source Oriented	Population Exposure	Population Exposure
Monitor type(s)	--	--	--	--	--	--
Instrument manufacturer and model	RM Young 5305 Anemometer	RM Young 5103 Anemometer	RM Young 5103 Anemometer	RM Young 5103 Anemometer	RM Young 5305 Anemometer	RM Young 5305 Anemometer
Method code	020	020	020	020	020	020
FRM/FEM/ARM/other	--	--	--	--	--	--
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)	Middle	Neighborhood	Regional	Middle	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	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
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	01/01-12/32
Probe height (meters)	10	10	10	10.4	10	10
Distance from supporting structure (meters)	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	--	--	30	33
Distance from trees (meters)	35	2	--	20	50	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	270	360	360	360	360
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 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	--	--	--	--	--	--

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(s)	Special Purpose	Special Purpose	Special Purpose	Special Purpose
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	2	6	3.6
Distance from supporting structure (meters)	--	--	--	--
Distance from obstructions on roof (meters)	15	--	--	--
Distance from obstructions not on roof (meters)	--	6	--	3
Distance from trees (meters)	15	4	7	--
Distance to furnace or incinerator flue (meters)	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--
Unrestricted airflow (degrees)	270	90	250	300
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 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	--	--	--	--

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(s)	SLAMS, NCore, PAMS
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)	5
Distance from supporting structure (meters)	--
Distance from obstructions on roof (meters)	--
Distance from obstructions not on roof (meters)	2.5
Distance from trees (meters)	8
Distance to furnace or incinerator flue (meters)	--
Distance between collocated monitors (meters)	--
Unrestricted airflow (degrees)	210
Probe material for reactive gases	Glass, Teflon
Residence time for reactive gases (seconds)	0.76
Changes within the next 18 months? (Y/N)	N
Comparison against the annual PM2.5? (Y/N)	--
Frequency of flow rate verification manual PM 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	02/12/2013
Last two semi-annual flow rate audits PM	--

NAAQS - SLAMS - NO_2	
Local Site Name	JLG Supersite
Pollutant (POC)	NO_2 (1)
Parameter code	42602
Basic monitoring objective	NAAQS Comparison
Site type(s)	Highest Concentration
Monitor type(s)	SLAMS
Instrument manufacturer and model	Ecotech EC9841B
Method code	074
FRM/FEM/ARM/other	FRM
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)	5
Distance from supporting structure (meters)	--
Distance from obstructions on roof (meters)	--
Distance from obstructions not on roof (meters)	2.5
Distance from trees (meters)	8
Distance to furnace or incinerator flue (meters)	--
Distance between collocated monitors (meters)	--
Unrestricted airflow (degrees)	210
Probe material for reactive gases	Glass, Teflon
Residence time for reactive gases (seconds)	0.89
Changes within the next 18 months? (Y/N)	N
Comparison against the annual PM2.5? (Y/N)	--
Frequency of flow rate verification manual PM 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	06/13/2013
Last two semi-annual flow rate audits PM	--

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	Downwind	Downwind	Max O_3 Concentration
Monitor type(s)	SLAMS	SLAMS	SLAMS, NCore, PAMS	SLAMS	SLAMS, PAMS	SLAMS	SLAMS
Instrument manufacturer and model	Teledyne API 400E	Teledyne API 400E	Teledyne API 400E	Thermo 49C	Teledyne API 400E	Teledyne API 400E	Teledyne API 400E
Method code	087	087	087	047	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)	5.5	10	5	6	5	5	5
Distance from supporting structure (meters)	--	2	--	1	--	--	--
Distance from obstructions on roof (meters)	--	4	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	2	--	--	--	33
Distance from trees (meters)	12	15	8	12	4	6	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	210	220	360	360	360
Probe material for reactive gases	Teflon	Teflon	Glass, Teflon	Teflon	Teflon	Teflon	Teflon
Residence time for reactive gases (seconds)	2.91	8.66	0.83	3.60	3.56	3.53	2.98
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 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	08/21/2012	06/19/2013	05/06/2013	06/04/2013	08/22/2012	04/25/2013	05/09/2013
Last two semi-annual flow rate audits PM	--	--	--	--	--	--	--

NAAQS - SLAMS - SO_2					
Local Site Name	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)
Parameter code	42401	42401	42401	42401	42401
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Source Oriented	Population Exposure	Source Oriented	Source Oriented	Source Oriented
Monitor type(s)	SLAMS	SLAMS, NCore	SLAMS	SLAMS	SLAMS
Instrument manufacturer and model	Ecotech EC9850T	Ecotech EC9850T	Ecotech EC9850T	Thermo 43C	Ecotech EC9850T
Method code	592	592	592	060	592
FRM/FEM/ARM/other	FEM	FEM	FEM	FEM	FEM
Collecting Agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical Lab (weight, toxics, other)	--	--	--	--	--
Reporting Agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial Scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	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
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)	5	5	4.5	4	5
Distance from supporting structure (meters)	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	2	--	2	25
Distance from trees (meters)	12	8	--	9	15
Distance to furnace or incinerator flue (meters)	280	--	3081	1411	2300
Distance between collocated monitors (meters)	--	--	--	--	--
Unrestricted airflow (degrees)	360	210	360	180	220
Probe material for reactive gases	Teflon	Glass, Teflon	Teflon	Teflon	Teflon
Residence time for reactive gases (seconds)	4.75	0.51	4.08	4.88	3.96
Changes within the next 18 months? (Y/N)	N	N	N	Y	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--
Frequency of flow rate verification manual PM 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
Last Annual PE audit for gaseous parameters	01/23/2013	05/16/2013	07/30/2013	05/15/2013	03/19/2013
Last two semi-annual flow rate audits PM	--	--	--	--	--

NAAQS - SLAMS - Pb

Local Site Name	Globe Highway	Globe Highway	JLG Supersite	Miami Golf Course
Pollutant (POC)	Pb (1)	Pb (2)	Pb-PM_{10} (1)	Pb (1)
Parameter code	14129	14129	85129	14129
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Highest Concentration, Source Oriented	Highest Concentration, Source Oriented	Population Exposure	Source Oriented
Monitor type(s)	SLAMS	QA Collocated	SLAMS, NCore	SLAMS
Instrument manufacturer and model	Tisch TE-8550-BL TSP	Tisch TE-8550-BL TSP	Thermo Partisol 2000	Tisch TE-8550-BL TSP
Method code	191	191	202	191
FRM/FEM/ARM/other	FEM	FEM	FEM	FEM
Collecting Agency	ADEQ	ADEQ	ADEQ	ADEQ
Analytical Lab (weight, toxics, other)	PCRWRD	PCRWRD	ERG	PCRWRD
Reporting Agency	ADEQ	ADEQ	ERG	ADEQ
Spatial Scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	10/01/2010	10/01/2010	01/01/2005	10/01/2010
Current sampling frequency (1:3, continuous)	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	01/01-12/31	01/01-12/31
Probe height (meters)	2	2	4.67	3.5
Distance from supporting structure (meters)	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--
Distance from obstructions not on roof (meters)	3	5	2	--
Distance from trees (meters)	2	2	7	6
Distance to furnace or incinerator flue (meters)	1043	1043	--	2635
Distance between collocated monitors (meters)	2.7	2.7	--	--
Unrestricted airflow (degrees)	360	360	210	300
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)	--	--	--	--
Frequency of flow rate verification manual PM 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	--	--	--	--

NAAQS - SLAMS - PM_{10}

Local Site Name	Ajo	Bullhead City	Douglas Red Cross	Flagstaff Middle School	Hayden Old Jail	JLG Supersite	Miami Golf Course
Pollutant (POC)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)	PM_{10} (1)	PM_{10} (3)	PM_{10} (3)	PM_{10} (3)
Parameter code	81102	81102	81102	81102	81102	81102	81102
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure	Source Oriented	Population Exposure	Source Oriented
Monitor type(s)	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Instrument manufacturer and model	Thermo TEOM 1400AB	Thermo TEOM 1400AB	Thermo TEOM 1400AB	Thermo Partisol 2000	Thermo TEOM 1400AB	Met One BAM 1020	Thermo TEOM 1400AB
Method code	079	079	079	126	079	122	079
FRM/FEM/ARM/other	FEM	FEM	FEM	FRM	FEM	FEM	FEM
Collecting Agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical Lab (weight, toxics, other)	--	--	--	ADEQ AFL	--	--	--
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)	02/11/1991	11/05/1997	09/02/1998	10/30/1996	01/06/1981	07/01/1993	7/26/2012
Current sampling frequency (1:3, continuous)	Continuous	Continuous	Continuous	1:6	Continuous	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	1:1	1:1	1:6	1:6	1:6	1:2	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	01/01-12/31
Probe height (meters)	3.5	5	3	6	5	4.88	4
Distance from supporting structure (meters)	--	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	15	--	--	--
Distance from obstructions not on roof (meters)	6	--	10	--	--	6	--
Distance from trees (meters)	40	23	11	17	12	7	4
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	270	360	180	300
Probe material for reactive gases	--	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	Y	N	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--	--
Frequency of flow rate verification manual PM samplers	--	--	--	Monthly	--	--	--
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	10/31/2012, 04/29/2013	10/31/2012, 04/22/2013	08/08/2012, 01/29/2013	11/27/2012, 06/17/2013	08/2/2012, 01/24/2013	05/13/2013, 02/07/2013	07/31/2012, 03/06/2013

NAAQS - SLAMS - PM_{10} continued

Local Site Name	Nogales Post Office	Nogales Post Office	Paul Spur Chemical Lime Plant	Payson Well Site	Payson Well Site	Prescott Valley	Rillito	Yuma Supersite
Pollutant (POC)	PM_{10} (3)	PM_{10} (1)	PM_{10} (3)	PM_{10} (1)	PM_{10} (2)	PM_{10} (1)	PM_{10} (3)	PM_{10} (3)
Parameter code	81102	81102	81102	81102	81102	81102	81102	81102
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Population Exposure	Population Exposure	Source Oriented	Population Exposure	Population Exposure	General/ Background	Source Oriented	Population Exposure
Monitor type(s)	SLAMS	QA Collocated	SLAMS	SLAMS	QA Collocated	SLAMS	SLAMS	SLAMS
Instrument manufacturer and model	Met One BAM 1020	Thermo Partisol 2000	Thermo TEOM 1400AB	Thermo Partisol 2000	Thermo Partisol 2000	Thermo Partisol 2000	Thermo TEOM 1400AB	Thermo TEOM 1400AB
Method code	122	126	079	126	126	126	079	079
FRM/FEM/ARM/other	FEM	FRM	FEM	FRM	FRM	FRM	FEM	FEM
Collecting Agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical Lab (weight, toxics, other)	--	ADEQ AFL	--	ADEQ AFL	ADEQ AFL	ADEQ AFL	--	--
Reporting Agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial Scale (micro, neighborhood)	Neighborhood	Neighborhood	Middle	Neighborhood	Neighborhood	Neighborhood	Middle	Neighborhood
Monitoring start date (MM/DD/YYYY)	01/01/1980	01/01/1980	01/06/1991	01/01/1991	01/01/1991	03/16/2003	01/03/1985	12/01/2009
Current sampling frequency (1:3, continuous)	Continuous	1:6	Continuous	1:6	1:6	1:6	Continuous	Continuous
Calculated sampling frequency (1:3 / 1:1)	1:1	1:1	1:2	1:6	1:6	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	01/01-12/31	01/01-12/31
Probe height (meters)	8	7	3	3	3	6	4.3	5
Distance from supporting structure (meters)	--	--	--	--	--	--	--	--
Distance from obstructions on roof (meters)	10	12	--	--	--	3	--	--
Distance from obstructions not on roof (meters)	13	10	--	8	8	--	3	33
Distance from trees (meters)	10	10	35	3	3	12	20	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	3	3	--	2	2	--	--	--
Unrestricted airflow (degrees)	300	300	360	270	270	360	360	360
Probe material for reactive gases	--	--	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	Y	Y	Y	N	N
Comparison against the annual PM2.5? (Y/N)	--	--	--	--	--	--	--	--
Frequency of flow rate verification manual PM samplers	--	Monthly	--	Monthly	Monthly	Monthly	--	--
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	08/09/2012, 01/30/2013	08/09/2012, 01/30/2013	08/08/2012, 01/29/2013	11/08/2012, 06/17/2013	11/08/2012, 06/17/2013	11/28/2012, 06/03/2013	11/20/20012, 06/10/2013	11/01/2012, 04/29/2013

