

Louisville Metro Air Pollution Control District
PM_{2.5} Monitoring Report
August 2010

This report summarizes PM_{2.5} data collected by Federal Reference Method (FRM) samplers. Measurements are reported as 24-hour averages in micro-grams per cubic meter (µg/m³). The data are subject to further quality assurance checks and are not final.

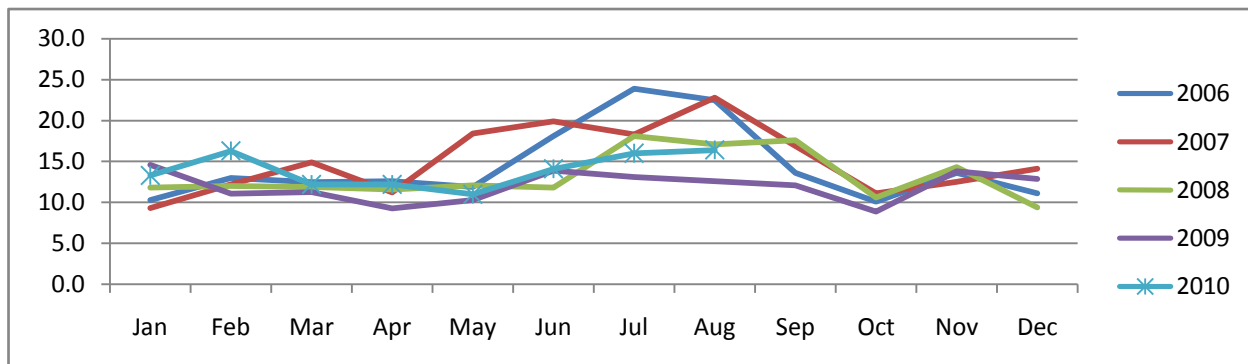
PM_{2.5} Monthly Data Summary for August

| Site Name | Daily Maximum | | Daily Minimum | | Sample Recovery | Monthly Average |
|--------------|---------------|----------|---------------|----------|-----------------|-----------------|
| | Conc. | Date | Conc. | Date | | |
| Southwick | 29.5 | 08/10/10 | 7.7 | 08/26/10 | 100% | 17.3 |
| Wyandotte | 28.8 | 08/10/10 | 7.8 | 08/26/10 | 97% | 16.5 |
| Cannons Lane | 24.3 | 08/03/10 | 9.2 | 08/27/10 | 100% | 16.0 |
| Watson Lane | 18.2 | 08/12/10 | 12.9 | 08/24/10 | 100% | 15.8 |
| Overall | 29.5 | 08/10/10 | 7.7 | 08/26/10 | 99.3% | 16.4 |

PM_{2.5} Monthly Averages Tracking Table for 1999-2010

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Months >15.0 µg/m ³ |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|--------------------------------------|
| 1999 | 14.7 | 13.8 | 12.4 | 12.7 | 18.1 | 23.4 | 26.6 | 19.5 | 15.6 | 17.4 | 16.1 | 12.6 | 7 |
| 2000 | 15.8 | 16.4 | 13.4 | 13.6 | 17.1 | 17.7 | 23.5 | 21.2 | 13.3 | 19.7 | 15.6 | 17.1 | 9 |
| 2001 | 21.9 | 13.9 | 15.2 | 13.3 | 17.7 | 20.5 | 24.6 | 27.4 | 16.1 | 13.8 | 15.8 | 12.4 | 8 |
| 2002 | 13.1 | 10.0 | 12.3 | 11.4 | 15.9 | 22.3 | 30.4 | 23.8 | 21.7 | 13.2 | 11.8 | 15.6 | 6 |
| 2003 | 12.2 | 16.3 | 15.0 | 14.6 | 13.1 | 18.6 | 21.7 | 23.0 | 17.3 | 12.5 | 12.0 | 10.6 | 5 |
| 2004 | 10.5 | 15.7 | 10.1 | 11.3 | 13.4 | 15.9 | 17.1 | 18.4 | 17.6 | 13.8 | 11.1 | 11.1 | 5 |
| 2005 | 11.7 | 17.1 | 14.3 | 13.1 | 14.9 | 19.6 | 20.2 | 19.8 | 24.1 | 16.1 | 12.6 | 15.5 | 7 |
| 2006 | 10.3 | 13.0 | 12.5 | 12.6 | 11.9 | 18.1 | 23.9 | 22.5 | 13.6 | 10.1 | 13.6 | 11.1 | 3 |
| 2007 | 9.3 | 12.2 | 14.9 | 11.2 | 18.4 | 19.9 | 18.3 | 22.8 | 16.9 | 11.1 | 12.5 | 14.1 | 5 |
| 2008 | 11.8 | 12.0 | 11.9 | 11.6 | 12.1 | 11.8 | 18.1 | 17.1 | 17.6 | 10.6 | 14.3 | 9.4 | 3 |
| 2009 | 14.6 | 11.1 | 11.3 | 9.3 | 10.3 | 13.9 | 13.1 | 12.6 | 12.1 | 8.9 | 13.8 | 12.9 | 0 |
| 2010 | 13.3 | 16.3 | 12.2 | 12.2 | 11.0 | 14.1 | 16.0 | 16.4 | | | | | 3 |
| Monthly Avg | 13.3 | 14.0 | 13.0 | 12.2 | 14.5 | 18.0 | 21.1 | 20.4 | 16.9 | 13.4 | 13.6 | 12.9 | |

