2012
Ambient Air Monitoring Network Plan

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AQ 382

2012 Ambient Air Monitoring Network Plan

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TABLE OF CONTENTS

LIST OF FIGURES / TABLES

FIGURES

TABLES

I. INTRODUCTION

This document constitutes the 2012 Ambient Air Monitoring Network Plan for the Pima County air monitoring network. The Pima County Department of Environmental Quality (PDEQ) has prepared this document to be submitted to the U.S. Environmental Protection Agency (USEPA), Region IX. The purpose of the Ambient Air Monitoring Network Plan is to determine if the network is achieving the air monitoring objectives specified in 40 CFR Part 58 Appendix D, which mandate adherence to certain number, type and location requirements of monitoring sites and specific site criteria such as monitoring inlet height. The review should also determine if modifications should be made to the network (e.g. through the termination or relocation of unnecessary stations or addition of new stations). In addition, the review is necessary in order to ensure that the residents of Pima County are provided adequate, representative and useful air quality data, and to provide adequate protection to public health.

The designated ambient air pollutants monitored and reported by PDEQ are carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter with an aerodynamic diameter of 10 micrometers or less in size (PM_{10}) and particulate matter with aerodynamic diameter of 2.5 micrometers or less in size ($PM_{2.5}$). This pollutant data is submitted to the EPA Air Quality System (AQS) database for determination of compliance with National Ambient Air Quality Standards (NAAQS). This report contains statistical data summaries for the 2012 calendar year and provides a site by site assessment of the monitoring network with respect to EPA site criteria.

The Pima County monitoring network includes both State or Local Air Monitoring Stations (SLAMS) and Special Purpose monitors (SP). SLAMS monitors comprise the required network monitors that are used for NAAQS comparisons and follow the monitoring objectives listed on page 6. SP monitors are used to conduct special purpose studies and to enhance the network coverage of air quality monitoring data.

Pima County has a designated NCore site at the Children's Park location, which also monitors for reactive oxides of nitrogen (NO_Y), particulate matter, coarse fraction ($PM_{10-2.5}$), speciated $PM_{2.5}$ particulate matter and lead.

2012 Annual Data Certification was submitted to EPA Region 9 on April 26, 2013.

Schedule of EPA's review of criteria pollutants:

O_3 NAAQS- review and proposed rule scheduled for October, 2013
Particulate Matter NAAQS – final rule December 2012. Strengthened the $PM_{2.5}$ annual to 12 $\mu g/m^3$ and retained the existing coarse PM_{10} standard.

PDEQ made the following network modifications in 2012:

- Began lead analysis at the Children's Park NCore site.
- Installed digital data acquisition logger at the 22nd and Alvernon site.
- Installed a dilution calibration system at the 22nd and Alvernon site to facilitate CO one - point precision check concentrations contained in 40CFR58 App. A, Section 3.2.1
- Began CO one – point precision checks conforming to 40CFR58 App. A, Section 3.2.1 at the 22nd and Craycroft, and 22nd and Alvernon sites.

PDEQ's anticipated modifications to network in 2013:

- Change $PM_{2.5}$ collocation sampling schedule to 1 in 6 day at Children's Park NCore site from 1 in 12 day.
- In late 2012, construction of a large multi-unit multi-level apartment complex began immediately to the west of the Tangerine monitoring station. A parking lot will be built within 50 meters of both the ozone and PM_{10} inlets. This development will have the effect of eliminating the General Background Site Type classification for PM_{10} , and compromise the Highest Concentration Site Type classification for ozone. Transport impact assessment from outlying sources during exceptional events will likely not be affected significantly, but in order to retain the current Site Type classification, the station should be relocated. This will not be a simple process due to ongoing and probable future development in this part of Pima County, and the upscale type of development. Finding a suitable location and securing all the necessary permissions, permits and agreements will require significant time and effort.
- Analysis of improved $PM_{2.5}$ continuous monitors has Pima County researching the suitable method reporting code for the special study monitors at Rose Elementary, Coachline, Geronimo, and Green Valley. Currently, the monitors are reported with parameter code 88501and method 733. Before the final decision and change Pima County will request guidance and approval from Region 9.

II. BACKGROUND

Pima County Air Quality Control District met all the National Ambient Air Quality Standards (NAAQS) in 2012. Concentrations of the criteria pollutants have been stable over the past few years with ozone and particulate matter (PM_{10}) being the major concern for Pima County. Ozone has been very close to the standard, often within 95% of the standard. Particulate Matter (PM_{10}) levels are elevated during drought conditions and high winds which have caused exceedances of the NAAQS in previous years.

Regional Evaluation

In order to evaluate existing and proposed monitoring stations and their stated objectives, regional information is used. The regional information consists of the most current values for population, major urban developments and directions of growth, traffic and highway data, major industries and aerial photographs showing topography. Population (census tract) data can act as a guide in evaluation of the representativeness of a site for determining population exposure. The 2010 census shows Pima County population at 980,263 and the city of Tucson population at 520,116 . **Figure 1** on page 8 illustrates the Eastern Pima County Tucson Air Planning Area. The various incorporated areas and other agency lands are shown, as well as the named mountain peaks that define the planning area for Eastern Pima County, which includes the Tucson Metropolitan area.

Average Daily Traffic (ADT)

Traffic data is necessary for site evaluations since a large portion of air pollutants in the Tucson basin are caused by vehicular traffic. Traffic volumes and density maps are used in evaluating the monitoring network. This data is routinely compiled and used by local transportation and planning agencies. An analysis of the most current traffic data indicates that the network continues to meet the requirements for the monitoring site type and corresponding spatial scales as initially established. The Average Daily Traffic (ADT) numbers are 24 - hour, two - way volume of averaged weekday traffic.

Latitude and Longitude

Latitude and Longitude data is also provided for the monitoring sites using Datum WGS84 AZ Central in Decimal.Degrees.

Local Geography and Meteorology

Tucson, Arizona is a major metropolitan area situated in the Santa Cruz river valley, which is encompassed by the Sonoran Desert at an elevation between 2300 and 2800 feet. Basin and range topography characterizes the region with rugged mountain ranges encircling the valley floor with mountain peak elevations in excess of 9000 feet, thus delineating the Tucson Air Planning Area. The flat or gently rolling valley terrain slopes from the higher south and southeast toward the lower northwest following the Santa Cruz river drainage.

The climate of Tucson is characterized by a hot season normally starting in April and ending in October, and a generally mild winter. Maximum daily temperatures from May through September are usually above 90 degrees Fahrenheit. The average rainfall is around eleven inches per year.

Tucson International Airport records show an average of 240 clear days a year (days with less than 50% total cloud cover). The remaining periods include the winter prefrontal situations more common in the north and the prolonged seasons of convective summer storms. Wind velocity and direction changes, associated with the large scale pressure systems, frequently result in localized dust storms.

The mountain-valley circulation, along with surface heating during the day and radiational cooling at night, create a predominantly southeast to northwest wind path in the basin. Airflows generally tend to be downvalley (from the southeast) at night and early morning hours, reversing to the upvalley direction (from the northwest) during the day. These downvalley / upvalley flows are strongly influenced by localized upslope / downslope terrain. The normal upvalley airflow is from the northwest, and parallels the Santa Cruz River, but decays well before sunset. This is followed by an hour of light, erratic flows which turn into the downvalley flow from the southeast, and reach their maximum and stabilized speed in four to six hours. The air temperature drops steadily during this interval until the sun rises. The downvalley direction continues for two to five hours past sunrise and then transforms into a short calm period prior to the change to upvalley flows.

The southeasterly “monsoon” regime that occurs primarily in the months of July and August is a large scale synoptic feature with considerable yearly variation both in intensity and timing. At the Tucson International Airport, the winds become strong, gusty and southeasterly with high relative humidity, cloud cover and frequent thunderstorms. The mountain – valley circulation tends to be suppressed during this time period.

Atmospheric temperature inversions occur almost daily in the Tucson air basin. During the winter months these inversions may become severe with particulate and other pollutants becoming concentrated, remaining near the ground level causing haze. When the sun sets, the ground and surface air cools faster than the air several hundred feet above the surface. Since air temperature normally decreases with increasing altitude, the warm and cool layers are reversed or “inverted”, hence the name ‘temperature inversion’. These temperature inversions are usually strongest on cold, clear winter nights, where there is an absence of cloud cover. Consequently, the inversions “lock” the pollutants near the surface. As the sun causes the cool air layer close to the ground to warm up, vertical mixing and horizontal transport disperse the air pollutants. In the early evening, the low level air inversion begins to form again and often coincides with the evening traffic rush hour.

Definition of Monitoring Objectives, Site Types and Spatial Scales

The Pima County ambient air monitoring network is designed to meet three basic monitoring objectives. These objectives listed in **Appendix D, 1.1 of 40 CFR 58** are:

- To provide air pollution data to the general public in a timely matter;
- To comply with ambient air quality protocols and standards in order for data to be used for comparison to the NAAQS;
- To support research studies.

The monitoring stations which comprise the Pima County network are designed to meet at least one of six basic monitoring site types. As listed in **Appendix D, 1.1.1 of 40 CFR 58**, the site types:

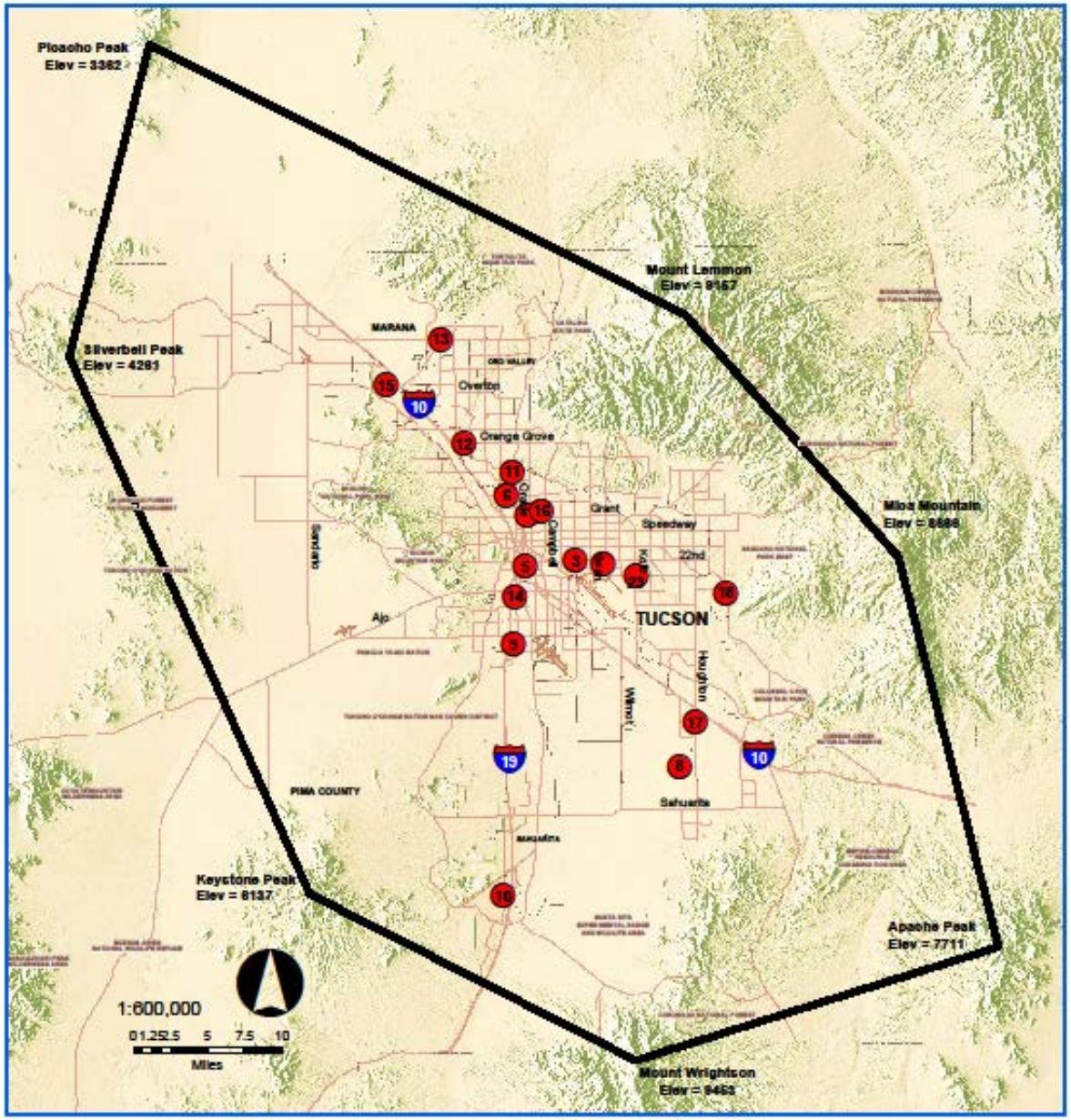
- Determine the area of highest concentrations expected to occur in the network;
- Determine representative concentrations in areas of high population density;
- Determine the impact on ambient pollution levels of significant sources or source categories;
- Determine general background concentration levels;
- Determine the extent of regional pollution transport among populated areas;
- Determine the welfare – related impact in more rural and remote areas.

The link between general monitoring objectives, site types and the geographical location of a monitoring station is defined as the spatial scale of representativeness, and the relationship is indicated in **Table 1** (next page). The goal of each station is to represent a specific air parcel throughout which actual pollution concentrations are reasonably homogeneous. The spatial scales are defined in **Appendix D, 1.2 of 40 CFR 58** as follows:

- *Microscale* defines concentrations in air volumes associated with area dimensions from 1 meter to 100 meters;
- *Middle Scale* defines concentrations typical of areas from 100 meters to 500 meters;
- *Neighborhood Scale* defines concentrations typical of areas with dimensions in the 0.5 to 4.0 kilometer range;
- *Urban Scale* defines the overall, city – wide conditions with dimensions in the 4 to 50 kilometer range;
- *Regional Scale* usually defines a rural area with dimensions as much as hundreds of kilometers;
- *National and Global Scales* represent concentrations which characterize nations and the globe as a whole (Pima County does not employ stations under this category).

