State of Arizona Air Monitoring Network Plan

For the Year 2007

Arizona Department of Environmental Quality
Air Quality Division
Air Assessment Section

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Table of Contents

1.0 INTRODUCTION 3
2.0 PROGRAM AND NETWORK DESCRIPTIONS 4
3.0 MONITORING NETWORK EVALUATION 7
3.1 NETWORK CHANGES 7
4.0 REQUIRED MONITORING 11
4.1 EPA MINIMUM NETWORK REQUIREMENTS 11
4.2 EPA MINIMUM SAMPLE FREQUENCY 12
4.3 ADEQ MINIMUM NETWORK STATUS 12
4.4 ADEQ NON-ATTAINMENT AND MAINTENANCE AREA MONITORING ACTIVITY 17
4.5 SOURCE COMPLIANCE NETWORK 18
4.6 COMPLIANCE WITH 40CFR 58.10 (c) 18
5.0 MONITORING PLAN QUALITY ASSURANCE 20
5.1 CFR PART 58 APPENDIX A QUALITY ASSURANCE REQUIREMENTS 20
5.2 QUALITY SYSTEM REQUIREMENTS 20
5.3 MEASUREMENT QUALITY CHECKS – PRECISION MEASUREMENTS 20
5.4 MEASUREMENT QUALITY CHECKS – ACCURACY MEASUREMENTS 21
5.5 CALCULATIONS AND REPORTING 23
5.6 AMBIENT AIR QUALITY METHODOLOGY 23
6.0 PROPOSED 2007-2008 COMPLIANCE MONITORING NETWORK 26
7.0 ADEQ SUPPLEMENTARY NETWORKS 27
7.1 CLASS I VISIBILITY NETWORK 28
7.2 URBAN HAZE NETWORKS 29
7.3 METEOROLOGY NETWORK 30
APPENDIX A DEFINITIONS AND ABBREVIATIONS 32
APPENDIX B NETWORK MAPS 33
APPENDIX C SITE REVIEW DATA TABLES 40
APPENDIX D SITE CROSS REFERENCE IN NAME ORDER 108

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 U.S. Environmental Protection Agency an annual network monitoring plan for the year 2007.

40 CFR, Part 51 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 C contains 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 multi-pollutant monitoring stations (NCore)
- Photochemical Assessment Monitoring Stations (PAMS)
- Speciation Trends Network (STN)
- National Air Toxics Trends Sites (NATTS)
- Special Purpose Monitors (SPM)
- Urban Haze monitoring sites
- Interagency Monitoring of PROtected Visual Environments (IMPROVE)
- ADEQ visibility stations located in or near mandatory Class I areas (national parks, wilderness areas). Class I monitoring sites are subject to specific siting and operational guidance developed by the IMPROVE Steering Committee
- 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 PSD (Prevention of Significant Deterioration) 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

Results of the annual network review and planning are used to determine how well the network is achieving its required air monitoring objectives, how well it meets data users' needs, and how it 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 its objectives and data needs. The network review and planning are performed for the purpose of improving the network and ensuring that it provides adequate, representative, and useful air quality data.

2.0 PROGRAM AND NETWORK DESCRIPTIONS

Compliance Networks

The compliance networks consist of stations operated for the purpose of demonstrating compliance with a NAAQS pollutant; compliance with CAA required monitoring such as PAMS, and conformance with special Federal grant programs the Agency accepted such as NATTS. Data collected at compliance sites are used to assess criteria pollutant concentrations, provide data used in modeling and SIP applications, track national trends, or monitor specific point-source emissions. The criteria pollutants are presently defined as sulfur dioxide (SO_2), total particulate lead (Pb), suspended particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3), nitrogen dioxide (NO_2), and carbon monoxide (CO). The criteria pollutants are measured with instruments meeting EPA certification as Federal Reference or Equivalent Methods.

SIP and Maintenance Area Networks

ADEQ maintains several air monitoring networks for the purpose of tracking compliance in areas that are currently not attaining a NAAQS or in an area where the NAAQS has been met and on-going demonstration of compliance is required. Monitoring requirements for these areas are described in their specific State Implementation Plans (SIPs).

NCore

NCore sites are required under 40CFR, Part 58, Appendix C. The plan for establishing required NCore multipollutant stations shall be submitted to the Administrator not later than July 1, 2009, and shall provide for all required stations to be operational by January 1, 2011. The sites are planned for large metropolitan areas and are generally required at a rate of one site per state. NCore is basically an extension of the current air monitoring networks, but with an opportunity to address new directions in air monitoring, and to begin filling measurement and technological gaps that have accumulated over the years. Emphasis is placed on a backbone of multi-pollutant sites, continuous monitoring methods, and important pollutants over and above the criteria pollutants, for example, ammonia, and reactive nitrogen compounds (NOy). When completed, NCore will meet a number of important needs: improved data flow and timely reporting to the public, NAAQS compliance determinations, supporting development of emissions strategies, assuring accountability for control programs, and supporting scientific and health-based studies. The ADEQ JLG Supersite in Phoenix is anticipated to be the Arizona NCore site.

National Air Toxics Trend Sites (NATTS)

The NATTS network was designed to document the concentration of certain air toxics on a national scale. ADEQ accepted Federal funding and responsibility for this program in 2003. Data from EPA's national monitoring activities will establish an estimate of national average concentrations for these air toxics compounds, allow EPA to evaluate the need for new National Ambient Air Quality Standards (NAAQS), and establish associated limits. Data from sites in this trends network will be used to identify the probability that long-term changes or trends in ambient air concentrations are occurring. Using this information, EPA, states, and local agencies can estimate changes in the risks of human exposure. These changes can then be used to anticipate changes in environmental policy and to establish a regulatory stance. As part of the overall National Air Toxics Assessment (NATA) process, ambient air quality data are important to help assess the national toxics inventory and long-term hazardous air pollutant (HAP) trends.

Photochemical Assessment Monitoring Stations (PAMS)

Section 182(c)(1) of the 1990 Clean Air Act Amendments required the Administrator to promulgate rules for the enhanced monitoring of ozone, oxides of nitrogen (NOx) and volatile organic compounds (VOCs) to obtain more comprehensive and representative data on ozone air pollution. Immediately following the promulgation of those rules, the affected states were to begin actions necessary to adopt and implement a program to improve ambient monitoring activities and the monitoring of emissions of NOx and VOCs. Each state implementation plan (SIP) for the affected areas must contain commitments to implement the appropriate ambient monitoring network for such air pollutants. The subsequent revisions to 40 CFR 58 (1993) required states to establish photochemical assessment monitoring stations (PAMS) as part of their SIP monitoring networks in ozone nonattainment areas

classified as serious, severe or extreme. The principal reasons for requiring the collection of additional ambient air pollutant and meteorological data are the widespread nonattainment of the ozone NAAQS and the need for a more comprehensive air quality database for ozone and its precursors.

PM2.5 Speciation Trends Network (STN)

The STN was established to meet the regulatory requirements for monitoring PM2.5 to determine the chemical composition of these particles. There are approximately 54 STN sites across the nation, as well as additional SLAMS speciation sites. The purpose of the network is to determine, over a period of several years, trends in concentration levels of selected ions, metals, carbon species, and organic compounds in PM2.5. Locations are primarily in or near larger Metropolitan Statistical Areas (MSAs). ADEQ operates one STN speciation sampler at the JLG Supersite. Two IMPROVE samplers are also operated at the JLG Supersite for the purpose of providing precision information for the IMPROVE network and to make comparisons between the speciation results from both programs.

Semi-continuous PM2.5 Speciation Network (PM2.5 grant)

ADEQ is a participant in an EPA pilot study of semi-continuous speciation monitors being evaluated at five Speciation Trends Network (STN) sites in the United States. The pilot study began early in 2002 with newly established monitoring in Seattle, Washington; Phoenix, Arizona; Houston, Texas; Chicago, Illinois; and Indianapolis, Indiana. The goals of the pilot study are to assess the operational characteristics and performance of semi-continuous carbon, nitrate, and sulfate monitors for routine application at STN sites; to work with the pilot participants and the vendors to improve the measurement technologies used; and to evaluate the use of an automated data collection and processing system for real time display and reporting. ADEQ currently operates a Sunset Labs OC/EC carbon analyzer and 8400 Nitrate analyzer.

Source Oriented Networks

Historically, ADEQ has required several of the major point sources in the state to conduct ambient monitoring for criteria pollutants in and around specific facilities. These monitoring networks constitute a subset of the compliance monitoring network described above. ADEQ activities with respect to these networks have been limited to regular performance audits and review of ambient data. Recently, however, SIP support has required the submittal of data to AQS.

Urban Haze Networks

ADEQ operates an urban haze network in the Phoenix metropolitan area and provides funding for operation of the Tucson area network by the Pima Department of Environmental Quality. The purpose of the networks is to provide policy-makers and the public with information regarding urban haze levels; track short-term and long-term urban haze trends; assess source contributions to urban haze; and better evaluate the effectiveness of air pollution control strategies on urban haze. Equipment used to evaluate urban visibility includes transmissometers, nephelometers, aethalometers, particulate monitors, and digital camera systems.

Class I Area Network and IMPROVE Program

Visibility monitoring networks track impairment in specified national parks and wilderness areas. These parks and wilderness areas are called Class I Areas and were designated based on an evaluation required by Congress in the 1977 federal Clean Air Act Amendments. The evaluation which was performed by the U.S. Forest Service (USFS) and National Park Service (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 have visual air quality as an important resource for visitors. Of the 156 Class I Areas designated across the nation, 12 are located in Arizona. From the Class I Area designations, EPA initiated a nationally-operated monitoring network in 1987 called the IMPROVE program. The purpose of the IMPROVE network is to characterize broad regional trends and visibility conditions using monitoring data collected in or near Class I Areas across the United States.

AIRNOW Reporting

ADEQ currently utilizes four urban nephelometers to approximate and report $PM_{2.5}$ data to the AIRNOW Web site to provide near real-time data for public use. The $PM_{2.5}$ value is calculated by applying a correlation developed between the nephelometer and filter-based measurements. The program is voluntary and was originally intended to fill gaps in the AIRNOW network until actual continuous methods were available.

Meteorological Network

ADEQ collects meteorological data at sites throughout the state to provide weather information for those air quality monitoring sites not located near official weather-observing equipment.

3.0 MONITORING NETWORK EVALUATION

This section provides a description of the current air monitoring network and identifies monitors that are mandatory through the revised monitoring regulations, a SIP, a maintenance plan, or other grant requirement (such as NATTS) and also evaluates the status of the network in comparison to the revised monitoring rules. Recommendations are made regarding site possible additions as well as those that can be closed. Section 3.1 provides a brief discussion of monitors that were closed at the end of 2006 or will be closed in 2007. Section 3.1 also includes a description of new sites or monitors that will be implemented in 2007 or early 2008. The site closures and additions are also provided in Table 3.1-1.

3.1 Network Changes

Closures

NOx Monitors

Alamo Lake (SPM) – NOx monitoring concluded after the 2006 season. ADEQ determined that an adequate NOx record was collected during the 2005 and 2006 ozone seasons. Ozone monitoring will continue in 2007.

Tonto National Monument (SPM) – Trace level reactive NOx was discontinued after the 2006 ozone season. ADEQ has collected trace level NOx data at this site since 2000 and a determination was made that an adequate data record is in place. Ozone monitoring will continue in 2007.

Yuma Game & Fish (SPM) – NOx monitoring will conclude at the close of the WASBAQS study in late April 2007. An adequate data record has been collected over the past 2 years. Ozone monitoring will continue in 2007.

PM_{10} Monitors

Hayden Jail (SPM) – Continuous PM_{10} monitoring will conclude in December 2007. The monitor was placed at the request of the EPA and EPA's contractor. ADEQ has agreed to operate the site for an additional year.

Safford (SLAMS) – PM_{10} filter-based sampling will be discontinued December 31, 2007. The Safford monitoring site is not required by EPA regulation. A lengthy data record (20 years) shows compliance with PM_{10} NAAQS. ADEQ has conducted analysis according to 40CFR 58.14(c)(1) and found that the monitor has less than a 10 percent chance of exceeding the NAAQS and is eligible for closure according to the regulation (the 90% Confidence Level is 91 $\mu g/m^3$, which is less than 80% of the NAAQS, or 120$\mu g/m^3$). The site is no longer necessary to demonstrate NAAQS compliance and resources could be applied in other locations.

Sedona Post Office (SPM) – PM_{10} filter-based sampling will be discontinued December 31, 2007. The Sedona Post Office monitoring site is not required by EPA regulation. The Flagstaff monitor is adequate to represent the MSA and also is in a larger population setting with higher emissions. A lengthy data record shows compliance with NAAQS. The site is no longer necessary to demonstrate NAAQS compliance and resources could be applied in other locations. ADEQ is currently conducting continuous PM_{10} monitoring at Sedona Post Office with a non-reference method to investigate prescribed fire and wildfire impacts. The system can also provide near real-time information to the public.

Show Low (SLAMS) – PM_{10} filter-based sampling will be discontinued December 31, 2007. The Show Low monitoring site is not required by EPA regulation. A lengthy data record shows compliance with NAAQS. The site is no longer necessary to demonstrate NAAQS compliance and resources could be applied in other locations. ADEQ has conducted analysis according to 40CFR 58.14(c)(1) and found that the monitor has less than a 10 percent chance of exceeding the NAAQS and is eligible for closure according to the regulation (the 90% Confidence Level is 58$\mu g/m^3$, which is less than 80% of the 24-hour NAAQS, or 120$\mu g/m^3$). In mid-2007 a continuous, non-reference method, PM_{10} monitor will be installed at the site to investigate prescribed fire and wildfire impacts. The system can also provide near real-time information to the public.

$PM_{2.5}$ Monitors

Payson Well Site (SLAMS) – $PM_{2.5}$ measurement will be discontinued December 31, 2007. The site is not required by EPA regulations and an adequate record exists to demonstrate compliance with the NAAQS. ADEQ has conducted analysis according to 40CFR 58.14(c)(1) and found that the monitor has less than a 10 percent chance of exceeding the NAAQS and is eligible for closure according to the regulation (for the 24-Hour NAAQS, the 90% Confidence Level is 24µg/m^3, which is less than 80% of the NAAQS, or 28µg/m^3; for the annual NAAQS, the 90% Confidence Level is 10µg/m^3, which is less than 80% of the NAAQS, or 12µg/m^3). PM_{10} sampling will continue to support the current state implementation plan for the area (SIP).

SO_2 Monitors

San Manuel (SLAMS) – ADEQ proposes to close the San Manuel SO_2 monitoring site effective December 31, 2007. Federal regulations at 40 CFR 58.14 allows sites to be closed under specific circumstances. ADEQ believes that the closure of the San Manuel SO_2 site meets these criteria. Specifically, the option under 40 CFR 58.14(c)(3) allows for discontinuation of a monitor within an attainment, nonattainment, or maintenance area, "…provided the monitor has not measured violations of the applicable NAAQS in the previous five years, and the approved SIP provides for a specific, reproducible approach to representing the air quality of the affected county in the absence of actual monitoring data." This position is supported with the information provided below.

Monitoring data for 2002 through 2006 indicate that maximum ambient concentrations were three percent or less of the NAAQS for the 3-hour standard; five percent or less of the NAAQS for the 24-hour standard; and less than seven percent of the NAAQS for the annual standard. Following the shutdown of the San Manuel ambient SO_2 monitor, ADEQ will continue to demonstrate attainment and maintenance of the SO_2 NAAQS through updates to the emissions inventory as described in *Final Arizona State Implementation Plan Revision, San Manuel Sulfur Dioxide Nonattainment Area, March 2007* (SIP). Analyses contained in the SIP demonstrate that, although there were other sources of SO2 emissions, the San Manuel copper smelter, which permanently closed in 2005, was the primary emissions source in the nonattainment area and comprised more than 99.5 percent of total emissions while it was operating. The more than 99 percent emissions reduction due to the closure of the smelter corresponds to a greater than 92 percent reduction in 3-hour average and 24-hour average ambient SO_2 concentrations.

With the permanent closure of the San Manuel smelter, no major point sources exist in the nonattainment area. Sulfur dioxide emissions in 2017 are projected to be less than 0.5 percent of 1997 and 1998 total nonattainment area emissions, a period in which the San Manuel smelter was operating full time. Arizona does not anticipate any substantial increase in existing point source emissions between 2005 and 2017 for the nonattainment area. Should any growth occur due to construction of additional SO_2 point sources, the ADEQ, Pinal County Air Quality Control District, and Pima County Department of Environmental Quality permit programs limit all emissions as part of construction of new point sources or upgrading of existing sources. ADEQ commits to re-establish an appropriate network before any major source of SO_2 begins operations in the San Manuel planning area.

PAMS Monitors

South Phoenix – PAMS (VOC and Carbonyl) monitoring concluded at the close of the 2006 PAMS season. Refer to Section 6.0 of this document or the 2007 PAMS plan for a detailed description of the network. Maricopa County will continue to operate ozone at the site. Beginning July 2, 2007, ADEQ will begin regular toxics sampling at the South Phoenix site using canister samples analyzed using EPA Method TO-15. Sample collection frequency will be every 12th day.

New Sites

Flagstaff Area Ozone **–** According to the site assessment for ozone, conducted in Section 4.3, the addition of an ozone site is required in the Flagstaff MSA to meet the EPA minimum monitoring requirements. ADEQ will investigate the possibility of adding ozone monitoring in the Flagstaff MSA with the target of completion by April 1, 2008.

Prescott Area Ozone **-** According to the MSA assessment for ozone, conducted in Section 4.3, the addition of an ozone site is required in the Prescott MSA to meet the EPA minimum monitoring requirements. ADEQ will

investigate the possibility of adding ozone monitoring in the Prescott MSA with the target of completion by April 1, 2008.

Prescott Area $PM_{2.5}$ – According to the MSA assessment for $PM_{2.5}$, conducted as described in Section 4.3, the addition of a $PM_{2.5}$ site is warranted in the Prescott MSA to evaluate pollutant concentrations in the MSA. Without historical $PM_{2.5}$ data available for the MSA, ADEQ is unable to effectively evaluate the need for monitoring in the Prescott area. ADEQ will operate a Special Purpose $PM_{2.5}$ sampler in the Prescott area during 2008 for a period of 24 months to evaluate concentrations there. Future grant funding levels for the $PM_{2.5}$ program will dictate the feasibility of adding this monitor.

Yuma Area $PM_{2.5}$ – According to the MSA assessment for $PM_{2.5}$, conducted in Section 4.3, the addition of a $PM_{2.5}$ site is warranted in the Yuma MSA to evaluate pollutant concentrations in the MSA. Without historical data in the MSA, ADEQ is unable to effectively evaluate the EPA minimum monitoring requirements. ADEQ will operate a Special Purpose $PM_{2.5}$ sampler in the Yuma area during 2008 for a period of 24 months to evaluate concentrations there. Future grant funding levels for the $PM_{2.5}$ program will dictate the feasibility of adding this monitor.

Table 3.1-1 Monitors Closed in 2006-07

Site Name	AQS ID	Classification	Scale	Objective	Parameter(s) Measured	Reported to AQS	Reason for Monitor
Alamo Lake	04-012-8000	SLAMS	Regional	Transport	NO_X	Yes	Concurrent reading with ozone
Hayden Old Jail	04-007-1001	SPM	Neighborhood	Source Impact	Continuous PM_{10}	Yes, at end of study	Support EPA study
Payson - Well Site	04-007-0008	SLAMS	Neighborhood	Population	$PM_{2.5}$	Yes	General population exposure
Safford	04-009-0001	SLAMS	Neighborhood	Population	PM_{10}	Yes	General population exposure
Sedona – Post Office	04-005-1010	SPM	Neighborhood	Population	PM_{10}	Yes	General population exposure
San Manuel	04-021-2001	SLAMS	Neighborhood	Population	SO2	Yes	General population exposure
Show Low	04-017-0007	SLAMS	Neighborhood	Population	PM_{10}	Yes	General population exposure
Tonto National Monument	04-007-0010	SLAMS	Regional	Downwind Concentration	NO_y	No	Ozone research and forecasting
		SLAMS	Regional	Downwind Concentration	NO_{tl}	Yes	Ozone research and forecasting
Yuma - Game and Fish	04-027-0006	SLAMS	Neighborhood	Max Conc.	NO_X	Yes	General population exposure

Table 3.1-2 Monitors to be Added 2007- 08

Site Name	AQS ID	Classification	Scale	Objective	Parameter(s) Measured	Report to AQS	Reason for Monitor
Prescott Valley (MSA)	04-025-2002	SPM	Neighborhood	Population	$PM_{2.5}$	Yes	Rule Required – MSA
Prescott MSA	n/a	SPM	Neighborhood	Population	Ozone	Yes	Rule Required – MSA
Flagstaff MSA	n/a	SPM	Neighborhood	Population	Ozone	Yes	Rule Required – MSA
Yuma Courthouse	04-027-0004	SPM	Neighborhood	population	$PM_{2.5}$	Yes	Rule Required – MSA

4.0 REQUIRED MONITORING

4.1 EPA Minimum Network Requirements

Minimum monitoring activities required by the revised monitoring regulation are described in 40 CFR Part 58, Appendix D. The minimum monitoring requirements are based upon Metropolitan Statistical Areas (MSA) and Combined Statistical Areas (CSA) as defined in the most recent decennial census and the historical pollutant concentration in that area relative to the NAAQS. In the revised monitoring rule, EPA removed minimum requirements for carbon monoxide, sulfur dioxide, nitrogen oxide, and lead. Tables 4.1-1 through 4.1-3, shown below, list the minimum monitor requirements for $PM_{2.5}$, PM_{10}, and Ozone, respectively.

Table 4.1-4 illustrates the Arizona MSAs and their respective populations as defined in the 2000 census. Arizona does not have any defined CSAs.

Table 4.1-1 $PM_{2.5}$ Monitoring Requirements (SLAMS)

Population (MSA)	Most recent 3 yr design value ≥ 85% NAAQS	Most recent 3 yr design value <85% NAAQS
>1M	3	2
500K-1M	2	1
50K-500K	1	0

Table 4.1-2 PM_{10} Monitoring Requirements (SLAMS)

Population (MSA)	High Concentration Exceeds NAAQS by 20% or more (>180µg/m^3)	Medium Concentration Exceeds 80% of NAAQS (>120µg/m^3)	Low Concentration Less than 80% NAAQS (<120 µg/m^3)
>1M	6-10	4-8	2-4
500K-1M	4-8	2-4	1-2
250K-500K	3-4	1-2	0-1
100K-250K	1-2	0-1	0

Table 4.1-3 Ozone Monitoring Requirements (SLAMS)

Population (MSA)	Most recent 3 yr design value ≥ 85% NAAQS	Most recent 3 yr design value <85% NAAQS
>10M	4	2
4-10M	3	1
350K-4M	2	1
50K-350K	1	0

Table 4.1-4 Arizona MSAs as of 2000 census

MSA Name	Area included	Population
Phoenix – Mesa – Scottsdale	Maricopa & Pinal Counties	3,251,876
Tucson	Pima County	843,746
Prescott	Yavapai County	167,517
Yuma	Yuma County	160,026
Flagstaff	Coconino County	116,320

4.2 EPA Minimum Sample Frequencies

$PM_{2.5}$

§58.12 (d)(1) states that manual $PM_{2.5}$ samplers at SLAMS stations must operate on at least a 1-in-3 day schedule at sites without a collocated continuously operating $PM_{2.5}$ monitor. For SLAMS $PM_{2.5}$ sites with both manual and continuous $PM_{2.5}$ monitors operating, the monitoring agency may request approval from the EPA Regional Administrator for a reduction to 1-in-6 day $PM_{2.5}$ sampling at SLAMS stations or for seasonal sampling. The EPA Regional Administrator may grant sampling frequency reductions after consideration of factors including, but not limited to, the historical $PM_{2.5}$ data quality assessments, the location of current $PM_{2.5}$ design value sites, and their regulatory data needs. Sites that have design values that are within plus or minus 10 percent of the NAAQS (±10% of 35µg/m^3 is 31.5-38.5) and sites where the 24-hour values exceed the NAAQS for a period of 3 years are required to maintain at least a 1-in-3 day sampling frequency. Sites that have a design value within plus or minus 5 percent of the daily $PM_{2.5}$ NAAQS (±5% of 35µg/m^3 is 33.25-36.75) must have an FRM or FEM operating on a daily schedule. ADEQ will not alter any $PM_{2.5}$ sample frequencies until resolution of the network configuration is made.

Table 4.2-1 $PM_{2.5}$ Sampling Frequencies

Site Name	3-Year Average of 98th percentile 2003-2005	Current Sample Frequency	Historical Sample Frequency	New Required Frequency
Douglas Red Cross	16.7	1 in 6	1 in 6	1 in 3
Flagstaff Middle School	16.8	1 in 6	1 in 6	1 in 3
Payson Well Site	22.4	1 in 6	1999-2001 1 in 3	1 in 3
JLG Supersite	26.7	1 in 3	1999-2000 Daily	1 in 3
Nogales Post Office	31.0	1 in 6	1 in 6	1 in 3

PM_{10}

The monitoring rule at §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 does not currently operate any PM_{10} monitoring sites with a stated objective of recording maximum concentration. The PM_{10} monitoring conducted is generally neighborhood scale with the intent of documenting general population exposure. Therefore, no changes to sample collection frequency are needed.

4.3 ADEQ Minimum Network Status

40 CFR 58.13(b) allows for new network minimum monitoring requirements to be met by January 1, 2008. The sections below address the minimum requirements for MSAs under the jurisdiction of ADEQ: Flagstaff MSA, Yuma MSA, and Prescott MSA. Monitoring in the Maricopa-Pinal MSA and Tucson MSA will be addressed by Maricopa, Pinal, and Pima counties in their respective monitoring plans.

$PM_{2.5}$

According to Tables 4.1-1 and 4.1-4, the minimum $PM_{2.5}$ monitoring network for Arizona, excluding Maricopa, Pinal and Pima Counties, must consider sites in the Prescott, Yuma, and Flagstaff MSAs. Each MSA has a population in the 50K-500K category. Table 4.3-1 describes concentrations as a $PM_{2.5}$ design value for current and historical sites operated by ADEQ. The following section reviews current monitoring locations and evaluates potential needs under the monitoring rules.

Table 4.3-1 $PM_{2.5}$ Design Values

$PM_{2.5}$ Concentrations (µg/m^3) Most Recent 3-Year Design Value for 24-Hour Averages (85% NAAQS is 29.75)		
Site	**MSA Represented**	**Value**
Nogales (2003-2005)	None – Santa Cruz County	31.0
Phoenix JLG Supersite (2003-2005)	Phoenix MSA	26.7
Yuma (1998-2000)	Yuma MSA	25.6
Payson (2003-2005)	None – Gila County	22.4
Flagstaff Middle School (2003-2005)	Flagstaff MSA	16.8
Douglas (2003-2005)	None – Cochise County	16.7
Clarkdale-School (1998-2000)	Prescott MSA	6.6

ADEQ operates a federal reference method filter-based $PM_{2.5}$ sampler in the Flagstaff MSA but not in the Yuma or Prescott MSAs.

Yuma MSA (Yuma County) – Historical dichotomous filter data can be used to estimate a design value for the Yuma MSA. ADEQ operated a dichotomous PM sampler at the Yuma County Courthouse for a number of years prior to replacing the samplers with newer equipment in 2001 which measured only PM_{10}. The period evaluated is 1998-2000 and indicates a design value of 25.6µg/m^3, which is less than 85% of the NAAQS. Because the data were collected 7 years ago and the nature of the area may have changed, ADEQ plans to operate a Special Purpose $PM_{2.5}$ monitor at the Yuma Courthouse site starting in January 2008 to evaluate $PM_{2.5}$ concentrations. Sampling will be conducted for a period of approximately 24 months.

