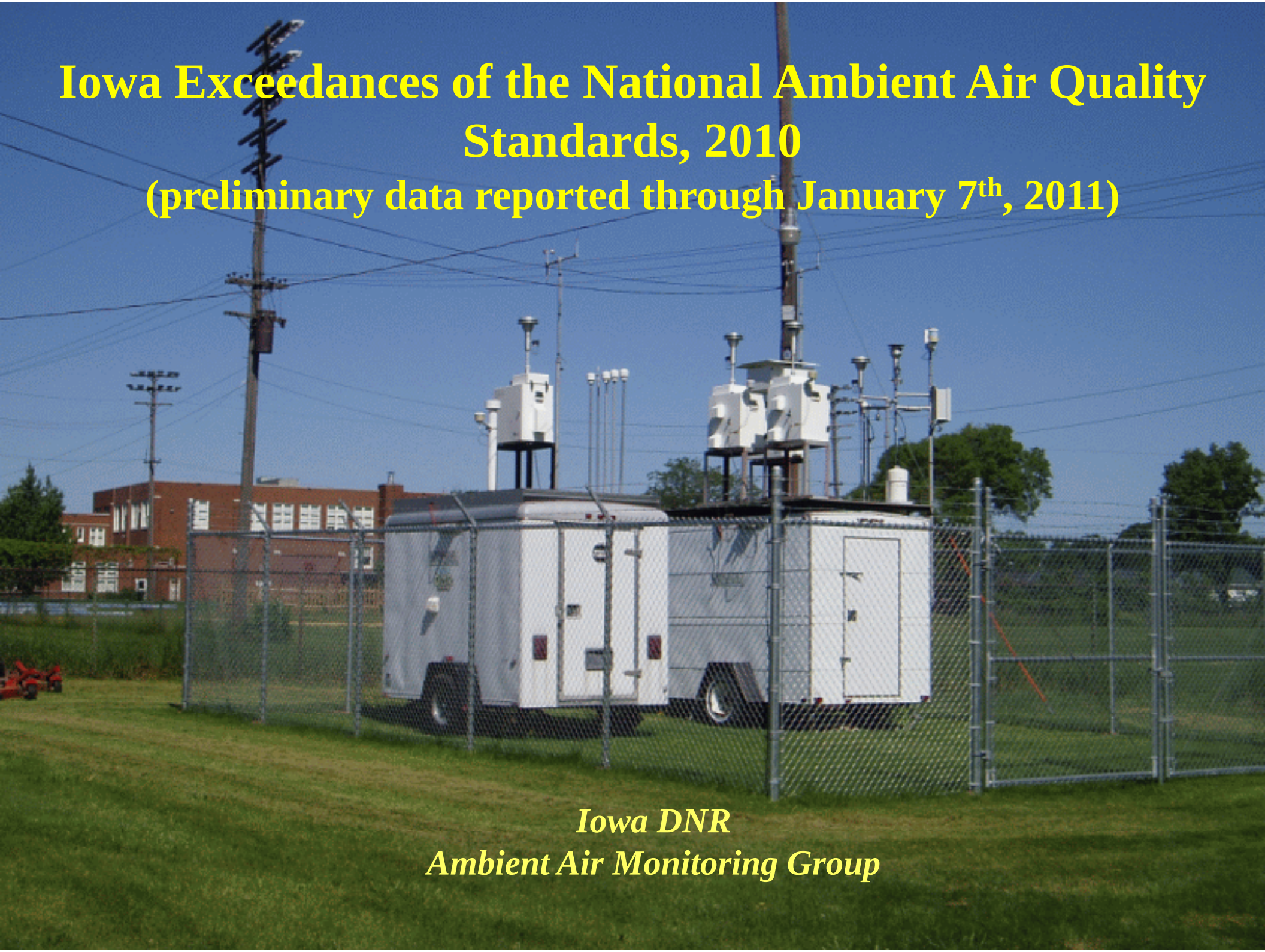


Iowa Exceedances of the National Ambient Air Quality Standards, 2010

(preliminary data reported through January 7th, 2011)

Iowa DNR

Ambient Air Monitoring Group

What Are the NAAQS?