Table 1

Monitoring Site Types	Appropriate Spatial Scales
Highest Concentration	Micro, Middle, Neighborhood, sometimes Urban
Population	Neighborhood, Urban
Source Impact	Micro, Middle, Neighborhood
General / Background	Urban, Regional
Regional Transport	Urban, Regional
Welfare-Related Impacts	Urban, Regional



Eastern Pima Co. Tucson Air Planning Area

The portion of Pima County within the geographical coordinate boundary

TAPA Boundary
All Monitoring Sites
Major Streets

Revised: April 2013

Comments
All information is provided as is, with all faults, and without warranty of any kind, expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Prepared By
Pima County Department
of
Environmental Quality

TAPA 2013

III. PIMA COUNTY AIR QUALITY MONITORING NETWORK SUMMARY TABLES AND MAP

Active Particulate and Lead Monitoring Sites for 2012

Table 2

Map #	Pollutant			Address	Site Name
4	PM_{10}	$PM_{2.5}$		2498 N. Geronimo	Geronimo
5	PM_{10}			1601 S. 6th Ave.	South Tucson
6	PM_{10}			1016 W. Prince Rd.	Prince Road
8	PM_{10}			22000 S. Houghton Rd.	Corona de Tucson
9	PM_{10}			6910 S. Santa Clara Ave.	Santa Clara School
10	PM_{10}	$PM_{2.5}$	Pb	601 N. La Canada Dr.	Green Valley
11		$PM_{2.5}$		400 W. River Rd.	Children's Park NCore
12	PM_{10}	$PM_{2.5}$		3401 W. Orange Grove Rd.	Orange Grove
13	PM_{10}			12101 N. Camino de Oeste	Tangerine
14		$PM_{2.5}$		710 W. Michigan	Rose Elementary
15		$PM_{2.5}$		9597 N. Coachline Blvd.	Coachline
	PM_{10}	$PM_{2.5}$		as studies require	Mobile 2

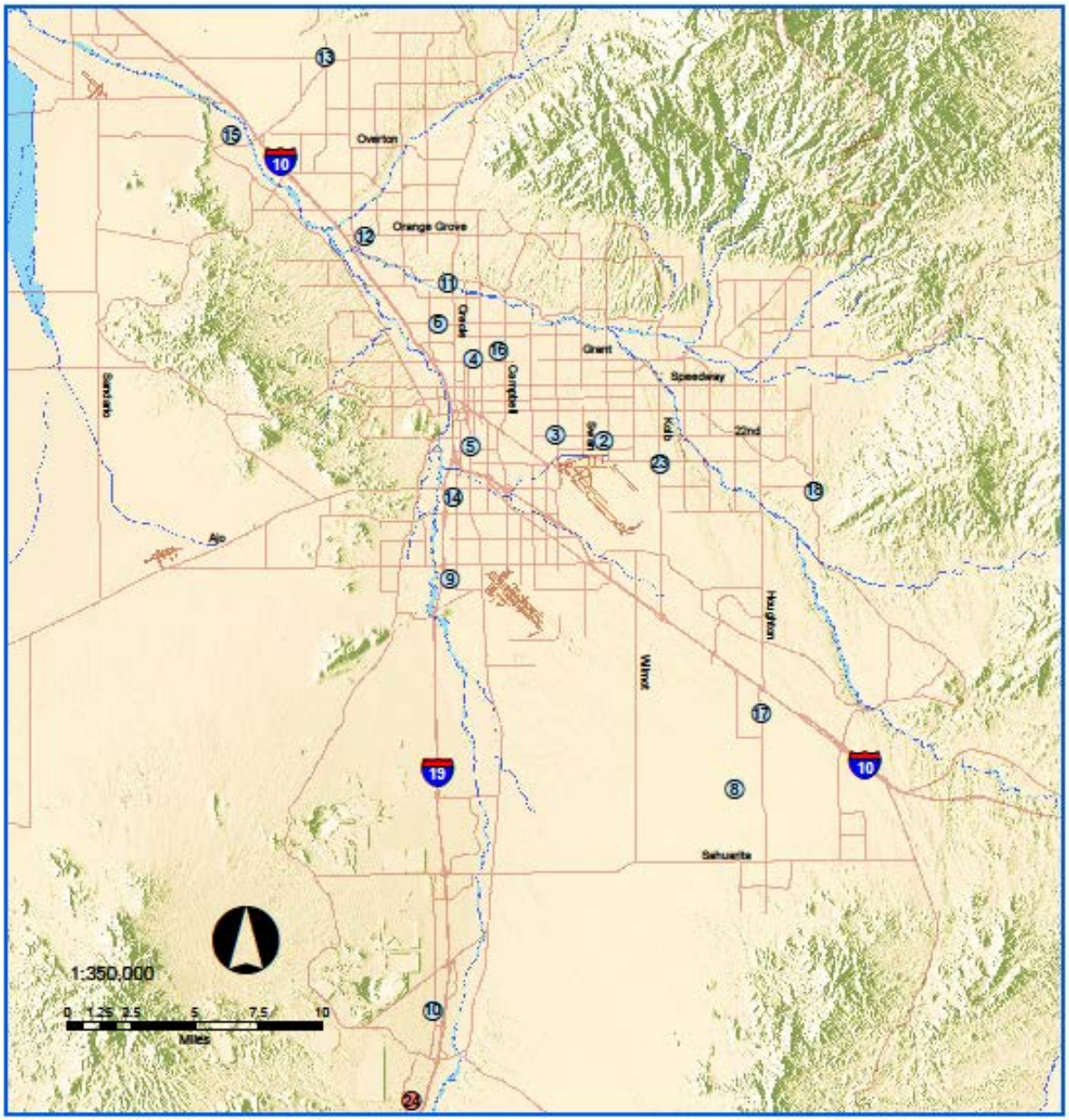
Map located on Page 11

Active Gaseous Pollutant Monitoring Sites for 2012

Table 3

Map #	**Pollutant**					**Address**	**Site Name**
2	CO	O_3		NO_2		1237 S. Beverly Ave.	22nd & Craycroft
3	CO					3895 E. 22nd St.	22nd & Alvernon
10		O_3				601 N. La Canada Dr.	Green Valley
11	CO	O_3	SO_2	NO_2	NO_Y	400 W. River Rd.	Children's Park NCore
13		O_3				12101 N. Camino de Oeste	Tangerine
14		O_3				710 W. Michigan	Rose Elementary
15		O_3				9597 N. Coachline Blvd.	Coachline
16	CO					2745 N. Cherry Ave.	Cherry & Glenn
17		O_3				11330 S. Houghton Rd.	Fairgrounds
18		O_3				3905 S. Old Spanish Trail	Saguaro National Park, East
23	CO					2601 S. Kolb Rd.	Golf Links & Kolb
	CO	O_3				as studies require	Mobile 1 & 2

Map located on page 11



Pima County Monitoring Sites

2 - 22nd / Craycroft
3 - 22nd / Alvernon
4 - Geronimo
5 - South Tucson
6 - Prince Road
8 - Corona de Tucson
9 - Santa Clara
10 - Green Valley
11 - Children's Park NCore
12 - Orange Grove
13 - Tangerine
14 - Rose Elementary
15 - Coachline
16 - Cherry / Glenn
17 - Fairgrounds
18 - Saguaro National Park East
23 - Golf Links / Kolb

PDEQ Monitoring Sites
Green Valley Community Site
Major Streets

Revised: April 2013

Comments
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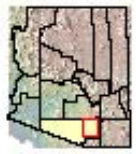


PIMA MONITORING SITES 2013

2012 Ambient Air Monitoring Network Summary Table
Table 4
CARBON MONOXIDE - PIMA COUNTY MONITORING NETWORK

SITE NAME AND LOCATION	SITE ID (a)	PARAMETER (b)	CLASSI-FICATION (c)	DATES (d)	METHOD (e)	ELEV. FEET (f)	SMPL HEIGHT (M) (g)	SPATIAL SCALE (h)	SMPL FREQ (i)	POC (j)	MONITORING SITE TYPE (h)
22ND & CRAYCROFT 1237 S. BEVERLY AVE.	004-019-1011	42101	SLAMS	Jul-73 PRESENT	54 /158	2582	4.1	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
22ND & ALVERNON 3895 E.22ND STREET	004-019-1014	42101	SLAMS	Mar-75 PRESENT	54 /174	2516	3.4	MICROSCALE	CONTINUOUS	1	HIGHEST CONCENTRATION
CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	42101	SP NCore	Oct-98 PRESENT	554	2286	4.25	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
CHERRY & GLENN 2745 N. CHERRY AVE.	004-019-1021	42101	SP	Feb-89 PRESENT	54	2400	4.9	NEIGHBORHOOD	Cont/Seasonal Jan. 1 – March 31 Oct. 1- Dec. 31	1	POPULATION EXPOSURE
GOLF LINKS & KOLB 2601 SOUTH KOLB	004-019-1031	42101	SP	Sept-02 PRESENT	093	2661	3	MICROSCALE	Cont/Seasonal Jan. 1 – March31 Oct. 1- Dec. 31	1	HIGHEST CONCENTRATION

NITROGEN DIOXIDE - PIMA COUNTY MONITORING NETWORK

SITE NAME AND LOCATION	SITE ID (a)	PARAMETER (b)	CLASSI-FICATION (c)	DATES (d)	METHOD (e)	ELEV. FEET (f)	SMPL HEIGHT (M) (g)	SPATIAL SCALE (h)	SMPL FREQ (i)	POC (j)	MONITORING SITE TYPE (h)
22ND & CRAYCROFT 1237 S. BEVERLY AVE.	004-019-1011	42602	SLAMS	Jan-73 PRESENT	74 /157	2582	4.1	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	42602	Proposed NCore	May-98 PRESENT	074/090	2286	4.25	NEIGHBORHOOD	CONTINUOUS	1	HIGHEST CONCENTRATION

REACTIVE OXIDES OF NITROGEN - PIMA COUNTY MONITORING NETWORK

CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	42600	NCore SLAMS	Oct-10 PRESENT	574	2286	4.25	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE

Key located on page 15

2012 Ambient Air Monitoring Network Summary Table

SULFUR DIOXIDE -PIMA COUNTY MONITORING NETWORK

SITE NAME AND LOCATION	SITE ID (a)	PARAMETER (b)	CLASSI-FICATION (c)	DATES (d)	METHOD (e)	ELEV. FEET (f)	SMPL HEIGHT (M) (g)	SPATIAL SCALE (h)	SMPL FREQ (i)	POC (j)	MONITORING SITE TYPE (h)
CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	42401	NCore SLAMS	Oct-10 PRESENT	560	2286	4.25	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE

OZONE -PIMA COUNTY MONITORING NETWORK

SITE NAME AND LOCATION	SITE ID (a)	PARAMETER (b)	CLASSI-FICATION (c)	DATES (d)	METHOD (e)	ELEV. FEET (f)	SMPL HEIGHT (M) (g)	SPATIAL SCALE (h)	SMPL FREQ (i)	POC (j)	MONITORING SITE TYPE (h)
22ND & CRAYCROFT 1237 S. BEVERLY AVE.	004-019-1011	44201	SLAMS	Jul-73 PRESENT	087/047	2582	4.1	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
GREEN VALLEY 601 N. LA CANADA DR.	004-019-1030	44201	SP	July-03 PRESENT	047	2910	3.1	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	44201	SLAMS NCore	Sep-97 PRESENT	047	2286	4.25	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
TANGERINE 12101 N. CAMINO DE OESTE	004-019-1018	44201	SP	Oct-89 PRESENT	047	2638	3.75	URBAN	CONTINUOUS	1	HIGHEST CONCENTRATION
ROSE ELEMENTARY 710 W. MICHIGAN	004-019-1032	44201	SP	July-03 PRESENT	087/047	2387	4.1	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
COACHLINE 9597 N. COACHLINE BLVD	004-019-1034	44201	SP	July-03 PRESENT	087/047	2110	3.1	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
FAIRGROUNDS 11330 S. HOUGHTON RD.	004-019-1020	44201	SP	Oct-89 PRESENT	047/087	3078	3.6	URBAN	CONTINUOUS	1	BACKGROUND
SAGUARO NATIONAL PARK 3905 S. OLD SPANISH TRAIL	004-019-0021	44201	SLAMS	Jun-82 PRESENT	047	3089	4.1	NEIGHBORHOOD	CONTINUOUS	1	HIGHEST CONCENTRATION

Key located on page 15

2012 Ambient Air Monitoring Network Summary Table

PM10- PIMA COUNTY MONITORING NETWORK

SITE NAME AND LOCATION	SITE ID (a)	PARAMETER (b)	CLASSI-FICATION (c)	DATES (d)	METHOD (e)	ELEV. FEET (f)	SMPL HEIGHT (M) (g)	SPATIAL SCALE (h)	SMPL FREQ (i)	POC (j)	MONITORING SITE TYPE (h)
GERONIMO 2498 N. GERONIMO	04-019-1113	81102	SP	June- 07 PRESENT	079/122	2452	4.6	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
SOUTH TUCSON 1601 S. 6TH AVE.	04-019-1001	81102	SLAMS	Sep-88 PRESENT	127	2420	6.9	NEIGHBORHOOD	1 DAY collocated every 6 day	1	POPULATION EXPOSURE
PRINCE ROAD 1016 W. PRINCE RD.	04-019-1009	81102	SLAMS	Jul-87 PRESENT	126	2315	4.6	MICROSCALE	6 DAY	1	SOURCE ORIENTED
CORONA DE TUCSON 22000 S. HOUGHTON RD.	04-019-0008	81102	SLAMS	Mar-87 PRESENT	126	3078	2.1	REGIONAL	6 DAY	1	BACKGROUND
SANTA CLARA 6910 S. SANTA CLARA AVE.	04-019-1026	81102	SP	Jul-94 PRESENT	126	2540	6.45	NEIGHBORHOOD	6 DAY	1	POPULATION EXPOSURE
GREEN VALLEY 601 N. LA CANADA DR.	04-019-1030	81102	SP	Feb-01 PRESENT	079	2910	4.8	NEIGHBORHOOD	CONTINUOUS	1	POPULATION EXPOSURE
ORANGE GROVE 3401 W. ORANGE GROVE RD.	04-019-0011	81102	SLAMS	Jan-85 PRESENT	127	2234	2.65	NEIGHBORHOOD	1 DAY collocated every 6 day	2	HIGHEST CONCENTRATION
TANGERINE 12101 N. CAMINO DE OESTE	04-019-1018	81102	SP	Jan-94 PRESENT	126	2638	4 .5	URBAN	6 DAY	1	BACKGROUND
CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	86101	NCore PM10-2.5	Jan-11 PRESENT	176	2286	3.1	NEIGHBORHOOD	3 DAY	1	POPULATION EXPOSURE