Prescott MSA (Yavapai County) - Historical dichotomous filter data can be used to estimate a design value for the Prescott MSA. ADEQ operated a dichotomous sampler at the Clarkdale School until 2000 when the site was permanently closed. The period evaluated 1998-2000 and indicates that the design value of 6.6µg/m^3 which is significantly less than 85% of the NAAQS. Because the data were collected 7 years ago and the Clarkdale site may not adequately represent the Prescott MSA, ADEQ plans to operate a Special Purpose $PM_{2.5}$ sampler at the Prescott Valley site starting in January 2008 to evaluate $PM_{2.5}$ concentrations. Sampling will be conducted for a period of approximately 24 months.

In addition to the sites described above, ADEQ currently operates a $PM_{2.5}$ sampler at and the mountain community of Payson. This monitoring activity was described in detail in the 1999 Arizona PM monitoring plan submitted to EPA Region IX (Particulate Matter $PM_{2.5}$ & PM_{10} National Ambient Air Quality Standards NAAQS Monitoring Networks: The 1999 Arizona Plan Description). The plan described the purpose and necessity of this site based upon historical concentrations, meteorology, and knowledge of emission characteristics of the areas. As described in Section 3.1, ADEQ will no longer operate the Payson site because historic concentrations provide ample record of compliance with the NAAQS. Additionally, the concentrations are less than 85% of the NAAQS and they are no longer required under EPA regulations.

PM_{10}

According to Tables 4.1-2 and 4.1-4, the minimum PM_{10} monitoring network for Arizona, excluding Maricopa, Pinal and Pima Counties, must consider sites in the Prescott, Yuma, and Flagstaff MSAs. The Prescott, Yuma, and Flagstaff MSAs fall under the 100K-250K population category for PM_{10} monitoring. The following section reviews current monitoring locations and evaluates potential needs under the monitoring regulations. ADEQ currently operates one or more reference method filter-based PM_{10} samplers in each MSA.

Prescott MSA (Yavapai County) - ADEQ currently operates a reference method PM_{10} sampler at Prescott Valley. The maximum value recorded over the last three years of operation is 56 µg/m^3, approximately 37% of the

NAAQS. Therefore, the site is considered a low category as described in Table 4.1-2 and the single monitoring site at Prescott Valley is adequate to meet the rule requirement.

Yuma MSA (Yuma County) – ADEQ Currently operates a reference method PM_{10} sampler at the Yuma Juvenile Center (Courthouse). The site is also required under the current SIP Maintenance Plan described in additional detail in section 4.3 of this document. Maximum concentrations recorded over the past three years are less than 80% of the NAAQS. Therefore, the area is considered to be in the low category and the single monitoring site in Yuma is adequate to meet the rule requirement.

Flagstaff MSA (Coconino County) – ADEQ currently operates two reference method PM_{10} samplers in the Flagstaff MSA, one in Flagstaff and one in Sedona. Both sites are less than 80% of the PM_{10} NAAQS. For the Flagstaff and Sedona monitors, the maximum values recorded over the last three years of operation are 43 $\mu g/m^3$ (29% of the NAAQS) and 36 $\mu g/m^3$ (24% of the NAAQS), respectively. Therefore, the sites are considered low category as described in Table 4.1-2, and a single monitoring site in the MSA is adequate to meet the rule requirement. ADEQ will continue operation of the Flagstaff PM_{10} site for the remainder of 2007.

Ozone

According to Tables 4.1-3 and 4.1-4, the minimum ozone monitoring network for Arizona, excluding Maricopa, Pinal and Pima Counties, must consider sites in the Prescott, Yuma, and Flagstaff MSAs. The Prescott, Yuma, and Flagstaff MSAs are in the 50K-350K population category. ADEQ currently operates an ozone analyzer in the Yuma MSA. Ozone monitoring is currently not conducted by ADEQ in the Prescott or Flagstaff MSAs. The section below describes historical monitoring by ADEQ and current monitoring by other entities in these MSAs.

Yuma MSA (Yuma County) - ADEQ currently operates one ozone monitor at Yuma Game and Fish. The 2004-2006 design value for the Yuma Game and Fish site is 74 ppb, or approximately 92.5% of the 8-hour ozone NAAQS. Based upon this value, the single site in Yuma is adequate to meet the minimum monitoring requirements described in Table 4.1-3.

Prescott MSA (Yavapai County) – Historically, ADEQ operated an ozone monitor at Hillside. Hillside was operated through the 2005 season with a 2003-2005 design value of 72 ppb, which exceeds 85% of the 8-hour NAAQS. The site represented upwind transport of ozone into the central Arizona and did not, by design, represent the Yavapai County population. Because an adequate data record does not exist to represent the MSA, ADEQ will add an ozone site in the Prescott area starting in the 2008 ozone season.

Flagstaff MSA (Coconino County) – ADEQ has not operated an ozone site in Coconino County. The National Park Service (NPS) has been operating an ozone site at the South Rim of the Grand Canyon since approximately 1990. The trend has generally been an increase in ozone concentrations over time. The latest data available indicate a 3 year average of the 4th high 8-hour concentration of 72 ppb in 2003-2005. This is above the 85% measure described in the Ozone Monitoring (SLAMS) table above and would indicate the necessity of an ozone site in the Flagstaff MSA. Because an adequate data record does not exist to represent the population center of the MSA, ADEQ will add an ozone site in the Flagstaff area starting in the 2008 ozone season.

Ozone Season

In accordance with 40CFR Part 58, Appendix D, Paragraph 4.1(i), the Arizona Department of Environmental Quality is requesting a modification to the ozone season defined in regulation. The specified season defined in Table D-3 of Appendix D is January through December for the State of Arizona.

ADEQ believes the appropriate ozone season for sites under our operation to be April 1 through October 31 each year. We base this upon the attached data summary from two sites operated by ADEQ, which illustrates that ozone concentrations have not historically exceeded 70 ppb during the period from October through March. See Illustration 4.3-1 below. Additionally, a 1998 EPA guidance document entitled, “Guideline for Selecting and Modifying the Ozone Monitoring Season Based on an 8-Hour Ozone Standard” supports a shorter ozone season for Arizona based upon data collected from 1990 through 1995.

The modified seasonal schedule would be applied to the following sites: Alamo Lake, Queen Valley, Yuma Game and Fish, and Tonto National Monument. The JLG Supersite would continue to operate on a January to December schedule. Upon approval of this modification, ADEQ will make appropriate corrections to the seasonal definition in the AQS database and annual monitoring plan.

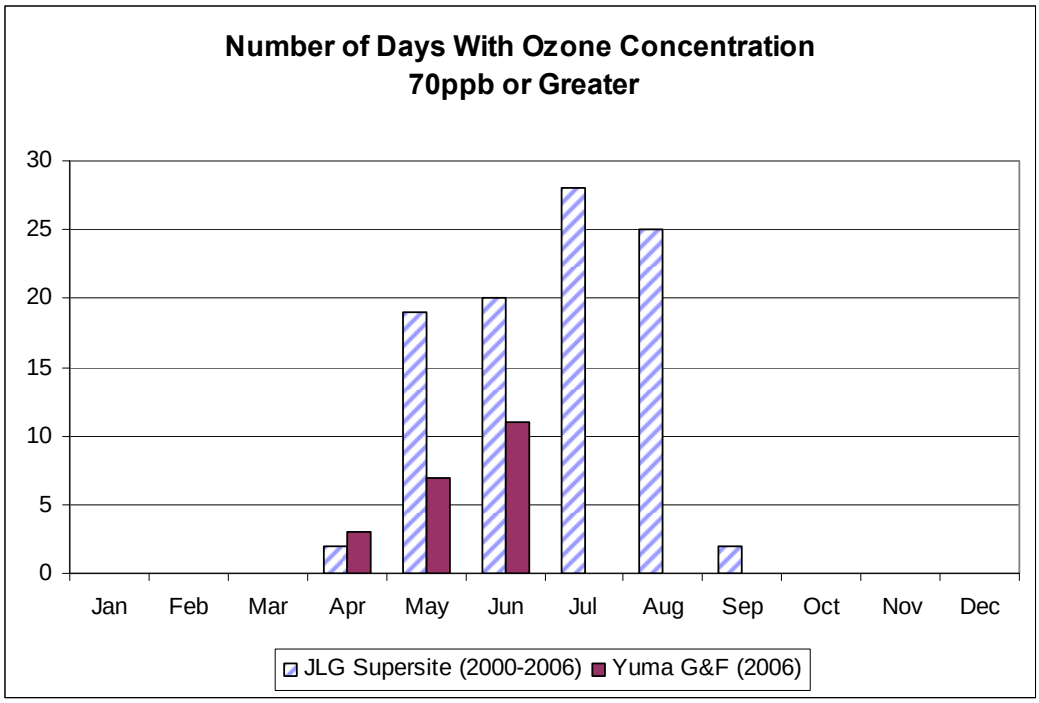


Illustration 4.3-1 – Historical Ozone Concentration

PAMS

The Arizona PAMS network consists of three ambient air monitoring sites in the Phoenix metropolitan statistical area (MSA), and a wind profiler site for the collection of upper air meteorological data. Volatile organic compound (VOC) and carbonyl samplers collect ambient air in hydrocarbon (HC) canisters and in cartridges containing silica substrate impregnated with acidified 2, 4-Dinitrophenylhydrazine (DNPH), respectively, which are routinely analyzed for chemical constituents. In 2007 ADEQ will add an automated GC/MS monitoring system for collection and analysis of PAMS data at the Phoenix JLG Supersite. The instrument will be operated by an outside contractor. ADEQ also operates ozone (O_3), oxides of nitrogen (NOx), and surface meteorological monitoring equipment at most sites. At two of the monitoring sites (Phoenix JLG Supersite and Queen Valley), additional ozone-related monitoring equipment (trace level oxides of nitrogen - NO_{TL}, total reactive oxides of nitrogen - NOy) is operated to provide more complete characterization of the atmospheric chemistry in the MSA. ADEQ will discontinue collection of PAMS VOC and carbonyl samples at the South Phoenix site and implement toxics sampling using TO-15 collected on an every 12th day schedule. Accordingly, the site will be removed from the PAMS site list. Maricopa County Air Quality Department (MCAQD) will continue operation of ozone and surface meteorological monitoring equipment at the South Phoenix site.

Type 2 - JLG Supersite: 17th Ave. & Campbell, Phoenix. The JLG Supersite was designated a PAMS site in 1999. Monitoring instrumentation at the site includes continuous GC/MS, multi-canister samplers for VOCs, multi-port carbonyl samplers, ozone, oxides of nitrogen, total reactive oxides of nitrogen, wind speed and wind direction, temperature, and relative humidity. Trace level CO will be added to the site for the 2007 season if equipment can be obtained by June 1st.

Table 4.3-2 JLG Supersite PAMS Instrumentation

Parameter	Dates	Method	Duration
VOC	6/1/07 – 8/31/07	Continuous GC	Hourly average
Carbonyl	6/1/07 – 8/31/07	Multi-port sampler	Every 6th day, 24Hr, 3 each 3hr sample (0500-0800, 0800-1100, 1100-1400)
Ozone	1/1/07-12/31/07	Continuous Ozone	Hourly average
Oxides of Nitrogen	4/1/07 – 10/31/07	Continuous NOx	Hourly average
Reactive Oxides of Nitrogen	4/1/07 – 10/31/07	Continuous NOy	Hourly average
Meteorology	1/1/07-12/31/07	Wind Seed/Direction, Temperature, RH	Hourly average

Type 3 - Queen Valley Site: 50 N. Queen Anne Drive, Queen Valley. Queen Valley was designated a PAMS site in 2001. The site is located near the southeastern edge of the photochemical modeling grid domain. Pollutants collected at the site include VOCs, ozone, and total reactive oxides of nitrogen. Carbonyl samples are not required at Type 3 sites.

Table 4.3-3 Queen Valley PAMS Instrumentation

Parameter	Dates	Method	Duration
VOC	6/1/07 – 8/31/07	Multi-port sampler	Every 6th day, 24Hr, 3 each 3hr sample (0500-0800, 1300-1600, 1600-1900)
Ozone	1/1/07-12/31/07	Continuous Ozone	Hourly average
Reactive Oxides of Nitrogen	4/1/07 – 10/31/07	Continuous NOy	Hourly average
Meteorology	1/1/07-12/31/07	Temperature, RH	Hourly average

Upper Air Meteorology Site: Vehicle Emissions Inspection (VEI) station, 600 N 40th St., Phoenix. A radar wind profiler collects continuous upper air meteorological data for determination of mixing heights. This site also includes a pyranometer to measure total solar radiation, UV solar radiation, wind speed, wind direction, temperature, and relative humidity. Barometric pressure and precipitation measurements from the National Weather Service (NWS) site at nearby Sky Harbor airport will be utilized.

Table 4.3-4 PAMS Upper Air Meteorology Site (Vehicle Emissions Inspection)

Parameter	Dates	Method	Duration
Meteorology	1/1/07-12/31/07	• Radar Acoustic Sounding System (RASS) • pyranometer (total solar radiation) • ultra-violet (UV solar) • wind speed/direction • temperature • relative humidity	Hourly average

4.4 ADEQ Non-Attainment and Maintenance Area Monitoring Activity

Table 4.4-1 lists the ADEQ and source operated monitors used to determine SIP compliance. Unless otherwise indicated, the ADEQ monitors at the SIP sites measure the pollutant indicated.

Table 4.4-1 Non-Attainment and Maintenance Monitoring Activity

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

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
Phoenix-Apache Junction, Maricopa and Pinal	O_3 8-hr	"Basic" Nonattainment	Tonto, Alamo Lake, JLG Supersite, Queen Valley
Ajo, Pima	PM_{10}	Moderate Nonattainment	ADOT Maintenance Yard (PM10, MET)
Bullhead City, Mohave	PM_{10}	Maintenance/ Attainment	Post Office
Douglas/Paul Spur, Cochise	PM_{10}	Moderate Nonattainment	Douglas Area; Red Cross Paul Spur Area; Paul Spur Site (PM10 site, MET site)
Hayden, Gila and Pinal	PM_{10}	Moderate Nonattainment	Hayden Area; Hayden Old Jail
Miami, Gila	PM_{10}	Moderate Nonattainment	Miami Area; Phelps Dodge sites: Golf Course & Ridgeline
Nogales, Santa Cruz	PM_{10}	Moderate Nonattainment	Nogales Post Office. ADEQ also operates 1 PM10 site in Nogales, Mexico (both have PM10 and MET)
Payson, Gila	PM_{10}	Maintenance/ Attainment	Payson Well Site (PM10, MET)
Phoenix, Maricopa and Pinal (Apache Junction portion) Phoenix (Salt River Area)	PM_{10}	Serious Nonattainment	Bethune JLG Supersite
Rillito, Pima	PM_{10}	Moderate Nonattainment	ADEQ:W. Water (site will change in 2007) (PM10, MET) APCC :W. Water (site will change in 2007)
Yuma, Yuma	PM_{10}	Moderate Nonattainment	Courthouse
Hayden, Gila and Pinal	*SO_2*	*Nonattainment - Primary*	*ADEQ: Hayden Old Jail* *ASARCO (5 SO2, 3 MET [no met at Jail or Garfield]): Globe Hwy, Garfield, Montgomery Ranch, Hayden Old Jail, Hayden Junction.*
Miami, Gila	*SO_2*	*Nonattainment – Primary*	*ADEQ: Ridgeline* *Phelps Dodge Miami (SO2, MET) Jones Ranch, Townsite.*
San Manuel, Pima and Pinal	*SO_2*	*Nonattainment - Primary*	*SO2 - LDS Church (proposed closure 2007)*

Area and County	Pollutant	Classification	ADEQ SIP Sites
Regional Haze, 12 Class I areas	Visibility Impairing pollutants	Statewide	Ike's Backbone Queen Valley, Saguaro NP West, Saguaro NP East, Organ Pipe Cactus NM, Tonto NM, Pleasant Valley Sycamore Canyon, Douglas Red Cross, Greer Water Treatment Plant

4.5 Source Compliance Network

Historically, ADEQ has required several of the major point sources in the state to conduct ambient monitoring for selected criteria pollutants in and around specific facilities. ADEQ activities with respect to these networks have been limited to regular performance audits and review of ambient data. Recently, ADEQ has begun to submit a portion of these data to the EPA AQS database to support SIP compliance. Sources are required to review these data and submit quality assurance documents to ADEQ with the data.

Table 4.5-1 describes the current source operated network. This monitoring plan does not intend to implement changes to these networks. The mechanism to alter these networks is through the permitting process in consultation with ADEQ's Permits and Planning Sections.

Table 4.5-1 Source Operated Monitoring Sites

Site Name	City	Pollutant(s)	AQS Submittal
PDMI - Miami Ridgeline	Miami	PM_{10}	Yes, began w/ 2003
PDMI – Golf Course	Miami	PM_{10} collocated	Yes, began w/ 2003
TEP – Springerville – Coyote hills	Springerville	NO_2/ PM_{10}/SO2	
TEP - Springerville – Coal Yard	Springerville	PM_{10}	
PCC – Clarkdale NW	Clarkdale	PM_{10}	
PCC - Clarkdale SE	Clarkdale	PM_{10}	
PRAXAIR – Kingman - NE	Kingman	PM_{10}	
PRAXAIR – Kingman - SW	Kingman	PM_{10}	
ASARCO – Globe Highway	Winkelman	SO_2	
ASARCO – Hayden - Garfield Ave.	Hayden	SO_2	
ASARCO – Montgomery Ranch	Hayden	SO_2	
PDMI - MIAMI – Jones Ranch	Miami	SO_2	Yes, to begin with 2008 data
PDMI - MIAMI – Townsite	Miami	SO_2	
ASARCO – Hayden Junction	Hayden Junction	SO_2	
ASARCO – Hayden Old Jail	Hayden	SO_2	

4.6 Compliance with 40 CFR Part 58.10 (c)

A process for relocating violating $PM_{2.5}$ monitors is described at 40 CFR Part 58.10 (c). The rule requires that the annual monitoring network plan must document how States 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, including 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 of this chapter. The affected State or local 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. To address the public comment process required prior to relocation of a violating monitor, 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 plan.
3. If the change must be accomplished prior to annual monitoring 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 affected monitor.

5.0 MONITORING PLAN QUALITY ASSURANCE

5.1 40 CFR Part 58 Appendix A - Quality Assurance Requirements

Appendix A specifies the quality assurance requirements for SLAMS, SPMs, and PSD Air Monitoring. It describes requirements for the quality system, measurement quality checks for the monitors, calculations for data quality assessments, and reporting requirements.

5.2 Quality System Requirements

ADEQ has a Quality Management Plan in place for the agency that was completed in August 2005. Air Assessment submitted a Quality Assurance Program Plan to EPA Region 9 in November 2001. A Quality Assurance Project Plan (QAPP) was prepared for the $PM_{2.5}$ program when it began in 1999. Updates to the QAPP were submitted to Region 9 in August 2006. ADEQ plans to combine particulate matter and gases into a QA Program Plan in 2007. A Toxics/PAMS QAPP was submitted in April 2006 and is currently being revised per comments from EPA Region 9. A QAPP for the gas monitoring program is scheduled to be completed in 2007. ADEQ uses the QAPPs prepared for EPA for the IMPROVE and STN programs.

All instrument SOPs have been completed and submitted to EPA Region 9.

Along with but separate from the Air Monitoring Unit, Air Assessment has a Quality Assurance (QA) Team of two staff members who reside in the Data Management & Quality Assurance Unit. The QA Team coordinates the preparation of the QAPP documents and conducts performance audits and Technical Systems Audits (TSAs).

As part of the quality system, the Assessment QA Team has conducted audits of the ADEQ filter laboratory. Beginning in 2007, the Team will conduct Technical Systems Audits (TSAs) of the Southern Regional Office (SRO) and Northern Regional Office (NRO) staff who act as operators for the Monitoring Unit. The filter laboratory audit will be expanded to a Technical Systems Audit. SOPs for the TSAs are being prepared for conducting these audits.

Beginning in 2007, ADEQ has agreed to participate in the EPA National Performance audit program (NPAP) and the PM Performance Evaluation Program (PEP). ADEQ has consented to have EPA use a portion of ADEQ's grant funds to conduct these audit programs through IFC Consultants.

Beginning in 2007, the ADEQ QA Team will be conducting audits of IMPROVE samplers for the EPA. Twelve samplers in Arizona's network will be audited.

EPA Region 9 conducted a Technical Systems Audit of the Air Assessment Monitoring Program in December 2004.

The QA Team conducts performance audits of Air Assessment monitors, Pinal County monitors, and some source monitors. All gas and flow rate standards used by the QA teams are traceable to NIST. Standards are checked annually. The gas calibrator and ozone standard used by the Team are checked twice per year.

All monitors (PMs, gases, meteorology) in the Western Arizona Sonora Border Air Quality Study (WASBAQS) were audited quarterly.

ADEQ is the primary quality assurance organization for the monitors it operates.

5.3 Measurement Quality Checks – Precision Measurements

5.3.1 Particulate Monitors – Manual Methods – PM_{10}

ADEQ operates two types of PM_{10} samplers with different methods: dichots and Partisols. The dichots are located at the two Mexico locations. Because the dichot samplers in Mexico are not considered part of the state compliance network, precision data are not collected for this method. PM_{10} concentrations from the dichot samplers are reported to AQS designated as monitor type 'Other'. Data are reported to AQS in standard (81102) and local conditions (85101).

The Partisol samplers are located at 16 sites. Concentration data from all 16 sites are reported to AQS in standard and local conditions. 13 of the sites are designated as SLAMS; 3 sites are designated as SPM.

Section 3.3.1 of CFR Part 58 Appendix A indicates that 15% of the sites must be collocated. The collocated monitors must be within 4 meters of each other and at least 1 meter apart for flow rates less than 200 liters/min. ADEQ's collocated samplers are listed in Table 5.3-1 and comply with these requirements. All concentrations from the collocated samplers are reported to the AQS with POC 2.

Beginning in 2007, collocated samples will be collected every 12th day.

Flow rate verification will be checked monthly by Monitoring Unit staff.

Table 5.3-1 PM_{10} Precision Monitoring by Method

Sampling Method	Total Number of Sites	Number of Precision Sites
Dichot	2 (Mexico)	0
Partisol	16	2 (Paul Spur & Yuma Courthouse)

In 2007, ADEQ will continue to report PM_{10} concentrations to AQS for 3 monitors at 2 sites (Miami Ridgeline and Golf Course-collocated site) designated as 'Industrial' to support SIP requirements for the Miami attainment area. These monitors are operated by the Phelps Dodge Corporation as a permit requirement. Phelps Dodge supplies flow check and audit reports to verify adherence to quality assurance procedures.

5.3.2 Particulate Monitors – Manual Methods – $PM_{2.5}$

The $PM_{2.5}$ network must include collocated sampling at 15 percent of the monitoring sites operated by the reporting agency. If the area has less than 4 sampling sites at least one must have a precision measurement. The total number of sites shown in Table 5.3-2 includes all $PM_{2.5}$ samplers in the ADEQ network (this excludes sites operated by County and Tribal agencies).

Table 5.3-2 $PM_{2.5}$ - Precision Monitoring

Sampling Method	Total Number of Sites[1]	Number of Precision Sites
FRM (R&P partisols)	5	1 (Nogales Post Office)

1. Excludes sites operated by Tribal Programs, Maricopa County, Pima County, and Pinal County.

All five ADEQ sites are designated as SLAMS. Concentrations from all samplers are reported to AQS. All concentrations from the collocated monitor at Nogales are reported as POC 2.

Collocated samples will to be collected every 6th day to ensure an adequate number of precision measurements. Flow rate verification will be checked monthly by Monitoring Unit staff.

5.3.3 Gas Monitors – SO_2, O_3, CO, NO_2

Biweekly 1-point checks are performed by the monitoring staff for all gas monitors. These measurements are reported to the AQS.

All shelters for the gas monitors contain temperature probes. The shelter temperature is checked daily via the Data Collection System to verify proper operating conditions for the monitors.

5.4 Measurement Quality Checks – Accuracy Measurements

5.4.1 Particulate Monitors – Manual Methods

Beginning in 2007, the QA Team will conduct semi-annual flow rate audits on ADEQ PM_{10} and $PM_{2.5}$ monitors. All accuracy measurements are reported to the AQS.

5.4.2 Gas Monitors – SO_2, O_3, CO, NO_2

The QA Team conducts annual audits of all gas monitors. These are multi point performance audits. The audit measurements are reported to the AQS.

5.4.3 Meteorological Equipment

Meteorological equipment are audited by the QA Team annually. The meteorological equipment at the designated NCore site will be checked twice per year.

5.5 Calculations and Reporting

ADEQ submits the AQS P/A Reporting Organization Summary report along with the Data Completeness Report to Region 9 in the annual Certification Letter. As stated above, all collocated PM measurements are submitted quarterly to AQS as POC 2, with an indication of which monitor is the primary. AQS then calculates the precision statistics. The gas biweekly checks are submitted quarterly as precision records. Audit information for both PM monitors and gas monitors are submitted quarterly.

In 2007, the QA Team plans to develop a method following EPA guidelines for performing the calculations described in Section 4 of CFR Part 58 Appendix A on a regular schedule.

5.6 Ambient Air Quality Monitoring Methodology

ADEQ meets the required monitoring methodology for monitors used in compliance applications. A complete description of monitoring methods by site and monitor is located in section 6.0 of this document.

5.6.1 Monitoring Objectives and Spatial Scales

As stated in Appendix D of CFR 40 Part 58, ambient air monitoring networks must be designed to meet the following objectives:

- Provide air pollution data to the general public in a timely manner.

- Support compliance with ambient air quality standards.
- Support air pollution research and strategy development.

To meet these objectives, the design of ambient air monitoring networks must consider the physical and chemical behaviors of the individual pollutants - including properties such as transport and dispersion. The locations of a network's monitoring stations are selected to achieve one or more of the six basic objectives specified in CFR Part 58 Appendix D:

1. Determine the highest concentrations expected in the area covered by the network.
2. Measure representative concentrations in areas of high population density.
3. Determine the impact of significant sources or source categories on air quality.
4. Determine general background concentration levels.
5. Measure regional pollution transport among populated areas.
6. In support of secondary standards, to determine the welfare-related impacts in more rural and remote areas.

Appendix D of 40 CFR Part 58 provides guidance concerning spatial scales of air parcels in which the pollutant concentration is reasonably similar. Monitoring stations are sited in one of the following scales of representativeness: microscale, middle scale, neighborhood scale, urban scale, or regional scale (see Table 5.6.1-1). The scale is usually chosen based on the pollutant to be monitored; however, it may be determined by the site objective as in the case of monitoring ozone levels downwind of a major metropolitan area.

Table 5.6.1-1 Scale of Representativeness

Scale of Representativeness	Dimension
Micro	several meters up to 100 meters
Middle	100 meters up to 0.5 kilometers
Neighborhood	0.5 kilometers up to 4 kilometers
Urban	4 kilometers up to 50 kilometers
Regional	rural areas or cities of homogeneous geography; can extend from tens to hundreds of kilometers
National and Global	thousands of kilometers

The typical relationship between the monitoring objectives and spatial scale is summarized in Table 5.6.1-2. Appendix D of 40 CFR Part 58 provides additional detail concerning spatial scales for specific pollutants.

