85586

JANET NAPOLITANO
GOVERNOR

STATE OF ARIZONA
OFFICE OF THE GOVERNOR
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February 13, 2004

Wayne Nastri, Regional Administrator
U.S. Environmental Protection Agency, Region IX
ORA-1
75 Hawthorne Street
San Francisco, CA 94105-3901

Re: Arizona's Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards Area Designation Recommendations

Dear Mr. Nastri:

Pursuant to Section 107(d)(1) of the Clean Air Act, Arizona hereby submits the following $PM_{2.5}$ area designation recommendation for all areas of the State outside of Indian Country, because Arizona does not have jurisdiction over air quality in Indian Country.

Arizona recommends that all parts of the State (except for Indian Country) be designated attainment/unclassifiable for the $PM_{2.5}$ National Ambient Air Quality Standards, as defined in the Enclosure. Monitoring data and other information supporting this recommendation will be provided to you under separate cover by Stephen A. Owens, Director of the Arizona Department of Environmental Quality.

I look forward to working with you to finalize the designation by December 15, 2004. If you have any questions, please contact Director Owens at (602) 771-2203 or Nancy C. Wrona, Director, Air Quality Division, at (602) 771-2308.

Yours very truly,

Janet Napolitano
Governor

Enclosure

Recommended Areas - Arizona $PM_{2.5}$	
Designated Area	Designation Type
Arizona (except those portions in Indian Country)..... Apache County Cochise County Coconino County Gila County Graham County Greenlee County La Paz County Maricopa County Mohave County Navajo County Pima County Pinal County Santa Cruz County Yavapai County Yuma County	Attainment/Unclassifiable

Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Stephen A. Owens
Director

February 18, 2004

Wayne Nastri, Regional Administrator
U.S. Environmental Protection Agency, Region IX
ORA-1
75 Hawthorne Street
San Francisco, CA 94105-3901

Re: Information in Support of Arizona's Area Designation Recommendations for the Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards

Dear Mr. Nastri:

EPA has requested that Arizona submit boundary recommendations for areas of the State that attain or do not attain the $PM_{2.5}$ National Ambient Air Quality Standards by February 15, 2004 (June 3, 2003, Wayne Nastri, letter to Governor Napolitano). On February 13, 2004, Governor Napolitano signed an area designation recommendation for all areas of Arizona, excluding Indian Country (over which the State has no jurisdiction). The Governor's recommendation noted that monitoring data and other information in support of the recommendation would be provided under separate cover by the Arizona Department of Environmental Quality. Enclosed is the document "Arizona Air Quality Designations, Boundary Recommendations for the Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards," February 5, 2004.

I look forward to working with you to finalize area designations by December 15, 2004. If you have any questions, please call me at (602) 771-2203 or Nancy C. Wrona, Director, Air Quality Division, at (602) 771-2308.

Sincerely,

Stephen A. Owens
Director

Enclosure

Northern Regional Office
1515 East Cedar Avenue • Suite F • Flagstaff, AZ 86004
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February 5, 2004

Arizona Air Quality Designations
Boundary Recommendations for the Fine Particle ($PM_{2.5}$)
National Ambient Air Quality Standards

Background

In 1997, the U.S. Environmental Protection Agency (EPA) revised the existing particulate matter (PM) air quality standards by adding a new standard for fine particles or particles less than 2.5 microns ($PM_{2.5}$) (62 FR 38652, July 18, 1997). Based on health studies, the level of the new standard (See Table 1) better protects the public from exposure to fine particulate matter pollution and helps ensure the protection of those most vulnerable to air pollution, such as children and the elderly.

Table 1: $PM_{2.5}$ Standards*

Standard	Level	Form (attainment test)
24-Hour	65 $\mu g/m^3$	Three-year average of the annual 98th percentile 24-hour concentration
Annual	15 $\mu g/m^3$	Three-year average of the annual arithmetic mean concentration

* EPA set the secondary standard, for protection of welfare effects such as material damage, identical to the primary standard that was established for protection of human health.

As part of the process of implementing the new standard, States and Tribes were requested to recommend boundaries for areas that do or do not meet the new standard. Under section 107(d)(1) of the Clean Air Act (CAA), states are required to submit recommendations within one year after promulgation of a new or revised standard. The 1998 Transportation Equity Act for the 21st Century (TEA-21) changed the timetable for designations to allow areas time to deploy and collect sufficient monitoring data. EPA is now requesting recommendations be submitted by February 15, 2004 (See EPA memorandum, "Designations for the Fine Particle National Ambient Air Quality Standards," Jeffery R. Holmstead, April 1, 2003). EPA plans to issue final designations for all areas by December 15, 2004.

Section 107(d)(1)(A) of the CAA defines a nonattainment area as "... any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant..." Similarly, attainment and unclassifiable areas are defined respectively as "...any area...that meets..." and "...any area that cannot be classified on the basis of available information as meeting or not meeting..." the standards. In addition, EPA issued guidance, "Designations for the Fine Particle National Ambient Air Quality Standards," Jeffery R. Holmstead, April 1, 2003, for states to use as they developed their recommendations and in particular for nonattainment areas. Monitoring data shows that the State is in attainment for the $PM_{2.5}$ standards. As such, Arizona's $PM_{2.5}$ area recommendations are primarily based on monitoring data.