LEAD -PIMA COUNTY MONITORING NETWORK

CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	14129	Proposed NCore	Feb-12 PRESENT	110	2286	3.1	NEIGHBORHOOD	6DAY	1	POPULATION EXPOSURE

2012 Ambient Air Monitoring Network Summary Table
PM2.5- PIMA COUNTY MONITORING NETWORK

SITE NAME AND LOCATION	SITE ID (a)	PARAMETER (b)	CLASSI-FICATION (c)	DATES (d)	METHOD (e)	ELEV. FEET (f)	SMPL HEIGHT (M) (g)	SPATIAL SCALE (h)	SMPL FREQ (i)	POC (j)	MONITORING SITE TYPE (h)
GERONIMO 2498 N. GERONIMO	004-019-1113	88501	SP	July-03 PRESENT	733	2452	4.6	NEIGHBORHOOD	CONTINUOUS	3	POPULATION EXPOSURE
GREEN VALLEY 601 N. LA CANADA DR.	004-019-1030	88501	SP	July-03 PRESENT	733	2910	4.8	NEIGHBORHOOD	CONTINUOUS	3	POPULATION EXPOSURE
CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	88101	SLAMS NCore	Jan-99 PRESENT	118	2286	3.1	NEIGHBORHOOD	3 DAY collocated every 12 day	1	POPULATION EXPOSURE
CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	88502	NCore SPECIATION	Feb-02 PRESENT	810	2286	3.0		3 DAY	5	POPULATION EXPOSURE
CHILDREN'S PARK NCore 400 W. RIVER ROAD	004-019-1028	88101	NCore SLAMS	Jan-11 PRESENT	170	2286	3.1	NEIGHBORHOOD	CONTINUOUS	3	POPULATION EXPOSURE
ORANGE GROVE 3401 W. ORANGE GROVE RD.	004-019-0011	88101	SLAMS	Jan-99 PRESENT	118	2234	2.65	NEIGHBORHOOD	3 DAY	1	POPULATION EXPOSURE
ROSE ELEMENTARY 710 W. MICHIGAN	004-019-1032	88501	SP	July-03 PRESENT	733	2387	4.9	NEIGHBORHOOD	CONTINUOUS	3	POPULATION EXPOSURE
COACHLINE 9597 N. COACHLINE BLVD	004-019-1034	88501	SP	July-03 PRESENT	733	2100	4.9	NEIGHBORHOOD	CONTINUOUS	3	POPULATION EXPOSURE

Key:
a - Site ID - site identification code used in the AQS database
b - Parameter - code used in the AQS database to describe the pollutant monitored
c - Classification – described on page 2
d - Dates - dates sampling began and ended
e - Method - code used in the AQS database indicating the type of instrument used
f - Elev. feet - site elevation in feet
g - SPL (M) Height - sample inlet height in meters, specific height range required for uniform collection
h - Spatial Scale and Monitoring site type - described on page 6
i - SMPL Freq - frequency of sampling days
j - POC - parameter occurrence code used to distinguish between two or more instruments measuring the same parameter at the same time

Information provided based on EPA'S 2012 Air Quality System (AQS) data.

IV. CURRENT MONITORING NETWORK EVALUATIONS

PM_{10} MONITORING NETWORK REQUIREMENTS

The PDEQ PM_{10} network consists of nine monitoring sites in eastern Pima County, Arizona. The 2012 network used several different types of PM_{10} samplers: R& P Partisol 2000, R& P Partisol-Plus 2025 Sequential, and TEOM 1400. **40 CFR 58, app. D, 4.6** Particulate Matter (PM_{10}) design criteria, provided guidance in determining the minimum number of required PM_{10} SLAMS sites for 2012.

2012 PM_{10} Design Criteria
Table 5

Population Pima County 2010 Census	**MSA Tucson Population Category**	**Design Value** (2010-2012)	**PM_{10} Monitors # Required**	**PM_{10} Monitors # Operating**	**Max Concentration site**	**Max Concentration** ($\mu g/m^3$)
980,263	500,000 – 1,000,000	0 *	Requires 2-4 SLAMS monitors	4 SLAMS monitors	South Tucson 040191001	89*
			No requirement for SP	4 SP monitors		
			No requirement	1 NCore for PMCoarse		

*No Exceptional Event Flags to consider for the 2012 Design Value

Violation History

The PM_{10} 24 hour standard remains at 150 $\mu g/m^3$. Since the promulgation of the PM_{10} standard, July 31, 1987, exceedances of the 24 hour standard have been recorded at monitoring sites in the PDEQ PM_{10} network. The Orange Grove site recorded two exceedances of the NAAQS during the 4th quarter of 1988 and the Downtown site recorded three during the 2nd quarter of 1989 (Downtown site was discontinued, September 1999). In 1999, the PM_{10} standard was violated with four recorded exceedances at the Orange Grove location and two exceedances at the South Tucson location. Subsequently, the monitoring schedules for the Orange Grove and South Tucson locations have been changed from every six day sampling to every day sampling, as indicated in **40 CFR 50, app. K** and **40 CFR 58.13.** In 2002 and 2003 there were a total of two exceedances at the Orange Grove location and two exceedances at the South Tucson location. These exceedances do not constitute a violation of the standard. In 2008, there was one exceedance of the standard at the Santa Clara site, which is in the process of an Exceptional Event designation dependant on approval from EPA. In 2009 there was one exceedance at the Orange Grove, South Tucson and Geronimo locations on July 22nd, these exceedances may also be considered as an Exceptional Event dependant on approval from EPA.

Quality Assurance for Particulate Matter PM_{10}

All data quality assessment requirements, as outlined in **40 CFR 58, app. A**, have been met for 2012. The precision of PM_{10} data is derived from the co-located PM_{10} samplers at the South Tucson and Orange Grove sites; the difference in concentration between the two samplers running side-by-side is used to calculate the precision of the data. At the end of each calendar quarter, a combined precision probability interval for monitors is calculated by EPA.

The accuracy of PM_{10} sampling is assessed by auditing the flow rate of at least 25% of the samplers each calendar quarter, such that each sampler is audited at least once per year. The difference in the flow rate between the audit flow measurement and the flow indicated by the sampler is used to calculate accuracy.

A combined accuracy probability interval is calculated for PM_{10} along with separate probability limits for each audit concentration level for automated analyzers, and reported to EPA quarterly.

Table 6

Protocol	**Instrument**	**Frequency**	**Date Completed 2012**
Flow rate verification	Met One BAM 1020 R&P TEOM 1400	Weekly	
Flow Rate Audit	TEOM 1400AB	Quarterly	Green Valley 03/29, 06/19, 09/25, 12/18 Geronimo 03/13, 06/18, 09/25, 12/04
Flow rate verification	R& P Partisol 2000, R& P Partisol-Plus 2025 Sequential	Monthly	
Flow Rate Audit	R& P Partisol 2000, R& P Partisol-Plus 2025 Sequential	Quarterly	Corona de Tucson 03/23, 09/20, 12/26 Santa Clara 03/16, 06/21, 09/20, 12/13 Prince Road 03/13, 06/21, 09/19, 12/04 Tangerine 03/13, 06/21, 09/19, 12/04 South Tucson 03/16, 06/18, 09/20,12/13 South Tucson (co-located) 03/16, 06/18, 09/20, 12/13 Orange Grove 03/13, 06/18, 09/11, 12/04 Orange Grove (co-located) 03/13, 06/18, 09/11, 12/04 Children's Park NCore 03/15, 06/27, 09/11, 12/10
NPAP Audit			None for 2012

Table 7

Collocated PM_{10} Monitors			
Method	# Required Collocation Monitors	# Primary Monitors	# Collocated Monitors
81102	1	8	2

Table 8
Annual summary statistics: NAAQS: 150 μg/m^3 24- Hour Average.

Year 2012 Site	Highest 24- Hr Value	2nd Highest 24-Hour Value	Annual Average
Orange Grove 0011	**94**	**88**	**27.2**
Corona de Tucson 0008	**69**	**36**	**18.3**
Santa Clara 1026	**106**	**75**	**28.8**
Green Valley 1030	**67**	**63**	**18.0**
Geronimo 1113	**102**	**88**	**30.6**
Prince Road 1009	**107**	**81**	**34.3**
Tangerine 1018	**102**	**41**	**22.4**
South Tucson 1001	**104**	**89**	**29.9**

Particulate Matter Weigh Lab

Pima County Department of Environmental Quality operates a filter weigh lab for the processing of Pima County's PM_{10} and $PM_{2.5}$ network filters, excluding $PM_{2.5}$ speciation filters. This weigh lab follows all requirements set forth in **Appendix L of 40 CFR 50.**

Sampling Schedule Calculation

The design value for the Tucson area network was determined using the PM10 SIP Development Guideline, Section 6.3.1 "Table look-up" procedure. Three years of sampling data, 2010 – 2012, were used. For that period, the South Tucson monitoring location was determined to have the highest design value. That value was 89 μg/m^3. The ratio of this value to the 24 hour standard of 150 μg/m^3, 0.6, was then compared to the brackets in Figure 1 from 40 CFR 58.12(e) to arrive at a minimum PM10 sampling frequency of every sixth day.

$PM_{2.5}$ MONITORING NETWORK REQUIREMENTS

The PDEQ $PM_{2.5}$ network consists of six monitoring sites in eastern Pima County, Arizona. **40 CFR 58.20, App. D. 4.7** $PM_{2.5}$ design criteria, provided guidance on the required number of SLAMS monitors. Two SLAMS Federal Reference Method (FRM) monitors were initiated in January, 1999 at the Orange Grove and Children's Park sites. In addition to two FRM SLAMS monitors, Pima County has one FEM continuous SLAMS monitor and four Special Purpose continuous monitors.

2012 $PM_{2.5}$ Design Criteria
Table 9
PM2.5 SLAMS (FRM and FEM)

Population Pima County 2010 Census	**MSA Tucson Population Category**	**Design Value Site**	**Annual Design Value Years 2010-2012**	**Daily Design Value Years 2010-2012**	**$PM_{2.5}$ Monitors # Required**	**$PM_{2.5}$ Monitors # Operating**
980,263	500,000 – 1,000,000	Orange Grove	5.6 $\mu g/m^3$	12 $\mu g/m^3$	Requires 1 SLAMS Monitor	2 SLAMS Monitors
					<85% of NAAQS	

PM2.5 Continuous (FEM and non-FEM)

Design Value Site	**Annual Design Value Years 2010-2012**	**Daily Design Value Years 2010-2012**	**$PM_{2.5}$ Monitors # Required**	**$PM_{2.5}$ Monitors # Operating**
Geronimo 040191113	9 $\mu g/m^3$	16 $\mu g/m^3$	No requirement for SP 1- NCore	4 SP Monitors 1- NCore

Table 10

Collocated $PM_{2.5}$ Monitors			
Method	# Required Collocation Monitors	# Primary Monitors	# Collocated Monitors
88101 Method 118	1	2	1
88101 POC 3 Method 170	1	1	0[A]

[A] BAM 1020 FEM at Children's Park NCore site is collocated with a PM2.5 FRM also at that site, that does not meet inlet separation requirements at this time, and is not being reported, pending clarification.

General Statement regarding changes to the $PM_{2.5}$ network:
PDEQ does not have any violating monitors or proposals to move or change any monitors at this time. In the event of changes to the $PM_{2.5}$ network or violating monitors, PDEQ would detail all information and present it to the public for comment and would forward all comments and information to EPA for approval. After approval, PDEQ would then initiate any changes.

The SLAMS FRM monitors are filter-based low-volume samplers that collect a sample for 24 hours on a 1 in 3 day cycle. A co-located sampler at the Children's Park NCore site runs on a 1 in 12 day cycle for precision assessment.

Continuous $PM_{2.5}$ monitoring was initiated in May, 2000 at the Green Valley site using Beta Mass Attenuation and a very sharp-cut cyclone. This installation was a pilot project and was followed by similar installations at the Rose Elementary and Coachline monitoring sites. All three sites were a part of the EMPACT project (Environmental Monitoring for Public Access and Community Tracking), designed to provide near real-time data to the public via the internet and PDEQ web pages. A fourth monitor was added at the Geronimo site to provide fine particulate data for AQI reporting. The Met One BAM 1020 monitors provide automatic concentration measurement on an hourly basis, and output the reading to the site data logger, which is then polled every hour, and the data posted on the PDEQ website. The data obtained by both FRM and continuous $PM_{2.5}$ monitors in Tucson are submitted quarterly to the EPA's Air Quality System (AQS) database. We are currently reviewing our parameter codes for the BAM 1020's as we transition from non-FEM BAM's to newer FEM BAM's.

Pima County Department of Environmental Quality operates a filter weigh lab for the processing of Pima County's PM_{10} and $PM_{2.5}$ network filters, excluding $PM_{2.5}$ speciation filters. This weigh lab follows all requirements set forth in **40 CFR 50, App. L**.

The $PM_{2.5}$ Chemical Speciation Trends Network was established by EPA in 1999 to determine the chemical speciation of fine particulates. $PM_{2.5}$ speciation monitoring began in Pima County at the Children's Park location in February, 2002. The samples are analyzed for total mass, forty eight elements, cations, nitrate, sulfate, organic and elemental carbon. Analysis and reporting is completed by RTI International. Summary $PM_{2.5}$ data for 2012 is included in this report.

Violation History

The old $PM_{2.5}$ standard (December 17, 2006): the annual $PM_{2.5}$ standard is met when the three year average of the spatially averaged annual mean is less than or equal to 15ug/m^3 and the 24 hour standard is met when the three year average of the 98th percentile value at each site is less than or equal to 35ug/m^3. The new $PM_{2.5}$ standard (December 14, 2012): the annual $PM_{2.5}$ standard is met when the three year average of the spatially averaged annual mean is less than or equal to 12ug/m^3 and the 24 hour standard is met when the three year average of the 98th percentile value at each site is less than or equal to 35ug/m^3. No exceedances of the annual or 24 - hour NAAQS were recorded in Tucson in 2012.

Quality Assurance for Particulate Matter $PM_{2.5}$

All data quality assessment requirements as outlined in **40 CFR 58, app. A** have been met in 2012, and include both internal and EPA PEP audits, and the co-located sampler at the Children's Park NCore site.

