



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Lazarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184
www.epa.state.oh.us

MAILING ADDRESS:

P.O. Box 1049
Columbus, OH 43216-1049

Mr. Bharat Mathur
Acting Regional Administrator
U.S. EPA Region V
77 W. Jackson Blvd.
Chicago, IL 60604

APR 01 2010

Re: Clean Data Showing Attainment of the PM_{2.5} Annual National Ambient Air Quality Standard for Nonattainment Areas in the State of Ohio

Dear Administrator Mathur,

I am pleased to notify you that based upon the most recent 2007 to 2009 PM_{2.5} monitoring data certified in U.S. EPA's Air Quality System (AQS)¹, all nonattainment areas in Ohio are now attaining the 1997 fine particle standard. The current highest design value for the PM_{2.5} annual standard in Ohio is 15.0 µg/m³ in a monitor located in Hamilton County. Please see the enclosed air quality design value summary.

In addition, U.S. EPA has already determined that two of the nine areas designated nonattainment for the 1997 PM_{2.5} standard have attained this standard². These areas are the Parkersburg-Marietta (WV-OH) and the Wheeling (WV-OH) nonattainment areas.

A review of all the monitoring sites in the seven remaining non-attainment areas for the 1997 PM_{2.5} standard indicates nine sites show less than 75% capture of fine particles in at least one quarter. Four of the nine sites were relocation sites (39-085-3002 was relocated to 39-085-0007 and 39-087-0010 was relocated to 39-087-0012) that meet the 75% capture criteria when the data is combined in accordance with 40 CFR Part 50, Appendix N. The remaining five of nine sites had incomplete data capture during a given quarter(s) in the 2007 to 2009 period. In accordance with 40 CFR Part 50, Appendix N³, less than complete data may continue to be used upon U.S. EPA approval after considering the circumstances. Below you will find specific discussions of the circumstances for seven of the nine monitoring sites showing less than 75% capture. The remaining two sites, located in Stark County, are not included in this request at this time.

¹ Data available in U.S. EPA's AQS does not indicate any violations in the corresponding portions of adjacent states (Kentucky and West Virginia)

² Federal Registrar EPA-R03-OAR-2009-0199; EPA-R03-OAR-2009-0547

³ From Section 4.1: The use of less than complete data is subject to the approval of EPA, which may consider factors such as monitoring site closures/moves, monitoring diligence, and nearby concentrations in determining whether to use such data.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

Cleveland-Akron-Lorain Area

From the twelve monitoring sites in this area, two sites (39-035-0038 and 39-035-1002) show less than 75% capture of fine particles in at least one quarter. In addition, a site relocation occurred in this area that meets the 75% capture requirement when data is combined but not when viewed separately (37-085-3002 relocated to 39-085-0007). These sites are discussed below.

Monitoring Site 39-035-0038

The monitoring site 39-035-0038 has a 57% capture during the fourth quarter of 2007, specifically from missing data in the entire month of October. When comparing the fourth quarter in 2007 with other years (2008, and 2009), it can be determined that air monitoring data from both the fourth quarters and the months of October have historically been under the annual PM_{2.5} standard. Moreover, several studies support the fact that highest PM_{2.5} concentration days occur primarily in summer, which would have shown lower PM_{2.5} concentrations during October 2007, and therefore, a lower yearly average.

Monitoring Site 39-035-0038		
Year	Month	µg/m3
2007	October	-
	November	18.1
	December	18.4
	4th Quarter % capture	57
2008	October	14.4
	November	12.0
	December	12.1
	4th Quarter % capture	97
2009	October	12.3
	November	14.5
	December	14.3
	4th Quarter % capture	100

Because this monitor typically has the highest readings in the area, we do not feel it would be appropriate to substitute data from a nearby monitor as part of this evaluation. Instead we are showing two separate analyses below using data from the same location. First, using the highest quarterly average for 2007 as a substitute for October, and, second using the October data from 2005 as a substitute for 2007. Recall, 2005 has significantly higher monitor readings than any other year between 2002 and 2009.

First, when using a simple missing value imputation of substituting the highest monthly average occurring in 2007 to estimate the missing monthly average in October 2007, it can be seen that the three year average (2007-2009) continues to meet the annual

PM_{2.5} standard. The highest monthly average in 2007 was 19.6µg/m³ occurring in September. When substituting this value to estimate the monthly average in October 2007, the three year average is 14.4µg/m³.