NAAQS - SLAMS - $PM_{2.5}$				
Local Site Name	Douglas Red Cross	Flagstaff Middle School	JLG Supersite	JLG Supersite
Pollutant (POC)	$PM_{2.5}$ (3)	$PM_{2.5}$ (1)	$PM_{2.5}$ (3)	$PM_{2.5}$ (1)
Parameter code	88101	88101	88101	88101
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type(s)	SLAMS	SLAMS	SLAMS, NCore	SLAMS, NCore
Instrument manufacturer and model	Met One BAM 1020	Thermo Partisol 2000	Met One BAM 1020	Thermo Partisol 2000
Method code	170	143	170	143
FRM/FEM/ARM/other	FEM	FRM	FEM	FRM
Collecting Agency	ADEQ	ADEQ	ADEQ	ADEQ
Analytical Lab (weight, toxics, other)	--	ADEQ AFL	--	ADEQ AFL
Reporting Agency	ADEQ	ADEQ	ADEQ	ADEQ
Spatial Scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	11/02/2000	09/09/1999	07/01/2003	07/01/2003
Current sampling frequency (1:3, continuous)	Continuous	1:6	Continuous	1:3
Calculated sampling frequency (1:3 / 1:1)	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
Probe height (meters)	3	6	4.88	4.67
Distance from supporting structure (meters)	--	--	--	--
Distance from obstructions on roof (meters)	--	15	--	--
Distance from obstructions not on roof (meters)	10	--	6	6
Distance from trees (meters)	11	19	7	8
Distance to furnace or incinerator flue (meters)	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--
Unrestricted airflow (degrees)	360	270	180	210
Probe material for reactive gases	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--
Changes within the next 18 months? (Y/N)	N	Y	N	N
Comparison against the annual PM2.5? (Y/N)	Y	Y	Y	Y
Frequency of flow rate verification manual PM samplers	--	Monthly	--	Monthly
Frequency of flow rate verification automated PM analyzers	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	08/08/2012, 01/29/2013	11/27/2012, 06/17/2013	12/05/2012, 05/13/2013	08/15/2012, 02/07/2013

NAAQS - SLAMS - $PM_{2.5}$ continued					
Local Site Name	Nogales Post Office	Nogales Post Office	Nogales Post Office	Prescott Valley	Yuma Supersite
Pollutant (POC)	$PM_{2.5}$ (3)	$PM_{2.5}$ (1)	$PM_{2.5}$ (2)	$PM_{2.5}$ (1)	$PM_{2.5}$ (3)
Parameter code	88101	88101	88101	88101	88101
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Highest Concentration	Highest Concentration	Highest Concentration	General/ Background	Regional Transport
Monitor type(s)	SLAMS	QA Collocated	QA Collocated	SLAMS	SLAMS
Instrument manufacturer and model	Met One BAM 1020	Thermo Partisol 2000	Thermo Partisol 2000	Thermo Partisol 2000	Met One BAM 1020
Method code	170	143	143	143	170
FRM/FEM/ARM/other	FEM	FRM	FRM	FRM	FEM
Collecting Agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Analytical Lab (weight, toxics, other)	--	ADEQ AFL	ADEQ AFL	ADEQ AFL	--
Reporting Agency	ADEQ	ADEQ	ADEQ	ADEQ	ADEQ
Spatial Scale (micro, neighborhood)	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	04/01/1999	04/01/1999	04/01/1999	12/28/2007	01/01/2010
Current sampling frequency (1:3, continuous)	Continuous	1:6	1:6	1:6	Continuous
Calculated sampling frequency (1:3 / 1:1)	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
Probe height (meters)	8	7	7	6	5
Distance from supporting structure (meters)	--	--	--	--	--
Distance from obstructions on roof (meters)	15	10	8	3	--
Distance from obstructions not on roof (meters)	8	15	15	--	33
Distance from trees (meters)	12	12	7	12	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--
Distance between collocated monitors (meters)	3	3, 2	2	--	--
Unrestricted airflow (degrees)	300	300	300	360	360
Probe material for reactive gases	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	Y	N
Comparison against the annual PM2.5? (Y/N)	Y	Y	Y	Y	Y
Frequency of flow rate verification manual PM samplers	--	Monthly	Monthly	Monthly	--
Frequency of flow rate verification automated PM analyzers	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	08/09/2012, 01/30/2013	08/09/2012, 01/30/2013	08/09/2012, 01/30/2013	11/28/2012, 06/03/2013	11/01/2012, 04/29/2013

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(s)	Supplemental Speciation, NCore	Supplemental Speciation, NCore
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)	4.60	4.80
Distance from supporting structure (meters)	--	--
Distance from obstructions on roof (meters)	--	--
Distance from obstructions not on roof (meters)	10	10
Distance from trees (meters)	12	12
Distance to furnace or incinerator flue (meters)	--	--
Distance between collocated monitors (meters)	--	--
Unrestricted airflow (degrees)	230	230
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 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	08/30/2012, 02/26/2013	08/30/2012, 02/26/2013

NAAQS - NCore						
Local Site Name	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite
Pollutant (POC)	CO (1)	NOy (1)	O_3 (1)	SO_2 (1)	Pb-PM_{10} (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 O_3 Concentration	Population Exposure	Population Exposure	Population Exposure
Monitor type(s)	SLAMS, NCore, PAMS	NCore	SLAMS, NCore, PAMS	SLAMS, NCore	SLAMS, NCore	NCore
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)	07/01/1993	01/01/2011	07/01/1993	03/03/2005	01/01/2005	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)	5	10	5	5	4.67	4.88
Distance from supporting structure (meters)	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	2.5	--	2	2	2	6
Distance from trees (meters)	8	5	8	8	7	7
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	210	210	210	210	210	180
Probe material for reactive gases	Glass, Teflon	Glass, Teflon	Glass, Teflon	Glass, Teflon	--	--
Residence time for reactive gases (seconds)	0.76	13.08	0.83	0.51	--	--
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 samplers	--	--	--	--	--	--
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	02/12/2013	08/15/2012	05/16/2013	05/16/2013	--	
Last two semi-annual flow rate audits PM	--	--	--	--	--	

NAAQS - NCore continued

Local Site Name	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite
Pollutant (POC)	$PM_{2.5}$ (3)	$PM_{2.5}$ (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(s)	SLAMS, NCore	SLAMS, NCore	Supplemental Speciation, NCore	Supplemental Speciation, NCore	--	--
Instrument manufacturer and model	Met One BAM 1020	Thermo Partisol 2000	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)	--	ADEQ AFL	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)	07/01/2003	07/01/2003	02/21/2000	02/21/2000	07/01/1993	07/01/1993
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)	4.88	4.67	4.60	4.80	2	11.5
Distance from supporting structure (meters)	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	6	6	10	10	--	--
Distance from trees (meters)	7	8	12	12	6	12
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	180	210	230	230	180	360
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 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	12/05/2012, 05/13/2013	08/15/2012, 02/07/2013	08/30/2012, 02/26/2013	08/30/2012, 02/26/2013	--	--

NAAQS - PAMS

Local Site Name	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite	JLG Supersite
Pollutant (POC)	CO (1)	NOx (1)	O_3 (1)	Carbonyl (30,31)	Carbonyl (32)	VOC (6)
Parameter code	42101	42603	44201	Multiple	Multiple	Multiple
Basic monitoring objective	NAAQS Comparison	Research	NAAQS Comparison	Research	Research	Research
Site type(s)	Highest Concentration	Population Exposure	Max O_3 Concentration	Max Precursor Impact	QA Collocated	Max Precursor Impact
Monitor type(s)	SLAMS, NCore, PAMS	PAMS	SLAMS, NCore, PAMS	PAMS, NATTS	PAMS, NATTS	PAMS, NATTS
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	FEM	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	Every other month	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)	5	5	5	4.55	4.55	4.55
Distance from supporting structure (meters)	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	2.5	2.5	2	8	8	8
Distance from trees (meters)	8	8	8	6	6	6
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	210	210	210	210	210	210
Probe material for reactive gases	Glass, Teflon	Glass, Teflon	Glass, Teflon	Teflon	Teflon	Stainless Steel
Residence time for reactive gases (seconds)	0.76	0.89	0.83	--	--	--
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 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	02/12/2013	06/13/2013	05/06/2013	--	--	--
Last two semi-annual flow rate audits PM	--	--	--	--	--	--

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)	O_3 (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	Downwind	Downwind	Downwind
Monitor type(s)	PAMS, NATTS	--	--	SLAMS, PAMS	PAMS	PAMS
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)	Every other month	Continuous	Continuous	Continuous	Continuous	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	03/01-10/31	06/01-08/31	06/01-08/31
Probe height (meters)	4.55	2	11.5	5	10	5
Distance from supporting structure (meters)	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	8	--	--	--	--	--
Distance from trees (meters)	6	6	12	4	4	4
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	210	180	360	360	360	360
Probe material for reactive gases	Stainless Steel	--	--	Glass, Teflon	Glass, Teflon	Stainless Steel
Residence time for reactive gases (seconds)	--	--	--	3.56	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 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	--	--	--	08/22/2012	08/22/2012	--
Last two semi-annual flow rate audits PM	--	--	--	--	--	--

NAAQS - PAMS continued

Local Site Name	Queen Valley	Queen Valley	Vehicle Emissions Lab	Vehicle Emissions Lab	Vehicle Emissions Lab	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 R/H (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(s)	--	--	PAMS	PAMS	PAMS	--	--
Instrument manufacturer and model	Vaisala HMP 45C Probe	RM Young 5103 Anemometer	RM Young 7627	Li-Cor 200S2	Epply TUVR UV	Rotronics MP101A 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)	06/23/2003	06/23/2003	08/20/2004	06/18/1999	08/20/2004	05/11/1999	05/11/1999
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)	2.4	10	2.5 - 10	5	5	4.5	10
Distance from supporting structure (meters)	--	--	--	--	--	--	--
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
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	180	360	360	360	360	360	360
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 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	--	--		--	--	--	--

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)	SVOC (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(s)	PAMS, NATTS	PAMS, NATTS	PAMS, NATTS	PAMS, NATTS	NATTS	NATTS
Instrument manufacturer and model	ATEC 8000	ATEC 8000	ATEC 2200	ATEC 2200	Tisch TE-1000BL	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)	4.55	4.55	4.55	4.55	3.86	4.67
Distance from supporting structure (meters)	--	--	--	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	8	8	2	8	5	9
Distance from trees (meters)	6	6	6	6	5	9
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--
Unrestricted airflow (degrees)	210	210	210	210	210	210
Probe material for reactive gases	Teflon	Teflon	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 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	--	--	--	--	--	08/15/2012, 02/07/2013

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(s)	UATMP
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)	6
Distance from supporting structure (meters)	--
Distance from obstructions on roof (meters)	--
Distance from obstructions not on roof (meters)	2
Distance from trees (meters)	10
Distance to furnace or incinerator flue (meters)	--
Distance between collocated monitors (meters)	--
Unrestricted airflow (degrees)	250
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 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	--

Visibility - Urban Haze - Camera

Local Site Name	ADEQ Building	Banner Mesa Medical Center	Estrella Mountain Community College	Estrella Mountain Community College	North Mountain Summit
Pollutant (POC)	Visibility (1)	Visibility (1)	Visibility (1)	Visibility (2)	Visibility (1)
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(s)	--	--	--	--	--
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)	--	--	--	--	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--
Unrestricted airflow (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 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	--	--	--	--	--

Visibility - Urban Haze - Nephelometer

Local Site Name	Dysart	Estrella	Vehicle Emissions Laboratory
Pollutant (POC)	Bscat/PM2.5 (1)	Bscat/PM2.5 (1)	Bscat/PM2.5 (1)
Parameter code	--	--	--
Basic monitoring objective	Public Information	Public Information	Public Information
Site type(s)	Population Exposure	Population Exposure	Population Exposure
Monitor type(s)	--	--	--
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
Distance to furnace or incinerator flue (meters)	--	--	--
Distance between collocated monitors (meters)	--	--	--
Unrestricted airflow (degrees)	360	360	360
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 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	--	--	--

Visibility - Urban Haze - Transmissometer

Local Site Name	Phoenix Transmissometer Receiver	Phoenix Transmissometer Transmitter
Pollutant (POC)	Bext (1)	Bext (1)
Parameter code	--	--
Basic monitoring objective	Public Information	Public Information
Site type(s)	Population Exposure	Population Exposure
Monitor type(s)	--	--
Instrument manufacturer and model	Optec LVP-2 Transmissometer Receiver	Optec LVP-2 Transmissometer
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)	--	--
Distance to furnace or incinerator flue (meters)	--	--
Distance between collocated monitors (meters)	--	--
Unrestricted airflow (degrees)	240	360
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 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	--	--

