COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

2006

AMBIENT AIR QUALITY MONITORING REPORT

DIVISION OF AIR QUALITY MONITORING
400 MARKET STREET
HARRISBURG, PA 17101

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List of Acronyms Used in this Report

AIRS	Aerometric Information Retrieval System
AQI	Air Quality Index
AQS	Air Quality System
ATSDR	Agency for Toxic Substances and Disease Registry
BAM	Beta-Attenuation Mass (type of continuous $PM_{2.5}$ sampler)
Be	Beryllium
CBD	Central Business District
CO	Carbon Monoxide
COPAMS	Commonwealth of Pennsylvania Air Monitoring System
DEP	Department of Environmental Protection
EPA	Environmental Protection Agency
FEM	Federal Equivalent Method
FRM	Federal Reference Method
HAPs	Hazardous Air Pollutants
H_2S	Hydrogen Sulfide
HF	Hydrogen Fluoride
IRIS	Integrated Risk Information System
Max	Maximum
MM/DD-HH	Month/Day - Hour
NAAQS	National Ambient Air Quality Standard
NARSTO	North American Research Strategy for Tropospheric Ozone
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NPAP	National Performance Audit Program
O_3	Ozone
PAMS	Photochemical Assessment Monitoring Station
PAQSS	Pennsylvania Air Quality Surveillance System
Pb	Lead
$PM_{2.5}$	Particulate Matter with aerodynamic diameter less than 2.5 micrometers
PM_{10}	Particulate Matter with aerodynamic diameter less than 10 micrometers
ppb	parts per billion
ppbC	parts per billion Carbon
ppbv	parts per billion volume
ppm	parts per million
PSI	Pollutant Standards Index
PSU	Pennsylvania State University
SO_2	Sulfur Dioxide
TSP	Total Suspended Particulate
TEOM	Tapered Element Oscillating Microbalance (type of $PM_{2.5}$ and PM_{10} samplers)
$\mu g/m^3$	micrograms per cubic meter (unit of flow)
VOCs	Volatile Organic Compounds

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EXECUTIVE SUMMARY

The Department of Environmental Protection (DEP) protects the right to clean air for all Pennsylvanians as provided in Article I Section 27 of the Constitution of the Commonwealth of Pennsylvania. DEP's Bureau of Air Quality fulfills this obligation by regulating emissions from thousands of air contamination sources located at facilities such as factories, refineries, landfills, and power plants. Monitoring air quality statewide, assisting companies with compliance, requiring the installation of monitoring equipment, investigating complaints, and taking enforcement action against violators are all part of DEP's powers and duties.

As DEP continues to implement the federal Clean Air Act as Amended in 1990, the study of past and present air quality data remains a crucial component of program planning and air pollution reduction strategies. This database provides the foundation and allows the Department to develop comprehensive strategies to prevent or control the emission of certain air contaminants.

During the past year, notable changes were made by the Environmental Protection Agency (EPA) to lower the 24-hour standard for particulate matter ($PM_{2.5}$), and eliminate the annual standard for particulate matter (PM_{10}). These changes are detailed in the appropriate sections of this report.

Ambient Air Monitoring

The goals of Pennsylvania's ambient air monitoring program are to evaluate compliance with federal and state ambient air quality standards, provide real-time monitoring of air pollution episodes, develop data for trend analysis, support the development and implementation of air quality regulations, and provide information to the public on daily air quality conditions.

DEP monitors air quality in areas having high population density, high levels of expected contaminants, or a combination of both factors. The majority of the monitoring takes place in the 13 air basins of the Commonwealth. Air basins are geographic areas, usually valleys, where air tends to stagnate.

DEP does not generally monitor air quality in Allegheny and Philadelphia counties. Monitoring in these areas is performed by independent county health agencies. An exception exists in Allegheny County, where DEP has an ambient air monitoring site as part of an exhibit at the Carnegie Science Center in Pittsburgh.

Air Quality Index

An Air Quality Index (AQI) is published daily for all sites in Pennsylvania as a means of reporting air quality to the general public. The AQI reports levels of six common air contaminants -- carbon monoxide, sulfur dioxide, particulate matter (PM_{10}), particulate matter ($PM_{2.5}$), ozone, and nitrogen dioxide. It was developed by the U.S. Environmental Protection Agency (EPA) to standardize air pollution ratings. Real time monitoring and current AQI information is also available on DEP's website at http://www.depweb.state.pa.us/ (DEP Keyword: Air Quality Index, Air Index).

Quality Assurance Program

DEP's Bureau of Air Quality conducts regularly scheduled performance audits and precision checks on the air monitoring equipment. Quarterly performance audits are conducted to assess data accuracy on carbon monoxide, sulfur dioxide, ozone, total suspended particulate matter (TSP), PM_{10} suspended particulate matter, $PM_{2.5}$ suspended particulate matter, oxides of nitrogen, nitrogen dioxide, and lead monitoring systems.

Overview of Air Quality Data

Data collected by DEP can generally be divided into two groups: particulate matter and gaseous pollutants. DEP monitors health-based National Ambient Air Quality Standards (NAAQS) as well as several Pennsylvania ambient air quality standards for contaminants such as beryllium and hydrogen sulfide.

For additional information about Pennsylvania's air quality programs, visit the DEP website http://www.depweb.state.pa.us/ (DEP Keyword: Air, Air Pollution, Air Quality, Clean Air).

Total Suspended Particulate, PM_{10} and $PM_{2.5}$ Particulate Matter

Particulate matter is solid or liquid matter formed by smoke, dust, fly ash, or condensing vapors that can be suspended in the air for long periods of time. Particulate emissions result primarily from industrial processes and fuel combustion. The smaller particles can be breathed deeply into the lungs where they can aggravate the tissues, cause respiratory ailments or carry other pollutants into the lungs.

In July 1987, the federal ambient air quality standard for particulate matter was revised to reflect the adverse health effects of inhalable coarse particles - particulate matter less than 10 microns in size (PM_{10}). PM_{10} measurements replaced the total suspended particulate (TSP) standard because many of the larger particles measured in TSP do not penetrate the lungs and have little health effect. PM_{10} measurements appear to represent all of the particulate emissions from transportation sources and most of the emissions in the other traditional categories. Emphasizing the health threat posed smaller sized partlicles, in July 1997 EPA strengthened the standard for particulate matter by adding a standard for fine particles – particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$). On December 18, 2006, the NAAQS PM standards where revised further. Citing the lack of evidence linking health problems to long-term exposure to inhalable coarse particle pollution, EPA revoked the annual PM_{10} standard, while retaining the 24-hour standard. In addition, the $PM_{2.5}$ 24-hour standard was lowered to 35 $\mu g/m^3$. However, the $PM_{2.5}$ annual standard was left at 15 $\mu g/m^3$.

The annual mean composite of all areas of the Commonwealth has demonstrated a 24 percent improvement in TSP levels over the last 10 years. There were no sites in the Commonwealth that exceeded the former annual or 24-hour air quality standard for TSP in 2006.

Average PM_{10} levels have improved 20 percent over the last 10 years. There were no sites in the Commonwealth that exceeded the ambient air quality standards for PM_{10} in 2006.

With only eight complete years of $PM_{2.5}$ data collected, no trend information is available. However, improvements were seen during the past year. The level of the $PM_{2.5}$ annual mean air quality standard (15 $\mu g/m^3$) was not exceeded at any of the Federal Reference Method (FRM) monitoring sites in 2006; however the 24-hour maximum level of 35 $\mu g/m^3$ was exceeded at all twenty two of the FRM monitoring sites during the year.

Sulfates

The atmosphere contains two types of sulfates: primary and secondary. Primary sulfates are emitted directly into the atmosphere from industrial processes. Secondary sulfates are formed in the atmosphere from other sulfur-containing compounds under mechanisms that involve photochemical processes.

Studies have shown significant correlation between high sulfate levels and illness. Sulfates also reduce visibility and contribute to acid rain. The high level of sulfates during the summer is due to sulfate formation in sunlight. Sulfates continue to be a problem in Pennsylvania, though improvements have been noted in the past few years.

There are currently no federal or state air quality standards for sulfates.

Lead

Lead is a metal that is highly toxic when ingested or inhaled. It is a suspected carcinogen of the lungs and kidneys and has adverse effects on cardiovascular, nervous and renal systems. Lead is emitted into the atmosphere by industrial processes.

Lead levels in the Commonwealth have met the federal standards for at least the past 10 years. Since lead was removed from gasoline, relatively few improvements now are seen in air basins that have no lead industrial sources. In fact, there has been a slight increase in a few areas.

Nitrates

Nitrates are particulate compounds that form in the atmosphere from the oxidation of nitrogen gases emitted from fuel combustion sources. They represent a significant portion of the finer particulate that can be inhaled into the lungs and which affect visibility.

Levels of nitrates are relatively constant across the Commonwealth. There are no federal or state air quality standards for nitrates.

Sulfur Dioxide

Sulfur dioxide is a gaseous pollutant that is emitted primarily by industrial furnaces or power plants burning coal or oil containing sulfur. Health problems caused by high exposures to sulfur dioxide include impairment of breathing and respiratory illnesses. Sulfur dioxide damages trees, plants and agricultural crops and is a precursor to acid rain.

All sites met the air quality standards for sulfur dioxide. In general, sulfur dioxide levels have improved slightly over the past 10 years.

The 2006 averages continue to be below 50 percent of the annual ambient air quality standard.

Ground-Level Ozone

Ground-level ozone, or photochemical smog, is not emitted into the atmosphere as ozone, but rather is formed by chemical reactions between other air pollutants. The primary pollutants involved in these reactions -- volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) -- create ozone in the presence of sunlight. Ozone is a strong irritant to the eyes and upper respiratory system and also damages crops.

Ground-level ozone levels fluctuate depending on weather conditions. Ozone levels are consistently higher during the summer months, correlating with the ozone monitoring season (April 1 to Oct. 31). Since 1997, daily maximum 1-hour ozone levels have improved so that now all of the counties in Pennsylvania are meeting the former air quality standard, which was revoked by EPA on June 15, 2005. The overall improvements that have been seen in ozone concentrations can be attributed in part to controls on VOCs and gasoline volatility. The former 1-hour standard of 125 parts per billion (ppb) was not exceeded in 2006, but the 8-hour daily maximum level of 84 ppb was exceeded on 14 days during the year.

Oxides of Nitrogen

Oxides of nitrogen (NO_x) are a class of pollutants formed when fuel is burned at a very high temperature. They are predominately emitted from vehicles. Although there is no air quality standard for NO_x, the level of this pollutant is of concern due to its role in the formation of ground-level ozone and acid rain.

Nitrogen Dioxide

Nitrogen dioxide is a highly toxic, reddish brown gas that is created primarily from fuel combustion in industrial sources and vehicles. It creates an odorous haze that causes eye and sinus irritation, blocks natural sunlight and reduces visibility. It can severely irritate respiratory illnesses. Nitrogen dioxide contributes to the creation of acid rain and adversely impacts forests and other ecosystems.

No sites in Pennsylvania exceeded the annual air quality standard for nitrogen dioxide in 2006. Nitrogen dioxide levels have improved almost 30 percent on average over the last 10 years.

Carbon Monoxide

Carbon monoxide is a poisonous gas that, when introduced into the bloodstream, inhibits the delivery of oxygen to body tissue. Exposure creates a severe health risk to individuals with cardiovascular disease. The largest man-made source of carbon monoxide is motor vehicle emissions. This pollutant is a health concern in areas of high traffic density or near industrial sources.

All DEP sites in the Commonwealth have met the federal air quality standards for carbon monoxide for at least the last 10 years. Carbon monoxide levels have seen a long-term improvement of 52 percent from levels in 1997.

Acid Rain

The DEP, under cooperative agreement with the Pennsylvania State University, has maintained the Pennsylvania Atmospheric Deposition Monitoring Network (PADMN) since 1981. The purpose of this program is to determine how much acid rain is falling in Pennsylvania for environmental assessment purposes. Parameters monitored include pH, sulfate, nitrate, ammonium, chloride, calcium, magnesium, potassium, sodium, and specific conductance. Starting in 1997, measurements of the amount of mercury in rain were included as part of the National Atmospheric Deposition Program – Mercury Deposition Network (NADP – MDN).

Eighteen acid rain monitoring sites are currently in operation in Pennsylvania. Included in this network are eleven acid rain and seven mercury monitoring sites supported by the DEP. The remaining sites are National Atmospheric Deposition Program/ National Trends Network (NADP/NTN) sites and are supported by various federal agencies.

The annual Acid Rain Report can be found on the web at the following address: http://www.depweb.state.pa.us/ (DEP Keyword: Acid Rain)

INTRODUCTION

The goals of the ambient air monitoring program in Pennsylvania are to determine compliance with federal and state ambient air quality standards, provide real-time monitoring of air pollution episodes, provide data for trend analysis, evaluate regulations and planning, and provide public information daily on air quality.

Three agencies conduct air quality monitoring to evaluate compliance with air quality standards in Pennsylvania: DEP, the Allegheny County Health Department, and the Philadelphia Department of Health Air Management Services.

This report contains summaries of the air quality data collected by DEP's Bureau of Air Quality during the 2006 calendar year. Data from Philadelphia or Allegheny counties can be obtained by contacting those agencies directly. Mailing addresses and telephone numbers for all three agencies are listed in Appendix B.

The monitoring strategy of DEP places monitors in areas having high population density and/or high levels of contaminants. The majority of all monitoring efforts take place in the "air basins" of the Commonwealth. These "air basins" are defined in 25 Pa. Code § 121.1 and consist of the following geographical areas:

- Allegheny County Air Basin
- Allentown - Bethlehem - Easton Air Basin
- Erie Air Basin
- Harrisburg Air Basin
- Johnstown Air Basin
- Lancaster Air Basin
- Lower Beaver Valley Air Basin
- Monongahela Valley Air Basin
- Reading Air Basin
- Scranton, Wilkes-Barre Air Basin
- Southeast Pennsylvania Air Basin
- Upper Beaver Valley Air Basin
- York Air Basin

Air monitoring surveillance is conducted in the 13 air basins. The Allegheny County Health Department conducts the majority of the air quality monitoring in the Allegheny County Air Basin. The Philadelphia Department of Public Health, Air Management Services, which is located in the Southeast Pennsylvania Air Basin, conducts air monitoring only for the Philadelphia County portion of the air basin. In addition to the aforementioned 13 air basins, DEP conducts surveillance in three non-air basin areas: Altoona, Montoursville, and Farrell. DEP also performs monitoring in Allegheny County at the Carnegie Science Center in Pittsburgh as part of an air quality exhibit.

DEP operates two air monitoring networks in the Commonwealth: the Pennsylvania Air Quality Surveillance System (PAQSS) for high volume particulate sampling and the Commonwealth of Pennsylvania Air Monitoring System (COPAMS) for continuous pollutant sampling.

In July 1997, EPA revised the primary standard for particulate matter by adding standards for fine particulates (particulates less than 2.5 micrometers in diameter – $PM_{2.5}$). The increased resources needed to implement and operate the $PM_{2.5}$ monitors resulted in significant cuts to the PAQSS network. The remaining sites were chosen to support needed lead monitoring. The 2006 total suspended particulate network consists of eight discrete monitoring sites. Each site samples total suspended particulate matter (TSP) on a schedule of once every six days. Selected TSP filters are also analyzed for sulfates, nitrates, and lead. The PM_{10} (particulate matter of 10 microns or less in size) monitoring network consists of four discrete sampling sites and 19 continuous monitoring sites. No additional analysis is performed on the PM_{10} sample filters. The 2006 $PM_{2.5}$ monitoring network consists of 21 $PM_{2.5}$ discrete monitoring sites along with 12 $PM_{2.5}$ continuous monitoring sites. Additionally, $PM_{2.5}$ samples are collected for constituent analysis from 13 speciation sites.

The COPAMS network is a totally automatic, microprocessor-controlled system that consists of 51 remote stations throughout the Commonwealth. Dial-up telephone lines used by a central computer system collect the raw data from these remote stations every hour. Each station measures selected parameters such as sulfur dioxide, hydrogen sulfide, ozone, carbon monoxide, nitrogen dioxide, oxides of nitrogen, continuous PM_{10}, continuous $PM_{2.5}$, wind speed, wind direction (vector averaged and sigma theta), ambient temperature, and solar radiation.

The sampling locations for DEP's air monitoring sites and the pollutants monitored at each site are listed in Appendix C.

In addition to the normal air monitoring surveillance conducted by DEP, two cooperative monitoring efforts continued this year. DEP continued with a cooperative agreement with Pennsylvania State University's (PSU) Department of Plant Pathology to conduct ozone monitoring in four remote areas. The collected ozone data is used to determine the extent of detrimental effects to forests and crops and assess ozone transport in rural Pennsylvania. The sites are located in the Moshannon State Forest, Clearfield County; near Gleason, Tioga County; Biglerville, Adams County and State College, Centre County.

CHAPTER 1 - Air Quality Standards

One of the primary goals of the ambient air monitoring program is to obtain data to compare against air quality standards. Pennsylvania has adopted and incorporated by reference all of the National Ambient Air Quality Standards (NAAQS), as well as several state ambient air quality standards. These standards, designed to protect the public health and welfare, are shown in Tables 1-1 and 1-2.

There are two types of NAAQS standards: primary and secondary. Primary standards protect against adverse health effects, while secondary standards protect against welfare effects such as damage to crops, vegetation and buildings, and decreased visibility.

Table 1-1. National Ambient Air Quality Standards (NAAQS)

	Primary (Health Related)		Secondary (Welfare Related)	
Pollutant	**Type of Average**	**Standard Level Concentration**	**Type of Average**	**Standard Level Concentration**
Carbon Monoxide	8-hour Running Mean (not to be exceeded more than once per year)	9 ppm	No Secondary Standard	
	1-hour (not to be exceeded more than once per year)	35 ppm	No Secondary Standard	
Lead	Maximum Quarterly Average	1.5 $\mu g/m^3$	Same as Primary Standard	
Nitrogen Dioxide	Annual Arithmetic Mean	0.053 ppm	Same as Primary Standard	
Ozone	Maximum Daily 1-hour Average This standard was generally revoked June 15, 2005, and remains in effect only in limited, 8-hour non-attainment areas, as determined by the EPA.	0.12 ppm	Same as Primary Standard	
	Fourth-Highest Daily Maximum 8-hour Running Mean (based on 3- year average)	0.08 ppm	Same as Primary Standard	
Particulate Matter	Annual Arithmetic Mean (based on 3-year average) This standard was revoked effective December 18, 2006.	50 $\mu g/m^3$	Same as Primary Standard	
PM_{10}	24-hour (not to be exceeded more than once per year)	150 $\mu g/m^3$	Same as Primary Standard	
Particulate Matter	Annual Arithmetic Mean (based on 3-year average)	15.0 $\mu g/m^3$	Same as Primary Standard	
$PM_{2.5}$	24-hour (based on 3 year average of 98th percentile) This standard was revised to 35 $\mu g/m^3$ effective December 18, 2006.	65 $\mu g/m^3$	Same as Primary Standard	
Sulfur Dioxide	Annual Arithmetic Mean	0.030 ppm	3-hour Block Average (not to be exceeded more than once per year)	0.5 ppm
	24-hour Block Average (not to be exceeded more than once per year)	0.14 ppm		

Table 1-2. Pennsylvania Ambient Air Quality Standards

Pollutant	Type of Average	Standard Level Concentration
Beryllium	30-day	0.01 $\mu g/m^3$
Fluorides (total soluble, as HF)	24-hour	5 $\mu g/m^3$
Hydrogen Sulfide	24-hour 1-hour	0.005 ppm 0.1 ppm
Settled Particulate (Total)	30-day 1-year	43 tons/$mile^2$/month 23 tons/$mile^2$/month

CHAPTER 2 - Air Quality Trends and Comparisons

Particulate Sampling

Total Suspended Particulate Matter

With the monitoring for $PM_{2.5}$ particulate matter being labor intensive, DEP reduced the number of sites monitoring for total suspended particulate matter in 1999 since no air quality standard exists. The TSP monitoring sites that remain were chosen for other needs, such as lead monitoring.

Total suspended particulates (TSP) are the solid or liquid matter in air. Particles vary in size and may remain suspended in the air from a few seconds to several months. Sources of particulate emissions include coal-burning power plants, industrial processes, mining operations, municipal waste incinerators and fuel combustion. They also are produced by natural sources such as forest fires and volcanoes. The smaller particles are breathed deeply into the lungs, where they can aggravate or cause respiratory ailments. These smaller particles can also carry other pollutants into the lungs.

The federal ambient air quality standard for particulate matter was revised in 1987 to reflect the adverse health effects of smaller particulate matter less than 10 microns in size (PM_{10}). There is no federal or state air quality standard for TSP.

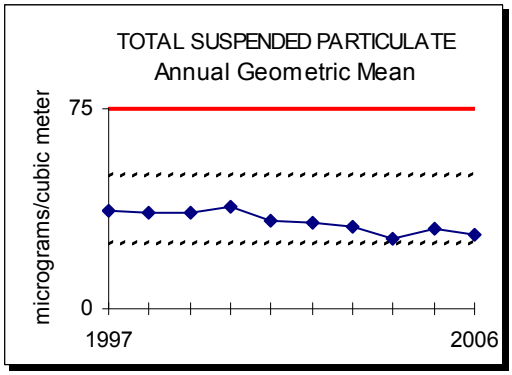


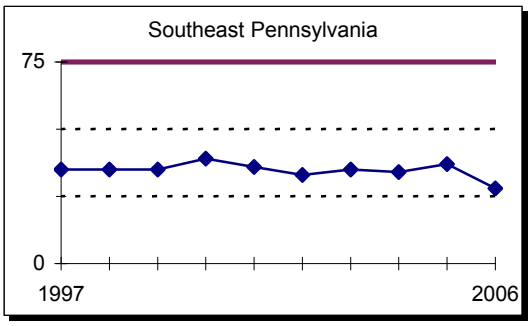
Figure 2-1. Trend in annual geometric mean TSP concentrations, 1997-2006

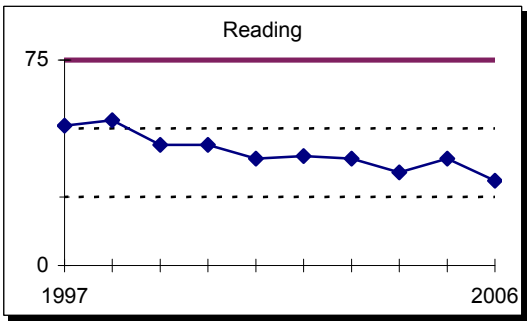
Figure 2-1 shows a decrease in annual geometric mean TSP concentrations. In 1997, the statewide average concentration was 37 micrograms per cubic meter ($\mu g/m^3$) and in 2006 the statewide average concentration was 28 micrograms per cubic meter ($\mu g/m^3$), representing a statewide decrease of 24% for this period. The solid line represents the former annual primary air quality standard of 75 micrograms per cubic meter ($\mu g/m^3$).

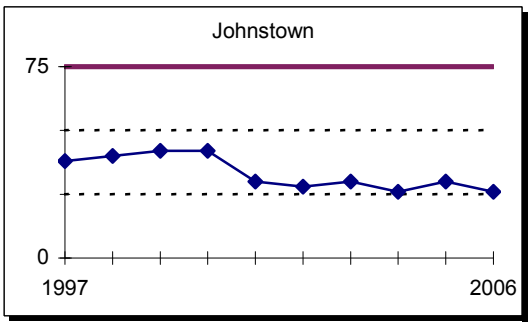
The 2006 calendar year TSP summary is contained in Appendix A, Table A-1. There were no sites in the Commonwealth that exceeded the former annual or 24-hour primary air quality standards in 2006. For comparison to the PM_{10} annual air quality standard, the TSP annual arithmetic mean was calculated by averaging the four quarterly arithmetic means.

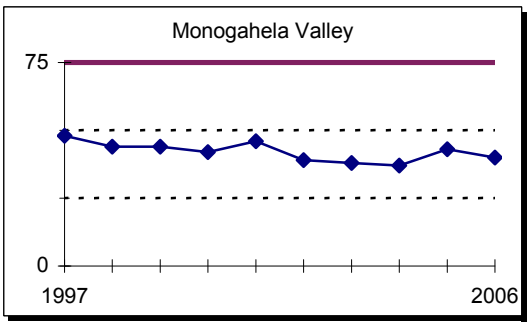
Figure 2-2, located on the following page, shows the TSP trends over the last 10 years in various areas of the Commonwealth where monitoring remains. The graphs of the air basin's annual geometric means consist of all stations that were operated during that year and which had at least 30 samples taken. Thus, stations that were moved or discontinued in the past are still included in the 10-year trend. The solid line represents the former annual primary air quality standard of 75 $\mu g/m^3$. The historical data illustrated in Figure 2-2 are contained in Appendix A, Table A-2. This table lists the annual geometric means over the last 10 years for each site monitored in 2006. The annual mean is shown if at least 30 samples were collected that year.

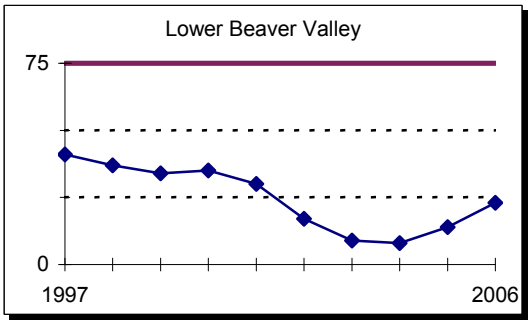
Figure 2-2. TSP Trends in Pennsylvania 1997 to 2006
Annual Geometric Means (micrograms per cubic meter)











Former Annual TSP National Ambient Air Quality Standard was 75 micrograms per cubic meter

Sulfate and Nitrate Particulate Matter

With the monitoring for $PM_{2.5}$ particulate matter being labor intensive, DEP reduced the number of sites monitoring for total suspended particulate matter in 1999 since no air quality standard exists. As a result, the number of sites with filter analysis for sulfates and nitrates was also reduced.

Sulfate particulate matter in the atmosphere is composed of two types: primary and secondary. Primary sulfates are emitted directly into the atmosphere from industrial processes. Secondary sulfates are formed in the atmosphere from other sulfur-containing compounds under mechanisms that involve photochemical processes.

Studies have shown a significant correlation between high sulfate levels and increased absences from work and school because of illness. Sulfates are also of interest due to their effects of reducing visibility and contributing to acid rain.

Pennsylvania's ambient air quality sulfate standard was repealed since it was more stringent than federal regulations. There are no short- or long-term air quality standards for sulfates. Slight improvements in sulfate levels have been noted in the past few years; however, they continue to be a concern across Pennsylvania.

The 2006 sulfate summary is contained in Appendix A, Table A-3. The large number of high sulfate levels during the summer is caused by the relationship between sulfate formation and photochemical processes. The maximum values will occur at the majority of sites from May to September.

Nitrates are particulate compounds that are usually formed in the atmosphere from the oxidation of oxides of nitrogen gases. They are of interest since they represent a significant portion of the finer particulates which can be inhaled into the lungs and which have a great impact on visibility. Nitrates are also being studied to determine their impact on acid precipitation.

Appendix A, Table A-4 summarizes nitrate data collected during 2006. As seen from the annual means, the levels of nitrates in the Commonwealth are relatively constant from area to area.

There are no long-term or short-term air quality standards for nitrates.

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Lead

Lead is a highly toxic metal when ingested or inhaled. It is a suspected carcinogen of the lungs and kidneys and has adverse effects on the cardiovascular, nervous, and renal systems. Lead is emitted to the atmosphere by vehicles burning leaded fuel and from certain industrial processes, primarily battery manufacturers and lead smelters. As a result of the reduction in lead in gasoline, metal processing is now the major source of lead emissions.

Lead concentrations for 1997 to 2006 are represented in Figure 2-3 by the maximum quarterly mean during the year for all DEP monitors across the state. After dramatic reductions seen in the late 1970s to early 1980s due to the implementation of lead-free gasoline, lead concentrations leveled off. Figure 2-3 indicates that the maximum quarterly lead concentrations continue to remain well below the air quality standard over the past 10 years even though source-oriented sites dominate the data. The solid line represents the quarterly mean air quality standard of 1.5 micrograms per cubic meter ($\mu g/m^3$).

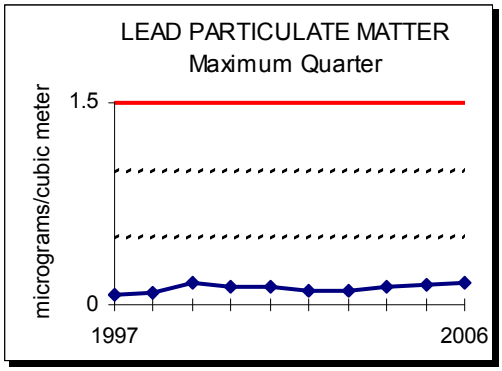


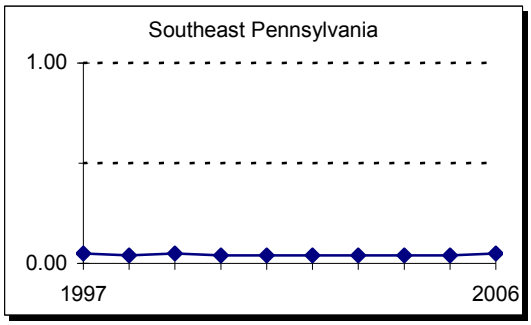
Figure 2-3. Trend in maximum quarterly average lead concentrations (including source-oriented sites), 1997-2006.

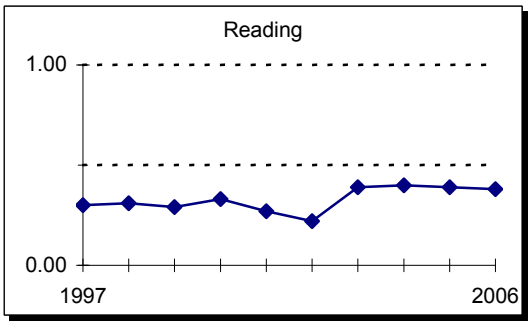
Lead trends for the individual areas in the state are shown in Figure 2-4, located on the following page, for 1997 to 2006.

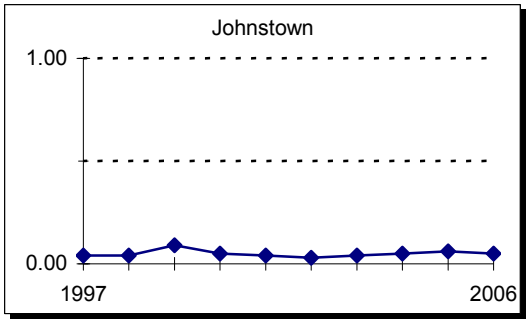
The particulate lead standard was not exceeded at any monitoring site in 2006, including source-oriented sites. Quarterly averages for all stations that monitored lead in 2006 are shown in Appendix A, Table A-5, along with the number of samples taken in each quarter, the annual arithmetic mean, and the total number of samples for the year.

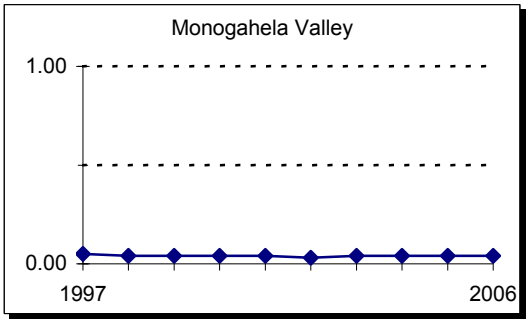
Lead historical trend data is presented in Appendix A, Table A-6 for 1997 to 2006. The table contains the maximum quarterly mean for each year. Trend data is shown for all sites that operated in 2006. The quarterly mean is shown if at least 30 samples were collected during the year. No current monitoring site has exceeded the air quality standard for at least the last 10 years. Higher lead levels recorded at sites located in Laureldale (Reading Air basin) and Lyons are due to the influence of lead point sources close to the monitoring sites, although these sites are well below the air quality standard.

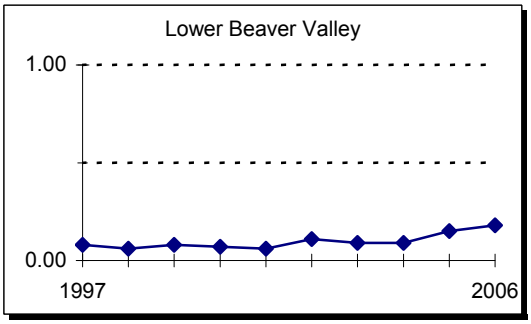
Figure 2-4. Lead Particulate Trends in Pennsylvania 1997 to 2006
Maximum Quarterly Means (micrograms per cubic meter)

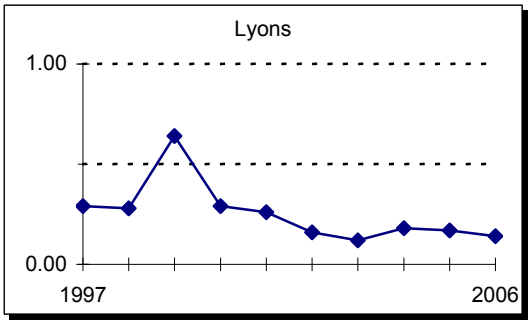


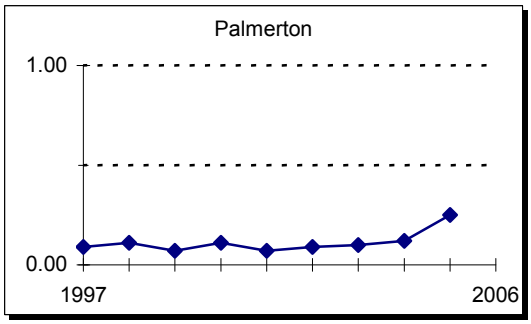












Lead National Ambient Air Quality Standard is a quarterly average of 1.5 micrograms per cubic meter

PM_{10} Particulate Matter

Particulate matter (PM) is solid matter or liquid droplets from smoke, dust, fly ash, or condensing vapors that can be suspended in the air for long periods of time. Particulate matter in air with aerodynamic diameters less than 10 micrometers is PM_{10}. PM_{10} has replaced the total suspended particulate (TSP) standards because many of the larger particles included in the TSP measurement (up to 45 micrometers) do not penetrate into the lungs and have very little effect on health. Consequently, the PM_{10} measurement is believed to be a better indicator of actual health risks. On December 18, 2006, along with lowering the 24-hour $PM_{2.5}$ standard, EPA also revoked the annual PM_{10} standard.

PM_{10} appears to represent essentially all of the particulate emissions from transportation sources and most of the emissions in the other traditional categories (coal-burning power plants, steel mills, mining operations, etc). The standard for PM_{10} was adopted in July 1987. On July 18, 1997, EPA revised the particulate matter standards by adding new standards for $PM_{2.5}$ (particles less than or equal to 2.5 micrometers).