The accuracy of $PM_{2.5}$ sampling is assessed by auditing the flow rate each calendar quarter. The difference in the flow rate between the audit flow measurement and the flow indicated by the sampler is used to calculate accuracy. A combined accuracy probability interval is calculated for $PM_{2.5}$ along with separate probability limits for each audit concentration level for automated analyzers. Pima County reports the results of all valid precision and accuracy tests on a quarterly basis to the Air Quality System (AQS) database.

Table 11

Protocol	**Instrument**	**Frequency**	**Date Completed 2012**
Flow rate verification	Met One BAM 1020	Weekly	
Flow Rate Audit	Met One BAM 1020	Quarterly	Green Valley 03/29, 06/19, 09/25, 12/18 Geronimo 03/13, 06/18, 09/25, 12/04 Rose Elementary 03/16, 06/20, 09/20, 12/18 Coachline 03/13, 06/21, 09/19, 12/04 Children's Park 03/21, 06/27, 09/11, 12/10
Flow rate verification	R& P Partisol-Plus 2025 Sequential R & P 2000	Monthly	
Flow Rate Audit	R& P Partisol-Plus 2025 Sequential R& P 2000 (Co- located) Met One SASS (Speciation) URG – 3000N (Speciation)	Quarterly	Orange Grove 03/13, 06/18, 09/11, 12/04 Children's Park 03/15, 06/27, 09/11, 12/10 Children's Park (Co-located) 03/23, 06/27, 09/11, 12/10 Children's Park (Speciation, SASS) 03/15, 06/27, 09/11, 12/10 Children's Park (Speciation,URG) 03/15, 06/27, 09/11, 12/10
NPAP Audit			None

Table 12

Annual summary statistics: NAAQS $PM_{2.5}$: 15 µg/m^3 Annual Average, 35 µg/m^3 24 Hour Average.

Year 2012 Site	Highest 24 Hr Value	2nd Highest Value	3rd Highest Value	4th Highest Value	98th % Value	Annual Average
Orange Grove	**19.1**	**13.1**	**12.5**	**10.1**	**12.5**	**5.91**
Children's Park (Meth. 118)	**14.3**	**9.3**	**9.1**	**9.0**	**9.1**	**5.36**
Children's Park (Meth. 170)	**16.8**	**15.1**	**13.3**	**12.5**	**11.8**	**5.61**
Children's Park (Speciation)	**16.1**	**13.6**	**12.1**	**11.0**		**6.80**
Green Valley	**12**	**12**	**12**	**11**	**12**	**6.22**
Geronimo	**27**	**17**	**17**	**16**	**15**	**9.28**
Rose Elementary	**21**	**15**	**14**	**14**	**12**	**5.58**
Coachline	**21**	**20**	**14**	**12**	**13**	**7.67**

$PM_{10-2.5}$ (PM-Coarse) MONITORING NETWORK REQUIREMENTS

2012 Ambient Air Monitoring Network Plan

Pima County is monitoring for PM- Coarse at the Children's Park NCore station as part of the monitoring requirements for an NCore station. PM-Coarse is the arithmetic difference between separate but concurrent collocated measurements of PM_{10} and $PM_{2.5}$, also referred to as $PM_{10-2.5}$. Pima County is following the requirements set forth in **40 CFR Part 50, App O**.

The $PM_{2.5}$ portion of this method is the monitor described on page 35. The PM_{10} monitor is described on page 36.

Table 13
Annual summary statistics

Year 2012	Highest 24- Hr Value	2nd Highest 24-Hour Value	Annual Average
Children's Park NCore PM_{10} - $PM_{2.5}$ (86101)	77.0	51.0	16.88

OZONE MONITORING NETWORK REQUIREMENTS

Ozone (O_3) is currently being monitored at seven locations in Tucson and one location in Green Valley. EPA has revised the minimum monitoring requirements for ozone. The design criteria for ozone monitoring is described in **40 CFR 58, app. D, Table D-2**.

Table 14
2012 O_3 Design Criteria

Population Pima County 2010 Census	**MSA Tucson Population Category**	**Design Value Site**	**8- Hour Design Value (2010-2012)**	**O_3 Monitors # Required**	**O_3 Monitors # Operating**
980,263	500,000 – 1,000,000	Saguaro Park 040190021	.071 ppm	Requires 2 SLAMS Monitors	3 SLAMS Monitors
				No Requirement for SP	5 SP Monitors

Violation History

On March 12, 2008, EPA strengthened the ground level ozone standard, effective May 27, 2008. The primary standard of 0.08 ppm has been lowered to 0.075 ppm, keeping the form of the standard as the three year average of the fourth highest daily maximum eight hour average ozone concentration. The secondary standard is identical to the primary standard. While higher maximum one hour and second high one hour ozone values tend to be measured near the urban core, the more suburban and rural sites measure higher overall average ozone concentrations. In general the east side (Saguaro National Park East) is the area with the highest average ozone levels. The situation may be caused by the topography of the valley and the way air flows within it. The precursor pollutants are emitted, and in conjunction with sunlight and heat, will form ozone, which is typically transported by air currents to outlying areas.

Quality Assurance for Ozone

All data quality assessment requirements outlined in **40 CFR 58, app. A,** have been met in 2012. The requirements include precision checks a minimum of every other week with a check gas range between 0.01 and 0.10 ppm with Pima County performing the precision check at 0.075 ppm, representing the highest level we are likely to achieve. The annual internal audits for accuracy are performed with four point check levels at zero, 0.035ppm, 0.065ppm, and 0.085ppm. Pima County maintains an ozone primary standard which is verified for accuracy by the California Air Resources Board in Sacramento. Pima County passed the NPAP Ozone TTP Audit for 22nd and Craycroft. All valid precision and accuracy tests are reported to the Air Quality System (AQS) database on a quarterly basis.

OZONE MONITORING NETWORK REQUIREMENTS

Table 15

Ozone Audit Dates 2012
22nd St. & Craycroft 06/16, 12/12 Children's Park 03/06, 0914 Fairgrounds 06/20, 12/05 Tangerine 03/16, 09/19 Saguaro Park 06/20, 12/05 Coachline 03/13, 09/19 Rose Elementary 06/20, 12/18 Green Valley 06/19, 12/18
NPAP Ozone TTP Audit Dates 2012
22nd St. & Craycroft 04/10

Table 16

Annual summary statistics: NAAQS: 0.075 ppm 4th highest 8- Hour Average

Year 2012 Site	1st Max. 1- HR Avg	1st Max. 8- HR Avg	4th Max. 8- HR Avg
22nd St. & Craycroft 1011	**.077**	**.072**	**.068**
Children's Park 1028	**.071**	**.066**	**.065**
Fairgrounds 1020	**.077**	**.070**	**.069**
Tangerine 1018	**.076**	**.070**	**.069**
Saguaro Park 0021	**.081**	**.074**	**.071**
Coachline 1034	**.072**	**.068**	**.066**
Rose Elementary 1032	**.076**	**.072**	**.067**
Green Valley 1030	**.078**	**.072**	**.070**

CARBON MONOXIDE MONITORING NETWORK REQUIREMENTS

Motor vehicles are the primary source of carbon monoxide (CO) in the Tucson area. Data and reports from the Arizona Department of Transportation (MVD) show that there were 940,571 vehicles registered in Pima County in 2012, compared with 923,271 in 2008 and 611,398 in 1998. In spite of increased vehicular traffic, CO levels have dropped considerably since the county began monitoring in 1973. The dramatic decrease can primarily be contributed to the progress made by automobile manufacturers in meeting federally mandated tailpipe emissions standards and to the state vehicle inspection / maintenance programs.

Carbon Monoxide is monitored at five locations throughout the Pima County air quality control district. The revised requirements for Carbon Monoxide **40 CFR 58, app. D, 4.2** state that there is no minimum number of CO monitoring sites required. Pima County is operating under the auspices of the CO Limited Maintenance Plan (LMP) and has maintained the same number of sites in order to meet and exceed the requirements of the LMP.

2012 CO Design Criteria
Table 17

Population Pima County 2010 Census	**MSA Tucson Population Category**	**1- Hour Design Value 2011-2012**	**CO Monitors # Required**	**CO Monitors # Operating**
980,263	500,000 – 1,000,000	2.5 ppm	No Specific Requirement	2 SLAMS Monitors
				3 SP Monitors

Violation History

No exceedances of the National Ambient Air Quality Standards for CO were recorded in Tucson in 1989 through 2012. In January 1988, the eight - hour health standard of nine parts per million was exceeded once at two monitoring sites on the same day. The last exceedance of the eight - hour standard prior to 1988 occurred in December 1986 at a special purpose microscale location (Broadway / Craycroft). Pima County's status for CO was reclassified to attainment with the implementation of a Limited Maintenance Plan on April 25, 2000 by the EPA. The Carbon Monoxide Limited Maintenance Plan was developed in conjunction with Pima Association of Governments and approved by EPA to help mitigate any future violations. The plan allows for additional mobile monitoring of CO at high volume intersections, and a microscale site located at Golf Links & Kolb was established, September, 2002.

CARBON MONOXIDE MONITORING NETWORK REQUIREMENTS

Quality Assurance for Carbon Monoxide

All data quality assessment requirements as outlined in **40 CFR 58, app. A,** have been met in 2012. The precision of SLAMS automated analyzers is based on one-point precision QC checks with a minimum frequency of every two weeks, when each analyzer is challenged by a known concentration of a check gas. For CO the concentrations are between 1.0 and 10.0 ppm. The requirements include annual audits performed in-house for accuracy. Three levels are reported of the four audit point levels that are used for CO. The audit levels are: level two at .900 -2.99 ppm, level three at 3.0-7.99 ppm, level four at 8.0-15.99 ppm and level five at 16.0-30.99 ppm. All valid precision and accuracy tests are reported to the Air Quality System (AQS) database on a quarterly basis.

Table 18

Carbon Monoxide Audit Dates 2012
Craycroft & 22nd St. 06/16, 12/12
Children's Park 03/06, 09/17
Cherry & Glenn; Seasonal 03/30, 12/20
Alvernon & 22nd St. 03/22, 09/12
Golf Links & Kolb; Seasonal 03/30, 12/20
NPAP Carbon Monoxide TTP Audit Dates 2012
Craycroft & 22nd St. 04/10

Table 19

Annual summary statistics: NAAQS: 35ppm 1-Hour Average, 9ppm 8- Hour Average

Year 2012 Site	1st Max. 1- HR Avg	2nd Max. 1- HR Avg	1st Max. 8- HR Avg	2nd Max. 8- HR Avg
Craycroft & 22nd St 1011	**1.9**	**1.8**	**1.0**	**1.0**
Children's Park 1028	**1.2**	**1.0**	**.6**	**.6**
Cherry & Glenn 1021	**1.5**	**1.4**	**1.3**	**1.2**
Alvernon & 22nd St. 1014	**3.0**	**2.3**	**1.3**	**1.2**
Golf Links & Kolb 1031	**1.5**	**1.4**	**.9**	**.9**

NITROGEN DIOXIDE MONITORING NETWORK REQUIREMENTS

Nitrogen dioxide (NO_2) is currently measured at two locations in Tucson. The Environmental Protection Agency has revised the NO_2 requirements. The **40 CFR 58, app. D, 4.3**, design criteria document states that there are no minimum requirements for the number of NO_2 monitoring sites in Pima County. Pima County is included in phase three near road implementation and will not be required to install a monitoring station for this project until 2017.

2012 NO_2 Design Criteria
Table 20

Population Pima County 2010 Census	**MSA Tucson Population Category**	**Annual Design Value**	**1- Hour 98th Percentile Design Value**	**# of Required NO_2 Monitors**	**# of NO_2 Monitors**
980,263	500,000 – 1,000,000	12.06 ppb	47 ppb	No Requirement	1 SLAMS Monitor
				No Requirement	1 SP Monitor

Historical Nitrogen Dioxide Monitoring

Nitrogen dioxide levels remain well within federal standards. The Craycroft and 22nd St. monitor has been operational since 1973, measuring typical neighborhood NO_2 concentrations. Much of the data has been used in studies measuring the effects of NO_2 as a precursor to ozone formation.

A NOx analyzer was operating at the Pomona site from 1988 until 1996, when the site was closed. The re-establishment of the site at the Children's Park location in May, 1998, allows for monitoring on the north side of Tucson and in the lower valley area.

A NOx analyzer was operating at the Downtown site until early 1989. From 1995 to December 2001, NOx monitoring was conducted at Saguaro National Park East to establish baseline conditions in a Class I Wilderness Area.

NITROGEN DIOXIDE MONITORING NETWORK REQUIREMENTS

Quality Assurance for NO_2

All data quality assessment requirements outlined in **40 CFR 58, app. A**, have been met for 2012. The requirements include precision QC checks with a minimum frequency of every other week with a check gas range between 0.01 and 0.10 ppm and annual internal audits for accuracy with three point check levels between 0.008 - 0.019 ppm, 0.02 – 0.049 ppm and 0.05 – 0.099 ppm . All valid precision and accuracy tests are reported to the Air Quality System (AQS) database on a quarterly basis. 2012 precision and accuracy tests will be reported in ppb.

Table 21

Nitrogen Dioxide Audit Dates 2012
Craycroft & 22nd St. 06/16, 12/12 Children's Park 03/07, 09/18
Nitrogen Dioxide TTP Audit Dates 2012
Craycroft & 22nd St. 04/10

Table 22

Annual summary statistics: NAAQS: 100 ppb 1- Hour Average (98th percentile of the 1-hour concentrations averaged over three years); 53 ppb Annual Average

Year 2012 Site	1st Max. 1- Hour Avg	1 - Hour 98th Percentile	Annual Mean
Craycroft & 22nd St 1011	**51.6**	**47.0**	**11.17**
Children's Park 1028	**46.4**	**44.4**	**13.46**

REACTIVE OXIDES OF NITROGEN (NO_Y) MONITORING NETWORK REQUIREMENTS

Reactive Oxides of Nitrogen is currently monitored at one location in Pima County fulfilling the NCore site requirement.

Quality Assurance for NO_y

All data quality assessment requirements outlined in **40 CFR 58, app. A**, have been met for 2012. The requirements include precision QC checks with a minimum frequency of every other week with a check gas range between 0.01 and 0.10 ppm and annual internal audits for accuracy with three point check levels between 0.008 - 0.019 ppm, 0.02 – 0.049 ppm and 0.05 – 0.099 ppm . All valid precision and accuracy tests are reported to the Air Quality System (AQS) database on a quarterly basis. 2012 precision and accuracy tests will be reported in ppb.