PM_{2.5} Monthly Averages 5-Year Trend



National Ambient Air Quality Standards (NAAQS):

National Ambient Air Quality Standards consist of primary and secondary standards. The primary standards define levels of air quality which EPA judges are necessary, with an adequate margin of safety, to protect the public health. The secondary standards define levels of air quality which EPA judges necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. For PM_{2.5} the levels of the primary and secondary standards are the same.

National Ambient Air Quality Standard for PM_{2.5} - Annual Standard:

The annual standard is designed to provide an appropriate level of protection from long-term exposure to PM_{2.5}. The standard is met when the annual design value is less than or equal to 15.0 µg/m³. The annual design value is calculated by averaging the annual means of 3 consecutive complete years of air quality data. The table below compares data collected from 2004 through year-to-date 2010 to the PM_{2.5} annual standard.

PM_{2.5} Annual Means and Annual Design Values

| Site Name | Annual Means µg/m ³ | | | | | | | Annual Design Values | | | | |
|---------------|--------------------------------|------|------|------|------|------|------|----------------------|-------------|-------------|-------------|-------------|
| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 |
| Southwick | 14.5 | 16.6 | 15.0 | 15.1 | 13.2 | 12.2 | 14.2 | 15.4 | 15.6 | 14.4 | 13.5 | 13.2 |
| Wyandotte | 14.0 | 16.4 | 15.2 | 14.9 | 13.4 | 12.5 | 14.5 | 15.2 | 15.5 | 14.5 | 13.6 | 13.5 |
| Cannons Lane* | 13.7 | 16.7 | 13.9 | 15.0 | 13.4 | 11.7 | 14.2 | 14.8 | 15.2 | 14.1 | 13.4 | 13.1 |
| Watson Lane | 12.6 | 16.4 | 13.7 | 15.4 | 12.8 | 11.6 | 13.8 | 14.2 | 15.2 | 14.0 | 13.3 | 12.7 |

Bold: Design value for Louisville

* Cannons Lane Replaced Barret in 2009. 2003-2008 data are from Barret

National Ambient Air Quality Standard for PM_{2.5} - 24-Hour (Daily) Standard:

The 24-hour standard is designed to provide an appropriate level of protection from short-term exposure to PM_{2.5}. The standard is met when the 24-hour design value is less than or equal to 35 µg/m³. The design value is based on 3 consecutive complete years of air quality data and is calculated by taking the average of the 98th percentile value for each of the 3 years. The 98th percentile value is the 24-hour average out of a year of PM_{2.5} monitoring data below which 98 percent of all 24-hour averages fall. The table below compares data collected from 2004 through year-to-date 2010 to the 24-hour standard for PM_{2.5}.