The Clean Air Act requires EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards.

Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.

Secondary standards set limits to protect public welfare, including protection against decreased visibility, or damage to animals, crops, vegetation, and buildings. The table and key on the following page lists the NAAQS for the six criteria pollutants.

National Ambient Air Quality Standards

Pollutant	Averaging Period	Exceedance Level	Units
Ozone	8hr **(1)**	76	ppb
$PM_{2.5}$	24hr **(2)**	35.5	micrograms per cubic meter
	annual **(3)**	15.05	micrograms per cubic meter
PM_{10}	24hr **(4)**	155	micrograms per cubic meter
Sulfur dioxide	1hr **(5)**	75.5	ppb
	3hr **(6)**	0.55	ppm
Carbon monoxide	1hr **(6)**	35.5	ppm
	8hr **(6)**	9.5	ppm
Nitrogen dioxide	annual	0.0535	ppm
	1 hr **(7)**	100.5	ppb
Lead	Rolling 3-month average **(8)**	0.155	micrograms per cubic meter

(1) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 75 ppb.

(2) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35.5 µg/m^3 (effective December 17, 2006).

(3) To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.05 µg/m^3.

(4) Not to be exceeded more than once per year on average over 3 years.

(5) Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

(6) Not to be exceeded more than once per year.

(7) To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

(8) Final rule signed October 15, 2008.

See 40CFR Part 50 for details on attainment calculations

Ozone Data in This Report

Nitrogen oxides (NOx) and volatile organic compounds (VOC's) react in sunlight and hot weather and can cause ground-level ozone to form in harmful concentrations in the air. Ozone is considered a summertime pollutant and data is collected seasonally from April 1 through October 31.

Both urban and rural areas may experience high ozone levels because wind can carry ozone and the pollutants that form it hundreds of miles away from their original sources.

Ozone monitors are continuous instruments that report hourly averages for each hour of each day of the ozone season.

Lead (Pb) Regulation Change

The EPA promulgated new lower standards for lead in particulate matter that became effective on January 12, 2009.

The “old” national ambient air quality standard for lead was 1.5 micrograms per cubic meter ($\mu g/m^3$). The averaging period or “form” of the standard was the quarterly average concentration. The new standard is 0.15 $\mu g/m^3$ and the form of the standard has changed to any consecutive three-month rolling average as opposed to a calendar quarter.

Both the “old” and “new” standards require the measurement of lead in Total Suspended Particulate (TSP) as all sizes of lead particulate pose potential health risks.

Sulfur Dioxide Regulation Change

The EPA promulgated new lower standards for sulfur dioxide (SO_2) that became effective on August 23, 2010.

The EPA established a new 1-hour standard for SO_2 and set the level of the standard at 75 parts per billion.

The EPA revoked the existing 24-hour standard as well as the annual average standard. The Agency determined that the new one hour standard is more stringent than either of the two previous standards.

The form of the standard is the 3-year average of the 99^{th} percentile of the annual distribution of daily maximum 1-hour average concentrations.

Particulate Data Used for this Report

Particulate data in this report is from filter based samplers where the data is collected over a 24-hour period and then analyzed in a laboratory. Filter samplers are normally operated on a schedule of one sample every third day (1 in 3). In areas of high population or high concentration, the samplers may be operated on an accelerated schedule (1 in 2 or daily).

EPA has encouraged States to use automated continuous samplers to inform the public of current air quality levels. Recently, EPA has approved the use of data from certain types of continuous samplers for regulatory purposes. Data from continuous monitors that pass EPA equivalency tests may be included in this report in the future.