Table 23

Reactive Oxides of Nitrogen Audit Dates 2012
Children's Park NCore 03/06, 09/17
Reactive Oxides of Nitrogen TTP Audit Dates 2012
None
NPAP Audit Dates 2012
None

Table 24
Annual summary statistics: reported in ppb

Year **2012** Site	1st Max. 1- Hour Avg	Annual Mean
Children's Park 1028	**163.6**	**15.43**

SULFUR DIOXIDE MONITORING NETWORK REQUIREMENTS

Sulfur Dioxide (SO_2) is currently monitored at one location in Pima County. On October 1, 2010, an SO_2 trace monitor was added at the Children's Park NCore location as required for an NCore site. The SO2 monitor at the 22nd and Craycroft was discontinued on December 31, 2010.

The Environmental Protection Agency has revised the SO_2 requirements. The design criteria indicated in **40 CFR 58, app. D, 4.4**, states that there are no minimum requirements for the number of SO_2 monitoring sites.

2012 SO_2 Design Criteria
Table 25

Population Pima County 2010 Census	**MSA Tucson Population Category**	**Total SO_2 [tons/year] Based on 2008 NEI**	**Population Weighted Emissions Index [million persons- tons per year]**	**1- Hour Design Value**	**# of Required SO_2 Monitors**	**# of SO_2 Monitors**
980,263	500,000 – 1,000,000	4850	4754	4.0 ppb*	No Requirement	1 NCore SLAMS

* The design value is based on a limited number of samples. Sampling began 10/1/2010.

Historical Sulfur Dioxide Monitoring

Ambient concentrations of sulfur dioxide (SO_2) in Tucson have historically remained well below all federal standards, and in recent years have been extremely low. With new trace SO_2 monitoring we can now get more accurate readings at very low levels. The only major stationary sources of SO_2 possibly affecting ambient concentrations in the Tucson air planning area are the coal burning generators at the Irvington Road power plant operated by Tucson Electric Power.

Quality Assurance for SO_2

All data quality assessment requirements outlined in **40 CFR 58, app. A**, have been met for 2012. The requirements include precision checks every other week with a check gas range between 0.01 and 0.10 ppm and annual internal audits for accuracy with three point check levels between 0.008 - 0.019 ppm, 0.02 – 0.049 ppm and 0.05 – 0.099 ppm . All valid precision and accuracy tests are reported to the Air Quality System (AQS) database on a quarterly basis.

Table 26

Sulfure Dioxide Audit Dates 2012
Children's Park NCore 03/06, 09/17
Sulfure Dioxide TTP Audit Dates 2012
None

Table 27

Annual summary statistics: NAAQS: 75 ppb 1- Hour Average (99th percentile of the 1- hour daily maximum concentrations, averaged over 3 years)

Year 2012 Site	1st Max. 1- Hour Avg	1–Hour 99th Percentile	Annual Mean
Children's Park NCore 1028	**6.8**	**4.3**	**0.2**

LEAD MONITORING NETWORK REQUIREMENTS

Lead is currently monitored at the Children's Park NCore location in Pima County.
Lead sampling and analysis was discontinued at the end of March, 1997, in Pima County. The Environmental Protection Agency regulations allowing for the cessation of ambient lead monitoring in most areas of the country, except in areas with stationary sources of lead. Most urban areas have seen a dramatic decrease in ambient lead levels since the phase out and ban of lead in gasoline.

On October 15, 2008 EPA strengthened the lead standard. Research and technology has shown that adverse health effects occur at much lower levels of lead in blood than previously thought. Children are particularly vulnerable to the effects of lead. The primary standard of 1.5 ug/m3 has been lowered to 0.15ug/m3, measured as total suspended particles (TSP).The secondary standard is identical to the primary standard. According to the 2005 National Air Emissions Inventory (NEI) from EPA, Pima County has no sources of lead of one ton or more. This means that Pima County is required to perform area monitoring only, which is done at the Children's Park NCore location. Monitoring and reporting began in February 27, 2012.

The sampling schedule for lead is based on the 2012 EPA's monitoring sampling schedule with a one in six day schedule for the primary monitor and a one in twelve day schedule for the collocated lead monitor.

The design criteria indicated in **40 CFR 58, app. D, 4.5**, states that there is one required lead monitor.

2012 Lead Design Criteria
Table 28

NCore Site	**MSA Tucson Population Category**	**Population Pima County 2010 Census**	**Lead Design Value**	**# Required monitors**	**# of Pb Monitors**
Children's Park 040191028	500,000 – 1,000,000	980,263	0.00*	1	1- NCore 1- Collocated
• Design Value based on limited number of valid three month means. Sampling began 2/27/2012.					

Historical Lead Monitoring

Lead concentrations are extremely low in Tucson. Lead monitoring began in Pima County in 1975 at eight TSP sampling locations. In August, 1978, lead analyses were discontinued at all but two sites. Magnetic Observatory (University of Arizona) and Prince Road were selected to represent a neighborhood site and roadway site, respectively. Lead sampling was started at a third site (Broadway & Swan) in January 1983.

Lead analysis at Magnetic Observatory was discontinued in 1983 due to lack of detectable levels of lead. A TSP sampler was installed at South Tucson in 1991 for purposes of lead analysis. This site, along with the other two remaining sites, (Prince Road and Broadway & Swan) adequately fulfilled the siting criteria for measuring potential highest urban concentrations of lead in the particulate monitoring network.

In March of 1992 the Broadway & Swan lead analysis was discontinued and the TSP samplers from the South Tucson and the Magnetic Observatory sites were moved to the 22nd & Craycroft site. 22nd & Craycroft and Prince Road sites remained until March of 1997.

Quality Assurance for Lead

All data quality assessment requirements outlined in **40 CFR 58, app. A**, have been met for 2012. The requirements include quarterly flow rate verification and audits. All valid precision and accuracy tests are reported to the Air Quality System (AQS) database on a quarterly basis.

Table 29

Protocol	**Instrument**	**Frequency**	**Date Completed 2012**
Flow rate verification	Tisch Hi Vol with Brushless Motor	Quarterly	03/30, 06/28, 9/26, 12/28
Flow Rate Audit		Quarterly	03/21, 06/27, 09/11, 12/27
NPAP Audit			none

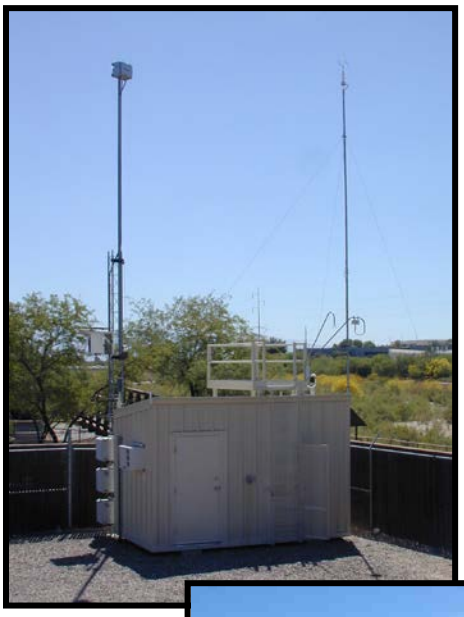
Table 30

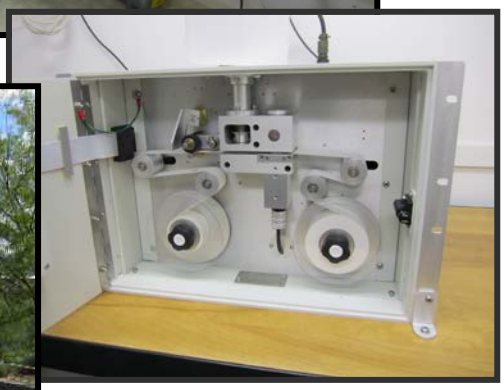
Annual summary statistics: NAAQS Lead: 0.15 μg/m^3 three month average

Year 2012 Site	1st Max. 24- Hour Avg	2nd Max. 24- HR Avg	Annual Mean
Children's Park 1028	**.005**	**.004**	**.0018**

V. DETAILED SITE AND MONITOR INFORMATION

CHILDREN'S PARK NCore: AQS # 040191028





Site Description	
Site Name	**CHILDREN'S PARK NCore**
AQS ID	040191028
Address	400 W. River Road, Tucson, AZ
Latitude / Longitude	32.295150 / -110.982300
Elevation	2286
Surrounding landscape	Gravel in walled compound, dirt parking lot, dry river bed
Location description	This site is located at the confluence of the Rillito River and Pima Wash, a natural low spot in the local topography. Single - family residences and a popular county park with exercise trails extend to the north, northwest, and west, respectively. Heavy commercial usage dominates to the south and east, including large shopping malls and automobile dealerships.

Monitoring Information

Site Name	**CHILDREN'S PARK NCore**
Pollutant	**PM2.5**
Method Code	170
Number of monitors	1
Parameter code / POC	88101 / 3
Basic monitoring objective / Statement of Purpose	NAAQS Comparison / Population Exposure
Site Type	Population Exposure
Instrument Manufacturer / Model	Met One / Bam 1020
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical Lab	n/a
Monitor type	SLAMS NCore
Scale	Neighborhood
Number of daily observations	357
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.3 meters
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	14.3 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	16.3 m / every 3 days / R&P 2025
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Suitable for comparison to $PM_{2.5}$ NAAQS	YES
Site meets 40 CFR 58, Appx. A,C,D,E	YES

Comments: Continuous $PM_{2.5}$ sampling began at this neighborhood scale site on January 23, 2011. Co-location of the BAM 2.5 continuous monitor is under development and is currently limited to the FRM 2.5 sampler located on a platform near the shelter.

Site Name	**CHILDREN'S PARK NCore**
Pollutant	**PM2.5**
Method Code	118
Number of monitors	1
Parameter code/ POC	88101 /1
Basic monitoring objective / Statement of Purpose	NAAQS Comparison / Population Exposure
Site Type	Population Exposure
Instrument Manufacturer / Model	R& P Partisol-Plus 2025
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical Lab	PDEQ
Monitor type	SLAMS NCore
Scale	Neighborhood
Number of daily observations	121
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Every three days
Probe height	3.1 meters above the ground on a platform located in a city water well site.
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	13.1 meters / 3meters
Distance from trees	8.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	1.2 meters /Every twelve days / R&P 2000
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Suitable for comparison to $PM_{2.5}$ NAAQS	Yes
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: Sampling began in 1999.

Site Name	**CHILDREN'S PARK NCore**
Pollutant	**PM Coarse PM10-PM2.5**
Method Code	176
Number of monitors	2
Parameter code / POC	86101/ 1
Basic monitoring objective / Statement of Purpose	Research support / NCore requirement
Site Type	Population exposure
Instrument Manufacturer / Model	R& P Partisol-Plus 2025 Sampler Pair
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical Lab	PDEQ
Monitor type	NCore
Scale	Neighborhood
Number of daily observations	120
Number / Dates of exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Every three days
Probe height	3.1 meters above the ground on a platform located in a city water well site.
Degrees of unrestricted air flow	270
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	13.1 meters / 3 meters
Distance from trees	8.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ schedule / Collocated monitor type	1.2 m / 1 in 3 days / n/a
Nearest roads distance & direction to monitor /ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: The subtraction method for determining the coarse PM fraction was initiated in 2011, using a matched pair of Partisol- Plus samplers.

Site Name	**CHILDREN'S PARK NCore**
Pollutant	**$PM_{2.5}$ SPECIATION**
Method code	810
Number of monitors	1
Parameter code / POC	88502/ 5
Basic monitoring objective / Statement of purpose	Research support for the Chemical Speciation Network
Site type	Population Exposure
Instrument Manufacturer / Model	Met One SASS with URG 3000N
FRM/FEM/ARM/other	Other
Collecting agency / Reporting agency	**Pima County Department of Environmental Quality/ RTP**
Analytical lab	**RTP**
Monitor type	NCore
Scale	Neighborhood
Number of daily observations	97
Number / Dates of exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Every 3rd day
Probe height	3 meters above the ground on a platform located in a city water well site.
Degrees of unrestricted air flow	270
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	SASS 15.8 meters / 3 meters
Distance from trees	SASS 5.2 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: Sampling began for PM2.5 Speciation in 2000.

Site Name	CHILDREN'S PARK NCore
Pollutant	**CARBON MONOXIDE**
Method code	554
Number of monitors	1
Parameter code / POC	42101/ 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / NCore requirement
Site type	Population Exposure
Instrument Manufacturer / Model	Thermo Scientific / 48i -TLE
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of houly observations	8633
Number / Dates of standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.25 meters above the ground on a shelter in a city water well site
Probe material / Residence time	FEP Teflon/ 3.1 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	14.3 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site began monitoring for Carbon Monoxide in October, 1998.

Site Name	**CHILDREN'S PARK NCore**
Pollutant	**OZONE**
Method code	047
Number of monitors	1
Parameter code / POC	44201/ 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Maintenance of long term ozone monitoring at this location
Site type	Population Exposure
Instrument Manufacturer / Model	Thermo Scientific / 49i
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	n/a
Monitor type	SLAMS NCore
Scale	Neighborhood
Number of daily observations	361
Number / Dates of 8-hour standard exceedances in 2012	0
Historical exceedances	One in 1999; One in 2002
Current Sampling frequency / Season	Continuous
Probe height	4.25 meters above the ground on a shelter located in a city water well site.
Probe material / Residence time	FEP Teflon / 5.3 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	16.4 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ schedule/collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site began August of 1997 and is a relocation (1.5 kilometers, northeast) of the Pomona site. This site is representative of a neighborhood scale in the north central region of the air planning area where ozone levels are generally expected to be high due to the low altitude and the prevailing southeasterly winds.

Site Name	**CHILDREN'S PARK NCore**
Pollutant	**NITROGEN DIOXIDE**
Method code	090/ 074
Number of monitors	1
Parameter code / POC	42602/ 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Maintenance of long term monitoring at this location
Site type	Highest Concentration
Instrument Manufacturer / Model	Ecotech / 9841 T
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	Special Purpose / Proposed NCore
Scale	neighborhood
Number of hourly observations	7065
Number / Dates of standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.25 meters above the ground on a shelter located in a city water well site
Probe material / Residence time	FEP Teflon / 5.1 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	12.8 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ schedule/collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000. River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: The site began monitoring for Nitrogen Dioxide in May, 1998, and is a relocation (1.5 kilometers, northeast) of the Pomona site.