The PM_{10} concentrations are measured using both discrete (single sample) monitors that collect particulate matter on a filter for 24 hours and continuous real-time instruments. The continuous TEOM monitor is a gravimetric instrument that draws ambient air through a filter, constantly weighing the filter and calculating real-time PM_{10} concentrations. The analyzer reports 1-hour data, which are then used to calculate daily 24-hour averages (midnight to midnight), for comparison to the ambient air quality standard.

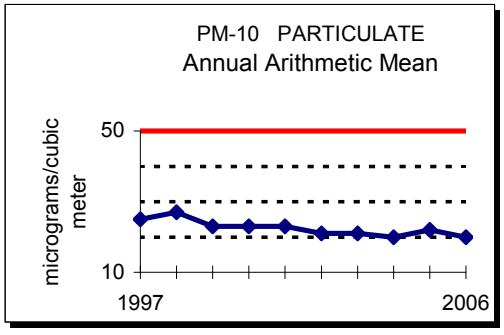


Figure 2-5. Trend in annual mean PM_{10} concentration, 1997-2006.

Figure 2-5 is a graph of the historical statewide PM_{10} trend from 1997 to 2006. Because of an EPA policy change, data prior to 1998-99 is reported in units corrected to standard conditions while data since 1998-99 is corrected to local conditions. In 1997, the statewide average concentration was 25 micrograms per cubic meter ($\mu g/m^3$) and in 2006 the statewide average concentration was 20 micrograms per cubic meter ($\mu g/m^3$), representing a statewide decrease of 20% for this period.

The map in Figure 2-6 shows the range of PM_{10} annual mean levels in the different counties across the Commonwealth where monitoring is performed. When there are multiple sites in the county, the annual mean is the highest reading of these sites. Only sites that have monitored 50 percent of the time during 2006 are included in this figure. All counties monitored by DEP are in attainment of the former annual PM_{10} NAAQS. The map in Figure 2-7 displays the highest second maximum 24-hour PM_{10} by county in 2006. All counties monitored by DEP are in attainment of the 24-hour PM_{10} standard.

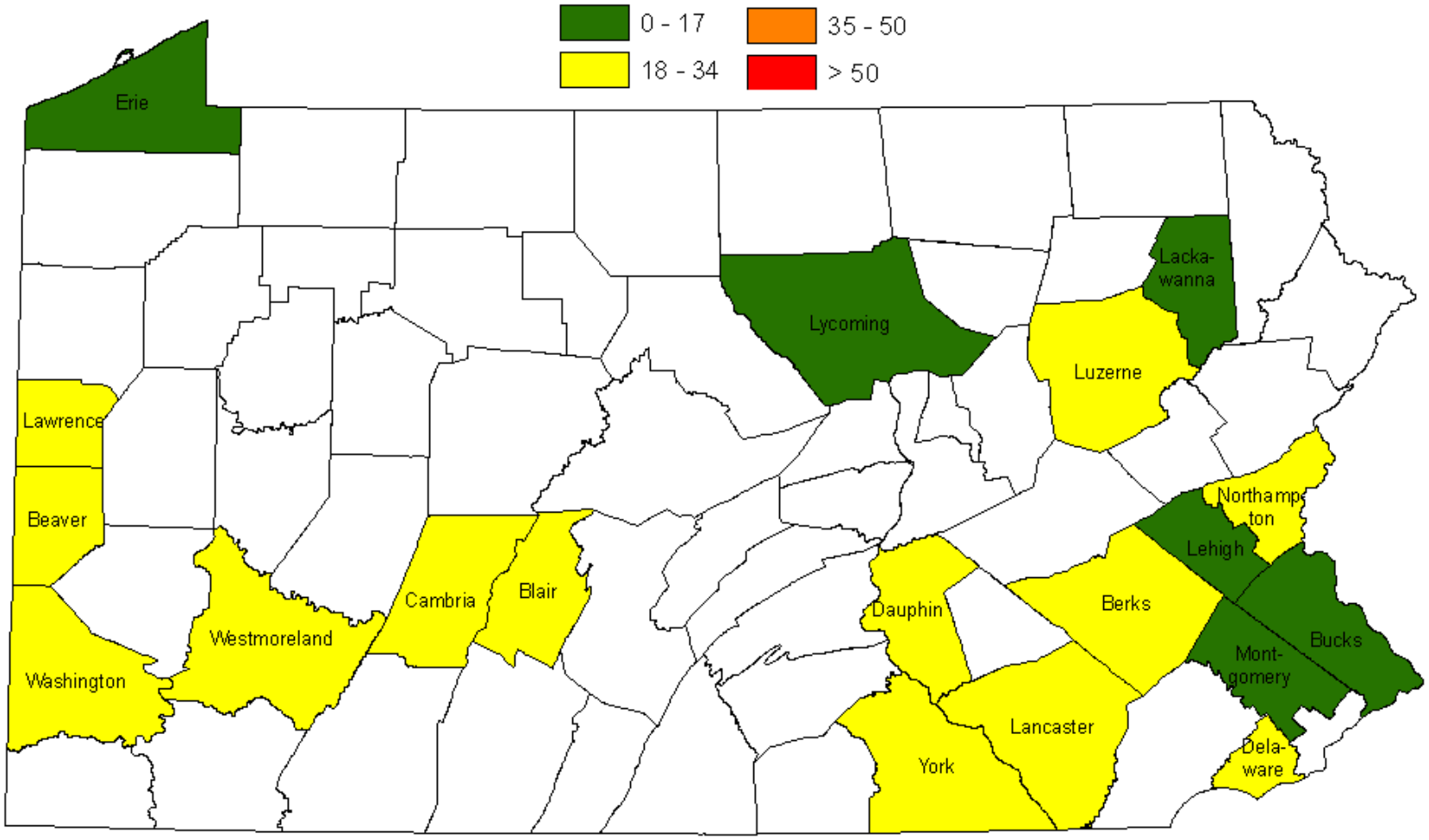
PM_{10} trends for the individual areas of the state are shown in Figure 2-8 for 1997 to 2006. The air basin or area averages consist of all stations that were operated during that year and had at least 30 discrete samples or 50 percent valid continuous data. PM_{10} levels have remained fairly constant over this period with an average 5 percent decrease in levels over the last five years. The apparent dramatic improvement shown in the Scranton-Wilkes Barre air basin for 1999 may be due to the lack of sampling data and should not be viewed as representative of the particulate levels. The solid line represents the former annual air quality standard of 50 micrograms per cubic meter ($\mu g/m^3$).

The 2006 PM_{10} data summary appears in Appendix A, Table A-7. Historical trend data for each site monitored in 2006 is shown in Appendix A, Table A-8. This table lists the annual arithmetic means and second maximum 24-hour mean over the last 10 years for each site that monitored in 2006 with at least 50 percent data completeness.

Figure 2-6. PM-10 Concentrations

Annual Means (Average by County, for 2006)

(Micrograms per Cubic Meter)

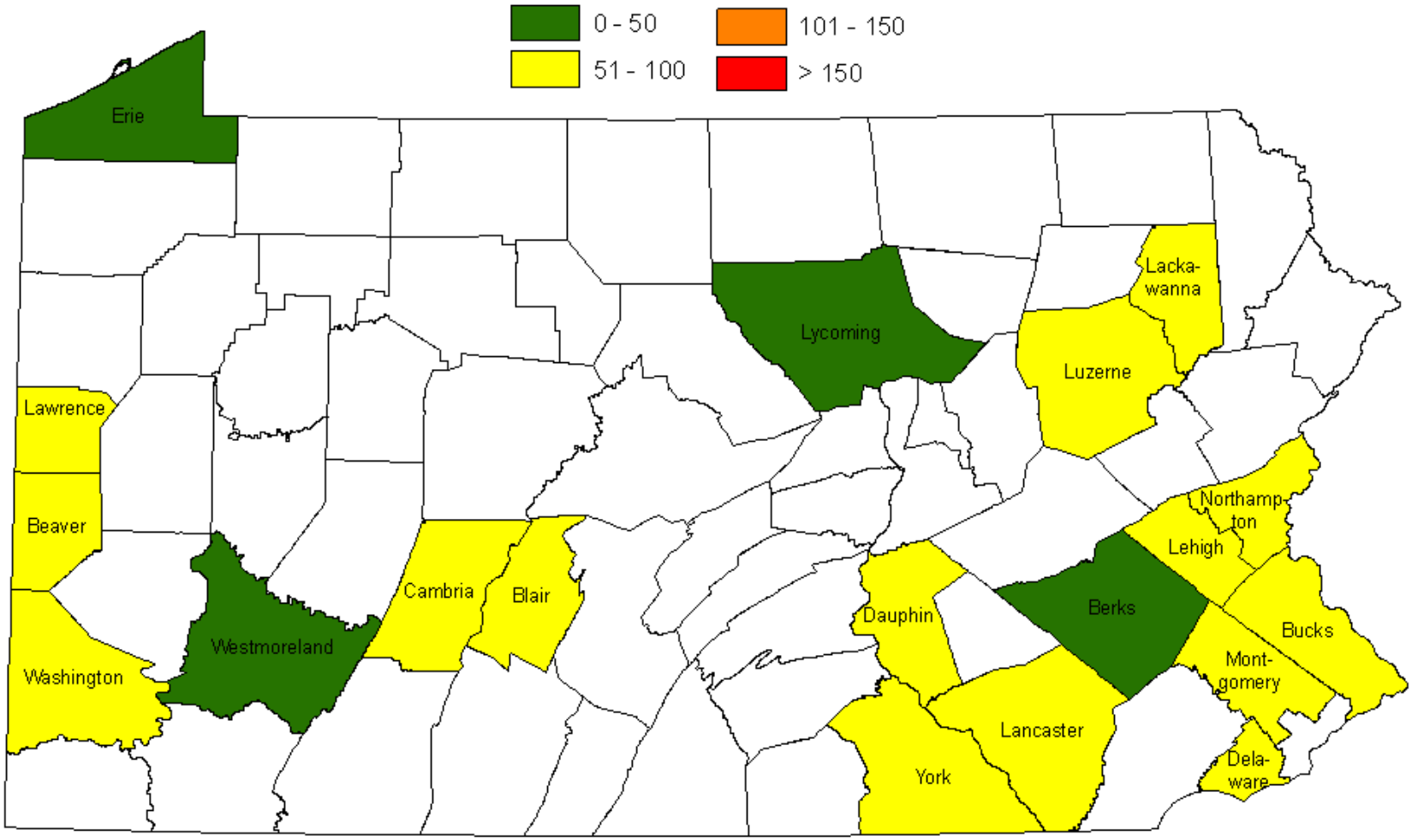


Primary and Secondary National Ambient Air Quality Standard for PM-10
Former Annual Mean = 50 micrograms per cubic meter
(Data are displayed for single calendar year, but the standard is based on a 3-year average)

Figure 2-7. PM-10 Concentrations

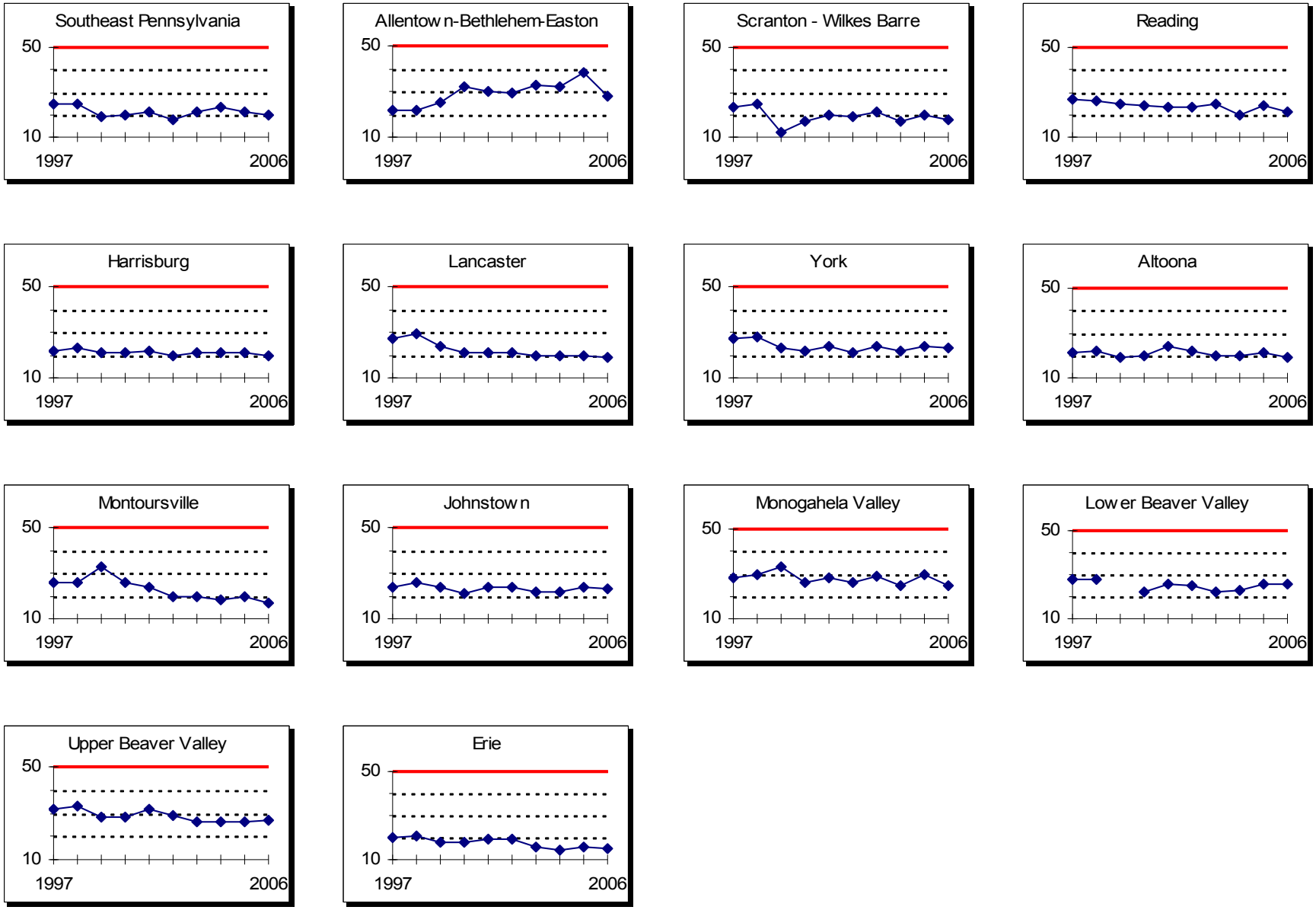
Highest Second Maximum 24-Hour Mean (by County, for 2006)

(Micrograms per Cubic Meter)



Primary and Secondary National Ambient Air Quality Standard for PM-10
24-Hour Mean = 150 micrograms per cubic meter (not to be exceeded more than once per year)

Figure 2-8. PM-10 Trends in Pennsylvania 1997 to 2006
Annual Arithmetic Means (micrograms per cubic meter)



Former PM-10 Annual National Ambient Air Quality Standard is 50 micrograms per cubic meter

$PM_{2.5}$ Particulate Matter

Particulate matter (PM) is the general term used for a mixture of solid particles and liquid droplets found in the air. These particles, which come in a wide range of sizes, may be emitted directly by a source or formed in the atmosphere. Fine particles are those that are less than 2.5 micrometers in diameter ($PM_{2.5}$). Fine particles can accumulate in the respiratory system and are associated with numerous adverse health effects including decreased lung function and increased respiratory symptoms and disease. Sensitive groups that appear to be at greatest risk include the elderly, individuals with cardiopulmonary disease such as asthma, and children. Particulate matter also can cause adverse impacts to the environment. $PM_{2.5}$ is the major cause of reduced visibility in parts of the United States. Other environmental impacts occur when particles deposit onto soil, plants, water, or man-made materials such as monuments or statues.

Because current scientific evidence points strongly to $PM_{2.5}$ significantly affecting human health, EPA lowered the standard for 24 hour levels in the past year. On December 18, 2006, the 24-hour standard was lowered from 65 to 35 micrograms per cubic meter. However, the annual standard was left at 15 micrograms per cubic meter.

The $PM_{2.5}$ concentrations are measured using both discrete (single sample) monitors and continuous real-time instruments. The discrete monitors collect particulate matter on a filter for 24 hours. The filter is then collected and shipped to the lab to be weighed.

The continuous Tapered Element Oscillating Microbalance (TEOM) monitor is a gravimetric instrument that draws ambient air through a filter, constantly weighing the filter and calculating real-time $PM_{2.5}$ concentrations. The analyzer reports 1-hour data, which are then used to calculate daily 24-hour averages (midnight to midnight), for comparison to the ambient air quality standard.

The continuous Beta-Attenuation Mass (BAM) sampler draws ambient air through a section of filter tape. The filter tape passes between a beta ray source and a beta ray detector. As the particulate mass on the filter increases, the number of beta ray particles transmitted through the filter decreases. So the detector measures the number of beta particles transmitted through the exposed filter tape, and then the instrument calculates the particulate mass using a correlation equation. The analyzer reports 1-hour data, which are then used to calculate daily 24-hour averages (midnight to midnight), for comparison to the ambient air quality standard.

Nine of the DEP monitoring sites have both discrete manual and continuous samplers, but only the discrete $PM_{2.5}$ sampler is approved by EPA as a Federal Reference Method (FRM) for compliance purposes.

The map in Figure 2-9 shows the range of $PM_{2.5}$ annual mean levels in the different counties across the Commonwealth where monitoring is performed. When there are multiple samplers in a county, the highest FRM monitor reading is used. Only sites that have monitored 50 percent of the time during 2006 are included in this figure. In 2006, there were no counties monitored by DEP, which exceeded the value of the annual $PM_{2.5}$ standard.

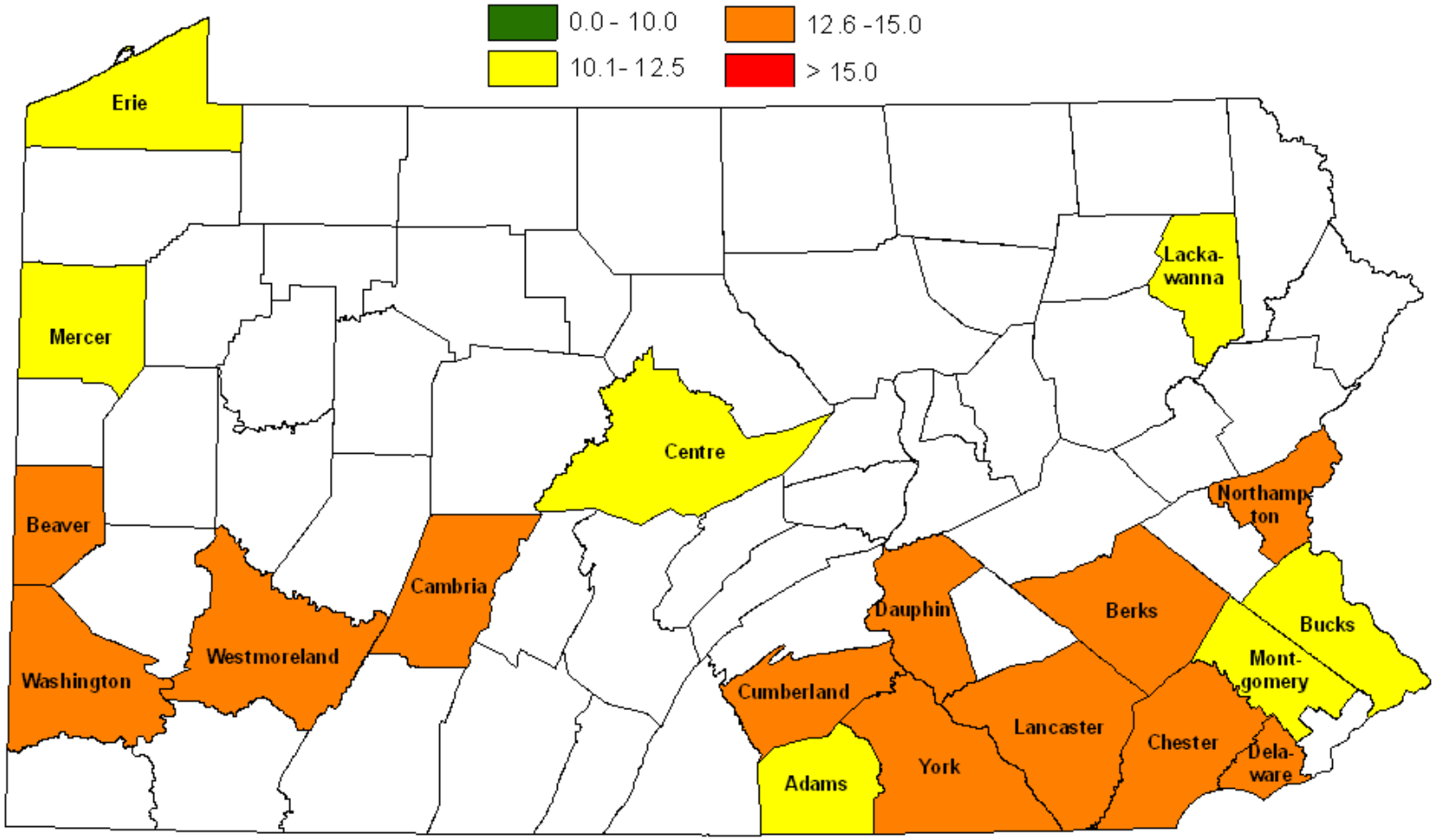
The map in Figure 2-10 displays the maximum 98th percentile 24-hour $PM_{2.5}$ mean by county. When there are multiple samplers in a county, the highest FRM monitor reading is used. In 2006, nine counties monitored by DEP exceeded the level of the 24-hour $PM_{2.5}$ standard.

With only eight complete years of data collected, no graphical trend analysis is available. Data collected in 2006 is summarized in Appendix A, Table A-9 for all FRM monitors and continuous monitors. Historical trend data for each site that monitored $PM_{2.5}$ is shown in Appendix A, Table A-10. None of the FRM monitoring sites exceeded the annual air quality standard during 2006, however the 24-hour maximum level of 35 $\mu g/m^3$ was exceeded at all twenty two of the FRM monitoring sites during the year.

Figure 2-9. PM-2.5 Concentrations

Annual Means (Average by County, for 2006)

(Micrograms per Cubic Meter)

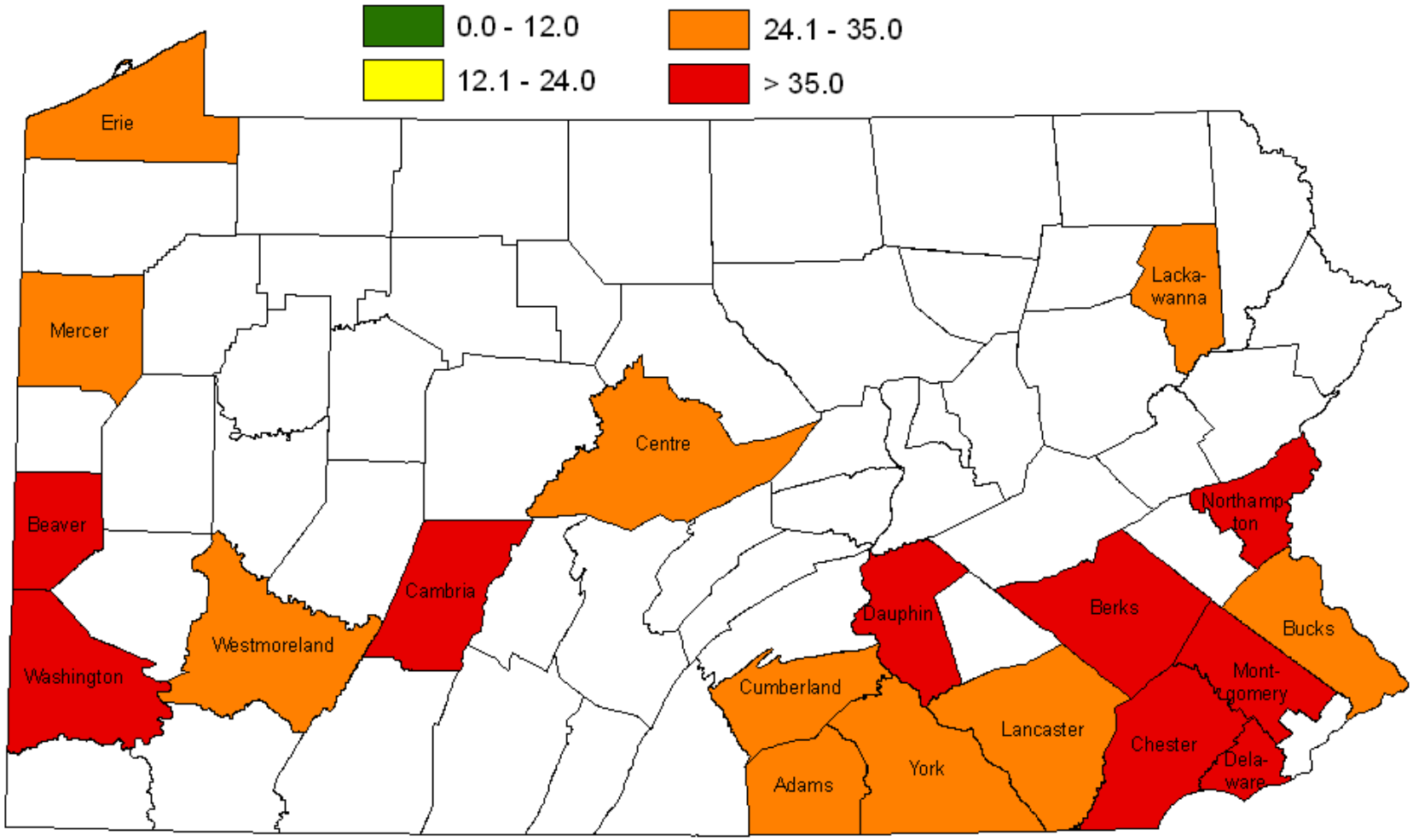


Primary and Secondary National Ambient Air Quality Standard for PM-2.5
Annual Mean = 15 micrograms per cubic meter
(Data are displayed for single calendar year, but the standard is based on a 3-year average)

Figure 2-10. PM-2.5 Concentrations

98th Percentile 24- Hour Daily Mean (by County, for 2006)

(Micrograms per Cubic Meter)



Primary and Secondary National Ambient Air Quality Standard for PM-2.5
98th Percentile 24-Hour Mean = 35 micrograms per cubic meter
(Data are displayed for a single calendar year, but standard is based on a 3-year average)

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Chemical Speciation of $PM_{2.5}$ Particulate Matter

Particulate matter (PM) is a general term used for a mixture of solid particles and liquid droplets (also known as aerosols) found in the air. $PM_{2.5}$ refers to particulate matter that is 2.5 micrometers or smaller in size. For reference, 2.5 micrometers is approximately 1/30 the size of a human hair. Speciation is a physical or chemical analysis of the captured particles that provide a first order characterization of the metals, ions, and carbon constituents of $PM_{2.5}$.

Physical and chemical speciation data can be used to support several areas of study such as:

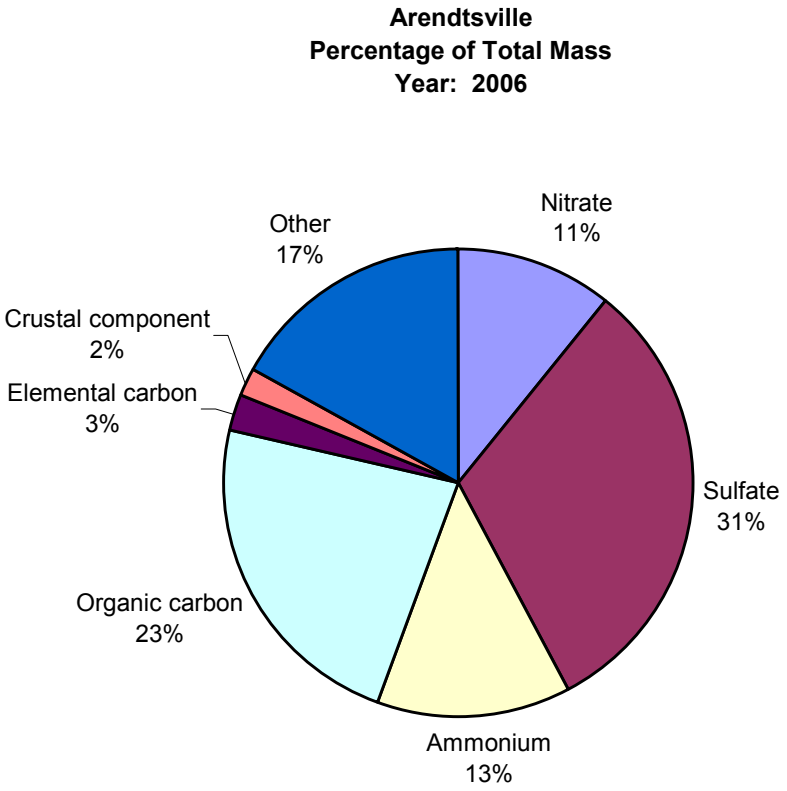
- Inputs to air quality modeling analyses used to implement the $PM_{2.5}$ standard;
- Indicators to track the progress of air pollution controls;
- Aids to interpret studies linking health effects to $PM_{2.5}$ constituents;
- Aids to understand the effects of atmospheric constituents on visibility impairment; and
- Aids in designing and siting monitoring networks.

$PM_{2.5}$ is composed of a mixture of primary and secondary particles, both having long lifetimes in the atmosphere (days to weeks), traveling long distances (hundreds to thousands of kilometers) and hence, not easily traced back to their individual sources. Primary particles include soil-related particles such as road dust, construction and agriculture and combustion-related particles. Combustion-related particles come from a variety of sources such as diesel and gasoline vehicles, open burning operations, and utility and commercial boilers. The principle types of secondary aerosols are organics, sulfates and nitrates. Sulfur dioxide, nitrogen oxides and ammonia (ammonium sulfate, ammonium bisulfate, ammonium nitrate) are important precursors to secondary particles.

Knowing the chemical composition of the $PM_{2.5}$ mix is also important for determining sources of pollution. By developing seasonal and annual chemical characterizations of ambient particulates across the nation, this speciation data will be used to perform source attribution analyses, evaluate emission inventories and air quality models, and support health related research studies and regional haze assessments.

Pennsylvania began operating a $PM_{2.5}$ speciation network, consisting of 13 sampling sites, in April 2002. The pie charts on the following pages, Figures 2-11 to 2-17 show the major constituents, consisting of nitrates, sulfates, ammonium, organic carbon, elemental carbon and other trace elements. The Perry County speciation monitor was terminated in 2005 and moved to an alternate site in Reading.