Monitoring Data

Since 1998, the Arizona PM Monitoring Technical Workgroup, comprised of representatives from state, local, and tribal agencies, in conjunction with EPA, have worked to develop the Arizona $PM_{2.5}$ Federal Reference Method (FRM) monitoring network for determining compliance with the $PM_{2.5}$ standards. The report "Particulate Matter ($PM_{2.5}$ & PM_{10}) National Ambient Air Quality Standards (NAAQS) Monitoring Networks: The 1999-2000 Arizona Plan Description," most recently updated July 1, 1999, describes the plans of the workgroup and documents the process of establishing the $PM_{2.5}$ monitoring network in Arizona. The network is operated in accordance with EPA guidance and includes sites representative of regional background/transport, as well as urban and neighborhood scale Federal Reference Method (FRM) compliance monitoring sites. Although only FRM monitors from Arizona's network are used to determine compliance with the $PM_{2.5}$ standard (See EPA Memorandum "Designations for the Fine Particle National Ambient Air Quality Standards," April 1, 2003), a larger monitoring network of up to 48 sites were used to supplement the FRM data. This larger monitoring network, including IMPROVE samplers, was used to assess air quality with regard to $PM_{2.5}$ statewide and assist in the analysis and development of the FRM compliance network. Information gathered shows that fine particulate concentrations statewide are generally in the low to moderate range.

The Arizona Department of Environmental Quality (ADEQ), Maricopa County Environmental Services Department, Pinal County Air Quality Control District, and the Pima County Department of Environmental Quality currently operate 14 FRM monitors at 11 sites (3 sites have co-located monitors per CFR requirements) in seven counties across Arizona. Attachment 1 summarizes the monitoring site information. Individual monitoring locations are shown on the map in Attachment 2.

Ambient air quality values were calculated for comparison to the standards using EPA's guidance in 40 CFR Part 50, Appendix N, and "Guideline on Data Handling Conventions for the PM NAAQS," U.S. EPA, April 1999. Using EPA's guidance, monitoring network values for the standard were determined through the following steps:

1) State and local agency daily ambient concentrations were recorded for each of the monitoring sites across Arizona. Sampling schedules were every day, every 3rd day, or every 6th day depending on the monitoring site. All data were evaluated for completeness as specified in EPA's Guideline on Data Handling Conventions.

2) If data completeness requirements were met, the annual mean and daily maximum concentrations were calculated for each monitor and the 24-hour 98th percentile values for each year were determined. The three-year averages of the annual arithmetic mean and the annual 24-hour 98th percentile values were calculated for the 2000-2002 period.

3) The value for each monitor was compared to the NAAQS. A calculated value less than or equal to 15 $\mu g/m^3$ for the annual standard and less than or equal to 65 $\mu g/m^3$ for the 24-hour standard is attainment of the standard.

An examination of the calculated values shows that there have been no recorded exceedances or violations of the 24-hour or annual standard from 2000 through 2002 for FRM monitors with sufficient data recovery. Complete data for the period 2000-2002 is not available for all FRM monitoring locations due to different start up times and other operational issues. However, analysis of the available data show that ambient concentrations at all sites are less than the 24-hour and annual standard (See Attachment 3). Attachment 4 summarizes the available quarterly data for each of the monitoring sites. The 2000-2002 calculated attainment values are shown in Table 2 below.

Table 2: Comparison of 2000-2002, 3-Year Average FRM $PM_{2.5}$ Values ($\mu g/m^3$)*		
County	24-hour	Annual
Cochise	n/a	n/a
Coconino	n/a	n/a
Gila	n/a	n/a
Maricopa	30	11.1
Pima	n/a	n/a
Pinal	19	8.2
Santa Cruz	29	11.8

* n/a - Complete data for the period 2000-2002 are not available for all locations. See Attachment 3 for available quarterly data.

Area Designation Recommendations

Arizona recommends that all areas of the State, except for Indian Country, be designated attainment/unclassifiable for the $PM_{2.5}$ National Ambient Air Quality Standards. Arizona is not making a recommendation for any tribal lands located in the described geographical area, as tribal lands are not within the State's jurisdiction. ADEQ respects tribal sovereignty and has worked to develop cooperative relationships with tribal air quality programs throughout the State. Nothing in this analysis should be interpreted to affect the designation of Indian Country. Table 3 describes by county the areas of the state recommended for Attainment/Unclassifiable.