PM_{2.5} Annual 98th Percentiles and 24-Hour Design Values

| Site Name | Annual 98 th Percentile Value µg/m ³ | | | | | | | 24-Hour Design Values | | | | |
|---------------|--|------|------|------|------|------|------|-----------------------|-------------|-------------|-------------|-------------|
| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 |
| Southwick | 31.1 | 42.9 | 36 | 34.1 | 28.7 | 24.3 | 27.5 | 36.7 | 37.7 | 32.9 | 29.0 | 26.8 |
| Wyandotte | 30.6 | 40.1 | 36.3 | 33.5 | 29.5 | 25.7 | 28.8 | 35.7 | 36.6 | 33.1 | 29.6 | 28.0 |
| Cannons Lane* | 28.8 | 43.2 | 36.7 | 31.9 | 30.7 | 24.1 | 26.1 | 36.2 | 37.3 | 33.1 | 28.9 | 27.0 |
| Watson Lane | 25.8 | 36.5 | 32.5 | 32.5 | 28.6 | 24.7 | 26.1 | 31.6 | 33.8 | 31.2 | 28.6 | 26.5 |

Bold: Design value for Louisville

* Cannons Lane Replaced Barret in 2009. 2003-2008 data are from Barret

Louisville Metro Air Pollution Control District
8-Hour Ozone Monitoring Report
August 2010

This report summarizes ozone data collected by Automated Equivalent Method (AEM) ozone analyzers located within the Louisville Metropolitan Statistical Area. Measurements are reported as 8-hour averages in parts-per-billion (ppb). The data are subject to further quality assurance checks and are not final.

2010-8-Hour Ozone Maximum Values and Exceedances

| Date | # of 8-Hour Exceeds | # of Days with Exceeds | Charles-town Clark Co. IN | New Albany Floyd Co. IN | Bates Jefferson Co. KY | Watson Jefferson Co. KY | Cannons Lane Jefferson Co. KY | Buckner Oldham Co. KY | Shepherds-ville Bullitt Co. KY | AQI Forecast | AQI Actual | AQA Issued |
|---------------|---------------------|------------------------|---------------------------|-------------------------|------------------------|-------------------------|-------------------------------|-----------------------|--------------------------------|--------------|------------|------------|
| 04/12/10 | 1 | 1 | <u>75</u> | 67 | 74 | 69 | 77 | 75 | 73 | 45 | 104 | No |
| 04/13/10 | 2 | 1 | 75 | 71 | <u>75</u> | 71 | 79 | 74 | 76 | 90 | 109 | No |
| 04/14/10 | 4 | 1 | 79 | 64 | 77 | 71 | 79 | 76 | 70 | 105 | 109 | Yes |
| 04/15/10 | 2 | 1 | 70 | 70 | 71 | 70 | 82 | <u>77</u> | 73 | 106 | 116 | Yes |
| 05/26/10 | 0 | 0 | 54 | 53 | 52 | 63 | 59 | 55 | 55 | 105 | 61 | Yes |
| 05/27/10 | 0 | 0 | 60 | 62 | 71 | <u>73</u> | 68 | 63 | 69 | 40 | 93 | No |
| 06/01/10 | 1 | 1 | 61 | 57 | 72 | 56 | 81 | 58 | 62 | 60 | 114 | No |
| 06/17/10 | 2 | 1 | 55 | 52 | 79 | 59 | 84 | 56 | 75 | 98 | 122 | No |
| 06/18/10 | 0 | 0 | 72 | 57 | 55 | 54 | 69 | 60 | 61 | 115 | 90 | Yes |
| 06/22/10 | 1 | 1 | 67 | 67 | 67 | 64 | 77 | 67 | 66 | 99 | 104 | No |
| 06/23/10 | 0 | 0 | 53 | 47 | 47 | 42 | 56 | 63 | 48 | 105 | 61 | Yes |
| 06/25/10 | 3 | 1 | 61 | 71 | 68 | 77 | 85 | 62 | 76 | 65 | 124 | No |
| 06/26/10 | 0 | 0 | 62 | 56 | 57 | 52 | 67 | 74 | 58 | 114 | 97 | Yes |
| 07/07/10 | 1 | 1 | 74 | 83 | 59 | 66 | 74 | 68 | 59 | 125 | 119 | Yes |
| 07/08/10 | 1 | 1 | 52 | 47 | 59 | 48 | 60 | 76 | 53 | 80 | 101 | No |
| 07/11/10 | 1 | 1 | 65 | 57 | 68 | 64 | 76 | 68 | 64 | 70 | 101 | No |
| 07/14/10 | 1 | 1 | 68 | 54 | 71 | 54 | 81 | 69 | 52 | 111 | 114 | Yes |
| 07/15/10 | 0 | 0 | 71 | 56 | 55 | 57 | 69 | 59 | 62 | 122 | 80 | Yes |
| 07/16/10 | 3 | 1 | 59 | 84 | 55 | 85 | 88 | 58 | 66 | 45 | 132 | No |
| 08/03/10 | 1 | 1 | 71 | 58 | 65 | 58 | 75 | 80 | 66 | 111 | 111 | Yes |
| 08/08/10 | 0 | 0 | 72 | <u>72</u> | 62 | 65 | 73 | 66 | 62 | 90 | 93 | No |
| 08/09/10 | 0 | 0 | 75 | 72 | 60 | 58 | 68 | 68 | 64 | 111 | 100 | Yes |
| 08/10/10 | 4 | 1 | 80 | 73 | 79 | 50 | 89 | 90 | 66 | 119 | 137 | Yes |
| *8/11/10 | 0 | 0 | 59 | 55 | 52 | 48 | 59 | 65 | 49 | 140 | 144 | Yes |
| 08/12/10 | 0 | 0 | 51 | 52 | 68 | 58 | 61 | 51 | 70 | 111 | 84 | Yes |
| 08/13/10 | 2 | 1 | 84 | 70 | 75 | 66 | 96 | 73 | <u>74</u> | 114 | 151 | Yes |
| 08/15/10 | 2 | 1 | 63 | 55 | 72 | 60 | 77 | 78 | 58 | 80 | 106 | No |
| 08/19/10 | 2 | 1 | 73 | 71 | 61 | 82 | 76 | 74 | 60 | 65 | 116 | No |
| 08/20/10 | 0 | 0 | 53 | 58 | 52 | 52 | 58 | 58 | 53 | 104 | 82 | Yes |
| 09/01/10 | 0 | 0 | 59 | 50 | 58 | 52 | 60 | 62 | 59 | 104 | 58 | Yes |
| Totals | 34 | 18 | 3 | 2 | 3 | 3 | 15 | 6 | 2 | | | 17 |