	2007	2008	2009
January	13.8	18.7	16.6
February	16.6	17.7	18.4
March	14.4	16.2	14.6
April	9.3	14.2	9.0
May	18.9	9.7	9.6
June	17.0	11.8	11.3
July	15.9	17.9	11.3
August	15.3	14.2	13.3
September	19.6	14.4	12.3
October	19.6	14.4	12.3
November	18.1	12.0	14.5
December	18.4	12.1	14.3
Average ⁴	16.4	14.1	12.8

Three-Year Average	14.4
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Second, using the October monthly average from the year (2005) recording the highest monitor readings between 2002 and 2009, it can be seen that the three year average (2007-2009) continues to meet the annual PM_{2.5} standard. The monthly average in October 2005 was 27.7µg/m³ occurring in September. When substituting this value to estimate the monthly average in October 2007, the three year average is 14.7µg/m³.

	2007	2008	2009
January	13.8	18.7	16.6
February	16.6	17.7	18.4
March	14.4	16.2	14.6
April	9.3	14.2	9.0
May	18.9	9.7	9.6
June	17.0	11.8	11.3
July	15.9	17.9	11.3
August	15.3	14.2	13.3
September	19.6	14.4	12.3
October	27.7	14.4	12.3
November	18.1	12.0	14.5
December	18.4	12.1	14.3
Average	17.1	14.1	12.8

Three-Year Average	14.7
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⁴ The annual average in the absence of the October 2007 data was computed at 16.2µg/m³

Based on the analysis above, Ohio believes that had the missing data been collected it would not have resulted in a design value that would exceed the standard. Therefore, Ohio is requesting U.S. EPA approve the use of less than complete data for this monitor considering the factors identified above.

Monitoring Site 39-035-1002

The monitoring site 39-35-1002 has a 71% capture during the first quarter of 2008 and 73% capture during the third quarter of 2009. Therefore, two more days of data in the first quarter and one more day of data in the third quarter would have met the criteria. Historically this monitor has been one of the, if not the, lowest reading monitors in Cuyahoga County. This monitor is located in a suburban-residential setting, approximately 2 miles away from the Cleveland Hopkins airport but more than 8.8 miles away from Cleveland's heaviest industrial areas.

With respect to the first quarter, when comparing the first quarter averages from 2007 and 2009 with the first quarter of 2008, it is observed that even with incomplete data, the 2007 first quarter average is higher than 2008 and 2009.

Monitoring Site 39-035-1002		
Year	Month	µg/m3
2007	January	12.0
	February	12.5
	March	12.0
	1st Quarter Average	12.2
	1st Quarter % capture	85
2008	January	15.5
	February	16.8
	March	10.2
	1st Quarter Average	14.2
	1st Quarter % capture	71
2009	January	14.4
	February	14.0
	March	10.6
	1st Quarter Average	13.0
	1st Quarter % capture	87

Therefore, Ohio believes the most appropriate, and conservative, approach in showing that the use of less than complete data is appropriate is to substitute the highest daily data within the first quarter of 2008 with data from the same monitor location. For this monitoring location during January through March, the highest reading occurred on January 28th, 30.0 µg/m3. Ten samples were collected in January and then six samples in February and March. To obtain 97% capture, eight additional samples would need to be collected.

	January	February	March
Daily Values	11	26	11
	9	6	6
	16	13	16
	24	15	7
	18	12	10
	11	29	11
	11	30	30
	14	30	30
	30	30	30
	11	30	30
Monthly Average	15.5	22.1	18.1

The above would have produced a quarterly average of 18.6 µg/m³ that would have then resulted in an annual average of 13.2 µg/m³; still well below the air quality standard and having no impact on the ability for the area to meet the standard.

To be even more conservative, for any day in any quarter between 2007 and 2009 the highest reading is 35.0 µg/m³ (September 2007). Substituting 35.0 µg/m³ in the same manner as above would have resulted in a quarterly average of 19.9 µg/m³ that would have then resulted in an annual average of 13.6 µg/m³; still well below the air quality standard and having no impact on the ability for the area to meet the standard.

As for the third quarter of 2009, using the most conservative approach also used above, substituting 35.0 µg/m³ in place of the missing data from September 2009, the following monthly averages are derived.

	July	August	September
Daily Values	8	12	14
	9	6	5
	11	15	5
	5	11	15
	16	21	35
	11	16	35
	9	8	35
	13	6	35
		17	35
		8	35
Monthly Average	10.3	12.0	24.9

Substituting 35.0 µg/m³ would have resulted in a quarterly average of 16.1 µg/m³ that would have then resulted in an annual average of 12.2 µg/m³; still well below the air quality standard and having no impact on the ability for the area to meet the standard.

Combining both worst case conservative scenarios above for this monitor would give the following results:

Averages (µg/m³)	2007	2008	2009	Three year average
Quarter 1	12.1	18.6	12.8	
Quarter 2	13.4	9.9	9.8	
Quarter 3	15.4	14.0	16.1	
Quarter 4	13.1	10.2	10.2	
Annual	13.4	13.2	12.2	

Based on the analysis above, Ohio believes that had the missing data been collected it would not have resulted in a design value that would exceed the standard. Therefore, Ohio is requesting U.S. EPA approve the use of less than complete data for this monitor considering the factors identified above.