Table 3: Recommended Attainment/Unclassifiable Areas - Arizona $PM_{2.5}$	
Designated Area	Designation Type
Arizona (except those portions in Indian Country)..... Apache County Cochise County Coconino County Gila County Graham County Greenlee County La Paz County Maricopa County Mohave County Navajo County Pima County Pinal County Santa Cruz County Yavapai County Yuma County	Attainment/ Unclassifiable

Attachment 1

Site Index of $PM_{2.5}$ Federal Reference Method Monitoring Sites

Attachment 1 - Site Index of $PM_{2.5}$ Federal Reference Method Monitoring Sites

County/Site	Lat.	Long.	Operator	EPA AQS ID	Classification	Scale	Objective	Date
Cochise County								
Douglas – Red Cross (1445-1449 15th St.)	31° 20'	109° 30'	ADEQ	04-003-1005	SLAMS	Neighborhood	Population exposure	11/02/00
Coconino County								
Flagstaff – Middle School (755 N. Bonito)	35° 12'	111° 38'	ADEQ	04-005-1008	SLAMS	Neighborhood	Population exposure	08/27/01
Gila County								
Payson - Well Site(collocated) (204 W. Aero Dr.)	34° 14'	111° 20'	ADEQ	04-007-0008 04-007-0008	SLAMS	Neighborhood	Population exposure	01/01/95 10/28/01
Maricopa County								
Phoenix – Desert West Rec Center (6501 W. Virginia Ave.) (Closed 05/13/02)	33° 28'	112° 12'	ADEQ	04-013-9992	SPM	Neighborhood	Maximum Concentration	03/01/99- 05/13/02
Phoenix – JLG Supersite (4530 N. 17 Ave.)	33° 30'	112° 05'	ADEQ	04-013-9997	SLAMS	Neighborhood	Population exposure	06/01/98
Phoenix - Magnet Traditional School (Closed 06/09/00)	33° 23'	111° 55'	ADEQ	04-013-9991	SLAMS	Neighborhood	Maximum Concentration	01/21/99- 06/09/00
Tempe – Community Center (3340 S. Rural Road)	33° 23'	111° 55'	ADEQ	04-013-9990	SLAMS	Neighborhood	Population exposure	10/01/98
West Phoenix (3847 W. Earll)	33° 29'	112° 08'	ADEQ, MCESD	04-013-0019	SLAMS	Neighborhood	Maximum Concentration	06/12/01
Pima County								
Tucson – Children's Park (collocated) (400 W. River Road)	32° 17'	110° 58'	PDEQ	04-019-1028 04-019-1028	SLAMS	Neighborhood	Population exposure	01/01/99 01/01/99

Attachment 1 - Site Index of $PM_{2.5}$ Federal Reference Method Monitoring Sites

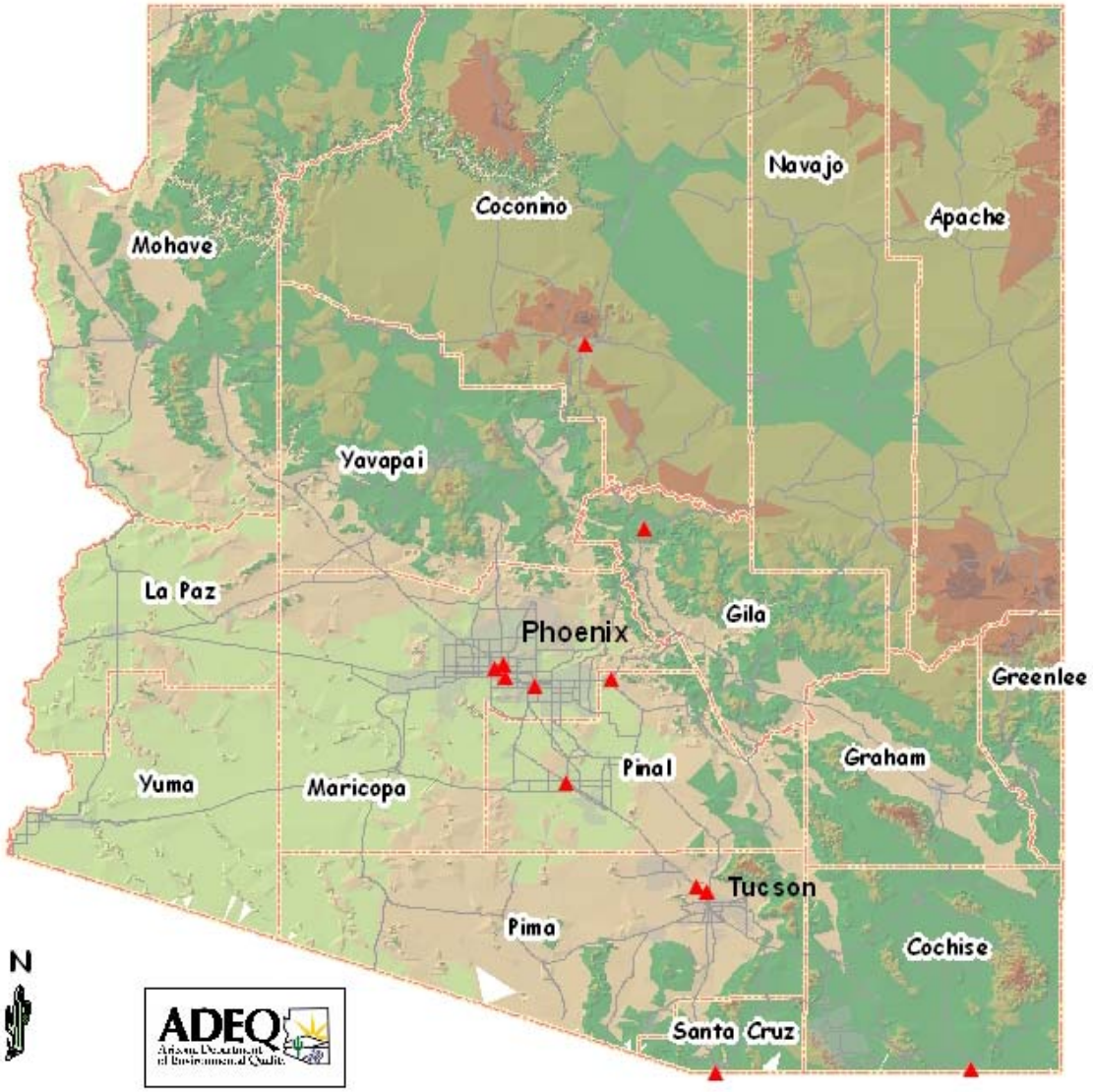
County/Site	Lat.	Long.	Operator	EPA AQS ID	Classification	Scale	Objective	Date
Pima County								
Tucson – Orange Grove (3401 W. Orange Grove Road)	32° 19'	111° 02'	ADEQ, PDEQ	04-019-0011	SLAMS	Neighborhood	Maximum Concentration	02/01/85
Pinal County								
Apache Junction – Fire Station (3955 E. Superstition Blvd. TE)	33° 25'	111° 30'	PCAQCD	04-021-3002	SLAMS	Neighborhood	Population exposure	01/01/99
Casa Grande – Downtown (401 Marshall Road)	32° 52'	111° 45'	PCAQCD	04-021-0001	SLAMS	Neighborhood	Population exposure	01/01/99
Santa Cruz								
Nogales – Post Office (collocated) (300 N. Morley Ave.)	31° 20'	110° 56'	ADEQ	04-023-0004 04-023-0004	SLAMS	Neighborhood	Population exposure	08/01/00 04/01/99