Values in **BOLD/RED** exceed the level of the 2008 ozone standard of 75 ppb (parts-per-billion)

Underlined values are the 4th highest values recorded at each site.

An Air Quality Alert (AQA) is issued when the Air Quality Index (AQI) is forecasted to be greater than 100.

* 8/11/10 AQA was for PM_{2.5}

8-Hour Ozone Exceedances:

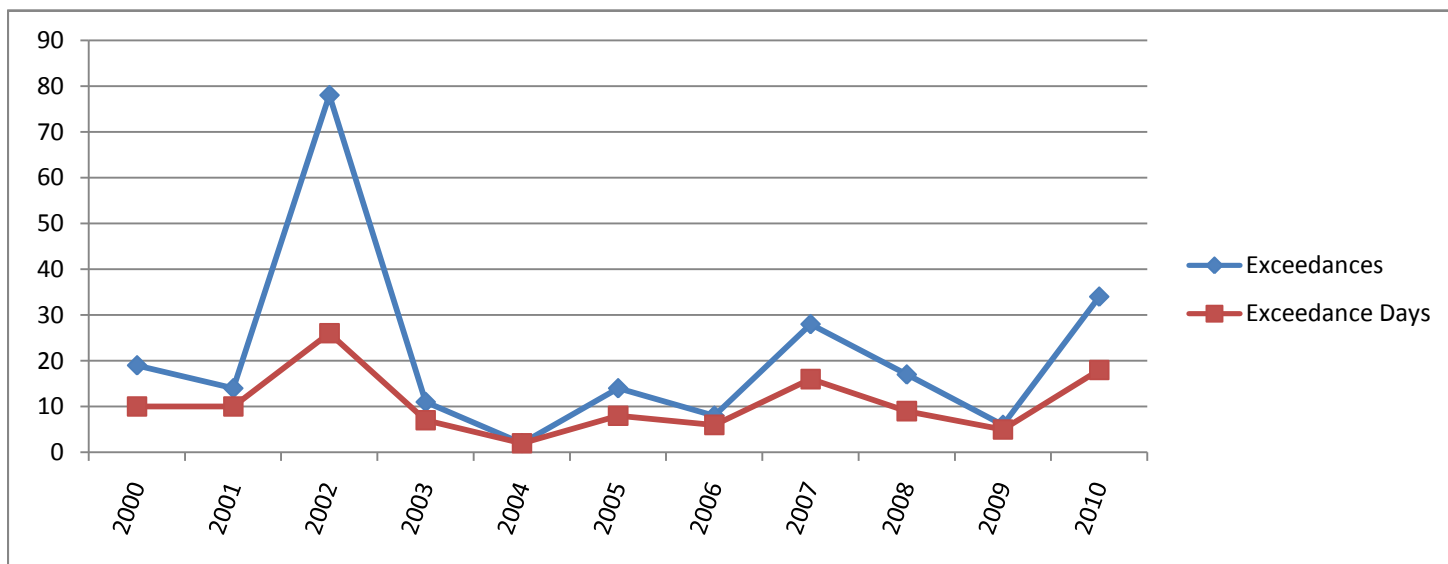
The National Ambient Air Quality Standard for ozone is measured as an 8-hour average. An ozone exceedance occurs when the highest 8-hour average for each day is greater than the NAAQS. For 2000-2007 the NAAQS was 80 ppb and the exceedances reported for that time period are based on that standard. In 2008 the NAAQS was changed to 75 ppb and the exceedances (8-hour average >75 ppb) reported are based on the new standard.