Iowa NAAQS Exceedances, 2010

(reported through January 7th, 2011)

Date	$PM_{2.5}$	PM_{10}	Ozone	SO_2	Lead
1/5/10	2				
1/13/10	1				
1/20/10	1				
1/22/10	1				
1/31/10	1				
2/1/10	4				
2/2/10	3				
2/3/10	5				
2/4/10	16				
2/5/10	1				
2/12/10	2				
2/13/10	3				
2/19/10	6				
3/3/10	7				
3/4/10	3				
3/5/10	1				
3/8/10	2				
3/9/10	2				
4/23/10	1				
5/20/10	1				

Continued on following page

Iowa NAAQS Exceedances, 2010

(reported through January 7th, 2011)

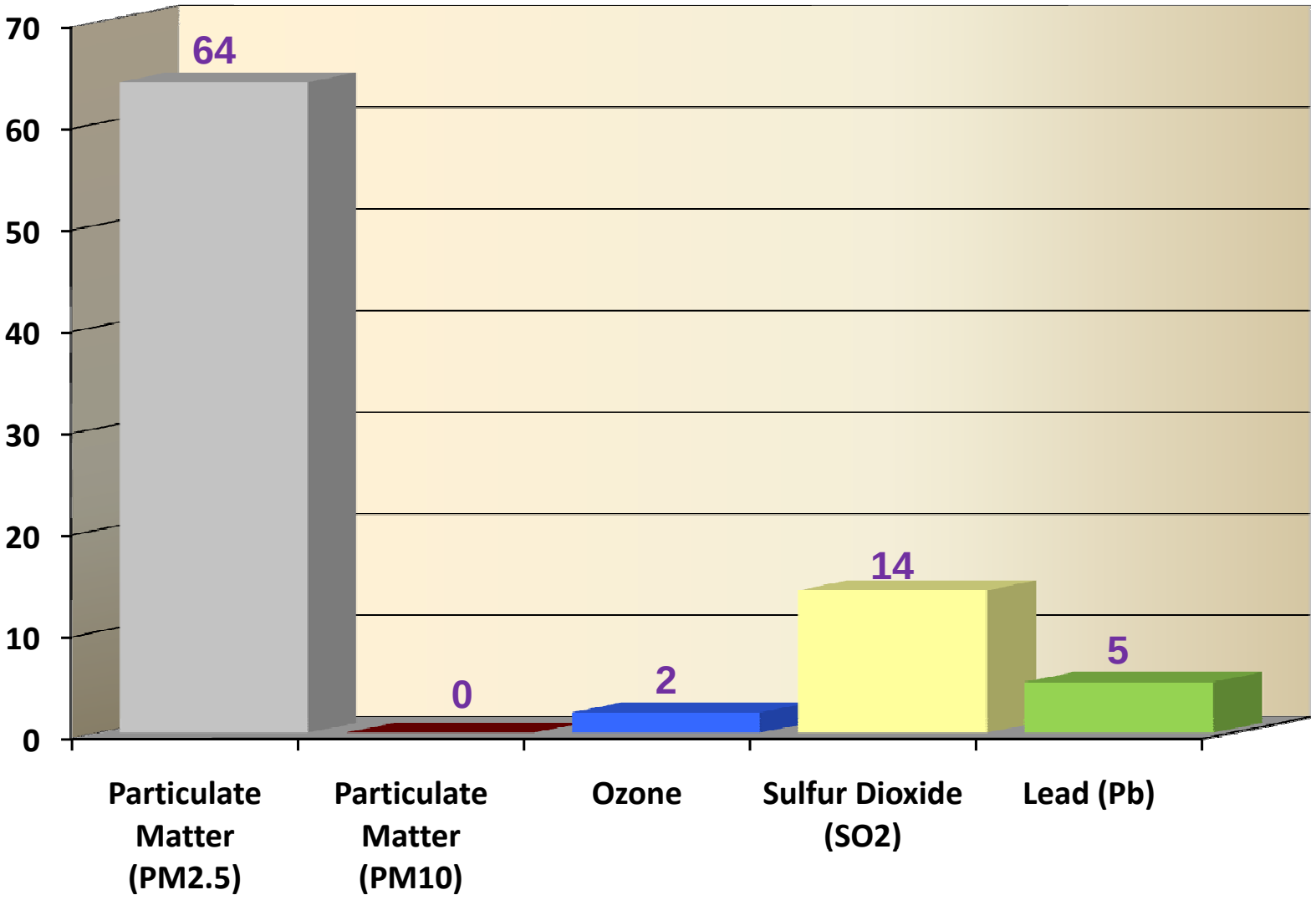
Date	$PM_{2.5}$	PM_{10}	Ozone	SO_2 *	Lead **
5/29/10			2		
April-June					1
May-July					1
8/27/10				1	
8/28/10				1	
8/29/10				1	
8/31/10				1	
June-August					1
9/5/10				1	
9/6/10				1	
9/20/10				1	
9/23/10				1	
July-September					1
10/23/10				1	
10/26/10				1	
August-October					1
11/21/10				1	
12/20/10	1				
12/27/10				1	
12/30/10				1	
12/31/10				1	
TOTAL	64	0	2	14	5