ADEQ: Arizona Department of Environmental Quality
PDEQ: Pima Department of Environmental Quality
MCESD: Maricopa County Environmental Services Department
PCAQCD: Pinal County Air Quality Control District

Attachment 2

Map of Arizona $PM_{2.5}$ Federal Reference Method Monitoring Locations

Arizona PM2.5 Monitoring Sites



PLC_IDNO	COUNTY	SITE	INSTRUMENT	SEASONAL	CLASS
16503	Cochise	Douglas	FRMPM2.5	No	SLAMS
16707	Coconino	Flagstaff	FRMPM2.5	No	SLAMS
16317	Gila	Payson	FRMPM2.5 Collocated	No	SLAMS
17786	Maricopa	Bethune	PM2.5 FRM Speciation	No	SPM
16328	Maricopa	Supersite	FRMPM2.5	No	SLAMS
16328	Maricopa	Supersite	PM2.5 FRM Speciation	No	SPM
16509	Maricopa	Tempe	FRMPM2.5	No	SLAMS
16477	Maricopa	West Phoenix	FRMPM2.5	No	SLAMS
16551	Pima	Children's Park	FRMPM2.5 Collocated	No	SLAMS
16551	Pima	Children's Park	PM2.5 FRM Speciation	No	SPM
16510	Pima	Orange Grove	FRMPM2.5	No	SLAMS
16358	Pinal	Apache Junction - Fire Station	FRMPM2.5	No	SLAMS
16588	Pinal	Casa Grande - Downtown	FRMPM2.5	No	SLAMS
16511	Santa Cruz	Nogales - Post Office	FRMPM2.5 Collocated	No	SLAMS

Attachment 3

Technical Support Document - Arizona Fine Particle (PM2.5) Recommendations for Attainment Status

February 5, 2004

Arizona Fine Particle ($PM_{2.5}$) Recommendations for Attainment Status

Introduction

The U. S. Environmental Protection Agency in its letter of June 3, 2003, has requested Governor Napolitano to provide recommendations regarding the attainment status for fine particles ($PM_{2.5}$) in Arizona by February 15, 2004. These recommendations are based on the most recent available three years of Federal Reference Method (FRM) data (2000 – 2002).

Attainment in 2000 - 2002

Based on data from the 12 FRMs, attainment of both the 24-hour and annual average standards is demonstrated. The annual average concentrations, presented in Table 1, are all within the standard of 15 $\mu g/m^3$ for a three-year average.