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(s)	--	--	--
Instrument manufacturer and model	Rotronics MP101A Probe	Rotronics MP101A Probe	Rotronics MP101A 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	--
Distance to furnace or incinerator flue (meters)	--	--	--
Distance between collocated monitors (meters)	--	--	--
Unrestricted airflow (degrees)	360	360	360
Probe material for reactive gases	--	--	--
Residence time for reactive gases (seconds)	--	--	--
Changes within the next 18 months? (Y/N)	Y	Y	Y
Comparison against the annual PM2.5? (Y/N)	--	--	--
Frequency of flow rate verification manual PM 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	--	--	--

Visibility - IMPROVE									
Local Site Name	Chiricahua Entrance Station	Douglas Red Cross	Grand Canyon National Park - Hance Camp	Grand Canyon National Park - Indian Gardens	Greer Water Treatment Plant	Ike's Backbone	JLG Supersite	JLG Supersite	Meadview
Pollutant (POC)	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE
Parameter code	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple
Basic monitoring objective	Research	Research	Research	Research	Research	Research	Research	Research	Research
Site type(s)	Background	Other	Background	Background	Other	Other	Other	Other	Background
Monitor type(s)	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE
Instrument manufacturer and model	--	--	--	--	--	--	--	--	--
Method code	Various	Various	Various	Various	Various	Various	Various	Various	Various
FRM/FEM/ARM/other	Other	Other	Other	Other	Other	Other	Other	Other	Other
Collecting Agency	NPS	ADEQ	NPS	NPS	NFS	UC Davis	ADEQ	ADEQ	NFS
Analytical Lab (weight, toxics, other)	--	--	--	--	--	--	--	--	--
Reporting Agency	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis
Spatial Scale (micro, neighborhood)	Regional	Regional	Regional	Regional	Regional	Regional	Neighborhood	Neighborhood	Regional
Monitoring start date (MM/DD/YYYY)	03/02/1988	06/02/2004	09/24/1997	10/01/1989	02/29/2000	04/02/2000	04/25/2001	04/25/2001	09/04/1991
Current sampling frequency (1:3, continuous)	1:3	1:3	1:3	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	01/01-12/31	01/01-12/31	01/01-12/31
Probe height (meters)	4	3	--	4	4.5	4.5	5.5	5.5	4.5
Distance from supporting structure (meters)	--	--	--	2	1.5	1	--	--	--
Distance from obstructions on roof (meters)	--	--	--	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	10	8	--	--	--	5	10	10	--
Distance from trees (meters)	10	6	--	6	50	23	10	10	--
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	4	4	--
Unrestricted airflow (degrees)	360	360	--	300	360	360	220	220	360
Probe material for reactive gases	--	--	--	--	--	--	--	--	--
Residence time for reactive gases (seconds)	--	--	--	--	--	--	--	--	--
Changes within the next 18 months? (Y/N)	N	N	N	Y	N	N	N	N	N
Comparison against the annual PM2.5? (Y/N)	N	N	N	N	N	N	N	N	N
Frequency of flow rate verification manual PM 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	--	01/29/2013	--	--	09/11/2012	11/07/2012	10/30/2012	10/30/2012	06/05/2013

Visibility - IMPROVE - continued

Local Site Name	Organ Pipe National Monument	Petrified Forest National Park	Pleasant Valley Ranger Station	Queen Valley	Saguaro National Park East	Saguaro National Park West	Sycamore Canyon	Tonto National Monument
Pollutant (POC)	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE
Parameter code	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple	Multiple
Basic monitoring objective	Research	Research	Research	Research	Research	Research	Research	Research
Site type(s)	Other	Background	Other	Other	Background	Other	Background	Background
Monitor type(s)	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE	IMPROVE
Instrument manufacturer and model	--	--	--	--	--	--	--	--
Method code	Various	Various	Various	Various	Various	Various	Various	Various
FRM/FEM/ARM/other	Other	Other	Other	Other	Other	Other	Other	Other
Collecting Agency	NPS	NPS	NFS	ADEQ	NPS	NPS	ADEQ / UC Davis	NPS
Analytical Lab (weight, toxics, other)	--	--	--	--	--	--	--	--
Reporting Agency	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis	UC Davis
Spatial Scale (micro, neighborhood)	Regional	Regional	Regional	Regional	Regional	Regional	Regional	Regional
Monitoring start date (MM/DD/YYYY)	01/15/2003	03/02/1988	02/10/2000	04/30/2001	06/04/1988	04/19/2001	09/11/1991	04/23/1988
Current sampling frequency (1:3, continuous)	1:3	1:3	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	01/01-12/31	01/01-12/31
Probe height (meters)	4	4	5	6	--	4	4	5
Distance from supporting structure (meters)	1.5	--	1.5	2.5	--	1.5	1.5	1.5
Distance from obstructions on roof (meters)	--	--	--	--	--	--	--	--
Distance from obstructions not on roof (meters)	--	--	--	73	--	--	--	--
Distance from trees (meters)	12	--	20	5	--	15	15	8
Distance to furnace or incinerator flue (meters)	--	--	--	--	--	--	--	--
Distance between collocated monitors (meters)	--	--	--	--	--	--	--	--
Unrestricted airflow (degrees)	360	360	360	360	--	360	360	360
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	N
Comparison against the annual PM2.5? (Y/N)	N	N	N	N	N	N	N	N
Frequency of flow rate verification manual PM 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	05/08/2013	--	03/07/2013	02/13/2013	--	07/18/2012	09/04/2012	06/11/2013

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, as well as sites that ADEQ has a strong association with (e.g. IMPROVE sites). All current sites and those closed after July 1, 2012 are included in this appendix. Sites that were closed after July 1, 2012 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	ADEQ ID	SITE NAME	PAGE
04-021-8001	16394	Queen Valley	132
04-019-0020	16499	Rillito	134
04-019-0021	16474	Saguaro National Park East	135
04-019-9000	16475	Saguaro National Park West	136
	142818	Sedona Fire Station AQD	137
04-013-4003	16377	South Phoenix	138
04-005-8103	16476	Sycamore Canyon	139
04-007-0010	16447	Tonto National Monument	140
04-013-9998	16363	Vehicle Emissions Laboratory	141
04-027-8011	11319	Yuma Supersite	143

Definitions for Appendix D – Site Information Data Tables

Local Site Name	Official name for the site as written in ADEQ's AZURITE / AAAD database
Site Narrative	Brief summary of the site location and surroundings

Site Information

AQS ID	Unique identifier from EPA's Air Quality System database
ADEQ ID	Unique identifier from the AZURITE / AAAD database for each monitoring site
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)
Distance to Roadways	Distance and direction from the edge of the roadway to the instrument in meters
Traffic Count	ADOT supplied traffic count for the nearest major roadway (data obtained in 2010)
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

Monitoring Information

Pollutant	The pollutant(s) or parameter(s) being collected or measured at the site
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 network for the monitor (IMPROVE, Index Site, Industrial, NATTS, NCore, Non-EPA Federal, PAMS, Proposed NCore, QA Collocated, SLAMS,Special Purpose, Supplemental Speciation, Trends Speciation, Tribal Monitor, Unofficial PAMS)
Spatial scale	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)

Monitor Start Date	Date that a pollutant, parameter, or measurement was started at the site
Instrument manufacture and model	The specific make and model of the monitor or instrument used in the network

Site Photos

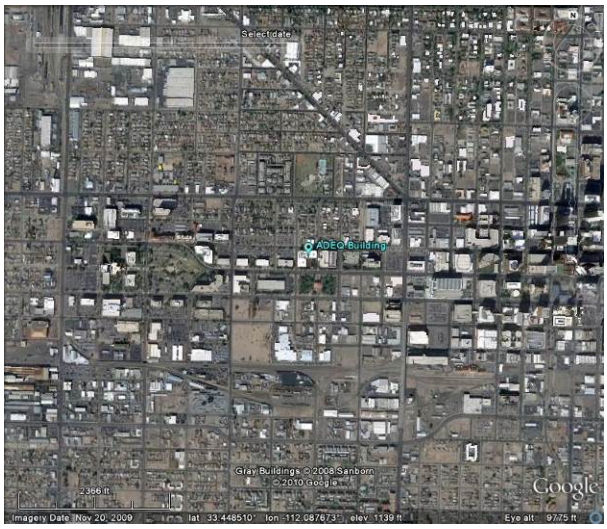
Aerial View	Image of site and the surrounding area (using Google Earth)
Site View	Most current photo of monitors at the site

ADEQ Building
The high-resolution digital camera sits on the northeast corner of the building and points toward Camelback Mountain, which lies 13.4 km to the northeast. The pictures of the local view are updated every 5 minutes and can be viewed on the internet athttp://phoenixvis.net/index.aspx. The area between the site and Camelback Mountain is primarily residential with some commercial areas.

Site Information			
AQS ID	None	ADEQ ID	21737
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
Distance to roadway	84 m – S	Elevation	329 m
Traffic count	10,852 – Washington St.	Site Established Date	07/01/2002

Monitoring Information				
Pollutant	Visibility			
Basic monitoring objective	Public Information			
Site type(s)	Population Exposure			
Monitor type(s)	--			
Instrument manufacture and model	CANON EOS Rebel T2i			
Spatial scale	Urban			
Monitor Start Date	07/01/2002			

Site Photos



Aerial view of ADEQ Building

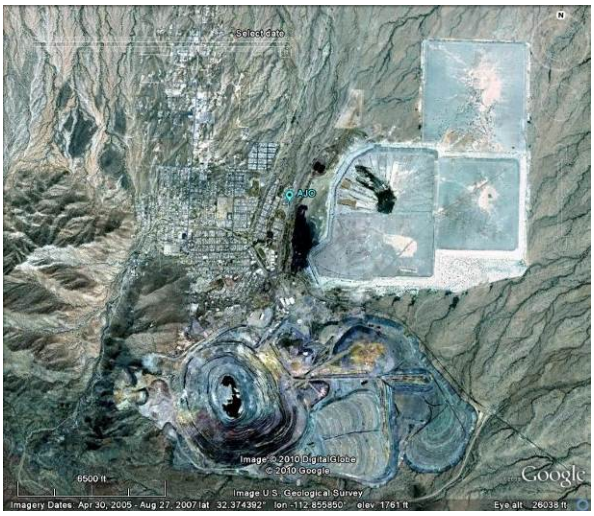

Camera on rooftop of ADEQ Building – 4/2010

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 south. To the east lie the stabilized tailings pile associated with the Ajo mining operation that closed in 1985.

Site Information			
AQS ID	04-019-0001	ADEQ ID	16316
Street Address	1211 Well Rd. Ajo, AZ 85321		
County	Pima	Groundcover	Gravel
CBSA	Tucson	Latitude	32.3820
Surrounding Area	Residential/Commercial	Longitude	-112.8575
Distance to roadway	109 m – E	Elevation	515 m
Traffic count	500 – Ajo Well Rd. 1	Site Established Date	07/01/1969

Monitoring Information				
Pollutant	PM_{10}	Wind		
Basic monitoring objective	NAAQS Comparison	--		
Site type(s)	Population Exposure	Population Exposure		
Monitor type(s)	SLAMS	--		
Instrument manufacture and model	Thermo TEOM 1400AB	RM Young 5305 Anemometer		
Spatial scale	Neighborhood	Neighborhood		
Monitor Start Date	02/11/1991	07/01/1969		

Site Photos



Aerial view of Ajo


Ajo fenced area and meteorological tower – 05/2012

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. More monitors will be added at this site over the next year as it becomes a designated background site.