Table 5.6.1-2 Monitoring Objectives

Monitoring Objective	Appropriate Siting Scales
Highest/Maximum Concentration	Micro, Middle, Neighborhood (sometimes urban)
Population	Neighborhood, Urban
Source Impact	Micro, Middle, Neighborhood
General/Background	Neighborhood, Urban, Regional
Regional Transport	Urban/Regional
Plant and Animal Welfare Impacts	Urban/Regional

5.6.2 General Monitoring Requirements

NCore Multipollutant Site – It is anticipated that the ADEQ JLG Supersite will be designated as an urban NCore site in the timeframe specified in the revised CFR 40. The scale of the sites is neighborhood, which complies with the recommendations in Part 58. Continuous monitoring methods will be employed where available. The data will be reported (AQS) and made available for air quality trends analyses, model evaluation, and NAAQS compliance.

SLAMS – Although Part 58 states that SLAMS sites, other than NCore, are intended to address specific air quality management interests and are frequently single-pollutant measurement sites, many of ADEQ's SLAMS sites are multipollutant for several reasons including the size of ADEQ's territory and the economies achieved when such sites meet multiple pollutant-objective requirements.

5.6.3 Pollutant-Specific Design Criteria for SLAMS Sites

See also section *4.3 ADEQ Minimum Network Status* in this document for specific information on the monitoring networks in the three Metropolitan Statistical Areas under ADEQ jurisdiction: Flagstaff, Prescott, and Yuma. The following sections include more general pollutant-specific design criteria.

- Ozone – A greater number of sites than the specified minimum could be required to support public data reporting, air quality mapping, compliance and ozone-related research. This is particularly true of the Phoenix-Mesa-Scottsdale MSA that includes Maricopa and Pinal Counties but not of the Flagstaff, Prescott, or Yuma MSAs. Factors considered were the MSAs geographic sizes, population densities, meteorology, terrain, air transport, and the presence of ozone precursors. Section 3.2 provides background information on the current and historical ozone monitoring sites.
- Carbon Monoxide – There are no minimum requirements for the number of CO monitoring stations but continued operation of existing sites is required – the JLG Supersite, in this case. In addition, where SLAMS (and, presumably NCore) CO monitoring is ongoing, at least one site must be a maximum concentration site. At present, the CO monitoring objective at the Phoenix JLG Supersite is population but other sites in the Phoenix MSA combine to meet the requirement.
- Nitrogen Dioxide – There are no minimum requirements for NO_2 but existing sites must continue to monitor unless authorized by the Regional Administrator to be discontinued. As with continued CO monitoring, continued NO_2 monitoring implies that at least one NO_2 monitoring site must be a maximum concentration site. The Phoenix JLG Supersite objective for NO_2 monitoring is population but other sites in the Phoenix MSA combine to meet the requirement.
- Sulfur Dioxide - There are no minimum requirements for SO_2 but existing sites must continue to monitor unless authorized by the Regional Administrator to be discontinued. ADEQ monitors SO_2 emissions at the Phoenix Supersite and at several mining sites.
- Lead – No lead monitoring sites are required and no monitoring is being performed.
- Particulate Matter (PM_{10}) – Refer to section *4.3 ADEQ Minimum Network Status*.
- Fine Particulate Matter ($PM_{2.5}$) – Refer to section *4.3 ADEQ Minimum Network Status*.
- Coarse Particulate Matter (PM_{10}-$PM_{2.5}$) – The ADEQ NCore site will meet requirements.

6.0 PROPOSED 2007-2008 COMPLIANCE MONITORING NETWORK

Table 6.0-1 lists the air quality monitoring sites to be operated by ADEQ in 2007 and 2008. The list includes sites operated for public information and AQI forecasting (AIRNOW).

Table 6.0-1 PROPOSED 2007-2008 COMPLIANCE MONITORING NETWORK

Site Name	AQS - ID	Classification	Scale	Objective	Parameter(s) Measured	Reported to AQS
Agua Prieta Fire Station	80-026-1000	SPM	Neighborhood	Population	$PM_{10/fine}$ – Dichot	Yes
Ajo	04-019-0001	SLAMS	Neighborhood	Population	PM_{10}	Yes
Alamo Lake	04-012-8000	SLAMS	Regional	Transport	O_3	Yes
Bullhead City	04-015-1003	SLAMS	Neighborhood	Population	PM_{10}	Yes
Douglas Red Cross	04-003-1005	SLAMS	Neighborhood	Population	PM_{10}	Yes
		SLAMS	Neighborhood	Population	$PM_{2.5}$	Yes
Dysart	04-013-4010	AIRNOW	Neighborhood	Population	Bscat as $PM_{2.5}$	No
Estrella	04-013-8005	AIRNOW	Neighborhood	Population	Bscat as $PM_{2.5}$	No
Flagstaff - Middle School	04-005-1008	SLAMS	Neighborhood	Population	PM_{10}	Yes
	04-005-1008	SLAMS	Neighborhood	Population	$PM_{2.5}$	Yes
Flagstaff MSA Ozone (not established)	-	SPM	-	-	O_3	-
Hayden - Old Jail	04-007-1001	SLAMS	Neighborhood	Source Impact	SO_2	Yes
		SLAMS	Neighborhood	Source Impact	PM_{10}	Yes
		SPM	Neighborhood	Source Impact	Continuous PM_{10}	Yes, at end of EPA study
Miami - Ridgeline ADEQ	04-007-0009	SLAMS	Neighborhood	Source Impact	SO_2	Yes
Nogales - Post Office	04-023-0004	SLAMS	Neighborhood	Population	PM_{10}	Yes
		SLAMS	Neighborhood	Population	$PM_{2.5}$ Collocated	Yes
		SPM	Neighborhood	Population	Continuous PM_{10}	No
		SPM	Neighborhood	Population	Continuous $PM_{2.5}$	No
Organ Pipe NM	04-019-0005	Class I support	Regional	Background/ Transport	IMPROVE & Bscat	No
Paul Spur Chemical Lime Plant	04-003-0011	SLAMS	Middle	Source Impact	PM_{10} Collocated	Yes
Payson - Well Site	04-007-0008	SLAMS	Neighborhood	Population	PM_{10}	Yes
Phoenix - Bethune Elementary School	04-013-8006	SPM	Neighborhood	Population	PM_{10}	Yes
Phoenix – South Phoenix	04-013-4003	SPM	Neighborhood	Population	VOC(Toxics)	Yes
Phoenix - JLG Supersite	04-013-9997	SLAMS	Neighborhood	Population	CO	Yes
		SLAMS (PAMS - Type 2)	Neighborhood	Population	NO_x	Yes
		SLAMS (PAMS - Type 2)	Neighborhood	Population	NO_y	No
		SLAMS (PAMS - Type 2)	Neighborhood	Population	O_3	Yes
		SLAMS (NATTS/PAMS Type 2	Neighborhood	Population	VOC	Yes
		SLAMS (NATTS/PAMS Type 2	Neighborhood	Population	Carbonyls	Yes
		SLAMS (NATTS)	Neighborhood	Population	Hexavalent Chromium	Yes
		SLAMS	Neighborhood	Population	SO2	Yes
		SLAMS	Neighborhood	Population	$PM_{2.5}$	Yes
		SLAMS	Neighborhood	Population	PM_{10}	Yes
		AIRNOW	Neighborhood	Population	Bscat as $PM_{2.5}$	No

Site Name	AQS - ID	Classification	Scale	Objective	Parameter(s) Measured	Reported to AQS
		SLAMS (NATTS)	Neighborhood	Population	Aethalometer (Babs)	No
		IMPROVE & STN	Neighborhood	Population	IMPROVE Collocated	No
		SLAMS (STN)	Neighborhood	Population	Speciated $PM_{2.5}$	Yes
		SLAMS ($PM_{2.5}$ project)	Neighborhood	Population	Continuous Nitrate	No
		SLAMS ($PM_{2.5}$ project)	Neighborhood	Population	Continuous Carbon	No
		SPM	Neighborhood	Population	Continuous PM_{10}	No
		SPM	Neighborhood	Population	Continuous $PM_{2.5}$	No
Phoenix - Vehicle Emissions Laboratory	04-013-9998	SLAMS (PAMS MET)	Urban	Population	Delta T, Solar Radiation Upper MET(profiler)	Solar only
		AIRNOW	Neighborhood	Population	Bscat as $PM_{2.5}$	No
Prescott Valley	04-025-2002	SPM	Neighborhood	Population	PM_{10}	Yes
Prescott MSA Ozone (not established)	-	SPM	-	-	0_3	-
Prescott MSA $PM_{2.5}$ (not established)	-	SPM	-	-	$PM_{2.5}$	-
Queen Valley	04-021-8001	SLAMS (PAMS – Type 3)	Urban	Max Conc	0_3	Yes
		SLAMS (PAMS – Type 3)	Urban	Max Conc	VOC	Yes
		SLAMS (PAMS – type 3)	Urban	Max Conc	NO_Y	No
Rillito	04-019-0020	SLAMS	Neighborhood	Source Impact	PM_{10}	Yes
San Manuel	04-021-2001	SPM	Neighborhood	Population	SO_2	Yes
Sonora - Fire Station	80-026-0005	SPM	Neighborhood	Population	$PM_{10/fine}$ – Dichot	Yes
Tonto National Monument	04-007-0010	SLAMS	Regional	Downwind Concentration	O_3	Yes
Yuma - Game and Fish	04-027-0006	SLAMS	Neighborhood	Max Conc.	O_3	Yes
Yuma - Courthouse	04-027-0004	SLAMS	Neighborhood	Population	PM_{10} Collocated	Yes
		SPM	Neighborhood	Population	Continuous PM_{10}	No
Yuma MSA $PM_{2.5}$- (not Established)		SPM	Neighborhood	Population	$PM_{2.5}$	Yes

7.0 ADEQ SUPPLEMENTARY NETWORKS

7.1 Class I Visibility Network

Visibility monitoring networks track impairment in specified national parks and wilderness areas. These parks and wilderness areas are called Class I Areas and were designated based on an evaluation required by Congress in the 1977 federal Clean Air Act Amendments. The evaluation which was performed by the U.S. Forest Service (USFS) and National Park Service (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 have visual air quality as an important resource for visitors. Of the 156 Class I Areas designated across the nation, 12 are located in Arizona.

From the Class I Area designations, EPA initiated a nationally-operated monitoring network in 1987 called the Interagency Monitoring of PROtected Visual Environments (IMPROVE) program. The purpose of the IMPROVE network is to characterize broad regional trends and visibility conditions using monitoring data collected in or near Class I Areas across the United States. Originally the national IMPROVE network was made up of approximately 30 sites at Class I areas; during 1999-2000 the number of sites increased to approximately 110. In 1996 ADEQ began to add monitoring sites in or near Class 1 areas in the state in order to supplement the IMPROVE network.

The Arizona Class I visibility network consists of a combination of visibility monitoring sites established by ADEQ and those established by the IMPROVE committee. Monitoring for this purpose is conducted at the sites described in Table 7.1-1. Table 7.1-2 describes supplemental monitoring conducted by ADEQ to support the IMPROVE program and Regional Haze planning and technical analysis.

Table 7.1-1 2007-08 Class I Visibility Monitoring Site Locations In Arizona

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

Table 7.1-2 - Arizona Class I Supplementary Monitoring

Site Name	Parameter(s) Measured
Chiricahua National Monument - Entrance Station	Light Scattering (Bscat)
Grand Canyon National Park – Hance	Light Scattering (Bscat)
Grand Canyon National Park – Indian Garden	Light Scattering (Bscat), Wind
Greer Water Treatment Plant	Light Scattering (Bscat), Wind
Ike's Backbone	Light Scattering (Bscat), Wind
Organ Pipe NM	Light Scattering (Bscat)
Petrified Forest National Park	Light Scattering (Bscat)
Pleasant Valley Ranger Station	Light Scattering (Bscat), Wind
Queen Valley	Light Scattering (Bscat)
Saguaro NP – West Unit	Light Scattering (Bscat), Wind
Sycamore Canyon (Camp Raymond)	Light Scattering (Bscat), Wind

7.2 Urban Haze Networks

ADEQ monitors the Phoenix and Tucson metropolitan areas with a network of instruments to characterize and quantify the extent of urban haze. There are no established federal or state standards for acceptable levels of urban haze. ADEQ began studying the nature and causes of urban hazes by conducting a study in the winter of 1989-90 in Phoenix and 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. These visibility monitoring data are needed to provide policymakers and the public with information, track short- and long-term trends, assess source contributions to urban haze and better evaluate the effectiveness of air pollution control strategies. Equipment used to evaluate urban visibility includes transmissometers, nephelometers, aethalometers, particulate monitors, and digital camera systems.

The Phoenix urban haze network includes two transmissometers (located in Phoenix and Mesa) for measuring light extinction along a fixed path length of about three to five kilometers, four nephelometers for measuring light scattering, five digital camera systems to record visual characteristics of the urban area, and particulate filters for quantifying and characterizing particulate matter. The Tucson urban haze network includes one transmissometer for measuring light extinction along a fixed path length of about three to five kilometers, three nephelometers for measuring light scattering, and a digital camera system operated by Pima County to record visual characteristics of the urban area. The sites are described in Table 7.2-1.

Table 7.2-1 Arizona Urban Haze Networks

Site Name	Parameter(s) Measured
Phoenix Network	
ADEQ Building	High Resolution Digital Camera
Dysart	Light Scattering (Bscat)
Estrella	Light Scattering (Bscat)
Estrella Mountain Community College	2 High Resolution Digital Cameras
Mesa Transmissometer (Mesa City Building to Banner Medical Center)	Transmissometer (Bext), High Resolution Digital Camera
Phoenix - JLG Supersite	Light Scattering (Bscat), Aethalometer (Babs), 2 IMPROVE
Phoenix - North Mountain Summit	High Resolution Digital Camera
Phoenix-Transmissometer (Baptist Hospital to Sunshine Hotel)	Transmissometer (Bext)
Phoenix - Vehicle Emissions Laboratory	Light Scattering (Bscat)
Tucson network	
Tucson - Children's Park	Light Scattering (Bscat)
Tucson – Craycroft	Light Scattering (Bscat)
Tucson Transmissometer	Transmissometer (Bext)
Tucson – U of A Central	Light Scattering (Bscat), Aethalometer (Babs)

7.3 Meteorology Network

ADEQ collects meteorological data to provide weather information for the monitoring sites not located near official weather stations. Much of the equipment is located at visibility monitoring sites. Two locations collect data used to meet PAMS meteorological requirements. All meteorological data (with the exception of profiler and sodar measurements) receive two levels of quality assurance checks. The equipment is audited once per year. The sites and instrumentation operated by ADEQ are listed in Table 7.3-1.

Table 7.3-1 Meteorology Network

Site	Temperature	Temperature Lapse Rate system	Relative Humidity	Wind	Total Horizontal Solar Radiation	Ultraviolet Solar Radiation	Barometric Presssure	Wind Profiler	Sodar	Report to AQS	Comments
22nd/Craycroft	X		X							No	
Agua Prieta	X		X	X						No	
Ajo				X						No	
Children's Park	X		X							No	
Chiricahua Entrance Station	X		X							No	
Dysart	X		X							No	
Estrella	X		X							No	
Greer	X		X	X						No	
Ike's Backbone	X		X	X						No	
JLG Supersite	X		X	X						Yes	For PAMS support
Mesa Transmissometer Receiver (Mesa City Building)	X		X							No	
Nogales				X						No	
Organ Pipe NM	X		X							No	
Paul Spur				X						No	
Payson	X		X	X						No	
Phoenix Transmissometer Receiver (Quality Hotel)	X		X							No	
Pleasant Valley (Sierra Ancha)	X		X	X						No	
Queen Valley	X		X							No	
Rillito				X						No	
Saguaro Ntl Park West	X		X	X						No	
Sycamore Canyon	X		X	X						No	
Tucson Transmissometer Receiver	X		X							No	
Tucson U of A Central	X		X	X						No	
VEI	X	X	X	X	X	X		X		Hor.&Ultra solar	For PAMS support
WASBAQS Study (April 2006-April 2007):											
Baja	X		X	X						No	
Cortez	X		X	X						No	
Dome Valley	X		X	X						No	
San Luis	X		X	X						No	
Sonora	X		X	X						No	
Yuma Mesa	X		X	X						No	

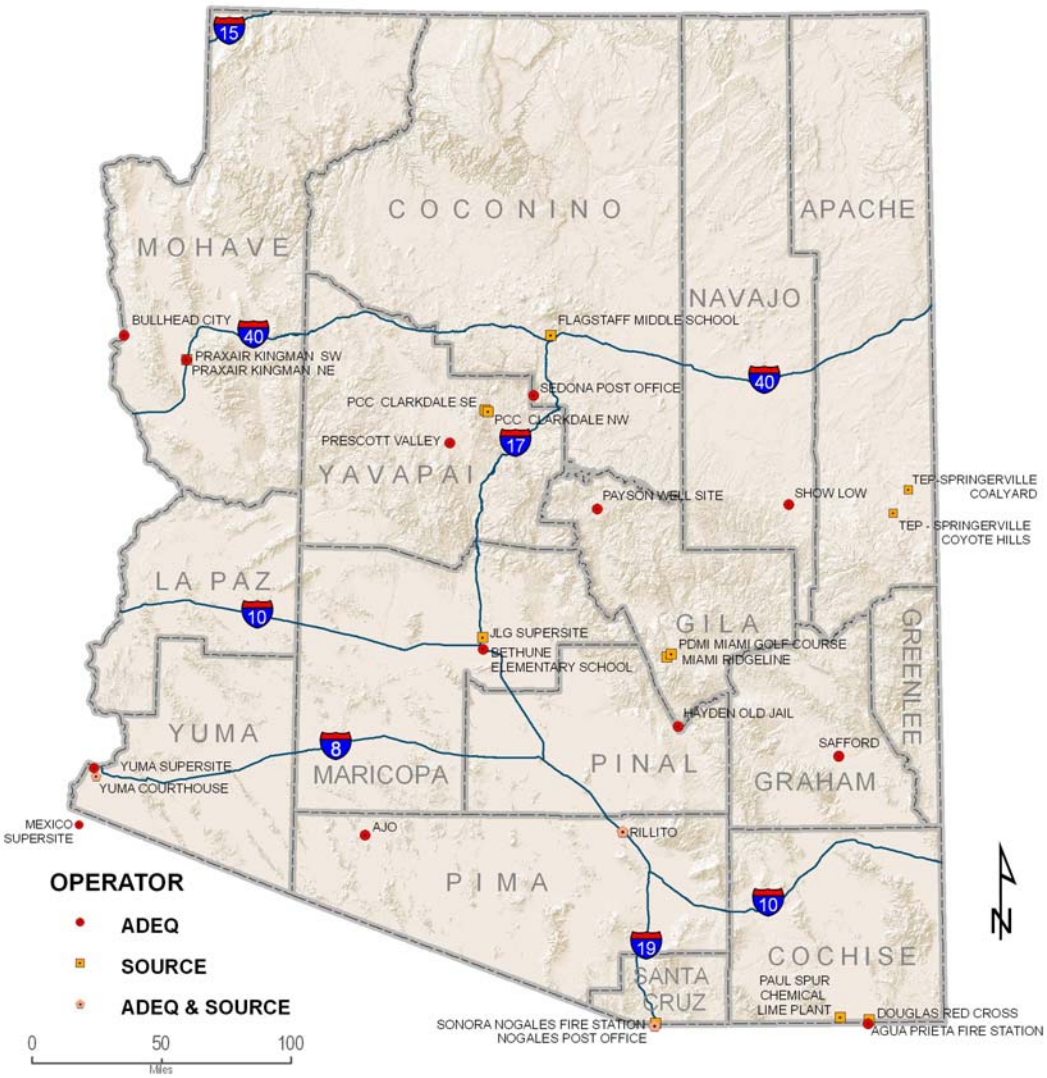
Site	Temperature	Temperature Lapse Rate system	Relative Humidity	Wind	Total Horizontal Solar Radiation	Ultraviolet Solar Radiation	Barometric Presssure	Wind Profiler	Sodar	Report to AQS	Comments
Yuma Valley	X	X	X	X	X					No	
Yuma West	X		X	X	X		X			No	

Appendix A Definitions and Abbreviations

AAAD	Air Assessment Ambient Database
ADEQ	Arizona Department of Environmental Quality
AQS	Air Quality System, EPA database
Bext	Total light extinction
Bscat	Light scattering
Babs	Light Absorption
BAM(s)	Beta Attenuation Monitor
CFR	Code of Federal Regulations
CO	Carbon Monoxide
FRM	Federal Reference Method
HAPS	Hazardous Air Pollutants
IMPROVE	Interagency Monitoring of PROtected Visual Environments
MCAQD	Maricopa County Air Quality Department
MET	Meteorological measurements (wind, temperature, relative humidity)
NAAQS	National Ambient Air Quality Standard
NM	National Monument
NO_X	Nitrogen oxides measured in two ranges; 0-1 ppm and trace level 0-0.2 ppm
NO_y	Trace Level Nitrogen oxides
O_3	Ozone
PAMS	Photochemical Assessment Monitoring Station
PCAQCD	Pinal County Air Quality Control District
PDEQ	Pima County Department of Environmental Quality
$PM_{2.5}$	Particulate matter < 2.5 microns
PM_{10}	Particulate matter < 10 microns
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Stations
SO_2	Sulphur Dioxide
SPM	Special Purpose Monitor
WASBAQS	Western Arizona Sonora Border Air Quality Study

Appendix B - Network Maps

PM NetworkS



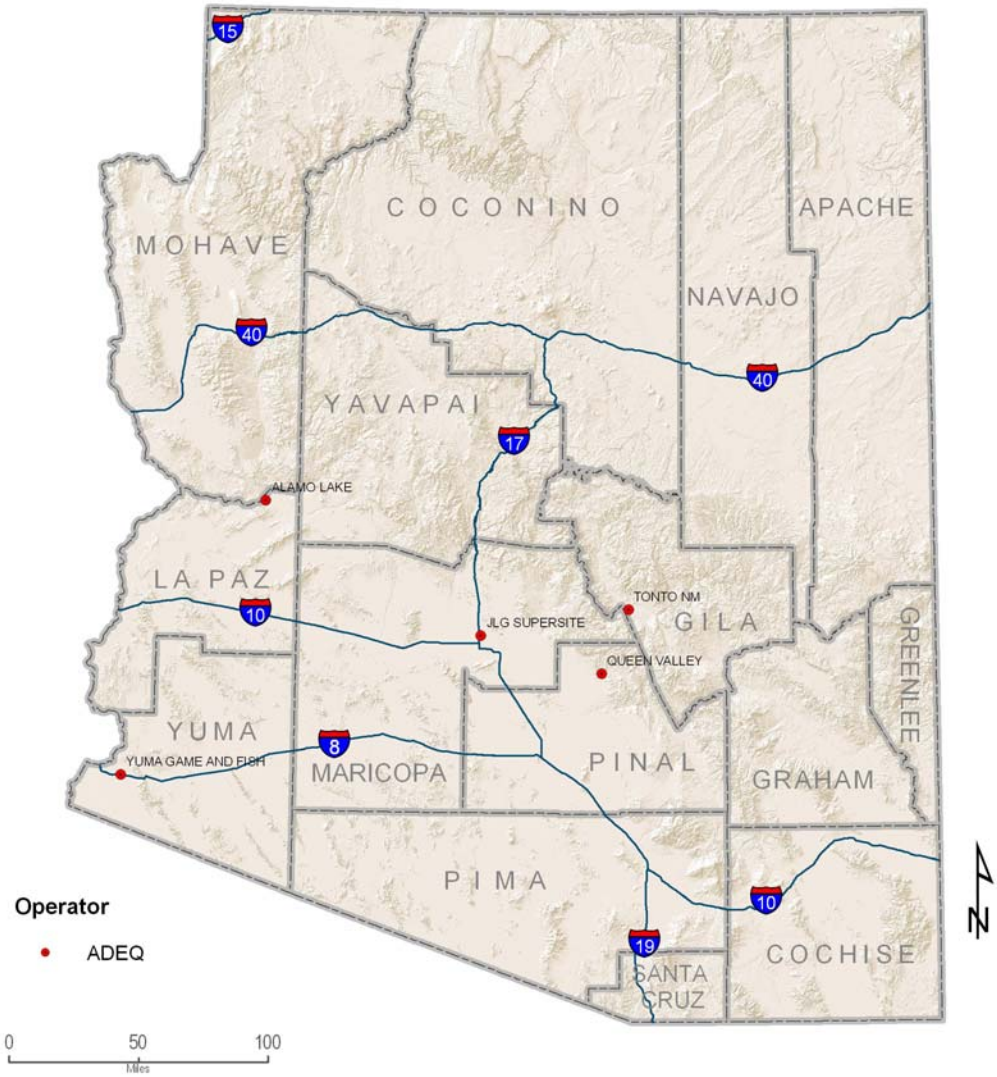
	SITE	INSTRUMENT		SITE	INSTRUMENT
1	AGUA PRIETA FIRE STATION	PM10	10	PDMI - MIAMI RIDGELINE	PM10
2	AJO	PM10	17	PRAXAIR - KINGMAN - NE	PM10
3	BETHUNE ELEMENTARY SCHOOL	PM10	18	PRAXAIR - KINGMAN - SW	PM10
4	BULLHEAD CITY	PM10	19	PRESCOTT VALLEY	PM10
5	DOUGLAS RED CROSS	PM10, PM2.5	20	RILLITO	PM10, COLLOCATED
6	FLAGSTAFF MIDDLE SCHOOL	PM10, PM2.5	21	SAFFORD	PM10
7	HAYDEN OLD JAIL	PM10	22	SEDONA POST OFFICE	PM10
8	JLG SUPERSITE	PM10, PM2.5	23	SHOW LOW	PM10
9	MEXICO SUPERSITE	PM10	24	SONORA NOGALES FIRE STATION	PM10
11	NOGALES POST OFFICE	PM10, PM2.5, COLLOCATED	25	TEP - SPRINGERVILLE - COALYARD	PM10
12	PAUL SPUR CHEMICAL LIME PLANT	PM10, COLLOCATED	26	TEP - SPRINGERVILLE - COYOTE HILLS	PM10
13	PAYSON WELL SITE	PM10, PM2.5	27	YUMA COURTHOUSE	PM10, COLLOCATED
14	PCC - CLARKDALE NW	PM10	28	YUMA SUPERSITE	PM10
15	PCC - CLARKDALE SE	PM10			
16	PDMI - MIAMI - GOLF COURSE	PM10, COLLOCATED			

Source: AAAD

ADEQ Arizona Department of Environmental Quality

April 2007 Author - N Caroli

Ozone Network



	SITE	INSTRUMENT
1	ALAMO LAKE	O3-SEASONAL
2	JLG SUPERSITE	O3 ANALYZER
3	QUEEN VALLEY	O3-SEASONAL
4	TONTO NM	O3-SEASONAL
5	YUMA GAME AND FISH	O3-SEASONAL