Table 1. 2000 to 2002 Annual Average $PM_{2.5}$ ($\mu g/m^3$) Concentrations in Arizona

County, City – Location	2000	2001	2002	3-yr avg	Data status
Cochise, Douglas – Red Cross	8.9	7.2	7.4	7.8	X
Coconino, Flagstaff – Middle School	6.9	7.1	7.2	7.1	X
Gila, Payson – Well Site	10.1	8.9	10.0	9.7	X
Maricopa, Phoenix – JLG Supersite	12.0	9.2	12.0	11.1	S
Maricopa, Phoenix – West Phoenix	13.9	10.9	12.6	12.5	X
Maricopa, Phoenix – Desert West	12.1	10.9	12.0	11.7	X
Maricopa, Tempe – Community Center	10.3	9.4	10.3	10.0	C
Pima, Tucson – Children's Park	6.8	6.8	6.6	6.7	X
Pima, Tucson – Orange Grove	7.8	7.6	6.4	7.3	X
Pinal, Apache Junction – Fire Station	7.3	6.3	6.4	6.7	C
Pinal, Casa Grande – Downtown	8.5	7.7	8.5	8.2	C
Santa Cruz, Nogales – Post Office	12.6	10.7	12.2	11.8	S

X incomplete data: one or more quarters with less than 50% data; no data substitution

S incomplete data: one or more quarters with less than 75% data, but with data substitution procedure followed

C complete data: all quarters with at least 75% data recovery

The 24-hour $PM_{2.5}$ standard is 65 $\mu g/m^3$, expressed as the three-year average of the annual 98th percentile value. As Table 2 shows, this standard was met for all monitoring sites in 2000 – 2002.

Table 2. 2000 to 2002 24-hour Average $PM_{2.5}$ ($\mu g/m^3$) Concentrations in Arizona

County, City – Location	98th percentile values				Data Status
	2000	2001	2002	3-yr avg	
Cochise, Douglas – Red Cross	38.5	24.4	13.9	26	X
Coconino, Flagstaff – Middle School	24.5	16.4	12.0	18	X
Gila, Payson – Well Site	27.3	24.0	21.2	24	X
Maricopa, Phoenix – JLG Supersite	31.8	25.0	31.9	30	S
Maricopa, Phoenix – West Phoenix	32.9	30.4	36.2	33	X
Maricopa, Phoenix – Desert West	34.1	35.3	35.1	35	X
Maricopa, Tempe – Community Center	20.2	22.7	21.6	22	C
Pima, Tucson – Children's Park	11.1	15.1	20.2	15	X
Pima, Tucson – Orange Grove	12.8	20.4	16.7	17	X
Pinal, Apache Junction – Fire Station	18.0	13.1	13.1	15	C
Pinal, Casa Grande – Downtown	18.9	16.7	20.8	19	C
Santa Cruz, Nogales – Post Office	34.4	25.7	25.4	29	S

X incomplete data: one or more quarters with less than 50% data; no data substitution

S incomplete data: one or more quarters with less than 75% data, but with data substitution procedure followed

C complete data: all quarters with at least 75% data recovery

The number of samples collected at each monitor, given in Table 3, depends on the sampling frequency, whether the monitor was operated for the entire three years, and on the success of the data collection itself. Sampling frequencies of one day in six yield 61 samples per year; one day in three, 122 samples per year; and every day, 365 samples per year.

Table 3. 2000 to 2002: The Number of $PM_{2.5}$ Samples Collected in Arizona

County, City – Location	2000	2001	2002	Total
Cochise, Douglas – Red Cross	57	21	55	133
Coconino, Flagstaff – Middle School	56	53	19	128
Gila, Payson – Well Site	86	96	90	272
Maricopa, Phoenix – JLG Supersite	325	314	172	811
Maricopa, Phoenix – West Phoenix	155	312	172	639
Maricopa, Phoenix – Desert West	326	336	79	741
Maricopa, Tempe – Community Center	115	116	119	350
Pima, Tucson – Children's Park	91	87	113	291
Pima, Tucson – Orange Grove	87	97	346	530
Pinal, Apache Junction – Fire Station	120	117	121	358
Pinal, Casa Grande – Downtown	59	60	57	176
Santa Cruz, Nogales – Post Office	58	58	59	175

Recommendation

Arizona has 15 counties, with FRM $PM_{2.5}$ monitoring records available in seven of them. The EPA guidance (Attachment 2, page 2 of the June 3, 2003 EPA letter) states that all areas should be classified into one of two categories: either nonattainment or attainment/unclassifiable. The second category fits those counties that have a monitoring record of attainment or insufficient data to show attainment. Therefore, the eight counties with no monitoring data should be designated "attainment/unclassifiable": Apache, Graham, Greenlee, La Paz, Mohave, Navajo, Yavapai, and Yuma.

Adequate FRM data have been collected in the other seven counties to demonstrate compliance with the standards. These counties, which should also be designated as "attainment/unclassifiable" for the $PM_{2.5}$ standards, are Cochise, Coconino, Gila, Maricopa, Pima, Pinal, and Santa Cruz. Therefore, all 15 counties should be designated as "attainment/unclassifiable" (Table 4).