Site Information			
AQS ID	04-012-8000	ADEQ ID	34961
Street Address	Alamo Lake State Park		
County	La Paz	Groundcover	Gravel
CBSA	None	Latitude	34.2439
Surrounding Area	Desert	Longitude	-113.5586
Distance to roadway	30 m – E	Elevation	403 m
Traffic count	230 – Alamo Rd.	Site Established Date	05/20/2005

Monitoring Information				
Pollutant	O_3			
Basic monitoring objective	NAAQS Comparison			
Site type(s)	Regional Transport			
Monitor type(s)	SLAMS			
Instrument manufacture and model	Teledyne API 400E			
Spatial scale	Regional			
Monitor Start Date	05/20/2005			

Site Photos

Regional view of Alamo Lake

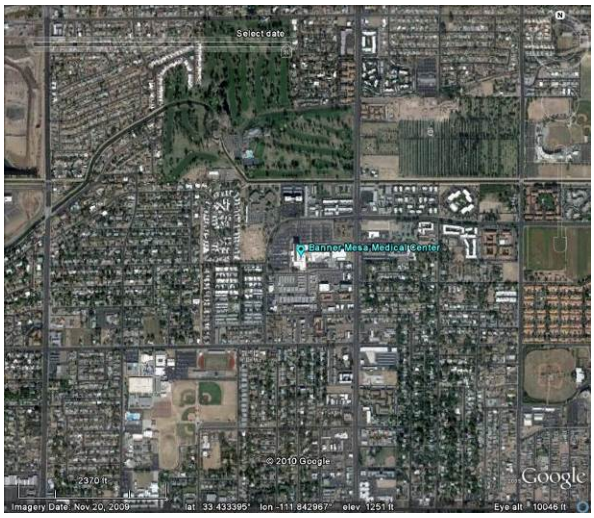

Alamo Lake shelter with water tanks to the east – 08/2012

Banner Mesa Medical Center
The high-resolution digital camera points to the Superstition Mountains, which lie 32 km east of the site. The pictures of the local views are updated every 5 minutes and can be viewed on the internet athttp://phoenixvis.net/index.aspx. The area between the site and the mountains is primarily residential with some commercial areas.

Site Information			
AQS ID	None	ADEQ ID	19489
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
Distance to roadway	20 m – N	Elevation	454 m
Traffic count	32,760 – Country Club Dr.	Site Established Date	01/01/1993

Monitoring Information				
Pollutant	Visibility			
Basic monitoring objective	Public Information			
Site type(s)	Population Exposure			
Monitor type(s)	--			
Instrument manufacture and model	CANON EOS Rebel T2i			
Spatial scale	Urban			
Monitor Start Date	01/01/1993			

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 400 meters. To the northeast/east, about 575 meters, is the Bullhead City Airport.

Site Information			
AQS ID	04-015-1003	ADEQ ID	16365
Street Address	990 Highway 95 Bullhead City, AZ 86429		
County	Mohave	Groundcover	Rooftop
CBSA	Lake Havasu City-Kingman	Latitude	35.1539
Surrounding Area	Commercial/Residential	Longitude	-114.5661
Distance to roadway	~30 m – W	Elevation	156 m
Traffic count	32,575 – SR 95	Site Established Date	11/01/1997

Monitoring Information				
Pollutant	PM_{10}			
Basic monitoring objective	NAAQS Comparison			
Site type(s)	Population Exposure			
Monitor type(s)	SLAMS			
Instrument manufacture and model	Thermo TEOM 1400AB			
Spatial scale	Neighborhood			
Monitor Start Date	11/05/1997			

Site Photos

Aerial view of Bullhead City


Roof of Bullhead City Post Office– 06/2012

Chiricahua Entrance Station
The site is operated by the NPS. The surrounding area is wilderness and desert. The Chiricahua National Monument lies 3.8 km to the northeast.

Site Information			
AQS ID	04-003-8001	ADEQ ID	16679
Street Address	13063 E. Bonita Canyon Rd. Wilcox, AZ 85643		
County	Cochise	Groundcover	Dirt/Rocks
CBSA	Sierra Vista-Douglas	Latitude	32.0094
Surrounding Area	Desert	Longitude	-109.3891
Distance to roadway	99 m – E	Elevation	1,570 m
Traffic count	216 – Bonita Canyon Rd.	Site Established Date	01/01/1988

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Background			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	03/02/1988			

Site Photos

Regional view of Chiricahua Entrance Station


Chiricahua Entrance Station shelter and IMPROVE – 07/2008

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. Due to an oversight when loading IMPROVE data to the AQS database, a second AQS ID was created (04-003-9000) for IMPROVE data. This is an IMPROVE protocol site.

Site Information			
AQS ID	04-003-1005	ADEQ ID	16503
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	-109.5396
Distance to roadway	30 m – N	Elevation	1,231 m
Traffic count	2,320 – 14th St.	Site Established Date	09/01/1998

Monitoring Information				
Pollutant	PM_{10}	$PM_{2.5}$	Temp/RH	Wind
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	--	--
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type(s)	SLAMS	SLAMS	--	--
Instrument manufacture and model	Thermo TEOM 1400AB	Met One BAM 1020	Vaisala HMP 155 Probe	RM Young 5305 Anemometer
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	09/02/1998	11/02/2000	08/16/2012	08/06/2012

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Other			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	06/02/2004			

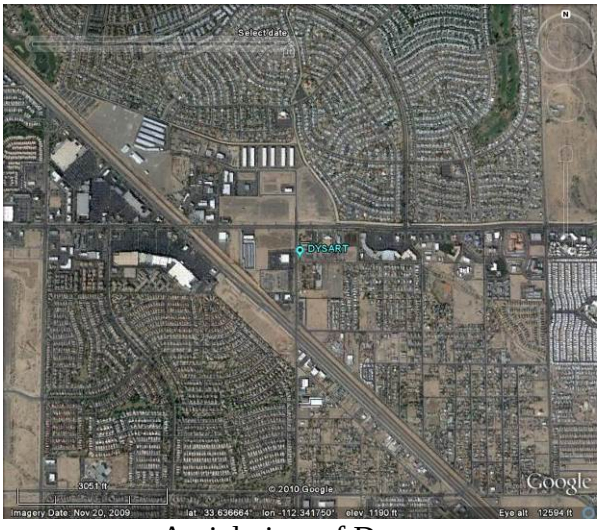
Site Photos	
 Aerial view of Douglas Red Cross	 Douglas Red Cross fenced site – 04/2013

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.

Site Information			
AQS ID	04-013-4010	ADEQ ID	19550
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
Distance to roadway	14 m – W	Elevation	357 m
Traffic count	51,673 – Bell Rd.	Site Established Date	01/01/2003

Monitoring Information				
Pollutant	Bscat/PM2.5	Temp R/H		
Basic monitoring objective	Public Information	--		
Site type(s)	Population Exposure	Population Exposure		
Monitor type(s)	--	--		
Instrument manufacture and model	Optec NGN 2 Nephelometer	Rotronics MP101A Probe		
Spatial scale	Urban	Urban		
Monitor Start Date	01/01/2003	07/16/2003		

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.

Site Information			
AQS ID	04-013-8005	ADEQ ID	16506
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
Distance to roadway	258 m – N	Elevation	277 m
Traffic count	910 – W. Vineyard Ave.	Site Established Date	01/01/1995

Monitoring Information				
Pollutant	Bscat/PM2.5	Temp R/H		
Basic monitoring objective	Public Information	--		
Site type(s)	Population Exposure	Population Exposure		
Monitor type(s)	--	--		
Instrument manufacture and model	Optec NGN 2 Nephelometer	Rotronics MP101A Probe		
Spatial scale	Urban	Urban		
Monitor Start Date	01/01/2003	02/11/2003		

Site Photos

Aerial view of Estrella


Estrella Nephelometer tower – 06/2012

Estrella Mountain Community College
One high-resolution digital camera points to the Estrella Mountains, which lies 11 km to the southwest, and the other camera points to the White Tanks mountain range which is 20 km to the northeast. The pictures of the local views are updated every 5 minutes and can be viewed on the internet athttp://phoenixvis.net/index.aspx. The area between the site and the mountain ranges is a mixture of residential, commercial, and agricultural uses.

Site Information			
AQS ID	None	ADEQ ID	21736
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
Distance to roadway	155 m – S	Elevation	305 m
Traffic count	7,280 – Thomas Rd.	Site Established Date	01/01/1993

Monitoring Information				
Pollutant	Visibility	Visibility		
Basic monitoring objective	Public Information	Public Information		
Site type(s)	Population Exposure	Population Exposure		
Monitor type(s)	--	--		
Instrument manufacture and model	CANON EOS Rebel T2i	CANON EOS Rebel T2i		
Spatial scale	Urban	Urban		
Monitor Start Date	01/01/1993	01/01/1993		

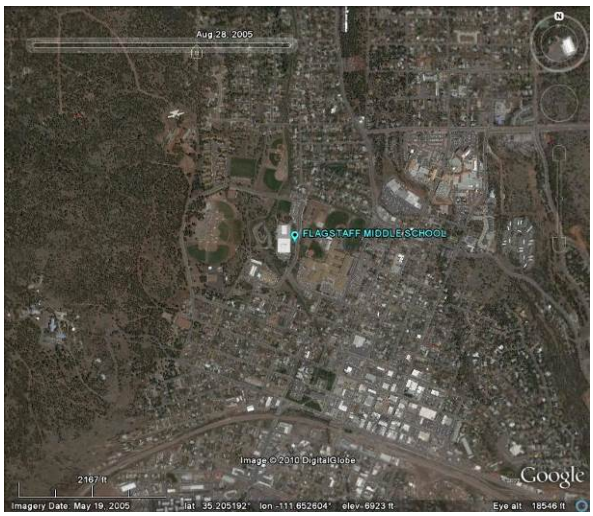
Site Photos	
 Aerial view of Estrella Mountain Community College	No photo

Flagstaff Middle School
The site is west of Bonito Road on the rooftop of a 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. At the end of 2013 the O_3, and the PM_{10}, and $PM_{2.5}$ Partisols, will be removed from this site. Only the $PM_{2.5}$ E-BAM unit will remain at the site.

Site Information			
AQS ID	04-005-1008	ADEQ ID	16707
Street Address	755 N. Bonito St. Flagstaff, AZ 86001		
County	Coconino	Groundcover	Rooftop
CBSA	Flagstaff	Latitude	35.2061
Surrounding Area	Residential	Longitude	-111.6528
Distance to roadway	70 m – E	Elevation	2,120 m
Traffic count	3,200 – N. Bonito St.	Site Established Date	10/29/1996

Monitoring Information				
Pollutant	O_3	PM_{10}	$PM_{2.5}$	$PM_{2.5}$
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	Public Information
Site type(s)	Max O_3 Concentration	Population Exposure	Population Exposure	Population Exposure
Monitor type(s)	SLAMS	SLAMS	SLAMS	Special Purpose
Instrument manufacture and model	Teledyne API 400E	Thermo Partisol 2000	Thermo Partisol 2000	Met One E-BAM
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	03/13/2008	10/30/1996	09/09/1999	09/09/1999

Site Photos



Aerial view of Flagstaff Middle School


Particulate monitors on roof of Flagstaff Middle School – 11/2012

Globe Highway
This site is the location of the collocated TSP Pb monitors in Hayden, AZ. ASARCO mine also maintains a 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 is located approximately 1 km to the east/southeast of the ASARCO smelting facility. Due to its proximity to the end of the canyon, the site may be influenced by both broad and local meteorological conditions.

Site Information			
AQS ID	None	ADEQ ID	16593
Street Address	SR 77 Winkelman, AZ 85292		
County	Gila	Groundcover	Gravel
CBSA	Payson	Latitude	33.002
Surrounding Area	Desert/Residential	Longitude	-110.765
Distance to roadway	5 m – W	Elevation	602 m
Traffic count	n/a	Site Established Date	01/01/1975

Monitoring Information				
Pollutant	Pb	Temp/RH	Wind	
Basic monitoring objective	NAAQS Comparison	--	--	
Site type(s)	Highest Concentration, Source Oriented	Highest Concentration, Source Oriented	Highest Concentration, Source Oriented	
Monitor type(s)	SLAMS	--	--	
Instrument manufacture and model	Tisch TE-8550-BL TSP	Vaisala HMP 155 Probe	RM Young 5305 Anemometer	
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Monitor Start Date	10/01/2010	04/15/2011	04/15/2011	

Site Photos

Aerial view of Globe Highway


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

Grand Canyon National Park - Hance Camp
The site is operated by the NPS. The site is 183 meters south of East Rim Drive and 1,931 meters south of Grandview Point turnoff. The site is in a clearing surrounded by forest.

Site Information			
AQS ID	04-005-8102	ADEQ ID	16682
Street Address	West of SR 64 - Grand Canyon, AZ 86023		
County	Coconino	Groundcover	Dirt
CBSA	Flagstaff	Latitude	35.9731
Surrounding Area	Desert	Longitude	-111.9841
Distance to roadway	200 m – E	Elevation	2,235 m
Traffic count	6,579 – SR 64	Site Established Date	09/24/1997

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Background			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	09/24/1997			

Site Photos

Regional view of Grand Canyon NP - Hance Camp


Grand Canyon NP - Hance Camp shelter – date unknown

Grand Canyon National Park - Indian Gardens
The site is owned by the NPS. The site is located in the Indian Gardens picnic area in the Grand Canyon, near the ranger station on the south side of the canyon along the Bright Angel Trail. Due to budgetary constraints this site will be closed by the end of 2013.