2000-2010 8-Hour Ozone Exceedance Summary

| Year | Charlestown | New Albany | Bates | Watson | *WLKY & Cannons Lane | Buckner | Shepherdsville | Louisville MSA Total | | Jefferson County Total | |
|------|-------------|------------|-------|--------|----------------------|---------|----------------|----------------------|------|------------------------|------|
| | | | | | | | | Exceedances | Days | Exceedances | Days |
| 2000 | 4 | 0 | 5 | 1 | 3 | 4 | 2 | 19 | 10 | 9 | 6 |
| 2001 | 4 | 0 | 2 | 1 | 1 | 4 | 2 | 14 | 10 | 4 | 3 |
| 2002 | 17 | 13 | 4 | 15 | 7 | 12 | 10 | 78 | 26 | 26 | 19 |
| 2003 | 4 | 4 | 1 | 0 | 0 | 2 | 0 | 11 | 7 | 1 | 1 |
| 2004 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 2 | 1 | 1 |
| 2005 | 3 | 2 | 0 | 4 | 1 | 4 | 0 | 14 | 8 | 5 | 4 |
| 2006 | 3 | 1 | 0 | 1 | 0 | 3 | 0 | 8 | 6 | 1 | 1 |
| 2007 | 8 | 3 | 8 | 4 | 2 | 3 | 0 | 28 | 16 | 14 | 11 |
| 2008 | 3 | 3 | 2 | 2 | 1 | 4 | 2 | 17 | 9 | 5 | 5 |
| 2009 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 6 | 5 | 6 | 5 |
| 2010 | 3 | 2 | 3 | 3 | 15 | 6 | 2 | 34 | 18 | 21 | 15 |

* Cannons Lane replaced WLKY in 2010.

Historical Graph of 8-Hour Ozone Exceedances



National Ambient Air Quality Standard for Ozone - 8-Hour Standard:

Attainment of the 8-hour standard for ozone at an individual monitor is achieved when the three-year average of the annual fourth-highest daily maximum (4th maximum) 8-hour average ozone concentration is less than 76 ppb. This three-year average is the design value for that monitor.