Source: AAD

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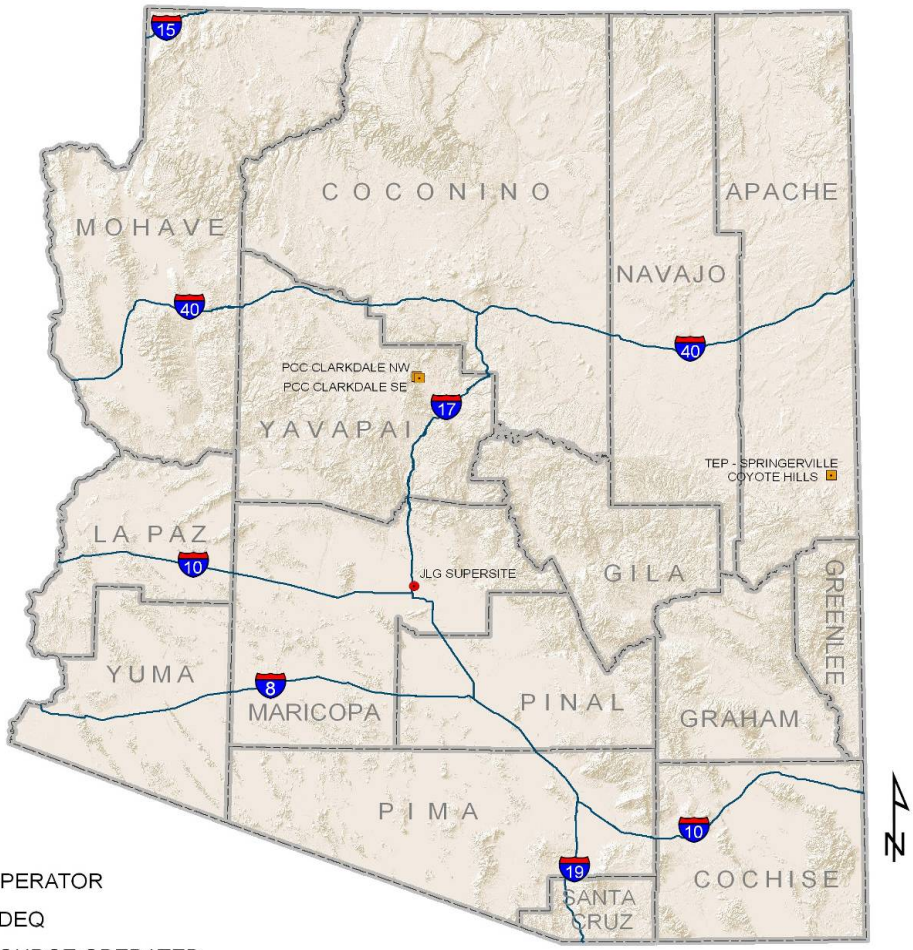
NO2 Network



OPERATOR

- ADEQ
- SOURCE OPERATED

NUM	SITE	MEASUREMENT
1	JLG SUPERSITE	NO2, REACTIVE NOX, TRACE NOX
4	PCC CLARKDALE NW	NO2
5	PCC CLARKDALE SE	NO2
6	TEP SPRINGERVILLE COYOTE HILLS	NO2

Source: AAAD

ADEQ Arizona Department of Environmental Quality

0 50 100
Miles

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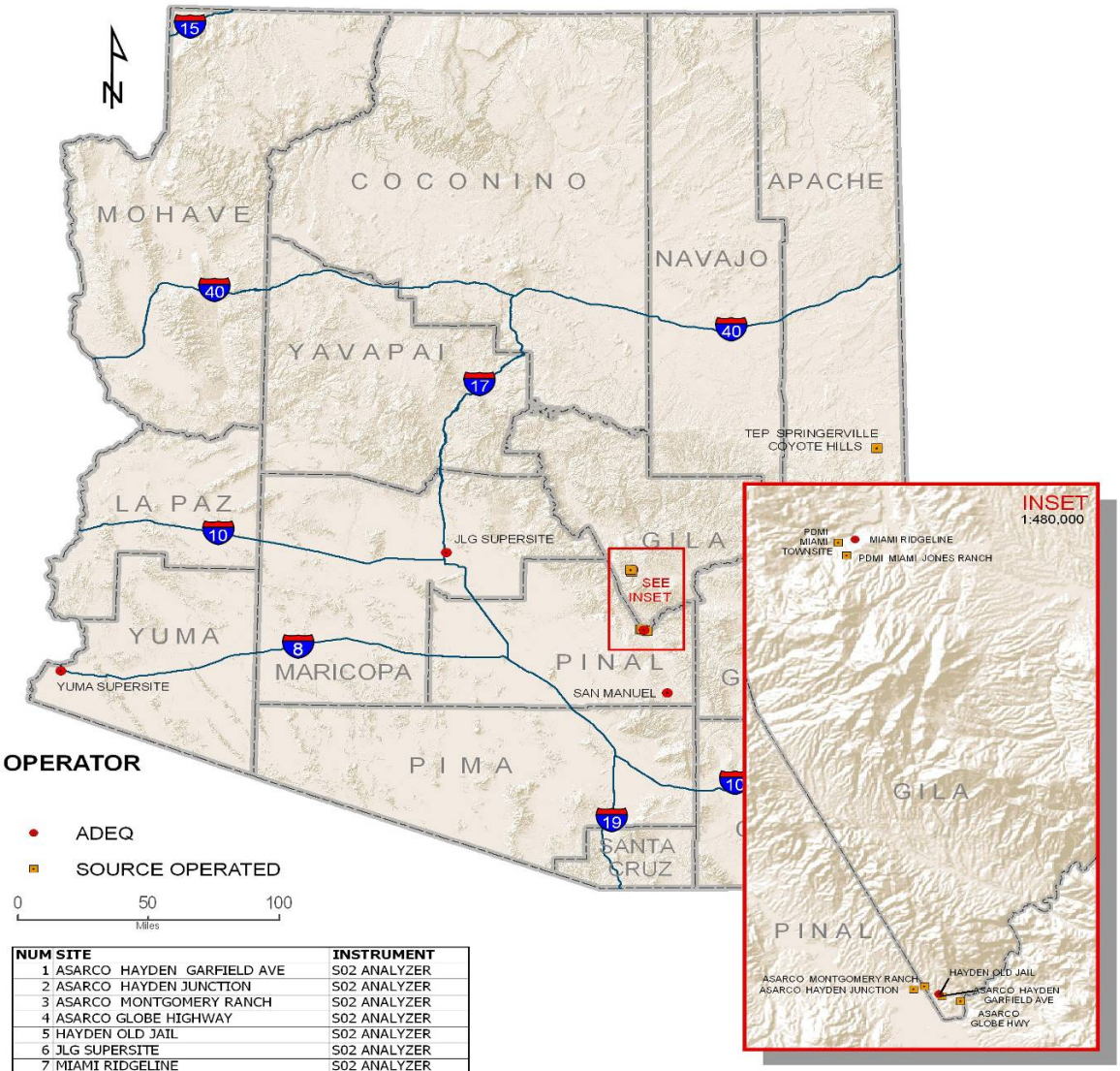
Sulfur Dioxide Network



OPERATOR

- ADEQ
- SOURCE OPERATED

0 50 100
Miles

NUM	SITE	INSTRUMENT
1	ASARCO HAYDEN GARFIELD AVE	S02 ANALYZER
2	ASARCO HAYDEN JUNCTION	S02 ANALYZER
3	ASARCO MONTGOMERY RANCH	S02 ANALYZER
4	ASARCO GLOBE HIGHWAY	S02 ANALYZER
5	HAYDEN OLD JAIL	S02 ANALYZER
6	JLG SUPERSITE	S02 ANALYZER
7	MIAMI RIDGELINE	S02 ANALYZER
8	PDMI MIAMI JONES RANCH	S02 ANALYZER
9	PDMI MIAMI TOWNSITE	S02 ANALYZER
10	SAN MANUEL	S02 ANALYZER
11	TEP SPRINGERVILLE COYOTE HILLS	S02 ANALYZER
12	YUMA SUPERSITE	S02 ANALYZER

Source: AAAD

ADEQ Arizona Department of Environmental Quality

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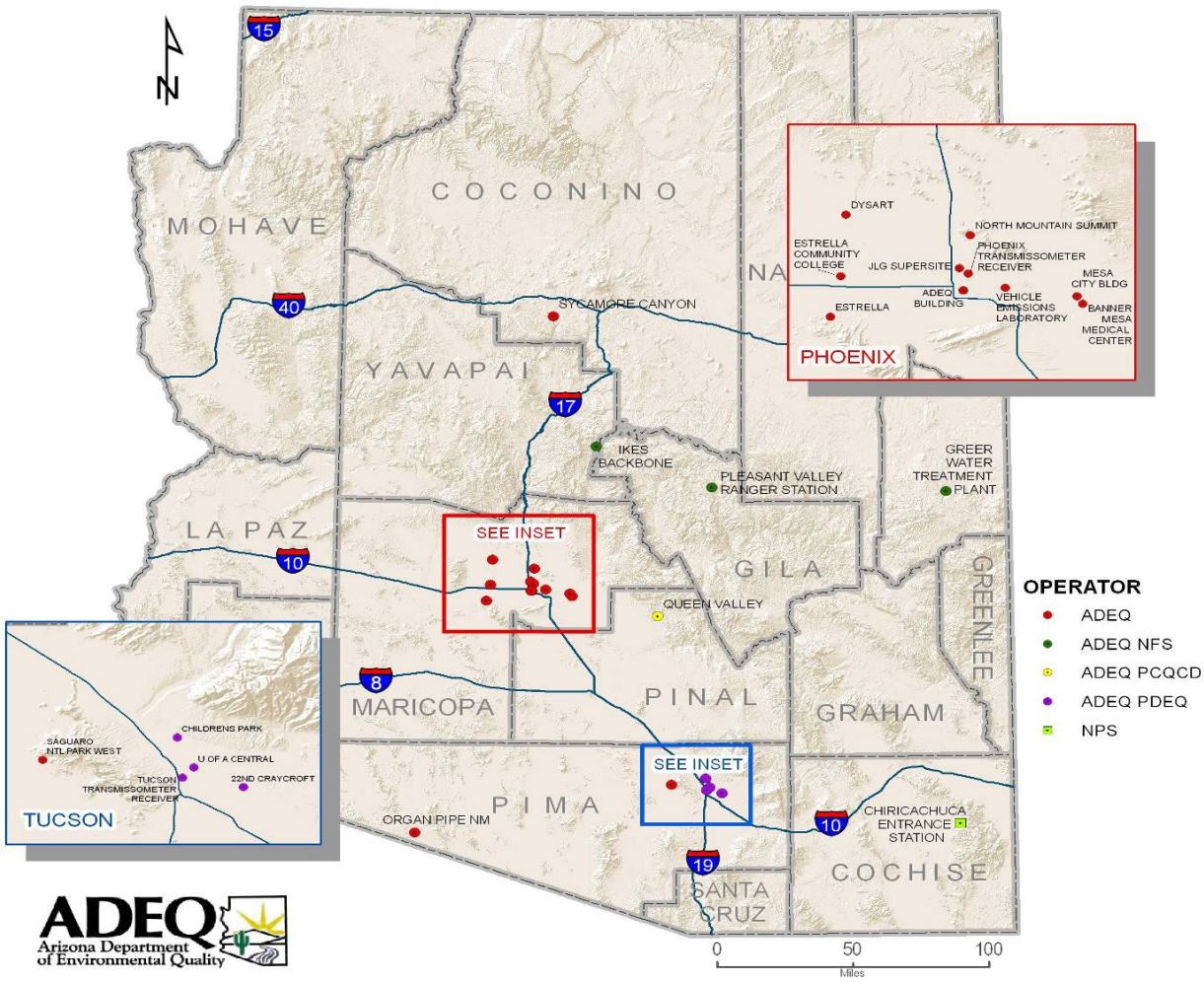
Visibility Network



	URBAN VISIBILITY NETWORK			WILDERNESS VISIBILITY NETWORK	
	SITE	PARAMETER(S)		SITE	PARAMETER(S)
1	22ND AND CRAYCROFT	BSCAT	15	CHIRICACHUCA ENTRANCE STATION	AEROSOL, BSCAT
2	ADEQ BUILDING	VISIMAGE	16	GREER WATER TREATMENT PLANT	AEROSOL, BSCAT
3	BANNER MESA MEDICAL CENTER	VISIMAGE	17	IKES BACKBONE	AEROSOL, BSCAT
4	CHILDRENS PARK	BSCAT	18	ORGAN PIPE NM	AEROSOL, BSCAT
5	DYSART	BSCAT	19	PLEASANT VALLEY RANGER STATION	AEROSOL, BSCAT
6	ESTRELLA	BSCAT	20	QUEEN VALLEY	AEROSOL, BSCAT
7	ESTRELLA COMMUNITY COLLEGE	VISIMAGE 2	21	SAGUARO NTL PARK WEST	AEROSOL, BSCAT
8	JLG SUPERSITE	AEROSOL, BSCAT	22	SYCAMORE CANYON	AEROSOL, BSCAT
9	MESA CITY BUILDING	BEXT			
10	NORTH MOUNTAIN SUMMIT	VISIMAGE			
11	PHOENIX TRANSMISSOMETER RECEIVER	BEXT			
12	TUCSON TRANSMISSOMETER RECEIVER	BEXT			
13	U OF A CENTRAL	BSCAT			
14	VEHICLE EMISSIONS LABORATORY	BSCAT			

Source: AAAD

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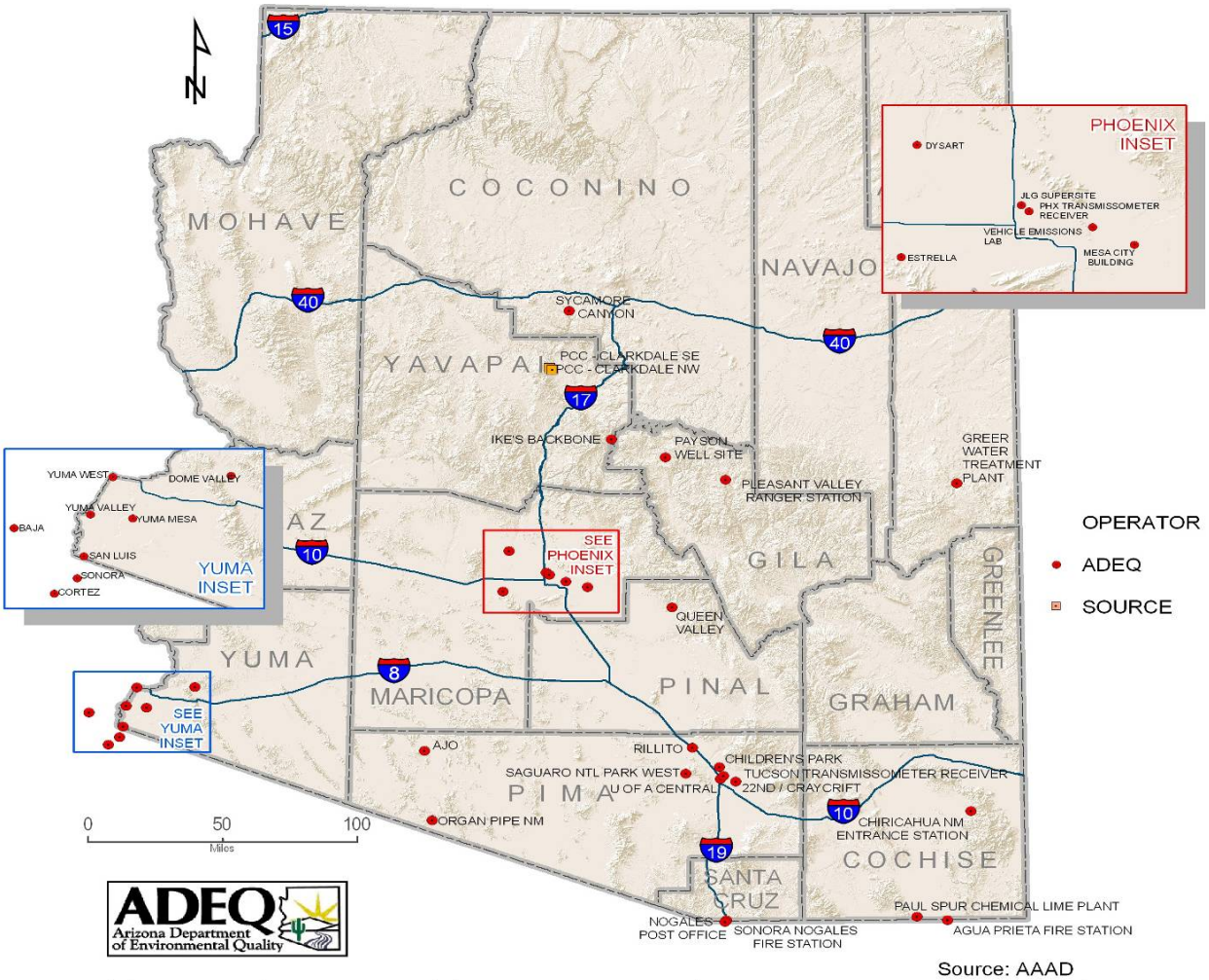
Meteorological Network



Source: AAAD

	SITE	INSTRUMENT		SITE	INSTRUMENT
1	22ND / CRAYCROFT	TEMP/RH	19	PCC - CLARKDALE NW	ANEMOMETER, RH SENSOR
2	AGUA PRIETA FIRE STA	ANEMOMETER, TEMP/RH	20	PCC - CLARKDALE SE	ANEMOMETER, RH SENSOR
3	AJO	ANEMOMETER	21	PHOENIX TRANSMISSOMETER RECEIVER	TEMP/RH
4	BAJA	ANEMOMETER, TEMP/RH	22	PLEASANT VALLEY RANGER STATION	ANEMOMETER, TEMP/RH
5	CHILDREN'S PARK	TEMP/RH	23	QUEEN VALLEY	TEMP/RH
6	CHIRICACHUCA ENTRA	NEPHELOMETER - 5 MIN	24	RILLITO	ANEMOMETER
7	CORTEZ	ANEMOMETER, TEMP/RH	25	SAGUARO NTL PARK WEST	ANEMOMETER
8	DOME VALLEY	ANEMOMETER, TEMP/RH	26	SAN LUIS	ANEMOMETER, TEMP/RH
9	DYSART	TEMP/RH	27	SONORA	ANEMOMETER, TEMP/RH
10	ESTRELLA	TEMP/RH	28	SONORA NOGALES FIRE STATION	ANEMOMETER
11	GREER WATER TREATM	ANEMOMETER, TEMP/RH	29	SYCAMORE CANYON	ANEMOMETER
12	IKE'S BACKBONE	ANEMOMETER, TEMP/RH	30	TUCSON TRANSMISSOMETER RECEIVER	TEMP/RH
13	JLG SUPERSITE	ANEMOMETER, TEMP/RH	31	U OF A CENTRAL	ANEMOMETER, TEMP/RH
14	MESA CITY BUILDING	TEMP/RH	32	VEHICLE EMISSIONS LABORATORY	ANEMOMETER, TEMP/RH, DELTA TEMP SYS, HORIZ & UV SOLAR
15	NOGALES POST OFFICE	ANEMOMETER	33	YUMA MESA	ANEMOMETER, TEMP/RH
16	ORGAN PIPE NM	TEMP/RH	34	YUMA VALLEY	ANEMOMETER, TEMP/RH, DELTA TEMP SYS, HORIZ SOLAR
17	PAUL SPUR CHEMICAL I	ANEMOMETER	35	YUMA WEST	ANEMOMETER, TEMP/RH, BAROMETER, HORIZ SOLAR
18	PAYSON WELL SITE	ANEMOMETER, TEMP/RH			

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Appendix C - Site Review Data Tables

Note: All distances are expressed in meters unless otherwise noted

22nd St./Craycroft (Tucson)
Pima County established this site in January 1973. ADEQ added instrumentation for urban haze evaluation in the early 1990s. Currently the site contains a nephelometer and a temp/RH probe. The area surrounding the site is predominantly residential eastside area with some commercial activity that lines nearby arterial routes. A large covered water reservoir lies north of the location. The major pollutant source is vehicular traffic as the intersection of 22nd Street and Craycroft, which lies 260 meters to the north and east of the site. This site is in the Southeast portion of Tucson and measures the downwind pollution from the downtown Tucson area.

Site Information for:	**22ndSt./Craycroft (Tucson)**		
AQS ID	04-019-1011	ADEQ ID	16410
Address	1237 S. Beverly Lane Tucson, AZ 85711		
Location (within site)	On roof		
County	Pima	Latitude	32.2042
MSA	Tucson	Longitude	-110.8775
Surrounding Area	Residential	Elevation	787 m
Dist. to road	N - 264 m (22nd St.)	PEP audit date	N/A
Traffic count	50,000 – 22nd St	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bscat**	**Temp/RH**		
Monitor Type	Urban Haze	Urban Haze		
Monitoring objective	Visibility	Visibility		
Spatial scale	Urban	Urban		
Sampling method	Nephelometer	Vaisala		
Analysis method	N/A	N/A		
Start date	01/01/2001	06/23/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	2.8 m	3.1 m		
Dist. from supporting structure	4 m	4 m		
Distance from obstructions on roof	N/A	N/A		
Distance from obstr. not on roof	4 m	4 m		
Distance from trees	>25 m	>25 m		
Unrestricted airflow degrees	360°	360°		
Dist. between collocated monitors	N/A	N/A		
Annual performance/flow review	01/30/2007	01/30/2007		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	Weekly	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

ADEQ Building (Phoenix)
ADEQ established this site in July of 2003 to monitor Urban Haze. Currently, there is a high-resolution digital camera that sits on the Northeast corner of the building and points at Camelback Mountain. The pictures of the local view can be viewed on the internet at http://www.phoenixvis.net/came1/index.html. The camera updates the picture every 15 minutes. The area surrounding this site is primarily residential. The area in between the ADEQ Building and Camelback Mountain is also primarily residential. Camelback Mountain lies 13.4 kilometers to the northeast of the ADEQ Building.

Site Information for:	**ADEQ Building (Phoenix)**		
AQS ID	None	ADEQ ID	21737
Address	1110 W. Washington St. Phoenix, AZ 85007		
Location (within site)	On Building		
County	Maricopa	Latitude	33.4483
MSA	Phoenix	Longitude	-112.0878
Surrounding Area	Residential	Elevation	329 m
Distance to road	S - 84 m	PEP audit date	N/A
Traffic count	11,200 - Washington	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Camera**			
Monitor Type	Urban Haze			
Monitoring objective	Visibility			
Spatial scale	Urban			
Sampling method	High Res Digital Camera			
Analysis method	N/A			
Start date	07/01/2003			
Operation schedule	Every 15 min.			
Sampling season	All year			
Probe height from ground	23 m			
Dist. from supporting structure	0 m			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	N/A			
Dist. between collocated monitors	N/A			
Annual performance/flow review	N/A			
Flow rate verification frequency	N/A			
One-point QC check frequency	N/A			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Agua Prieta Fire Station (Mexico)

ADEQ established this site in January1995. The Purpose of the site is to evaluate particulate concentrations and track trends. Currently there is a dichot PM_{10} monitor, an anemometer and a temp/RH monitor.

The site is located 452 meters from the Arizona border and 1.7 kilometers from the Arizona border city of Douglas. The area surrounding the site is primarily residential, but experiences a large amount of particulate pollution due to the overuse of wood and oil fires by the residents and local businesses.

Site Information for:	**Agua Prieta Fire Station (Mexico)**		
AQS ID	80-026-1000	ADEQ ID	16361
Address	Calle 6 & Ave. 15		
Location (within site)	On fire station		
County	Sonora	Latitude	31.3283
MSA	N/A	Longitude	-109.5472
Surrounding Area	Residential	Elevation	1200 m
Distance to road	W - 6 m	PEP audit date	N/A
Traffic count	N/A – Ave. 15	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	3/8/2007

Pollutant Monitoring	**PM10/fine**	**Wind**		
Monitor Type	SPM	SPM		
Monitoring objective	Population	Population		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Dichot	Anemometer		
Analysis method	Gravimetric	N/A		
Start date	12/18/1998	12/18/1998		
Operation schedule	1:6	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	10		
Dist. from supporting structure	2 m	4 m		
Distance from obstr. on roof	5 m	6 m		
Distance from obstr. not on roof	30 m	30 m		
Distance from trees	20 m	20 m		
Unrestricted airflow degrees	360˚	360˚		
Dist. between collocated monitors	N/A	N/A		
Annual performance/flow review	03/08/2007	03/08/2007		
Flow rate verification frequency	monthly	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Ajo (ADOT – Ajo Maintenance Yard)
ADEQ established the Ajo - ADOT yard site in approximately 1973. The site consists of a Partisol PM_{10} sampler and a wind system. The sampler is mounted on a stand south of an instrument trailer that is used to house the wind system datalogger. The wind system is mounted on a fixed tower north of the instrument trailer. The closest structure to the site includes an east-west oriented ADOT office/trailer south of the site. The site is aligned with the western quarter of the building. The area surrounding the sampler consists mainly of the gravel covered ADOT yard. Beyond the yard, to the east lies the stabilized tailings pile associated with the Ajo mining operation which is now inactive.

Site Information for:	**Ajo (ADOT – Ajo Maintenance Yard)**		
AQS ID	04-019-0001	ADEQ ID	16316
Address	N. Ajo Well Road 1 Ajo, AZ 85321		
Location (within site)	On 1.6 m platform		
County	Pima	Latitude	32.3820
MSA	Tucson	Longitude	-112.8575
Surrounding Area	Residential/Commercial	Elevation	549 m
Distance to road	109 m – E	PEP audit date	N/A
Traffic count	~150 – Ajo Well Rd 1	NPAP audit date	EPA
Groundcover	metal	Flow audit date	1/25/2006

Pollutant Monitoring	**PM10**	**Wind**		
Monitor Type	SLAMS	SLAMS		
Monitoring objective	Population	Population		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Partisol 2000 HUB	Anemometer		
Analysis method	Gravimetric	N/A		
Start date	01/05/1998	01/05/1998		
Operation schedule	1:6	Continuous		
Sampling season	All Year	All year		
Probe height from ground	3.6 m	10 m		
Dist. from supporting structure	2 m	3 m		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	20 m	20 m		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	360˚	360˚		
Dist between collocated monitors	N/A	N/A		
Last annual performance review	01/25/2007	01/25/2007		
Flow rate verification frequency	monthly	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Alamo Lake
ADEQ established the Alamo Lake site in May 2005. The purpose of the site is to measure ozone concentrations upwind of the Phoenix Metropolitan area and to evaluate ozone transport for ozone forecasts. Originally, the site was designated as an SPM but was categorized as SLAMS in 2006. The site was established to replace the Hillside site. The site is located in Alamo Lake State Park, which is approximately 35 miles north of Wenden, AZ. The site is situated 30 meters from the road. The surrounding area consists of mostly desert with a lake 643 meters to the Northeast. A small water pump/storage tank (1,000 gallon) lies 7 meters to the east of the instruments.

Site Information for:	**Alamo Lake**		
AQS ID	04-012-8000	ADEQ ID	34961
Address	Alamo Lake State Park/Approx. 47 km N of Wenden		
Location (within site)	In trailer		
County	La Paz	Latitude	34.2439
MSA	N/A	Longitude	-113.5586
Surrounding Area	Desert	Elevation	391 m
Distance to road	30 m	PEP audit date	N/A
Traffic count	N/A	NPAP audit date	EPA
Groundcover	Gravel	Flow audit date	8/3/2006

Pollutant Monitoring	**O3**	**NO_x**		
Monitor Type	SLAMS	SLAMS		
Monitoring objective	Transport	Transport		
Spatial scale	Regional	Regional		
Sampling method	O3-Seasonal	NO_x - Generic		
Analysis method	UV Photometric	N/A		
Start date	05/20/2005	05/20/2005		
Operation schedule	Continuous	Continuous		
Sampling season	Apr – Oct	Apr – Oct		
Probe height from ground	5 m	5 m		
Dist. from supporting structure	2 m	2 m		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	7 m	7 m		
Distance from trees	7 m	7 m		
Unrestricted airflow degrees	360°	360°		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	08/03/2006	08/03/2006		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	biweekly	biweekly		
Changes within 18 months	N	Y		
Compare with annual PM2.5?	N	N		

Baja (Mexico)
The site in Baja, Mexico was established in April 2004 and is part of the WASBAQS. The primary goal of the intensive air pollution monitoring project of the WASBAQS is to adequately characterize the magnitude, the spatial variation, and the temporal variation of hazardous air pollutants. The area along the U.S./Mexican border generally contains the highest amount of particulates and gaseous air toxics measured throughout the United States. This site is part of the WASBAQS meteorology network. There is a Temp/RH probe and an anemometer at the site.