Table 4. Recommended Attainment Status for Arizona Counties for the Fine Particle ($PM_{2.5}$) Standard

County	Recommended Status
Apache	Attainment/unclassifiable
Cochise	
Coconino	
Gila	
Graham	
Greenlee	
La Paz	
Maricopa	
Mohave	
Navajo	
Pima	
Pinal	
Santa Cruz	
Yavapai	
Yuma	

Attachment 4

$PM_{2.5}$ Federal Reference Method Summary Statistics for Arizona

PM2.5 FRM SUMMARY STATISTICS FOR ARIZONA

PM2.5 Concentrations are for Local Conditions and are in ug/m3

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
APACHE JUNCTION FIRE STATION (Pinal County) 04-021-3002 Sampling began 1/6/1999; 1-in-3 sample schedule										
2000	1	91	31	30	6.39	15.3		0		
	2	91	30	29	8.00	13.6		0		
	3	92	31	31	8.24	44.5		0		
	4	92	30	30	6.37	27.2		0		
	Annual		122	120	7.3	44.5	18.0	0		
2001	1	90	30	28	4.91	7.6		0		
	2	91	31	30	6.68	10.3		0		
	3	92	30	29	5.80	8.6		0		
	4	92	31	30	7.65	14.0		0		
	Annual		122	117	6.3	14.0	13.1	0		
2002	1	90	30	30	5.19	13.1		0		
	2	91	30	30	7.82	13.9		0		
	3	92	31	30	6.49	11.5		0		
	4	92	31	31	6.08	23.5		0		
	Annual		122	121	6.4	23.5	13.1	0	6.7	15

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
CASA GRANDE DOWNTOWN (Pinal County) 04-021-0001 Sampling began 1/6/1999; 1-in-6 sample schedule										
2000	1	90	16	15	9.40	22.2		0		
	2	91	15	14	8.39	12.9		0		
	3	92	15	15	7.03	9.3		0		
	4	92	15	15	9.05	14.3		0		
	Annual		61	59	8.5	22.2	18.9	0		
2001	1	91	15	15	7.90	18.1		0		
	2	91	16	16	7.29	10.8		0		
	3	92	15	15	6.07	11.1		0		
	4	92	15	14	9.65	16.7		0		
	Annual		61	60	7.7	18.1	16.7	0		
2002	1	90	15	13	8.05	12.6		0		
	2	91	15	15	8.31	10.6		0		
	3	92	16	14	7.05	9.5		0		
	4	92	15	15	10.41	23.5		0		
	Annual		61	57	8.5	23.5	20.8	0	8.2	19

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
CHILDREN'S PARK – TUCSON (Pima County) 04-019-1028 (collocated site) Sampling began 1/6/1999; primary monitor has 1-in-3 sample schedule, collocated monitor has 1-in-6 sample schedule Note: No data substitution because 4th quarter 2000 has less than 50% data recovery and there are insufficient valid samples from the collocated monitor to substitute.										
2000	1	91	31	30	6.66	13.6				
	2	91	30	30	6.45	10.6				
	3	92	31	20	Less than 75% data recovery					
	4	92	30	11	Less than 50% data recovery					
	Annual		122	91	Less than 75% data recovery					
2001	1	90	30	22	Less than 75% data recovery					
	2	91	31	20	Less than 75% data recovery					
	3	92	30	23	5.77	8.5		0		
	4	92	31	22	Less than 75% data recovery					
	Annual		122	87	Less than 75% data recovery					
2002	1	90	30	30	6.32	23.9		0		
	2	91	30	28	5.48	10.7		0		
	3	92	31	31	6.98	27.6		0		
	4	92	31	24	7.69	20.2		0		
	Annual		122	113	6.6	27.6	20.2	0		

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
PHOENIX - DESERT WEST (Maricopa County) 04-013-9992 Sampling began 3/19/1999 and ended 5/5/2002; every day sample schedule 3/19/1999 through 3/31/2002, 1-in-3 schedule 4/2/2002 through 5/2/2002										
2000	1	91	91	85	14.16	36.3		0		
	2	91	91	79	8.73	16.0		0		
	3	92	92	82	8.00	15.7		0		
	4	92	92	80	17.61	54.1		0		
	Annual		366	326	12.1	54.1	34.1	0		
2001	1	90	90	77	13.61	63.4		0		
	2	91	91	87	7.56	15.6		0		
	3	92	92	85	7.77	30.3		0		
	4	92	92	87	14.71	41.2		0		
	Annual		365	336	10.9	63.4	35.3	0		
2002	1	90	90	70	13.96	41.3		0		
	2	91	11	9	10.08	12.8		0		
	3				Site closed					
	4				Site closed					
	Annual			79	Site closed					