2000-2010 8-Hour Ozone 4th Maximums

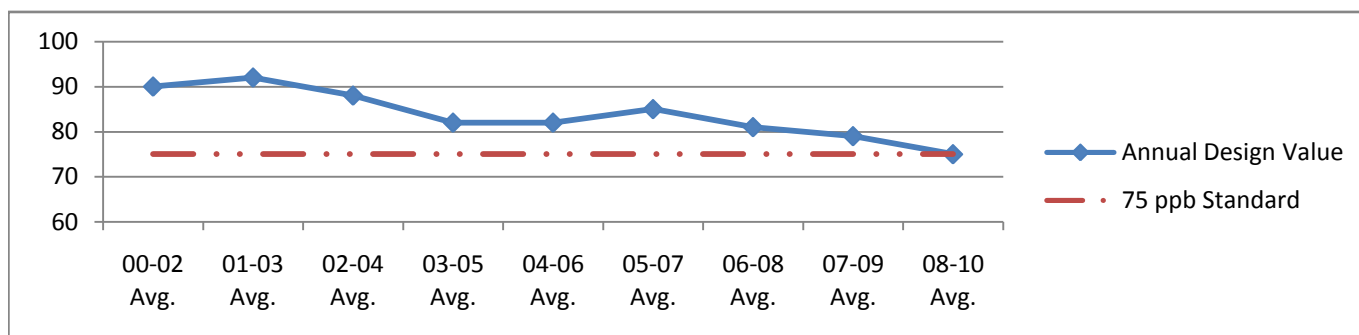
| Year | Louisville MSA | Charlestown | New Albany | Bates | Watson | WLKY & Cannons Lane* | Buckner | Shepherdsville |
|------|----------------|-------------|------------|-------|--------|----------------------|---------|----------------|
| 2000 | 90 | 85 | 77 | 90 | 76 | 84 | 85 | 82 |
| 2001 | 86 | 86 | 76 | 81 | 81 | 77 | 86 | 82 |
| 2002 | 100 | 100 | 97 | 85 | 96 | 88 | 91 | 91 |
| 2003 | 90 | 90 | 86 | 72 | 75 | 73 | 82 | 72 |
| 2004 | 76 | 74 | 71 | 70 | 70 | 68 | 76 | 68 |
| 2005 | 89 | 80 | 80 | 79 | 85 | 74 | 89 | 80 |
| 2006 | 83 | 79 | 76 | 74 | 77 | 67 | 83 | 71 |
| 2007 | 90 | 90 | 82 | 86 | 85 | 79 | 84 | 78 |
| 2008 | 77 | 75 | 75 | 72 | 75 | 68 | 77 | 69 |
| 2009 | 78 | 67 | 63 | 68 | 78 | 65 | 68 | 64 |
| 2010 | 85 | 75 | 72 | 75 | 73 | 85 | 77 | 74 |

*Cannons Lane replaced WLKY in 2010

8-Hour Ozone Design Value Summary

| Year | Louisville MSA | Charlestown | New Albany | Bates | Watson | WLKY & Cannons Lane* | Buckner | Shepherdsville |
|------------|----------------|-------------|------------|-------|--------|----------------------|---------|----------------|
| 00-02 Avg. | 90 | 90 | 83 | 85 | 84 | 83 | 87 | 85 |
| 01-03 Avg. | 92 | 92 | 86 | 79 | 84 | 79 | 86 | 81 |
| 02-04 Avg. | 88 | 88 | 84 | 75 | 80 | 76 | 83 | 77 |
| 03-05 Avg. | 82 | 81 | 79 | 73 | 76 | 71 | 82 | 73 |
| 04-06 Avg. | 82 | 77 | 75 | 74 | 77 | 69 | 82 | 73 |
| 05-07 Avg. | 85 | 83 | 79 | 79 | 82 | 73 | 85 | 76 |
| 06-08 Avg. | 81 | 81 | 77 | 77 | 79 | 71 | 81 | 72 |
| 07-09 Avg. | 79 | 77 | 73 | 75 | 79 | 70 | 76 | 70 |
| 08-10 Avg. | 75 | 72 | 70 | 71 | 75 | 72 | 74 | 69 |

8-Hour Ozone Design Value Trend Chart



**Louisville Metro Air Pollution Control District
Air Monitoring Report for Sulfur Dioxide (SO₂)
August 2010**

On June 2, 2010, EPA strengthened the primary National Ambient Air Quality Standard for SO₂. Specifically, EPA replaced the existing annual (30 ppb) and 24-hour (140 ppb) primary standards with a new 1-hour standard set at 75 ppb. The 1-hour standard was set to better protect public health by reducing exposure to high short-term concentrations of SO₂. The new standard took effect August 23, 2010.

Exceedances of the 1-Hour SO₂ Standard:

An exceedance occurs when a measured 1-hour average is greater than 75 ppb. Since up to twenty-four 1-hour averages are recorded each day, multiple exceedances may occur in one day. However, only the maximum 1-hour average (Daily Max) for each day is used in determining if the area is in compliance with the standard. The table below indicates the number of exceedances and the daily maximums reported thus far this year. The data are subject to further quality assurance checks and are not final.