Figure 2-11. $PM_{2.5}$ Speciation Pie Charts for Arendtsville and Chester



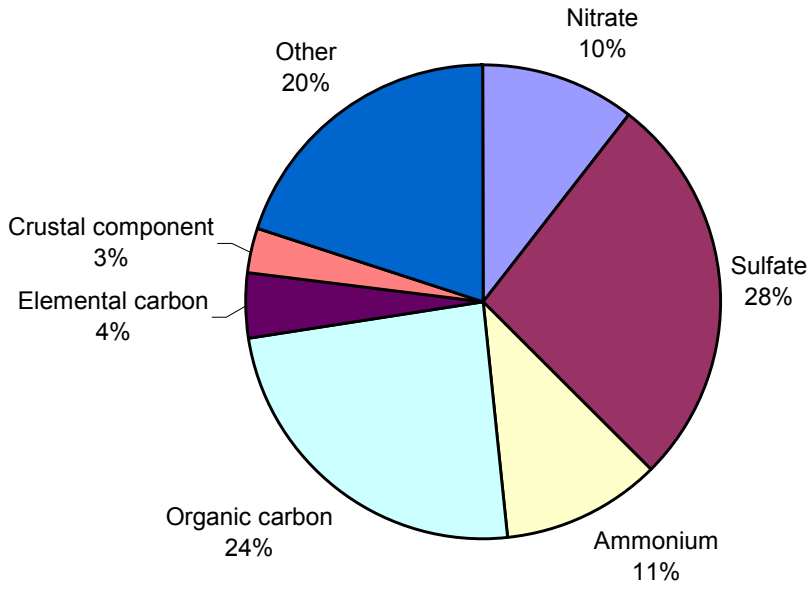
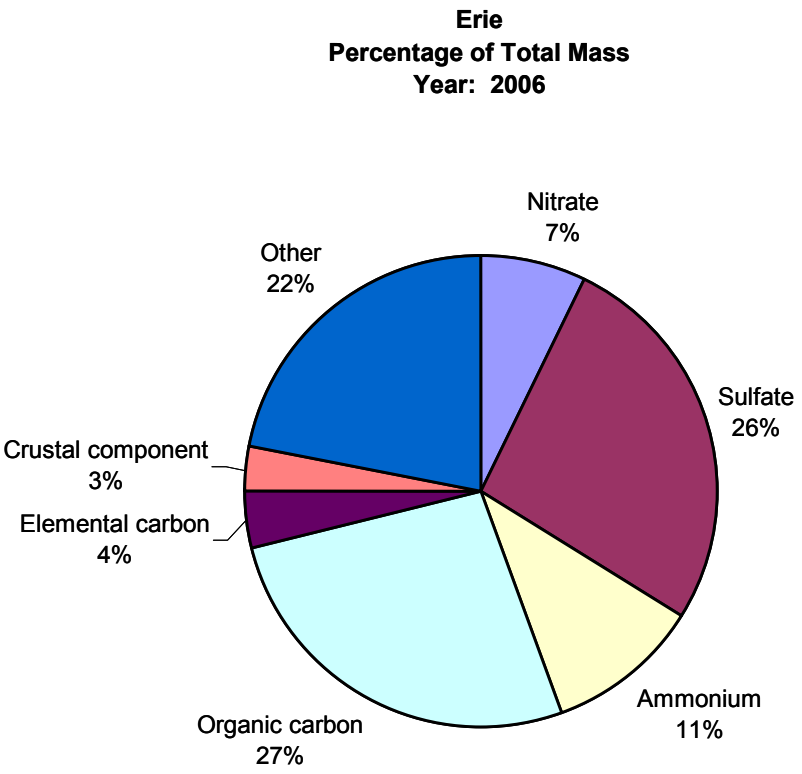


Figure 2-12. $PM_{2.5}$ Speciation Pie Charts for Erie and Florence



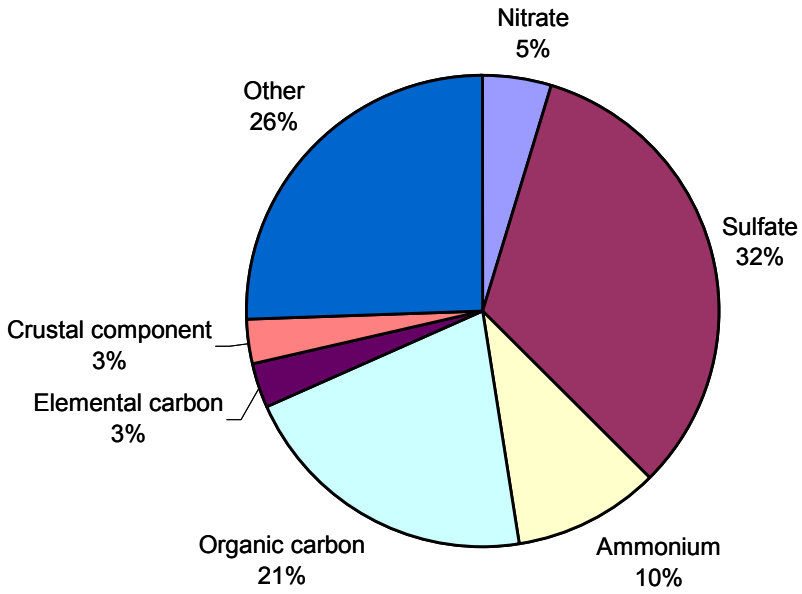
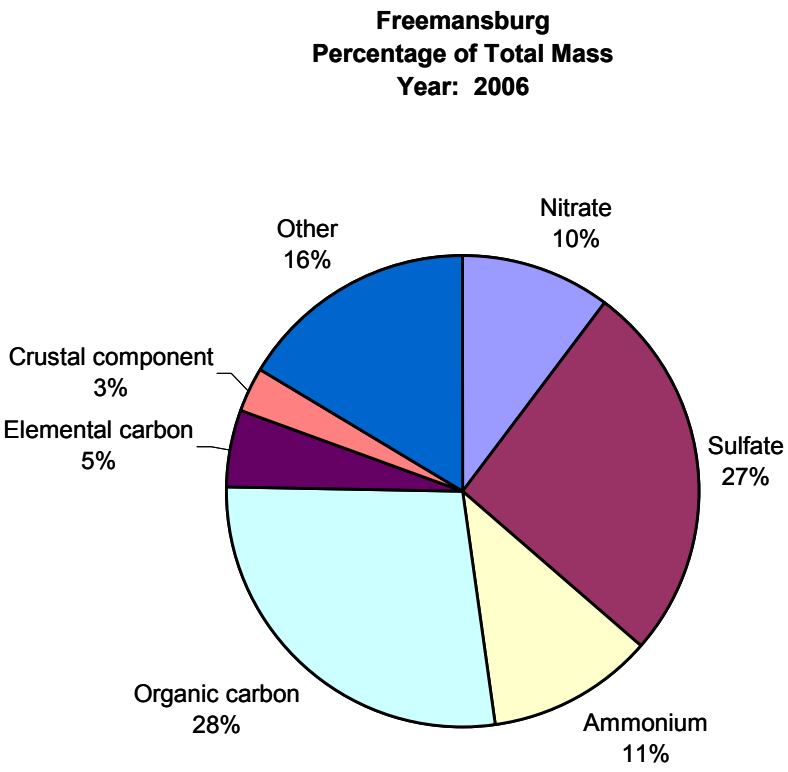


Figure 2-13. $PM_{2.5}$ Speciation Pie Charts for Freemansburg and Greensburg



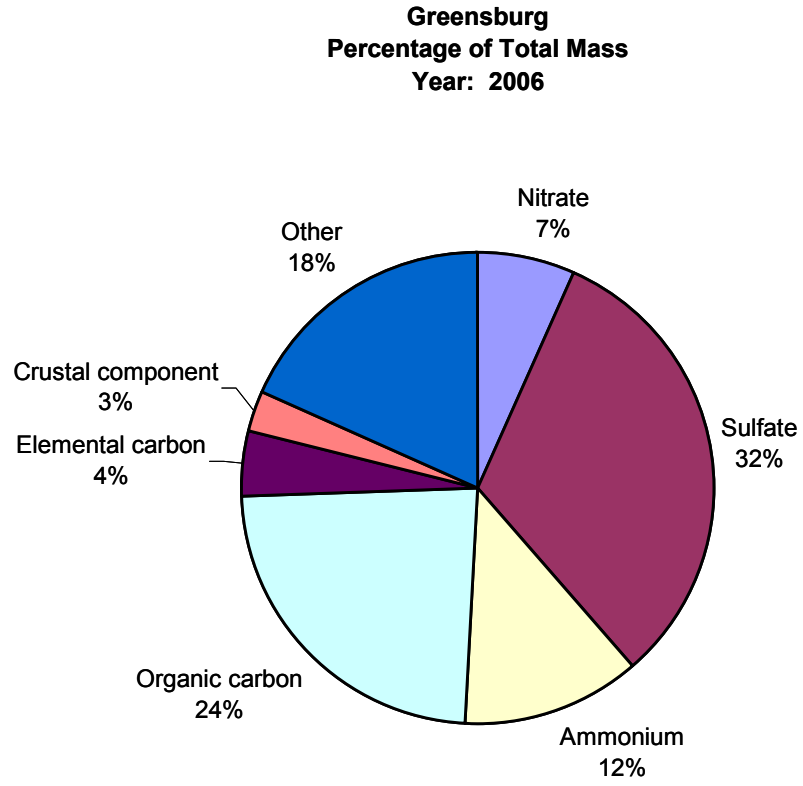
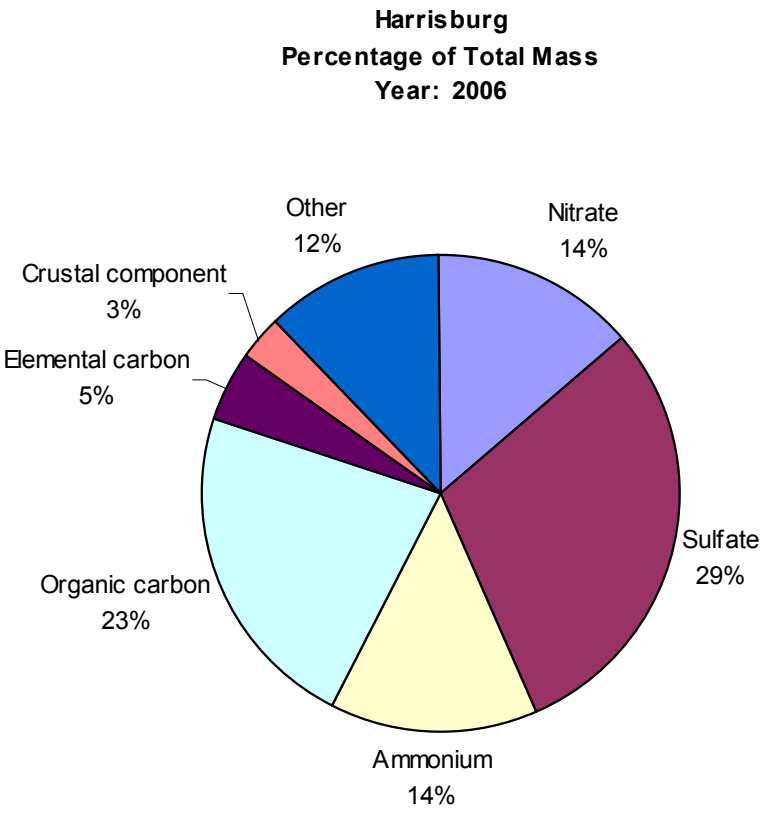


Figure 2-14. $PM_{2.5}$ Speciation Pie Charts for Harrisburg and Lancaster



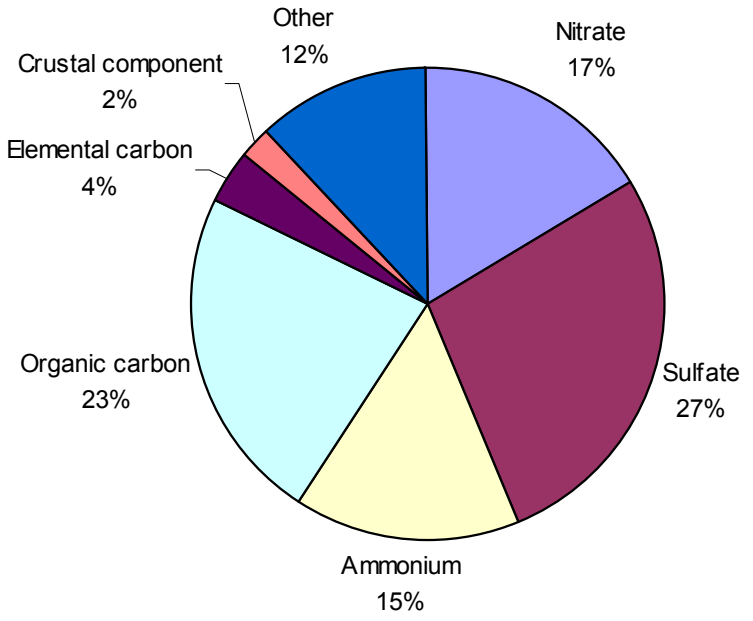


Figure 2-15. $PM_{2.5}$ Speciation Pie Chart for New Garden and Reading

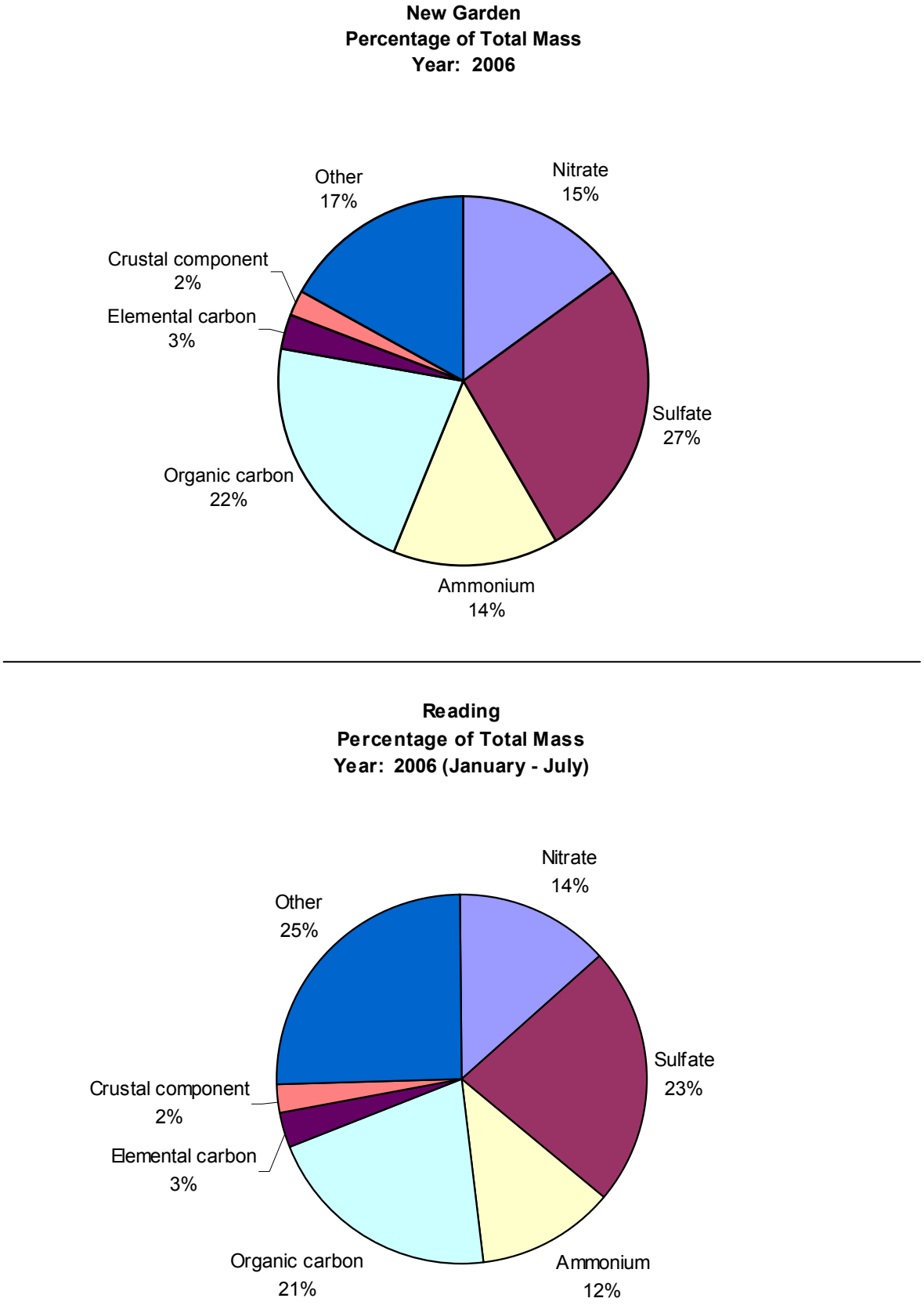
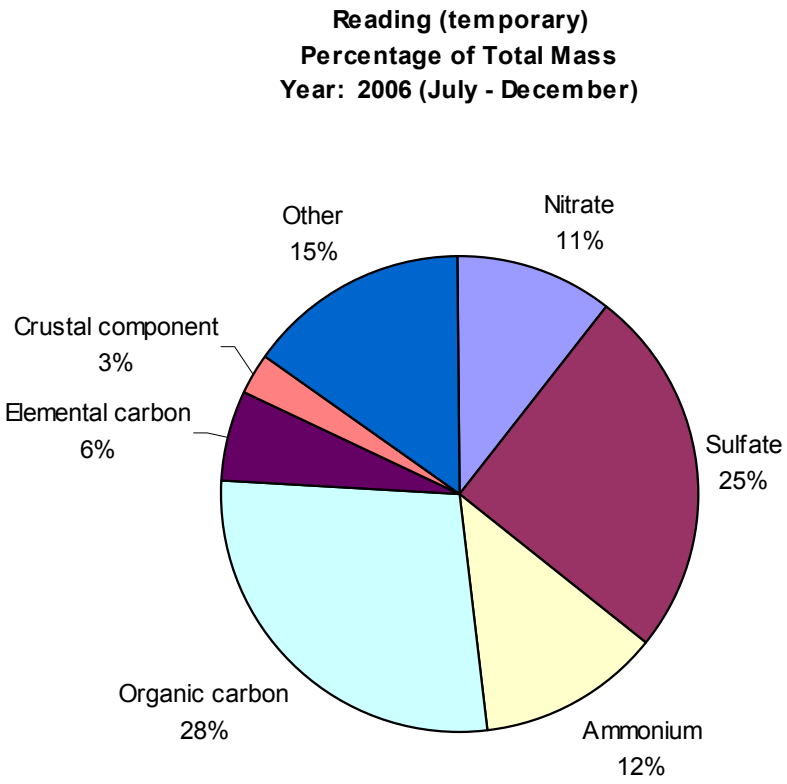


Figure 2-16. $PM_{2.5}$ Speciation Pie Chart for Reading (temporary) and Scranton



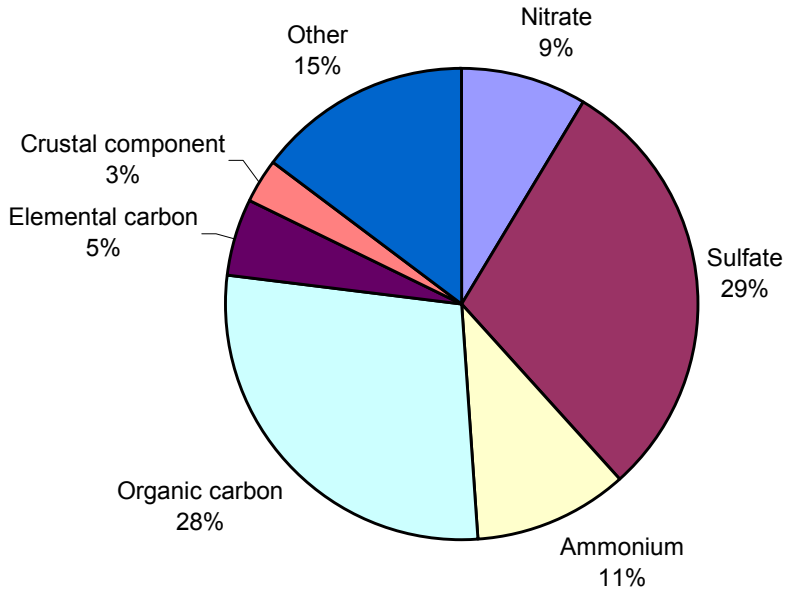
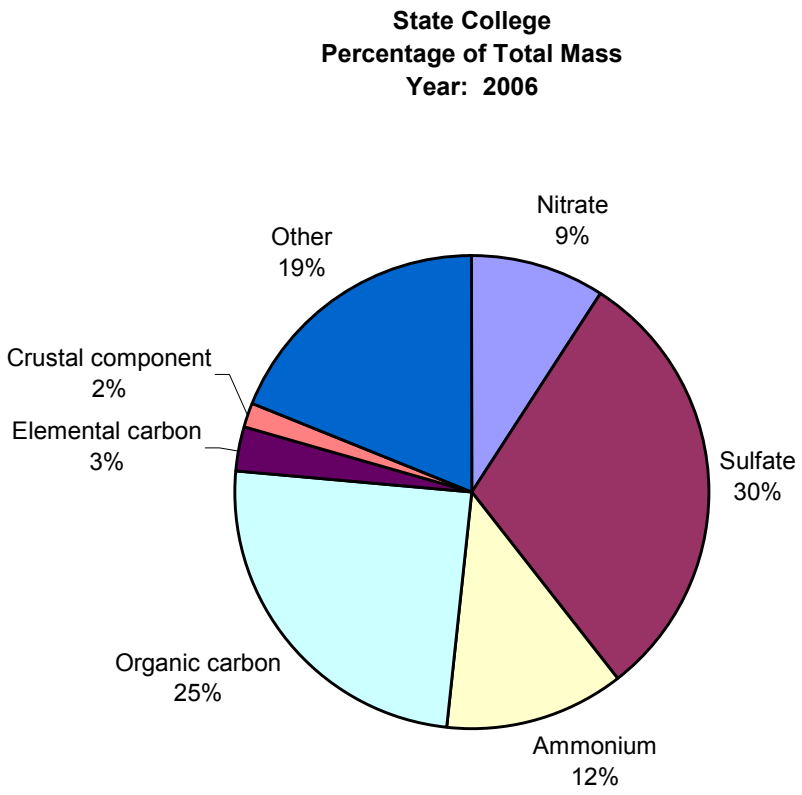
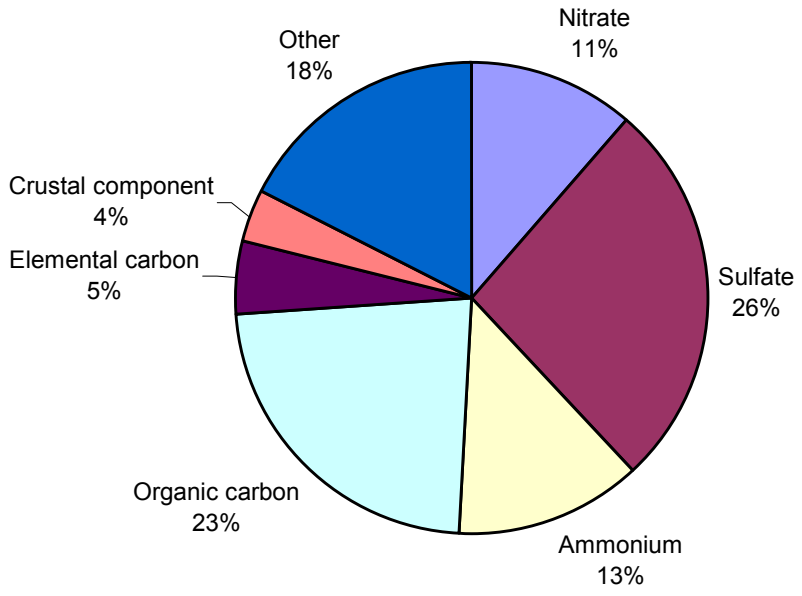


Figure 2-17. $PM_{2.5}$ Speciation Pie Chart for State College and York





Continuous Gaseous Sampling

Sulfur Dioxide

Sulfur dioxide is a gaseous pollutant that is emitted primarily by industrial furnaces or power plants burning coal containing sulfur or oil containing sulfur. The major health effects associated with high exposures to sulfur dioxide include effects on breathing and respiratory illness symptoms. The population most sensitive to sulfur dioxide includes asthmatics and individuals with chronic lung disease or cardiovascular disease. Sulfur dioxide damages trees, plants, and agricultural crops and acts as a precursor to acid rain. Finally, sulfur dioxide can accelerate the corrosion of natural and man-made materials that are used in buildings and monuments, as well as paper, iron-containing metals, zinc, and other protective coatings.

The statewide composite average of sulfur dioxide annual mean concentration for 1997 to 2006 is shown in Figure 2-18. Sulfur dioxide levels have shown only a slight improvement over the last ten years and remain below 50 percent of the air quality standard

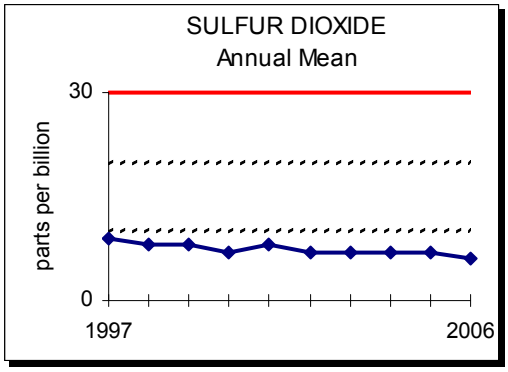


Figure 2-18. Trend in annual mean SO_2 concentrations, 1997-2006.

The map in Figure 2-19 displays the average sulfur dioxide annual mean by county in 2006. When there are multiple sites in the county, the annual mean is the highest reading of these sites. All counties in which monitoring was conducted met the air quality standard of 30 parts per billion (ppb).

The map in Figure 2-20 displays the highest second maximum 24-hour (daily) average concentration by county in 2006. All areas of the Commonwealth met the 24-hour air quality standard of 140 ppb with the exception of Northampton County.

Figure 2-21 displays the last 10-year trend (1997 to 2006) of the annual arithmetic mean in the 12 air basins and the Altoona, Montoursville, and Farrell sites. The solid line represents the annual air quality standard of 0.030 parts per million (ppm).

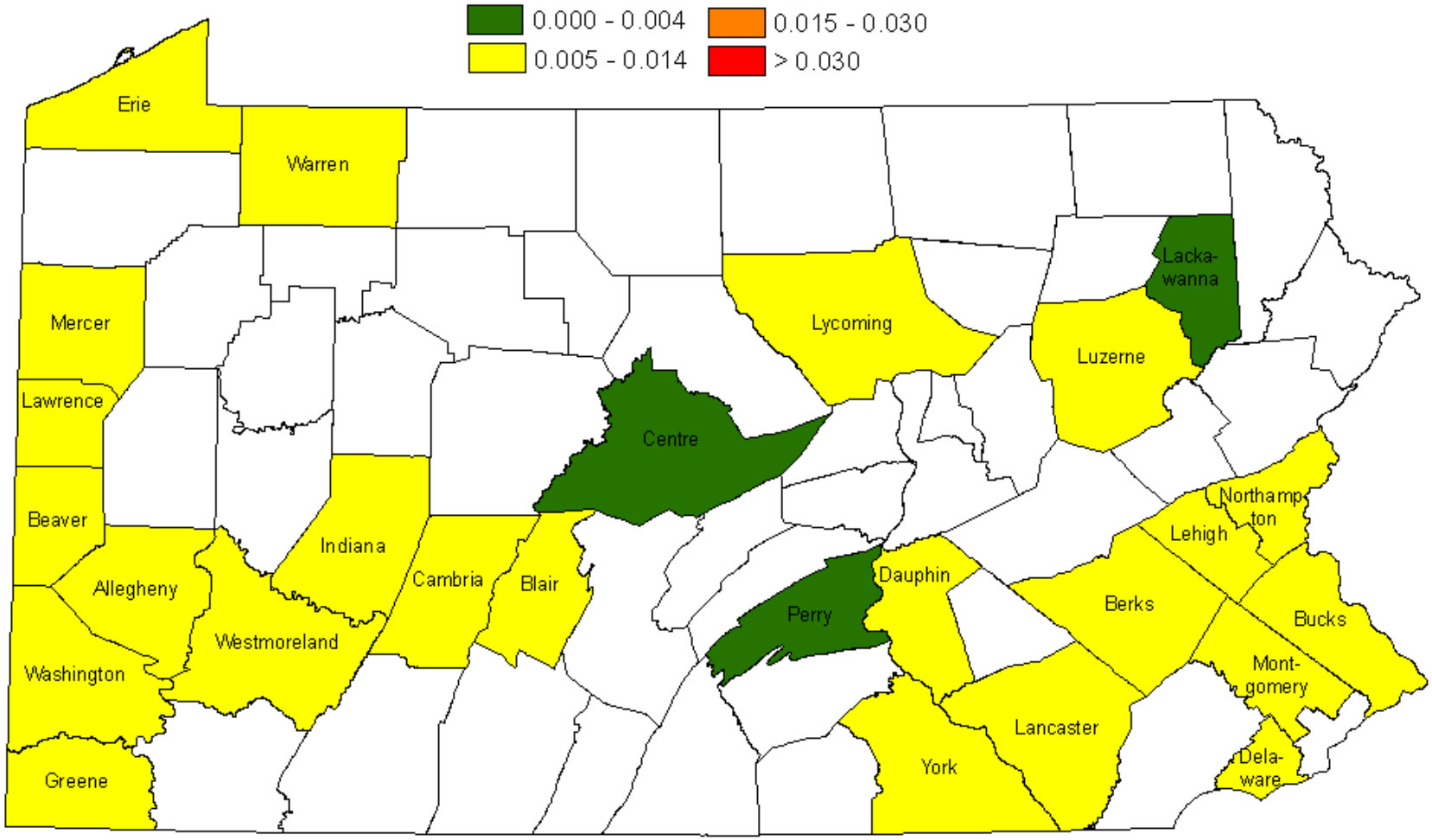
Sulfur dioxide data for all sites that operated in 2006 is summarized in Appendix A, Table A-11. All sites in the Commonwealth met the annual mean and 3-hour standards. All sites met the 24-hour ambient air quality standard except Easton.

Sulfur dioxide historical data over the last 10 years is presented in Appendix A, Table A-12 for all stations that operated in 2006 with at least 50 percent valid data. This data was used to produce the trend chart shown in Figure 2-21.

Figure 2-19. Sulfur Dioxide Concentrations

Annual Means (Average by County, for 2006)

(Parts per Million)

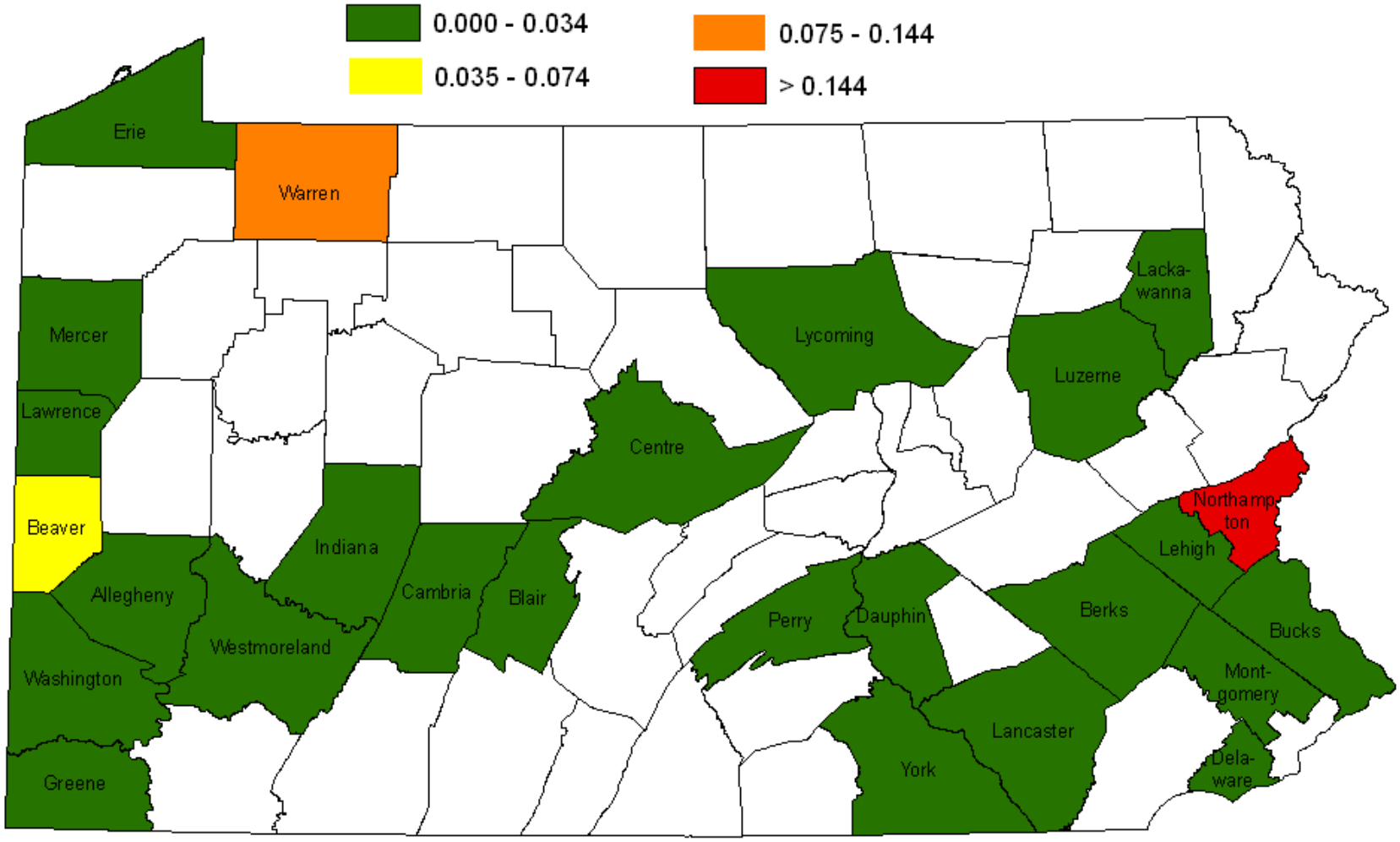


Primary National Ambient Air Quality Standard for Sulfur Dioxide
Annual Mean = 0.030 parts per million

Figure 2-20. Sulfur Dioxide Concentrations

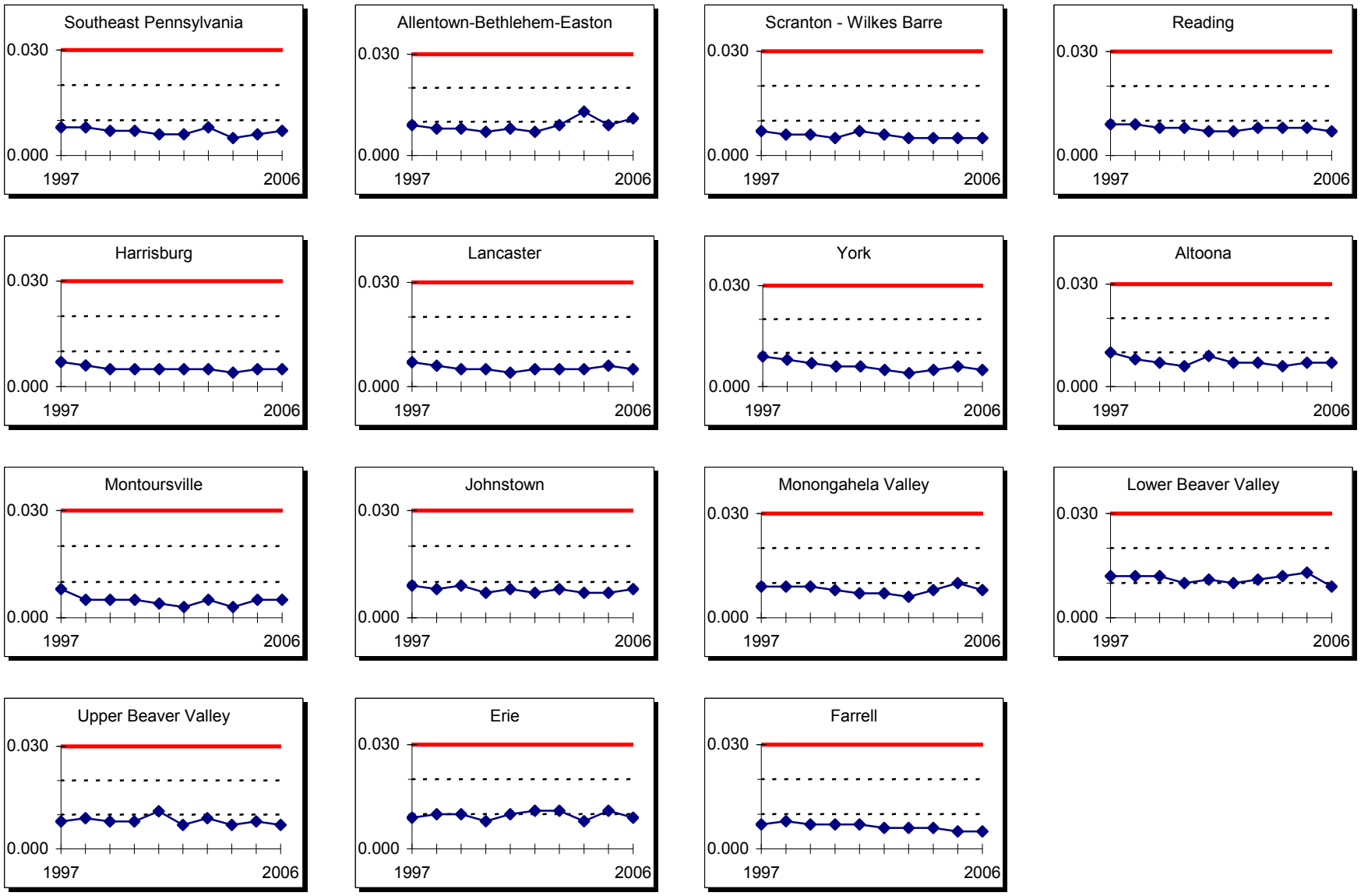
Highest Second Maximum 24-Hour Daily Mean (by County, for 2006)

(Parts per Million)



Primary National Ambient Air Quality Standard for Sulfur Dioxide
24-Hour Mean (Daily Block Average) = 0.14 parts per million (not to be exceeded more than once per year)

Figure 2-21. Sulfur Dioxide Trends in Pennsylvania 1997 to 2006
Annual Arithmetic Means (parts per million)



SO2 Annual National Ambient Air Quality Standard is 0.030 parts per million

Ground-Level Ozone

Ground-level ozone, or photochemical smog, is a secondary pollutant. It is not emitted directly to the atmosphere but rather is formed in the atmosphere by the reactions of other pollutants. Ground-level ozone forms during the summer months, when nitrogen oxides (NO_x) and volatile organic compounds (VOCs) combine and react in the presence of sunlight and warm temperatures. Nitrogen oxides come from burning fossil fuels at power plants, industrial boilers, and motor vehicles. VOCs are emitted from a variety of sources, including motor vehicles, chemical plants, refineries, and natural (biogenic) sources. Changing weather patterns contribute to yearly differences in ozone concentrations. Ozone and the precursor pollutants that cause ozone also can be transported into an area from pollution sources located hundreds of miles away. Ground-level ozone is a strong irritant to the eyes and upper respiratory system. It hampers breathing and also damages crops and man-made materials such as monuments and statues.