Site Information for:	**Baja (Mexico)**		
AQS ID	None	ADEQ ID	22242
Address	Bonito Juarez, Baja, Mexico		
Location (within site)	Small fenced installation in the Police Station Backyard		
County	Baja	Latitude	32.5705
MSA	N/A	Longitude	-115.0
Surrounding Area	Neighborhood	Elevation	13.7
Distance to road	3 m	PEP audit date	N/A
Traffic count		NPAP audit date	N/A
Groundcover	Sand	Flow audit date	2/7/2007

Pollutant Monitoring	**Temp/RH**	**Wind**		
Monitor Type	SPM	SPM		
Monitoring objective	Study	Study		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Vaisala	Anemometer		
Analysis method	N/A	N/A		
Start date	05/25/2004	05/25/2004		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	4 m	10 m		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	25 m	25 m		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	20 m	20 m		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Last annual performance review	08/08/2006	08/08/2006		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	Y	Y		
Compare with annual PM2.5?	N	N		

Banner Mesa Medical Center
ADEQ established the Banner Mesa Medical Center site in July 2003. The purpose of this site is to monitor Urban Haze throughout the Phoenix East Valley. The high resolution digital camera at this site points to the Superstition Mountains, which is approximately 32 kilometers east of the site. In between the Superstition Mountains and the camera is most of Mesa and Apache Junction. These areas are primarily residential with some scattered commercial buildings throughout. The views are updated every 15 minutes and are available on the internet at http://www.phoenixvis.net/supm1/index.html The transmissometer receiver is at this site; the transmitter is at the Mesa City Building in downtown Mesa. The area between the sites is primarily residential.

Site Information for:	**Banner Mesa Medical Center**			
AQS ID	None		ADEQ ID	19489
Address	525 W. Brown Rd. Mesa, AZ 85201			
Location (within site)	On building			
County	Maricopa		Latitude	33.4335
MSA	Mesa		Longitude	-111.8428
Surrounding Area	Residential		Elevation	454 m
Distance to road	N/A – N		PEP audit date	N/A
Traffic count	9,900 – Brown Rd		NPAP audit date	N/A
Groundcover	N/A		Flow audit date	N/A
Pollutant Monitoring	**Digital Camera**	**Bext**		
Monitor Type	Urban Haze	Urban Haze		
Monitoring objective	Visibility	Visibility		
Spatial scale	Urban	Urban		
Sampling method	Digital Camera	Transmissometer		
Analysis method	N/A	Light Attenuation		
Start date	07/01/2003	07/01/2003		
Operation schedule	Every 15 min	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	N/A	N/A		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	Annual		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Bethune Elementary School (Phoenix)
ADEQ established the Bethune Elementary School site in December 2002. This site is part of the NAAQS compliance network. In November of 2004 the monitor was moved from the building top to the ground level. Currently there is a PM_{10} monitor in this location. The area surrounding the monitor is primarily residential, and is 1.4 kilometers from downtown Phoenix. The primary source of pollutants comes from downtown businesses and freeways. The monitor is in an enclosed chain link fence Northwest of the school.

Site Information for:	**Bethune Elementary School (Phoenix)**			
AQS ID	04-013-8006		ADEQ ID	17786
Address	1310 S. 15th Ave. Phoenix, AZ 85007			
Location (within site)	On ground			
County	Maricopa		Latitude	33.4367
MSA	Phoenix		Longitude	-112.0915
Surrounding Area	Residential		Elevation	324 m
Distance to road	N - 15.6 m		PEP audit date	N/A
Traffic count	N/A – 15th Ave		NPAP audit date	EPA
Groundcover	Pavement		Flow audit date	11/20/2006
Pollutant Monitoring	**PM10**			
Monitor Type	SPM			
Monitoring objective	Population			
Spatial scale	Neighborhood			
Sampling method	Partisol 2000 – PM10			
Analysis method	Gravimetric			
Start date	07/03/2005			
Operation schedule	1:6			
Sampling season	All year			
Probe height from ground	5			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	360°			
Dist between collocated monitors	N/A			
Annual performance/flow review	11/20/2006			
Flow rate verification frequency	N/A			
One-point QC check frequency	N/A			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Bullhead City
ADEQ established the Bullhead city site on November 5, 1997, in order to assess particulate concentrations in the area as well as track PM_{10} NAAQS compliance in the Bullhead City non-attainment area. The site is located atop the United States Post Office Building at the northeast corner of SR 95 and 7th Street in Bullhead City. The area surrounding the site consists of open areas to the north and east and commercial and residential development to the west and south. The Colorado River, which defines the Nevada-Arizona border, lies to the west less than 0.8 kilometer (0.5 mile).

Site Information for:	**Bullhead City**		
AQS ID	04-015-1003	ADEQ ID	16365
Address	990 Highway 95 Bullhead City, AZ 86429		
Location (within site)	On United States Post Office Building		
County	Mohave	Latitude	35.1539
MSA	Kingman	Longitude	-144.5661
Surrounding Area	Commercial/Residential	Elevation	171 m
Distance to road	~30 m	PEP audit date	N/A
Traffic count	~20,000	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	2/1/2007

Pollutant Monitoring	**PM10**			
Monitor Type	SLAMS			
Monitoring objective	Population			
Spatial scale	Neighborhood			
Sampling method	Partisol 2000 – PM10			
Analysis method	Gravimetric			
Start date	09/02/03			
Operation schedule	1:6			
Sampling season	All year			
Probe height from ground	5.8 m			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	360°			
Dist between collocated monitors	N/A			
Annual performance/flow review	02/01/2007			
Flow rate verification frequency	N/A			
One-point QC check frequency	biweekly			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Children's Park (Tucson)
ADEQ added urban haze monitors to the Pima DEQ's Children's Park site in August of 1997. Currently, the urban haze monitors consist of a nephelometer and a temp/RH probe. The samplers are 2.1 meters above the ground on a platform that is located in a City water well site. Trees are located to the east and west which may restrict the airflow to the monitors. This site is positioned at the convergence of the Rillito River and Pima Wash. North/Northwest of the site are residences. To the north, northwest and west of the site is a popular county park trails. The area to the south and east is predominantly heavy commercial land use.

Site Information for:	**Children's Park (Tucson)**			
AQS ID	04-019-1028		ADEQ ID	16551
Address	400 W. River Rd. Tucson, AZ 85704			
Location (within site)	On tower next to shelter			
County	Pima		Latitude	32.295
MSA	Tucson		Longitude	-110.9817
Surrounding Area	Neighborhood		Elevation	697 m
Distance to road	500 m		PEP audit date	N/A
Traffic count	52,800		NPAP audit date	N/A
Groundcover	Gravel		Flow audit date	N/A
Pollutant Monitoring	**Bscat**	**Temp/RH**		
Monitor Type	Urban Haze	Urban Haze		
Monitoring objective	Visibility	Visibility		
Spatial scale	Urban	Urban		
Sampling method	Nephelometer	Vaisala		
Analysis method	Light Scatter	N/A		
Start date	07/04/2003	06/17/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	5 m	4 m		
Dist. from supporting structure	2.9 m	1.9 m		
Distance from obstr. on roof	2 m	1 m		
Distance from obstr. not on roof	5 m	5 m		
Distance from trees	5 m	5 m		
Unrestricted airflow degrees	270°	270°		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	N/A	N/A		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	Weekly	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Chiricahua Entrance Station (Wilcox)
The Chiricahua Entrance Station site is operated by the National Park Service. ADEQ and the Park Service cooperatively operate a nephelometer installed at the site in 2003. This site measures the visibility in the Chiricahua and Galiuro wilderness areas. ADEQ has a nephelometer and a Temp/RH probe at the site. The area surrounding this site is wilderness and desert. The Chiricahua National Monument lies 3.8 kilometers to the Northeast. The major source of pollution comes from visitors to the National Monument and traffic on the Arizona State Route 181, which has an average daily traffic count of 290.

Site Information for:	**Chiricahua Entrance Station (Wilcox)**			
AQS ID	04-003-8001	ADEQ ID		16679
Address	13063 E. Bonita Canyon Rd. Wilcox, AZ 85643			
Location (within site)	On ground			
County	Cochise	Latitude		32.0092
MSA	N/A	Longitude		-109.3883
Surrounding Area	Desert	Elevation		1564 m
Distance to road	N/A - E	PEP audit date		N/A
Traffic count	1 – Chiricahua	NPAP audit date		N/A
Groundcover	Dirt/rocks	Flow audit date		N/A
Pollutant Monitoring	**Temp/RH**	**Bscat**		
Monitor Type	Class I	Class I		
Monitoring objective	Visibility	Visibility		
Spatial scale	Regional	Regional		
Sampling method	Vaisala	Nephelometer		
Analysis method	N/A	N/A		
Start date	12/17/2003	10/01/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	N/A	N/A		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	Weekly		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Cortez (Mexico)
The Cortez, Mexico site was established in May 2004 and is part of the WASBAQS. The primary goal of the intensive air pollution monitoring project of the WASBAQS is to adequately characterize the magnitude, the spatial variation, and the temporal variation of hazardous air pollutants. The area along the U.S./Mexican border generally contains the highest amount of particulates and gaseous air toxics measured throughout the United States. This site is part of the WASBAQS meteorology network. There is a Temp/RH probe and an anemometer at the site.

Site Information for:	**Cortez (Mexico)**			
AQS ID	None		ADEQ ID	22240
Address	San Luis Rio Colorado, Mexico			
Location (within site)	On ground enclosed by chain link fence			
County	Sonora		Latitude	32.3761
MSA	N/A		Longitude	-114.8669
Surrounding Area	Residential		Elevation	21 m
Distance to road	5 m - W		PEP audit date	N/A
Traffic count	120 – N/A		NPAP audit date	N/A
Groundcover	Sand		Flow audit date	2/6/2007
Pollutant Monitoring	**Temp/RH**	**Wind**		
Monitor Type	SPM	SPM		
Monitoring objective	Study	Study		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Vaisala	Anemometer		
Analysis method	N/A	N/A		
Start date	05/25/2004	05/25/2004		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	4 m	10 m		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	100 m	100 m		
Distance from trees	50 m	50 m		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	02/06/2007	02/06/2007		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	Y	Y		
Compare with annual PM2.5?	N	N		

Dome Valley
The Dome Valley site was installed in May of 2003 on private farm property near the intersection of County 5th and Avenue 18E. The site includes wind speed, wind direction, ambient temperature and relative humidity. The site is intended to represent meteorological conditions in the Gila River basin. This site is part of the meteorological network for the WASBAQS. The immediate area surrounding the site is generally open agricultural fields and open ground associated with a commercial farm building approximately 100 meters to the east.

Site Information for:	**Dome Valley**		
AQS ID	None	ADEQ ID	19483
Address	5110 S. Ave 18 E, Yuma, AZ 85365		
Location (within site)	On ground enclosed by chain link fence		
County	Yuma	Latitude	32.7506
MSA	Yuma	Longitude	-114.3325
Surrounding Area	Agriculture	Elevation	55 m
Distance to road	10 m – N	PEP audit date	N/A
Traffic count	120 – E. County 5th St	NPAP audit date	N/A
Groundcover	Dirt	Flow audit date	2/8/2007

Pollutant Monitoring	**Temp/RH**	**Wind**		
Monitor Type	MET	MET		
Monitoring objective	Study	Study		
Spatial scale	Agriculture	Agriculture		
Sampling method	Vaisala	Anemometer		
Analysis method	N/A	N/A		
Start date	07/01/2003	07/01/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	2.4	10		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	360°	360°		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	02/08/2007	02/08/2007		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	Y	Y		
Compare with annual PM2.5?	N	N		

Douglas Red Cross
ADEQ established the Douglas Red Cross site in June 1998 when the PM_{10} dichot sampler originally located at the Douglas school site was moved to the new site. Later, on January 12, 1999, a $PM_{2.5}$ FRM was installed at the site. The Red Cross building is situated on the south side of 15th Street directly across the street from the Douglas High School. The area surrounding the site is a mix of residential neighborhoods and commercial establishments.

Site Information for:	**Douglas Red Cross**		
AQS ID	04-003-1005	ADEQ ID	16503
Address	1445 E. 15th Street Douglas, AZ 85607		
Location (within site)	In enclosed chain link fence on platform.		
County	Cochise	Latitude	31.3489
MSA	Douglas	Longitude	-109.5386
Surrounding Area	Commercial/Residential	Elevation	1250 m
Distance to road	30 m - N	PEP audit date	EPA
Traffic count	15th St. - 1200	NPAP audit date	EPA
Groundcover	Dirt/grass	Flow audit date	3/8/2007

Pollutant Monitoring	**PM10**	**PM2.5**		
Monitor Type	SLAMS	SLAMS		
Monitoring objective	Population	Population		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Partisol 2000 – PM10	Partisol 2000 – PM2.5		
Analysis method	gravimetric	gravimetric		
Start date	04/01/2004	04/01/2004		
Operation schedule	1:6	1:6		
Sampling season	All year	All year		
Probe height from ground	4 m	4 m		
Dist. from supporting structure	3 m	3 m		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	20 m	20 m		
Distance from trees	>10 m	>10 m		
Unrestricted airflow degrees	360˚	360˚		
Dist between collocated monitors	>1m	>1m		
Annual performance/flow review	03/08/2007	03/08/2007		
Flow rate verification frequency	Monthly	Monthly		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	Y		

Dysart
ADEQ added a nephelometer and a temp/RH probe to the MCAQD Dysart site in January 2003 as the urban haze and AQI forecasting/AIRNow programs. The site is located in the Maricopa County Facility Maintenance yard at the corner of Bell and Dysart Roads. This area has been experiencing tremendous growth in the past five years. Around the site, the land usage is partially commercial, residential and industrial. Bell Road, which is a major artery into Phoenix, lies 137 meters North of the site. 420 meters Northeast of the site lies U.S. 60, a major roadway leading from Phoenix to the far Northwest valley.

Site Information for:	**Dysart**		
AQS ID	04-013-4010	ADEQ ID	19550
Address	16825 N. Dysart Rd. Surprise, AZ 85374		
Location (within site)	On Building rooftop		
County	Maricopa	Latitude	33.6370
MSA	Phoenix	Longitude	-112.3394
Surrounding Area	Residential	Elevation	335 m
Distance to road	14 m - W	PEP audit date	N/A
Traffic count	10,000 – Dysart Rd.	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bscat / PM2.5**	**Temp/RH**		
Monitor Type	Urban Haze	Urban Haze		
Monitoring objective	Population	Population		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Nephelometer	Vaisala		
Analysis method	Light Scatter with correlation to PM2.5	N/A		
Start date	06/16/2003	07/16/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	5 m	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	50 m	50 m		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	360°	360°		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	03/08/2007	03/08/2007		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	Weekly	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Estrella
ADEQ established the Estrella site in 1995 as part of the Phoenix Urban Haze Network. It is intended to represent the western perimeter of the Phoenix urban area. Currently, the monitors are used AIRNow to assist in AQI forecasting. A nephelometer and a Temp/RH probe monitor visibility at this site. The site is located in the Maricopa County Maintenance Yard of Estrella Park. The Estrella Mountains lie on the southern, western and eastern sides of the site while open land, agricultural lands and sparse residential and commercial activity are predominant to the north. The largest paved road near the site is Vineyard, which does not have a high daily traffic rate. A golf course lies 256 meters to the west of the site.

Site Information for:	**Estrella**		
AQS ID	04-013-8005	ADEQ ID	16506
Address	15099 W. Casey Abbott Rd. Goodyear, AZ 85338		
Location (within site)	On trailer roof		
County	Maricopa	Latitude	33.3833
MSA	Phoenix	Longitude	-112.3728
Surrounding Area	Desert/Residential	Elevation	305 m
Distance to road	258 m	PEP audit date	N/A
Traffic count	<100	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bscat / PM2.5**	**Temp/RH**		
Monitor Type	Urban Haze	Urban Haze		
Monitoring objective	Population	Population		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Nephelometer	Vaisala		
Analysis method	Light Scatter with correlation to PM2.5	N/A		
Start date	09/01/2003	02/11/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	5 m	5 m		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	10 m	10 m		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	05/17/2006	05/17/2006		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	Weekly	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Estrella Mountain Community College
ADEQ established the Estrella Mountain Community College site in July of 2003. Currently, the site is used to visualize urban haze. Two high resolution digital cameras are at the site, one of which points to the Estrella Mountains. The mountain range lies 10.85 kilometers to the southwest of the site. The other camera points to the White Tanks mountain range, which is 19.74 kilometers northeast of the site. Real-time local views are available to the public on the internet at http://www.phoenixvis.net/esmo1/index.html. The areas in between the site and the mountain ranges are a mixture of residential, commercial and agricultural land. These have been experiencing tremendous growth in the past five years with new residential communities taking the place of once-agricultural land.

Site Information for:	**Estrella Mountain Community College**			
AQS ID	None		ADEQ ID	21736
Address	3000 N. Dysart Rd. Avondale, AZ 85323			
Location (within site)	On Building			
County	Maricopa		Latitude	33.4836
MSA	Phoenix		Longitude	-112.3503
Surrounding Area	Residential		Elevation	305 m
Distance to road	155 m – S		PEP audit date	N/A
Traffic count	8,175 - Thomas Rd.		NPAP audit date	N/A
Groundcover	N/A		Flow audit date	N/A
Pollutant Monitoring	**Camera**	**Camera**		
Monitor Type	Urban Haze	Urban Haze		
Monitoring objective	Visibility	Visibility		
Spatial scale	Urban	Urban		
Sampling method	Digital Camera	Digital Camera		
Analysis method	N/A	N/A		
Start date	01/01/2003	01/01/2003		
Operation schedule	Every 15 min	Every 15 min		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	N/A	N/A		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Flagstaff Middle School
ADEQ established the Flagstaff Middle School site in October 1996 with the installation of a Dichot PM_{10} sampler. In January of 1999 an FRM $PM_{2.5}$ sampler was added to the site. Both samplers carry the SLAMS designation. The site is situated west of Bonito Road atop the school building. The area surrounding the samplers is generally residential in nature.

Site Information for:	**Flagstaff Middle School**		
AQS ID	04-005-1008	ADEQ ID	16707
Address	755 N. Bonito Flagstaff, AZ 86001		
Location (within site)	On School		
County	Coconino	Latitude	35.2061
MSA	Flagstaff	Longitude	-111.6528
Surrounding Area	Residential	Elevation	2105 m
Distance to road	70 m - W	PEP audit date	EPA
Traffic count	N/A – N. Bonito St	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	3/20/2007

Pollutant Monitoring	**PM10**	**PM2.5**		
Monitor Type	SLAMS	SLAMS		
Monitoring objective	Population	Population		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Partisol 2000-PM10	Partisol 2000-PM2.5		
Analysis method	Gravimetric	gravimetric		
Start date	04/01/2004	09/16/2003		
Operation schedule	1:6	1:6		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	5.8 m	6.1 m		
Distance from obstr. on roof	15 m	15 m		
Distance from obstr. not on roof	25 m	25 m		
Distance from trees	>20 m	>20 m		
Unrestricted airflow degrees	360˚	360˚		
Dist between collocated monitors	3m	3m		
Annual performance/flow review	03/20/2007	03/20/2007		
Flow rate verification frequency	monthly	Monthly		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	Y		

Grand Canyon NP Indian Garden
The Grand Canyon National Park – Indian Garden site was established in October 1989 to monitor regional haze and as part of the IMPROVE program. The National Park Service is the current operator of this site. The site has the IMPROVE aerosol monitor, a nephelometer and a temp/RH probe. ADEQ and the Park Service cooperatively operate the nephelometer. This site sits in the Indian Gardens picnic area of the Grand Canyon near the ranger station.

Site Information for:	**Grand Canyon NP Indian Garden**		
AQS ID	None	ADEQ ID	16683
Address	Highway 64 N. Grand Canyon, AZ 86023		
Location (within site)	In shed		
County	Coconino	Latitude	36.0778
MSA	Flagstaff	Longitude	-112.1289
Surrounding Area	Forest/Desert	Elevation	1157 m
Distance to road	N/A	PEP audit date	N/A
Traffic count	N/A	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Temp/RH**	**Bscat**		
Monitor Type	Class I	Class I		
Monitoring objective	Visibility	Visibility		
Spatial scale	Regional	Regional		
Sampling method	Vaisala	Nephelometer		
Analysis method	N/A	Light Scatter		
Start date	10/04/1989	06/09/2004		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	N/A	N/A		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	Weekly		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Greer Water Treatment Plant
The Greer Water Treatment Plant site was established in January 2000 to monitor regional haze and as a part of the IMPROVE program. The operators of this site are ADEQ and the U.S. Forest Service. Currently, this site has the IMPROVE aerosol monitor, a nephelometer, an anemometer and a temp/RH probe. The area surrounding the Greer Water Treatment Plant site is mostly forest. State Route 260 runs North of the site with a daily average traffic count of 1,300.

Site Information for:	**Greer Water Treatment Plant**		
AQS ID	None	ADEQ ID	16323
Address	SR 260 & SR 373 Greer, AZ 85927		
Location (within site)	In shed		
County	Apache	Latitude	34.0583
MSA	N/A	Longitude	-109.44
Surrounding Area	Forest/Desert	Elevation	2516 m
Distance to road	N/A - N	PEP audit date	N/A
Traffic count	1,300 – SR 260	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Wind**	**Bscat**	**Temp/RH**	
Monitor Type	Class I	Class I	Class I	
Monitoring objective	Visibility	Visibility	Visibility	
Spatial scale	Regional	Regional	Regional	
Sampling method	Anemometer	Nephelometer	Vaisala	
Analysis method	N/A	Light Scatter	N/A	
Start date	02/29/2000	02/01/2001	02/29/2000	
Operation schedule	Continuous	Continuous	Continuous	
Sampling season	All year	All year	All year	
Probe height from ground	7.1 m	4.8 m	4.8 m	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	N/A	N/A	N/A	
Dist between collocated monitors	N/A	N/A	N/A	
Annual performance/flow review	N/A	N/A	N/A	
Flow rate verification frequency	N/A	N/A	N/A	
One-point QC check frequency	N/A	Weekly	N/A	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

Hayden Old Jail
ADEQ established the Hayden Jail site in approximately 1988 in order to assess particulate matter and sulfur dioxide concentrations in the area near the ASARCO copper smelter located several kilometers to the southeast. Currently, this site serves as a NAAQS compliance site and a source permit requirement site; ADEQ operates a sulfur dioxide analyzer, a filter-based PM_{10} monitor and a continuous PM_{10} monitor at this site. The site is located atop the old Hayden jail building near the center of town. The area surrounding the site consists mainly of residential neighborhoods and commercial buildings. ASARCO also maintains a sulfur dioxide analyzer at this site, and at Garfield Avenue, Hayden Junction and Montgomery Ranch.

Site Information for:	**Hayden Old Jail**			
AQS ID	04-007-1001		ADEQ ID	16326
Address	Canyon Drive & Kennecott Ave. Hayden, AZ 85235			
Location (within site)	On building			
County	Gila		Latitude	33.0061
MSA	Payson		Longitude	-110.7858
Surrounding Area	Residential		Elevation	625 m
Distance to road	15-20 m		PEP audit date	N/A
Traffic count	N/A		NPAP audit date	EPA
Groundcover	N/A		Flow audit date	3/7/2007
Pollutant Monitoring	**SO_2**	**PM10**	**Cont. PM10**	
Monitor Type	SLAMS	SLAMS	SPM	
Monitoring objective	Source Impact	Source Impact	Source Impact	
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Sampling method	SO2 Analyzer	Partisol 2000 – PM10	TEOM – PM10	
Analysis method	pulsed fluorescence	gravimetric	N/A	
Start date	07/01/2004	01/01/1975	12/01/2005	
Operation schedule	Every minute	1:6	Every minute	
Sampling season	All year	All year	All year	
Probe height from ground	N/A	N/A	N/A	
Dist. from supporting structure	6 m	5.4 m	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	2.8 m	2.8 m	2.8 m	
Distance from trees	>10 m	>10 m	>10 m	
Unrestricted airflow degrees	360˚	360˚	360˚	
Dist between collocated monitors	N/A	4.8 m	4.8 m	
Annual performance/flow review	09/06/2006	03/07/2007	03/07/2007	
Flow rate verification frequency	N/A	monthly	N/A	
One-point QC check frequency	biweekly	N/A	biweekly	
Changes within 18 months	N	N	Y	
Compare with annual PM2.5?	N	N	N	

Ike's Backbone
The Ike's Backbone site was established in June of 2001 to monitor regional haze and as a part of the IMPROVE program. The operators of this site are ADEQ and the U.S. Forest Service. Currently, this site has the IMPROVE aerosol monitor, a nephelometer, an anemometer and a temp/RH probe. The area around the site is the Tonto National Forest, which includes Mazatzal & Pine Mountain Wilderness areas with creeks and mountains nearby. The nearby road is very seldom traveled.

Site Information for:	**Ike's Backbone**		
AQS ID	None	ADEQ ID	16421
Address	Fossil Creek Rd and Childs Rd. Strawberry, AZ 85544		
Location (within site)	In shed		
County	Coconino	Latitude	34.3406
MSA	Flagstaff	Longitude	-111.6825
Surrounding Area	Forest	Elevation	1625 m
Distance to road	N/A	PEP audit date	N/A
Traffic count	N/A	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	12/07/2006

Pollutant Monitoring	**Bscat**	**Wind**	**Temp/RH**	
Monitor Type	Class I	Class I	Class I	
Monitoring objective	Visibility	Visibility	Visibility	
Spatial scale	Regional	Regional	Regional	
Sampling method	Nephelometer	Anemometer	visalia	
Analysis method	Light Scatter	N/A	N/A	
Start date	06/13/2003	06/13/2003	06/13/2003	
Operation schedule	Continuous	Continuous	Continuous	
Sampling season	All year	All year	All Year	
Probe height from ground	N/A	N/A	N/A	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstructions on roof	N/A	N/A	N/A	
Dist. from obstructions not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	N/A	N/A	N/A	
Dist between collocated monitors	N/A	N/A	N/A	
Annual performance/flow review	12/07/2006	12/07/2006	12/07/2006	
Flow rate verification frequency	N/A	N/A	N/A	
One-point QC check frequency	Weekly	N/A	N/A	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

JLG Supersite (Phoenix)
ADEQ established the Phoenix – JLG Supersite in approximately 1991. The site is intended to represent the central core of the Phoenix metropolitan area in a high emissions area. This site houses a variety of air monitoring equipment including criteria pollutant samplers and analyzers for NAAQS compliance, PAMS, NATTS, STN, visibility/urban haze, and meteorology. The site has been selected for several state and national air monitoring studies. The area surrounding the sampler consists of generally residential neighborhoods.