Site Name	**CHILDREN'S PARK NCore**
Pollutant	**REACTIVE OXIDES OF NITROGEN (NO_Y)**
Method code	574
Number of monitors	1
Parameter code / POC	42600/ 1
Basic monitoring objective / Statement of purpose	Research support / Comply with NCore requirements
Site type	Population Exposure
Instrument Manufacturer / Model	Thermo Scientific / 42i - Y
FRM/FEM/ARM/other	n/a
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	SLAMS NCore
Scale	neighborhood
Number of daily observations	8581
Number / Dates of standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / season	Continuous
Probe height	10.0 meters above the ground on a shelter located in a city water well site
Probe material / Residence time	FEP Teflon / <2.0 seconds to converter; <3 seconds to analyzer
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	12.8 meters horizontal
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ schedule/collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: The site began monitoring for reactive oxides of nitrogen in October, 2010 for the NCore site requirements, using a Thermo 42i-y instrument with remote converter mounted at the requisite 10 meters (see photo, mast left).

Site Name	**CHILDREN'S PARK NCore**
Pollutant	**SULFUR DIOXIDE**
Method code	560
Number of monitors	1
Parameter code / POC	42401/ 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Comply with NCore requirements
Site type	Population Exposure
Instrument Manufacturer / Model	Thermo Scientific / 43i - TLE
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	SLAMS NCore
Scale	neighborhood
Number of daily observations	8638
Number / Dates of 1-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.25 meters above the ground on a shelter located in a city water well site
Probe material / Residence time	FEP Teflon / 5.1 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	12.8 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

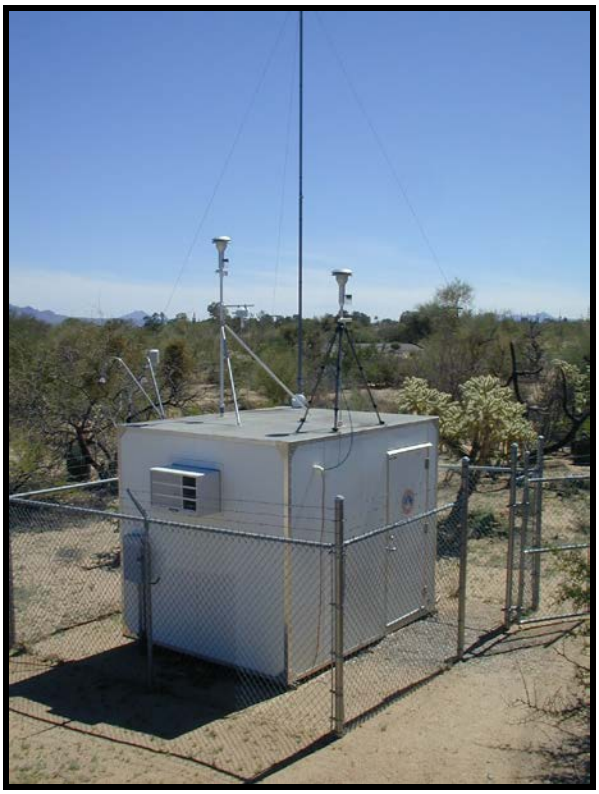
Comments: Sulfur Dioxide sampling began October 1, 2010 to conform to NCore site requirements.

Site Name	**CHILDREN'S PARK NCore**
Pollutant	**LEAD**
Method Code	110
Number of monitors	2
Parameter code / POC	14129/ 1
Basic monitoring objective/ Statement of Purpose	NAAQS comparison / Comply with NCore requirements
Site Type	Population exposure
Instrument Manufacturer / Model	ICAP Spectra (ICP-MS)
FRM/FEM/ARM/other	n/a
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical Lab	Pima County wastewater treatment
Monitor type	Proposed NCore
Scale	Neighborhood
Number of daily observations	52
Number / Dates of rolling three month average standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Every six days
Probe height	1.75 m
Degrees of unrestricted air flow	270
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	13.1 meters / 3 meters
Distance from trees	8.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	2.3 m / 12 days/ Tisch Hi –Vol Plus
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: Lead sampling began February 27, 2012.

Site Name	**CHILDREN'S PARK NCore**
Pollutant	METEOROLOGICAL DATA
Method code	061, 040, 011
Number of monitors	4
Parameter code / POC	61103, 61104, 62101, 62201
Basic monitoring objective / Statement of purpose	Research support / Source determination for criteria pollutants
Site type	n/a
Instrument Manufacturer / Model	WD/WS –MET ONE 50.5; Temp/RH – VAISALA HMP45
FRM/FEM/ARM/other	n/a
Collecting agency / Reporting agency	PDEQ, PDEQ
Analytical lab	n/a
Monitor type	n/a
Scale	n/a
Number of daily observations	366
Number / Dates of 24-hour standard exceedances in 2012	n/a
Historical exceedances	n/a
Current Sampling frequency / Season	continuous
Probe height	WD/WS – 10m ; Temp/RH – 4.25m
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	WD/WS – 16.5m horizontal; Temp/RH – 12.8m
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors / Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	Arizona State Route 77 runs north - south 0.5 kilometers to the east, providing six lanes of heavily used arterial routing with a 2008 ADT of 43,000.
	River Road runs east – west 0.5 kilometers to the north, with a 2010 ADT of 38,000.
Site meets 40 CFR 58, Appx. A,C,D,E	YES

GREEN VALLEY: AQS # 040191030



Site Description	
Site Name	**GREEN VALLEY**
AQS ID	040191030
Address	601 N. La Canada Drive, Green Valley, AZ
Latitude / Longitude	31.87952 / -110.996440
Elevation	2910
Surrounding landscape	Dirt, sparse desert vegetation
Location description	This site is situated in a residential / commercial area. Open pit copper mines and tailings ponds are located four kilometers to the west of the community.

Monitoring Information

Site Name	GREEN VALLEY
Pollutant	**PM_{10}**
Method code	079
Number of monitors	1
Parameter code / POC	81102/1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Provide air pollution data to the public in a timely matter
Site type	Population Exposure
Instrument Manufacturer / Model	Thermo Scientific TEOM 1400AB
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	359
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Every day; hourly
Probe height	4.25 meters above the ground on a shelter
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	7.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors / Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	100 meters west of La Canada with a 2010 ADT of 11,000
	0.5 kilometers west of Interstate 19 with a 2011 ADT of 31,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site is fifty kilometers south of Downtown Tucson in the retirement community of Green Valley. PM_{10} monitoring commenced in September 1989 at the established TSP site there. ASARCO and Freeport-McMoRan operate several open pit mines and tailings ponds just west of the community. The monitoring objective is to monitor the population exposure to this potentially significant source of airborne particulates. The monitor was relocated in February 2001, approximately 1 kilometer north of the original Esperanza site, to the Pima County Government Center at 601 N. La Canada Drive. The new site is considered a continuation of the original site. PM_{10} levels were below the health standards in the years 1989 through 2012.

Site Name	**GREEN VALLEY**
Pollutant	**$PM_{2.5}$**
Method code	733
Number of monitors	1
Parameter code / POC	88501/3
Basic monitoring objective / Statement of purpose	Provide air pollution data to the public in a timely matter / Population Exposure
Site type	Population Exposure
Instrument Manufacturer / Model	Met-One / BAM 1020
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	364
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.8 meters above the ground on a shelter
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	7.5 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors / Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	100 meters west of La Canada with a 2010 ADT of 11,000
	0.5 kilometers west of Interstate 19 with a 2011 ADT of 31,000
Suitable for comparison to $PM_{2.5}$ NAAQS	No
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site is fifty kilometers south of Downtown Tucson in the retirement community of Green Valley. This monitor was initially installed in May of 2000 as part of the Environmental Monitoring for Public Access and Community Tracking (EMPACT) program. Pima County began reporting the $PM_{2.5}$ data to EPA July, 2003.

Site Name	**GREEN VALLEY**
Pollutant	**OZONE**
Method code	047
Number of monitors	1
Parameter code / POC	44201/1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Provide air pollution data to the public in a timely matter
Site type	Population Exposure
Instrument Manufacturer / Model	Thermo Scientific / 49c
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	364
Number / Dates of 8-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	3.1 meters above the ground on a shelter
Probe material / Residence time	FEP Teflon / 3.5 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	8.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	100 meters west of La Canada with a 2010 ADT of 11,000
	0.5 kilometers west of Interstate 19 with a 2011 ADT of 31,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site is fifty kilometers south of Downtown Tucson in the retirement community of Green Valley. This site was initially established in April of 2002 as part of the Environmental Monitoring for Public Access and Community Tracking (EMPACT) program. Pima County began reporting the ozone data to EPA July, 2003.

CORONA de TUCSON: AQS # 040190008

Site Description	
Site Name	**CORONA de TUCSON**
AQS ID	040190008
Address	22001 S. Houghton Road, Tucson, AZ
Latitude / Longitude	32.00474 / -110.79260
Elevation	3078
Surrounding landscape	Gravel within enclosure; dirt, sparse desert vegetation surrounding
Location description	This site is situated in an undisturbed natural desert area.

Monitoring Information

Site Name	CORONA de TUCSON
Pollutant	PM10
Method code	126
Number of monitors	1
Parameter code / POC	81102/ 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Upwind Background
Site type	Upwind Background
Instrument Manufacturer/Model	R&P 2000
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	PDEQ
Monitor type	SLAMS
Scale	Regional
Number of daily observations	38
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Every sixth day
Probe height	2.1 meters
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	5.0 meters / 3 meters
Distance from trees	23.4 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	1.6 kilometers west of Houghton Road with a 2010 ADT of 9,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site is the only regional scale monitor in the network. PM_{10} sampling was started here in September 1988, in conjunction with existing total suspended particulates (TSP) sampling. This site exhibits the lowest network concentrations. TSP sampling was discontinued in May 1989. Hi - Vol sampling for PM_{10} was substituted with dichotomous sampling during the last quarter of 1989 in support of the state sponsored Tucson PM_{10} Source Apportionment Study. Hi - Vol PM_{10} sampling resumed in January 1990. Low -Vol PM_{10} R& P 2000 sampling began in March, 2006.

ORANGE GROVE: AQS # 040190011

Site Description	
Site Name	**ORANGE GROVE**
AQS ID	040190011
Address	3401 W. Orange Grove Road, Tucson, AZ
Latitude / Longitude	32.32255 / -111.037700
Elevation	2234
Surrounding landscape	Gravel in fenced compound, dirt road shoulders
Location description	This site is situated in a residential area with light commerce and industry. There is an asphalt batch plant and redi-mix concrete operations with a large gravel pit less than three kilometers to the west of the site in the Santa Cruz River bed area.

Monitoring Information

Site Name	ORANGE GROVE
Pollutant	PM10
Method code	127
Number of monitors	2
Parameter code / POC	81102/ 2
Basic monitoring objective / Statement of purpose	NAAQS Comparison / Highest Concentration
Site type	Highest Concentration
Instrument Manufacturer/Model	R&P 2025 Sequential
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ /PDEQ
Analytical lab	PDEQ
Monitor type	SLAMS
Scale	Neighborhood
Number of daily observations	365
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	Exceedances of the 24 – hour standard: two in 1988, four in 1999, one in 2002, one in 2003, one in 2009
Current Sampling frequency / Season	The sampling frequency started out with every other day sampling. It was changed to daily after the exceedance in July 1985. The sampling frequency remained as daily until the end of 1986. Every other day sampling was resumed until the two exceedances were recorded in the fourth quarter 1988. Every day sampling was immediately initiated and continued until April 1991 when every other day sampling was resumed. The site was placed on every sixth day sampling in October 1993. The exceedances of the NAAQS in 1999 commenced everyday sampling on September 9, 1999.
Probe height	2.65 meters above the ground in a city water well site
Degrees of unrestricted air flow	270
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	21.9 meters / 6 meters
Distance from trees	19.2 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors / Schedule / Collocated monitor type	1.2 meters /Every day ; reported every 6th day/ R& P 2025 Sequential
Nearest roads distance & direction to monitor / ADT	37 meters west of Camino de la Tierra and 70 meters south of Orange Grove Road with a 2010 ADT of 37,000
	2 kilometers east of Interstate 10 with a 2011 ADT of 103,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: Established in February 1985, this site is the oldest of the PM_{10} monitoring sites in the network. Orange Grove was chosen as the initial PM_{10} monitoring site and the design value site for Group II in the Tucson air planning area based on historically high TSP data. This neighborhood scale site is located near the confluence of the Santa Cruz, Rillito, and Canada del Oro Rivers in the Tucson Valley. This site is situated near the freeway and railway tracks, and in the vicinity of major construction projects, therefore high PM_{10} values are expected here. Dichotomous sampling was started at this site in July of 1993. The dichotomous ran in co-location with a HI-VOL- SA/1200 model from 1993 to 1996. The site was converted to dichotomous only operations on October 1, 1996 continuing until December 1998. Hi-Vol sampling resumed in January 1999, but was replaced with co-located low volume sequential samplers in 2004.

Site Name	**ORANGE GROVE**
Pollutant	**$PM_{2.5}$**
Method code	118
Number of monitors	1
Parameter code / POC	88101/ 1
Basic monitoring objective / Statement of purpose	NAAQS Comparison / Highest expected concentration
Site type	Population Exposure
Instrument Manufacturer / Model	R&P Partisol-Plus 2025
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	PDEQ
Monitor type	SLAMS
Scale	Neighborhood
Number of daily observations	121
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Every three days sampling
Probe height	2.65 meters above the ground in a city water well site
Degrees of unrestricted air flow	270
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	18.6 meters / 6 meters
Distance from trees	20.3 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors / Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	37 meters west of Camino de la Tierra and 70 meters south of Orange Grove Road with a 2010 ADT of 37,000
	2 kilometers east of Interstate 10 with a 2011 ADT of 103,000
Suitable for comparison to $PM_{2.5}$ NAAQS	Yes
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: $PM_{2.5}$ sampling began at this neighborhood scale site in January, 1999. It is located near the confluence of the Santa Cruz, Rillito and Canada del Oro Rivers in the Tucson Valley, toward the northwest end of the air planning area. The site is situated near a freeway and railroad tracks.

SOUTH TUCSON: AQS # 040191001

Site Description	
Site Name	**SOUTH TUCSON**
AQS ID	040191001
Address	1601 S. 6th Avenue, South Tucson, AZ
Latitude / Longitude	32.20195 / -110.967900
Elevation	2420
Surrounding landscape	Primarily paved parking lots; gravel and desert landscaping surrounding building.
Location description	This site is situated in a dense residential / commercial area. There are numerous unpaved alleys and lots in the vicinity.