* EPA established the new sulfur dioxide exceedance level on August 23, 2010.

** EPA has not developed an AQI or exceedance level for lead. 3-month rolling averages greater than 0.15 µg/m³ represent violations of the NAAQS.

Iowa NAAQS Exceedances, 2010

(reported through January 7th, 2011)



2010 NAAQS Exceedances (reported through January 7th, 2011)

Monitor Type	Site Location	Site Name	Exceedance Date	Concentration	Units	AQI
$PM_{2.5}$	Council Bluffs	Franklin Elementary	1/5/10	48.8	µg/m³	117
$PM_{2.5}$	Sioux City	Bryant Elementary	1/5/10	46.2	µg/m³	112
$PM_{2.5}$	Davenport	Blackhawk Foundry	1/13/10	40.0	µg/m³	99
$PM_{2.5}$	Muscatine	Garfield Elementary	1/20/10	62.9	µg/m³	145
$PM_{2.5}$	Muscatine	Garfield Elementary	1/22/10	37.5	µg/m³	94
$PM_{2.5}$	Cedar Rapids	Linn Public Health	1/31/10	36.3	µg/m³	92
$PM_{2.5}$	Cedar Rapids	Linn Public Health	2/1/10	36.7	µg/m³	93
$PM_{2.5}$	Cedar Rapids	Army Reserve	2/1/10	35.8	µg/m³	91
$PM_{2.5}$	Muscatine	Garfield Elementary	2/1/10	36.3	µg/m³	92
$PM_{2.5}$	Clinton	Chancy Park	2/1/10	35.5	µg/m³	90
$PM_{2.5}$	Clinton	Chancy Park	2/2/10	38.7	µg/m³	97
$PM_{2.5}$	Clinton	Rainbow Park	2/2/10	36.6	µg/m³	93
$PM_{2.5}$	Central Davenport	Jefferson Elementary	2/2/10	35.5	µg/m³	90
$PM_{2.5}$	Clinton	Chancy Park	2/3/10	38.0	µg/m³	95
$PM_{2.5}$	Clinton	Rainbow Park	2/3/10	36.7	µg/m³	93
$PM_{2.5}$	Central Davenport	Jefferson Elementary	2/3/10	37.0	µg/m³	93
$PM_{2.5}$	Davenport	Blackhawk Foundry	2/3/10	36.5	µg/m³	92
$PM_{2.5}$	Muscatine	Garfield Elementary	2/3/10	36.0	µg/m³	91