Site Information for:	**JLG Supersite**		
AQS ID	04-013-9997	ADEQ ID	16328
Address	4530 N. 17th Ave. Phoenix, AZ 85015		
Location (within site)	On Roof		
County	Maricopa	Latitude	33.5036
MSA	Phoenix	Longitude	-112.0950
Surrounding Area	Residential	Elevation	346 m
Distance to road	8.5 m – E	PEP audit date	EPA
Traffic count	N/A – 17th Ave	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	See below

Pollutant Monitoring	**CO**	**NOx**	**Noy**	
Monitor Type	SLAMS	SLAMS/PAMS	SLAMS/PAMS	
Monitoring objective	Population	Population	Population	
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Sampling method	CO Analyzer	NOX – Seasonal	Trace Reactive NOx - Seasonal	
Analysis method	Gas Filter Correlation	Chemilumin-escence	Chemilumin-escence	
Start date	12/11/2002	07/01/1993	07/01/1993	
Operation schedule	Every Minute	Every Minute	Every Minute	
Sampling season	All Year	Apr-Oct	Apr-Oct	
Probe height from ground	4.6 m	4.6 m	4.6 m	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	None	None	None	
Unrestricted airflow degrees	360°	360°	360°	
Dist between collocated monitors	1.2 m	1.2 m	1.2 m	
Annual performance/flow review	03/27/2007	06/29/2006	06/29/2006	
Flow rate verification frequency	N/A	N/A	N/A	
One-point QC check frequency	biweekly	biweekly	biweekly	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

JLG Supersite (Phoenix) - continued
ADEQ established the Phoenix – JLG Supersite in approximately 1991. The site is intended to represent the central core of the Phoenix metropolitan area in a high emissions area. This site houses a variety of air monitoring equipment including criteria pollutant samplers and analyzers for NAAQS compliance, PAMS, NATTS, STN, visibility/urban haze, meteorology, and has been selected for several state and national air monitoring studies. The area surrounding the sampler consists of generally residential neighborhoods.

Site Information for:	**JLG Supersite**		
AQS ID	04-013-9997	ADEQ ID	16328
Address	4530 N. 17th Ave. Phoenix, AZ 85015		
Location (within site)	On Roof		
County	Maricopa	Latitude	33.5036
MSA	Phoenix	Longitude	-112.0950
Surrounding Area	Residential	Elevation	346 m
Distance to road	8.5 m – E	PEP audit date	EPA
Traffic count	N/A – 17th Ave	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	See below

Pollutant Monitoring	**O_3**	**SO_2**	**Wind**	**Temp/RH**
Monitor Type	SLAMS/PAMS	SLAMS	SLAMS/PAMS	SLAMS/PAMS
Monitoring objective	Population	Population	Population	Population
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	O3 Analyzer	SO2 Analyzer	Anemometer	Vaisala
Analysis method	UV Photometric	Pulsed Fluorescence	N/A	N/A
Start date	07/01/1993	03/03/2005	02/12/2003	06/24/2003
Operation schedule	Every Minute	Every Minute	Continuous	Continuous
Sampling season	All Year	All year	All year	All year
Probe height from ground	4.6 m	N/A	10 m	6 m
Dist. from supporting structure	N/A	N/A	N/A	N/A
Distance from obstr. on roof	N/A	N/A	N/A	N/A
Distance from obstr. not on roof	N/A	N/A	N/A	N/A
Distance from trees	None	None	None	None
Unrestricted airflow degrees	360˚	360˚	360˚	360˚
Dist between collocated monitors	N/A	N/A	N/A	N/A
Annual performance/flow review	06/29/2006	03/27/2007	N/A	N/A
Flow rate verification frequency	N/A	N/A	N/A	N/A
One-point QC check frequency	Biweekly	Biweekly	N/A	N/A
Changes within 18 months	N	N	N	N
Compare with annual PM2.5?	N	N	N	N

JLG Supersite (Phoenix) – continued
ADEQ established the Phoenix – JLG Supersite in approximately 1991. The site is intended to represent the central core of the Phoenix metropolitan area in a high emissions area. This site houses a variety of air monitoring equipment including criteria pollutant samplers and analyzers for NAAQS compliance, PAMS, NATTS, STN, visibility/urban haze, meteorology, and has been selected for several state and national air monitoring studies. The area surrounding the sampler consists of generally residential neighborhoods.

Site Information for:	**JLG Supersite**		
AQS ID	04-013-9997	ADEQ ID	16328
Address	4530 N. 17th Ave. Phoenix, AZ 85015		
Location (within site)	On Roof		
County	Maricopa	Latitude	33.5036
MSA	Phoenix	Longitude	-112.0950
Surrounding Area	Residential	Elevation	346 m
Distance to road	8.5 m – E	PEP audit date	EPA
Traffic count	N/A – 17th Ave	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	See Below

Pollutant Monitoring	**PM2.5**	**PM10**	**Bscat / PM2.5**	**Babs**
Monitor Type	SLAMS	SLAMS	Visibility AIRNow	SLAMS/NATTS
Monitoring objective	Population	Population	Population	Population
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Partisol 2025-PM2.5	Partisol 2000 – PM10	Nephelometer	Aethalometer
Analysis method	Gravimetric	Gravimetric	Light Scatter with correlation to PM2.5	Light Absorption
Start date	11/21/2003	01/01/2005	02/12/2003	01/01/1993
Operation schedule	1:3	1:6	Continuous	Continuous
Sampling season	All Year	All year	All year	All year
Probe height from ground	4.7 m	4.7 m	6.0 m	6.0 m
Dist. from supporting structure	N/A	N/A	N/A	N/A
Distance from obstr. on roof	N/A	N/A	N/A	N/A
Distance from obstr. not on roof	N/A	N/A	N/A	N/A
Distance from trees	None	None	None	None
Unrestricted airflow degrees	360˚	360˚	360˚	360˚
Dist between collocated monitors	N/A	N/A	N/A	N/A
Annual performance/flow review	02/22/2007	02/22/2007	03/27/2007	03/27/2007
Flow rate verification frequency	Monthly	Monthly	N/A	N/A
One-point QC check frequency	N/A	N/A	Weekly	N/A
Changes within 18 months	N	N	N	N
Compare with annual PM2.5?	Y	N	N	N

JLG Supersite (Phoenix) – continued
ADEQ established the Phoenix – JLG Supersite in approximately 1991. The site is intended to represent the central core of the Phoenix metropolitan area in a high emissions area. This site houses a variety of air monitoring equipment including criteria pollutant samplers and analyzers for NAAQS compliance, PAMS, NATTS, STN, visibility/urban haze, meteorology, and has been selected for several state and national air monitoring studies. The area surrounding the sampler consists of generally residential neighborhoods.

Site Information for:	**JLG Supersite**			
AQS ID	04-013-9997		ADEQ ID	16328
Address	4530 N. 17th Ave. Phoenix, AZ 85015			
Location (within site)	On Roof			
County	Maricopa		Latitude	33.5036
MSA	Phoenix		Longitude	-112.0950
Surrounding Area	Residential		Elevation	346 m
Distance to road	8.5 m – E		PEP audit date	EPA
Traffic count	N/A – 17th Ave		NPAP audit date	EPA
Groundcover	N/A		Flow audit date	See Below
Pollutant Monitoring	**VOC**	**Carbonyls**	**Aerosol**	**Aerosol**
Monitor Type	SLAMS/NATTS/ PAMS	SLAMS/NATTS/ PAMS	IMPROVE	IMPROVE
Monitoring objective	Population	Population	Population	Population
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	VOC canister sampler	Carbonyl Cartridge Sampler	IMPROVE	IMPROVE collocated
Analysis method	TO15/TO14	TO-11A	Various	Various
Start date	N/A	N/A	04/25/2001	04/25/2001
Operation schedule	1:6	1:6	1:6	1:6
Sampling season	All year	All year	All year	All year
Probe height from ground	6.0 m	6.0 m	N/A	N/A
Dist. from supporting structure	N/A	N/A	N/A	N/A
Distance from obstr. on roof	N/A	N/A	N/A	N/A
Distance from obstr. not on roof	N/A	N/A	N/A	N/A
Distance from trees	None	None	None	None
Unrestricted airflow degrees	360°	360°	360°	360°
Dist between collocated monitors	N/A	N/A	N/A	N/A
Annual performance/flow review	N/A	N/A	11/25/2003	11/25/2003
Flow rate verification frequency	N/A	N/A	N/A	N/A
One-point QC check frequency	N/A	N/A	N/A	N/A
Changes within 18 months	N	N	N	N
Compare with annual PM2.5?	N	N	N	N

JLG Supersite (Phoenix) – continued

ADEQ established the Phoenix – JLG Supersite in approximately 1991. The site is intended to represent the central core of the Phoenix metropolitan area in a high emissions area. This site houses a variety of air monitoring equipment including criteria pollutant samplers and analyzers for NAAQS compliance, PAMS, NATTS, STN, visibility/urban haze, meteorology, and has been selected for several state and national air monitoring studies.

The area surrounding the sampler consists of generally residential neighborhoods.

Site Information for:	**JLG Supersite**		
AQS ID	04-013-9997	ADEQ ID	16328
Address	4530 N. 17th Ave. Phoenix, AZ 85015		
Location (within site)	On Roof		
County	Maricopa	Latitude	33.5036
MSA	Phoenix	Longitude	-112.0950
Surrounding Area	Residential	Elevation	346 m
Distance to road	8.5 m – E	PEP audit date	EPA
Traffic count	N/A – 17th Ave	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	See Below

Pollutant Monitoring	**Hexavalent Chromium**	**Speciated PM2.5**	**Continuous Nitrate**	**Continuous Carbon**
Monitor Type	SLAMS/NATTS	SLAMS/STN	SLAMS/$PM_{2.5}$	SLAMS/$PM_{2.5}$
Monitoring objective	Population	Population	Population	Population
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Toxic Air Sampler	PM2.5 Speciation FRM	Nitrate Monitor	Sunset Monitor
Analysis method	CARB Method	Various	N/A	N/A
Start date	01/01/2006	02/21/2000	01/01/2000	01/01/2003
Operation schedule	1:6	Continuous	Continuous	Cntinuous
Sampling season	All year	All year	All year	All year
Probe height from ground	N/A	N/A	N/A	N/A
Dist. from supporting structure	2.15 m	N/A	N/A	N/A
Distance from obstr. on roof	N/A	N/A	N/A	N/A
Distance from obstr. not on roof	N/A	N/A	N/A	N/A
Distance from trees	N/A	None	None	None
Unrestricted airflow degrees	360°	360°	360°	360°
Dist between collocated monitors	N/A	N/A	N/A	N/A
Annual performance/flow review	N/A	N/A	N/A	N/A
Flow rate verification frequency	Monthly	Monthly	N/A	N/A
One-point QC check frequency	N/A	N/A	Biweekly	Biweekly
Changes within 18 months	N	N	N	N
Compare with annual PM2.5?	N	N	N	N

JLG Supersite (Phoenix) – continued

ADEQ established the Phoenix – JLG Supersite in approximately 1991. The site is intended to represent the central core of the Phoenix metropolitan area in a high emissions area. This site houses a variety of air monitoring equipment including criteria pollutant samplers and analyzers for NAAQS compliance, PAMS, NATTS, STN, visibility/urban haze, meteorology, and has been selected for several state and national air monitoring studies.

The area surrounding the sampler consists of generally residential neighborhoods.

Site Information for:	**JLG Supersite**		
AQS ID	04-013-9997	ADEQ ID	16328
Address	4530 N. 17th Ave. Phoenix, AZ 85015		
Location (within site)	On Roof		
County	Maricopa	Latitude	33.5036
MSA	Phoenix	Longitude	-112.0950
Surrounding Area	Residential	Elevation	346 m
Distance to road	8.5 m – E	PEP audit date	N/A
Traffic count	N/A – 17th Ave	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	See Below

Pollutant Monitoring	**Continuous PM2.5**	**Continuous PM10**		
Monitor Type	SPM	SPM		
Monitoring objective	Population	Population		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	FDMS TEOM – PM2.5	TEOM – PM10		
Analysis method	N/A	N/A		
Start date	03/17/2005	07/01/1993		
Operation schedule	Every Minute	Every minute		
Sampling season	All Year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	360°	360°		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	10/12/2006	10/12/2006		
Flow rate verification frequency	Monthly	Monthly		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Meadview
The Meadview site was established in January 2004 by the ADEQ and the Bureau of Land Management to monitor regional haze and as a part of the IMPROVE program. T this site houses the IMPROVE aerosol monitor and a temp/RH probe. The area surrounding the Meadview site is primarily desert with the nearest highway (US 93) 31.3 kilometers to the southwest.

Site Information for:	**Meadview**		
AQS ID	None	ADEQ ID	21298
Address	Pierce Ferry Rd. Meadview, AZ 86444		
Location (within site)	In shed		
County	Mohave	Latitude	35.9833
MSA	Lake Havasu City	Longitude	-114.0675
Surrounding Area	Desert	Elevation	902 m
Distance to road	N/A	PEP audit date	N/A
Traffic count	N/A	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Aerosol**			
Monitor Type	Class I support			
Monitoring objective	Background/Transprt			
Spatial scale	Regional			
Sampling method	IMPROVE			
Analysis method	Various			
Start date	01/01/2004			
Operation schedule	1:6			
Sampling season	All year			
Probe height from ground	N/A			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	360°			
Dist between collocated monitors	N/A			
Annual performance/flow review	N/A			
Flow rate verification frequency	N/A			
One-point QC check frequency	N/A			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Mesa City Building
The Mesa City Building site was established in December of 2002 as a part of the urban haze monitoring program. There is a Transmissometer receiver and a temp/RH probe at this location. The transmissometer transmitter is located at the Banner Mesa Medical. The area between the two sites is mostly residential with sporadic commercial activity. The transmissometer's beam extends approximately 4.9 kilometers through the City of Mesa.

Site Information for:	**Mesa City Building**		
AQS ID	None	ADEQ ID	19686
Address	55 N. Center St. Mesa, AZ 85201		
Location (within site)	On Building		
County	Maricopa	Latitude	33.4156
MSA	Mesa	Longitude	-111.8306
Surrounding Area	Residential	Elevation	373 m
Distance to road	34 m – W	PEP audit date	N/A
Traffic count	11,100 – Center St.	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bext**	**Temp/RH**		
Monitor Type	Urban Haze	Urban Haze		
Monitoring objective	Visibility	Visibility		
Spatial scale	Urban	Urban		
Sampling method	Transmissometer Receiver	Vaisala		
Analysis method	Light attenuation	N/A		
Start date	06/11/2003	05/30/2003		
Operation schedule	Every Minute	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	N/A	09/14/2006		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	Annual	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Miami Ridgeline
The Miami Ridgeline site was established in approximately 1993 and is intended to represent the highest SO_2 concentration in the area surrounding a nearby copper smelter located in the town of Miami. The analyzer is housed in a trailer which is located at the end of the paved portion of Linden Road, inside the fence line of a private residence. The area surrounding the site is mostly undeveloped high desert terrain. The site sits atop a north-south oriented ridge which slopes downward in a northerly direction toward the town of Miami.

Site Information for:	**Miami Ridgeline**			
AQS ID	04-007-0009		ADEQ ID	16382
Address	4030 Linden St. Miami, AZ 85539			
Location (within site)	In a trailer			
County	Gila		Latitude	33.3992
MSA	Payson		Longitude	-110.8589
Surrounding Area	Open Areas/Residential		Elevation	1085 m
Distance to road	40 m – N/A		PEP audit date	N/A
Traffic count	<20 – N/A		NPAP audit date	EPA
Groundcover	N/A		Flow audit date	4/11/2007
Pollutant Monitoring	**SO2**			
Monitor Type	SLAMS			
Monitoring objective	Source Impact			
Spatial scale	Neighborhood			
Sampling method	SO2 Analyzer			
Analysis method	Pulsed Fluorescence			
Start date	03/03/2005			
Operation schedule	Every Minute			
Sampling season	All year			
Probe height from ground	3.9 m			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	>10 m			
Unrestricted airflow degrees	N/A			
Dist between collocated monitors	N/A			
Annual performance/flow review	04/11/2007			
Flow rate verification frequency	N/A			
One-point QC check frequency	biweekly			
Changes within 18 months	N			
Compare with annual PM2.5?	N/A			

Nogales Post Office
The Nogales Post Office site was established in January of 1980. The purpose of monitoring at this site is for NAAQS compliance and as a special study. Currently, there is a PM_{10} monitor, a $PM_{2.5}$ monitor, an anemometer, a continuous PM_{10} monitor and a continuous $PM_{2.5}$ monitor at this site. This site lies approximately 670 meters from the Arizona/Mexico Border. The area around the site is a mixture of commercial and residential.

Site Information for:	**Nogales Post Office**			
AQS ID	04-023-0004		ADEQ ID	16511
Address	300 N. Morley Ave. Nogales, AZ 85621			
Location (within site)	On Building			
County	Santa Cruz		Latitude	31.3372
MSA	Nogales		Longitude	-110.9367
Surrounding Area	Residential/Commercial		Elevation	1176 m
Distance to road	14 m – NW		PEP audit date	EPA
Traffic count	N/A		NPAP audit date	EPA
Groundcover	N/A		Flow audit date	See Below
Pollutant Monitoring	**PM10**	**PM2.5**	**Wind**	**Continuous PM10**
Monitor Type	SLAMS	SLAMS	SLAMS	SPM
Monitoring objective	Population	Population	Population	Population
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Partisol 2000 – PM10	Partisol 2000 – PM2.5	Anemometer	BAM – PM10
Analysis method	Gravimetric	Gravimetric	N/A	N/A
Start date	08/27/2003	09/26/2003	06/13/2003	06/13/2003
Operation schedule	1:6	1:6	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Probe height from ground	7.3	7.3	10	8.3
Dist. from supporting structure	N/A	N/A	N/A	N/A
Distance from obstr. on roof	15.3 - West	5.4 - West	2.5 - East	10.6 - West
Distance from obstr. not on roof	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A
Unrestricted airflow degrees	360	360	360	360
Dist between collocated monitors	4.7	1.02	N/A	N/A
Annual performance/flow review	12/05/2006	12/05/2006	12/05/06	03/15/2006
Flow rate verification frequency	Monthly	Monthly	N/A	N/A
One-point QC check frequency	N/A	N/A	N/A	Biweekly
Changes within 18 months	N	N	N	N
Compare with annual PM2.5?	N	Y	N	N

Nogales Post Office – continued
The Nogales Post Office site was established in January of 1980. The purpose of monitoring at this site is for NAAQS compliance and as a special study. Currently, there is a PM_{10} monitor, a $PM_{2.5}$ monitor, an anemometer, a continuous PM_{10} monitor and a continuous $PM_{2.5}$ monitor at this site. This site lies approximately 670 meters from the Arizona/Mexico Border. The area around the site is a mixture of commercial and residential.

Site Information for:	**Nogales Post Office**		
AQS ID	04-023-0004	ADEQ ID	16511
Address	300 N. Morley Ave. Nogales, AZ 85621		
Location (within site)	On Building		
County	Santa Cruz	Latitude	31.3372
MSA	Nogales	Longitude	-110.9367
Surrounding Area	Residential/Commercial	Elevation	1176 m
Distance to road	14 m – NW	PEP audit date	EPA
Traffic count	N/A	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	See Below

Pollutant Monitoring	**Continuous PM2.5**			
Monitor Type	SPM			
Monitoring objective	Population			
Spatial scale	Neighborhood			
Sampling method	BAM – PM2.5			
Analysis method	N/A			
Start date	02/02/2004			
Operation schedule	Continuous			
Sampling season	All year			
Probe height from ground	8.3			
Dist. from supporting structure	9.6			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	360			
Dist between collocated monitors	1.02			
Annual performance/flow review	03/15/2006			
Flow rate verification frequency	N/A			
One-point QC check frequency	biweekly			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

North Mountain Summit (Phoenix)
The North Mountain Summit site was established in 1997 by ADEQ. The purpose of this site is to monitor Urban Haze. The camera at this location points to South Mountain and provides a view of downtown Phoenix. The two mountain ranges are approximately 27 kilometers apart. Images are updated on the Internet every 15 minutes at http://www.phoenixvis.net/somt1/index.html

Site Information for:	**North Mountain Summit (Phoenix)**		
AQS ID	None	ADEQ ID	16480
Address	7th Street/Cactus Phoenix, AZ		
Location (within site)	On top of mountain		
County	Maricopa	Latitude	33.5946
MSA	Phoenix	Longitude	-112.0984
Surrounding Area	Residential	Elevation	395 m
Distance to road	850 m – E	PEP audit date	N/A
Traffic count	35,900 – 7th St.	NPAP audit date	N/A
Groundcover	Dirt/Desert	Flow audit date	N/A

Pollutant Monitoring	**High Res Digital Camera**			
Monitor Type	Urban Haze			
Monitoring objective	Urban Haze			
Spatial scale	Urban			
Sampling method	High Res Digital Camera			
Analysis method	N/A			
Start date	07/01/2003			
Operation schedule	Every 15 min			
Sampling season	All year			
Probe height from ground	N/A			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	N/A			
Dist between collocated monitors	N/A			
Annual performance/flow review	N/A			
Flow rate verification frequency	N/A			
One-point QC check frequency	N/A			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Organ Pipe NM (Ajo)
ADEQ established the Organ Pipe site as early as 1969 in order to assess background concentrations of particulate matter. This site is part of the IMPROVE program and consists of a nephelometer, an IMPROVE monitor and a temp/RH monitor. The site lies about 0.54 kilometers east of a small mountain range which is about 61 meters above the site elevation. The area surrounding the sampler is predominately undisturbed Sonoran desert.

Site Information for:	**Organ Pipe NM (Ajo)**		
AQS ID	04-019-0005	ADEQ ID	16681
Address	SR 85 & Puerto Blanco Rd. Ajo, AZ 85321		
Location (within site)	On Trailer		
County	Pima	Latitude	31.9492
MSA	Tucson	Longitude	-112.8011
Surrounding Area	Desert	Elevation	506 m
Distance to road	400 m - E	PEP audit date	N/A
Traffic count	N/A – Puerto Blanco Rd	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	1/31/2007

Pollutant Monitoring	**Aerosol**	**Bscat**	**Temp/RH**	
Monitor Type	Class I Support	Class I Support	Class I Support	
Monitoring objective	Bkgrnd/Trans	Bkgrnd/Trans	Bkgrnd/Trans	
Spatial scale	Regional	Regional	Regional	
Sampling method	IMPROVE	Nephelometer	Vaisala	
Analysis method	Various	Light Scatter	N/A	
Start date	01/15/2003	06/01/2003	06/18/2003	
Operation schedule	1:6	Continuous	Continuous	
Sampling season	All year	All year	All year	
Probe height from ground	N/A	N/A	N/A	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	N/A	N/A	N/A	
Dist between collocated monitors	N/A	N/A	N/A	
Annual performance/flow review	01/31/2007	01/31/2007	01/31/2007	
Flow rate verification frequency	N/A	N/A	N/A	
One-point QC check frequency	N/A	N/A	N/A	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

Paul Spur Chemical Lime Plant
ADEQ established the Paul Spur Chemical Lime Plant Site in January of 1985. The purpose of the site is to assess NAAQS compliance. The site consists of two collocated PM_{10} monitors. The area surrounding the site is predominately desert.

Site Information for:	**Paul Spur Chemical Lime Plant**		
AQS ID	04-003-0011	ADEQ ID	16391
Address	SR 80 & Paul Spur Rd. Paul Spur, AZ 85603		
Location (within site)	On platform		
County	Cochise	Latitude	31.3656
MSA	Douglas	Longitude	-109.73
Surrounding Area	Desert	Elevation	1278
Distance to road	N/A -	PEP audit date	N/A
Traffic count	N/A – Paul Spur Rd	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	12/5/2006

Pollutant Monitoring	**PM10**	**PM10**		
Monitor Type	SLAMS	SLAMS		
Monitoring objective	Source Impact	Source Impact		
Spatial scale	Middle	Middle		
Sampling method	Partisol 2000 – HUB	Partisol 2000 – HUB		
Analysis method	Gravimetric	gravimetric		
Start date	12/16/1997	12/16/1997		
Operation schedule	1:6	1:6		
Sampling season	All year	All year		
Probe height from ground	3.7	3.7		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	30-45	30-45		
Unrestricted airflow degrees	360	360		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	12/05/2006	12/05/2006		
Flow rate verification frequency	Monthly	Monthly		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N/A	N		

Paul Spur Chemical Lime Plant South
ADEQ established the Paul Spur Chemical Lime Plant Site in January of 1985. The purpose of the site is to provide meteorological support. The site consists of an anemometer. The area surrounding the site is predominately desert.

Site Information for:	**Paul Spur Chemical Lime Plant South**		
AQS ID	None	ADEQ ID	16392
Address	SR 80 & Paul Spur Rd. Paul Spur, AZ 85603		
Location (within site)	In enclosed chain-link fence		
County	Cochise	Latitude	31.3656
MSA	Douglas	Longitude	-109.73
Surrounding Area	Desert	Elevation	1278
Distance to road	N/A	PEP audit date	N/A
Traffic count	N/A	NPAP audit date	N/A
Groundcover		Flow audit date	N/A

Pollutant Monitoring	**Wind**			
Monitor Type	SLAMS			
Monitoring objective	Source Impact			
Spatial scale	Middle			
Sampling method	Anemometer			
Analysis method	N/A			
Start date	12/16/1997			
Operation schedule	Continuous			
Sampling season	All year			
Probe height from ground	10 m			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	N/A			
Dist between collocated monitors	N/A			
Annual performance/flow review	N/A			
Flow rate verification frequency	N/A			
One-point QC check frequency	N/A			
Changes within 18 months	N			
Compare with annual PM2.5?	N/A			

Payson Well Site
ADEQ moved the site from the US West Building on W. Main to the Payson Well site in 1999. The intent of the site is to represent population exposure in the Payson area. The site consists of a Partisol PM_{10} sampler, a Partisol $PM_{2.5}$ sampler, an anemometer and a Temp/RH monitor. West of the site is a metal fence that is about 2.4 meters high. It is about 1.5 meters from the inlet of the partisol PM_{10} sampler and 0.8 meter below the inlet. A water tank lies southeast of the samplers and a second taller tank lies beyond the first tank. The site meets the EPA guidance with regard to separation from obstructions (separation distance must be twice the difference in height between the obstruction and the inlet.

Site Information for:	**Payson Well Site**			
AQS ID	04-007-0008		ADEQ ID	16317
Address	204 W. Aero Dr. Payson, AZ 85541			
Location (within site)	On platform			
County	Gila		Latitude	34.2294
MSA	Payson		Longitude	-111.3297
Surrounding Area	Pavement/dirt		Elevation	1497
Distance to road	34 m - S		PEP audit date	EPA
Traffic count	N/A – Aero Dr.		NPAP audit date	EPA
Groundcover	N/A		Flow audit date	See Below
Pollutant Monitoring	**Wind**	**PM2.5**	**PM10**	**Temp/RH**
Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS
Monitoring objective	Population	Population	Population	Population
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Anemometer	Partisol 2000-PM2.5	Partisol 2000-pm10	Vaisala
Analysis method	Light Scatter	Gravimetric	Gravimetric	N/A
Start date	05/30/1991	06/30/2004	01/16/2005	06/19/2003
Operation schedule	Continuous	1:6	1:6	Continuous
Sampling season	All year	All year	All year	All year
Probe height from ground	10 m	N/A	N/A	N/A
Dist. from supporting structure	N/A	3 m	3.2 m	N/A
Distance from obstr. on roof	N/A	N/A	N/A	N/A
Distance from obstr. not on roof	N/A	0.8 m	0.8 m	N/A
Distance from trees	N/A	N/A	N/A	N/A
Unrestricted airflow degrees	360°	360°	360°	360°
Dist between collocated monitors	N/A	1.1m	1.1 m	N/A
Annual performance/flow review	07/11/2006	07/11/2006	11/29/2006	03/02/2006
Flow rate verification frequency	N/A	Monthly	Monthly	N/A
One-point QC check frequency	N/A	N/A	N/A	N/A
Changes within 18 months	N	Y	N	N
Compare with annual PM2.5?	N	Y	N	N

Petrified Forest NP
The Petrified Forest National Park site was established in August of 1986. Currently, the National Parks Service is operating the site as a part of the IMPROVE program. The site consists of an IMPROVE aerosol monitor, a nephelometer and a temp/RH probe. ADEQ and the Park Service cooperatively operate the nephelometer. The area surrounding the site is primarily desert. The Park sits along Interstate 40, which in 2005 had an average daily traffic count of 17,900.