Comments: From January 1985 to September 1988 this site approached or exceeded TSP standards. PM_{10} sampling began here in September 1988. On March 8, 1993, the samplers were relocated from the original site to the new South Tucson Governmental Complex, which is less than two blocks north and across S. 6th Avenue. Levels at this location are representative of area - wide emissions patterns with high population exposure. The annual means for 1989 through 1999 were below the health standard. The 24 - hour NAAQS was exceeded twice in 1999 and 2002. Two co-located PM_{10} samplers have been operational at this site from June 1991 to June 1999. Co-location of the PM_{10} samplers was discontinued when a third sampler was added and everyday sampling began on June 23, 1999. In March, 2004, the Hi - Vol samplers were replaced with co-located Low –Vol sequential samplers.

Monitoring Information

Site Name	**SOUTH TUCSON**
Pollutant	**PM_{10}**
Method code	127
Number of monitors	2
Parameter code / POC	81102 /1
Basic monitoring objective / Statement of purpose	NAAQS Comparison / Population Exposure
Site type	Population Exposure
Instrument Manufacturer / Model	R&P 2025 Sequential
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	PDEQ
Monitor type	SLAMS
Scale	Neighborhood
Number of daily observations	362
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	Exceedances of the 24 – hour standard: two in 1999; two in 2002; one in 2009
Current Sampling frequency / Season	The exceedances of the NAAQS in 1999 commenced everyday sampling on June 23, 1999.
Probe height	6.9 meters above the ground on the roof of the South Tucson Governmental Complex Building.
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	6.7 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	1.7 meters/ Every day; reported every 6th day/ R&P 2025 Sequential
Nearest roads distance & direction to monitor / ADT	41 meters east of South 6th Avenue with a 2010 ADT of 15,000
	528 meters south of 22nd Street with a 2010 ADT of 32,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

PRINCE ROAD: AQS # 040191009

Site Description	
Site Name	**PRINCE ROAD**
AQS ID	040191009
Address	1016 W. Prince Road, Tucson, AZ
Latitude / Longitude	32.272300 / -110.989100
Elevation	2315
Surrounding landscape	Primarily paved parking lots, buildings and streets surrounding building.
Location description	This site is situated in a dense residential / commercial area. Numerous unpaved alleys and lots are in the vicinity, from about 70 to 250 meters away from the sampler.

Monitoring Information

Site Name	PRINCE ROAD
Pollutant	**PM_{10}**
Method code	126
Number of monitors	1
Parameter code / POC	81102/ 1
Basic monitoring objective / Statement of purpose	NAAQS Comparison / Source Impact
Site type	Source Impact
Instrument Manufacturer / Model	R&P 2000
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	PDEQ
Monitor type	SLAMS
Scale	Microscale
Number of daily observations	58
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Every sixth day
Probe height	4.6 meters above the ground on the roof of a small commercial building.
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	19.8 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors / Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	14.1 meters north of Prince Road with a 2010 ADT of 23,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site is located in a homogenous, dense, residential / commercial area in north central Tucson. PM_{10} sampling began here in August 1987. The microscale site is representative in the north central region of the air planning area where particulate levels are generally higher due to the low altitude and the prevailing southeasterly winds. The annual standard was exceeded in 1989. Power problems within the building resulted in an unusually low data recovery during the fourth quarter of 1990. Data recovery was again compromised by power problems in the 1st and 3rd quarters of 1997 and by damage to the sampler due to a storm in July, 2005. In March, 2006, the Hi -Vol sampler was replaced with a Low – Vol PM_{10} R& P 2000 sampler.

SANTA CLARA SCHOOL: AQS# 040191026

Site Description	
Site Name	**SANTA CLARA SCHOOL**
AQS ID	040191026
Address	6910 S. Santa Clara Avenue, Tucson, AZ
Latitude / Longitude	32.125950 / -110.982600
Elevation	2540
Surrounding landscape	Large flat roof, paved parking lots and streets, grass playground.
Location description	This site is situated in a Southwest Tucson residential district.

Comments: This site is located south of Interstate 10 and east of Interstate 19 and provides a representative neighborhood scale site on Tucson's south side. Being near the fringe of the city limits, this site should track transport values that develop with a southerly wind from a combination of desert, agricultural land, and silt flood plain that is found on the Tohono O'Odham Indian Reservation (San Xavier district) 500 meters south of the site. The Hi- Vol sampler was replaced in April, 2006, with a Low- Vol sampler.

Monitoring Information

Site Name	**SANTA CLARA SCHOOL**
Pollutant	**PM_{10}**
Method code	126
Number of monitors	1
Parameter code / POC	81102 /1
Basic monitoring objective / Statement of purpose	NAAQS Comparison / Population Exposure
Site type	Population Exposure
Instrument Manufacturer / Model	R&P 2000
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	PDEQ
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	58
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	Exceedances of the 24 – hour standard: One on 10/27/2008
Current Sampling frequency / Season	Every sixth day
Probe height	6.45 meters above the ground on the roof of the Santa Clara Elementary School.
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	25.6 meters
Distance from obstruction not on roof	n/a
Distance from trees	23.9 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors / Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	450 meters east of Interstate 19 with a 2011 ADT of 37,000
	800 meters south of Valencia Road with a 2010 ADT of 53,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

TANGERINE: AQS # 040191018

Site Description	
Site Name	**TANGERINE**
AQS ID	040191018
Address	12101 N. Camino de Oeste, Tucson, AZ
Latitude / Longitude	32.425250 / -111.063500
Elevation	2638
Surrounding landscape	Dirt, sparse desert vegetation to the east; high density, tri –level multi – unit apartments directly west of station.
Location description	This site has been situated in a relatively undisturbed natural desert area for most of it's existence, but residential development in recent years have been built to within 35 meters to the west, and low density residential developments are encroaching from the south, east and north to within 3 kilometers to 5 kilometers.

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Monitoring Information

Site Name	**TANGERINE**
Pollutant	**PM_{10}**
Method code	126
Number of monitors	1
Parameter code / POC	81102/ 1
Basic monitoring objective / Statement of purpose	NAAQS Comparison / General Background *
Site type	General Background
Instrument Manufacturer / Model	R&P 2000
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	PDEQ
Monitor type	Special Purpose
Scale	Urban
Number of daily observations	60
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Every sixth day
Probe height	4.5 meters above the ground on a shelter on Tucson's far northwest side
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	6.4 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors / schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	Tangerine Road runs approximately east – west 70 meters south of the site with a 2011 ADT of 5,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

* See comment on page 3, PDEQ's anticipated modifications to network in 2013

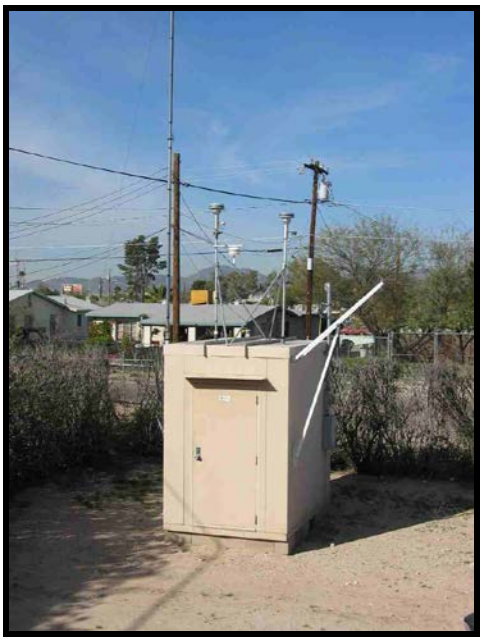
Comments: The primary objective of this site is to assess background concentrations and to assess transport impact from outlying sources during exceptional wind events**.** As part of the urban haze/ visibility study, dichotomous samplers were installed at this site in July 1993. PM_{10} data from these samplers was used to supplement the existing PM_{10} network from October 1996 to December 1998, when the dichotomous samplers were relocated and a Hi-Vol sampler was installed to continue PM_{10} monitoring. In 2005, the Hi-Vol PM_{10} sampler was replaced with a Low –Vol R& P 2000 sampler.

Site Name	**TANGERINE**
Pollutant	**OZONE**
Method code	047
Number of monitors	1
Parameter code / POC	44201 / 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Highest Concentration *
Site type	Highest Concentration
Instrument Manufacturer / Model	Thermo Scientific / 49c
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Urban
Number of daily observations	366
Number / Dates of 8-hour standard exceedances in 2012	0
Historical exceedances	One in 2002; One in 2009
Current Sampling frequency / Season	Continuous
Probe height	3.75 meters above the ground on a shelter on Tucson's far northwest side.
Probe material / Residence time	FEP Teflon / 4.2 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	8.3 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	Tangerine Road runs approximately east – west 70 meters south of the site with a 2011 ADT of 5,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

* See comment on page 3, PDEQ's anticipated modifications to network in 2013

Comments: Tangerine was established in November 1989. Ozone concentrations at this site have been the highest in the network on occasion. This may be due to the prevailing southeasterly winds transporting ozone from the urban area. Concentrations remain high well into the night and early morning.

GERONIMO: AQS # 040191113



Site Description	
Site Name	**GERONIMO**
AQS ID	040191113
Address	2498 N. Geronimo Tucson, AZ
Latitude / Longitude	32.251840 / -110.965300
Elevation	2398
Surrounding landscape	Dirt, dead shrubs, unpaved road shoulders
Location description	This site is situated in a residential area in a City of Tucson water well site.

Monitoring Information

Site Name	**GERONIMO**
Pollutant	**PM_{10}**
Method code	079 /122
Number of monitors	1
Parameter code / POC	81102 / 1
Basic monitoring objective / Statement of purpose	NAAQS Comparison / Provide air pollution data to the public in a timely matter
Site type	Population Exposure
Instrument Manufacturer / Model	Met One / BAM 1020
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	349
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	One exceedance on 7/22/2009
Current Sampling frequency / Season	Every day; Hourly
Probe height	4.6m
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	9.3 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	154.8 meters north of Grant Road with a 2010 ADT 40,000
	617.6 meters east of Stone Avenue with a 2010 ADT 21,000
	397.5 meters west of North 1st Avenue with a 2011 ADT 34,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This monitor was initially installed in July 1, 2007 for Air Quality Index reporting using a continuous monitor. This is a Special Purpose site situated in a residential area, monitoring for population exposure.

Site Name	**GERONIMO**
Pollutant	**$PM_{2.5}$**
Method code	733
Number of monitors	1
Parameter code / POC	88501 /3
Basic monitoring objective / Statement of purpose	Provide air pollution data to the public in a timely matter / Population Exposure
Site type	Population Exposure
Instrument Manufacturer / Model	Met-One / BAM 1020
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	348
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.6 meters
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	9.4 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	154.8 meters north of Grant Road with a 2010 ADT 40,000
	617.6 meters east of Stone Avenue with a 2010 ADT 21,000
	397.5 meters west of North 1st Avenue with a 2011 ADT 34,000
Suitable for comparison to $PM_{2.5}$ NAAQS	No
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This monitor was initially installed in July of 2001 for Air Quality Index reporting using a continuous monitor. Pima County began reporting the $PM_{2.5}$ data to EPA July, 2003. This is a Special Purpose site situated in a residential area, monitoring for population exposure.

ROSE ELEMENTARY: AQS # 040191032

Site Description	
Site Name	**ROSE ELEMENTARY**
AQS ID	040191032
Address	710 W. Michigan, Tucson, AZ
Latitude / Longitude	32.173 / -110.980115
Elevation	2438
Surrounding landscape	Grass playground
Location description	The site is located in a residential neighborhood with light commercial enterprises. The Santa Cruz River, with several sand and gravel operations, parallels the interstate one kilometer to the west.

Monitoring Information

Site Name	ROSE ELEMENTARY
Pollutant	**$PM_{2.5}$**
Method code	733
Number of monitors	1
Parameter code / POC	88501 /3
Basic monitoring objective / Statement of purpose	Provide air pollution data to the public in a timely matter / Population Exposure
Site type	Population Exposure
Instrument Manufacturer / Model	Met-One / BAM 1020
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	341
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.9 meters above the ground on the roof of a shelter located on the grounds of Rose Elementary School
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	11.8 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	12^{th} Avenue to the east with a 2011 ADT of 22,000
	Ajo Way to the north with a 2010 ADT of 28, 000
	Interstate 19 runs north-south half a kilometer to the west with a 2011 ADT 82,000
Suitable for comparison to $PM_{2.5}$ NAAQS	No
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This monitor was initially installed in October of 2000 as part of the Environmental Monitoring for Public Access and Community Tracking (EMPACT) program. This area was identified as having higher than normal number of pediatric asthma cases. Pima County began reporting the $PM_{2.5}$ data to EPA July, 2003.

Site Name	ROSE ELEMENTARY
Pollutant	**OZONE**
Method code	087 / 047
Number of monitors	1
Parameter code / POC	44201/ 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Provide air pollution data to the public in a timely matter
Site type	Population Exposure
Instrument Manufacturer / Model	Thermo Scientific / 49i
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ/PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	361
Number / Dates of 8-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.1 meters above the ground on the roof of a shelter located on the grounds of Rose Elementary School.
Probe material / Residence time	FEP Teflon / 4.6 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	9.4 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	12th Avenue 235 meters to the east with a 2011 ADT of 22,000
	Ajo Way 528 meters to the north with a 2010 ADT of 28, 000
	Interstate 19 runs north-south half a kilometer to the west with a 2011 ADT 82,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site was initially established in October of 2000 as part of the Environmental Monitoring for Public Access and Community Tracking (EMPACT) program. This area was identified as having higher than normal number of pediatric asthma cases. Pima County began reporting the ozone data to EPA July, 2003.

COACHLINE: AQS # 040191034

Site Description	
Site Name	**COACHLINE**
AQS ID	040191034
Address	9597 N. Coachline, Tucson, AZ
Latitude / Longitude	32.380820 / -111.127160
Elevation	2104
Surrounding landscape	Dirt within walled compound, residential neighborhood
Location description	The site is situated in a residential neighborhood. The normally dry Santa Cruz River runs northwest between the Interstate and the neighborhood and contributes to airborne dust through previous deposition of fine clay soils throughout the floodplain. This area has previously been used for farming and ranching, and sand and gravel operations are still in operation five to ten kilometers upstream to the southwest. Considerable new construction of roads, homes and businesses throughout this burgeoning area exacerbate entrainment of the fine soils.