In July 1997, EPA promulgated a new 8-hour primary ozone standard to protect against longer exposure periods that are of concern for both human health and environmental welfare. The secondary standard (welfare-based) was set identical to the primary standard. The secondary standard highlights the concerns associated with effects on vegetation. As a way of focusing on this effect, DEP has contracted with Pennsylvania State University's Department of Plant Pathology to monitor ozone at three rural sites: Moshannon State Forest, Clearfield County; State College, Centre County; and a site between Mansfield and Williamsport, Tioga County.

In addition to the established surveillance monitoring sites, DEP continued monitoring begun by the North American Research Strategy for Tropospheric Ozone (NARSTO). The Holbrook site (Greene County) is primarily designed to study ozone transport in the Northeast.

Although the 1-hour ozone standard was revoked by EPA on June 15, 2005, this report still presents both 1- and 8-hour ozone data. The ozone-monitoring season in Pennsylvania begins each year on April 1st and ends on October 31st.

Ambient ground-level ozone trends are erratic by nature. Changes in meteorological conditions, population growth, and changes in emissions (VOCs and NOx) influence ozone concentrations. Figure 2-22 shows the 1997-2006 statewide (DEP sites only) average second daily maximum 1-hour ozone concentrations. The solid line is at the former primary 1-hour air quality standard of 125 parts per billion (ppb).

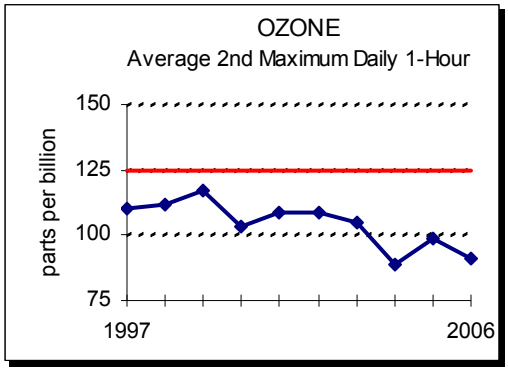


Figure 2-22. Trend in average second daily maximum 1-hour ozone concentrations, 1997-2006.

The map in Figure 2-23 presents the highest second daily maximum 1-hour ozone concentration by county in 2006. There were no exceedances of the 1-hour air quality standard in 2006. All ozone monitoring sites are included in the representation, with the exception of those monitors operated by Allegheny and Philadelphia counties.

The map in Figure 2-24 presents the fourth highest daily maximum running 8-hour ozone concentration by county in 2006. All ozone monitoring sites are included in the representation, with the exception of those monitors operated by Allegheny and Philadelphia counties.

For the 12 air basins and Altoona, Montoursville, and Farrell sites, Figure 2-25 shows the 10-year trend (1997 to 2006) of the average second daily maximum 1-hour ozone concentration during the ozone season for DEP monitoring sites. Figure 2-26 shows the 10-year trend (1997 to 2006) of the 3-year average of the fourth highest daily 8-hour running ozone mean. All sites have been close to or exceeded the 8-hour standard of 0.08 parts per million (ppm). The solid line in both figures indicates the 1- or 8-hour standard level.

Appendix A, Table A-13a summarizes the 1-hour ozone data during the ozone season of 2006 for all monitoring sites. During 2006, there were no exceedances of the former 1-hour standard.

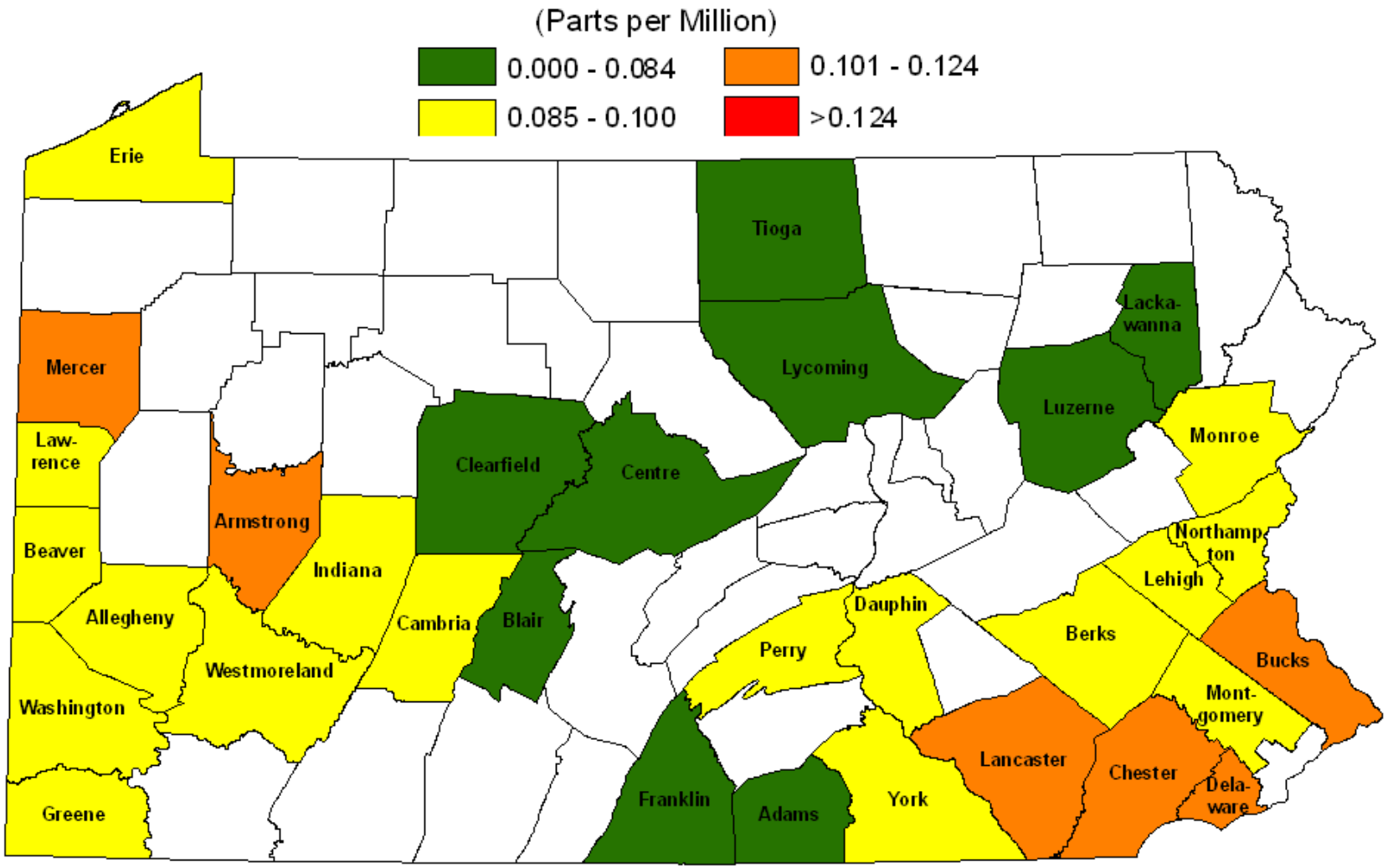
Appendix A, Table A-13b summarizes the 8-hour ozone data during the ozone season of 2006 for all monitoring sites. During 2006, there were 14 days on which exceedances of the 8-hour standard occurred.

Appendix A, Tables A-14 and A-15 summarize the 1-hour and 8-hour data over the last three years (2004 - 2006). These tables include monitoring sites operated by DEP, the Allegheny County Health Department, Philadelphia Department of Public Health, Air Management Services, and the Pennsylvania State University.

Historical 1-hour and 8-hour data for ozone from 1997 to 2006 is contained in Appendix A, Table A-16 for all DEP sites that operated during the ozone monitoring season in 2006 with at least 50 percent valid data.

Figure 2-23. Ozone Concentrations

Highest Second Maximum Daily 1-hour Concentrations (by County, for 2006)

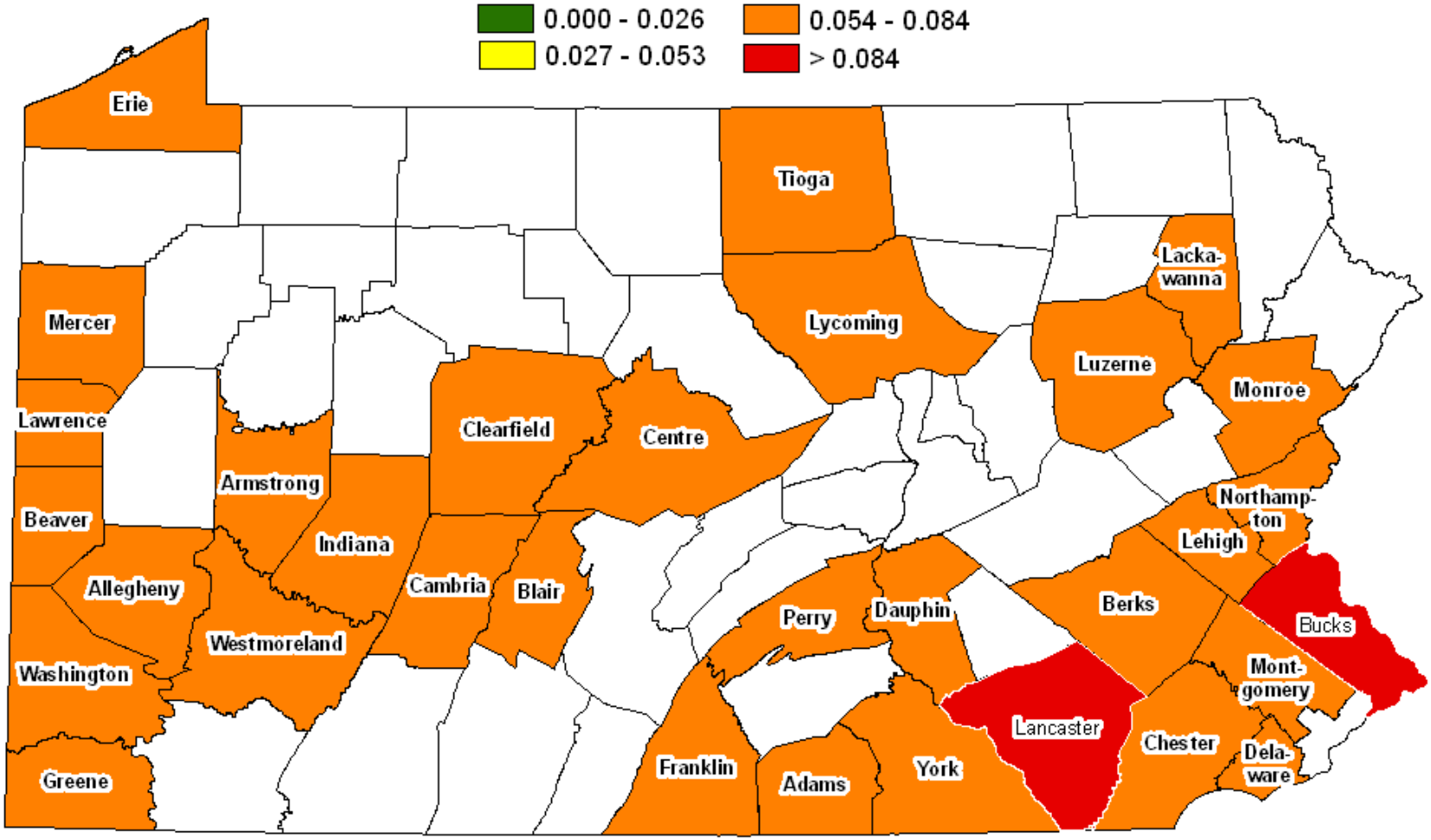


Primary and Secondary National Ambient Air Quality Standard for Ozone
Former Maximum Daily 1-Hour Average = 0.12 parts per million (not to be exceeded more than once per year)

Figure 2-24. Ozone Concentrations

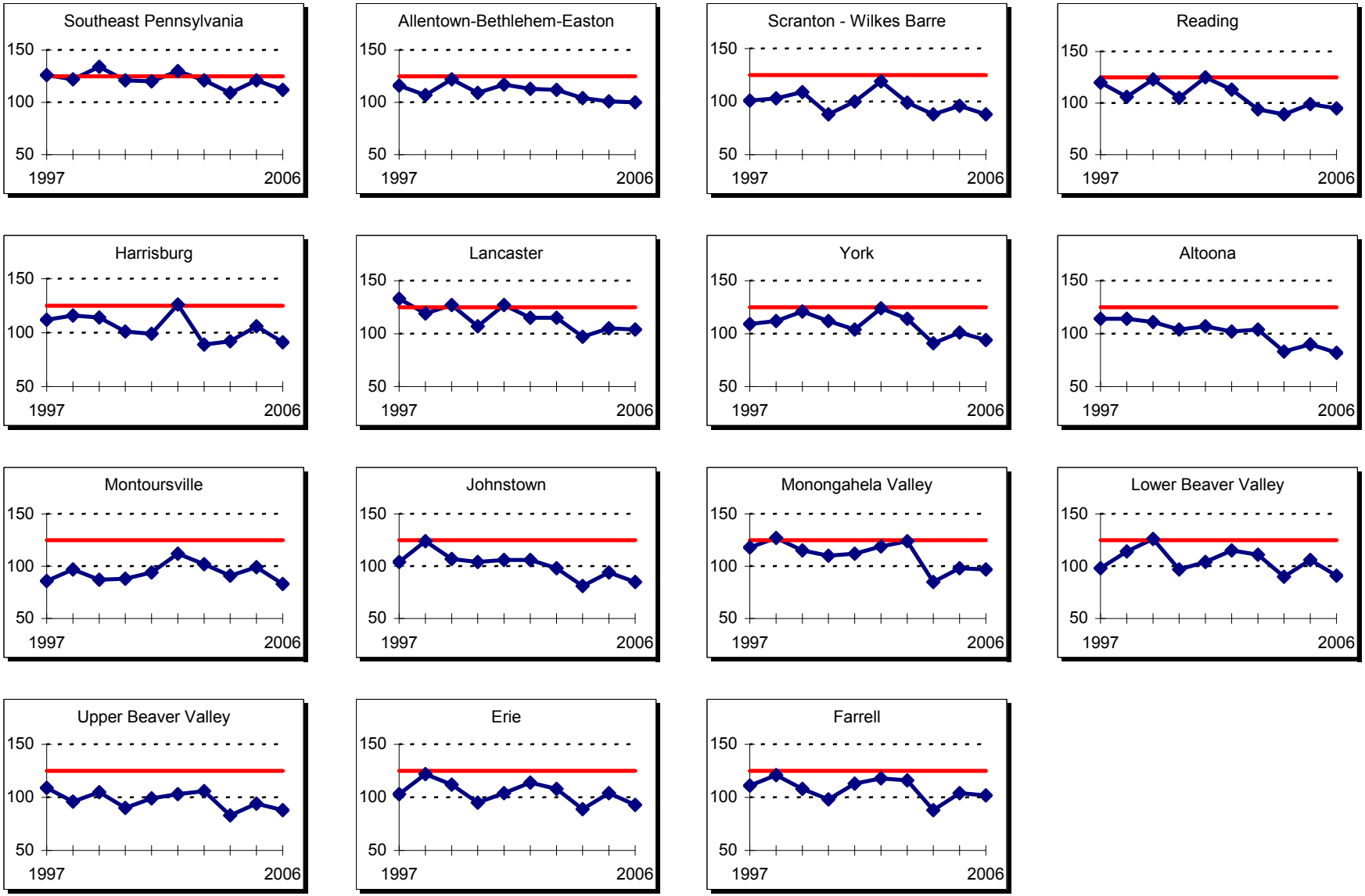
Fourth Maximum Daily 8-hour Concentrations (by County, for 2006)

(Parts per Million)



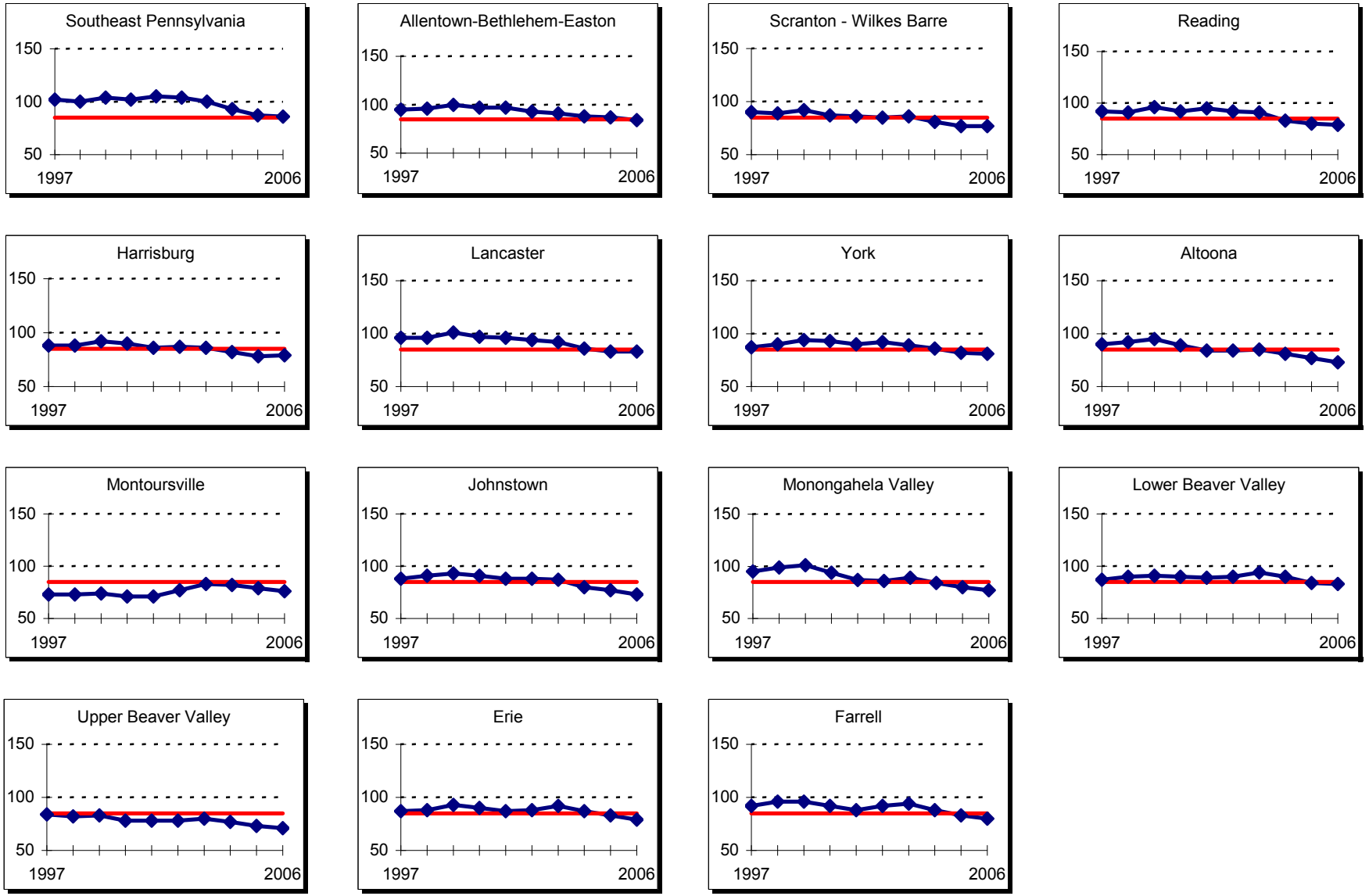
Primary and Secondary National Ambient Air Quality Standard for Ozone
Fourth-highest daily maximum 8-hour average = 0.08 parts per million
(Data are displayed for single calendar year, but standard is based on a 3-year average)

Figure 2-25. 10-Year Ozone Trend in Pennsylvania 1997 to 2006
Average Second Daily Maximum 1-Hour (parts per billion)



The former maximum daily 1-hour Ozone National Ambient Air Quality Standard is 0.12 parts per million (or 124 ppb), not to be exceeded more than once per year.

Figure 2-26. 10-Year Ozone Trend in Pennsylvania 1997 to 2006
3-Year Average of 4th Daily Maximum 8-Hour Mean (parts per billion)



The eight-hour Ozone National Ambient Air Quality Standard is 0.08 parts per million (ppm). It is exceeded when the average of the yearly 4th daily maximum 8-hour values over 3 years is greater than 0.08 ppm, or 84 ppb.

Nitrogen Dioxide / Oxides of Nitrogen

Nitrogen dioxide (NO_2) is a highly toxic, reddish brown gas that is formed through the oxidation of nitric oxide (NO) emitted primarily from the combustion of fuels in stationary or transportation sources. It can cause an odorous, brown haze that irritates the eyes and nose, shuts out sunlight, and reduces visibility. NO_2 acts as a precursor to acidic precipitation and plays a key role in nitrogen loading of forests and ecosystems. NO_2 has been associated with acute effects in individuals diagnosed with respiratory disease.

Oxides of nitrogen (NO_x) are a class of pollutants formed when fuel is burned at a very high temperature (above 1200° F), such as in automobiles and power plants. For air pollution purposes, it is composed primarily of nitric oxide (NO), nitrogen dioxide (NO_2) and other oxides of nitrogen. Although there is no air quality standard for NO_x, it plays a major role in the formation of ground-level ozone in the atmosphere through a complex series of reactions with volatile organic compounds (VOCs). Nitrogen oxides also contribute to deposition of nitrogen in soil and water through acid rain.

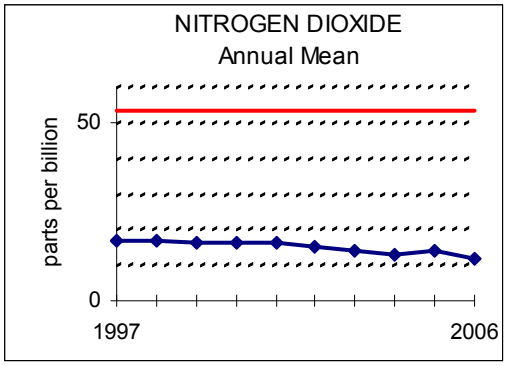


Figure 2-27. Trend in annual NO_2 concentrations, 1997-2006.

The trend in annual mean NO_2 concentrations statewide between 1997 and 2006 is shown in Figure 2-27. In 1997, the statewide average concentration was 17 parts per billion (ppb) and in 2006 the statewide average concentration was 12 parts per billion (ppb), representing a statewide decrease of 29% for this period. All areas of the Commonwealth continue to be well below the air quality annual standard of 53 parts per billion (ppb), which is indicated by the solid line in Figure 2-27.

Figure 2-29 on the following page indicates the 10-year trend of nitrogen dioxide annual mean levels from 1997 to 2006 in 12 air basins and the Altoona non-air basin. Nitrogen dioxide levels have dropped slightly over the last 10 years. All areas are at or below 50 percent of the annual air quality standard.

Nitrogen dioxide data for 2006 is summarized in Appendix A, Table A-17. No site exceeded the annual primary air quality standard for nitrogen dioxide in Pennsylvania in 2006.

Historical trend data for those sites that monitored nitrogen dioxide in 2006 is presented in Appendix A, Table A-18 for 1997 to 2006. Data is shown for those sites with at least 50 percent valid data. The annual arithmetic mean is shown so that a comparison to the air quality standard can be made for the individual sites.

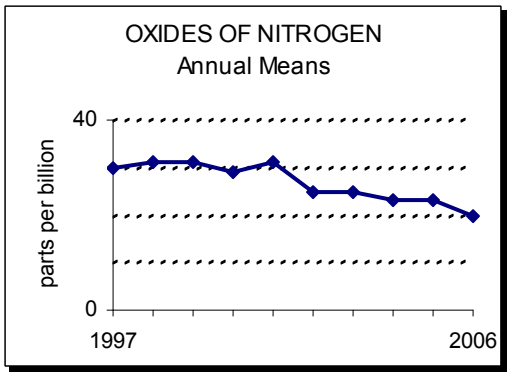
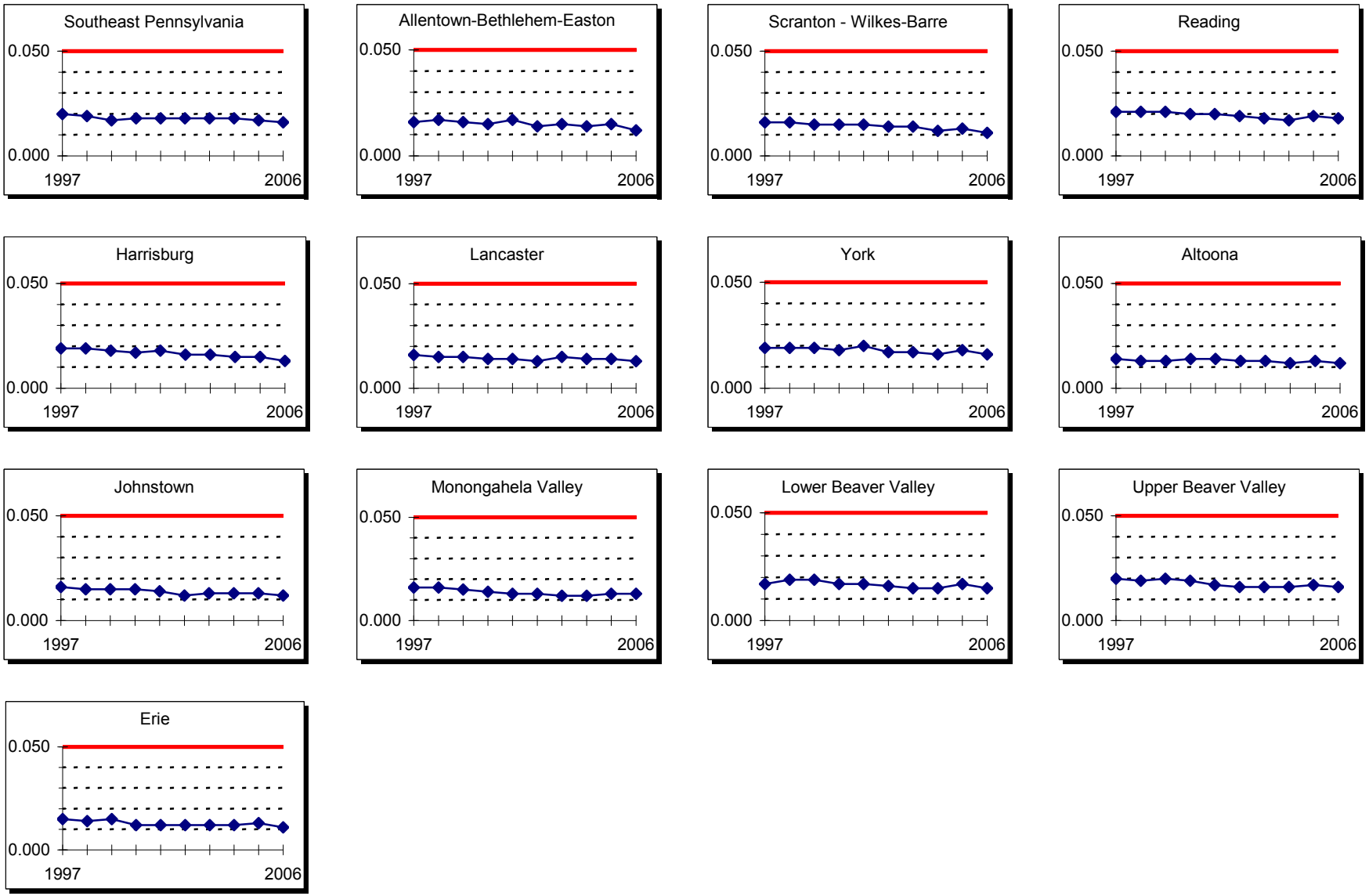


Figure 2-28. Trend of nitrogen oxides annual means, 1997-2006.

Appendix A, Table A-19 summarizes data for oxides of nitrogen (NO_X) in 2006. Figure 2-28 represents the statewide trend of oxides of nitrogen by using the arithmetic mean from all monitoring sites over the last 10 years with at least 50 percent data capture. Since 1997, average NO_X concentrations have declined by 33 percent.

Figure 2-29. 10 – Year Nitrogen Dioxide Trend in Pennsylvania 1997 to 2006
Annual Arithmetic Means (parts per million)



The Nitrogen Dioxide Annual National Ambient Air Quality Standard is 0.053 ppm

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, poisonous gas that has an affinity for hemoglobin 210 times that of oxygen. By combining with the hemoglobin in the blood, CO inhibits the delivery of oxygen to the body's tissue, thereby causing asphyxia or shortness of breath. The health threat from carbon monoxide is most serious for those who suffer from cardiovascular disease. At much higher levels of exposure, healthy individuals are also affected.

Carbon monoxide is a byproduct of the incomplete burning of fuels. Industrial processes contribute to carbon monoxide pollution levels, but the principal source of carbon monoxide in most large urban areas is motor vehicle emissions. Peak carbon monoxide concentrations typically occur during the colder months of the year when automotive emissions are greater and nighttime inversion conditions are more frequent.

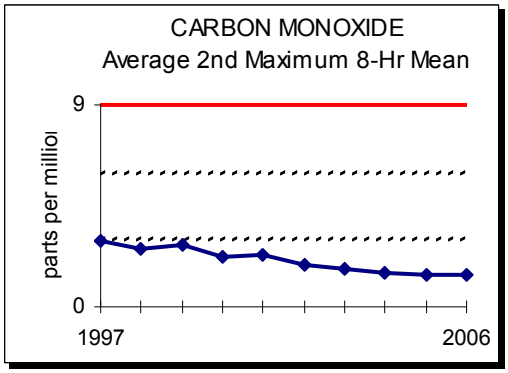


Figure 2-30. Trend in second maximum 8-hour average CO concentrations, 1997-2006.

Figure 2-30 shows the statewide average second maximum 8-hour carbon monoxide concentrations. In 1997, the statewide average concentration was 2.9 parts per million (ppm) and in 2006 the statewide average concentration was 1.4 parts per million (ppm), representing a statewide decrease of 52% for this period. The carbon monoxide improvement occurred across all spatial scales – downtown central business district (CBD), rural, and suburban. Figure 2-31 shows that, historically, CBD sites recorded higher carbon monoxide concentrations on average than other monitoring site locations. But this year, the average carbon monoxide concentrations are roughly equal for both types of sites. The solid line at 9 parts per million in Figures 2-30 and 2-31 indicates the 8-hour running mean air quality standard.

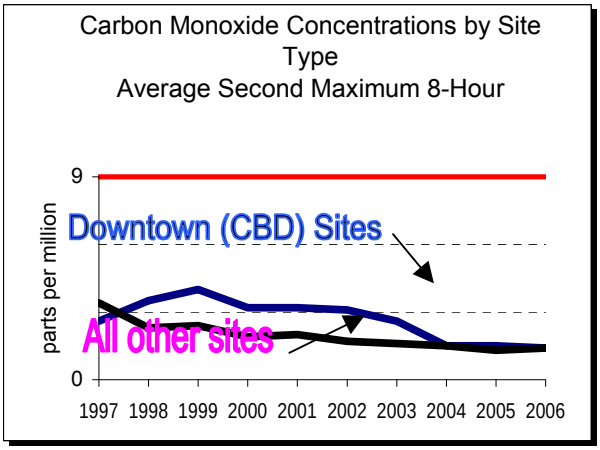


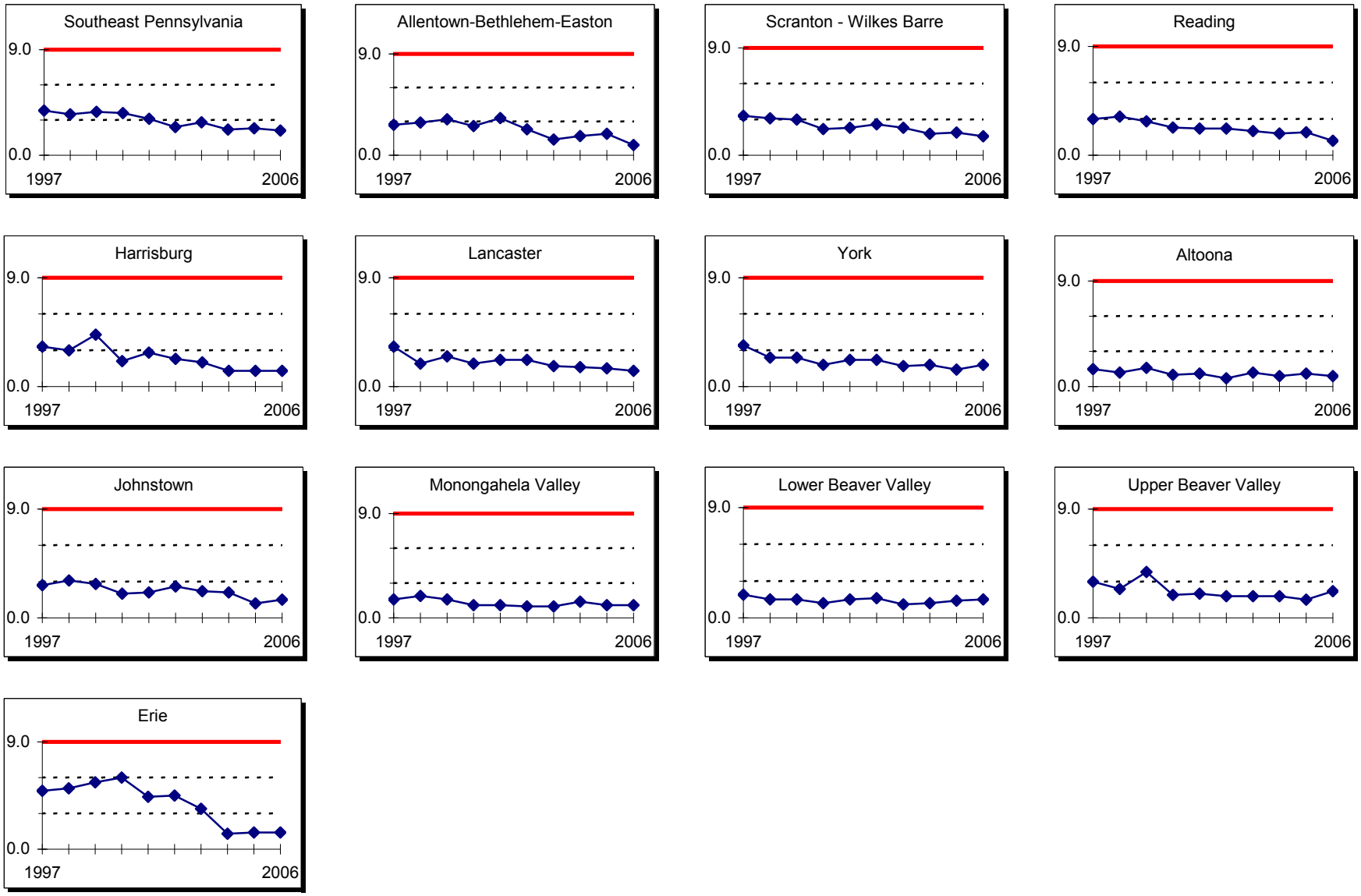
Figure 2-31. Trend in second maximum 8-hour average CO concentrations by location, 1997-2006.