Site Information for:	**Petrified Forest NP**		
AQS ID	04-017-0119	ADEQ ID	16473
Address	I-40 & Petrified Forest Rd. Petrified Forest National Park, AZ		
Location (within site)	In shed		
County	Apache	Latitude	34.8208
MSA	N/A	Longitude	-109.8919
Surrounding Area	Desert	Elevation	1767
Distance to road	N/A -	PEP audit date	N/A
Traffic count	N/A – Petrified Forest Rd.	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bscat**	**Temp/RH**		
Monitor Type	Class I	Class I		
Monitoring objective	Visibility	Visibility		
Spatial scale	Regional	Regional		
Sampling method	Nephelometer	Vaisala		
Analysis method	Light Scatter	N/A		
Start date	10/01/2003	10/1/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	N/A	N/A		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	Weekly	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Phoenix Transmissometer Receiver
ADEQ established the Phoenix Transmissometer Receiver site in January 1992 in order to monitor Urban Haze. The site is on the roof of a hotel at the major cross streets of 2nd Avenue and Osborn. A Temp/RH probe is located with the receiver.. The transmitter is located on top of the hospital at 19th Avenue and Bethany Home Road 4.9 kms to the northwest. The area surrounding the site is primarily commercial with sparse residential areas on the outskirts. The area between the two sites are mostly residential.

Site Information for:	**Phoenix Transmissometer Receiver**		
AQS ID	None	ADEQ ID	16829
Address	3600 N. 2nd Ave. Phoenix, AZ 85013		
Location (within site)	On Building		
County	Maricopa	Latitude	33.4901
MSA	Phoenix	Longitude	-112.0767
Surrounding Area	Commercial/Residential	Elevation	337 m
Distance to road	N/A – E	PEP audit date	N/A
Traffic count	N/A – 2nd Ave.	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bext**	**Temp/RH**		
Monitor Type	Urban Haze	Urban Haze		
Monitoring objective	Urban Haze	Urban Haze		
Spatial scale	Urban	Urban		
Sampling method	Transmissometer Receiver	Vaisala		
Analysis method	Light Attenuation	N/A		
Start date	06/09/2003	06/09/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	N/A	N/A		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	Annual	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Phoenix Transmissometer Transmitter
ADEQ established the Phoenix Transmissometer Transmitter site in January of 1992 in order to monitor Urban Haze. The transmitter is located on top of the hospital at 19th Avenue and Bethany Home Road. The receiver is located on a hotel roof at 2nd Avenue and Osborn 4.9 kms to the southeast. The area surrounding the site is primarily commercial with sparse residential areas on the outskirts. The area between the two sites are mostly residential.

Site Information for:	**Phoenix Transmissometer Transmitter**		
AQS ID	None	ADEQ ID	16330
Address	2000 W. Bethany Home Rd. Phoenix, AZ 85015		
Location (within site)	Baptist Hospital to Sunshine Hotel		
County	Maricopa	Latitude	33.5253
MSA	Phoenix	Longitude	-112.1019
Surrounding Area	Residential	Elevation	340 m
Distance to road		PEP audit date	N/A
Traffic count		NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bext**			
Monitor Type	Urban Haze			
Monitoring objective	Urban Haze			
Spatial scale	Urban			
Sampling method	Transmissometer Transmitter			
Analysis method	N/A			
Start date	01/01/1994			
Operation schedule	Continuous			
Sampling season	All year			
Probe height from ground	N/A			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	N/A			
Dist between collocated monitors	N/A			
Annual performance/flow review	N/A			
Flow rate verification frequency	N/A			
One-point QC check frequency	Annual			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Pleasant Valley Ranger Station (Young)
The Pleasant Valley Ranger Station site is operated by ADEQ and the U.S. Forrest Service, which began in January of 2000 as a part of the IMPROVE network monitoring regional haze. This site is a class I site to measure visibility in the Sierra Ancha wilderness area near Young, Arizona. The site has a Temp/RH probe, an IMPROVE aerosol monitor, an anemometer and a nephelometer. The area surrounding this site is wilderness and desert. Pleasant Valley lies 1.82 kilometers to the Northwest of State Route 288, which has an average daily traffic count of 210.

Site Information for:	**Pleasant Valley Ranger Station (Young)**			
AQS ID	None		ADEQ ID	16446
Address	SR 288 & Old Cherry Rd. Young, AZ 85541			
Location (within site)	In shed			
County	Gila		Latitude	34.0908
MSA	Payson		Longitude	-110.9419
Surrounding Area	Desert/Forest		Elevation	1565 m
Distance to road	N/A -		PEP audit date	N/A
Traffic count	N/A – Old Cherry Rd.		NPAP audit date	N/A
Groundcover	N/A		Flow audit date	N/A
Pollutant Monitoring	**Bscat**	**Wind**	**Temp/RH**	
Monitor Type	Class I	Class I	Class I	
Monitoring objective	Visibility	Visibility	Visibility	
Spatial scale	Regional	Regional	Regional	
Sampling method	Nephelometer	Anemometer	Vaisala	
Analysis method	Light Scatter	N/A	N/A	
Start date	01/10/2003	06/11/2003	02/06/2003	
Operation schedule	Continuous	Continuous	Continuous	
Sampling season	All year	All year	All year	
Probe height from ground	4.3	7.4	N/A	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	N/A	N/A	N/A	
Dist between collocated monitors	N/A	N/A	N/A	
Annual performance/flow review	02/27/2007	02/27/2007	02/27/2007	
Flow rate verification frequency	N/A	N/A	N/A	
One-point QC check frequency	Weekly	N/A	N/A	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

Prescott Valley
ADEQ established the Prescott Valley site in March of 2003 for NAAQS compliance. The only monitor at this site is a Partisol 2000 HUB, which measures PM_{10}. The area surrounding this site is mostly residential. The population of Prescott Valley is approximately 33,068. Prescott Valley lies 136.8 kilometers north of Phoenix.

Site Information for:	**Prescott Valley**		
AQS ID	04-025-2002	ADEQ ID	18392
Address	7601 E. Civic Cir. Prescott Valley, AZ 86314		
Location (within site)	On platform		
County	Yavapai	Latitude	34.5950
MSA	Prescott	Longitude	-112.3319
Surrounding Area	Residential	Elevation	1556 m
Distance to road	N/A -	PEP audit date	N/A
Traffic count	N/A – Civic Cir.	NPAP audit date	EPA
Groundcover	Dirt	Flow audit date	11/14/2006

Pollutant Monitoring	**PM10**			
Monitor Type	SPM			
Monitoring objective	Population			
Spatial scale	Neighborhood			
Sampling method	Partisol 2000 HUB			
Analysis method	Gravimetric			
Start date	03/16/2003			
Operation schedule	1:6			
Sampling season	All year			
Probe height from ground	3.4			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/a			
Distance from obstr. not on roof	2			
Distance from trees	3 – SW			
Unrestricted airflow degrees	360			
Dist between collocated monitors	N/A			
Annual performance/flow review	11/14/2006			
Flow rate verification frequency	Monthly			
One-point QC check frequency	N/A			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Queen Valley
ADEQ established the Queen Valley site in January 1998. It is currently operated by ADEQ and Pinal County Air Quality Control District. The purpose of this site is to support the PAMS network and monitor regional haze through IMPROVE. The site consists of an ozone analyzer, a seasonal trace NO_y monitor, an IMPROVE aerosol monitor, a nephelometer, a VOC canister sampler and a temp/RH probe. The area around this site is primarily desert. The monitor is located 635 m southeast of Queen Valley, which is a small community on the far outskirts of the Metropolitan Phoenix Area. The population of Queen Valley was 820 in 2000.

Site Information for:	**Queen Valley**		
AQS ID	04-021-8001	ADEQ ID	16394
Address	10 S. Queen Anne Dr. Queen Valley, AZ 85219		
Location (within site)	On Building		
County	Pinal	Latitude	33.2936
MSA	Mesa	Longitude	-111.2856
Surrounding Area	Desert	Elevation	634 m
Distance to road	87.39 m – W	PEP audit date	N/A
Traffic count	N/A – Queen Anne Dr.	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	See below

Pollutant Monitoring	**O_3**	**NOy**	**Aerosol**	**Temp/RH**
Monitor Type	SLAMS/PAMS	SLAMS/PAMS	SPM	Class I
Monitoring objective	Max Conc	Max Conc	Visibility	Visibility
Spatial scale	Urban	Urban	Urban	Urban
Sampling method	O3 Analyzer	Trace Reactive NOx - Seasonal	IMPROVE	Vaisala
Analysis method	UV Photometric	Chemilumin-escence	Various	N/A
Start date	2001	2001	2001	01/01/2006
Operation schedule	Continuous	Continuous	1:6	Continuous
Sampling season	All year	All year	All year	All year
Probe height from ground	4.6	5.0	5.4	5.4
Dist. from supporting structure	N/A	N/A	N/A	N/A
Distance from obstr. on roof	N/A	N/A	N/A	N/A
Distance from obstr. not on roof	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A
Unrestricted airflow degrees	360°	360°	360°	360°
Dist between collocated monitors	N/A	N/A	N/A	N/A
Annual performance/flow review	04/12/2006	N/A	02/13/2007	10/20/2006
Flow rate verification frequency	N/A	N/A	N/A	N/A
One-point QC check frequency	biweekly	biweekly	N/A	N/A
Changes within 18 months	N	N	N	N
Compare with annual PM2.5?	N	N	N	N

Queen Valley (continued)

ADEQ established the Queen Valley site in January 1998. It is currently operated by ADEQ and Pinal County Air Quality Control District. The purpose of this site is to support the PAMS network and monitor regional haze through IMPROVE. The site consists of an ozone analyzer, a seasonal trace NO_y monitor, an IMPROVE aerosol monitor, a nephelometer, a VOC canister sampler and a temp/RH probe.

The area around this site is primarily desert. The monitor is located 635 m southeast of Queen Valley, which is a small community on the far outskirts of the Metropolitan Phoenix Area. The population of Queen Valley was 820 in 2000.

Site Information for:	**Queen Valley**		
AQS ID	04-021-8001	ADEQ ID	16394
Address	10 S. Queen Anne Dr. Queen Valley, AZ 85219		
Location (within site)	On Building		
County	Pinal	Latitude	33.2936
MSA	Mesa	Longitude	-111.2856
Surrounding Area	Desert	Elevation	634 m
Distance to road	87.39 m – W	PEP audit date	N/A
Traffic count	N/A – Queen Anne Dr.	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	See Below

Pollutant Monitoring	**Bscat**	**VOC**		
Monitor Type	Class I	SLAMS/PAMS		
Monitoring objective	Visibility	Visibility		
Spatial scale	Urban	Urban		
Sampling method	Nephelometer	VOC Canister Sampler		
Analysis method	Light Scatter	Analyzed by lab		
Start date	06/24/2003	N/A		
Operation schedule	Continuous	1:12		
Sampling season	All year	May-Oct		
Probe height from ground	5.4	5.0		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	360°	360°		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	04/12/2006	N/A		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	Weekly	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Rillito
ADEQ began air quality measurements at the Rillito site in January 1985 to demonstrate NAAQS compliance. ADEQ operates a Partisol 2000 PM_{10} sampler at the site and an anemometer. In February of 2007 the site was moved to a new site located at a water well approximately 100yards to the south of the Water St. location. The site surroundings are primarily residential and industrial. Interstate 10 lies 44 meters northeast of the site.

Site Information for:	**Rillito**		
AQS ID	04-019-0020	ADEQ ID	16499
Address	8840 West Robinson Street Rillito, AZ 85653		
Location (within site)	On platform		
County	Pima	Latitude	32.4156
MSA	Tucson	Longitude	-111.1533
Surrounding Area	Residential	Elevation	626 m
Distance to road	N/A -	PEP audit date	N/A
Traffic count	N/A – Robinson	NPAP audit date	EPA
Groundcover	Dirt	Flow audit date	11/21/2006

Pollutant Monitoring	**PM10**	**Wind**		
Monitor Type	SLAMS	SLAMS		
Monitoring objective	Source Impact	Source Impact		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Partisol 2000 – PM10	Anemometer		
Analysis method	Gravimetric	N/A		
Start date	07/03/2005	01/08/2004		
Operation schedule	1:6	Continuous		
Sampling season	All year	All year		
Probe height from ground	4	10		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	>10	>10		
Unrestricted airflow degrees	360°	360°		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	11/21/2006	11/21/2006		
Flow rate verification frequency	Monthly	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	Y	Y		
Compare with annual PM2.5?	N	N		

Safford
ADEQ established the Safford site in January 1974. The site is for NAAQS compliance and has a Partisol 2000 PM_{10} monitor. The site is 102 meters South of State Route 70, which has a daily traffic count of 9,700 vehicles. Safford is a small community with a population of 8,932 that lies 2.3 kilometers south of Mount Graham.

Site Information for:	**Safford**		
AQS ID	04-009-0001	ADEQ ID	16508
Address	523 S. 10th Ave. Safford, AZ 85546		
Location (within site)	On Building		
County	Graham	Latitude	32.8339
MSA	Safford	Longitude	-109.7186
Surrounding Area	Residential	Elevation	899 m
Distance to road	23.5 m – E	PEP audit date	N/A
Traffic count	N/A – 10th Ave	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	3/7/2007

Pollutant Monitoring	**PM10**			
Monitor Type	SLAMS			
Monitoring objective	Population			
Spatial scale	Neighborhood			
Sampling method	Partisol 2000 – PM10			
Analysis method	Gravimetric			
Start date	09/15/2004			
Operation schedule	1:6			
Sampling season	All year			
Probe height from ground	N/A			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	N/A			
Dist between collocated monitors	N/A			
Annual performance/flow review	03/07/2007			
Flow rate verification frequency	Monthly			
One-point QC check frequency	N/A			
Changes within 18 months	Y			
Compare with annual PM2.5?	N			

Saguaro National Park West
ADEQ established the site at Saguaro National Park West in December of 1996 to monitor regional haze. This site is also part of the IMPROVE program. Currently at this site there are a temp/RH probe, an IMPROVE aerosol monitor, an anemometer and an nephelometer. The Saguaro National Park has a gross area of 91,446 acres. It attracted 757,417 visitors in 2000. The area is desert. This site lies 18.4 kilometers west of Interstate 10, which has an average daily traffic count of 144,000 vehicles.

Site Information for:	**Saguaro Ntl Park West**		
AQS ID	None	ADEQ ID	16475
Address	West of I-10, North of N. Kinney Rd. Tucson, AZ		
Location (within site)	In shed		
County	Pima	Latitude	32.2544
MSA	Tucson	Longitude	-111.1936
Surrounding Area	Desert	Elevation	799 m
Distance to road	237 m – SW	PEP audit date	N/A
Traffic count	N/A – N. Kinney Rd	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Aerosol**	**Bscat**	**Wind**	**Temp/RH**
Monitor Type	Class I	Class I	Class I	Class I
Monitoring objective	Visibility	Visibility	Visibility	Visibility
Spatial scale	Regional	Regional	Regional	Regional
Sampling method	IMPROVE	Nephelometer	Anemometer	Vaisala
Analysis method	Various	Light Scatter	N/A	N/A
Start date	N/A	12/29/1996	12/29/1996	06/23/2003
Operation schedule	1:6	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Probe height from ground	~3	~4	~7	N/A
Dist. from supporting structure	N/A	N/A	N/A	N/A
Distance from obstr. on roof	N/A	N/A	N/A	N/A
Distance from obstr. not on roof	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A
Unrestricted airflow degrees	N/A	N/A	N/A	N/A
Dist between collocated monitors	N/A	N/A	N/A	N/A
Annual performance/flow review	08/27/2003	07/20/2006	07/20/2006	07/20/2006
Flow rate verification frequency	N/A	N/A	N/A	N/A
One-point QC check frequency	N/A	N/A	N/A	N/A
Changes within 18 months	N	N	N	N
Compare with annual PM2.5?	N/A	N/A	N/A	N/A

San Luis (Yuma)
The San Luis site was installed in May of 2003 on City of San Luis property near the Municipal buildings on North First Avenue. The site includes wind speed, wind direction, ambient temperature and relative humidity. The site is intended to represent meteorological conditions in the San Luis area. The immediate area surrounding the site is generally residential and commercial development. The wind sensor does not meet EPA meteorological guidance because siting an instrument to these specifications in this area would be nearly impossible due to building density. The recommendation is to operate the site and consider potential effects of the buildings when analyzing data. The site is part of the meteorological network for the WASBAQS.

Site Information for:	**San Luis (Yuma)**			
AQS ID	None		ADEQ ID	18250
Address	767 N. 1st Ave. Yuma, AZ 85349			
Location (within site)	On ground enclosed in chain-link fence			
County	Yuma		Latitude	32.4917
MSA	Yuma		Longitude	-114.78
Surrounding Area	Residential		Elevation	34 m
Distance to road	20 m - W		PEP audit date	N/A
Traffic count	N/A – 1st Ave		NPAP audit date	N/A
Groundcover	Paved		Flow audit date	N/A
Pollutant Monitoring	**Temp/RH**	**Wind**		
Monitor Type	SPM	SPM		
Monitoring objective	Study	Study		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Vaisala	Anemometer		
Analysis method	N/A	N/A		
Start date	05/13/2003	05/13/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	3.2	10		
Dist. from supporting structure	Portable Tower	Portable Tower		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	13.4 - South	13.4 – South		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	360°	360°		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	02/06/2007	02/06/2007		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	N/A	N/A		
Compare with annual PM2.5?	N	N		

San Manuel
ADEQ established the San Manuel site in April 2002 in order to monitor SO_2 for NAAQS compliance. Currently, the site has an SO_2 monitor. San Manuel is a small town outside of Tucson. The population of San Manuel in 2000 was approximately 4,375. The SO2 source came from a nearby smelter, which has been dismantled.

Site Information for:	**San Manuel**		
AQS ID	04-021-2001	ADEQ ID	16397
Address	1st Ave. & Douglas Ave. San Manuel, AZ 85631		
Location (within site)			
County	Pinal	Latitude	32.5986
MSA	Mesa	Longitude	-110.6336
Surrounding Area	Residential	Elevation	332 m
Distance to road	69 m – SE	PEP audit date	N/A
Traffic count	N/A – 1st Ave	NPAP audit date	EPA
Groundcover		Flow audit date	11/16/2006

Pollutant Monitoring	**SO2**			
Monitor Type	SPM			
Monitoring objective	Population			
Spatial scale	Neighborhood			
Sampling method	SO2 Analyzer			
Analysis method	Pulsed Fluorescence			
Start date	01/01/1975			
Operation schedule	Continuous			
Sampling season	All year			
Probe height from ground	N/A			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	360			
Dist between collocated monitors	N/A			
Annual performance/flow review	11/16/2006			
Flow rate verification frequency	N/A			
One-point QC check frequency	biweekly			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Sedona Post Office
ADEQ established the Sedona Post Office PM_{10} site in approximately 1990 in order to assess particulate concentrations in the Sedona area. The site consists of a single Partisol PM_{10} sampler atop the Post Office building. The site is located northeast of the intersection of State Routes 17 and 89A. The area surrounding the sampler is of a mixed commercial/residential use and hilly terrain. The areas north, west and east of the site are mainly hills of moderate height, about twice the height of the building. Toward the south lie commercial and residential areas.

Site Information for:	**Sedona Post Office**		
AQS ID	04-005-1010	ADEQ ID	16512
Address	190 W. Highway 89A Sedona, AZ 86336		
Location (within site)	On Post Office Building		
County	Coconino	Latitude	34.8667
MSA	Flagstaff	Longitude	-111.765
Surrounding Area	Commercial/Residential	Elevation	1279 m
Distance to road	45 m – S	PEP audit date	N/A
Traffic count	>20,000 – HWY 89A	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	3/20/2007

Pollutant Monitoring	**PM10**			
Monitor Type	SPM			
Monitoring objective	Population			
Spatial scale	Neighborhood			
Sampling method	Partisol 2000 HUB			
Analysis method	Gravimetric			
Start date	01/09/2000			
Operation schedule	1:6			
Sampling season	All year			
Probe height from ground	7 m			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	>10 m			
Unrestricted airflow degrees	N/A			
Dist between collocated monitors	N/A			
Annual performance/flow review	03/20/2007			
Flow rate verification frequency	monthly			
One-point QC check frequency	N/A			
Changes within 18 months	Y			
Compare with annual PM2.5?	N			

Show Low
ADEQ established the Show Low site in January 1974 to demonstrate NAAQS compliance. The site includes a Partisol 2000 HUB PM_{10} sampler. Show Low is a small town 213 kilometers northeast of Phoenix. The annual population estimate is approximately 9,885 people, but it seasonally climbs to around 15,000. The city is the commercial and tourism hub of the western White Mountains. The city is predominantly forest, residential, and commercial.

Site Information for:	**Show Low**		
AQS ID	04-017-0007	ADEQ ID	16603
Address	561 E. Deuce of Clubs Show Low, AZ 85901		
Location (within site)	On ground		
County	Navajo	Latitude	34.2525
MSA	N/A	Longitude	-110.0364
Surrounding Area	Commercial/Residential	Elevation	1924 m
Distance to road	35.68 m – NW	PEP audit date	N/A
Traffic count	9,500 – Deuce of Clubs	NPAP audit date	EPA
Groundcover	Paved	Flow audit date	3/21/2007

Pollutant Monitoring	**PM10**			
Monitor Type	SLAMS			
Monitoring objective	Population			
Spatial scale	Neighborhood			
Sampling method	Partisol 2000 HUB			
Analysis method	Gravimetric			
Start date	02/23/1999			
Operation schedule	1:6			
Sampling season	All year			
Probe height from ground	6 m			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	None			
Distance from obstr. not on roof	None			
Distance from trees	None			
Unrestricted airflow degrees	360			
Dist between collocated monitors	N/A			
Annual performance/flow review	03/21/2007			
Flow rate verification frequency	Monthly			
One-point QC check frequency	N/A			
Changes within 18 months	Y			
Compare with annual PM2.5?	N			

Sonora Nogales Fire Station
ADEQ established the Sonora Nogales Fire Station site in November 1993 as part of the Ambos Nogales border study. The site continued after the study as a special purpose monitoring site. The air quality monitor at this site is an Anderson dichot monitor measuring $PM_{10/fine}$. Nogales, Sonora, Mexico is located just south of the Arizona/Mexico border. The site is approximately one kilometer south of the Arizona/Mexico border.

Site Information for:	**Sonora Nogales Fire Station**		
AQS ID	80-026-0005	ADEQ ID	16399
Address	Nogales, Sonora, Mexico		
Location (within site)	On metal platform		
County	Sonora	Latitude	31.3258
MSA	N/A	Longitude	-110.9447
Surrounding Area	Commercial	Elevation	1202 m
Distance to road	N/A	PEP audit date	N/A
Traffic count	N/A	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	6/15/2006

Pollutant Monitoring	**PM10/fine**			
Monitor Type	SPM			
Monitoring objective	Population			
Spatial scale	Neighborhood			
Sampling method	Dichot			
Analysis method	Gravimetric			
Start date	11/12/1993			
Operation schedule	1:6			
Sampling season	All year			
Probe height from ground	13.9 m			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	9.5 m			
Distance from obstr. not on roof	N/A			
Distance from trees	None			
Unrestricted airflow degrees	360			
Dist between collocated monitors	N/A			
Annual performance/flow review	06/15/2006			
Flow rate verification frequency	Monthly			
One-point QC check frequency	N/A			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Sonora (Mexico)
ADEQ established the Sonora site in April of 2004 as part of the WASBAQS study. The primary goal of the project of the WASBAQS is to adequately characterize the magnitude, the spatial variation, and the temporal variation of hazardous air pollutants. The area along the U.S./Mexican border generally contains the highest amount of particulates and gaseous air toxics measured throughout the United States. This site is part of the meteorological network for the study. There is a Temp/RH probe and an anemometer at the site.

Site Information for:	**Sonora (Mexico)**			
AQS ID	None		ADEQ ID	22243
Address	Intersection Avenida Guerrero & Calle 34 San Luis Rio Colorado, Mexico			
Location (within site)	On ground in enclosed chain-link fence			
County	Sonora		Latitude	32.4242
MSA	N/A		Longitude	-114.7978
Surrounding Area	Desert/Residential		Elevation	33.2 m
Distance to road	N/A		PEP audit date	N/A
Traffic count	N/A		NPAP audit date	N/A
Groundcover	Dirt		Flow audit date	N/A
Pollutant Monitoring	**Temp/RH**	**Wind**		
Monitor Type	SPM	SPM		
Monitoring objective	Study	Study		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Vaisala	Anemometer		
Analysis method	N/A	N/A		
Start date	05/25/2004	05/25/2004		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	10		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	12/12/2006	12/12/2006		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	Y	Y		
Compare with annual PM2.5?	N	N		

South Phoenix
ADEQ has operated a VOC Canister Sampler and a Carbonyl Sample since 1997 as part of the PAMS and Toxics network at this site owned by Maricopa county Air Quality Department. Beginning July 2, 2007, ADEQ began regular toxics sampling at the South Phoenix site using canister samples analyzed using EPA Method TO-15. Sample collection frequency will be every 12th day. This site is situated in South Phoenix. It is at the edge of a high population area, but it also borders on a mixture of residential and commercial properties including retail stores, food establishments and office buildings. Two high population areas are located north and west of the site.

Site Information for:	**South Phoenix**		
AQS ID	04-013-4003	ADEQ ID	16377
Address	33 W. Tamarisk St. Phoenix, AZ 85041		
Location (within site)	On Building		
County	Maricopa	Latitude	33.4033
MSA	Phoenix	Longitude	-112.0744
Surrounding Area	Residential/Commercial	Elevation	330 m
Distance to road	83 m – W	PEP audit date	N/A
Traffic count	24,900 – Central Ave	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**VOC**		
Monitor Type	PAMS/Urban Toxics		
Monitoring objective	Population		
Spatial scale	Neighborhood		
Sampling method	Multiport Canister Sampler		
Analysis method	TO14/TO15		
Start date	N/A		
Operation schedule	1:12		
Sampling season	May-Oct		
Probe height from ground	N/A		
Dist. from supporting structure	N/A		
Distance from obstr. on roof	N/A		
Distance from obstr. not on roof	N/A		
Distance from trees	N/A		
Unrestricted airflow degrees	N/A		
Dist between collocated monitors	N/A		
Annual performance/flow review	N/A		
Flow rate verification frequency	N/A		
One-point QC check frequency	N/A		
Changes within 18 months	N		
Compare with annual PM2.5?	N		

Sycamore Canyon (Camp Raymond)
ADEQ began operation of the Sycamore Canyon site in September of 1997. The site is part of the IMPROVE network and consists of a nephelometer and meteorological system. Communication is by land phone line. The site is situated near the entrance to the Camp Raymond Boy Scout Camp about 0.8 kilometers north of Sycamore Canyon. The intent of the site is to assess visibility impacts in the Sycamore Canyon Wilderness Area. Minimal obstructions exist in the area immediate to the equipment and no routine human activity occurs in the area surrounding the site. During the summer months Camp Raymond is used by Boy Scouts from around the state and nation for summer camp.