Monitoring Information

Site Name	**COACHLINE**
Pollutant	**$PM_{2.5}$**
Method code	733
Number of monitors	1
Parameter code / POC	88501/ 3
Basic monitoring objective / Statement of purpose	Provide air pollution data to the public in a timely matter / Population Exposure
Site type	Population Exposure
Instrument Manufacturer / Model	Met-One / BAM 1020
FRM/FEM/ARM/other	Other
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	366
Number / Dates of 24-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.9 meters above the ground on a shelter on Tucson's far northwest side
Degrees of unrestricted air flow	270
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	9.41 meters / 5 meters
Distance from trees	5.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	approximately 1.25 kilometers west of Interstate 10 with a 2011 ADT of 75,000
	.5 kilometer north of Silverbell Road 2010 ADT of 26,000
Suitable for comparison to $PM_{2.5}$ NAAQS	No
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This monitor was initially installed in March of 2001 as part of the Environmental Monitoring for Public Access and Community Tracking (EMPACT) program. This area was identified as having higher than normal number of pediatric asthma cases. Pima County began reporting the $PM_{2.5}$ data to EPA July, 2003.

Site Name	**COACHLINE**
Pollutant	**OZONE**
Method code	087 / 047
Number of monitors	1
Parameter code / POC	44201 / 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Provide air pollution data to the public in a timely matter
Site type	Population Exposure
Instrument Manufacturer/Model	Thermo Scientific / 49i
FRM/FEM/ARM/other	
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of daily observations	361
Number / Dates of 8-hour standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	3.1 meters above the ground on a shelter on Tucson's far northwest side
Probe material / Residence time	FEP Teflon / 4.6 seconds
Degrees of unrestricted air flow	270
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	10.73 meters / 5 meters
Distance from trees	7.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	approximately 1.25 kilometers west of Interstate 10 with a 2011 ADT of 75,000
	.5 kilometer north of Silverbell Road 2010 ADT of 26,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site was initially established in April of 2001 as part of the Environmental Monitoring for Public Access and Community Tracking (EMPACT) program. This area was identified as having higher than normal number of pediatric asthma cases. Pima County began reporting the ozone data to EPA July, 2003.

22ND STREET & CRAYCROFT: AQS # 040191011

Site Description	
Site Name	**22ND STREET & CRAYCROFT**
AQS ID	040191011/ 1
Address	1237 S. Beverly Avenue, Tucson, AZ
Latitude / Longitude	32.204420 / -110.878067
Elevation	2582
Surrounding landscape	Dirt, ephemeral weeds
Location description	This site is situated in a predominately residential eastside area with commercial activity lining nearby arterial routes. There is a large covered water reservoir north of the location.

Monitoring Information

Site Name	**22ND STREET & CRAYCROFT**
Pollutant	**CARBON MONOXIDE**
Method code	054/ 158
Number of monitors	1
Parameter code / POC	42101 /1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Population Exposure
Site type	Population Exposure
Instrument Manufacturer / Model	Horiba / APMA370
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	SLAMS
Scale	Neighborhood
Number of hourly observations	8687
Number / Dates of standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.1 meters above the ground on the roof of a shelter located in a city water well site.
Probe material / Residence time	FEP Teflon / 2.5 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	22.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	260 meters west is Craycroft Road with a 2010 ADT of 30,000
	260 meters north is 22nd Street with a 2011 ADT of 49,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site is one of the oldest in the monitoring network, originally established in 1973, and has operated continuously to the present.

Site Name	**22ND STREET & CRAYCROFT**
Pollutant	**OZONE**
Method code	087/ 047
Number of monitors	1
Parameter code / POC	44201 /1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Maintenance of long term monitoring at this location
Site type	Population Exposure
Instrument Manufacturer / Model	Thermo Scientific / 49i
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	SLAMS
Scale	Neighborhood
Number of daily observations	362
Number / Dates of 8-hour standard exceedances in 2012	0
Historical exceedances	One in 1997, 1999, 2002, 2011
Current Sampling frequency / Season	Continuous
Probe height	4.1 meters above the ground on the roof of a shelter located in a city water well site.
Probe material / Residence time	FEP Teflon / 4.3 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	22.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	260 meters west is Craycroft Road with a 2010 ADT of 30,000
	260 meters north is 22nd Street with a 2011 ADT of 49,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site is one of the oldest in the monitoring network, originally established in 1973, and operated continuously to the present.

Site Name	**22ND STREET & CRAYCROFT**
Pollutant	**NITROGEN DIOXIDE**
Method code	074 / 090
Number of monitors	1
Parameter code / POC	42602 /1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Maintenance of long term monitoring at this location
Site type	Population Exposure
Instrument Manufacturer / Model	Horiba / APNA -370
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	SLAMS
Scale	Neighborhood
Number of hourly observations	8646
Number / Dates of standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous
Probe height	4.1 meters above the ground on the roof of a shelter located in a city water well site
Probe material / Residence time	FEP Teflon / 4.4 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	22.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	260 meters west is Craycroft Road with a 2010 ADT of 30,000
	260 meters north is 22nd Street with a 2011 ADT of 49,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: This site is one of the oldest in the monitoring network, originally established in 1973, and operated continuously to the present.

22ND STREET & ALVERNON: AQS # 040191014

Site Description	
Site Name	**22ND STREET & ALVERNON**
AQS ID	040191014
Address	3895 E. 22nd Street, Tucson, AZ
Latitude / Longitude	32.207390 / -110.910650
Elevation	2516
Surrounding landscape	Gravel in walled compound, paved streets and sidewalks
Location description	This site is situated in a commercial area near a high traffic count intersection. A large regional park is located to the northwest of the site.

Monitoring Information

Site Name	**22ND STREET & ALVERNON**
Pollutant	**CARBON MONOXIDE**
Method code	054 / 174
Number of monitors	1
Parameter code / POC	42101 / 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Highest Concentration
Site type	Highest Concentration
Instrument Manufacturer / Model	Ecotech / Serinus 30
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ / PDEQ
Analytical lab	n/a
Monitor type	SLAMS
Scale	Microscale
Number of hourly observations	8516
Number / Dates of standard exceedances in 2012	0
Historical exceedances	Years: 1975 - 1986 and 1988
Current Sampling frequency / Season	Continuous
Probe height	3.4 meters above the ground attached to a wall near 22nd Street at a Tucson Water well site
Probe material / Residence time	FEP Teflon / 19.4 seconds
Degrees of unrestricted air flow	270
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof / Height of obstuction	2.0 meters / 7 meters
Distance from trees	3.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	60 meters west of Alvernon Way with a 2010 ADT of 33,000
	10 meters north of 22nd Street with a 2010 ADT of 38,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: The site was relocated in October, 2001 to a Tucson Water well site 50 meters west of the original location. The move was necessitated by an intersection improvement project and anticipated construction on the northwest corner. The shelter was moved again in January, 2004, to a different corner within the well site, and the probe was attached to a wall in virtually the same location as before the shelter was moved, so airflow from the intersection would remain unrestricted. 22nd & Alvernon continues to measure the highest CO concentrations in the network. The prevailing morning- hour southeasterly winds usually disperse CO generated in the intersection. During stagnant conditions, especially during the winter inversion formation, CO generated in the intersection has a longer residence time. Although population exposure is limited at this location, 22nd & Alvernon is representative of worst-case intersections in Tucson. This site has been operating continuously since 1975. No exceedances of the eight-hour health standard were recorded in 1989 through 2012.

CHERRY & GLENN: AQS # 040191021

Site Description	
Site Name	**CHERRY & GLENN**
AQS ID	040191021
Address	2745 N. Cherry Avenue, Tucson, AZ
Latitude / Longitude	32.25658 / -110.948650
Elevation	2400
Surrounding landscape	Gravel in fenced compound, paved parking lot, streets
Location description	This site is located in a predominately residential neighborhood, approximately 0.8 km northwest of a high traffic count intersection. Directly south and west of the site is a private High School enrolling approximately 1200 students.

Monitoring Information

Site Name	CHERRY & GLENN
Pollutant	**CARBON MONOXIDE**
Method code	054
Number of monitors	1
Parameter code / POC	42101 /1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Population Exposure
Site type	Population Exposure
Instrument Manufacturer / Model	Thermo Scientific / 48c
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Neighborhood
Number of hourly observations	4371
Number / Dates of standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous / Seasonal monitor operation from Jan 1- March 31 and Oct.1 – Dec. 31
Probe height	4.9 meters above the ground on a shelter in a city water well site.
Probe material / Residence time	FEP Teflon / 2.7 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	8.7 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	0.8 kilometers north of Grant Road with a 2010 ADT of 43,000
	0.5 kilometers west of Campbell Avenue with a 2011 ADT of 37,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: Cherry & Glenn was established as a special purpose site in February 1989, in order to assess the CO levels at a distance (less than 1 kilometer) from a typical high-volume intersection. This site has historically recorded very low levels of CO during the summer months. Consequently, in 2001, seasonal monitoring began with sampling from October through March.

GOLF LINKS & KOLB: AQS # 040191031

Site Description	
Site Name	**GOLF LINKS & KOLB**
AQS ID	040191031
Address	2601 South Kolb Road
Latitude / Longitude	32.191180 / -110.840550
Elevation	2692
Surrounding landscape	Dirt lot and easement, paved street
Location description	This site is located near the southeast corner of Golf Links and Kolb roads in a City of Tucson water reservoir site. Light commercial enterprises occupy all four corners and separate the intersection from residential neighborhoods.

Monitoring Information

Site Name	**GOLF LINKS & KOLB**
Pollutant	**CARBON MONOXIDE**
Method code	054
Number of monitors	1
Parameter code / POC	42101 / 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Highest Concentration
Site type	Highest Concentration
Instrument Manufacturer / Model	Thermo Scientific / 48c
FRM/FEM/ARM/other	FRM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Microscale
Number of hourly observations	4325
Number / Dates of standard exceedances in 2012	0
Historical exceedances	0
Current Sampling frequency / Season	Continuous / Seasonal Monitor operating Jan. 1- March 31 and Oct. 1 – Dec. 31
Probe height	3.0 meters above the ground on a pole located next to Kolb road
Probe material / Residence time	FEP Teflon / 34.9 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	2.7 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	100 meters south of Golf Links, with a 2010 ADT of 40,000
	2 meters east of Kolb Road, with a 2009 ADT of 47,000.
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: Golf Links & Kolb was established as a special purpose site in September 2002, as part of the Carbon Monoxide Limited Maintenance Plan. Inlet placement qualifies it as a microscale site, and sighting it on the southeastern quarter of the intersection provides an opposite wind direction compliment to the 22/Alvernon site. This site is operated seasonally, from October through March.

SAGUARO PARK EAST: AQS # 040190021

Site Description	
Site Name	**SAGUARO PARK EAST**
AQS ID	040190021
Address	3905 South Old Spanish Trail, Tucson, AZ
Latitude / Longitude	32.174538 / -110.737116
Elevation	3089
Surrounding landscape	Natural desert
Location description	This site is situated in the National Park. The nearby light residential area has no significant local sources of ozone precursors.

Monitoring Information

Site Name	**SAGUARO PARK EAST**
Pollutant	**OZONE**
Method code	047
Number of monitors	1
Parameter code / POC	44201 /1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Highest Concentration
Site type	Highest Concentration
Instrument Manufacturer / Model	Thermo Scientific / 48c
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	n/a
Monitor type	SLAMS
Scale	Neighborhood
Number of daily observations	364
Number / Dates of 8-hour standard exceedances in 2012	0
Historical exceedances	One in 1999, 2003, 2005, 2008; Three in 2011
Current Sampling frequency / Season	Continuous
Probe height	4.1 meters above the ground in Saguaro National Park East on the roof of a shelter that is one kilometer south of the administration building.
Probe material / Residence time	FEP Teflon / 3.5 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	8.0 meters
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	80 meters east to Old Spanish Trail with a 2009 ADT of 7,000
	105 meters south of Escalante with a 2011 ADT of 3,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: The Saguaro National Park site has been active since 1982. The operation of the site was taken over by the National Park Service in 1987. The Park Service returned operation of the site to Pima County in 1993. Geographically, Saguaro National Park is on the eastern edge of the Tucson metropolitan area. Ozone data from this site has been used to study how the levels of ozone affect natural vegetation.

FAIRGROUNDS: AQS # 040191020

Site Description	
Site Name	**FAIRGROUNDS**
AQS ID	040191020
Address	11330 S. Houghton Road, Tucson, AZ
Latitude / Longitude	32.047680 / -110.774350
Elevation	3078
Surrounding landscape	Natural desert vegetation on lag gravel
Location description	This site is situated in an undisturbed natural desert area to the north and east. The Pima County Fairgrounds and drag strip are located directly southwest of the site.

Monitoring Information

Site Name	**FAIRGROUNDS**
Pollutant	**OZONE**
Method code	047/ 087
Number of monitors	1
Parameter code / POC	44201 / 1
Basic monitoring objective / Statement of purpose	NAAQS comparison / Background
Site type	Background
Instrument Manufacturer / Model	Thermo Scientific / 49i
FRM/FEM/ARM/other	FEM
Collecting agency / Reporting agency	PDEQ/ PDEQ
Analytical lab	n/a
Monitor type	Special Purpose
Scale	Urban
Number of daily observations	365
Number / Dates of 8-hour standard exceedances in 2012	0
Historical exceedances	One in 2008 and 2011
Current Sampling frequency / Season	Continuous
Probe height	3.6 meters above the ground on a shelter on Tucson's far southeast side
Probe material / Residence time	FEP Teflon / 3.5 seconds
Degrees of unrestricted air flow	360
Distance from supporting structure	n/a
Distance from obstruction on roof	n/a
Distance from obstruction not on roof	n/a
Distance from trees	n/a
Distance to furnace or incinerator flue	n/a
Distance between collocated monitors/ Schedule / Collocated monitor type	n/a
Nearest roads distance & direction to monitor / ADT	53 meters west of Houghton road with a 2010 ADT of 9,000
Site meets 40 CFR 58, Appx. A,C,D,E	Yes

Comments: Fairgrounds was established in October 1989. Ozone concentrations at this site have been the highest in the network on occasion. This may be due to the afternoon wind shift that takes place almost daily in the Tucson basin. The wind may be transporting urban ozone precursors or stable ozone to the far east end of the Tucson air planning area.