Site Information			
AQS ID	04-005-8101	ADEQ ID	16683
Street Address	Bright Angel Trail Grand Canyon, AZ 86023		
County	Coconino	Groundcover	Dirt/Rocks
CBSA	Flagstaff	Latitude	36.0778
Surrounding Area	Desert	Longitude	-112.1289
Distance to roadway	8,047 m – S	Elevation	1,183 m
Traffic count	1,250 – Entrance Road	Site Established Date	10/01/1989

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Background			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	10/01/1989			

Site Photos

Regional view of Grand Canyon NP - Indian Gardens

Grand Canyon NP - Indian Gardens IMPROVE monitor – 04/2008

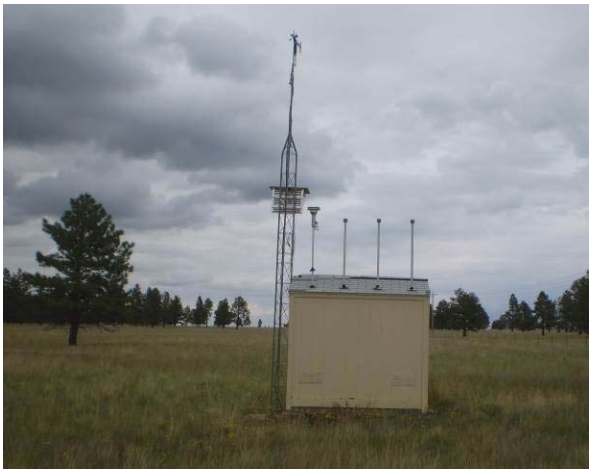
Greer Water Treatment Plant
The site is located in the Apache National Forest and is operated the USFS. The surrounding area is forest with the town of Greer approximately 4 km to the south/southwest.

Site Information			
AQS ID	04-001-8001	ADEQ ID	16323
Street Address	SR 260 & SR 373 Greer, AZ 85927		
County	Apache	Groundcover	Grass
CBSA	None	Latitude	34.0583
Surrounding Area	Forest	Longitude	-109.4400
Distance to roadway	1,600 m – N	Elevation	2,503 m
Traffic count	1,044 – SR 373	Site Established Date	01/01/2000

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Other			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	02/29/2000			

Site Photos

Aerial view of Greer Water Treatment Plant


Shelter at Greer Water Treatment Plant – 09/2012

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 in 2010. The surrounding area consists mainly of residential and commercial. The site is located approximately 1 km to the west of the ASARCO smelting facility. ASARCO mine also maintains a sulfur dioxide analyzer at the site in the old jail building.

Site Information			
AQS ID	04-007-1001	ADEQ ID	16326
Street Address	Canyon Dr. & Kennecott Ave. Hayden, AZ 85235		
County	Gila	Groundcover	Shelter
CBSA	Payson	Latitude	33.0062
Surrounding Area	Residential	Longitude	-110.7864
Distance to roadway	5 m – E	Elevation	625 m
Traffic count	1,790 – Velasco Ave.	Site Established Date	01/01/1969

Monitoring Information				
Pollutant	SO_2	PM_{10}	Temp/RH	Wind
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	--	--
Site type(s)	Source Oriented	Source Oriented	Source Oriented	Source Oriented
Monitor type(s)	SLAMS	SLAMS	--	--
Instrument manufacture and model	Ecotech EC9850T	Thermo TEOM 1400AB	Vaisala HMP 155 Probe	RM Young 5305 Anemometer
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	01/01/1975	01/06/1981	02/02/2011	02/02/2011

Site Photos

Aerial view of Hayden Old Jail


Hayden Old Jail shelter and meteorological tower – 05/2011

Ike's Backbone
The site is operated by the USFS. The surrounding area is Tonto National Forest, which includes Mazatzal and Pine Mountain Wilderness areas. The site is located on a small ridge with the Verde River and mountains nearby.

Site Information			
AQS ID	04-025-8104	ADEQ ID	16421
Street Address	Fossil Creek Rd. and Childs Rd. Strawberry, AZ 85544		
County	Coconino	Groundcover	Rocks/Plants
CBSA	Flagstaff	Latitude	34.3406
Surrounding Area	Forest	Longitude	-111.6825
Distance to roadway	n/a	Elevation	1,303 m
Traffic count	475 – Fossil Creek Rd.	Site Established Date	04/02/2000

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Other			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	04/02/2000			

Site Photos

Regional view of Ike's Backbone


IMPROVE at Ike's Backbone – 2011

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. This is also an IMPROVE protocol site.

Site Information			
AQS ID	04-013-9997	ADEQ ID	16328
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
Distance to roadway	8.5 m – E	Elevation	354 m
Traffic count	20,214 – Campbell Ave.	Site Established Date	07/01/1993

Monitoring Information				
Pollutant	CO	NO_2 / NOx	NOy	O_3
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison. Research	NAAQS Comparison	NAAQS Comparison
Site type(s)	Highest Concentration	Highest Concentration, Population Exposure	Population Exposure	Max O_3 Concentration
Monitor type(s)	SLAMS, NCore, PAMS	SLAMS, PAMS	NCore	SLAMS, NCore, PAMS
Instrument manufacture and model	Ecotech EC9830T	Ecotech EC9841B	Ecotech 9843	Teledyne API 400E
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	07/01/1993	07/01/1993	01/01/2011	07/01/1993

Monitoring Information				
Pollutant	SO_2	Carbonyl	VOC	SVOC
Basic monitoring objective	NAAQS Comparison	Research	Research	Research
Site type(s)	Population Exposure	Population Exposure, Max Precursor Impact	Population Exposure, Max Precursor Impact	Population Exposure
Monitor type(s)	SLAMS, NCore	PAMS, NATTS	PAMS, NATTS	NATTS
Instrument manufacture and model	Ecotech EC9850T	ATEC 8000	ATEC 2200	Tisch TE-1000BL
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	03/03/2005	05/15/1999	05/15/1999	07/08/2007

Monitoring Information				
Pollutant	Pb-PM_{10} / PM_{10} metals speciation	PM_{10}	$PM_{10-2.5}$	$PM_{2.5}$
Basic monitoring objective	NAAQS Comparison, Research	NAAQS Comparison	Research	NAAQS Comparison
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type(s)	SLAMS, NCore, NATTS	SLAMS	NCore	SLAMS, NCore
Instrument manufacture and model	Thermo Partisol 2000	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	01/01/2005	07/01/1993	11/10/2010	07/01/2003

Monitoring Information				
Pollutant	$PM_{2.5}$	$PM_{2.5}$ Speciation	$PM_{2.5}$ Speciation	Temp/RH
Basic monitoring objective	NAAQS Comparison	Research	Research	--
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type(s)	SLAMS, NCore	Supplemental Speciation, NCore	Supplemental Speciation, NCore	--
Instrument manufacture and model	Thermo Partisol 2000	Met One SuperSASS	URG 3000N	Vaisala HMP 155 Probe
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	07/01/2003	02/21/2000	02/21/2000	07/01/1993

Monitoring Information				
Pollutant	Wind	IMPROVE	IMPROVE	
Basic monitoring objective	--	Research	Research	
Site type(s)	Population Exposure	Other	Other	
Monitor type(s)	--	IMPROVE	IMPROVE	
Instrument manufacture and model	RM Young 5305 Anemometer	--	--	
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Monitor Start Date	07/01/1993	04/25/2001	04/25/2001	

Site Photos	
 Aerial view of JLG Supersite	 Eastern side of JLG Supersite two shelters, roof top, and meteorological tower – 08/2012

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 64.4 km is US 93, which is the closest highway to the site and about 96.5 km to the southeast is downtown Kingman. This is an IMPROVE protocol site.

Site Information			
AQS ID	04-015-9000	ADEQ ID	21298
Street Address	Pierce Ferry Rd. Meadview, AZ 86444		
County	Mohave	Groundcover	Gravel
CBSA	Lake Havasu City-Kingman	Latitude	36.0193
Surrounding Area	Desert/Residential	Longitude	-114.0684
Distance to roadway	100 m – E	Elevation	902 m
Traffic count	0 – Pierce Ferry Rd.	Site Established Date	09/04/1991

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Background			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	09/04/1991			

Site Photos

Regional view of Meadview


Photo of Meadview shelter – 11/2012

Miami Golf Course
This site is the location of the TSP-Pb monitor in Miami, AZ. Freeport McMoRan Copper and Gold Inc also maintains two particulate matter monitors at the site. 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.

Site Information			
AQS ID	04-007-8000	ADEQ ID	16629
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
Distance to roadway	230 – E	Elevation	1000 m
Traffic count	n/a	Site Established Date	01/01/1997

Monitoring Information				
Pollutant	Pb	PM_{10}	Temp/RH	Wind
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	--	--
Site type(s)	Source Oriented	Source Oriented	Source Oriented	Source Oriented
Monitor type(s)	SLAMS	SLAMS	--	--
Instrument manufacture and model	Tisch TE-8550-BL TSP	Thermo TEOM 1400AB	Vaisala HMP 155 Probe	RM Young 5305 Anemometer
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	10/01/2010	7/26/2012	06/08/2011	06/08/2011

Site Photos

Aerial view of Miami Golf Course


Fenced Miami Golf Course site – 07/2012

Miami Jones Ranch
This site is one of three SO_2 sites in the Miami area. Freeport McMoRan Copper and Gold Inc operate a 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 over looking the town and is off a gravel/dirt road.

Site Information			
AQS ID	04-007-0011	ADEQ ID	16631
Street Address	Cherry Flats Rd. Miami, AZ 85539		
County	Gila	Groundcover	Gravel
CBSA	Payson	Latitude	33.3853
Surrounding Area	Residential	Longitude	-110.8673
Distance to roadway	n/a	Elevation	1,242 m
Traffic count	n/a	Site Established Date	01/01/1997

Monitoring Information				
Pollutant	SO_2			
Basic monitoring objective	NAAQS Comparison			
Site type(s)	Source Oriented			
Monitor type(s)	SLAMS			
Instrument manufacture and model	Ecotech EC9850T			
Spatial scale	Neighborhood			
Monitor Start Date	02/01/2013			

Site Photos

Aerial view of Miami Jones Ranch


Fenced Miami Jones Ranch site – 03/2013

Miami Ridgeline
This is one of three SO_2 site 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. Freeport McMoRan Copper and Gold Inc. also maintain a PM_{10} monitor at the site. The Freeport McMoRan smelter is 1.6 km to the north of the site.

Site Information			
AQS ID	04-007-0009	ADEQ ID	16382
Street Address	4030 Linden St. Miami, AZ 85539		
County	Gila	Groundcover	Dirt
CBSA	Payson	Latitude	33.3992
Surrounding Area	Residential	Longitude	-110.8589
Distance to roadway	40 m – N	Elevation	1,085 m
Traffic count	510 – Loomis Ave.	Site Established Date	01/01/1993

Monitoring Information				
Pollutant	SO_2			
Basic monitoring objective	NAAQS Comparison			
Site type(s)	Source Oriented			
Monitor type(s)	SLAMS			
Instrument manufacture and model	Thermo 43C			
Spatial scale	Neighborhood			
Monitor Start Date	10/05/1995			

Site Photos

Aerial view of Miami Ridgeline


Fenced Miami Ridgeline site – 05/2012

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 to the west 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 northwest of the site.

Site Information			
AQS ID	04-007-0012	ADEQ ID	16382
Street Address	Sullivan ST & Davis Canyon Miami, AZ 85539		
County	Gila	Groundcover	Gravel
CBSA	Payson	Latitude	33.3973
Surrounding Area	Residential	Longitude	-110.8744
Distance to roadway	16.5 m - SE	Elevation	1,042 m
Traffic count	470 – Sullivan St	Site Established Date	0/01/1997

Monitoring Information				
Pollutant	SO_2			
Basic monitoring objective	NAAQS Comparison			
Site type(s)	Source Oriented			
Monitor type(s)	SLAMS			
Instrument manufacture and model	Ecotech EC9850T			
Spatial scale	Neighborhood			
Monitor Start Date	02/01/2013			

Site Photos

Aerial view of Miami Townsite

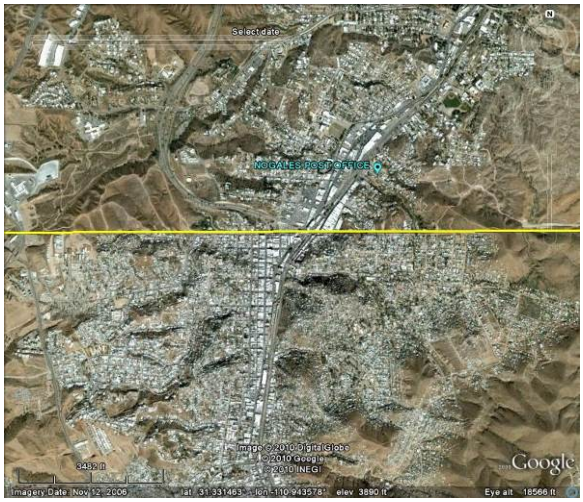

Fenced Miami Townsite – 05/2013

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.