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
DOUGLAS – RED CROSS (Cochise County) 04-003-1005 Sampling began 1/12/1999; 1-in-6 sample schedule NOTE: No data substitutions because 2nd and 3rd quarter 2001 have less than 50% data recovery. NOTE: Operator problems 2/18 through 11/3 in 2001.										
2000	1	91	16	16	7.78	17.7		0		
	2	91	15	14	8.04	11.9		0		
	3	92	15	14	10.09	48.0		0		
	4	92	15	13	9.54	38.5		0		
	Annual		61	57	8.9	48.0	38.5	0		
2001	1	90	15	9	Less than 75% data recovery					
	2	91	16	3	Less than 50% data recovery					
	3	92	15	0	Less than 50% data recovery					
	4	92	15	9	Less than 75% data recovery					
	Annual		61	21	Less than 75% data recovery					
2002	1	90	15	15	6.49	11.8		0		
	2	91	15	14	8.46	15.0		0		
	3	92	16	15	7.82	13.9		0		
	4	92	15	11	Less than 75% data recovery					
	Annual		61	55	Less than 75% data recovery					

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
FLAGSTAFF- MIDDLE SCHOOL (Coconino County) 04-005-1008 Sampling began 1/6/1999; 1-in-6 sample schedule NOTE: No data substitutions because 2nd, 3rd, and 4th quarter 2002 have less than 50% data recovery. NOTE: In 2002, operator error 4/8 through 6/1; building repair 6/7 through 9/23 required sampler removal from site.										
2000	1	91	16	15	7.51	26.3		0		
	2	91	15	15	5.53	15.3		0		
	3	92	15	14	5.45	8.7		0		
	4	92	15	12	9.18	24.5		0		
	Annual		61	56	6.9	26.3	24.5	0		
2001	1	90	15	10	Less than 75% data recovery					
	2	91	16	16	6.41	16.4		0		
	3	92	15	13	5.16	7.6		0		
	4	92	15	14	7.24	13.8		0		
	Annual		61	53	Less than 75% data recovery					
2002	1	90	15	12	6.78	11.6		0		
	2	91	15	0	Less than 50% data recovery					
	3	92	16	0	Less than 50% data recovery					
	4	92	15	7	Less than 50% data recovery					
	Annual		61	19	Less than 50% data recovery					

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
PHOENIX - JLG SUPERSITE (Maricopa County) 04-013-9997 Sampling began 1/6/1999; every day sample schedule 1/6/1999 through 3/31/2002; 1-in-3 sample schedule 4/2/2002-12/31/2002 NOTE: 2nd quarter 2000 contains 30 values substituted from 2nd quarter 2001; 2nd quarter 2002 contains 11 values substituted from 2nd quarter 2001.										
2000	1	91	91	78	13.70	33.2		0		
	2	91	91	**91**	**10.92**	**20.4**		**0**		
	3	92	92	74	7.55	22.6		0		
	4	92	92	82	15.98	38.2		0		
	Annual		366	**325**	**12.0**	**38.2**	**31.8**	**0**		
2001	1	90	90	75	10.66	28.5		0		
	2	91	91	75	7.50	15.6		0		
	3	92	92	91	6.80	11.6		0		
	4	92	92	73	11.85	28.9		0		
	Annual		365	314	9.2	28.9	25.0	0		
2002	1	90	90	87	12.16	40.9		0		
	2	91	30	**30**	**11.86**	**15.6**		**0**		
	3	92	31	25	9.29	13.0		0		
	4	92	31	30	14.88	45.9		0		
	Annual		182	**172**	**12.0**	**45.9**	**31.9**	**0**	**11.1**	**30**

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
NOGALES POST OFFICE (Santa Cruz County) 04-023-0004 (collocated site) Sampling began 1/6/1999; 1-in-6 sample schedule for both samplers NOTE: 5 samples from collocated sampler substituted for 3rd quarter 2000.										
2000	1	91	16	13	14.33	31.5		0		
	2	91	15	15	9.35	19.5		0		
	3	92	15	**15**	**9.15**	**14.9**		**0**		
	4	92	15	15	17.77	36.0		0		
	Annual		61	**58**	**12.6**	**36.0**	**34.4**	**0**		
2001	1	90	15	13	10.92	25.7		0		
	2	91	16	16	9.41	15.0		0		
	3	92	15	15	8.01	11.7		0		
	4	92	15	14	14.51	35.2		0		
	Annual		61	58	10.7	35.2	25.7	0		
2002	1	90	15	15	15.04	25.4		0		
	2	91	15	15	9.69	13.5		0		
	3	92	16	14	9.78	16.0		0		
	4	92	15	15	14.21	29.7		0		
	Annual		61	59	12.2	29.7	25.4	0	11.8	29

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
ORANGE GROVE – TUCSON (Pima County) 04-019-0011 Sampling began 1/6/1999; every day sample schedule 1/6/1999 through 12/7/1999, 1-in-3 sample schedule 12/8/1999 through 11/30/2001, every day sample schedule 12/1/2001-12/31/2002 NOTE: No data substitution because 4th quarter 2000 has less than 50% data recovery.										
2000	1	91	31	30	7.79	13.3		0		
	2	91	30	24	7.77	12.4		0		
	3	92	31	21	6.71	12.8		0		
	4	92	30	14	Less than 50% data recovery					
	Annual		122	87	Less than 75% data recovery					
2001	1	90	30	18	Less than 75% data recovery					
	2	91	31	17	Less than 75% data recovery					
	3	92	30	20	Less than 75% data recovery					
	4	92	52	42	11.06	20.9		0		
	Annual		143	97	Less than 75% data recovery					
2002	1	90	90	88	6.30	23.8		0		
	2	91	91	88	5.57	13.4		0		
	3	92	92	84	6.18	26.2		0		
	4	92	92	86	7.37	21.5		0		
	Annual		365	346	6.4	26.2	16.7	0		