Site Information for:	**Sycamore Canyon (Camp Raymond)**			
AQS ID	None		ADEQ ID	16476
Address	Camp Kimball Rd. Flagstaff, AZ			
Location (within site)	In shed			
County	Coconino		Latitude	35.1406
MSA	Flagstaff		Longitude	-111.9686
Surrounding Area	Forest		Elevation	2040 m
Distance to road	33 m – NW		PEP audit date	N/A
Traffic count	N/A – Scout Camp Rd		NPAP audit date	N/A
Groundcover	N/A		Flow audit date	N/A
Pollutant Monitoring	**Aerosol**	**Bscat**	**Wind**	**Temp/RH**
Monitor Type	Class I	Class I	Class I	Class I
Monitoring objective	Visibility	Visibility	Visibility	Visibility
Spatial scale	Regional	Regional	Regional	Regional
Sampling method	IMPROVE	Nephelometer	Anemometer	Vaisala
Analysis method	various	Light Scatter	N/A	N/A
Start date	N/A	07/22/1998	06/13/2003	06/13/2003
Operation schedule	1:6	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Probe height from ground	N/A	5.5 m	7	5.5 m
Dist. from supporting structure	N/A	N/A	N/A	N/A
Distance from obstr. on roof	N/A	N/A	N/A	N/A
Distance from obstr. not on roof	20 m	20 m	20 m	20 m
Distance from trees	N/A	N/A	N/A	N/A
Unrestricted airflow degrees	N/A	N/A	N/A	N/A
Dist between collocated monitors	N/A	N/A	N/A	N/A
Annual performance/flow review	08/14/2003	07/12/2006	07/12/2006	07/12/2006
Flow rate verification frequency	N/A	N/A	N/A	N/A
One-point QC check frequency	N/A	Weekly	N/A	N/A
Changes within 18 months	N	N	N	N
Compare with annual PM2.5?	N	N	N	N

Tonto NM
The National Park Service and ADEQ operate the Tonto National Monument site. The site was established in 1997 and originally consisted of an IMPROVE monitor only. In 2002, ADEQ added an ozone monitor, an NO_y monitor, an NO_y monitor and an IMPROVE aerosol sampler. The IMPROVE sampler is intended to represent and track aerosol concentrations and chemical speciation near a Class I area, the Superstition Wilderness to the west. Ozone and NO_y monitors represent downwind transport of ozone and precursors from the Phoenix area. This site is located at the base of the monument about 40 meters west of SR 188. The area surrounding the site is generally undeveloped mountainous Sonoran Desert with Roosevelt Lake to the east.

Site Information for:	**Tonto NM**			
AQS ID	04-007-0010		ADEQ ID	16447
Address	South of SR88 Roosevelt, AZ 85545			
Location (within site)	In shed			
County	Gila		Latitude	33.6547
MSA	Payson		Longitude	-111.1067
Surrounding Area	Desert		Elevation	750 m
Distance to road	17 m – NE		PEP audit date	N/A
Traffic count	1,000 – SR 188		NPAP audit date	EPA
Groundcover	N/A		Flow audit date	See Below
Pollutant Monitoring	**O_3**	**Noy**	**Aerosol**	
Monitor Type	SLAMS	SLAMS	Class I	
Monitoring objective	Downwind Concentration	Downwind Concentration	Visibility	
Spatial scale	Regional	Regional	Regional	
Sampling method	O3 Analyzer	Trace Reactive NOx - Seasonal	IMPROVE	
Analysis method	UV Photometric	Chemilumin-escence	Various	
Start date	05/22/2002	05/22/2002	1997	
Operation schedule	Continuous	Continuous	1:6	
Sampling season	May-Oct	May-Oct	All year	
Probe height from ground	4.75	4.75	N/A	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	360°	360°	N/A	
Dist between collocated monitors	N/A	N/A	N/A	
Annual performance/flow review	07/11/2006	07/11/2006	N/A	
Flow rate verification frequency	Biweekly	Biweekly	N/A	
One-point QC check frequency	N/A	N/A	N/A	
Changes within 18 months	N	Y	N	
Compare with annual PM2.5?	N	N	N	

Tucson Transmissometer Receiver
ADEQ and the Pima County Department of Environmental Quality operate the Tucson transmissometer transmitter and receiver sites as a part of monitoring for urban haze. The transmissometer receiver sits on the Pima County Health and Welfare building, while the transmissometer transmitter is located on the Clinical Science Building at University of Arizona's Health Sciences Center. The two locations are approximately 1.1 kilometers apart. The area in between the transmitter and receiver consists mainly of residential and commercial buildings. The U of A Health Sciences Center is approximately 483 meters east of the Interstate 19, which has an average daily traffic count of 28,200 vehicles.

Site Information for:	**Tucson Transmissometer Receiver**		
AQS ID	None	ADEQ ID	16826
Address	150 W. Congress St. Tucson, AZ 85701		
Location (within site)	On Building		
County	Pima	Latitude	32.2217
MSA	Tucson	Longitude	-110.9735
Surrounding Area	Residential	Elevation	722 m
Distance to road	23 m – SE	PEP audit date	N/A
Traffic count	36,600 - Congress St.	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bext**			
Monitor Type	Urban Haze			
Monitoring objective	Visibility			
Spatial scale	Urban			
Sampling method	Transmissometer receiver			
Analysis method	Light Attenuation			
Start date	01/01/1994			
Operation schedule	Continuous			
Sampling season	All year			
Probe height from ground	N/A			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	N/A			
Dist between collocated monitors	N/A			
Annual performance/flow review	N/A			
Flow rate verification frequency	N/A			
One-point QC check frequency	N/A			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

Tucson Transmissometer Transmitter
ADEQ and Pima County Department of Environmental Quality operate the Tucson Transmissometer Transmitter and Receiver sites as a part of monitoring for urban haze. The transmissometer receiver sits on the Pima County Health and Welfare building, while the transmissometer transmitter is located on the Clinical Science Building at University of Arizona's Health Sciences Center. The two locations are approximately 1.1 kilometers apart. The area in between the transmitter and receiver consists mainly of residential and commercial buildings. The U of A Health Sciences Center is approximately 483 meters east of the Interstate 19, which has an average daily traffic count of 28,200 vehicles.

Site Information for:	**Tucson Transmissometer Transmitter**			
AQS ID	None		ADEQ ID	16655
Address	1501 N. Campbell Ave. Tucson, AZ 85719			
Location (within site)	On Building			
County	Pima		Latitude	32.2403
MSA	Tucson		Longitude	-110.9456
Surrounding Area	Residential/Commercial		Elevation	786 m
Distance to road	183 m – E		PEP audit date	N/A
Traffic count	40,300 – Campbell		NPAP audit date	N/A
Groundcover	N/A		Flow audit date	N/A
Pollutant Monitoring	**Bext**			
Monitor Type	Urban Haze			
Monitoring objective	Visibility			
Spatial scale	Urban			
Sampling method	Transmissometer			
Analysis method	Light Attenuation			
Start date	01/01/1994			
Operation schedule	Continuous			
Sampling season	All year			
Probe height from ground	N/A			
Dist. from supporting structure	N/A			
Distance from obstr. on roof	N/A			
Distance from obstr. not on roof	N/A			
Distance from trees	N/A			
Unrestricted airflow degrees	N/A			
Dist between collocated monitors	N/A			
Annual performance/flow review	N/A			
Flow rate verification frequency	N/A			
One-point QC check frequency	N/A			
Changes within 18 months	N			
Compare with annual PM2.5?	N			

U of A Central (Tucson)
ADEQ established the University of Arizona Central Site in January 1995 to monitor urban haze. There is a nephelometer, an aethalometer and a temp/RH probe at this site. The area surrounding the site is mostly residential and commercial. The site lies 509 meters northwest of the middle of the University of Arizona Campus. This site is 2.31 kilometers west of Interstate 10, which has an average daily traffic count of 160,000 vehicles.

Site Information for:	**U of A Central (Tucson)**		
AQS ID	04-019-1027	ADEQ ID	16662
Address	1100 N. Fremont Ave. Tucson, AZ 85719		
Location (within site)	On Building		
County	Pima	Latitude	32.2400
MSA	Tucson	Longitude	-110.9556
Surrounding Area	Residential/Commercial	Elevation	745 m
Distance to road	50 m – S	PEP audit date	N/A
Traffic count	52,100 – Fremont	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bscat**	**Babs**	**Temp/RH**	
Monitor Type	Urban Haze	Urban Haze	Urban Haze	
Monitoring objective	Visibility	Visibility	Visibility	
Spatial scale	Urban	Urban	Urban	
Sampling method	Nephelometer	Aethalometer	Vaisala	
Analysis method	Light Scatter	Light Absorption	N/A	
Start date	01/01/1997	N/A	01/01/1997	
Operation schedule	Continuous	Continuous	Continuous	
Sampling season	All year	All year	All year	
Probe height from ground	N/A	N/A	N/A	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	N/A	N/A	N/A	
Dist between collocated monitors	N/A	N/A	N/A	
Annual performance/flow review	10/19/2006	N/A	10/19/2006	
Flow rate verification frequency	N/A	N/A	N/A	
One-point QC check frequency	Weekly	N/A	N/A	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

Vehicle Emissions Laboratory (Phoenix)
ADEQ established the Vehicle Emissions Laboratory site in April 1987. The purpose of this site is for NAAQS compliance, PAMS meteorological support, special studies, and urban haze. Currently, the site houses a nephelometer, an anemometer, a temp/RH probe, a delta temp system, 2 solar radiation sensors, and a wind profiler. The area surrounding the site is primarily residential and commercial. The site is 413 meters south of Red Mountain Freeway, 1.26 kilometers west of the Hohokam Expressway and 825 meters west of the SR 153.

Site Information for:	**Vehicle Emissions Laboratory**		
AQS ID	04-013-9998	ADEQ ID	16363
Address	600 N. 40th St. Phoenix, AZ 85008		
Location (within site)	On Building		
County	Maricopa	Latitude	33.4553
MSA	Phoenix	Longitude	-111.9961
Surrounding Area	Residential/ Commercial	Elevation	320 m
Distance to road	66 m - E	PEP audit date	N/A
Traffic count	9,200 - 40th St.	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Bscat / PM2.5**	**Wind**	**Temp/RH**	**Delta Temp**
Monitor Type	SPM	SPM	SPM	SPM
Monitoring objective	AIRNow	PAMS	PAMS	PAMS
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Nephelometer	Anemometer	Vaisala	Delta Temp System
Analysis method	Light Scatter with correlation to PM2.5	N/A	N/A	N/A
Start date	06/30/2003	05/11/1999	06/30/2003	08/20/2004
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Probe height from ground	N/A	10	N/A	N/A
Dist. from supporting structure	N/A	N/A	N/A	N/A
Distance from obstr. on roof	N/A	N/A	N/A	N/A
Distance from obstr. not on roof	N/A	N/A	N/A	N/A
Distance from trees	N/A	N/A	N/A	N/A
Unrestricted airflow degrees	N/A	N/A	N/A	N/A
Dist between collocated monitors	N/A	N/A	N/A	N/A
Annual performance/flow review	11/21/2006	11/21/2006	11/21/2006	11/21/2006
Flow rate verification frequency	N/A	N/A	N/A	N/A
One-point QC check frequency	Weekly	N/A	N/A	N/A
Changes within 18 months	N	N	N	N
Compare with annual PM2.5?	N	N	N	N

Vehicle Emissions Laboratory (Phoenix) (continued)
ADEQ established the Vehicle Emissions Laboratory site in April 1987. The purpose of this site is for NAAQS compliance, PAMS, special studies, and urban haze. Currently, the site houses a nephelometer, an anemometer, a temp/RH probe, a delta temp system, an ultraviolet sensor, and a wind profiler. The area surrounding the site is primarily residential and commercial. The site is 413 meters south of Red Mountain Freeway, 1.26 kilometers west of the Hohokam Expressway and 825 meters west of the SR 153.

Site Information for:	**Vehicle Emissions Laboratory**		
AQS ID	04-013-9998	ADEQ ID	16363
Address	600 N. 40th St. Phoenix, AZ 85008		
Location (within site)	On Building		
County	Maricopa	Latitude	33.4553
MSA	Phoenix	Longitude	-111.9961
Surrounding Area	Residential/Commercial	Elevation	320 m
Distance to road	66 m - E	PEP audit date	N/A
Traffic count	9,200 - 40th St.	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Ultraviolet Solar Radiation**	**Total Horizontal Solar Radiation**	**Wind Profiler**	
Monitor Type	SPM	SPM	SPM	
Monitoring objective	PAMS	PAMS	PAMS	
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Sampling method	Ultraviolet Sensor	Pyranometer	Wind Profiler	
Analysis method	N/A	N/A	N/A	
Start date	08/20/2004	06/18/1999	01/01/1998	
Operation schedule	Continuous	Continuous	Continuous	
Sampling season	All year	All year	All year	
Probe height from ground	N/A	N/A	10	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	N/A	N/A	N/A	
Dist between collocated monitors	N/A	N/A	N/A	
Annual performance/flow review	N/A	N/A	N/A	
Flow rate verification frequency	N/A	N/A	N/A	
One-point QC check frequency	N/A	N/A	N/A	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

Yuma Courthouse
ADEQ moved to this site in July 2003 from the Juvenile Center site where it had been since 1988. The site is required for SIP and NAAQS compliance. The site includes two collocated Partisol 2000 HUB monitors and a continuous BAM-PM_{10} monitor. Yuma is a growing city in Southwestern Arizona with a population estimated in 2004 to be 84,092. It is 24 kilometers north of the Arizona/Mexico border and 128 meters east of the site is State Route 95, which has an average daily traffic count of 18,600 vehicles. Surrounding the site is a mixture of Government and private offices, residential areas and open (desert) areas.

Site Information for:	**Yuma Courthouse**			
AQS ID	04-027-0004		ADEQ ID	17027
Address	2440 W. 28th St. Yuma, AZ 85364			
Location (within site)	On Courthouse			
County	Yuma		Latitude	32.6772
MSA	Yuma		Longitude	-114.6489
Surrounding Area	Neighborhood		Elevation	30 m
Distance to road	28 m – S		PEP audit date	N/A
Traffic count	N/A – W. County 10 ½ St.		NPAP audit date	EPA
Groundcover	N/A		Flow audit date	See Below
Pollutant Monitoring	**PM10**	**PM10 collocated**	**Continuous PM10**	
Monitor Type	SLAMS	SLAMS	SLAMS	
Monitoring objective	Population	Population	Population	
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Sampling method	Partisol 2000 HUB	Partisol 2000 HUB	BAM – PM10	
Analysis method	Gravimetric	Gravimetric	N/A	
Start date	08/06/2002	01/28/2005	11/20/2004	
Operation schedule	1:6	1:6	Continuous	
Sampling season	All year	All year	All year	
Probe height from ground	N/A	N/A	N/A	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	360°	360°	360°	
Dist between collocated monitors	2 m	2 m	N/A	
Annual performance/flow review	02/07/2007	02/07/2007	02/07/2007	
Flow rate verification frequency	monthly	monthly	monthly	
One-point QC check frequency	N/A	N/A	N/A	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

Yuma Game & Fish

ADEQ established the Yuma Game and Fish site in April of 2003 after the closure of the site at Yuma Western College in November of 2001. The purpose of this site is to demonstrate NAAQS compliance and to indicate ozone transport into the Phoenix metropolitan area. This site consists of a seasonal ozone analyzer and a seasonal NO_x monitor.

Yuma is a growing city in Southwestern Arizona with a population estimated in 2004 to be 84,092. It is 24 kilometers north of the Arizona/Mexico border and 128 meters east of the site is State Route 95, which has an average daily traffic count of 18,600 vehicles. The area surrounding the site is mostly commercial with some residential and vacant desert land. There are agricultural fields 78 meters west of the site.

Site Information for:	**Yuma Game & Fish**		
AQS ID	04-027-0006	ADEQ ID	18690
Address	9140 E. 28th St. Yuma, AZ 85365		
Location (within site)	On building		
County	Yuma	Latitude	32.6779
MSA	Yuma	Longitude	-114.4759
Surrounding Area	Commercial/Desert	Elevation	60 m
Distance to road	37 m – E	PEP audit date	N/A
Traffic count	N/A – S Ave 4 E	NPAP audit date	EPA
Groundcover	N/A	Flow audit date	See Below

Pollutant Monitoring	**O3**	**NOx**		
Monitor Type	SLAMS	SLAMS		
Monitoring objective	Max Conc.	Max Conc.		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	O3 Analyzer	NOx – Seasonal		
Analysis method	UV Photometric	Chemiluminescence		
Start date	04/14/2003	04/01/2005		
Operation schedule	Continuous	Continuous		
Sampling season	Apr - Nov	Apr - Nov		
Probe height from ground	N/A	N/A		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	02/05/2007	02/05/2007		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	biweekly	biweekly		
Changes within 18 months	N	Y		
Compare with annual PM2.5?	N	N		

Yuma Mesa

The Yuma Mesa site was installed in May of 2003 on the grounds of the U of A Extension office at County 15th Street, west of Avenue A. The site includes wind speed, wind direction, ambient temperature and relative humidity. The site is intended to represent meteorological conditions on the Mesa above the Colorado River basin and is part of the meteorological network for WASBAQS.

The immediate area surrounding the site is generally citrus groves and open, grassy fields. The U of A Extension office is located to the north. Temperature and relative humidity sensors are 2.2 meters above a soil covered surface. A group of several tall trees (approx 10 meters) is located approximately 35 meters west of the wind tower. EPA Meteorological guidance (Meteorological Monitoring Guidance for Regulatory Modeling Applications. EPA-454/R-99-005, EPA, 2000), suggests that wind sensors be located at a distance at least 10 times the height of nearby obstructions. This would require the wind system to be 100 meters from the nearly trees (10m X 10). Considering the number of trees and other structures on the Mesa, siting an instrument to these specifications would be nearly impossible. Recommendation is to operate the site and consider potential effects of trees when analyzing data.

Site Information for:	**Yuma Mesa**		
AQS ID	None	ADEQ ID	19040
Address	2186 W. County 15th St. Yuma, AZ 85365		
Location (within site)	On ground enclosed in chain-link fence		
County	Yuma	Latitude	32.6119
MSA	Yuma	Longitude	-114.6339
Surrounding Area	Agricultural	Elevation	58 m
Distance to road	32 m – S	PEP audit date	N/A
Traffic count	N/A – E County 15th St. S	NPAP audit date	N/A
Groundcover	Grass	Flow audit date	N/A

Pollutant Monitoring	**Temp/RH**	**Wind**		
Monitor Type	SPM	SPM		
Monitoring objective	Study	Study		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	Vaisala	Anemometer		
Analysis method	N/A	N/A		
Start date	05/13/2003	05/13/2003		
Operation schedule	Continuous	Continuous		
Sampling season	All year	All year		
Probe height from ground	N/A	10		
Dist. from supporting structure	N/A	N/A		
Distance from obstr. on roof	N/A	N/A		
Distance from obstr. not on roof	N/A	N/A		
Distance from trees	N/A	N/A		
Unrestricted airflow degrees	N/A	N/A		
Dist between collocated monitors	N/A	N/A		
Annual performance/flow review	02/06/2007	02/06/2007		
Flow rate verification frequency	N/A	N/A		
One-point QC check frequency	N/A	N/A		
Changes within 18 months	N	N		
Compare with annual PM2.5?	N	N		

Yuma Valley

ADEQ established the Yuma Valley site in March 2003 as part of the WASBAQS. The primary goal of the project of the WASBAQS is to adequately characterize the magnitude, the spatial variation, and the temporal variation of hazardous air pollutants. The area along the U.S./Mexican border generally contains the highest amount of particulates and gaseous air toxics measured throughout the United States. There is a Temp/RH probe, a Delta Temp probe and an anemometer at the site..

The site is part of the WASBAQS meteorological network. The Yuma Valley site is located 1.83 kilometers east of the Arizona/Mexico border. The area surrounding the site is primarily used for agricultural purposes.

Site Information for:	**Yuma Valley**		
AQS ID		ADEQ ID	19041
Address	11486 S. Farm Rd. Yuma, AZ 85364		
Location (within site)	On ground in enclosed chain-link fence		
County	Yuma	Latitude	32.6203
MSA	Yuma	Longitude	-114.7653
Surrounding Area	Agricultural/Desert	Elevation	27 m
Distance to road	60 m – W	PEP audit date	N/A
Traffic count	N/A	NPAP audit date	N/A
Groundcover	Dirt	Flow audit date	N/A

Pollutant Monitoring	**Delta Temp**	**Temp/RH**	**Wind**	
Monitor Type	SPM	SPM	SPM	
Monitoring objective	Study	Study	Study	
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Sampling method	Delta T	Vaisala	Anemometer	
Analysis method	N/A	N/A	N/A	
Start date	05/13/2003	05/13/2003	05/13/2003	
Operation schedule	Every Minute	Continuous	Continuous	
Sampling season	All year	All year	All year	
Probe height from ground	N/A	N/A	10	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	N/A	N/A	N/A	
Dist between collocated monitors	N/A	N/A	N/A	
Annual performance/flow review	02/07/2007	02/07/2007	02/07/2007	
Flow rate verification frequency	N/A	N/A	N/A	
One-point QC check frequency	N/A	N/A	N/A	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

Yuma West

ADEQ established the Yuma West site in January 2003 as part of the WASBAQS. The primary goal of the project of the WASBAQS is to adequately characterize the magnitude, the spatial variation, and the temporal variation of hazardous air pollutants. The area along the U.S./Mexican border generally contains the highest amount of particulates and gaseous air toxics measured throughout the United States. This site is also used to assist in metrological data. There is a Temp/RH probe, a pyranometer and an anemometer.

The site is part of the WASBAQS meteorological network. The area surrounding the Yuma West site is partially residential and agricultural and it sits 103 meters west of a golf course. The site is in western Yuma.

Site Information for:	**Yuma West**		
AQS ID		ADEQ ID	18247
Address	Ave D & County 8th St. Yuma, AZ		
Location (within site)	In/on shed		
County	Yuma	Latitude	32.7367
MSA	Yuma	Longitude	-114.7008
Surrounding Area	Agricultural/Residential	Elevation	36 m
Distance to road	161 m – NE	PEP audit date	N/A
Traffic count	N/A - Inglewood	NPAP audit date	N/A
Groundcover	N/A	Flow audit date	N/A

Pollutant Monitoring	**Temp/RH**	**Wind**	**Solar**	
Monitor Type	SPM	SPM	SPM	
Monitoring objective	Study	Study	Study	
Spatial scale	Neighborhood	Neighborhood	Neighborhood	
Sampling method	Vaisala	Anemometer	Pyranometer	
Analysis method	N/A	N/A	N/A	
Start date	03/25/2003	06/01/2003	03/25/2003	
Operation schedule	Continuous	Continuous	Every Minute	
Sampling season	All year	All year	All year	
Probe height from ground	N/A	10	N/A	
Dist. from supporting structure	N/A	N/A	N/A	
Distance from obstr. on roof	N/A	N/A	N/A	
Distance from obstr. not on roof	N/A	N/A	N/A	
Distance from trees	N/A	N/A	N/A	
Unrestricted airflow degrees	N/A	N/A	N/A	
Dist between collocated monitors	N/A	N/A	N/A	
Annual performance/flow review	02/07/2007	02/07/2007	02/07/2007	
Flow rate verification frequency	N/A	N/A	N/A	
One-point QC check frequency	N/A	N/A	N/A	
Changes within 18 months	N	N	N	
Compare with annual PM2.5?	N	N	N	

Appendix D – Site Cross Reference in Name Order

AQS ID	ADEQ ID	Name	Page
04-019-1011	16410	22ND/CRAYCROFT	39
	21737	ADEQ BUILDING	40
80-026-1000	16361	AGUA PRIETA FIRE STATION	41
04-019-0001	16316	AJO	42
	34961	ALAMO LAKE	43
	22242	BAJA	44
	19489	BANNER MESA MEDICAL CENTER	45
04-013-8006	17786	BETHUNE ELEMENTARY SCHOOL	46
04-015-1003	16365	BULLHEAD CITY	47
04-019-1028	16551	CHILDREN'S PARK	48
04-003-8001	16679	CHIRICACHUCA ENTRANCE STATION	49
	22240	CORTEZ	50
	19483	DOME VALLEY	51
04-003-1005	16503	DOUGLAS RED CROSS	52
04-013-4010	19550	DYSART	53
04-013-8005	16506	ESTRELLA	54
	21736	ESTRELLA COMMUNITY COLLEGE	55
04-005-1008	16707	FLAGSTAFF MIDDLE SCHOOL	56
	16683	GRAND CANYON NP INDIAN GARDEN	57
	16323	GREER WATER TREATMENT PLANT	58
04-007-1001	16326	HAYDEN OLD JAIL	59
	16421	IKE'S BACKBONE	60
04-013-9997	16328	JLG SUPERSITE	61-66
	21298	MEADVIEW	67
	19686	MESA CITY BUILDING	68
04-007-0009	16382	MIAMI RIDGELINE	69
04-023-0004	16511	NOGALES POST OFFICE	70-71
	16480	NORTH MOUNTAIN SUMMIT	72
04-019-0005	16681	ORGAN PIPE NM	73
04-003-0011	16391	PAUL SPUR CHEMICAL LIME PLANT	74
	16392	PAUL SPUR CHEMICAL LIME PLANT SOUTH	75
04-007-0008	16317	PAYSON WELL SITE	76
04-017-0119	16473	PETRIFIED FOREST NP	77
	16829	PHOENIX TRANSMISSOMETER RECEIVER	78
	16446	PHOENIX TRANSMISSOMETER TRANSMITTER	79
	16446	PLEASANT VALLEY RANGER STATION (YOUNG)	80
04-025-2002	18392	PRESCOTT VALLEY	81
04-021-8001	16394	QUEEN VALLEY	82-83
04-019-0020	16499	RILLITO	84
04-009-0001	16508	SAFFORD	85
	16475	SAGUARO NTL PARK WEST	86
	18250	SAN LUIS	87
04-021-2001	16397	SAN MANUEL	88
04-005-1010	16512	SEDONA POST OFFICE	89

04-017-0007	16603	SHOW LOW	90
80-026-0005	16399	SONORA NOGALES FIRE STATION	91
	22243	SONORA	92
04-013-4003	16377	SOUTH PHOENIX	93
	16476	SYCAMORE CANYON	94
04-007-0010	16447	TONTO NM	95
	16826	TUCSON TRANSMISSOMETER RECEIVER	96
	16655	TUCSON TRANSMISSOMETER TRANSMITTER	97
04-019-1027	16662	U OF A CENTRAL	98
04-013-9998	16363	VEHICLE EMISSIONS LABORATORY	99-100
04-027-0006	18690	YUMA GAME & FISH	101
04-027-0004	17027	YUMA COURTHOUSE	102
	19040	YUMA MESA	103
	19041	YUMA VALLEY	104
	18247	YUMA WEST	105