The carbon monoxide 10-year historical trend for different areas of the state are shown in Figure 2-32 on the following page, using the highest second maximum 8-hour non-overlapping running average. The solid lines on the graphs represent the 8-hour ambient air quality standard.

Carbon monoxide data for 2006 has been summarized in Appendix A, Table A-20. There were no exceedances of the 1- or 8-hour air quality standards observed in 2006.

Historical trend data for 1997 to 2006 for carbon monoxide is shown in Appendix A, Table A-21 for all air monitoring sites that operated in 2006 with at least 50 percent valid data. The second maximum value is presented to indicate whether the site is attaining the air quality standard.

Figure 2-32. 10 – Year Carbon Monoxide Trend in Pennsylvania 1997 to 2006
Second Maximum 8-Hour Running Mean (parts per million)



The Carbon Monoxide 8-Hour National Ambient Air Quality Standard is 9.0 ppm

Air Toxics

Hazardous air pollutants (HAPs), commonly referred to as air toxics, are pollutants known to cause or are suspected of causing cancer or other serious human health effects or ecosystem damage. Some air toxics are released from natural sources such as volcanic eruptions and forest fires. Most air toxics originate from mobile sources (cars, trucks, buses) and stationary sources (factories, refineries, power plants). Examples of some of the 188 toxic air pollutants include heavy metals such as mercury and chromium; benzene, found in gasoline; perchloroethylene, emitted from some dry cleaning facilities; and methylene chloride, used as a solvent and paint stripper by a number of industries.

DEP performs ambient air monitoring of several air toxics at a Photochemical Assessment Monitoring Station (PAMS) site in Arendtsville, Adams County. This site studies the transport of ozone precursors from urban to rural areas. The volatile organic compounds (VOCs) routinely measured include several VOC species considered to be air toxics, such as benzene, hexane, toluene, and styrene. This station was not sited to represent the highest concentrations over a wide area, but it can be useful to study trends in ambient air toxics transported over long distances. DEP operates the Arendtsville site from June to October. Figure 2-33 on the following page displays the average concentration trend of selected air toxics from 1997 until 2006. Units in Figure 2-33 are expressed in parts per billion Carbon (ppbC).

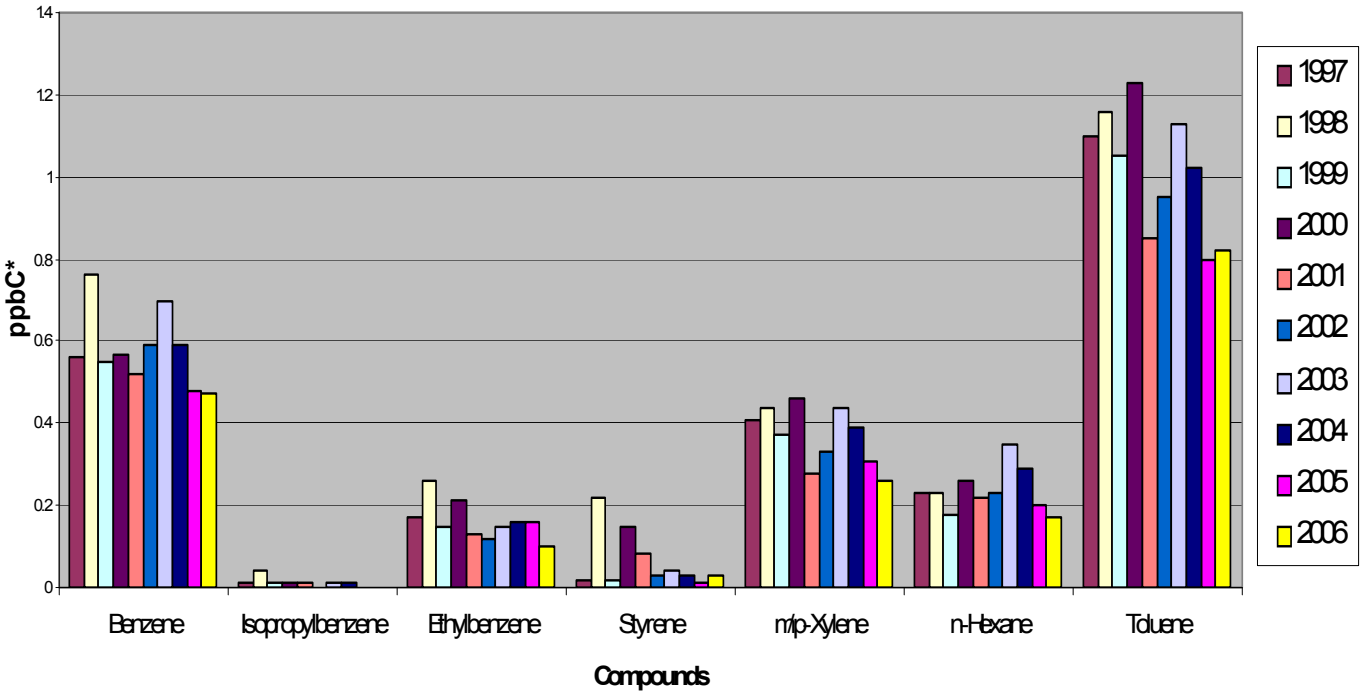
The 2006 data from the Arendtsville site has been summarized in Appendix A, Table A-22. There are no federal or state air quality standards for the monitored compounds.

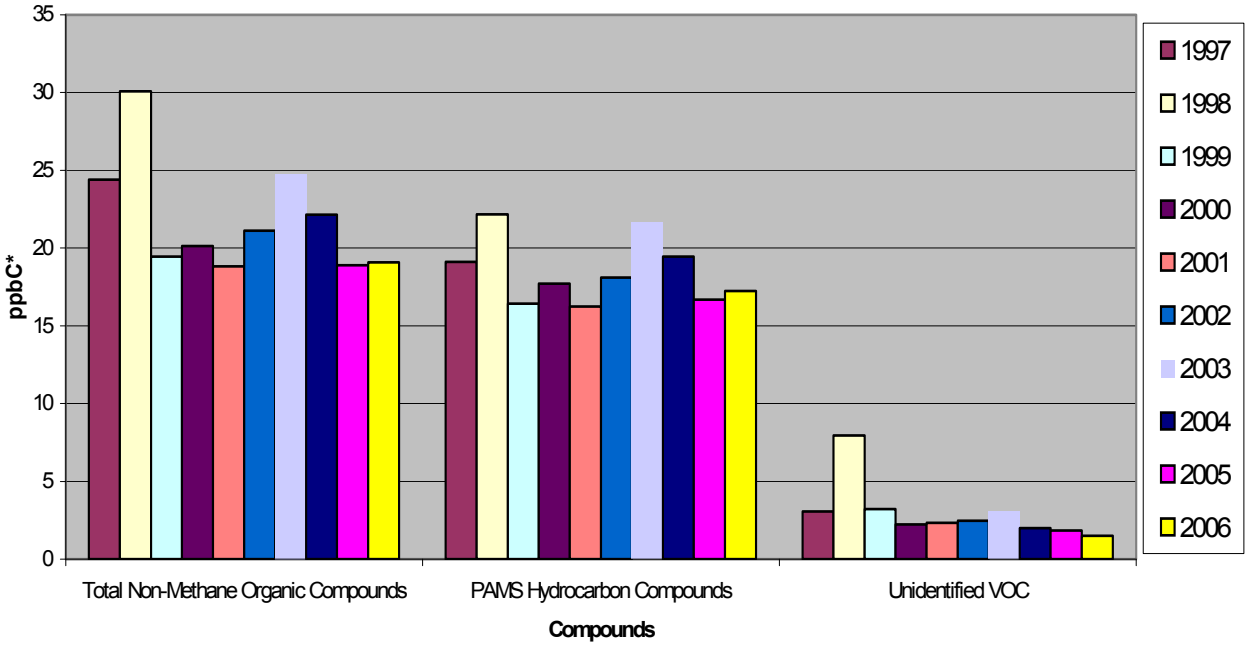
DEP performs air toxics monitoring for mercury at a site near Lancaster. This site is designed to comply with EPA's expanded national toxic monitoring program. Data supplied from this monitoring site, and the expanded national network, will assist in rulemaking and model validation. EPA will use these computer models to estimate lifetime chemical exposures and subsequent health-effect risks.

Data from the Lancaster site for 2006 has been summarized in Appendix A, Table A-23. There are no federal or state ambient air quality standards for mercury.

For more information on PA's Air Toxics monitoring, visit us through the Department's website at http://www.depweb.state.pa.us (DEP Keyword: toxics).

Figure 2-33. Air Toxics Trends at the Arendtsville Monitoring Site (1997-2006)
Annual Means





*ppbC = parts per Billion Carbon

CHAPTER 3 - Air Quality Index

Formerly, a Pollutant Standards Index (PSI) was published daily for monitoring sites in Pennsylvania. The PSI was a national uniform method for reporting air quality that incorporates recorded levels of five common air contaminants: carbon monoxide (CO), sulfur dioxide (SO_2), suspended particulate matter 10 microns or less in size (PM_{10}), ozone, and nitrogen dioxide (NO_2).

The PSI used a segmented linear function to convert concentration levels of these pollutants into normalized numbers based on the National Ambient Air Quality Standards (NAAQS), the various episode levels, and the significant harm levels for each pollutant.

On Oct. 4, 1999, EPA revised the PSI to update health messages for carbon monoxide, sulfur dioxide, and nitrogen dioxide. It reflects updated health information considered in the EPA proposal to revise the air quality standards for ground-level ozone (smog) and particulate matter. The revised index will ensure consistency between current science on the health effects of all of these air pollutants and the reporting of this air quality and health information to the public. The new index is called the Air Quality Index (AQI).

The AQI adds an additional air quality category to the former PSI categories just above the level of the standard. The AQI index establishes a category from 101 -150 characterized as "unhealthy for sensitive groups" and a category of 151 - 200 as "unhealthy". The AQI includes modifications to the ozone sub-index (an 8-hour sub-index) and a new sub-index for fine particulate matter. These changes to the AQI are based on health effects information from the review of the ozone and particulate matter standards.

The AQI has been adopted by DEP and is published on DEP's web site with hourly updates (DEP Keyword: Air Quality Index, Air Index). The breakpoints for the AQI in terms of pollutant concentrations are shown in Table 3-1.

TABLE 3-1. BREAKPOINTS FOR THE AIR QUALITY INDEX (AQI)

O_3 (ppm) 8 - hour	O_3 (ppm) 1 – hour([1])	$PM_{2.5}$ ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	CO (ppm)	SO_2 (ppm) 1-hour	NO_2 (ppm)	AQI	Category
0.000 – 0.064	-	0.0 – 15.4	0 – 54	0.0 – 4.4	0.000 – 0.034	([2])	0 - 50	Good
0.065 – 0.084	-	15.5 – 40.4	55 – 154	4.5 – 9.4	0.035 – 0.144	([2])	51 - 100	Moderate
0.085 – 0.104	0.125 – 0.164	40.5 – 65.4	155 - 254	9.5 – 12.4	0.145 – 0.224	([2])	101 - 150	Unhealthy for sensitive groups
0.105 – 0.124	1.65 – 0.204	65.5 – 150.4	255 – 354	12.5 – 15.4	0.225 – 0.304	([2])	151 - 200	Unhealthy
0.125 – 0.374	0.205 – 0.404	150.5 – 250.4	355 – 424	15.5 – 30.4	0.305 – 0.604	0.65 – 1.24	201 - 300	Very unhealthy
([3])	0.405 – 0.504	250.5 – 350.4	425 – 504	30.5 – 40.4	0.605 – 0.804	1.25 – 1.64	301 - 400	Hazardous
([3])	0.505 – 0.604	350.5 – 500.4	505 - 604	40.5 – 50.4	0.805 – 1.004	1.65 – 2.04	401 - 500	Hazardous

[1] Agencies are generally required to report the AQI based on 8-hour ozone values. However, there are a small number of areas where an AQI based on 1-hour ozone values would be more precautionary. In these cases, in addition to calculating the 8-hour ozone index value, the 1-hour ozone index value may be calculated and the maximum of the two values is reported.
[2] NO2 has no short-term NAAQS and can generate an AQI only above a AQI value of 200.
[3] When 8-hour Ozone concentrations exceed 0.374 ppm, AQI values of 301 or higher must be calculated with 1-hour concentrations.

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CHAPTER 4 - Precision and Accuracy

DEP conducts regularly scheduled performance audits and precision checks on all air monitoring equipment. Performance audits are conducted quarterly for the purpose of assessing data accuracy on carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), total suspended particulate (TSP), suspended particulate matter 10 microns or less in size (PM_{10}), and lead (Pb) monitoring equipment. Precision checks are performed every two weeks on CO, SO_2, NO_2, and O_3 and every sampling day (once every sixth day) for selected TSP, $PM_{2.5,}$ PM_{10}, and lead.

Data obtained from the performance audits and precision checks are converted to 95 percent upper and lower probability limits using standard statistical methods.

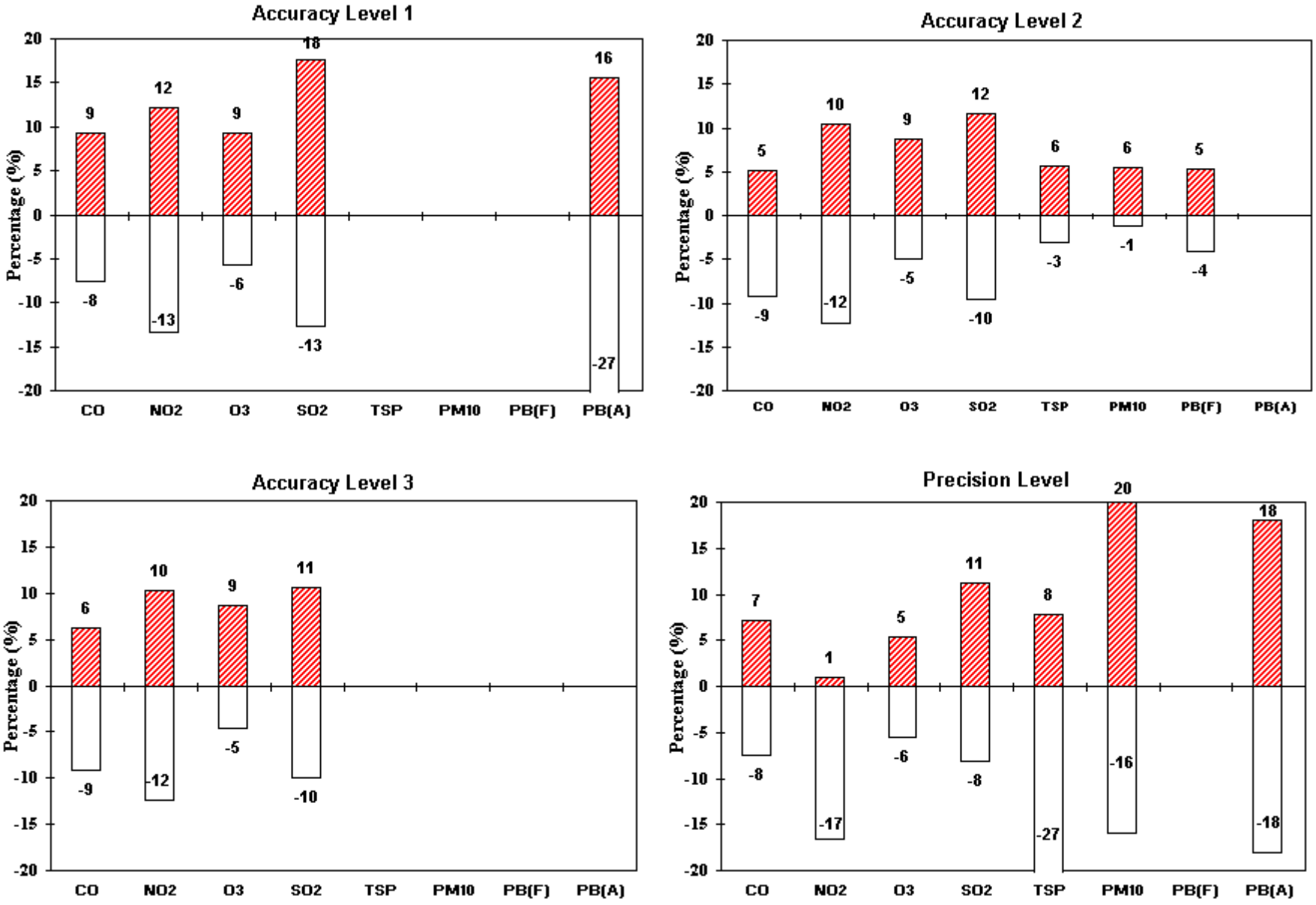
For precision, only one probability level is calculated for each parameter. Acceptable 95 percent probability limits for precision are met when the instrument response is within 15 percent for all parameters. For continuous analyzers, every two weeks the equipment is challenged by a low level gas of known concentration; and for discrete particulate parameters (TSP, PM_{10}, and lead), filters from pairs of collocated samplers that run on a one-in-six-day schedule are analyzed and compared. This Precision Level data is shown in Figure 4-1.

For accuracy, acceptable 95 percent probability limits are met when the instrument response is within 20 percent for continuous gaseous parameters and within 15 percent for discrete particulate parameters (TSP, PM_{10} and lead). Challenging the equipment quarterly with 3 known concentration levels of audit gas, which are shown as Accuracy Levels 1, 2, and 3 (Figure 4-1), respectively, determines accuracy for continuous analyzers. For discrete particulate parameters (TSP, PM_{10}, and lead), an annual audit of the flow rate determines accuracy. These data are shown on the Accuracy Level 2 graph (Figure 4-1).

Figure 4-1 on the following page summarizes the 95 percent probability limits from all four quarterly reporting periods within the calendar year. The values presented were calculated from weighted arithmetic averages for each quarter's probability limits.

Note that there are two different types of accuracy checks for lead: the normal flow check, which is indicated by PB(F) and a quarterly analytical check, which is indicated by PB(A), on the legends of each graph. This analytical check is part of the EPA sponsored National Performance Audit Program (NPAP) in which spiked lead strips are sent to state laboratories to verify laboratory analysis accuracy.

Figure 4-1. Annual Accuracy and Precision Probability Limits 2006
95% Lower/Upper Limits



APPENDIX A - Data Tables

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Appendix A: Table A1

Total Suspended Particulate Matter Summary
(Units: micrograms per cubic meter)

Year: 2006

Site Name	PA Site Code	Geometric Annual Mean	Geometric Standard Deviation	Arithmetic Annual Mean	Number 24-hour Samples	Daily Averages 1st 24-hour Mean	Date MM/DD	2nd 24-hour Mean	Date MM/DD	Minimum 24-hour Mean
Southeast Pennsylvania Air Basin										
Chester	P11	28	1.54	31	58	71	05/05	59	06/22	10
Reading Air Basin										
Laureldale	R10	31	1.71	37	57	102	03/30	97	05/05	6
Southcentral Region Non-Air Basin										
Lyons East	301	26	1.65	29	58	81	05/05	60	03/30	6
Lyons South	375	19	1.91	23	59	78	05/29	77	05/05	1
Johnstown Air Basin										
East Conemaugh	J08	26	1.74	30	60	85	04/11	64	02/16	6
Monongahela Valley Air Basin										
Monessen	M16	40	1.59	44	61	94	04/11	87	06/16	10
Lower Beaver Valley Air Basin										
Vanport	B05	23	1.93	28	59	64	07/10	58	05/29	3

No Long- or Short-Term Air Quality Standard

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-2

Total Suspended Particulate Matter Historical Trend
Annual Geometric Means
(Units: micrograms per cubic meter)

Site Name	PA Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Southeast Pennsylvania Air Basin											
Chester	P11	55	40	35	39	36	33	35	34	37	28
Northeast Region Non-Air Basin											
Palmerton	205	31	29	27	28	27	28	30	25	29	***
Reading Air Basin											
Laureldale	R10	53	51	44	44	39	40	39	34	39	31
Southcentral Region Non-Air Basin											
Lyons East	301	32	30	***	39	30	28	42	25	27	26
Lyons South	375	***	***	***	***	***	26	23	21	22	19
Johnstown Air Basin											
East Conemaugh	J08	40	41	42	42	30	28	30	26	30	26
Monongahela Valley Air Basin											
Monessen	M16	44	44	44	42	46	39	38	37	43	40
Lower Beaver Valley Air Basin											
Vanport	B05	35	33	34	35	30	17?	9	8	14	23

No Long- or Short-Term Air Quality Standard

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 30 samples collected during year

Appendix A: Table A-3

Sulfate Suspended Particulate Matter Summary
(Units: micrograms per cubic meter)

Year: 2006

Site Name	PA Site Code	Annual Mean	Number 24-hour Samples	Number 30 Day > 10	1st Max 30 Day Mean	1st Max 30 Day MM	2nd Max 30 Day Mean	2nd Max 30 Day MM	Number 24-hour > 30	1st Max 24-hour Mean	1st Max 24-hour MM/DD	2nd Max 24-hour Mean	2nd Max 24-hour MM/DD
Reading Air Basin													
Laureldale	R10	8.9	59	1	12.7	7	9.9	2	0	17.7	08/03	17.0	07/04
Johnstown Air Basin													
East Conemaugh	J08	10.1	60	6	14.3	7	12.6	5	0	22.0	07/04	20.3	09/08
Monongahela Valley Air Basin													
Monessen	M16	11.8	61	8	17.1	7	15.1	8	0	22.7	07/10	21.0	09/08

No Long- or Short-Term Air Quality Standard

Appendix A: Table A-4

Nitrate Suspended Particulate Matter Summary
(Units: micrograms per cubic meter)

Year: 2006

Site Name	PA Site Code	Annual Mean	Number 24-hour Samples	1st Max 24-hour Mean	1st Max 24-hour MM/DD	2nd Max 24-hour Mean	2nd Max 24-hour MM/DD	3rd Max 24-hour Mean	3rd Max 24-hour MM/DD	Minimum 24-hour Mean
Reading Air Basin										
Laureldale	R10	3.52	59	11.6	03/30	10.8	02/10	10.2	01/11	0.58
Johnstown Air Basin										
East Conemaugh	J08	2.13	60	6.2	11/01	5.0	02/10	4.9	12/13	0.48
Monongahela Valley Air Basin										
Monessen	M16	3.16	61	10.2	03/24	7.6	11/01	6.0	05/29	0.77

No Long- or Short-Term Air Quality Standard

Appendix A: Table A-5

Lead Suspended Particulate Matter Summary
(Units: micrograms per cubic meter)

Year: 2006

Site Name	PA Site Code	1st Quarter Mean	2nd Quarter Mean	3rd Quarter Mean	4th Quarter Mean	Number of Samples 1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Southeast Pennsylvania Air Basin									
Chester	P11	0.04	0.05	0.04	0.04	15	15	14	14
Reading Air Basin									
Laureldale	R10	0.23	0.26	0.15	0.38	14	13	14	14
Southcentral Region Non-Air Basin									
Lyons East	301	0.14	0.13	0.13	0.11	14	15	14	15
Lyons South	375	0.06	0.10	0.05	0.08	15	15	14	15
Johnstown Air Basin									
East Conemaugh	J08	0.04	0.04	0.04	0.05	15	15	14	16
Monongahela Valley Air Basin									
Monessen	M16	0.04	0.04	0.04	0.04	15	15	15	16
Lower Beaver Valley Air Basin									
Vanport	B05	0.09	0.12	0.18	0.07	15	13	15	16

Primary Quarterly National Ambient Air Quality Standard of 1.5 micrograms per cubic meter

Appendix A: Table A-6

Lead Suspended Particulate Matter Historical Trend
Maximum Quarterly Means
(Units: micrograms per cubic meter)

Site Name	PA Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Southeast Pennsylvania Air Basin											
Chester	P11	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.05
Northeast Region Non-Air Basin											
Palmerton	205	0.09	0.11	0.07	0.11	0.07	0.09	0.10	0.12	0.25	***
Reading Air Basin											
Laureldale	R10	0.30	0.31	0.29	0.33	0.27	0.22	0.39	0.40	0.39	0.38
Southcentral Region Non-Air Basin											
Lyons East	301	0.29	0.22	***	0.22	0.23	0.16	0.12	0.18	0.17	0.14
Lyons South	375	***	***	***	***	***	0.09	0.08	0.09	0.09	0.10
Johnstown Air Basin											
East Conemaugh	J08	0.04	0.04	0.09	0.05	0.04	0.03	0.04	0.05	0.06	0.05
Monongahela Valley Air Basin											
Monessen	M16	0.05	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.04
Lower Beaver Valley Air Basin											
Vanport	B05	0.08	0.06	0.08	0.07	0.06	0.11	0.09	0.09	0.15	0.18

Primary Quarterly National Ambient Air Quality Standard of 1.5 micrograms per cubic meter

*** indicates less than 30 samples collected during year

Appendix A: Table A-7

PM-10 Particulate Matter Summary
(Units: micrograms per cubic meter / standard conditions)

Year: 2006

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24-hour Means	Maximum 24-hour Means 1st 24HR Mean	1st Date MM/DD	2nd 24HR Mean	2nd Date MM/DD	3rd 24HR Mean	4th 24HR Mean	99th Percentile 24HR	Minimum 24-hour Mean
Southeast Pennsylvania Air Basin											
Bristol (TEOM)	P01	17	351	56	08/02	52	08/01	45	43	43	3
Chester (TEOM)	P11	20	355	75	09/01	63	08/02	58	53	53	5
Norristown (TEOM)	P21	17	353	57	08/01	55	08/02	51	47	47	2
Allentown-Bethlehem-Easton Air Basin											
Allentown (TEOM)	A19	17	351	54	08/02	52	08/01	49	48	48	4
Freemansburg (TEOM)	A25	18	340	54	08/02	50	07/18	50	48	48	3
Nazareth (TEOM)	A26	28	347	98	06/19	88	07/18	80	79	79	4
Scranton-Wilkes-Barre Air Basin											
Scranton (TEOM)	S01	17	358	57	06/18	52	07/11	48	47	47	5
Wilkes-Barre (TEOM)	S28	18	358	64	06/18	56	07/11	55	51	51	3
Reading Air Basin											
Reading (TEOM)	R01	13?	121	35	02/15	34	02/16	34	28	34	4
Reading (Central)	R15	21	59	51	03/30	47	02/16	47	44	51	4
Harrisburg Air Basin											
Harrisburg (TEOM)	H11	20	360	56	08/01	53	08/03	51	48	48	3
Lancaster Air Basin											
Lancaster (TEOM)	L01	19	365	59	08/01	58	08/02	50	49	49	3
York Air Basin											
York (TEOM)	Y01	23	363	67	08/01	62	08/02	53	50	50	4
Southcentral Region Non-Air Basin											
Altoona (TEOM)	308	19	364	65	03/31	63	08/02	59	58	58	3
Northcentral Region Non-Air Basin											
Montoursville	410	17	58	49	02/16	38	07/04	37	35	49	2
Johnstown Air Basin											
Johnstown (TEOM)	J01	23	345	63	08/01	61	12/11	57	55	55	1
Monongahela Valley Air Basin											
Charleroi (TEOM)	M01	21	365	61	07/20	58	05/30	58	53	53	5
Monessen	M16	25	60	50	06/16	49	05/29	48	48	50	6

Primary and Secondary National Ambient Air Quality Standards
Former Annual Mean = 50 micrograms per cubic meter
24-hour Mean (3-year average of 99th Percentile) = 150 micrograms per cubic meter

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-7

PM-10 Particulate Matter Summary
(Units: micrograms per cubic meter / standard conditions)

Year: 2006

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24-hour Means	Maximum 24-hour Means 1st 24HR Mean	1st Date MM/DD	2nd 24HR Mean	2nd Date MM/DD	3rd 24HR Mean	4th 24HR Mean	99th Percentile 24HR	Minimum 24-hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls (TEOM)	B11	26	362	81	04/12	81	11/07	79	72	72	3
Southwest Region Non-Air Basin											
Florence	504	17	55	52	07/10	48	05/29	41	33	52	4
Greensburg (TEOM)	513	20	352	57	08/01	50	07/20	50	49	49	4
Upper Beaver Valley Air Basin											
New Castle (TEOM)	B21	27	363	76	04/12	72	01/13	72	71	71	4
Erie Air Basin											
Erie (TEOM)	E10	15	361	56	06/18	46	05/30	44	42	42	4

Primary and Secondary National Ambient Air Quality Standards
Former Annual Mean = 50 micrograms per cubic meter
24-hour Mean (3-year average of 99th Percentile) = 150 micrograms per cubic meter

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-8

PM-10 Particulate Matter Historical Trend
(Units: micrograms per cubic meter / standard conditions)

Site Name / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Southeast Pennsylvania Air Basin											
Bristol (TEOM)	20	23	17	18	21	18	19	18	18	17	Annual Mean
P01	59	57	51	53	57	56	56	49	50	43	99th Percentile 24-hour Mean
Chester (TEOM)	24	25	21	22	23	20	21	23	21	20	Annual Mean
P11	60	63	55	62	60	60	54	53	57	53	99th Percentile 24-hour Mean
Norristown (TEOM)	21	21	18	19	20	16	19	17	19	17	Annual Mean
P21	66	56	49	49	56	49	50	43	51	47	99th Percentile 24-hour Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown (TEOM)	19	17	11	29	21	18	18	15	18	17	Annual Mean
A19	55	46	36	94	64	54	45	38	51	48	99th Percentile 24-hour Mean
Freemansburg (TEOM)	***	26?	38	35	20	20	19	19	19	18	Annual Mean
A25	***	65	97	98	60	60	55	55	50	48	99th Percentile 24-hour Mean
Nazareth (TEOM)	***	***	***	28	30	29	33	32	38	28	Annual Mean
A26	***	***	***	76	99	95	104	101	117	79	99th Percentile 24-hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton (TEOM)	20	21	12?	16	20	18	17	16	17	17	Annual Mean
S01	61	59	51	41	57	63	48	42	51	47	99th Percentile 24-hour Mean
Wilkes-Barre (TEOM)	21	24	***	18	20	19	21	17	20	18	Annual Mean
S28	62	64	***	49	57	63	68	45	52	51	99th Percentile 24-hour Mean
Reading Air Basin											
Reading (TEOM)	21	21	21	20	22	20	19	20	21	13?	Annual Mean
R01	59	55	49	52	63	58	50	47	56	34	99th Percentile 24-hour Mean
Reading (Central)	29	27	29	27	24	25	25	20	24?	21	Annual Mean
R15	79	67	53	66	62	60	83	46	85	51	99th Percentile 24-hour Mean
Harrisburg Air Basin											
Harrisburg (TEOM)	22	23	21	21	22	20	21	21	21	20	Annual Mean
H11	62	65	53	65	60	62	53	51	53	48	99th Percentile 24-hour Mean
Lancaster Air Basin											
Lancaster (TEOM)	23	24	24	21	23	21	20	20	20	19	Annual Mean
L01	68	62	63	55	67	61	49	49	55	49	99th Percentile 24-hour Mean

Primary and Secondary National Ambient Air Quality Standards
Former Annual Mean = 50 micrograms per cubic meter
24-hour Mean (3-year average of 99th Percentile) = 150 micrograms per cubic meter

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 30 discrete samples collected or less than 50 percent continuous data (TEOM)

Appendix A: Table A-8

PM-10 Particulate Matter Historical Trend
(Units: micrograms per cubic meter / standard conditions)

Site Name / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
York Air Basin											
York (TEOM)	23	26	23	22	24	21	24	22	24	23	Annual Mean
Y01	70	60	56	55	68	61	71	52	62	50	99th Percentile 24-hour Mean
Southcentral Region Non-Air Basin											
Altoona (TEOM)	21	22	19	20	24	22	20	20	21	19	Annual Mean
308	59	58	57	54	69	63	69	58	65	58	99th Percentile 24-hour Mean
Northcentral Region Non-Air Basin											
Montoursville	***	***	***	***	***	20	20	18?	20	17	Annual Mean
410	***	***	***	***	***	66	45	42	40	49	99th Percentile 24-hour Mean
Johnstown Air Basin											
Johnstown (TEOM)	24	26	24	21	24	24	22	22	24	23	Annual Mean
J01	66	64	61	53	74	64	64	57	65	55	99th Percentile 24-hour Mean
Monongahela Valley Air Basin											
Charleroi (TEOM)	24	26	27	21	25	21	19	20	23	21	Annual Mean
M01	57	62	95	51	69	57	56	50	71	53	99th Percentile 24-hour Mean
Monessen	32	34	38	31	31	30	29	25	30	25	Annual Mean
M16	75	74	79	62	67	76	59	77	73	50	99th Percentile 24-hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls (TEOM)	27	28	***	22	26	25	22	23	26	26	Annual Mean
B11	80	83	***	53	75	82	70	59	72	72	99th Percentile 24-hour Mean
Southwest Region Non-Air Basin											
Florence	***	***	27	22	20	21	20	16	21	17	Annual Mean
504	***	***	72	54	60	80	72	49	54	52	99th Percentile 24-hour Mean
Greensburg (TEOM)	***	***	20	19	23	22	22	20?	23	20	Annual Mean
513	***	***	52	47	57	59	60	48	59	49	99th Percentile 24-hour Mean
Upper Beaver Valley Air Basin											
New Castle (TEOM)	33	33	28	28	32	29	26	26	26	27	Annual Mean
B21	90	90	78	74	79	73	79	62	72	71	99th Percentile 24-hour Mean
Erie Air Basin											
Erie (TEOM)	20	21	18	18	19	19	16	14?	16	15	Annual Mean
E10	59	62	51	47	54	58	47	48	49	42	99th Percentile 24-hour Mean

Primary and Secondary National Ambient Air Quality Standards
Former Annual Mean = 50 micrograms per cubic meter
24-hour Mean (3-year average of 99th Percentile) = 150 micrograms per cubic meter

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 30 discrete samples collected or less than 50 percent continuous data (TEOM)

Appendix A: Table A-9

PM-2.5 Particulate Matter Summary
(Units: micrograms per cubic meter / local conditions)