Relocation of 37-085-3002 to 39-085-0007

In August 21, 2008 the Lake County General Health District requested U.S. EPA to review a monitoring site to replace the existing site 39-085-3002. The building which housed the site 39-085-3002 was demolished in earlier 2009, requiring the monitoring site to relocate. U.S. EPA evaluated the candidate site (monitoring site 39-085-0007) and approved the replacement request. U.S. EPA authorized, with this replacement, the combination of ozone and fine particulate data from both sites for the purpose of calculating design values for National Ambient Air Quality Standards (NAAQS) determinations. The three-year average (2007-2009) from combining the data from both sites is 11.9µg/m³ of PM_{2.5}.

Steubenville-Weirton Area

This area has four monitoring sites, two in Ohio and two in West Virginia. From the monitoring sites in Ohio, one site shows less than 75% capture of fine particles in at least one quarter.

Monitoring Site 39-081-0017

The monitoring site 39-081-0017 has a 73% capture during the fourth quarter of 2008; therefore, one more day of data collection in the third quarter would have resulted in meeting the 75% capture criteria. A second monitor (39-081-1001) is located in this area approximately three miles away from monitor 39-081-0017 and less than one mile way from the Severstal Steel Plant. When reviewing historical data for these monitors, the PM_{2.5} concentrations are decreasing.

Monitoring Site 39-081-0017		
2007	October	21.0
	November	15.0
	December	15.3
	4th Quarter Average	17.1
	4th Quarter % capture	87
2008	October	19.8
	November	13.6
	December	11.8
	4th Quarter Average	15.1
	4th Quarter % capture	73
2009	October	9.8
	November	10.7
	December	11.5
	4th Quarter Average	10.7
	4th Quarter % capture	94

Monitoring Site 39-081-1001		
2007	October	17.8
	November	15.6
	December	19.0
	4th Quarter Average	17.5
	4th Quarter % capture	100
2008	October	17.2
	November	11.2
	December	11.0
	4th Quarter Average	13.1
	4th Quarter % capture	100
2009	October	12
	November	13.6
	December	7.0
	4th Quarter Average	10.9
	4th Quarter % capture	93

In the absence of this additional day of data collection necessary to meet the collection criteria, the three year average for this monitor is 14.2 µg/m³.

Consistent with the conservative approaches used above, for any day in any quarter between 2007 and 2009 an appropriate conservative highest reading is 44.0 µg/m³ (June and August 2007)⁵. Substituting 44.0 µg/m³ in place of the missing data from five sampling days in November and December 2008, the following monthly averages are derived. Please note only one additional sampling day was necessary to meet the 75% criteria.

⁵ The two highest readings in this area are 46 and 50 ug/m³. Both occurred within the first few days of September in 2007 and 2008. Ohio EPA believes this data may be the result of an exceptional event(s). Nonetheless, because the data in question regarding the 75% criteria does not involve September 2008, Ohio EPA believes the next highest reading is appropriate for this conservative analysis.

	October	November	December
Daily Values	5	25	11
	10	18	10
	10	6	11
	17	17	13
	5	14	18
	7	7	8
	9	8	44
	4	44	44
	13	44	44
Monthly Average	8.9	20.3	22.6

Substituting 44.0 $\mu\text{g}/\text{m}^3$ would have resulted in a quarterly average of 17.3 $\mu\text{g}/\text{m}^3$ that would have then resulted in an annual average of 15.9 $\mu\text{g}/\text{m}^3$. When computed with the remaining two year averages, the three year average is still below the standard; 14.7 $\mu\text{g}/\text{m}^3$.

	Annual Average	Three Year Average
2007	16.2	14.7
2008	15.9	
2009	12.1	

.Moreover, when imputing the highest monthly average (from the site 39-081-0017) of 2008 (July = 21.1 $\mu\text{g}/\text{m}^3$) to estimate the monthly average in the fourth quarter of 2008 (October, November, and December), it can be seen that the three year average (2007-2009) is 15.0 $\mu\text{g}/\text{m}^3$ of $\text{PM}_{2.5}$.

	2007	2008	2009
January	11.2	15.4	14.7
February	11	17	16.9
March	14.9	12.9	11.5
April	9.7	13.2	11.1
May	19.8	12.8	11.8
June	18.1	14.6	12
July	19.1	21.1	14
August	24.5	13.5	13.9
September	21	19.8	9.8
October	21	21.1	9.8
November	15	21.1	10.7
December	15.3	21.1	11.5
Average	16.2	16.9	12.1

Three-Year Average	15.0
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Based on the analysis above, Ohio believes that had the missing data been collected it would not have resulted in a design value that would exceed the standard. Therefore, Ohio is requesting U.S. EPA approve the use of less than complete data for this monitor considering the factors identified above.