2010 NAAQS Exceedances (reported through January 7th, 2011) continued

Monitor Type	Site Location	Site Name	Exceedance Date	Concentration	Units	AQI
$PM_{2.5}$	Cedar Rapids	Linn Public Health	2/4/10	40.2	µg/m³	100
$PM_{2.5}$	Cedar Rapids	Army Reserve	2/4/10	36.5	µg/m³	92
$PM_{2.5}$	Clinton	Chancy Park	2/4/10	42.8	µg/m³	106
$PM_{2.5}$	Clinton	Rainbow Park	2/4/10	42.2	µg/m³	104
$PM_{2.5}$	Central Davenport	Jefferson Elementary	2/4/10	40.5	µg/m³	101
$PM_{2.5}$	Davenport	Blackhawk Foundry	2/4/10	41.9	µg/m³	104
$PM_{2.5}$	Central Davenport	Adams Elementary	2/4/10	40.5	µg/m³	101
$PM_{2.5}$	Davenport	Hayes Elementary	2/4/10	40.7	µg/m³	101
$PM_{2.5}$	Muscatine	Garfield Elementary	2/4/10	41.3	µg/m³	103
$PM_{2.5}$	Muscatine	Greenwood Cemetery	2/4/10	37.2	µg/m³	94
$PM_{2.5}$	Muscatine	Franklin Elementary	2/4/10	38.3	µg/m³	96
$PM_{2.5}$	Iowa City	Hoover Elementary	2/4/10	39.4	µg/m³	98
$PM_{2.5}$	Waterloo	Grout Museum	2/4/10	38.8	µg/m³	97
$PM_{2.5}$	Waterloo	Water Tower	2/4/10	37.5	µg/m³	94
$PM_{2.5}$	Keokuk	Fire Station	2/4/10	41.2	µg/m³	102
$PM_{2.5}$	Keosauqua	Lake Sugema	2/4/10	38.3	µg/m³	96
$PM_{2.5}$	Des Moines	Polk County Health	2/5/10	41.5	µg/m³	103
$PM_{2.5}$	Clinton	Chancy Park	2/12/10	37.0	µg/m³	93
$PM_{2.5}$	Des Moines	Polk County Health	2/12/10	36.3	µg/m³	92

2010 NAAQS Exceedances (reported through January 7th, 2011) continued

Monitor Type	Site Location	Site Name	Exceedance Date	Concentration	Units	AQI
$PM_{2.5}$	Clive	Indian Hills	2/13/10	40.3	$\mu g/m^3$	100
$PM_{2.5}$	Des Moines	Polk County Health	2/13/10	41.6	$\mu g/m^3$	103
$PM_{2.5}$	Keokuk	Fire Station	2/13/10	40.7	$\mu g/m^3$	101
$PM_{2.5}$	Muscatine	Garfield Elementary	2/19/10	37.9	$\mu g/m^3$	95
$PM_{2.5}$	Muscatine	Greenwood Cemetery	2/19/10	36.0	$\mu g/m^3$	91
$PM_{2.5}$	Muscatine	Franklin Elementary	2/19/10	36.3	$\mu g/m^3$	92
$PM_{2.5}$	Waterloo	Grout Museum	2/19/10	36.7	$\mu g/m^3$	93
$PM_{2.5}$	Waterloo	Water Tower	2/19/10	35.8	$\mu g/m^3$	91
$PM_{2.5}$	Central Davenport	Adams Elementary	2/19/10	35.9	$\mu g/m^3$	91
$PM_{2.5}$	Muscatine	Garfield Elementary	3/3/10	35.9	$\mu g/m^3$	91
$PM_{2.5}$	Muscatine	Franklin Elementary	3/3/10	35.6	$\mu g/m^3$	91
$PM_{2.5}$	Waterloo	Grout Museum	3/3/10	37.7	$\mu g/m^3$	95
$PM_{2.5}$	Waterloo	Water Tower	3/3/10	37.8	$\mu g/m^3$	95
$PM_{2.5}$	Cedar Rapids	Linn Public Health	3/3/10	39.2	$\mu g/m^3$	98
$PM_{2.5}$	Cedar Rapids	Army Reserve	3/3/10	36.2	$\mu g/m^3$	92
$PM_{2.5}$	Iowa City	Hoover Elementary	3/3/10	38.6	$\mu g/m^3$	96
$PM_{2.5}$	Cedar Rapids	Linn Public Health	3/4/10	38.8	$\mu g/m^3$	97
$PM_{2.5}$	Iowa City	Hoover Elementary	3/4/10	35.9	$\mu g/m^3$	91
$PM_{2.5}$	Muscatine	Garfield Elementary	3/4/10	49.7	$\mu g/m^3$	119