Year: 2006

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24-hour Means	Maximum 24-hour Means 1st 24HR Mean	1st Date MM/DD	2nd 24HR Mean	2nd Date MM/DD	3rd 24HR Mean	4th 24HR Mean	98th Percentile 24HR	Minimum 24-hour Mean
Southeast Pennsylvania Air Basin											
Bristol	P01	12.2?	104	38.6	11/28	38.2	07/04	34.2	32.5	34.2	2.3
Chester	P11	14.0?	102	38.6	08/03	38.0	06/19	36.7	31.9	36.7	3.0
Chester (BAM)	P11	11.6?	148	31.1	08/02	29.1	08/01	27.4	22.4	27.4	4.8
Norristown	P21	12.1	109	39.0	11/28	36.6	06/10	36.4	29.9	36.4	0.5
Norristown (TEOM)	P21	17.8	342	65.9	08/02	54.2	08/01	53.6	49.6	44.5	0.4
New Garden	P30	12.6?	92	41.6	06/19	38.3	11/28	31.2	31.1	38.3	3.8
Allentown-Bethlehem-Easton Air Basin											
Freemansburg	A25	12.8	342	42.7	08/02	41.0	06/18	40.4	39.6	38.3	1.7
Freemansburg (TEOM)	A25	12.8	350	47.0	08/02	44.6	08/01	40.2	40.0	35.5	2.6
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	10.6	333	47.4	06/19	38.3	07/11	35.6	34.1	28.7	1.7
Reading Air Basin											
Reading	R01	12.2?	43	36.9	03/30	31.9	01/11	31.4	31.0	36.9	4.7
Reading (TEOM)	R01	13.6?	128	44.4	03/29	37.5	02/14	36.1	34.4	36.1	3.5
Reading Temp	R02	14.9?	71	49.5	11/28	39.4	07/04	35.1	33.3	39.4	1.8
Reading Temp (TEOM)	R02	18.0?	220	55.7	11/28	50.6	11/27	47.2	46.2	45.4	1.5
Harrisburg Air Basin											
Harrisburg	H11	14.0	346	51.9	11/29	48.0	11/28	44.5	43.8	37.0	1.6
Harrisburg (BAM)	H11	15.7	362	62.5	11/29	60.1	08/01	53.9	53.3	43.8	1.7
Lancaster Air Basin											
Lancaster	L01	14.1	117	55.8	11/28	41.0	02/16	34.9	34.5	34.9	2.8
Lancaster (TEOM)	L01	18.7	363	61.6	11/28	54.6	08/02	52.6	52.0	46.9	0.7
York Air Basin											
York	Y01	14.0	112	37.9	11/28	35.3	08/03	33.2	33.0	33.2	2.2
York (TEOM)	Y01	16.9	326	65.8	08/01	57.1	08/02	48.4	47.5	42.5	2.0
Southcentral Region Non-Air Basin											
Arendtsville	314	11.8	360	47.9	08/01	43.7	08/02	39.5	36.2	33.6	1.2
Arendtsville (TEOM)	314	13.6	358	53.0	08/01	45.9	08/02	37.7	37.2	34.2	2.5
Carlisle	316	13.0	335	53.3	11/29	43.8	11/28	42.9	34.8	33.3	1.3

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 15 micrograms per cubic meter
24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-9

PM-2.5 Particulate Matter Summary
(Units: micrograms per cubic meter / local conditions)

Year: 2006

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24-hour Means	Maximum 24-hour Means 1st 24HR Mean	1st Date MM/DD	2nd 24HR Mean	2nd Date MM/DD	3rd 24HR Mean	4th 24HR Mean	98th Percentile 24HR	Minimum 24-hour Mean
Northcentral Region Non-Air Basin											
State College	409	11.4	352	43.5	08/01	39.7	08/02	39.5	39.2	31.7	1.6
Johnstown Air Basin											
Johnstown	J01	14.8	116	41.6	05/29	39.3	09/08	39.0	33.4	39.0	3.0
Johnstown (BAM)	J01	15.8	360	56.3	08/28	47.4	08/01	46.4	46.3	40.9	1.9
Monongahela Valley Air Basin											
Charleroi	M01	14.4	119	35.5	07/10	33.2	07/31	31.6	30.9	31.6	2.7
Charleroi (BAM)	M01	10.0?	144	24.2	08/26	19.7	08/14	18.9	18.8	18.9	3.5
Lower Beaver Valley Air Basin											
Beaver Falls	B11	14.9	107	41.1	01/11	39.0	11/28	37.0	33.5	37.0	3.5
Beaver Falls (TEOM)	B11	15.4	359	47.1	06/18	43.7	08/26	43.5	42.9	39.8	2.0
Southwest Region Non-Air Basin											
Florence	504	11.9?	277	47.9	07/20	41.0	05/30	39.6	39.5	39.3	2.2
Washington	508	13.1?	107	37.1	07/10	34.2	07/31	33.0	31.5	33.0	3.2
Kittanning (TEOM)	512	13.3	361	44.5	08/26	44.3	07/20	43.4	43.1	37.3	3.3
Greensburg	513	14.3	120	38.8	07/10	36.5	07/31	33.5	32.9	33.5	3.1
Erie Air Basin											
Erie	E10	11.3?	296	37.0	07/20	36.0	06/18	33.0	32.9	30.2	1.6
Northwest Region Non-Air Basin											
Farrell	606	11.8?	302	38.6	08/26	35.4	08/01	34.2	33.7	30.7	1.7

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 15 micrograms per cubic meter
24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-10

PM-2.5 Particulate Matter Historical Trend
(Units: micrograms per cubic meter / local conditions)

Site Name / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Southeast Pennsylvania Air Basin											
Bristol	***	***	12.0?	13.8?	14.6	14.2	14.4	13.0?	14.3	12.2?	Annual Mean
P01	***	***	32.8	38.4	38.5	37.2	39.6	29.9	35.4	34.2	98th Percentile 24-hour Mean
Chester	***	***	13.1?	15.9	16.0	14.6	15.3	15.0	16.5	14.0?	Annual Mean
P11	***	***	35.9	36.2	39.5	31.9	37.8	30.5	37.0	36.7	98th Percentile 24-hour Mean
Chester (BAM)	***	***	***	***	***	***	***	***	***	11.6?	Annual Mean
P11	***	***	***	***	***	***	***	***	***	27.4	98th Percentile 24-hour Mean
Norristown	***	***	13.0?	13.6?	15.1?	13.7	13.9	12.0?	12.5?	12.1	Annual Mean
P21	***	***	31.3	37.5	47.6	36.8	37.5	28.8	32.8	36.4	98th Percentile 24-hour Mean
Norristown (TEOM)	***	***	***	***	***	***	***	17.6	18.6	17.8	Annual Mean
P21	***	***	***	***	***	***	***	40.4	42.3	44.5	98th Percentile 24-hour Mean
New Garden	***	***	***	***	***	14.7	15.6	14.3?	15.9?	12.6?	Annual Mean
P30	***	***	***	***	***	33.7	38.5	32.7	33.7	38.3	98th Percentile 24-hour Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown	***	***	11.9?	14.3	15.3?	13.1?	15.0?	14.0	14.5	***	Annual Mean
A19	***	***	31.5	38.2	44.5	38.9	36.6	35.9	36.7	***	98th Percentile 24-hour Mean
Easton (TEOM)	***	***	***	12.2	14.9	14.8	14.5	13.6?	***	***	Annual Mean
A20	***	***	***	33.0	40.0	43.5	37.7	32.1	***	***	98th Percentile 24-hour Mean
Freemansburg	***	***	12.9?	13.6?	15.5	14.1	14.3	13.7	14.2	12.8	Annual Mean
A25	***	***	31.3	37.3	42.9	40.9	37.8	35.2	39.1	38.3	98th Percentile 24-hour Mean
Freemansburg (TEOM)	***	***	***	***	***	***	***	15.7?	14.6	12.8	Annual Mean
A25	***	***	***	***	***	***	***	37.9	36.9	35.5	98th Percentile 24-hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	***	***	11.0?	11.7	12.9	12.4	12.5	11.6	12.5	10.6	Annual Mean
S01	***	***	29.7	31.5	36.7	42.7	33.8	31.2	32.8	28.7	98th Percentile 24-hour Mean
Wilkes-Barre	***	***	12.5?	12.7	13.8	12.0?	13.1	12.2	13.0	***	Annual Mean
S28	***	***	32.8	32.9	37.4	28.2	35.1	30.8	31.5	***	98th Percentile 24-hour Mean
Reading Air Basin											
Reading	***	***	13.5?	16.9	16.5	16.7?	16.1	15.6	16.8	12.2?	Annual Mean
R01	***	***	35.7	37.5	43.0	48.5	45.0	33.1	39.4	36.9	98th Percentile 24-hour Mean
Reading (TEOM)	***	***	***	***	***	***	***	15.3?	18.1?	13.6?	Annual Mean
R01	***	***	***	***	***	***	***	35.3	42.4	36.1	98th Percentile 24-hour Mean
Reading Temp	***	***	***	***	***	***	***	***	***	14.9?	Annual Mean
R02	***	***	***	***	***	***	***	***	***	39.4	98th Percentile 24-hour Mean

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 15 micrograms per cubic meter
24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 11 valid samples collected each quarter

Appendix A: Table A-10

PM-2.5 Particulate Matter Historical Trend
(Units: micrograms per cubic meter / local conditions)

Site Name / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Reading Temp (TEOM)	***	***	***	***	***	***	***	***	***	18.0?	Annual Mean
R02	***	***	***	***	***	***	***	***	***	45.4	98th Percentile 24-hour Mean
Harrisburg Air Basin											
Harrisburg	***	***	14.4?	15.4?	16.6	14.5	16.2	15.7	15.5	14.0	Annual Mean
H11	***	***	39.7	45.6	47.7	42.7	41.5	35.5	40.1	37.0	98th Percentile 24-hour Mean
Harrisburg (BAM)	***	***	***	***	***	***	***	21.2?	18.6	15.7	Annual Mean
H11	***	***	***	***	***	***	***	43.4	48.9	43.8	98th Percentile 24-hour Mean
Lancaster Air Basin											
Lancaster	***	***	15.6?	17.8	17.3	16.2	17.6	16.6	18.2	14.1	Annual Mean
L01	***	***	38.2	47.0	42.1	40.2	51.5	35.5	45.2	34.9	98th Percentile 24-hour Mean
Lancaster (TEOM)	***	***	***	***	***	***	***	18.7	18.0	18.7	Annual Mean
L01	***	***	***	***	***	***	***	46.1	44.7	46.9	98th Percentile 24-hour Mean
York Air Basin											
York	***	***	15.4?	16.7	16.9	17.1	17.4	16.5	18.1	14.0	Annual Mean
Y01	***	***	34.9	41.1	41.3	47.3	47.0	39.0	39.4	33.2	98th Percentile 24-hour Mean
York (TEOM)	***	***	***	***	***	***	***	17.7?	16.8	16.9	Annual Mean
Y01	***	***	***	***	***	***	***	38.8	44.3	42.5	98th Percentile 24-hour Mean
Southcentral Region Non-Air Basin											
Perry County	***	***	***	12.2	12.6	13.3	13.1?	12.2	13.1	***	Annual Mean
305	***	***	***	30.2	33.7	36.9	34.5	27.9	29.0	***	98th Percentile 24-hour Mean
Arendtsville	***	***	13.1?	13.1?	14.1	12.6	13.6	13.7	13.6	11.8	Annual Mean
314	***	***	34.0	36.5	36.0	38.9	36.5	36.3	35.8	33.6	98th Percentile 24-hour Mean
Arendtsville (TEOM)	***	***	***	***	13.8	13.4	13.3	12.3	11.4	13.6	Annual Mean
314	***	***	***	***	38.0	39.3	33.4	32.4	34.1	34.2	98th Percentile 24-hour Mean
Carlisle	***	***	***	***	15.6	14.4	15.3	15.1	14.9	13.0	Annual Mean
316	***	***	***	***	45.0	41.5	41.6	39.1	40.1	33.3	98th Percentile 24-hour Mean
Northcentral Region Non-Air Basin											
State College	***	***	***	***	13.9?	11.9?	13.6	13.3	13.4	11.4	Annual Mean
409	***	***	***	***	45.0	36.9	35.4	37.8	39.7	31.7	98th Percentile 24-hour Mean
Johnstown Air Basin											
Johnstown	***	***	14.8?	16.1?	15.5?	16.1	15.5	14.4	16.8	14.8	Annual Mean
J01	***	***	31.0	35.4	42.1	46.6	36.8	36.2	43.2	39.0	98th Percentile 24-hour Mean

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 15 micrograms per cubic meter
24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 11 valid samples collected each quarter

Appendix A: Table A-10

PM-2.5 Particulate Matter Historical Trend
(Units: micrograms per cubic meter / local conditions)

Site Name / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Johnstown (BAM)	***	***	***	***	***	***	***	16.1?	16.9	15.8	Annual Mean
J01	***	***	***	***	***	***	***	40.4	45.8	40.9	98th Percentile 24-hour Mean
Monongahela Valley Air Basin											
Charleroi	***	***	15.4?	15.5?	15.7	15.2	14.9	14.0	16.4	14.4	Annual Mean
M01	***	***	33.2	36.0	44.4	43.3	35.6	35.4	36.4	31.6	98th Percentile 24-hour Mean
Charleroi (BAM)	***	***	***	***	***	***	***	***	***	10.0?	Annual Mean
M01	***	***	***	***	***	***	***	***	***	18.9	98th Percentile 24-hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	***	***	***	15.9?	16.5	15.3	15.7	15.4	18.3	14.9	Annual Mean
B11	***	***	***	43.6	42.4	37.7	33.8	43.0	51.8	37.0	98th Percentile 24-hour Mean
Beaver Falls (TEOM)	***	***	***	***	***	***	***	17.9?	17.1	15.4	Annual Mean
B11	***	***	***	***	***	***	***	45.7	48.1	39.8	98th Percentile 24-hour Mean
Southwest Region Non-Air Basin											
Florence	***	***	13.0?	13.3	14.3?	13.6?	13.4	13.2	14.2	11.9?	Annual Mean
504	***	***	38.1	30.5	35.5	36.7	33.9	36.0	39.2	39.3	98th Percentile 24-hour Mean
Washington	***	***	14.6?	15.1	15.8?	14.7	14.7	14.1	15.9	13.1?	Annual Mean
508	***	***	42.4	33.3	36.6	37.2	33.4	34.0	33.1	33.0	98th Percentile 24-hour Mean
Kittanning (TEOM)	***	***	***	12.2	14.9	14.3?	12.4	14.3	14.6	13.3	Annual Mean
512	***	***	***	29.0	42.0	48.3	28.8	37.8	41.2	37.3	98th Percentile 24-hour Mean
Greensburg	***	***	14.9?	16.0?	15.9	14.9?	15.3	14.9	16.8	14.3	Annual Mean
513	***	***	37.5	37.2	36.0	40.0	34.8	39.0	38.7	33.5	98th Percentile 24-hour Mean
Erie Air Basin											
Erie	***	***	12.6?	13.8?	13.8?	13.3?	12.6?	11.9	14.4	11.3?	Annual Mean
E10	***	***	30.5	28.2	37.5	42.9	29.7	32.5	40.7	30.2	98th Percentile 24-hour Mean
Northwest Region Non-Air Basin											
Farrell	***	***	***	***	14.9?	14.0	13.8	13.4	14.1	11.8?	Annual Mean
606	***	***	***	***	43.0	36.6	35.4	34.5	39.0	30.7	98th Percentile 24-hour Mean

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 15 micrograms per cubic meter
24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 11 valid samples collected each quarter

Appendix A: Table A-11

Sulfur Dioxide Summary
(Units: parts per million)

Year: 2006

Site Name	PA Site Code	Percent Valid Data	Annual Mean	Daily (Block) Averages 1st Max 24HR Mean	1st Max Date MM/DD	2nd Max 24HR Mean	2nd Max Date MM/DD	Block Averages 1st Max 3HR Mean	1st Max Date MM/DD	2nd Max 3HR Mean	2nd Max Date MM/DD	Max 1 HR Mean
Southeast Pennsylvania Air Basin												
Bristol	P01	97.5	0.005	0.023	12/21	0.022	12/17	0.033	12/17	0.033	12/18	0.036
Chester	P11	98.8	0.005	0.017	02/15	0.017	12/09	0.059	02/15	0.043	06/01	0.072
Norristown	P21	98.0	0.007	0.021	02/15	0.019	02/20	0.036	02/15	0.033	01/20	0.050
Allentown-Bethlehem-Easton Air Basin												
Allentown	A19	99.5	0.006	0.033	02/11	0.032	01/03	0.043	02/11	0.042	01/03	0.065
Easton	A20	97.2	0.011	0.156	11/12	0.147	11/13	0.260	11/13	0.256	08/15	0.406
Freemansburg	A25	99.5	0.005	0.022	12//11	0.019	03/02	0.041	12/11	0.038	03/02	0.061
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	97.5	0.004	0.018	11/27	0.016	01/28	0.047	11/27	0.040	11/27	0.080
Wilkes-Barre	S28	80.0	0.005	0.017	01/28	0.017	12/11	0.047	02/23	0.039	12/11	0.057
Northeast Region Non-Air Basin												
Shenandoah	211	96.7	0.005	0.022	11/06	0.021	11/30	0.067	11/06	0.067	11/30	0.082
Reading Air Basin												
Reading	R01	33.0	0.007?	0.020	02/02	0.016	02/16	0.052	02/02	0.041	03/13	0.085
Harrisburg Air Basin												
Harrisburg	H11	99.3	0.005	0.017	06/14	0.014	02/20	0.083	06/14	0.045	05/07	0.136
Lancaster Air Basin												
Lancaster	L01	98.9	0.005	0.020	02/20	0.018	03/08	0.067	05/02	0.044	09/03	0.100
York Air Basin												
York	Y01	98.9	0.005	0.025	03/24	0.021	01/16	0.084	03/24	0.075	01/16	0.138
Southcentral Region Non-Air Basin												
Perry County	305	98.8	0.002	0.015	01/17	0.014	12/12	0.033	12/12	0.030	01/27	0.040
Altoona	308	97.2	0.007	0.031	12/21	0.024	12/11	0.050	12/21	0.049	12/21	0.054
Northcentral Region Non-Air Basin												
State College	409	99.1	0.002	0.012	12/28	0.011	12/11	0.027	11/27	0.024	12/28	0.041
Montoursville	410	98.3	0.005	0.028	01/24	0.027	01/22	0.056	01/22	0.047	01/17	0.066
Johnstown Air Basin												
Johnstown	J01	98.8	0.008	0.024	08/28	0.024	09/04	0.084	12/18	0.072	08/28	0.115

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 0.030 parts per million
24-hour Mean (Daily Block Average) = 0.14 parts per million
3-hour Mean (Block Average) = 0.50 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-11

Sulfur Dioxide Summary
(Units: parts per million)

Year: 2006

Site Name	PA Site Code	Percent Valid Data	Annual Mean	Daily (Block) Averages 1st Max 24HR Mean	1st Max Date MM/DD	2nd Max 24HR Mean	2nd Max Date MM/DD	Block Averages 1st Max 3HR Mean	1st Max Date MM/DD	2nd Max 3HR Mean	2nd Max Date MM/DD	Max 1 HR Mean
Monongahela Valley Air Basin												
Charleroi	M01	99.2	0.008	0.027	02/20	0.021	12/20	0.072	12/20	0.063	01/10	0.108
Lower Beaver Valley Air Basin												
Beaver Falls	B11	98.5	0.007	0.027	12/09	0.023	12/11	0.061	11/15	0.053	01/16	0.080
Hookstown	B23	99.1	0.009	0.043	12/11	0.036	11/25	0.087	07/17	0.084	12/20	0.157
Brighton Twp.	B27	98.9	0.009	0.097	11/26	0.054	12/11	0.316	11/26	0.231	05/29	0.423
Allegheny County Air Basin												
Pittsburgh	D12	98.3	0.007	0.023	08/30	0.020	11/08	0.078	11/08	0.068	08/30	0.101
Southwest Region Non-Air Basin												
Florence	504	99.3	0.006	0.034	12/11	0.029	12/10	0.073	11/25	0.062	04/10	0.124
Washington	508	98.3	0.009	0.024	11/01	0.024	12/12	0.091	11/01	0.063	01/10	0.110
Greensburg	513	99.1	0.005	0.021	12/20	0.021	12/28	0.071	12/28	0.068	12/03	0.095
Holbrook	514	57.5	0.006?	0.018	04/20	0.017	05/30	0.070	04/20	0.046	07/19	0.082
Strongstown	515	99.6	0.008	0.041	12/11	0.028	02/20	0.124	10/02	0.108	12/11	0.169
Upper Beaver Valley Air Basin												
New Castle	B21	99.7	0.007	0.026	01/07	0.024	01/16	0.097	01/16	0.065	05/31	0.146
Erie Air Basin												
Erie	E10	98.4	0.009	0.026	12/12	0.023	03/08	0.052	12/12	0.040	04/29	0.062
Northwest Region Non-Air Basin												
Farrell	606	96.3	0.005	0.019	11/28	0.019	12/12	0.037	11/25	0.035	11/28	0.056
Warren	611	96.0	0.004	0.018	03/08	0.017	01/28	0.056	07/07	0.047	03/08	0.101
Warren (Overlook)	612	97.9	0.011	0.098	11/27	0.086	11/25	0.203	11/24	0.200	11/27	0.247

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 0.030 parts per million
24-hour Mean (Daily Block Average) = 0.14 parts per million
3-hour Mean (Block Average) = 0.50 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-12

Sulfur Dioxide Historical Trend
(Units: parts per million)

Site Name / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Southeast Pennsylvania Air Basin											
Bristol	0.007	0.008	0.005	0.007	0.006	0.008	0.008	0.004	0.006	0.005	Annual Mean
P01	0.029	0.024	0.020	0.027	0.029	0.028	0.029	0.023	0.023	0.022	2nd Max 24-hour Mean
	0.043	0.043	0.035	0.044	0.041	0.041	0.042	0.035	0.034	0.033	2nd Max 3-hour Mean
Chester	0.008	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.006	0.005	Annual Mean
P11	0.026	0.027	0.025	0.026	0.023	0.022	0.028	0.019	0.016	0.017	2nd Max 24-hour Mean
	0.062	0.048	0.057	0.048	0.045	0.044	0.049	0.038	0.043	0.043	2nd Max 3-hour Mean
Norristown	0.008	0.006	0.006	0.004	0.004	0.005	0.005	0.004	0.006	0.007	Annual Mean
P21	0.025	0.022	0.020	0.022	0.019	0.019	0.023	0.018	0.018	0.019	2nd Max 24-hour Mean
	0.048	0.030	0.042	0.032	0.041	0.031	0.036	0.027	0.031	0.033	2nd Max 3-hour Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown	0.008	0.008	0.006	0.007	0.007	0.008	0.009	0.007	0.008	0.006	Annual Mean
A19	0.030	0.030	0.030	0.027	0.028	0.028	0.038	0.045	0.032	0.032	2nd Max 24-hour Mean
	0.058	0.047	0.058	0.053	0.044	0.041	0.058	0.068	0.072	0.042	2nd Max 3-hour Mean
Easton	***	***	***	0.008	0.014	0.006	0.008	0.013	0.009	0.011	Annual Mean
A20	***	***	***	0.023	0.030	0.024	0.037	0.044	0.034	0.147	2nd Max 24-hour Mean
	***	***	***	0.069	0.055	0.046	0.054	0.096	0.080	0.256	2nd Max 3-hour Mean
Freemansburg	***	0.006	0.009	0.006	0.004	0.006	0.004	0.005	0.007	0.005	Annual Mean
A25	***	0.027	0.021	0.020	0.019	0.020	0.018	0.023	0.021	0.019	2nd Max 24-hour Mean
	***	0.040	0.047	0.034	0.028	0.046	0.036	0.036	0.058	0.038	2nd Max 3-hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	0.006	0.005	0.005	0.004	0.005	0.004	0.005	0.005	0.005	0.004	Annual Mean
S01	0.031	0.026	0.021	0.021	0.026	0.023	0.020	0.016	0.025	0.016	2nd Max 24-hour Mean
	0.049	0.044	0.033	0.038	0.044	0.036	0.034	0.030	0.035	0.040	2nd Max 3-hour Mean
Wilkes-Barre	0.007	0.006	0.007	0.006	0.008	0.008	0.005	0.005	0.005	0.005	Annual Mean
S28	0.026	0.022	0.023	0.026	0.031	0.024	0.021	0.019	0.019	0.017	2nd Max 24-hour Mean
	0.047	0.041	0.039	0.052	0.048	0.044	0.035	0.035	0.034	0.039	2nd Max 3-hour Mean
Northeast Region Non-Air Basin											
Shenandoah	0.010	0.007	0.006	0.006	0.007	0.006	0.006	0.007	0.006	0.005	Annual Mean
211	0.035	0.026	0.038	0.025	0.035	0.026	0.023	0.027	0.027	0.021	2nd Max 24-hour Mean
	0.064	0.059	0.074	0.053	0.052	0.140	0.045	0.058	0.044	0.067	2nd Max 3-hour Mean

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 0.030 parts per million
24-hour Mean (Daily Block Average) = 0.14 parts per million
3-hour Mean (Block Average) = 0.50 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 50 percent valid data for the year

Appendix A: Table A-12

Sulfur Dioxide Historical Trend
(Units: parts per million)

Site Name / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Reading Air Basin											
Reading	0.008	0.009	0.008	0.008	0.007	0.007	0.008	0.008	0.008	0.007?	Annual Mean
R01	0.028	0.022	0.027	0.028	0.025	0.019	0.023	0.020	0.023	0.016	2nd Max 24-hour Mean
	0.067	0.096	0.094	0.075	0.091	0.083	0.087	0.068	0.075	0.041	2nd Max 3-hour Mean
Harrisburg Air Basin											
Harrisburg	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005	0.005	Annual Mean
H11	0.021	0.021	0.024	0.015	0.013	0.017	0.017	0.018	0.020	0.014	2nd Max 24-hour Mean
	0.043	0.047	0.050	0.026	0.056	0.048	0.048	0.061	0.054	0.045	2nd Max 3-hour Mean
Lancaster Air Basin											
Lancaster	0.007	0.006	0.005	0.005	0.004	0.005	0.005	0.005	0.006	0.005	Annual Mean
L01	0.023	0.020	0.021	0.024	0.018	0.014	0.018	0.017	0.022	0.018	2nd Max 24-hour Mean
	0.050	0.047	0.045	0.048	0.036	0.034	0.032	0.049	0.050	0.044	2nd Max 3-hour Mean
York Air Basin											
York	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.005	0.006	0.005	Annual Mean
Y01	0.026	0.023	0.019	0.020	0.019	0.014	0.012	0.020	0.030	0.021	2nd Max 24-hour Mean
	0.073	0.063	0.058	0.059	0.043	0.036	0.039	0.070	0.099	0.075	2nd Max 3-hour Mean
Southcentral Region Non-Air Basin											
Perry County	0.003	0.003	0.003	0.003	0.002	0.003	0.005	0.003	0.003	0.002	Annual Mean
305	0.021	0.012	0.012	0.015	0.010	0.008	0.017	0.013	0.010	0.014	2nd Max 24-hour Mean
	0.032	0.028	0.034	0.034	0.036	0.026	0.033	0.030	0.028	0.030	2nd Max 3-hour Mean
Altoona	0.010	0.008	0.007	0.006	0.009	0.007	0.007	0.006	0.007	0.007	Annual Mean
308	0.046	0.032	0.030	0.045	0.042	0.032	0.030	0.030	0.036	0.024	2nd Max 24-hour Mean
	0.070	0.060	0.058	0.071	0.066	0.051	0.060	0.065	0.066	0.049	2nd Max 3-hour Mean
Northcentral Region Non-Air Basin											
State College	***	***	***	***	***	0.004	0.006	0.004	0.005	0.002	Annual Mean
409	***	***	***	***	***	0.023	0.019	0.019	0.018	0.011	2nd Max 24-hour Mean
	***	***	***	***	***	0.044	0.031	0.028	0.036	0.024	2nd Max 3-hour Mean
Montoursville	***	***	***	***	***	0.003	0.005	0.003	0.005	0.005	Annual Mean
410	***	***	***	***	***	0.015	0.017	0.015	0.018	0.027	2nd Max 24-hour Mean
	***	***	***	***	***	0.027	0.070	0.032	0.044	0.047	2nd Max 3-hour Mean

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 0.030 parts per million
24-hour Mean (Daily Block Average) = 0.14 parts per million
3-hour Mean (Block Average) = 0.50 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 50 percent valid data for the year

Appendix A: Table A-12

Sulfur Dioxide Historical Trend
(Units: parts per million)

Site Name / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Johnstown Air Basin											
Johnstown	0.009	0.008	0.009	0.007	0.008	0.007	0.008	0.007	0.007	0.008	Annual Mean
J01	0.030	0.027	0.025	0.026	0.031	0.025	0.028	0.037	0.037	0.024	2nd Max 24-hour Mean
	0.069	0.080	0.069	0.065	0.078	0.074	0.074	0.115	0.097	0.072	2nd Max 3-hour Mean
Monongahela Valley Air Basin											
Charleroi	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.008	0.010	0.008	Annual Mean
M01	0.035	0.025	0.023	0.031	0.022	0.023	0.029	0.021	0.030	0.021	2nd Max 24-hour Mean
	0.074	0.056	0.059	0.059	0.107	0.070	0.079	0.051	0.064	0.063	2nd Max 3-hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	0.009	0.006	0.009	0.007	0.008	0.007	0.007	0.007	0.007	0.007	Annual Mean
B11	0.034	0.035	0.028	0.036	0.032	0.030	0.031	0.026	0.032	0.023	2nd Max 24-hour Mean
	0.081	0.079	0.070	0.070	0.076	0.064	0.082	0.064	0.065	0.053	2nd Max 3-hour Mean
Hookstown	0.011	0.013	0.010	0.011	0.011	0.010	0.010	0.009	0.009	0.009	Annual Mean
B23	0.049	0.046	0.044	0.039	0.037	0.038	0.045	0.048	0.034	0.036	2nd Max 24-hour Mean
	0.163	0.129	0.145	0.126	0.108	0.115	0.118	0.126	0.096	0.084	2nd Max 3-hour Mean
Brighton Twp.	0.015	0.016	0.015	0.012	0.014	0.014	0.011	0.012	0.013	0.009	Annual Mean
B27	0.078	0.094	0.070	0.086	0.072	0.075	0.083	0.046	0.050	0.054	2nd Max 24-hour Mean
	0.251	0.207	0.215	0.247	0.249	0.319	0.174	0.150	0.202	0.231	2nd Max 3-hour Mean
Allegheny County Air Basin											
Pittsburgh	***	0.005	0.006	0.010	0.009	0.010	0.010	0.007	0.008	0.007	Annual Mean
D12	***	0.014	0.019	0.037	0.033	0.024	0.028	0.024	0.022	0.020	2nd Max 24-hour Mean
	***	0.047	0.042	0.078	0.077	0.075	0.066	0.057	0.061	0.068	2nd Max 3-hour Mean
Southwest Region Non-Air Basin											
Florence	0.012	0.013	0.010	0.009	0.009	0.010	0.010	0.009	0.010	0.006	Annual Mean
504	0.050	0.043	0.036	0.031	0.039	0.037	0.033	0.034	0.047	0.029	2nd Max 24-hour Mean
	0.127	0.102	0.099	0.100	0.102	0.092	0.100	0.081	0.080	0.062	2nd Max 3-hour Mean
Washington	0.010	0.010	0.009	0.009	0.010	0.009	0.009	0.009	0.009	0.009	Annual Mean
508	0.047	0.040	0.030	0.027	0.038	0.032	0.028	0.026	0.027	0.024	2nd Max 24-hour Mean
	0.086	0.072	0.062	0.059	0.069	0.080	0.078	0.067	0.078	0.063	2nd Max 3-hour Mean
Greensburg	***	0.008	0.011	0.010	0.009	0.006	0.008	0.006	0.006	0.005	Annual Mean
513	***	0.039	0.037	0.029	0.027	0.024	0.029	0.023	0.030	0.021	2nd Max 24-hour Mean
	***	0.065	0.100	0.071	0.053	0.048	0.070	0.058	0.083	0.068	2nd Max 3-hour Mean
Holbrook	0.007?	0.010?	0.009?	0.007?	0.006?	0.007?	0.006?	0.006?	0.006?	0.006?	Annual Mean

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 0.030 parts per million
24-hour Mean (Daily Block Average) = 0.14 parts per million
3-hour Mean (Block Average) = 0.50 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 50 percent valid data for the year

Appendix A: Table A-12

Sulfur Dioxide Historical Trend
(Units: parts per million)

Site Name / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
514	0.020	0.021	0.022	0.022	0.023	0.022	0.029	0.028	0.021	0.017	2nd Max 24-hour Mean
	0.045	0.038	0.050	0.062	0.070	0.055	0.077	0.062	0.059	0.046	2nd Max 3-hour Mean
Strongstown	***	***	***	***	***	***	***	***	0.008	0.008	Annual Mean
515	***	***	***	***	***	***	***	***	0.032	0.028	2nd Max 24-hour Mean
	***	***	***	***	***	***	***	***	0.112	0.108	2nd Max 3-hour Mean
Upper Beaver Valley Air Basin											
New Castle	0.008	0.009	0.008	0.008	0.011	0.007	0.009	0.007	0.008	0.007	Annual Mean
B21	0.033	0.032	0.035	0.031	0.041	0.033	0.028	0.035	0.037	0.024	2nd Max 24-hour Mean
	0.114	0.117	0.086	0.079	0.120	0.082	0.076	0.072	0.089	0.065	2nd Max 3-hour Mean
Erie Air Basin											
Erie	0.009	0.010	0.010	0.008	0.010	0.011	0.011	0.008	0.011	0.009	Annual Mean
E10	0.035	0.068	0.043	0.041	0.043	0.037	0.038	0.029	0.041	0.023	2nd Max 24-hour Mean
	0.096	0.152	0.152	0.076	0.098	0.070	0.078	0.077	0.071	0.040	2nd Max 3-hour Mean
Northwest Region Non-Air Basin											
Farrell	0.007	0.007	0.007?	0.007	0.007	0.006	0.006	0.006	0.005	0.005	Annual Mean
606	0.032	0.029	0.039	0.024	0.033	0.024	0.025	0.019	0.022	0.019	2nd Max 24-hour Mean
	0.073	0.063	0.060	0.052	0.071	0.067	0.067	0.044	0.045	0.035	2nd Max 3-hour Mean
Warren	0.009	0.008	0.008	0.006	0.007	0.006	0.006	0.004	0.004	0.004	Annual Mean
611	0.038	0.028	0.031	0.024	0.027	0.023	0.028	0.019	0.018	0.017	2nd Max 24-hour Mean
	0.082	0.103	0.072	0.070	0.075	0.066	0.067	0.037	0.050	0.047	2nd Max 3-hour Mean
Warren (Overlook)	0.015	0.016	0.015	0.013	0.016	0.014	0.014	0.010	0.015	0.011	Annual Mean
612	0.069	0.098	0.094	0.092	0.087	0.100	0.103	0.061	0.075	0.086	2nd Max 24-hour Mean
	0.330	0.252	0.227	0.214	0.209	0.273	0.249	0.212	0.235	0.200	2nd Max 3-hour Mean

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 0.030 parts per million
24-hour Mean (Daily Block Average) = 0.14 parts per million
3-hour Mean (Block Average) = 0.50 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 50 percent valid data for the year

Appendix A: Table A-13a

Ozone Summary (1- hour)
(Units: parts per million)

Year: 2006 (April – October)