Site Information			
AQS ID	04-023-0004	ADEQ ID	16511
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
Distance to roadway	14 m – NW	Elevation	1,176 m
Traffic count	7,199 – Morley Ave.	Site Established Date	01/01/1980

Monitoring Information				
Pollutant	PM_{10}	PM_{10}	$PM_{2.5}$	$PM_{2.5}$
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison
Site type(s)	Population Exposure	Population Exposure	Highest Concentration	Highest Concentration
Monitor type(s)	SLAMS	QA Collocated	SLAMS	QA Collocated
Instrument manufacture and model	Met One BAM 1020	Thermo Partisol 2000	Met One BAM 1020	Thermo Partisol 2000
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	01/01/1980	01/01/1980	04/01/1999	04/01/1999

Monitoring Information				
Pollutant	Temp/RH	Wind		
Basic monitoring objective	--	--		
Site type(s)	Population Exposure	Population Exposure		
Monitor type(s)	--	--		
Instrument manufacture and model	Vaisala HMP 155 Probe	RM Young 5305 Anemometer		
Spatial scale	Neighborhood	Neighborhood		
Monitor Start Date	08/11/2011	01/01/1980		

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. The high-resolution digital camera faces South Mountain, which lies 27 km to the south. The pictures of the local views are updated every 5 minutes and can be viewed on the internet athttp://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.

Site Information			
AQS ID	None	ADEQ ID	16480
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
Distance to roadway	850 m – E	Elevation	625 m
Traffic count	28,210 – 7th St.	Site Established Date	01/01/1993

Monitoring Information				
Pollutant	Visibility			
Basic monitoring objective	Public Information			
Site type(s)	Population Exposure			
Monitor type(s)	--			
Instrument manufacture and model	CANON EOS Rebel T2i			
Spatial scale	Urban			
Monitor Start Date	01/01/1993			

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	ADEQ ID	16681
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
Distance to roadway	400 m – E	Elevation	505 m
Traffic count	1,525 – SR 85	Site Established Date	01/01/1971

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Other			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	01/15/2003			

Site Photos

Regional view of Organ Pipe NM


Shelter at Organ Pipe NM – 05/2012

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. In 2011 the meteorological instruments were re-located to this site when the Paul Spur Chemical Lime Plant South site was closed. Other than the nearby Chemical Lime Plant, the surrounding area is predominately desert. The Chemical Lime Plant is not operational at this time.

Site Information			
AQS ID	04-003-0011	ADEQ ID	16391
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	-109.7309
Distance to roadway	50 m – S	Elevation	1,278 m
Traffic count	4,920 – SR 80	Site Established Date	01/01/1985

Monitoring Information				
Pollutant	PM_{10}	Temp/RH	Wind	
Basic monitoring objective	NAAQS Comparison	--	--	
Site type(s)	Source Oriented	Source Oriented	Source Oriented	
Monitor type(s)	SLAMS	--	--	
Instrument manufacture and model	Thermo TEOM 1400AB	Vaisala HMP 155 Probe	RM Young 5305 Anemometer	
Spatial scale	Middle	Middle	Middle	
Monitor Start Date	01/06/1991	12/01/2011	12/01/2011	

Site Photos

Aerial view of Paul Spur CLP


Particulate monitors and meteorological tower at Paul Spur CLP – 03/2013

Payson Well Site
The site is located in the southern area of Payson, at a water well site. To the southeast of the site are two tanks. In general, the surrounding area is commercial with some residential land use. Directly to the west, on the other side of a metal fence, is an auto repair shop and 290 meters to the east is SR 87. This site is currently used to meet the PM_{10} collocation requirement. This site will be moved west to a more open area on the water well property within the next year and PM_{10} BAM instrument will replace the Partisol instrument.

Site Information			
AQS ID	04-007-0008	ADEQ ID	16317
Street Address	204 W. Aero Dr. Payson, AZ 85541		
County	Gila	Groundcover	Gravel
CBSA	Payson	Latitude	34.2294
Surrounding Area	Residential/Commercial	Longitude	-111.3297
Distance to roadway	80 m – S	Elevation	1,501 m
Traffic count	1,724 – Aero Dr.	Site Established Date	01/01/1991

Monitoring Information				
Pollutant	PM_{10}	PM2.5	Temp/RH	Wind
Basic monitoring objective	NAAQS Comparison	Public Information	--	--
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type(s)	SLAMS	Special Purpose	--	--
Instrument manufacture and model	Thermo Partisol 2000	Met One E-BAM	Vaisala HMP 45C Probe	RM Young 5103 Anemometer
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	01/01/1991	05/16/2012	05/30/1991	05/30/1991

Site Photos

Aerial view of Payson Well Site


Payson Well Site meteorological tower and particulate monitor on platform – 11/2012

Petrified Forest National Park
The site is operated by the NPS and is located 1.6 km north of park headquarters. The park sits along I-40 and the surrounding area is desert.

Site Information			
AQS ID	04-001-0012	ADEQ ID	16473
Street Address	I-40 & Petrified Forest Rd. Petrified Forest National Park, AZ		
County	Apache	Groundcover	Dirt
CBSA	None	Latitude	35.0770
Surrounding Area	Desert	Longitude	-109.7690
Distance to roadway	1,050 m – SW	Elevation	1,766 m
Traffic count	15,246 – I-40	Site Established Date	03/02/1988

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Background			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	03/02/1988			

Site Photos

Regional view of Petrified Forest NP


Photo of Petrified Forest NP taken from IMPROVE website – date unknown

Phoenix Transmissometer Receiver
The site is located in downtown Phoenix on 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.

Site Information			
AQS ID	None	ADEQ ID	16829
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
Distance to roadway	25 m – E	Elevation	337 m
Traffic count	1,5470 – Central Ave.	Site Established Date	12/01/1992

Monitoring Information				
Pollutant	Bext	Temp R/H		
Basic monitoring objective	Public Information	--		
Site type(s)	Population Exposure	Population Exposure		
Monitor type(s)	--	--		
Instrument manufacture and model	Optec LVP-2 Transmissometer Receiver	Rotronics MP101A Probe		
Spatial scale	Urban	Urban		
Monitor Start Date	12/01/1992	01/01/1994		

Site Photos

Aerial view of Phoenix Transmissometer Receiver

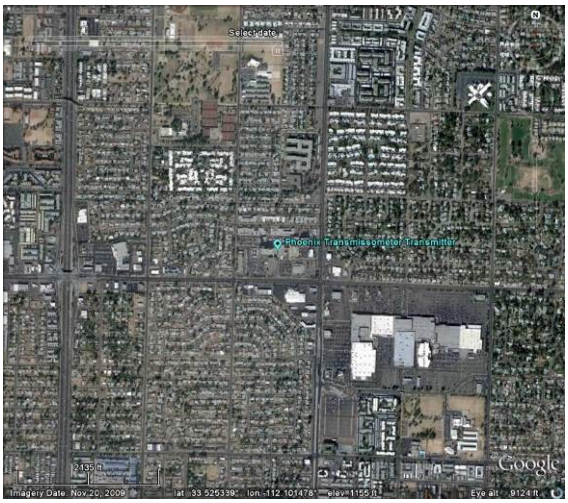

Phoenix Transmissometer Receiver on hotel rooftop – 12/2012

Phoenix Transmissometer Transmitter
The transmitter is located on the 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.

Site Information			
AQS ID	None	ADEQ ID	16330
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
Distance to roadway	120 m – S	Elevation	340 m
Traffic count	40,950 – Bethany Home Rd.	Site Established Date	12/01/1992

Monitoring Information				
Pollutant	Bext			
Basic monitoring objective	Public Information			
Site type(s)	Population Exposure			
Monitor type(s)	--			
Instrument manufacture and model	Optec LVP-2 Transmissometer			
Spatial scale	Urban			
Monitor Start Date	12/01/1992			

Site Photos



Aerial view of Phoenix Transmissometer Transmitter

Phoenix Transmissometer Transmitter Pathway – 2005

Pleasant Valley Ranger Station
The site is operated by USFS. The site is located on a hilltop south of Young, AZ, within the Sierra Ancha Wilderness and Tonto National Forest. The surrounding area is a transitional zone between desert and forest. The site lies 1,160 meters to the south of SR 288.

Site Information			
AQS ID	04-007-8100	ADEQ ID	16446
Street Address	SR 288 & Old Cherry Rd. Young, AZ 85541		
County	Gila	Groundcover	Dirt
CBSA	Payson	Latitude	34.0908
Surrounding Area	Desert/Forest	Longitude	-110.9419
Distance to roadway	250 m – N	Elevation	1,587 m
Traffic count	143 – SR 288	Site Established Date	01/01/2000

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Other			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	02/10/2000			

Site Photos

Regional view of Pleasant Valley Ranger Station

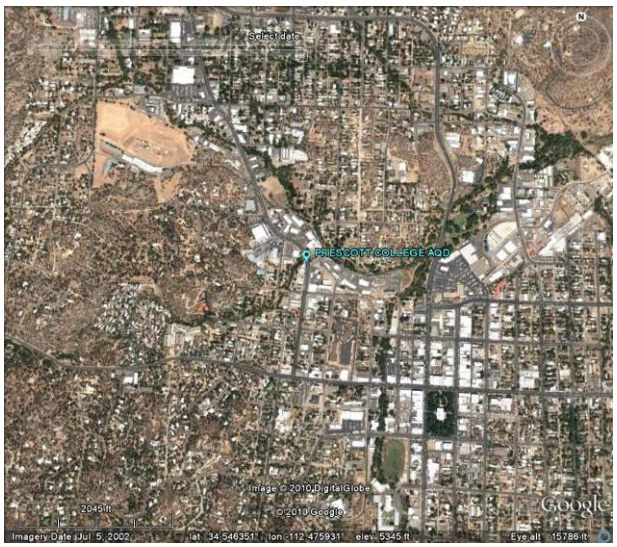
Shelter at Pleasant Valley Ranger Station – 09/2012

Prescott College AQD
The site is located at Prescott College on the rooftop of the Mogollon Building (#307). The surrounding area is residential and commercial, with a high traffic street approximately 20 meters to the east and large trees to the west.

Site Information			
AQS ID	04-025-8033	ADEQ ID	133011
Street Address	330 Grove Ave., Prescott, AZ 86301		
County	Yavapai	Groundcover	Rooftop
CBSA	Prescott	Latitude	34.5467
Surrounding Area	Residential/Commercial	Longitude	-112.4761
Distance to roadway	8 m – E	Elevation	1,591 m
Traffic count	17,650 – Grove Ave.	Site Established Date	12/05/2006

Monitoring Information				
Pollutant	O_3	$PM_{2.5}$		
Basic monitoring objective	NAAQS Comparison	Public Information		
Site type(s)	Max O_3 Concentration	Population Exposure		
Monitor type(s)	SLAMS	Special Purpose		
Instrument manufacture and model	Thermo 49C	Met One E-BAM		
Spatial scale	Neighborhood	Neighborhood		
Monitor Start Date	03/25/2008	07/13/2011		

Site Photos



Aerial view of Prescott College AQD

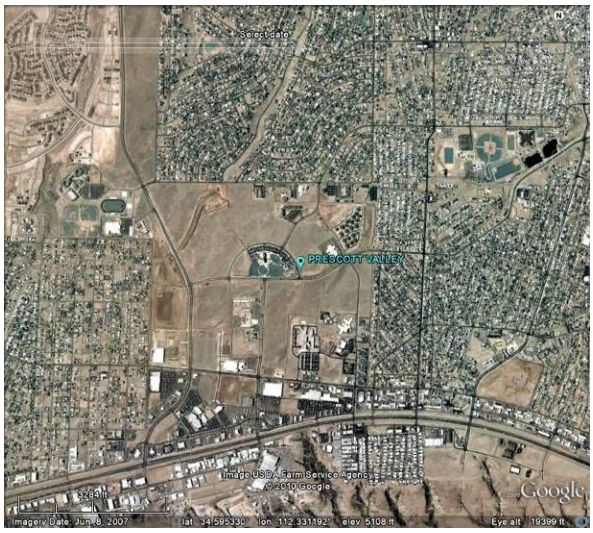

E-BAM on roof of Prescott College AQD – 06/2012

Prescott Valley
The site is located on the Prescott Police Department building about 1,100 meters to the north of SR 69. The surrounding area is mostly residential with some areas of open desert.