2010 NAAQS Exceedances (reported through January 7th, 2011) continued

Monitor Type	Site Location	Site Name	Exceedance Date	Concentration	Units	AQI [1,2]
$PM_{2.5}$	Muscatine	Garfield Elementary	3/5/10	36.7	$\mu g/m^3$	93
$PM_{2.5}$	Clinton	Chancy Park	3/8/10	37.8	$\mu g/m^3$	95
$PM_{2.5}$	Muscatine	Garfield Elementary	3/8/10	35.7	$\mu g/m^3$	91
$PM_{2.5}$	Muscatine	Garfield Elementary	3/9/10	52.3	$\mu g/m^3$	124
$PM_{2.5}$	Clinton	Chancy Park	3/9/10	37.1	$\mu g/m^3$	94
$PM_{2.5}$	Muscatine	Garfield Elementary	4/23/10	63.4	$\mu g/m^3$	146
$PM_{2.5}$	Muscatine	Garfield Elementary	5/20/10	53.7	$\mu g/m^3$	127
Ozone	Pisgah	Highway Shed	5/29/10	77	ppb	104
Ozone	Pisgah	Forestry Office	5/29/10	76	ppb	101
Pb	Council Bluffs	Griffin Pipe	April-June	0.17	$\mu g/m^3$	n/a
Pb	Council Bluffs	Griffin Pipe	May-July	0.20	$\mu g/m^3$	n/a
SO_2	Muscatine	Musser Park	8/27/10	96.4	ppb	110
SO_2	Muscatine	Musser Park	8/28/10	76.3	ppb	101
SO_2	Muscatine	Musser Park	8/29/10	129.7	ppb	125
SO_2	Muscatine	Musser Park	8/31/10	122.9	ppb	122
Pb	Council Bluffs	Griffin Pipe	June-August	0.26	$\mu g/m^3$	n/a
SO_2	Muscatine	Musser Park	9/5/10	127.6	ppb	124
SO_2	Muscatine	Musser Park	9/6/10	135.0	ppb	128

[1] EPA established the new sulfur dioxide AQI on August 23, 2010.

[2] EPA has not developed an AQI or exceedance level for lead. 3-month rolling averages greater than 0.15 $\mu g/m^3$ represent violations of the NAAQS.

2010 NAAQS Exceedances (reported through January 7th, 2011) continued

Monitor Type	Site Location	Site Name	Exceedance Date	Concentration	Units	AQI [1,2]
SO_2	Muscatine	Musser Park	9/20/10	120.8	ppb	121
SO_2	Muscatine	Musser Park	9/23/10	102.8	ppb	113
Pb	Council Bluffs	Griffin Pipe	July-September	0.24	µg/m^3	n/a
SO_2	Muscatine	Musser Park	10/23/10	91.0	ppb	107
SO_2	Muscatine	Musser Park	10/26/10	134.0	ppb	127
Pb	Council Bluffs	Griffin Pipe	August-October	0.25	µg/m^3	n/a
SO_2	Muscatine	Musser Park	11/21/10	133.6	ppb	127
$PM_{2.5}$	Muscatine	Garfield Elementary	12/20/10	56.1	µg/m^3	135
SO_2	Muscatine	Musser Park	12/27/10	76.2	ppb	101
SO_2	Muscatine	Musser Park	12/30/10	168.2	ppb	142
SO_2	Muscatine	Musser Park	12/31/2010	108.8	ppb	116

(1) EPA established the new sulfur dioxide AQI on August 23, 2010.

(2) EPA has not developed an AQI or exceedance level for lead. 3-month rolling averages greater than 0.15 µg/m^3 represent violations of the NAAQS.

Web Resources

Real-time Air Monitoring Data:

In Polk County:
http://www.polkcountyiowa.gov/airquality/Pages/Monitoring.aspx

In Linn County:
http://www.linncleanair.org/

Outside Polk and Linn Counties:
http://www.uhl.uiowa.edu/services/ambient/realtime.xml

Attainment Calculations:
http://epa.gov/airtrends/values.html

National Ozone and Particulate Maps:
http://airnow.gov/

Historical Air Monitoring Data for Iowa and Other States:
http://www.epa.gov/air/data/