Huntington-Ashland Area

This area has five monitoring sites, three in Ohio, one in Kentucky, and one in West Virginia.

Relocation of 37-087-0010 to 39-087-0012

The monitoring site 39-087-0010 in Lawrence County, Ohio was shutdown in February 2008 since the building that housed it was scheduled for demolition, and moved approximately one mile away to a new site (39-087-0012) which began sampling in early February 2008, making both sites incomplete for 2008 when viewed separately.

However, if the sites at Lawrence County were considered one site and data combined, it would meet the 75% capture requirement. There are no significant industrial sources in Ohio where this monitor is located (Ironton, Ohio). The closest significant source is AK Steel in Ashland, Kentucky. Prior to relocation of this monitor, it was approximately 1.58 miles from AK Steel. The new site is approximately 0.85 miles from AK Steel. Notice, the new site collected data from February 2008 and achieved a 2008 design value of $13.1 \mu\text{g}/\text{m}^3$, significantly lower than previous year design value even though it is now closer to the largest industrial source. Both monitors show attainment of the standard separately and combined.

In summary, we request U.S. EPA to act in a timely manner to make a formal finding that the six nonattainment areas identified in the attached table are attaining the annual $\text{PM}_{2.5}$ standard. Ohio EPA plans to follow up this letter with requests for redesignation of these nonattainment areas.

If you or your staff have any questions or would like additional information, please feel free to contact Jennifer Hunter at (614) 644-3696.

Sincerely,



Chris Korleski
Director, Ohio Environmental Protection Agency

enclosures

cc: Bob Hodanbosi, DAPC
Jennifer Hunter, DAPC

Ohio State PM_{2.5} Clean Monitoring Data for 2007 - 2009

Area	Site	County	Year			Average 2007-2009
			2007	2008	2009	
Cleveland- Akron-Lorain	39-035-0034	Cuyahoga	13.6	10.9	10.2	11.6
	39-035-0038		16.2	14.1	12.8	14.4
	39-035-0045		15.3	13.7	11.8	13.6
	39-035-0060		15.9	14.1	12.3	14.1
	39-035-0065		15.8	14.6	12.4	14.3
	39-035-1002		13.4	12.0	10.9	12.1
	39-085-0007	Lake			10.4	11.9
	39-085-3002		13.9	11.5		
	39-093-3002	Lorain	12.9	11.4	9.9	11.4
	39-103-0003	Medina	12.7	11.8	10.8	11.8
	39-133-0002	Portage	13.7	12.1	11.1	12.3
	39-153-0017	Summit	14.8	13.8	12.6	13.7
	39-153-0023		13.7	12.9	11.4	12.7
Columbus	39-049-0024	Franklin	14.6	12.8	11.5	13.0
	39-049-0025		14.7	12.4	11.5	12.9
	39-049-0081		13.1	11.1	10.8	11.7
Cincinnati- Hamilton	39-017-0003	Butler	15.4	13.8	12.8	14.0
	39-017-0016		14.9	13.8	13.1	13.9
	39-025-0022	Clermont	14.0	11.7	11.0	12.2
	39-061-0006	Hamilton	14.6	12.5	12.1	13.1
	39-061-0014		16.6	15.1	13.4	15.0
	39-061-0040		15.1	12.6	12.7	13.5
	39-061-0042		15.9	14.4	13.7	14.7
	39-061-7001		15.1	13.7	13.0	13.9
	39-061-8001		16.1	14.4	13.4	14.6
	39-165-0007	Warren	14.0	11.9	11.7	12.5
	21-037-3002 (KY)	Campbell	14.4	11.8	11.4	
21-117-0007 (KY)	Kenton	14.2	12.0	11.1	12.4	
Dayton- Springfield	39-023-0005	Clark	14.6	12.7	12.4	13.2
	39-057-0005	Greene	13.3	11.6	11.5	12.1
	39-113-0032	Montgomery	15.6	13.2	12.4	13.7
Steubenville- Weirton	39-081-0017	Jefferson	16.2	14.3	12.1	14.2
	39-081-1001		15.6	14.1	11.2	13.6
	54-009-0005 (WV)	Brooke	16.4	14.7	12.2	14.4
	54-009-0011 (WV)		16.3	13.8	11.9	14.0
Huntington- Ashland (OH)	39-087-0010	Lawrence	15.0	10.8		13.1
	39-087-0012			13.1	11.3	
	39-145-0013	Scioto	14.0	12.2	10.9	12.4
	21-019-0017 (KY)	Boyd	14.3	12.1	10.9	12.4
	54-011-0006 (WV)	Cabell	16.6	14.1	12.0	14.2

Less than 75% capture in at least one quarter