Site Name	PA Site Code	Number of Valid Days	Percent Valid Data	Number Days >= 0.125	1st Daily Max 1-hour Mean	1st Daily Max Date MM/DD	2nd Daily Max 1-hour Mean	2nd Daily Max Date MM/DD	3rd Daily Max 1-hour Mean	3rd Daily Max Date MM/DD	4th Daily Max 1-hour Mean	4th Daily Max Date MM/DD
Southeast Pennsylvania Air Basin												
Bristol	P01	208	96.6	0	.116	07/31	.112	06/18	.109	06/01	.098	05/30
Chester	P11	209	97.4	0	.103	07/19	.102	06/22	.102	07/17	.096	05/30
Norristown	P21	213	99.2	0	.096	07/17	.096	08/06	.095	05/30	.095	07/14
New Garden (Toughkenamon)	P30	208	97.0	0	.115	05/30	.107	06/01	.104	07/19	.102	06/22
Allentown-Bethlehem-Easton Air Basin												
Allentown	A19	214	99.6	0	.115	05/31	.100	05/30	.098	06/18	.094	07/19
Easton	A20	211	98.9	0	.118	05/30	.095	06/18	.093	05/31	.093	07/19
Freemansburg	A25	209	97.8	0	.111	05/30	.100	05/31	.094	06/18	.091	07/19
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	206	96.3	0	.090	05/31	.082	07/26	.079	08/14	.078	05/04
Nanticoke	S26	202	94.6	0	.074	08/14	.073	05/04	.072	06/17	.071	08/18
Wilkes-Barre	S28	205	96.0	0	.094	05/31	.084	06/17	.080	05/30	.077	05/04
Peckville	S29	200	94.0	0	.082	07/26	.081	06/17	.080	05/31	.080	06/18
Northeast Region Non- Air Basin												
Swiftwater	230	212	99.3	0	.119	05/30	.088	08/14	.087	05/31	.086	06/17
Reading Air Basin												
Reading (Temporary)	R02	158	73.9	0	.098	05/30	.095	06/18	.093	05/31	.093	08/17
Harrisburg Air Basin												
Harrisburg	H11	214	99.3	0	.096	06/18	.091	05/31	.091	06/01	.085	06/17
Lancaster Air Basin												
Lancaster	L01	212	99.1	0	.106	05/30	.104	06/18	.100	06/17	.100	07/18
York Air Basin												
York	Y01	211	98.1	0	.095	05/30	.094	06/18	.089	06/17	.087	07/19
Southcentral Region Non-Air Basin												
Perry County	305	203	96.9	0	.101	06/17	.094	05/31	.094	06/18	.088	07/20
Hershey	306	214	99.6	0	.097	06/17	.096	05/30	.096	05/31	.096	06/01
Altoona	308	212	98.8	0	.095	07/17	.082	06/17	.080	07/11	.078	07/26
Methodist Hill	313	212	99.4	0	.079	06/18	.078	05/30	.076	05/31	.071	06/17
Biglerville	D14	214	99.7	0	.086	06/17	.084	08/06	.082	06/18	.080	08/25

Former Primary Daily 1-hour National Ambient Air Quality Standard of 0.12 parts per million

Appendix A: Table A-13a

Ozone Summary (1- hour)
(Units: parts per million)

Year: 2006 (April – October)

Site Name	PA Site Code	Number of Valid Days	Percent Valid Data	Number Days >= 0.125	1st Daily Max 1-hour Mean	1st Daily Max Date MM/DD	2nd Daily Max 1-hour Mean	2nd Daily Max Date MM/DD	3rd Daily Max 1-hour Mean	3rd Daily Max Date MM/DD	4th Daily Max 1-hour Mean	4th Daily Max Date MM/DD
Northcentral Region Non-Air Basin												
State College	409	212	98.8	0	.084	06/17	.083	06/18	.082	07/11	.081	08/18
Montoursville	410	211	99.0	0	.089	08/18	.083	05/04	.081	07/20	.081	08/10
Moshannon (Elliott State Park)	D09	207	96.4	0	.092	06/17	.079	06/18	.078	05/30	.077	05/31
Tioga County	D13	214	99.8	0	.086	06/18	.080	08/18	.077	05/04	.075	06/17
Johnstown Air Basin												
Johnstown	J01	213	99.3	0	.089	07/17	.085	07/18	.083	06/17	.082	05/30
Monongahela Valley Air Basin												
Charleroi	M01	214	99.7	0	.100	07/17	.097	08/26	.092	07/18	.088	08/17
Lower Beaver Valley Air Basin												
Beaver Falls	B11	213	99.8	0	.091	06/17	.090	05/30	.084	05/31	.084	06/18
Hookstown	B23	214	99.5	0	.095	06/17	.091	05/30	.088	05/29	.087	08/17
Brighton Township	B27	214	99.9	0	.092	06/17	.090	05/31	.087	05/30	.087	06/18
Allegheny County Air Basin												
Pittsburgh	D12	203	96.0	0	.094	08/17	.092	08/25	.091	05/29	.091	08/26
Southwest Region Non-Air Basin												
Florence	504	213	99.3	0	.093	06/17	.091	06/18	.087	08/26	.086	08/25
Washington	508	210	99.2	0	.091	08/26	.089	06/18	.081	07/19	.080	08/16
Murrysville	510	214	99.7	0	.082	08/26	.081	06/07	.081	08/10	.080	07/20
Kittanning	512	214	99.8	0	.118	06/17	.101	07/17	.101	08/18	.096	05/31
Greensburg	513	213	99.4	0	.095	06/17	.095	08/18	.091	07/17	.091	08/22
Holbrook	514	213	99.5	0	.094	05/30	.092	08/16	.088	08/25	.087	08/26
Strongstown	515	214	99.3	0	.106	07/17	.093	06/17	.087	08/18	.084	05/31
Upper Beaver Valley Air Basin												
New Castle	B21	210	99.0	0	.088	05/30	.088	06/17	.086	08/17	.079	06/18
Erie Air Basin												
Erie	E10	211	98.2	0	.100	06/17	.093	05/30	.093	05/31	.091	08/06
Northwest Region Non-Air Basin												
Farrell	606	210	98.1	0	.107	05/30	.102	08/17	.092	05/31	.090	06/17

Former Primary Daily 1-hour National Ambient Air Quality Standard of 0.12 parts per million

Appendix A: Table A-13b

Ozone Summary (8- hour)
(Units: parts per million)

Year: 2006 (April – October)

Site Name	PA Site Code	Number of Valid Days	Percent Data Complete	Days > 0.84	1st Daily Max 8-hour Mean	1st Daily Max Date MM/DD	2nd Daily Max 8-hour Mean	2nd Daily Max Date MM/DD	3rd Daily Max 8-hour Mean	3rd Daily Max Date MM/DD	4th Daily Max 8-hour Mean	4th Daily Max Date MM/DD
Southeast Pennsylvania Air Basin												
Bristol	P01	205	96.5	7	.103	06/18	.093	06/01	.088	05/29	.087	05/30
Chester	P11	207	97.2	3	.092	06/22	.090	07/17	.087	07/19	.082	07/18
Norristown	P21	212	99.1	3	.089	07/18	.087	05/30	.086	07/17	.084	06/22
New Garden (Toughkenamon)	P30	208	96.7	3	.100	05/30	.089	06/22	.086	07/19	.083	05/29
Allentown-Bethlehem-Easton Air Basin												
Allentown	A19	214	99.8	3	.092	05/31	.089	05/30	.089	06/18	.080	07/11
Easton	A20	210	99.0	2	.099	05/30	.088	06/18	.079	05/31	.078	07/11
Freemansburg	A25	209	97.9	3	.096	05/30	.089	06/18	.087	05/31	.078	07/11
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	203	96.1	0	.080	05/31	.073	08/14	.072	07/26	.070	05/04
Nanticoke	S26	200	94.5	0	.069	08/14	.068	05/04	.068	06/17	.064	08/10
Wilkes-Barre	S28	201	95.6	0	.082	05/31	.080	06/17	.075	06/18	.073	05/04
Peckville	S29	200	93.9	0	.078	06/17	.077	05/31	.075	06/18	.071	07/26
Northeast Region Non- Air Basin												
Swiftwater	230	211	99.4	0	.082	05/30	.082	06/17	.077	06/18	.077	08/14
Reading Air Basin												
Reading (Temporary)	R02	156	73.9	1	.086	06/18	.080	05/30	.079	05/31	.078	06/17
Harrisburg Air Basin												
Harrisburg	H11	213	99.4	1	.087	06/18	.083	06/17	.078	06/01	.077	05/31
Lancaster Air Basin												
Lancaster	L01	211	99.2	4	.093	06/18	.088	05/30	.086	07/17	.085	07/18
York Air Basin												
York	Y01	209	98.2	0	.084	06/18	.083	05/30	.079	05/31	.077	06/17
Southcentral Region Non-Air Basin												
Perry County	305	201	96.6	0	.083	06/17	.081	06/18	.077	05/04	.077	08/18
Hershey	306	214	99.7	2	.088	06/18	.085	06/17	.082	06/01	.081	05/30
Altoona	308	211	98.9	0	.080	07/17	.077	06/17	.071	06/18	.071	08/07
Methodist Hill	313	212	99.6	0	.071	06/18	.069	05/30	.066	06/17	.066	07/19
Biglerville	D14	214	99.6	0	.077	06/17	.076	06/18	.076	08/25	.074	05/30

Primary 8-hour National Ambient Air Quality Standard
0.08 parts per million for 4th daily maximum averaged over 3 years

Appendix A: Table A-13b

Ozone Summary (8- hour)
(Units: parts per million)

Year: 2006 (April – October)

Site Name	PA Site Code	Number of Valid Days	Percent Data Complete	Days > 0.84	1st Daily Max 8-hour Mean	1st Daily Max Date MM/DD	2nd Daily Max 8-hour Mean	2nd Daily Max Date MM/DD	3rd Daily Max 8-hour Mean	3rd Daily Max Date MM/DD	4th Daily Max 8-hour Mean	4th Daily Max Date MM/DD
Northcentral Region Non-Air Basin												
State College	409	210	98.7	0	.078	06/17	.078	06/18	.078	07/11	.078	08/18
Montoursville	410	210	99.0	0	.080	08/18	.079	05/04	.074	06/18	.073	06/17
Moshannon (Elliott State Park)	D09	204	96.5	0	.081	06/17	.073	05/30	.072	05/31	.072	06/18
Tioga County	D13	214	99.8	0	.075	06/17	.074	06/18	.074	08/18	.073	05/04
Johnstown Air Basin												
Johnstown	J01	212	99.6	0	.075	07/17	.075	08/18	.075	08/26	.073	05/30
Monongahela Valley Air Basin												
Charleroi	M01	214	99.7	1	.085	08/26	.080	08/17	.079	07/18	.079	08/18
Lower Beaver Valley Air Basin												
Beaver Falls	B11	213	99.7	0	.083	06/17	.081	05/30	.074	06/18	.069	06/07
Hookstown	B23	214	99.7	1	.085	05/30	.082	06/17	.082	08/25	.082	08/26
Brighton Township	B27	214	99.8	1	.088	06/17	.084	05/30	.077	06/18	.077	07/19
Allegheny County Air Basin												
Pittsburgh	D12	202	95.4	0	.083	08/26	.081	08/17	.079	08/25	.078	07/19
Southwest Region Non-Air Basin												
Florence	504	213	99.4	1	.085	06/17	.078	06/18	.077	05/30	.076	05/29
Washington	508	210	99.0	0	.076	08/26	.075	07/19	.070	05/30	.070	06/18
Murrysville	510	214	99.9	0	.076	08/26	.073	06/17	.072	08/10	.071	05/29
Kittanning	512	214	99.9	2	.101	06/17	.089	08/18	.084	05/31	.080	07/17
Greensburg	513	213	99.6	2	.086	06/17	.085	08/18	.079	08/26	.076	08/22
Holbrook	514	213	99.5	1	.085	05/30	.081	08/16	.078	08/26	.077	05/29
Strongstown	515	213	99.4	2	.087	07/17	.085	06/17	.077	08/18	.073	06/18
Upper Beaver Valley Air Basin												
New Castle	B21	210	98.9	0	.079	05/30	.077	06/17	.074	08/17	.070	06/18
Erie Air Basin												
Erie	E10	209	98.1	1	.090	06/17	.083	05/30	.077	07/16	.077	07/17
Northwest Region Non-Air Basin												
Farrell	606	208	98.1	3	.093	05/30	.086	06/17	.086	08/17	.079	06/07

Primary 8-hour National Ambient Air Quality Standard
0.08 parts per million for 4th daily maximum averaged over 3 years

Table A-14. One-hour Ozone Exceedances and Maximums Summary (2004 – 2006)
(Units: parts per billion)

Station	Design Value	2004 Days > 124	2004 Daily Maximums 1st 1 HR	2nd 1 HR	3rd 1 HR	4th 1 HR	2005 Days > 124	2005 Daily Maximums 1st 1 HR	2nd 1 HR	3rd 1 HR	4th 1 HR	2006 Days > 124	2006 Daily Maximums 1st 1 HR	2nd 1 HR	3rd 1 HR	4th 1 HR
Bristol	112	0	99	98	95	93	1	127	121	106	105	0	116	112	109	98
Chester	109	0	109	109	93	92	1	128	119	109	98	0	103	102	102	96
Norristown	104	0	95	94	94	91	0	114	107	105	104	0	96	96	95	95
New Garden (Airport)	109	0	113	102	97	96	1	130	109	109	108	0	115	107	104	102
Northwest (Rox)	101	0	98	92	91	91	0	118	115	106	101	0	98	98	96	89
Northeast (Airport)	110	0	110	108	107	105	2	130	128	110	109	0	108	106	104	96
Southwest (Elm)	93	0	96	88	86	81	0	90	77	76	75	0	94	93	93	92
Frankford (Lab)	80	0	77	73	73	69	0	108	96	85	80	0	80	77	77	76
Allentown	101	0	103	101	100	100	0	107	101	101	96	0	115	100	98	94
Freemansburg	102	0	118	104	102	97	0	102	100	99	97	0	111	100	94	91
Easton	99	0	111	104	95	94	0	99	96	92	91	0	118	95	93	93
Reading	98	0	98	89	87	85	0	103	99	99	98	0	98	95	93	93
Scranton	92	0	92	88	85	79	0	96	96	95	92	0	90	82	79	78
Peckville	92	0	88	85	83	79	0	93	93	93	92	0	82	81	80	80
Nanticoke	84	0	81	79	78	77	0	91	90	87	84	0	74	73	72	71
Wilkes-Barre	94	0	90	88	84	82	0	97	95	94	92	0	94	84	80	77
Swiftwater	86											0	119	88	87	86
Harrisburg	96	0	98	92	90	88	0	109	106	96	96	0	96	91	91	85
Hershey	97	0	94	84	84	84	0	105	99	98	96	0	97	96	96	96
Perry County	99	0	88	81	80	78	0	103	99	99	99	0	101	94	94	88
Lancaster	105	0	107	97	96	94	0	109	105	102	99	0	106	104	100	100
York	100	0	100	91	91	90	0	110	101	100	98	0	95	94	89	87
Biglerville (PSU)	89	0	91	79	79	78	0	96	91	89	89	0	86	84	82	80
Methodist Hill	80	0	78	78	78	77	0	85	82	80	80	0	79	78	76	71
Montoursville	96	0	98	91	86	85	0	99	99	96	95	0	89	83	81	81
Tiadaghton (PSU)		0	81	80	80	79										
Tioga County (PSU)	86	0	88	85	84	84	0	91	86	86	86	0	86	80	77	75
State College (PSU)	91	0	83	81	80	79	0	98	91	91	91	0	84	83	82	81
Penn Nursery (PSU)		0	81	78	75	74										
Altoona	89	0	83	83	81	80	0	93	90	89	87	0	95	82	80	78
Johnstown	90	0	82	81	80	79	0	94	94	90	90	0	89	85	83	82
Moshannon (PSU)	93	0	83	82	81	79	0	98	96	94	93	0	92	79	78	77
Strongstown							0	106	97	95	94	0	106	93	87	84
Greensburg	97	0	100	94	91	85	0	101	98	97	93	0	95	95	91	91
Murrysville	100	0	96	92	82	80	0	107	102	102	100	0	82	81	81	80
Kittanning	101	0	96	93	93	91	0	123	104	101	97	0	118	101	101	96
Brighton Twp	94	0	94	85	85	83	0	107	95	94	93	0	92	90	87	87
Beaver Falls	94	0	86	85	83	79	0	112	99	94	94	0	91	90	84	84
Hookstown	96	0	94	90	89	87	0	115	106	97	96	0	95	91	88	87
Florence	95	0	87	83	83	82	0	109	101	96	95	0	93	91	87	86
Charleroi	97	0	89	85	82	81	0	99	98	95	95	0	100	97	92	88
Washington	94	0	94	86	81	79	0	101	96	96	94	0	91	89	81	80
Holbrook	94	0	89	82	81	80	0	115	103	98	93	0	94	92	88	87
Pittsburgh (Carnegie SC)	101	0	95	94	85	80	0	119	105	103	101	0	94	92	91	91
Harrison Twp	103	0	94	91	88	87	0	121	106	103	101	0	118	103	100	96
Lawrenceville	94	0	89	86	83	81	0	97	94	92	90	0	96	95	91	90
South Fayette	102	0	102	93	82	80	0	107	106	105	95	0	94	92	88	88
New Castle	88	0	85	83	81	77	0	97	94	94	85	0	88	88	86	79
Farrell	102	0	91	88	87	82	0	107	104	99	97	0	107	102	92	90
Erie	100	0	91	89	87	84	0	109	104	100	99	0	100	93	93	91

Table A-15. Eight-hour Ozone Days Greater Than 84 ppb and Maximums Summary (2004 – 2006)
(Units: parts per billion)

		2004					2005					2006				
		Maximum Values					Maximum Values					Maximum Values				
Station	Design Value	Days > 84	1st 8HR	2nd 8HR	3rd 8HR	4th 8HR	Days > 84	1st 8HR	2nd 8HR	3rd 8HR	4th 8HR	Days > 84	1st 8HR	2nd 8HR	3rd 8HR	4th 8HR
Bristol	**86**	2	88	88	84	82	7	98	93	91	89	7	103	93	88	87
Chester	83	2	90	87	84	81	4	90	90	89	87	3	92	90	87	82
Norristown	**85**	1	85	84	84	83	8	93	92	90	90	3	89	87	86	84
New Garden (Airport)	**86**	5	95	88	87	85	8	103	93	93	92	3	100	89	86	83
Northwest (Rox)	77	0	83	83	78	77	3	95	89	86	83	1	85	76	75	73
Northeast (Airport)	**89**	6	94	92	91	91	8	104	100	95	94	2	96	86	84	82
Southwest (Elm)	72	0	80	79	79	73	0	78	72	69	68	0	83	81	76	75
Frankford (Lab)	61	0	64	62	59	57	0	81	74	72	66	0	72	65	64	62
Allentown	83	3	95	91	89	83	6	92	91	89	86	3	92	89	89	80
Freemansburg	84	6	105	90	88	88	5	89	88	87	86	3	96	89	87	78
Easton	80	1	101	84	84	83	1	87	83	83	80	2	99	88	79	78
Reading	79	1	86	80	79	76	4	93	91	86	85	1	86	80	79	78
Scranton	74	0	80	80	77	73	1	89	83	81	80	0	80	73	72	70
Peckville	74	0	79	78	77	71	2	89	86	84	80	0	78	77	75	71
Nanticoke	68	0	73	73	72	68	0	83	78	75	74	0	69	68	68	64
Wilkes-Barre	75	0	81	77	74	73	1	90	83	83	81	0	82	80	75	73
Swiftwater	77											0	82	82	77	77
Harrisburg	79	1	85	79	78	76	3	95	94	86	84	1	87	83	78	77
Hershey	79	0	84	74	73	72	4	90	89	88	85	2	88	85	82	81
Perry County	76	0	73	72	70	69	1	88	84	82	82	0	83	81	77	77
Lancaster	83	1	98	84	83	81	6	96	90	90	85	4	93	88	86	85
York	81	1	86	78	77	77	6	97	93	90	89	0	84	83	79	77
Methodist Hill	70	0	76	72	72	71	0	76	75	74	74	0	71	69	66	66
Biglerville (PSU)	75	0	74	73	73	72	1	90	83	82	80	0	77	76	76	74
Montoursville	76	0	83	80	80	74	3	88	87	85	82	0	80	79	74	73
Tiadaghton (PSU)		0	77	77	75	73										
Tioga County (PSU)	77	0	81	80	79	79	0	83	81	80	80	0	75	74	74	73
State College (PSU)	78	0	79	76	74	74	1	90	83	83	83	0	78	78	78	78
Penn Nursery (PSU)		0	75	70	70	69										
Altoona	73	0	75	75	74	73	1	85	81	80	77	0	80	77	71	71
Johnstown	73	0	77	73	72	71	1	86	81	79	77	0	75	75	75	73
Moshannon (PSU)	77	0	79	74	74	74	4	90	88	86	86	0	81	73	72	72
Strongstown							5	94	91	91	88	2	87	85	77	73
Greensburg	77	0	84	80	76	73	2	89	89	84	83	2	86	85	79	76
Murrysville	76	0	75	71	70	70	4	97	90	89	87	0	76	73	72	71
Kittanning	82	1	85	84	83	82	4	109	94	88	86	2	101	89	84	80
Brighton Twp	79	0	81	79	78	74	4	97	88	86	86	1	88	84	77	77
Beaver Falls	72	0	72	71	69	69	2	103	86	84	80	0	83	81	74	69
Hookstown	83	0	84	82	81	81	5	100	100	89	86	1	85	82	82	82
Florence	78	0	76	76	74	73	4	92	91	89	85	1	85	78	77	76
Charleroi	77	0	80	77	75	72	2	89	85	83	80	1	85	80	79	79
Washington	75	0	81	76	72	71	4	88	88	86	85	0	76	75	70	70
Holbrook	79	0	82	76	75	75	5	94	87	85	85	1	85	81	78	77
Pittsburgh (Carnegie SC)	80	0	84	80	73	72	4	98	96	92	92	0	83	81	79	78
Harrison Twp	83	0	81	79	78	76	6	107	98	88	87	4	93	91	88	88
Lawrenceville	77	0	77	74	73	72	1	85	82	81	81	2	86	85	80	78
South Fayette	79	1	89	80	75	74	4	103	95	94	85	1	87	81	81	80
New Castle	71	0	78	73	70	68	1	87	82	82	75	0	79	77	74	70
Farrell	80	1	86	82	76	76	4	96	90	90	87	3	93	86	86	79
Erie	79	0	83	79	76	74	4	103	96	90	86	1	90	83	77	77

Appendix A: Table A-16

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Southeast Pennsylvania Air Basin											
Bristol	0.119	0.115	0.145	0.121	0.131	0.135	0.121	0.098	0.121	0.112	2nd Max Daily 1-hour Average
P01	1	0	6	1	2	4	0	0	1	0	Number Days 1-hour > 0.124 ppm
	0.102	0.096	0.112	0.099	0.104	0.111	0.087	0.082	0.089	0.087	4th Max Daily 8-hour Average
	14	17	24	14	16	17	9	2	7	7	Number Days 8-hour > 0.084 ppm
Chester	0.127	0.125	0.130	0.117	0.108	0.125	0.118	0.109	0.119	0.102	2nd Max Daily 1-hour Average
P11	3	2	3	0	1	2	0	0	1	0	Number Days 1-hour > 0.124 ppm
	0.101	0.099	0.100	0.091	0.093	0.103	0.080	0.081	0.087	0.082	4th Max Daily 8-hour Average
	19	17	19	7	12	16	3	2	4	3	Number Days 8-hour > 0.084 ppm
Norristown	0.131	0.126	0.126	0.125	0.120	0.122	0.111	0.094	0.107	0.096	2nd Max Daily 1-hour Average
P21	2	2	2	2	1	1	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.107	0.103	0.104	0.100	0.096	0.096	0.085	0.083	0.090	0.084	4th Max Daily 8-hour Average
	19	17	20	11	18	12	4	1	8	3	Number Days 8-hour > 0.084 ppm
New Garden	***	***	***	0.095	0.122	0.139	0.115	0.102	0.109	0.107	2nd Max Daily 1-hour Average
P30	***	***	***	0	0	2	0	0	1	0	Number Days 1-hour > 0.124 ppm
	***	***	***	0.077	0.105	0.104	0.085	0.085	0.092	0.083	4th Max Daily 8-hour Average
	***	***	***	1	17	23	4	5	8	3	Number Days 8-hour > 0.084 ppm
West Chester	***	***	***	***	0.117	0.113	0.110	***	***	***	2nd Max Daily 1-hour Average
P32	***	***	***	***	0	1	0	***	***	***	Number Days 1-hour > 0.124 ppm
	***	***	***	***	0.103	0.097	0.085	***	***	***	4th Max Daily 8-hour Average
	***	***	***	***	20	19	4	***	***	***	Number Days 8-hour > 0.084 ppm
Allentown-Bethlehem-Easton Air Basin											
Allentown	0.116	0.106	0.125	0.112	0.126	0.114	0.109	0.101	0.101	0.100	2nd Max Daily 1-hour Average
A19	1	0	2	0	2	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.101	0.095	0.105	0.091	0.094	0.094	0.087	0.083	0.086	0.080	4th Max Daily 8-hour Average
	12	18	19	5	9	16	4	3	6	3	Number Days 8-hour > 0.084 ppm
Easton	***	***	***	0.100	0.113	0.113	0.107	0.104	0.096	0.095	2nd Max Daily 1-hour Average
A20	***	***	***	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	***	***	***	0.083	0.092	0.092	0.083	0.083	0.080	0.078	4th Max Daily 8-hour Average
	***	***	***	2	11	13	3	1	1	2	Number Days 8-hour > 0.084 ppm
Freemansburg	***	0.104	0.126	0.114	0.113	0.112	0.112	0.104	0.100	0.100	2nd Max Daily 1-hour Average
A25	***	0	2	1	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	***	0.087	0.107	0.092	0.094	0.090	0.087	0.088	0.086	0.078	4th Max Daily 8-hour Average
	***	5	22	6	14	12	4	6	5	3	Number Days 8-hour > 0.084 ppm

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Appendix A: Table A-16

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Scranton-Wilkes-Barre Air Basin											
Scranton	0.095	0.108	0.107	0.082	0.097	0.122	0.099	0.088	0.096	0.082	2nd Max Daily 1-hour Average
S01	0	0	0	0	0	1	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.085	0.088	0.093	0.073	0.088	0.089	0.075	0.073	0.080	0.070	4th Max Daily 8-hour Average
	4	5	11	1	5	8	2	0	1	0	Number Days 8-hour > 0.084 ppm
Nanticoke	0.091	0.098	0.102	0.093	0.104	0.112	0.097	0.079	0.090	0.073	2nd Max Daily 1-hour Average
S26	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.079	0.081	0.086	0.076	0.086	0.089	0.077	0.068	0.074	0.064	4th Max Daily 8-hour Average
	0	2	4	1	5	6	3	0	0	0	Number Days 8-hour > 0.084 ppm
Wilkes-Barre	0.111	0.102	0.111	0.086	0.100	0.119	0.098	0.088	0.095	0.084	2nd Max Daily 1-hour Average
S28	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.096	0.088	0.093	0.073	0.088	0.092	0.087	0.073	0.081	0.073	4th Max Daily 8-hour Average
	8	7	9	1	7	7	2	0	1	0	Number Days 8-hour > 0.084 ppm
Peckville	0.106	0.105	0.115	0.090	0.099	0.122	0.097	0.085	0.093	0.081	2nd Max Daily 1-hour Average
S29	0	0	0	0	0	1	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.087	0.089	0.096	0.077	0.086	0.094	0.075	0.071	0.080	0.071	4th Max Daily 8-hour Average
	6	5	11	1	5	14	2	0	2	0	Number Days 8-hour > 0.084 ppm
Northeast Region Non-Air Basin											
Swiftwater	***	***	***	***	***	***	***	***	***	0.088	2nd Max Daily 1-hour Average
230	***	***	***	***	***	***	***	***	***	0	Number Days 1-hour > 0.124 ppm
	***	***	***	***	***	***	***	***	***	0.077	4th Max Daily 8-hour Average
	***	***	***	***	***	***	***	***	***	0	Number Days 8-hour > 0.084 ppm
Reading Air Basin											
Reading	0.120	0.106	0.123	0.105	0.125	0.113	0.094	0.089	0.099	***	2nd Max Daily 1-hour Average
R01	1	0	1	0	2	0	1	0	0	***	Number Days 1-hour > 0.124 ppm
	0.095	0.092	0.102	0.084	0.099	0.095	0.080	0.076	0.085	***	4th Max Daily 8-hour Average
	10	16	14	3	8	13	3	1	4	***	Number Days 8-hour > 0.084 ppm
Reading (Temporary)	***	***	***	***	***	***	***	***	***	0.095?	2nd Max Daily 1-hour Average
R02	***	***	***	***	***	***	***	***	***	0	Number Days 1-hour > 0.124 ppm
	***	***	***	***	***	***	***	***	***	0.078?	4th Max Daily 8-hour Average
	***	***	***	***	***	***	***	***	***	1	Number Days 8-hour > 0.084 ppm
Harrisburg Air Basin											
Harrisburg	0.112	0.116	0.114	0.101	0.099	0.126	0.089	0.092	0.106	0.091	2nd Max Daily 1-hour Average
H11	0	0	0	0	0	2	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.084	0.097	0.095	0.079	0.086	0.098	0.074	0.076	0.084	0.077	4th Max Daily 8-hour Average
	3	22	15	3	7	11	2	1	3	1	Number Days 8-hour > 0.084 ppm

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Appendix A: Table A-16

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Lancaster Air Basin											
Lancaster	0.133	0.119	0.127	0.107	0.127	0.115	0.115	0.097	0.105	0.104	2nd Max Daily 1-hour Average
L01	3	0	2	0	2	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	0.102	0.101	0.102	0.090	0.097	0.096	0.083	0.081	0.085	0.085	4th Max Daily 8-hour Average
	21	27	18	5	15	18	3	1	6	4	Number Days 8-hour > 0.084 ppm
York Air Basin											
York	0.109	0.112	0.121	0.112	0.104	0.124	0.114	0.091	0.101	0.094	2nd Max Daily 1-hour Average
Y01	0	0	1	0	0	1	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.094	0.095	0.094	0.090	0.087	0.101	0.081	0.077	0.089	0.077	4th Max Daily 8-hour Average
	13	18	10	6	8	12	3	1	6	0	Number Days 8-hour > 0.084 ppm
Southcentral Region Non-Air Basin											
Perry County	0.103	0.110	0.106	0.099	0.102	0.110	0.095	0.081	0.099	0.094	2nd Max Daily 1-hour Average
305	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.090	0.092	0.090	0.073	0.089	0.088	0.084	0.069	0.082	0.077	4th Max Daily 8-hour Average
	7	8	13	2	10	7	3	0	1	0	Number Days 8-hour > 0.084 ppm
Hershey	0.116	0.111	0.126	0.110	0.105	0.132	0.099	0.084	0.099	0.096	2nd Max Daily 1-hour Average
306	0	0	2	0	0	2	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.092	0.088	0.104	0.088	0.091	0.094	0.079	0.072	0.085	0.081	4th Max Daily 8-hour Average
	9	9	15	5	12	13	2	0	4	2	Number Days 8-hour > 0.084 ppm
Altoona	0.114	0.114	0.111	0.104	0.107	0.102	0.104	0.083	0.090	0.082	2nd Max Daily 1-hour Average
308	0	0	0	0	0	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	0.096	0.098	0.091	0.080	0.083	0.089	0.083	0.073	0.077	0.071	4th Max Daily 8-hour Average
	7	17	6	2	3	9	3	0	1	0	Number Days 8-hour > 0.084 ppm
Kutztown	0.109	0.104	0.128	0.101	0.119	0.106	0.084	***	***	***	2nd Max Daily 1-hour Average
310	0	0	2	0	0	0	0	***	***	***	Number Days 1-hour > 0.124 ppm
	0.089	0.090	0.099	0.075	0.091	0.091	0.072	***	***	***	4th Max Daily 8-hour Average
	6	14	12	2	7	11	1	***	***	***	Number Days 8-hour > 0.084 ppm
Methodist Hill	0.114	0.120	0.115	0.100	0.104	0.115	0.085	0.078	0.082	0.078	2nd Max Daily 1-hour Average
313	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.091	0.104	0.098	0.085	0.095	0.104	0.080	0.071	0.074	0.066	4th Max Daily 8-hour Average
	7	22	20	4	15	27	3	0	0	0	Number Days 8-hour > 0.084 ppm
Biglerville	***	***	***	***	0.096	0.104	0.102	0.079	0.091	0.084	2nd Max Daily 1-hour Average
D14	***	***	***	***	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	***	***	***	***	0.088	0.093	0.076	0.072	0.080	0.074	4th Max Daily 8-hour Average
	***	***	***	***	7	7	2	0	1	0	Number Days 8-hour > 0.084 ppm

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Appendix A: Table A-16

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Northcentral Region Non-Air Basin											
State College	***	***	***	0.102	0.101	0.108	0.100	0.081	0.091	0.083	2nd Max Daily 1-hour Average
409	***	***	***	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	***	***	***	0.079	0.086	0.090	0.082	0.074	0.083	0.078	4th Max Daily 8-hour Average
	***	***	***	2	5	8	3	0	1	0	Number Days 8-hour > 0.084 ppm
Montoursville	***	***	***	***	***	0.112	0.102	0.091	0.099	0.083	2nd Max Daily 1-hour Average
410	***	***	***	***	***	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	***	***	***	***	***	0.091	0.083	0.074	0.082	0.073	4th Max Daily 8-hour Average
	***	***	***	***	***	7	3	0	3	0	Number Days 8-hour > 0.084 ppm
Moshannon (Elliott State Park)	0.117	0.116	0.092	0.105	0.102	0.106	0.103	0.082	0.096	0.079	2nd Max Daily 1-hour Average
D09	0	1	0	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.098	0.101	0.081	0.079	0.089	0.095	0.087	0.074	0.086	0.072	4th Max Daily 8-hour Average
	12	16	1	2	8	13	4	0	4	0	Number Days 8-hour > 0.084 ppm
Tiadaghton	0.075	0.099	0.091	0.092	0.089	0.101	0.094	0.080	***	***	2nd Max Daily 1-hour Average
D10	0	0	0	0	0	0	0	0	***	***	Number Days 1-hour > 0.124 ppm
	0.060	0.084	0.076	0.073	0.080	0.084	0.076	0.073	***	***	4th Max Daily 8-hour Average
	0	3	0	1	1	3	2	0	***	***	Number Days 8-hour > 0.084 ppm
Penn Nursery	0.124	0.113	0.099	0.109	0.091	0.113	0.109	0.078	***	***	2nd Max Daily 1-hour Average
D11	1	0	0	0	0	0	0	0	***	***	Number Days 1-hour > 0.124 ppm
	0.094	0.092	0.085	0.075	0.082	0.091	0.093	0.069	***	***	4th Max Daily 8-hour Average
	7	8	4	2	1	12	4	0	***	***	Number Days 8-hour > 0.084 ppm
Tioga County	***	***	0.093?	0.103	0.094	0.118	0.102	0.085	0.086	0.080	2nd Max Daily 1-hour Average
D13	***	***	0	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	***	***	0.082?	0.078	0.083	0.093	0.084	0.079	0.080	0.073	4th Max Daily 8-hour Average
	***	***	2	2	3	8	3	0	0	0	Number Days 8-hour > 0.084 ppm
Johnstown Air Basin											
Johnstown	0.107	0.104	0.106	0.106	0.106	0.098	0.098	0.081	0.094	0.085	2nd Max Daily 1-hour Average
J01	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.090	0.086	0.090	0.088	0.088	0.083	0.083	0.071	0.077	0.073	4th Max Daily 8-hour Average
	11	5	5	6	6	2	2	0	1	0	Number Days 8-hour > 0.084 ppm
Monongahela Valley Air Basin											
Charleroi	0.118	0.127	0.115	0.110	0.112	0.119	0.124	0.085	0.098	0.097	2nd Max Daily 1-hour Average
M01	0	3	0	0	0	1	1	0	0	0	Number Days 1-hour > 0.124 ppm
	0.099	0.108	0.096	0.080	0.087	0.093	0.088	0.072	0.080	0.079	4th Max Daily 8-hour Average
	14	34	11	3	7	14	4	0	2	1	Number Days 8-hour > 0.084 ppm