Site Information			
AQS ID	04-025-2002	ADEQ ID	18392
Street Address	7601 E. Civic Cir. Prescott Valley, AZ 86314		
County	Yavapai	Groundcover	Rooftop
CBSA	Prescott	Latitude	34.5950
Surrounding Area	Desert/Residential	Longitude	-112.3310
Distance to roadway	25 m – S	Elevation	1,556 m
Traffic count	2,400 – Civic Circle N.	Site Established Date	03/12/2003

Monitoring Information				
Pollutant	PM_{10}	$PM_{2.5}$		
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison		
Site type(s)	General / Background	General / Background		
Monitor type(s)	SLAMS	SLAMS		
Instrument manufacture and model	Thermo Partisol 2000	Thermo Partisol 2000		
Spatial scale	Neighborhood	Neighborhood		
Monitor Start Date	03/16/2003	12/28/2007		

Site Photos



Aerial view of Prescott Valley


Particulate monitors on rooftop of Prescott Police Department – 11/2012

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 meters southeast of the small town of Queen Valley, AZ and the surrounding area is primarily desert. This is a downwind PAMS type 3 site. This is also an IMPORVE protocol site.

Site Information			
AQS ID	04-021-8001	ADEQ ID	16394
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
Distance to roadway	87 m – W	Elevation	668 m
Traffic count	1,284 – Queen Anne Dr.	Site Established Date	01/01/1998

Monitoring Information				
Pollutant	O_3	NOy	VOC	Temp/RH
Basic monitoring objective	NAAQS Comparison	Research	Research	--
Site type(s)	Downwind	Downwind	Downwind	Downwind
Monitor type(s)	SLAMS, PAMS	PAMS	PAMS	--
Instrument manufacture and model	Teledyne API 400E	Thermo 42C TL Reactive	ATEC 8001	Vaisala HMP 45C Probe
Spatial scale	Regional	Regional	Regional	Regional
Monitor Start Date	01/01/1998	01/01/1998	05/20/2001	06/23/2003

Monitoring Information				
Pollutant	Wind	IMPROVE		
Basic monitoring objective	--	Research		
Site type(s)	Downwind	Other		
Monitor type(s)	--	IMPROVE		
Instrument manufacture and model	RM Young 5103 Anemometer	--		
Spatial scale	Regional	Regional		
Monitor Start Date	06/23/2003	04/30/2001		

Site Photos	
 Regional view of Queen Valley	 Shelter and meteorological tower at Queen Valley site – 02/2012

Rillito
In February of 2007 the site was moved from the Water St. location 91 meters southwest to its current location at a city water pumping station. The surrounding area is primarily residential and industrial, with I-10 approximately 250 meters to the northeast. The site is located within the small town of Rillito, AZ and is approximately 500 meters to the north/northwest of the Cal Portland Rillito Cement Plant.

Site Information			
AQS ID	04-019-0020	ADEQ ID	16499
Street Address	8840 W. Robinson St. Rillito, AZ 85653		
County	Pima	Groundcover	Dirt
CBSA	Tucson	Latitude	32.4143
Surrounding Area	Residential	Longitude	-111.1545
Distance to roadway	7 m – S	Elevation	626 m
Traffic count	2,634 – I-10 Frontage Rd.	Site Established Date	01/01/1985

Monitoring Information				
Pollutant	PM_{10}	Temp/RH	Wind	
Basic monitoring objective	NAAQS Comparison	--	--	
Site type(s)	Source Oriented	Source Oriented	Source Oriented	
Monitor type(s)	SLAMS	--	--	
Instrument manufacture and model	Thermo TEOM 1400AB	Vaisala HMP 45C Probe	RM Young 5103 Anemometer	
Spatial scale	Middle	Middle	Middle	
Monitor Start Date	01/03/1985	03/30/2010	01/08/2004	

Site Photos

Aerial view of Rillito


Rillito meteorological tower and particulate monitors on platform – 04/2013

Saguaro National Park East
The site is located within the Saguaro National Park East, 805 meters south of park headquarters and is operated jointly by PDEQ and NPS. The area surrounding the site is scattered residential to the west and desert to the east.

Site Information			
AQS ID	04-019-0021	ADEQ ID	16474
Street Address	3905 S. Old Spanish Trail Tucson, AZ 85730		
County	Pima	Groundcover	Dirt
CBSA	Tucson	Latitude	32.1740
Surrounding Area	Residential/Desert	Longitude	-110.7360
Distance to roadway	82 m – W	Elevation	938 m
Traffic count	6,198 – Old Spanish Tail	Site Established Date	06/04/1988

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Background			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	06/04/1988			

Site Photos

Regional view of Saguaro NP East


Photo of Saguaro NP East taken from IMPROVE website – date unknown

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	ADEQ ID	16475
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
Distance to roadway	27 m – W	Elevation	718 m
Traffic count	1,889 – Mile Wide Rd.	Site Established Date	12/29/1996

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Other			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	04/19/2001			

Site Photos

Regional view of Saguaro NP West


Shelters at Saguaro NP West site – 07/2012

Sedona Fire Station AQD
In 2011, the EBAM instrument in Sedona was moved from the Sedona Post Office site to the Sedona Fire Station site due to concerns about local emissions affecting the monitor. The Sedona Fire Station site is located approximately 300 meters to the northeast of the Sedona Post Office site. The surrounding area is composed of residential and commercial use.

Site Information			
AQS ID	None	ADEQ ID	142818
Street Address	310 Forest Rd, Sedona, AZ 86336		
County	Coconino	Groundcover	Rooftop
CBSA	Flagstaff	Latitude	34.8683
Surrounding Area	Commercial/Residential	Longitude	-111.7633
Distance to roadway	n/a	Elevation	1,326 m
Traffic count	n/a	Site Established Date	12/16/2011

Monitoring Information				
Pollutant	$PM_{2.5}$			
Basic monitoring objective	Public Information			
Site type(s)	Population Exposure			
Monitor type(s)	Special Purpose			
Instrument manufacture and model	Met One E-BAM			
Spatial scale	Neighborhood			
Monitor Start Date	12/16/2011			

Site Photos

Aerial view of Sedona Fire Station

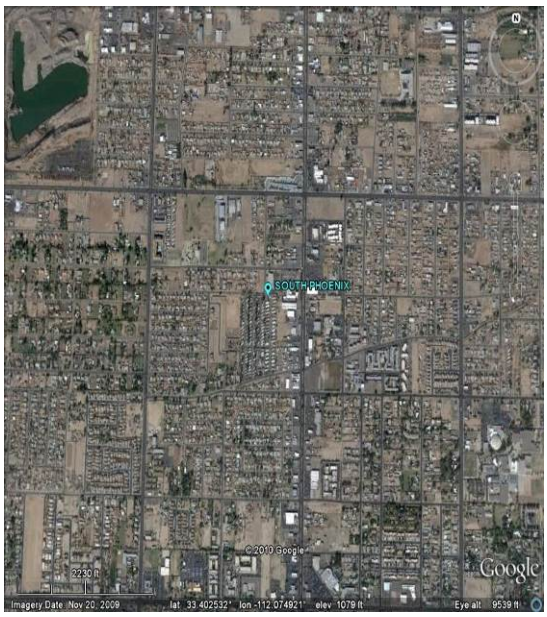

E-BAM on roof at Sedona Fire Station – 3/2012

South Phoenix
The site is owned by MCAQD. ADEQ operates the toxics sampler at the site. 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	ADEQ ID	16377
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
Distance to roadway	83 m – W	Elevation	330 m
Traffic count	19,110 – Central Ave.	Site Established Date	01/01/1997

Monitoring Information				
Pollutant	VOC			
Basic monitoring objective	Research			
Site type(s)	Population Exposure			
Monitor type(s)	UATMP			
Instrument manufacture and model	ATEC 8001			
Spatial scale	Neighborhood			
Monitor Start Date	8/5/2001			

Site Photos



Aerial view of South Phoenix


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

Sycamore Canyon
The site is located near the entrance to Camp Raymond Boy Scout Camp. Minimal obstructions exist in the area surrounding the site and no routine human activity occurs in the area surrounding the site. Sycamore Canyon Wilderness Area is 800 meters south of the site.

Site Information			
AQS ID	04-005-8103	ADEQ ID	16476
Street Address	Camp Kimball Rd. Flagstaff, AZ (Camp Raymond)		
County	Coconino	Groundcover	Dirt/Grass
CBSA	Flagstaff	Latitude	35.1406
Surrounding Area	Forest	Longitude	-111.9692
Distance to roadway	33 m – NW	Elevation	2,046 m
Traffic count	15,048 – I-40	Site Established Date	09/11/1991

Monitoring Information				
Pollutant	IMPROVE			
Basic monitoring objective	Research			
Site type(s)	Background			
Monitor type(s)	IMPROVE			
Instrument manufacture and model	--			
Spatial scale	Regional			
Monitor Start Date	09/11/1991			

Site Photos

Regional view of Sycamore Canyon


Shelter at Sycamore Canyon site – 11/2012

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 40 meters south of SR 188. The area surrounding the site is desert with Roosevelt Lake about 1 km to the north.

Site Information			
AQS ID	04-007-0010	ADEQ ID	16447
Street Address	South of SR 188 Roosevelt, AZ 85545		
County	Gila	Groundcover	Dirt/Rock
CBSA	Payson	Latitude	33.6547
Surrounding Area	Desert	Longitude	-111.1074
Distance to roadway	17 m – NE	Elevation	786 m
Traffic count	1,073 – SR 188	Site Established Date	04/23/1988

Monitoring Information				
Pollutant	O_3	IMPROVE		
Basic monitoring objective	NAAQS Comparison	Research		
Site type(s)	Downwind	Background		
Monitor type(s)	SLAMS	IMPROVE		
Instrument manufacture and model	Teledyne API 400E	--		
Spatial scale	Regional	Regional		
Monitor Start Date	05/22/2002	04/23/1988		

Site Photos

Regional view of Tonto NM


Shelter at Tonto NM site – 08/2013

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 meters south of Red Mountain Freeway (Loop 202).

Site Information			
AQS ID	04-013-9998	ADEQ ID	16363
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
Distance to roadway	66 m – E	Elevation	356 m
Traffic count	12,740 – 40th St.	Site Established Date	04/01/1987

Monitoring Information				
Pollutant	Bscat/PM2.5	Delta Temp	Horizontal Solar Raditation	Ultraviolet Solar Radiation
Basic monitoring objective	Public Information	Research	Research	Research
Site type(s)	Population Exposure	Population Exposure	Population Exposure	Population Exposure
Monitor type(s)	--	PAMS	PAMS	PAMS
Instrument manufacture and model	Optec NGN 2 Nephelometer	RM Young 7627	Li-Cor 200S2	Epply TUVR UV
Spatial scale	Urban	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	06/25/2003	08/20/2004	06/18/1999	08/20/2004

Monitoring Information				
Pollutant	Temp R/H	Wind		
Basic monitoring objective	--	--		
Site type(s)	Population Exposure	Population Exposure		
Monitor type(s)	--	--		
Instrument manufacture and model	Rotronics MP101A Probe	RM Young 5305 Anemometer		
Spatial scale	Neighborhood	Neighborhood		
Monitor Start Date	05/11/1999	05/11/1999		

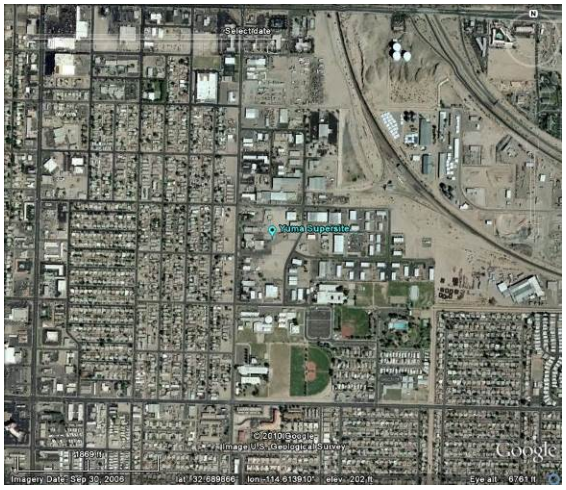
Site Photos	
 Aerial view of Vehicle Emissions Laboratory	 Meteorological tower, and shelter at VEL – 12/2012

Yuma Supersite
The site was reopened in 2008 and has been used to consolidate air quality monitors in the Yuma area to one site. 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 Ozone.