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
PAYSON WELL SITE (Gila County) 04-007-0008 (collocated site) Sampling began 2/11/1999; 1-in-3 sample schedule for Primary sampler, 1-in-6 sample schedule for collocated sampler NOTE: No data substitution because 3rd quarter 2002 has less than 50% data recovery.										
2000	1	91	31	25	13.61	28.0		0		
	2	91	30	16	Less than 75% data recovery					
	3	92	31	24	6.32	11.3		0		
	4	92	30	21	Less than 75% data recovery					
	Annual		122	86	Less than 75% data recovery					
2001	1	90	30	26	12.02	24.0		0		
	2	91	31	25	6.55	10.0		0		
	3	92	30	24	5.34	9.2		0		
	4	92	31	21	Less than 75% data recovery					
	Annual		122	96	Less than 75% data recovery					
2002	1	90	30	20	Less than 75% data recovery					
	2	91	30	28	7.56	11.5		0		
	3	92	31	10	Less than 50% data recovery					
	4	92	31	29	13.35	21.4		0		
	Annual		122	90	Less than 75% data recovery					

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
PHOENIX - MAGNET TRADITIONAL SCHOOL (Maricopa County) 04-013-9991 Sampling began 1/21/1999 and ended 6/9/2000; every day sample schedule										
2000	1	91	91	78	14.12	37.6		0		
	2	91	69	52	10.09	14.9		0		
	3	92			Site closed					
	4	92			Site closed					
	Annual		160	130	Site closed					

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
TEMPE – COMMUNITY CENTER (Maricopa County) 04-013-9990 Sampling began 1/6/1999; 1-in-3 sample schedule										
2000	1	91	31	31	11.90	33.0		0		
	2	91	30	25	9.01	17.8		0		
	3	92	31	29	8.54	16.6		0		
	4	92	30	30	11.75	18.8		0		
	Annual		122	115	10.3	33.0	20.2	0		
2001	1	90	30	27	9.79	25.0		0		
	2	91	31	31	7.80	12.3		0		
	3	92	30	28	7.45	15.2		0		
	4	92	31	30	12.43	27.0		0		
	Annual		122	116	9.4	27.0	22.7	0		
2002	1	90	30	28	9.39	16.6		0		
	2	91	30	30	10.13	14.8		0		
	3	92	31	30	9.15	13.8		0		
	4	92	31	31	12.80	38.5		0		
	Annual		122	119	10.4	38.5	21.6	0	10.0	22

Year	Quarter	No. of Days in Quarter	No. of Possible Observations	No. of Actual Observations	Average Concentration (ug/m3)	Max 24-hour Concentration	98th percentile 24-hour Concentration	No. of Actual Exceedances	3-Year Annual Average	3-Year 98th Percentile Average
WEST PHOENIX (Maricopa County) 04-013-0019 (replaced Magnet School site) Sampling began 6/13/2000; every day sample schedule 6/13/2000 through 3/31/2002, 1-in-3 sample schedule 4/2/2002-12/31/2002										
2000	1	91								
	2	91	18	8	Less than 50% data recovery					
	3	92	92	70	7.78	15.6		0		
	4	92	92	77	17.96	43.9		0		
	Annual		202	155	Less than 75% data recovery					
2001	1	90	90	50	Less than 75% data recovery					
	2	91	91	85	8.15	16.0		0		
	3	92	92	91	7.29	12.6		0		
	4	92	92	86	14.25	49.0		0		
	Annual		365	312	Less Than 75% data recovery					
2002	1	90	90	86	14.90	81.1		1		
	2	91	30	27	10.14	14.8		0		
	3	92	31	29	8.95	12.7		0		
	4	92	31	30	16.29	39.0		0		
	Annual		182	172	12.6	81.1	36.2	0		

Bold values indicate substituted data were included in the statistics. Substituted data may be from a collocated monitor or calculated using the EPA method for filling in missing data. If any quarter during a 3-year period has less than 75% data recovery but at least 50% data recovery, the highest value from the same quarter in the other two years is substituted for the missing data. See EPA documents at "http://www.epa.gov/ttn/amtic/files/ambient/pm25/datareq.pdf" and http://www.epa.gov/ttn/amtic/pmpolgud.html, "Guideline on Data Handling Conventions for the PM NAAQS, April 1999," for more information.

For NAAQS Compliance:

Annual Standard: Three-year average of the annual averages during the compliance period is less than or equal to 15.0 ug/m3.

24-hour Standard: Three-year average of the annual 98th percentile values during the compliance period is less than or equal to 65 ug/m3.