SO₂ Exceedances 2010

| SO ₂ Exceedances | Fire Arms Training | | Watson Lane Elementary | | Cannons Lane NCore | | New Albany Indiana | | |
|--------------------------------|-----------------------------------|---------|---------------------------|---------|-----------------------|---------|-----------------------|---------|-----------|
| | Date | Exceeds | Daily Max | Exceeds | Daily Max | Exceeds | Daily Max | Exceeds | Daily Max |
| | 01/07/10 | | 7 | 1 | 77 | - | - | | 4 |
| | 02/15/10 | | 20 | 3 | 107 | - | - | | 7 |
| | 03/07/10 | | 15 | | 7 | - | - | 2 | 164 |
| | 03/08/10 | 2 | 117 | | 74 | - | - | | 10 |
| | 03/10/10 | | 6 | | 2 | - | - | 1 | 81 |
| | 03/30/10 | | 25 | 1 | 76 | - | - | | 41 |
| | 04/05/10 | | 19 | 1 | 89 | - | - | | 10 |
| | 04/14/10 | | 24 | | 17 | - | - | 2 | 103 |
| | 05/25/10 | | 9 | | 2 | - | - | 2 | 188 |
| | 05/28/10 | 1 | 123 | | 15 | | 6 | | 4.5 |
| | 05/30/10 | | 19 | | 13 | | 5 | 2 | 123 |
| | 06/07/10 | 2 | 144 | | 23 | | 7 | | 2 |
| | 06/10/10 | | 25 | 1 | 88 | | 45 | | 6 |
| | 06/18/10 | | 30 | | 6 | | 45 | 2 | 166 |
| | 06/26/10 | | 14 | 1 | 103 | | 16 | | 6 |
| | 07/04/10 | | 14 | 1 | 86 | | 6 | | 2 |
| | 07/07/10 | | 23 | | 13 | | 15 | 1 | 112 |
| | 07/12/10 | | 18 | 1 | 96 | | 15 | | 23 |
| | 07/13/10 | | 8 | | 25 | 1 | 91 | | 18 |
| | 07/28/10 | | 3 | 1 | 76 | | 11 | | 4 |
| | 08/01/10 | 1 | 83 | | 15 | | 4 | | 3 |
| | 08/02/10 | | 28 | | 13 | | 6 | 1 | 80 |
| | 08/07/10 | 1 | 93 | | 23 | | 18 | | 8 |
| | 08/08/10 | | 26 | | 21 | | 13 | 2 | 108 |
| | 08/14/10 | | 16 | | 20 | | 12 | 2 | 99 |
| | 09/02/10 | | 25 | 1 | 96 | | 16 | | 9 |
| | Totals/Max | 7 | 144 | 12 | 107 | 1 | 91 | 17 | 188 |
| | 99th Percentile | | 117 | | 96 | | 45 | | 164 |

Attainment of the SO₂ Standard:

Attainment of the new standard is achieved when the 3-year average of the 99th percentile annual distribution of the daily maxima is less than or equal to 75 ppb. Since this value can be calculated from historical data, the chart below indicates those values based on 2004-2010 data.

SO₂ Annual 99th Percentiles and Annual Design Values

| Site Name | Annual 99 th Percentiles (ppb) | | | | | | | Annual Design Values | | | | |
|------------------------|---|------|------|------|------|------|------|----------------------|-----------|-----------|-----------|-----------|
| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 |
| Watson Lane Elementary | 94 | 89 | 96 | 123 | 113 | 116 | 96 | 93.0 | 102.7 | 110.7 | 117.3 | 108.3 |
| Fire Arms Training | 111 | 144 | 138 | 171 | 122 | 96 | 117 | 131.0 | 151.0 | 143.7 | 129.7 | 111.7 |
| *Cannons Lane NCore | - | - | - | - | - | - | 45 | - | - | - | - | 45.0 |
| New Albany Indiana | 174 | 158 | 177 | 194 | 138 | 125 | 164 | 169.7 | 176.3 | 169.7 | 152.3 | 142.3 |

*Sampling at Cannons Lane began 05-26-2010