Site Information			
AQS ID	04-027-8011	ADEQ ID	113219
Street Address	2323 S. Arizona Ave. Yuma, AZ 85364		
County	Yuma	Groundcover	Rooftop
CBSA	Yuma	Latitude	32.6903
Surrounding Area	Commercial/Industrial	Longitude	-114.6144
Distance to roadway	91 m – W	Elevation	60 m
Traffic count	12,302 – Arizona Ave.	Site Established Date	02/01/2006

Monitoring Information				
Pollutant	O_3	PM_{10}	$PM_{2.5}$	Temp/RH
Basic monitoring objective	NAAQS Comparison	NAAQS Comparison	NAAQS Comparison	--
Site type(s)	Max O_3 Concentration	Population Exposure	Regional Transport	Population Exposure
Monitor type(s)	SLAMS	SLAMS	SLAMS	--
Instrument manufacture and model	Teledyne API 400E	Thermo TEOM 1400AB	Met One BAM 1020	Vaisala HMP 155 Probe
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Monitor Start Date	05/06/2008	12/01/2009	01/01/2010	03/17/2010

Monitoring Information				
Pollutant	Wind			
Basic monitoring objective	--			
Site type(s)	Population Exposure			
Monitor type(s)	--			
Instrument manufacture and model	RM Young 5305 Anemometer			
Spatial scale	Neighborhood			
Monitor Start Date	03/17/2010			

Site Photos	
 Aerial view of Yuma Supersite	 Shelter and Meteorological Tower at Yuma Supersite – 11/2012

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	2010 Census Population	2010-2012 8-hr Design Value (ppb)	Design Value Site	# of Required Monitors	# of Active Monitors	# of Additional Monitors Needed
Flagstaff	Coconino	134,421	69	Flagstaff Middle School	1	1	0
Prescott	Yavapai	211,033	69	Prescott College AQD	1	1	0
Yuma	Yuma	195,751	77	Yuma Supersite	1	1	0
Lake Havasu-Kingman	Mohave	200,186	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 2a 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	2010 Census Population	2010-2012 Annual Design Value ($\mu g/m^3$)	Annual Design Value Site	2010-2012 Daily Design Value ($\mu g/m^3$)	Daily Design Value Site	# of Required Continuous Monitors	# of Active Continuous Monitors	# of Additional Continuous Monitors Needed
Flagstaff	Coconino	134,421	5.2	Flagstaff Middle School	12	Flagstaff Middle School	0	1	0
Prescott	Yavapai	211,033	4.0	Prescott Valley	9	Prescott Valley	0	1	0
Yuma	Yuma	195,751	7.8	Yuma Supersite	15	Yuma Supersite	0	1	0
Lake Havasu-Kingman	Mohave	200,186	N/A	N/A	N/A	N/A	0	0	0

Monitors required for SIP or Maintenance Plan: Nogales Post Office.

Table 2b Minimum Monitoring Requirements for continuous $PM_{2.5}$ monitors. (FEM/ARM and non-FEM, see 40CFR 58 App D Section 4.7.2)

MSA	County	2010 Census Population	2010-2012 Annual Design Value ($\mu g/m^3$)	Annual Design Value Site	2010-2012 Daily Design Value ($\mu g/m^3$)	Daily Design Value Site	# of Required Continuous Monitors	# of Active Continuous Monitors	# of Additional Continuous Monitors Needed
Flagstaff	Coconino	134,421	5.2	Flagstaff Middle School	12	Flagstaff Middle School	0	1*	0
Prescott	Yavapai	211,033	4.0	Prescott Valley	9	Prescott Valley	0	1*	0
Yuma	Yuma	195,751	7.8	Yuma Supersite	15	Yuma Supersite	0	1	0
Lake Havasu-Kingman	Mohave	200,186	N/A	N/A	N/A	N/A	0	0	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	2010 Census Population	2010-2012 Max Concentration [$\mu g/m^3$]	Max Concentration Site	# of Required Monitors	# of Active Monitors	# of Additional Monitors Needed
Flagstaff	Coconino	134,421	61	Flagstaff Middle School	0	1	0
Prescott	Yavapai	211,033	90	Prescott Valley	0	1	0
Yuma	Yuma	195,751	274	Yuma Supersite	1-2	1	0
Lake Havasu-Kingman	Mohave	200,186	185	Bullhead City	0-1	1	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	2010 Census Population	2009 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	134,421	40,500	0	0	0	0	0	0
Prescott	211,033	38,000	0	0	0	0	0	0
Yuma	195,751	37,000	0	0	0	0	0	0
Lake Havasu – Kingman	200,186	34,500	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 5. Minimum Monitoring Requirements for SO_2.

CBSA	County	2010 Census Population	2008 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	134,421	539	70	0	0	0
Prescott	Yavapai	211,033	2272	490	0	0	0
Yuma	Yuma	195,751	185	36	0	0	0
Lake Havasu – Kingman	Mohave	200,186	319	62	0	0	0

[1]Using 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

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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	2010 Census Population	# of Required Near-Road Monitors	# of Active Near-Road Monitors	# of Additional Monitors Needed
Flagstaff	134,421	0	0	0
Prescott	211,033	0	0	0
Yuma	195,751	0	0	0
Lake Havasu – Kingman	200,186	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 Monitoring Requirements for Pb at NCore.

NCore Site	CBSA	2010 Census Population	# of Required Monitors	# of Active Monitors	# of Additional Monitors Needed
JLG Supersite	Phoenix–Mesa–Scottsdale	4,192,887	1	1	0

Table 7b. Source-Oriented Pb Monitoring (including airports)

Source Name	Address	Pb Emissions (tons per year)	Emission Inventory Source & Data Year	Max 3-Month Design Value* [µg/m^3]	Design Value Date (third month, year)	# of Required Monitors	# of Active Monitors	# of Additional Monitors Needed
ASARCO LLC	--	3.87	ADEQ 2011	0.27	June, 2011	1	1	0
Freeport McMoRan Copper and Gold Inc.	--	4.87	ADEQ 2011	0.06	April, 2011	1	1	0

*consider data from the past 3 years.
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 contains two letters to EPA. The first letter is regarding ADEQ Request for Relocation of the Payson Well Monitor on the Same Site. The second letter is ADEQ Request for Siting Criteria Waivers at JLG Supersite and Prescott College sites.

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janice K. Brewer
Governor

Henry R. Darwin
Director

October 1, 2013

Deborah Jordan, Air Division Director
U.S. Environmental Protection Agency, Region 9
Air-1
75 Hawthorne Street
San Francisco, CA 94105

Subject: ADEQ Request for Relocation of the Payson Well Monitor on the Same Site

Dear Ms. Jordan:

The Arizona Department of Environmental Quality (ADEQ) is submitting the Arizona Air Monitoring Network Plan for the Year 2013. There is one site that does not meet the requirement for unrestricted airflow as specified in 40 CFR Part 58 Appendix E. This letter is to request EPA approve for the relocation of the Payson Well monitor placement to another location on the same property. Below is information that ADEQ has considered in the determination that the new monitoring site would better meet the required siting criteria.

The Payson Well site was established in 1991, and currently monitors PM_{10} and meteorological wind, temperature, and relative humidity. There have been several structural changes at the Payson Well site that are limiting airflow around the PM_{10} monitor. These include construction of new buildings and growth of trees. ADEQ met with the site manager to determine a more suitable location. ADEQ is requesting approval by EPA Region 9 for the relocation of the current PM_{10} monitoring location (lat: 34.2294; long: -111.3297) to a parcel 90 meters to the east at location (lat: 34.2296; long: -111.3295). The PM_{10} monitoring will remain on the same property while better meeting the required siting criteria. The AQS Site ID and Site Name will remain the same. Please see Figure 1 and Figure 2 below for aerial photographs of the site relocation schematic.

We appreciate the effort by EPA in the review of this request for relocation of the Payson Well site monitor to better meet siting requirements and provide unrestricted air flow. If you have any questions, please contact Theresa Rigney at (602) 771-2274.

Sincerely,

Eric C. Massey, Director
Air Quality Division

cc: Meredith Kurpius, USEPA, Region 9
Michael Flagg, USEPA, Region 9
Theresa Rigney, ADEQ

Figure 1 Aerial photograph of current PM_{10} monitor location at Payson Well Site

Figure 3.3-2 Google Earth Image of the proposed PM_{10} monitor location at Payson Well Site

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October 1, 2013

Deborah Jordan, Air Division Director
U.S. Environmental Protection Agency, Region 9
Air-1
75 Hawthorne Street
San Francisco, CA 94105

Subject: ADEQ Request for Siting Criteria Waivers
JLG Supersite and Prescott College sites

Dear Ms. Jordan:

The Arizona Department of Environmental Quality (ADEQ) is submitting the Arizona Air Monitoring Network Plan for the Year 2013. There are two sites that do not meet the distance from the nearest road or distance from trees requirements as specified in 40 CFR Part 58 Appendix E. This letter is to request EPA to waive these two monitoring site requirements for the JLG Supersite and Prescott College air monitoring sites. Below is information that ADEQ has considered in the determination that these two monitoring sites are as representative as they would be if the siting criteria were being met.

JLG Supersite

The JLG Supersite was established in 1993 in a central Phoenix neighborhood. Today, after 20 years, the site remains largely the same. Monitors and inlets are located on the roof of the shelters, while temperature sensitive analyzers and data loggers are inside the air-conditioned shelters. The neighboring houses remain largely the same except for the trees in the yards adjacent to the site.

The required distance from trees to probe is >10 meters. There are now tree drip lines within 10 meters on 3 sides of the site shelter. The SO_2, O_3, and NO_2 inlets are 9 meters from the closest tree drip line. ADEQ has found that these monitor probes cannot reasonably be located so as to meet the siting criteria because of the physical constraints of the site.

The requirement from roadways to probe is listed in Table 5 by pollutant. While the entrance to the site shelters is 12 meters from the nearest roadway (17^{th} Ave.), the $PM_{2.5}$ monitor inlet is slightly less than 10 meters to that roadway. The Average Daily Traffic count of 17^{th} Avenue is < 500, much lower than the graphs or tables that have categories of <10,000 ADT as the lowest level. These two factors; low ADT of the adjacent road and the probe just outside the 10 meter requirement; are not believed to impact the monitoring representativeness.

The JLG Supersite has monitors for NAAQS (CO, NO_2, O_3, SO_2, Pb, PM_{10}, $PM_{2.5}$), NCore, PAMS, NATTS, Toxics, IMPROVE, and meteorology. The cost of site relocation would be substantial.

ADEQ has reviewed several options. Based on the long standing historical trends, the lack of cost benefit for moving the site, the constraints of the site for modification of the probes, the low ADT of the adjacent road, and that the probes location is just shy of the required distances for trees and distance from roads: ADEQ is requesting a siting criteria waiver from EPA for the placement of the $PM_{2.5}$, SO_2, O_3, and NO_2 monitoring instruments located at JLG Supersite regarding the distance to road and distance from tree line siting criteria listed in 40CFR Part 58 Appendix E.

Prescott College

The Prescott College AQD site was established in December of 2006. The O_3 monitor is not meeting the siting criteria for distance to roadway; the inlet is 8 meters west of Grove Ave., the height of the inlet makes the distance to the road 10 meters. In 2011, Grove Ave. had an ADT of 17,650 thus requiring a 20 meter minimum distance from the inlet to the road.

ADEQ had previously worked to relocate the monitor but has not been able to secure a comparable site location that better meets the siting criteria. Relocating the monitor at the current site is also not a possibility as the building houses the multiple Prescott College laboratories. The laboratory the instrument is currently located is associated with air sciences.

ADEQ is requesting a siting criteria waiver from EPA for the placement of the ozone monitoring instrument located at the Prescott College with regarding the distance to road siting criteria listed in 40CFR Part 58 Appendix E.

We appreciate the effort by EPA in the review of this waiver requests for air monitoring siting. If you have any questions, please contact Theresa Rigney at (602) 771-2274.

Sincerely,

Eric C. Massey, Director
Air Quality Division

cc: Meredith Kurpius, USEPA, Region 9
Michael Flagg, USEPA, Region 9
Theresa Rigney, ADEQ