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Appendix A: Table A-16

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Lower Beaver Valley Air Basin											
Beaver Falls	0.101	0.116	0.131	0.099	0.109	0.112	0.107	0.085	0.099	0.090	2nd Max Daily 1-hour Average
B11	0	0	2	0	0	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	0.085	0.098	0.087	0.084	0.086	0.096	0.078	0.069	0.080	0.069	4th Max Daily 8-hour Average
	5	6	3	14	4	9	3	0	2	0	Number Days 8-hour > 0.084 ppm
Hookstown	0.098	0.113	0.116	0.095	0.101	0.115	0.111	0.090	0.106	0.091	2nd Max Daily 1-hour Average
B23	0	0	0	0	0	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	0.086	0.095	0.095	0.077	0.092	0.103	0.087	0.081	0.086	0.082	4th Max Daily 8-hour Average
	4	11	9	1	9	19	6	0	5	1	Number Days 8-hour > 0.084 ppm
Brighton Township	0.096	0.113	0.132	0.096	0.103	0.118	0.107	0.085	0.095	0.090	2nd Max Daily 1-hour Average
B27	0	0	2	0	0	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	0.082	0.092	0.101	0.077	0.089	0.104	0.083	0.074	0.086	0.077	4th Max Daily 8-hour Average
	3	15	11	1	8	23	3	0	4	1	Number Days 8-hour > 0.084 ppm
Allegheny County Air Basin											
Pittsburgh	***	0.105	0.120	0.111	0.112	0.119	0.110	0.094	0.105	0.092	2nd Max Daily 1-hour Average
D12	***	0	1	0	0	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	***	0.089	0.099	0.086	0.093	0.100	0.088	0.072	0.092	0.078	4th Max Daily 8-hour Average
	***	6	16	4	9	25	5	0	4	0	Number Days 8-hour > 0.084 ppm
Southwest Region Non-Air Basin											
Florence	0.111	0.109	0.110	0.098	0.106	0.114	0.107	0.083	0.101	0.091	2nd Max Daily 1-hour Average
504	0	0	0	0	0	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	0.085	0.094	0.096	0.080	0.089	0.096	0.078	0.073	0.085	0.076	4th Max Daily 8-hour Average
	4	11	9	2	7	17	3	0	4	1	Number Days 8-hour > 0.084 ppm
Washington	0.107	0.112	0.106	0.105	0.109	0.112	0.118	0.086	0.096	0.089	2nd Max Daily 1-hour Average
508	0	0	0	0	0	1	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.088	0.095	0.090	0.080	0.090	0.088	0.088	0.071	0.085	0.070	4th Max Daily 8-hour Average
	6	15	11	3	6	9	5	0	4	0	Number Days 8-hour > 0.084 ppm
Murrysville	0.123	0.101	0.115	0.103	0.097	0.110	0.100	0.092	0.102	0.081	2nd Max Daily 1-hour Average
510	1	0	1	0	0	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	0.088	0.082	0.087	0.076	0.078	0.091	0.083	0.070	0.087	0.071	4th Max Daily 8-hour Average
	4	3	5	2	1	9	2	0	4	0	Number Days 8-hour > 0.084 ppm
Kittanning	***	0.113	0.121	0.103	0.119	0.122	0.109	0.093	0.104	0.101	2nd Max Daily 1-hour Average
512	***	0	1	0	1	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	***	0.100	0.100	0.079	0.098	0.097	0.086	0.082	0.086	0.080	4th Max Daily 8-hour Average
	***	21	18	2	16	15	5	1	4	2	Number Days 8-hour > 0.084 ppm
Greensburg	***	***	0.125	0.097	0.100	0.119	0.115	0.094	0.098	0.095	2nd Max Daily 1-hour Average
513	***	***	2	0	0	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	***	***	0.099	0.076	0.084	0.098	0.091	0.073	0.083	0.076	4th Max Daily 8-hour Average
	***	***	16	3	3	10	4	0	2	2	Number Days 8-hour > 0.084 ppm
Holbrook	0.123?	0.110?	0.116	0.106	0.099	0.113	0.106	0.082	0.103	0.092	2nd Max Daily 1-hour Average

? indicates less than 75 percent valid data for year
*** indicates less than 50 percent valid data for year

Appendix A: Table A-16

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
514	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.092?	0.100?	0.101	0.087	0.090	0.094	0.083	0.075	0.085	0.077	4th Max Daily 8-hour Average
	10	16	21	6	12	9	3	0	5	1	Number Days 8-hour > 0.084 ppm
Strongstown	***	***	***	***	***	***	***	***	0.097	0.093	2nd Max Daily 1-hour Average
515	***	***	***	***	***	***	***	***	0	0	Number Days 1-hour > 0.124 ppm
	***	***	***	***	***	***	***	***	0.088	0.073	4th Max Daily 8-hour Average
	***	***	***	***	***	***	***	***	5	2	Number Days 8-hour > 0.084 ppm
Upper Beaver Valley Air Basin											
New Castle	0.109	0.096	0.105	0.090	0.099	0.103	0.106	0.083	0.094	0.088	2nd Max Daily 1-hour Average
B21	0	0	1	0	0	0	1	0	0	0	Number Days 1-hour > 0.124 ppm
	0.086	0.077	0.088	0.069	0.079	0.087	0.077	0.068	0.075	0.070	4th Max Daily 8-hour Average
	4	2	5	0	1	6	2	0	1	0	Number Days 8-hour > 0.084 ppm
Erie Air Basin											
Erie	0.103	0.122	0.112	0.095	0.104	0.114	0.108	0.089	0.104	0.093	2nd Max Daily 1-hour Average
E10	0	1	0	0	0	0	0	0	0	0	Number Days 1-hour > 0.124 ppm
	0.087	0.098	0.096	0.078	0.089	0.098	0.091	0.074	0.086	0.077	4th Max Daily 8-hour Average
	6	12	13	2	4	17	4	0	4	1	Number Days 8-hour > 0.084 ppm
Northwest Region Non-Air Basin											
Farrell	0.111	0.121	0.108	0.098	0.113	0.118	0.116	0.088	0.104	0.102	2nd Max Daily 1 Hour Average
606	0	1	0	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.092	0.106	0.091	0.081	0.094	0.103	0.087	0.076	0.087	0.079	4th Max Daily 8 Hour Average
	9	24	8	2	15	20	6	1	4	3	Number Days 8-Hr > 0.084 ppm

? indicates less than 75 percent valid data for year
*** indicates less than 50 percent valid data for year

Appendix A: Table A-17

Nitrogen Dioxide Summary
(Units: parts per million)

Year: 2006

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Max 1-hour Mean	1st Max Date MM/DD	2nd Max 1-hour Mean	2nd Max Date MM/DD	3rd Max 1-hour Mean	3rd Max Date MM/DD	4th Max 1-hour Mean	4th Max Date MM/DD
Southeast Pennsylvania Air Basin											
Bristol	P01	95.0	0.015	0.063	02/22	0.061	03/02	0.061	08/22	0.060	02/16
Chester	P11	92.8	0.016	0.069	11/28	0.066	05/05	0.065	11/28	0.057	05/05
Norristown	P21	94.8	0.014	0.076	02/16	0.068	11/28	0.065	02/15	0.062	02/16
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	98.4	0.012	0.057	02/16	0.057	02/16	0.056	02/15	0.055	02/15
Freemansburg	A25	99.2	0.012	0.107	10/02	0.064	02/15	0.064	02/15	0.061	02/16
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	99.5	0.011	0.061	05/04	0.060	03/30	0.054	03/30	0.052	05/04
Wilkes-Barre	S28	98.5	0.011	0.044	02/16	0.042	11/28	0.040	01/20	0.040	02/16
Reading Air Basin											
Reading	R01	32.9	0.018	0.065	02/16	0.060	02/15	0.054	04/20	0.053	02/15
Harrisburg Air Basin											
Harrisburg	H11	98.5	0.013	0.059	02/21	0.058	12/11	0.055	02/15	0.053	02/16
Lancaster Air Basin											
Lancaster	L01	98.7	0.013	0.058	04/20	0.053	02/16	0.051	03/27	0.051	03/29
York Air Basin											
York	Y01	98.1	0.016	0.094	12/18	0.073	02/15	0.072	12/18	0.069	02/16
Southcentral Region Non-Air Basin											
Perry County	305	97.0	0.004	0.042	02/16	0.030	11/29	0.029	02/16	0.028	01/17
Altoona	308	99.0	0.012	0.073	07/11	0.063	11/24	0.060	07/11	0.059	11/27
Arendtsville	314	58.4	0.004?	0.020	10/16	0.020	10/19	0.018	10/19	0.017	04/07
Northcentral Region Non-Air Basin											
State College	409	98.9	0.008	0.046	02/15	0.044	03/30	0.041	02/15	0.041	03/31
Johnstown Air Basin											
Johnstown	J01	99.4	0.012	0.047	12/11	0.046	02/15	0.045	02/15	0.045	02/15
Monongahela Valley Air Basin											
Charleroi	M01	99.7	0.013	0.078	05/25	0.070	05/25	0.069	05/25	0.054	01/13
Lower Beaver Valley Air Basin											
Beaver Falls	B11	96.7	0.015	0.063	04/12	0.058	03/31	0.058	04/12	0.057	01/13

Primary Annual National Ambient Air Quality Standard of 0.053 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-17

Nitrogen Dioxide Summary
(Units: parts per million)

Year: 2006

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Max 1-hour Mean	1st Max Date MM/DD	2nd Max 1-hour Mean	2nd Max Date MM/DD	3rd Max 1-hour Mean	3rd Max Date MM/DD	4th Max 1-hour Mean	4th Max Date MM/DD
Allegheny County Air Basin											
Pittsburgh	D12	98.4	0.018	0.066	04/06	0.065	02/22	0.064	04/11	0.064	11/27
Southwest Region Non-Air Basin											
Florence	504	94.7	0.005	0.037	12/21	0.035	03/07	0.035	04/20	0.035	12/11
Washington	508	93.4	0.012	0.051	04/20	0.050	11/06	0.050	12/12	0.049	11/06
Greensburg	513	97.3	0.011	0.107	05/05	0.104	05/05	0.062	05/06	0.047	03/30
Strongstown	515	97.9	0.006	0.060	04/11	0.050	04/12	0.049	02/16	0.041	01/13
Upper Beaver Valley Air Basin											
New Castle	B21	98.9	0.016	0.055	04/12	0.054	11/29	0.053	03/31	0.052	11/06
Erie Air Basin											
Erie	E10	98.2	0.011	0.073	05/24	0.069	05/09	0.064	05/01	0.063	05/01

Primary Annual National Ambient Air Quality Standard of 0.053 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-18

Nitrogen Dioxide Historical Trend
Annual Means
(Units: parts per million)

Site Name	PA Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Southeast Pennsylvania Air Basin											
Bristol	P01	0.020	0.018	0.018	0.017	0.018	0.016	0.016	0.016	0.017	0.015
Chester	P11	0.020	0.019	0.017	0.019	0.019	0.018	0.018	0.018	0.017	0.016
Norristown	P21	0.019	0.019	0.016	0.018	0.017	0.015	0.017	0.014	0.016	0.014
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	0.016	0.016	0.015	0.013	0.017	0.014	0.015	0.013	0.014	0.012
Freemansburg	A25	***	0.017	0.017	0.017	0.016	0.013	0.013	0.014	0.015	0.012
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	0.018	0.016	0.014	0.015	0.015	0.014	0.014	0.012	0.013	0.011
Wilkes-Barre	S28	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.013	0.011
Reading Air Basin											
Reading	R01	0.021	0.021	0.021	0.020	0.020	0.019	0.018	0.017	0.019	0.018
Harrisburg Air Basin											
Harrisburg	H11	0.019	0.019	0.018	0.017	0.018	0.016	0.016	0.015	0.015	0.013
Lancaster Air Basin											
Lancaster	L01	0.016	0.015	0.015	0.014	0.014	0.013	0.015	0.014	0.014	0.013
York Air Basin											
York	Y01	0.019	0.019	0.019	0.018	0.020	0.017	0.017	0.016	0.018	0.016
Southcentral Region Non-Air Basin											
Perry County	305	0.007	0.006	0.006	0.007	0.006	0.006	0.006	0.005	0.005	0.004
Altoona	308	0.014	0.013	0.013	0.014	0.014	0.013	0.013	0.012	0.013	0.012
Arendtsville	314	***	***	***	0.004?	0.004?	0.004?	0.004?	0.004?	0.004?	0.004?
Northcentral Region Non-Air Basin											
State College	409	***	***	***	***	***	0.008	0.008	0.009	0.009	0.008
Johnstown Air Basin											
Johnstown	J01	0.016	0.015	0.015	0.015	0.014	0.012	0.013	0.013	0.013	0.012
Monongahela Valley Air Basin											
Charleroi	M01	0.016	0.016	0.015	0.014	0.013	0.013	0.012	0.012	0.013	0.013
Lower Beaver Valley Air Basin											
Beaver Falls	B11	0.017	0.019	0.019	0.017	0.017	0.016	0.015	0.015	0.017	0.015

Primary Annual National Ambient Air Quality Standard of 0.053 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 50 percent valid data for year

Appendix A: Table A-18

Nitrogen Dioxide Historical Trend
Annual Means
(Units: parts per million)

Site Name	PA Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Allegheny County Air Basin											
Pittsburgh	D12	***	0.021	0.023	0.022	0.021	0.020	0.021	0.021	0.022	0.018
Southwest Region Non-Air Basin											
Florence	504	***	***	0.008	0.008	0.008	0.006	0.013	0.006	0.007	0.005
Washington	508	0.018	0.017	0.016	0.015	0.015	0.012	0.012	0.013	0.014	0.012
Greensburg	513	***	0.018	0.018	0.017	0.017	0.016	0.015	0.013	0.013	0.011
Strongstown	515	***	***	***	***	***	***	***	***	0.006	0.006
Upper Beaver Valley Air Basin											
New Castle	B21	0.020	0.019	0.020	0.019	0.017	0.016	0.016	0.016	0.017	0.016
Erie Air Basin											
Erie	E10	0.015	0.014	0.015	0.012	0.012	0.012	0.012	0.012	0.013	0.011

Primary Annual National Ambient Air Quality Standard of 0.053 parts per million

? indicates that the annual mean does not meet the summary criteria for completeness
*** indicates less than 50 percent valid data for year

Appendix A: Table A-19

Oxides of Nitrogen Summary
(Units: parts per million)

Year: 2006

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Max 1-hour Mean	1st Max Date MM/DD	2nd Max 1-hour Mean	2nd Max Date MM/DD	3rd Max 1-hour Mean	3rd Max Date MM/DD	4th Max 1-hour Mean	4th Max Date MM/DD
Southeast Pennsylvania Air Basin											
Bristol	P01	94.8	0.031	0.519	02/16	0.466	02/15	0.462	02/22	0.435	02/16
Chester	P11	92.8	0.025	0.300	02/16	0.271	02/15	0.264	11/28	0.263	03/30
Norristown	P21	94.5	0.024	0.434	02/15	0.429	02/16	0.334	02/15	0.325	02/15
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	98.7	0.019	0.284	02/16	0.257	01/13	0.246	02/22	0.245	02/22
Freemansburg	A25	99.5	0.020	0.347	01/20	0.272	11/28	0.265	10/02	0.252	12/07
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	99.5	0.016	0.311	01/20	0.244	01/20	0.241	01/20	0.224	11/27
Wilkes-Barre	S28	98.5	0.019	0.250	01/13	0.234	01/13	0.234	01/20	0.219	12/11
Reading Air Basin											
Reading	R01	32.9	0.032	0.320	01/12	0.304	02/15	0.300	01/28	0.259	02/21
Harrisburg Air Basin											
Harrisburg	H11	98.0	0.025	0.427	11/28	0.417	02/21	0.391	11/28	0.362	11/28
Lancaster Air Basin											
Lancaster	L01	98.7	0.022	0.333	12/12	0.268	12/11	0.256	12/07	0.254	02/21
York Air Basin											
York	Y01	98.1	0.030	0.619	12/18	0.483	01/09	0.475	12/18	0.444	12/18
Southcentral Region Non-Air Basin											
Perry County	305	96.7	0.005	0.066	12/18	0.062	12/17	0.057	02/17	0.055	12/14
Altoona	308	98.4	0.020	0.252	01/13	0.226	01/13	0.225	11/24	0.224	11/27
Arendtsville	314	58.4	0.004?	0.024	10/27	0.023	04/25	0.023	09/12	0.023	10/27
Northcentral Region Non-Air Basin											
State College	409	98.9	0.011	0.141	11/28	0.125	01/27	0.124	12/11	0.122	12/12
Johnstown Air Basin											
Johnstown	J01	99.4	0.017	0.228	11/29	0.220	12/21	0.213	12/11	0.207	11/29
Monogahela Valley Air Basin											
Charleroi	M01	99.7	0.023	0.426	12/22	0.377	12/22	0.373	12/22	0.309	02/02

No Long- or Short-Term Air Quality Standards

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-19

Oxides of Nitrogen Summary
(Units: parts per million)

Year: 2006

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Max 1-hour Mean	1st Max Date MM/DD	2nd Max 1-hour Mean	2nd Max Date MM/DD	3rd Max 1-hour Mean	3rd Max Date MM/DD	4th Max 1-hour Mean	4th Max Date MM/DD
Lower Beaver Valley Air Basin											
Beaver Falls	B11	96.7	0.030	0.324	11/28	0.322	12/22	0.321	01/11	0.314	01/11
Allegheny County Air Basin											
Pittsburgh	D12	98.4	0.035	0.427	01/13	0.389	12/21	0.384	01/13	0.353	12/21
Southwest Region Non-Air Basin											
Florence	504	94.7	0.008	0.116	12/21	0.102	12/21	0.096	12/21	0.095	12/21
Washington	508	93.4	0.023	0.323	12/12	0.296	12/29	0.289	01/16	0.287	12/12
Greensburg	513	97.3	0.020	0.311	01/27	0.270	05/05	0.234	05/05	0.207	01/27
Strongstown	515	97.8	0.007	0.127	04/11	0.108	02/16	0.092	01/13	0.091	01/19
Upper Beaver Valley Air Basin											
New Castle	B21	99.1	0.027	0.290	11/29	0.250	12/12	0.232	12/11	0.226	12/29
Erie Air Basin											
Erie	E10	98.0	0.016	0.194	04/18	0.187	11/24	0.180	01/13	0.169	12/22

No Long- or Short-Term Air Quality Standards

? indicates that the annual mean does not meet the summary criteria for completeness

Appendix A: Table A-20

Carbon Monoxide Summary
(Units: parts per million)

Year: 2006

Site Name	PA Site Code	Percent Valid Data	Number 1-hour > 35	1st Max 1 HR Mean	1st Max Date MM/DD	2nd Max 1 HR Mean	2nd Max Date MM/DD	Number 8-hour > 9	Running Average 1st Max 8HR Mean	Running Average 1st Max Date MM/DD	Running Average 2nd Max 8HR Mean	Running Average 2nd Max Date MM/DD
Southeast Pennsylvania Air Basin												
Bristol	P01	97.0	0	2.9	01/09	2.8	02/16	0	2.1	01/02	2.1	02/16
Norristown	P21	96.3	0	2.0	10/30	2.0	03/28	0	1.5	10/30	1.4	03/28
Allentown-Bethlehem-Easton Air Basin												
Freemansburg	A25	99.7	0	1.4	01/20	1.3	11/28	0	0.9	01/13	0.9	11/27
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	98.6	0	2.4	01/20	2.3	01/09	0	1.6	11/27	1.4	11/28
Wilkes-Barre (CBD)	S27	14.3	0	2.6	01/20	2.3	01/20	0	1.8	01/20	1.6	01/13
Wilkes Barre	S28	83.7	0	2.6	12/11	2.5	12/20	0	1.6	11/27	1.6	12/11
Northeast Region Non-Air Basin												
Shenandoah	211	93.6	0	2.1	03/09	2.1	04/26	0	1.3	03/09	1.3	04/26
Reading Air Basin												
Reading	R01	33.0	0	2.3	02/21	1.8	01/28	0	1.4	01/28	1.2	01/28
Harrisburg Air Basin												
Harrisburg	H11	82.6	0	2.3	05/18	1.7	05/29	0	1.4	11/28	1.3	05/29
Harrisburg (CBD)	H16	14.4	0	1.9	01/12	1.8	02/15	0	1.3	01/12	1.2	01/28
Lancaster Air Basin												
Lancaster	L01	98.7	0	2.5	12/12	2.2	12/07	0	1.5	11/27	1.3	02/21
York Air Basin												
York	Y01	99.2	0	3.6	12/11	3.3	11/28	0	1.8	11/28	1.8	12/11
Southcentral Region Non-Air Basin												
Altoona	308	96.9	0	1.9	03/29	1.9	12/20	0	1.0	01/13	0.9	11/27
Arendtsville	314	55.5	0	1.4	05/01	1.3	05/04	0	1.3	05/04	1.2	05/05
Johnstown Air Basin												
Johnstown	J01	97.4	0	2.3	11/29	2.1	12/11	0	1.9	11/29	1.5	11/28
Monongahela Valley Air Basin												
Charleroi	M01	99.3	0	4.0	03/24	3.2	05/05	0	1.2	03/24	1.1	12/22

Primary National Ambient Air Quality Standards
1-hour Mean = 35 parts per million
8-hour Running Mean = 9 parts per million

Appendix A: Table A-20

Carbon Monoxide Summary
(Units: parts per million)

Year: 2006

Site Name	PA Site Code	Percent Valid Data	Number 1-hour > 35	1st Max 1 HR Mean	1st Max Date MM/DD	2nd Max 1 HR Mean	2nd Max Date MM/DD	Number 8-hour > 9	Running Average 1st Max 8HR Mean	Running Average 1st Max Date MM/DD	Running Average 2nd Max 8HR Mean	Running Average 2nd Max Date MM/DD
Lower Beaver Valley Air Basin												
Beaver Falls	B11	93.9	0	2.3	12/18	2.0	01/11	0	1.6	01/11	1.5	01/13
Allegheny County Air Basin												
Pittsburgh	D12	97.7	0	1.8	04/11	1.5	02/22	0	1.4	07/01	1.4	07/09
Southwest Region Non-Air Basin												
Greensburg	513	99.4	0	2.0	12/11	1.6	01/12	0	1.1	12/21	0.9	11/24
Holbrook	514	53.3	0	2.0	10/07	1.9	09/30	0	1.6	10/07	1.3	09/30
Upper Beaver Valley Air Basin												
New Castle	B21	98.4	0	3.6	12/20	2.7	12/21	0	2.3	12/20	2.2	12/21
Erie Air Basin												
Erie	E10	98.8	0	2.4	04/18	2.3	01/13	0	1.5	04/18	1.4	01/28

Primary National Ambient Air Quality Standards
1-hour Mean = 35 parts per million
8-hour Running Mean = 9 parts per million

Appendix A: Table A-21

Carbon Monoxide Historical Trend
(Units: parts per million)

Station / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Southeast Pennsylvania Air Basin											
Bristol	6.8	5.2	6.6	4.3	4.0	4.3	4.5	3.2	3.8	2.8	2nd Maximum 1-hour Mean
P01	3.8	3.5	3.7	3.6	3.1	2.4	2.8	2.2	2.3	2.1	2nd Maximum 8-hour Mean
Norristown	3.2	2.9	3.1	2.8	2.5	2.7	2.4	1.9	1.7	2.0	2nd Maximum 1-hour Mean
P21	2.2	1.8	1.9	1.7	1.7	2.3	1.8	1.4	1.2	1.4	2nd Maximum 8-hour Mean
Allentown-Bethlehem-Easton Air Basin											
Freemansburg	***	3.4	4.4	5.5	3.1	2.3	2.3	2.4	2.5	1.3	2nd Maximum 1-hour Mean
A25	***	2.4	3.0	2.4	2.4	1.8	1.4	1.7	1.9	0.9	2nd Maximum 8-hour Mean
Allentown (CBD)	4.8	5.0	5.5	4.1	4.0	4.4	***	***	***	***	2nd Maximum 1-hour Mean
A51	2.7	2.9	3.2	2.6	3.3	2.3	***	***	***	***	2nd Maximum 8-hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	4.7	3.4	3.5	4.4	2.9	2.7	2.4	2.9	2.6	2.3	2nd Maximum 1-hour Mean
S01	2.8	1.9	1.7	2.1	1.8	1.6	1.5	1.8	1.5	1.4	2nd Maximum 8-hour Mean
Wilkes-Barre (CBD)	4.6	7.0	4.2	3.8	2.8	5.1	3.2	2.4	2.4	2.3	2nd Maximum 1-hour Mean
S27	3.3	3.1	3.0	2.2	2.3	2.6	2.3	1.8	1.9	1.6	2nd Maximum 8-hour Mean
Wilkes Barre	***	***	***	***	***	***	***	***	***	2.5	2nd Maximum 1-hour Mean
S28	***	***	***	***	***	***	***	***	***	1.6	2nd Maximum 8-hour Mean
Northeast Region Non-Air Basin											
Shenandoah	2.3	3.7	2.9	2.6	2.0	2.3	2.8	1.5	2.6	2.1	2nd Maximum 1-hour Mean
211	1.3	1.4	1.6	1.3	0.9	1.2	1.4	0.8	1.4	1.3	2nd Maximum 8-hour Mean
Reading Air Basin											
Reading	***	4.7	4.6	3.8	3.8	4.1	3.2	2.5	2.4	1.8	2nd Maximum 1-hour Mean
R01	***	3.2	2.8	2.3	2.2	2.2	2.0	1.8	1.9	1.2	2nd Maximum 8-hour Mean
Harrisburg Air Basin											
Harrisburg	***	***	***	***	***	***	***	***	***	1.7	2nd Maximum 1-hour Mean
H11	***	***	***	***	***	***	***	***	***	1.3	2nd Maximum 8-hour Mean
Harrisburg (CBD)	5.2	4.1	4.9	3.5	4.4	3.6	3.0	2.3	2.0	1.8	2nd Maximum 1-hour Mean
H16	3.3	3.0	4.3	2.1	2.8	2.3	2.0	1.3	1.3	1.2	2nd Maximum 8-hour Mean
Lancaster Air Basin											
Lancaster	5.1	3.4	3.1	3.0	2.9	3.0	2.7	3.2	2.5	2.2	2nd Maximum 1-hour Mean
L01	3.3	1.9	2.5	1.9	2.2	2.2	1.7	1.6	1.5	1.3	2nd Maximum 8-hour Mean
York Air Basin											
York	5.7	5.0	5.3	3.7	3.8	4.3	2.6	2.8	2.5	3.3	2nd Maximum 1-hour Mean
Y01	3.4	2.4	2.4	1.8	2.2	2.2	1.7	1.8	1.4	1.8	2nd Maximum 8-hour Mean

Appendix A: Table A-21

Carbon Monoxide Historical Trend
(Units: parts per million)

Station / Site Code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
Southcentral Region Non-Air Basin											
Altoona	2.7	2.0	2.6	1.7	2.4	1.5	1.6	2.3	1.9	1.9	2nd Maximum 1-hour Mean
308	1.5	1.2	1.6	1.0	1.1	0.7	1.2	0.9	1.1	0.9	2nd Maximum 8-hour Mean
Arendtsville	***	0.7	1.2	1.4	1.4	1.0	0.7	1.7	0.3	1.3	2nd Maximum 1-hour Mean
314	***	0.6	1.1	1.2	1.2	0.6	0.4	1.6	0.3	1.2	2nd Maximum 8-hour Mean
Johnstown Air Basin											
Johnstown	4.7	4.2	4.4	2.8	2.8	3.9	3.0	2.0	1.7	2.1	2nd Maximum 1-hour Mean
J01	2.7	3.1	2.8	2.0	2.1	2.6	2.2	2.1	1.2	1.5	2nd Maximum 8-hour Mean
Monongahela Valley Air Basin											
Charleroi	1.8	3.0	2.0	1.8	1.4	1.7	1.6	1.8	1.6	3.2	2nd Maximum 1-hour Mean
M01	1.6	1.9	1.6	1.1	1.1	1.0	1.0	1.4	1.1	1.1	2nd Maximum 8-hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	2.6	2.2	2.5	1.7	2.4	2.1	1.6	1.7	1.6	2.0	2nd Maximum 1-hour Mean
B11	1.9	1.5	1.5	1.2	1.5	1.6	1.1	1.2	1.4	1.5	2nd Maximum 8-hour Mean
Allegheny County Air Basin											
Pittsburgh	***	3.5	3.3	3.2	3.0	2.5	2.4	2.0	1.9	1.5	2nd Maximum 1-hour Mean
D12	***	2.7	2.5	2.4	2.5	2.0	2.0	1.7	1.5	1.4	2nd Maximum 8-hour Mean
Southwest Region Non-Air Basin											
Greensburg	***	3.3	3.2	2.6	3.0	2.1	3.1	2.1	1.3	1.6	2nd Maximum 1-hour Mean
513	***	2.3	2.4	1.8	1.8	1.2	2.1	1.4	0.9	0.9	2nd Maximum 8-hour Mean
Holbrook	***	***	1.7	0.6	1.3	0.3	0.6	0.6	0.7	1.9	2nd Maximum 1-hour Mean
514	***	***	1.5	0.3	1.1	0.3	0.3	0.3	0.7	1.3	2nd Maximum 8-hour Mean
Upper Beaver Valley Air Basin											
New Castle	4.6	7.2	5.5	3.5	3.0	4.1	3.3	2.8	2.4	2.7	2nd Maximum 1-hour Mean
B21	3.0	2.4	3.8	1.9	2.0	1.8	1.8	1.8	1.5	2.2	2nd Maximum 8-hour Mean
Erie Air Basin											
Erie	***	***	***	***	***	***	***	***	3.1	2.3	2nd Maximum 1-hour Mean
E10	***	***	***	***	***	***	***	***	1.4	1.4	2nd Maximum 8-hour Mean
Erie (CBD)	9.3	9.5	10.6	11.9	7.2	7.5	7.6	1.8	***	***	2nd Maximum 1-hour Mean
E12	4.9	5.1	5.6	6.0	4.4	4.5	3.4	1.3	***	***	2nd Maximum 8-hour Mean

Appendix A: Table A-22

Photochemical Assessment Monitoring Station (PAMS) Compounds Summary
Arendtsville, Pennsylvania
Units: parts per billion Carbon (ppbC)
[The concentration in ppbC for a compound can be divided by the number of carbon atoms for that target compound to estimate the concentration in parts per billion volume (ppbv).]

Year 2006 (May-October)

Compound	1 Hour Max	Date/Time of Max	Mean
Acetylene	4.42	26 Jul 06 7:00	0.40
Ethylene	5.05	07 Aug 06 6:00	0.64
Ethane	32.26	09 Sep 06 8:00	4.12
Propylene	4.23	27 Oct 06 10:00	0.37
Propane	19.56	11 Oct 06 7:00	2.69
Isobutane	3.99	27 Oct 06 17:00	0.57
Butene-1	0.68	07 Aug 06 6:00	0.13
n-Butane	8.38	27 Oct 06 17:00	1.05
t-Butene-2	0.69	27 Oct 06 17:00	0.04
c-Butene-2	0.55	08 Jul 06 17:00	0.01
Isopentane	11.78	08 Jul 06 17:00	1.08
Pentene-1	0.52	09 Sep 06 7:00	0.02
n-Pentane	6.17	09 Sep 06 7:00	0.62
Isoprene	47.69	02 Aug 06 18:00	1.64
trans-2-Pentene	1.76	08 May 06 12:00	0.02
c-2-Pentene	1.17	09 May 06 14:00	0.00
2,2-Dimethylbutane	0.64	09 Sep 06 7:00	0.05
cyclopentane	0.84	19 Sep 06 17:00	0.18
2,3-Dimethylbutane	2.13	22 May 06 13:00	0.17
2-Methylpentane	3.91	10 Aug 06 8:00	0.27
3-Methylpentane	6.86	10 Aug 06 8:00	0.16
n-Hexane	29.78	10 Aug 06 8:00	0.17
Methylcyclopentane	7.69	10 Aug 06 8:00	0.05
2,4-Dimethylpentane	0.68	26 Jul 06 8:00	0.00
Benzene	3.00	07 Aug 06 6:00	0.47
Cyclohexane	1.06	29 Aug 06 1:00	0.01
2-Methylhexane	1.63	09 Sep 06 6:00	0.03
2,3-Dimethylpentane	0.81	09 Sep 06 6:00	0.01
3-Methylhexane	1.95	09 Sep 06 6:00	0.08
2,2,4-Trimethylpentane	1.86	07 Aug 06 6:00	0.14
n-Heptane	3.48	29 Aug 06 1:00	0.08
Methylcyclohexane	2.92	29 Aug 06 1:00	0.04
2,3,4-Trimethylpentane	0.51	07 Aug 06 6:00	0.02

*Total Nonmethane Organic Compounds
**PAMS Hydrocarbons
VOCs refer to gaseous aliphatic and aromatic nonmethane organic compounds that have a vapor pressure greater than 0.14 mmHg at 25C and generally have a carbon number in the range of C2-C12.

Appendix A: Table A-22

Photochemical Assessment Monitoring Station (PAMS) Compounds Summary
Arendtsville, Pennsylvania
Units: parts per billion Carbon (ppbC)
[The concentration in ppbC for a compound can be divided by the number of carbon atoms for that target compound to estimate the concentration in parts per billion volume (ppbv).]

Year 2006 (May-October)

Compound	1 Hour Max	Date/Time of Max	Mean
Toluene	49.15	10 Aug 06 8:00	0.82
2-Methylheptane	1.21	29 Aug 06 1:00	0.01
3-Methylheptane	0.95	09 Sep 06 6:00	0.01
n-Octane	2.08	29 Aug 06 1:00	0.04
Ethylbenzene	1.69	09 Sep 06 6:00	0.10
m/p-Xylene	6.23	09 Sep 06 6:00	0.26
Styrene	1.05	27 Oct 06 8:00	0.03
o-Xylene	2.11	07 Aug 06 6:00	0.09
n-Nonane	1.79	07 Oct 06 22:00	0.02
Isopropylbenzene	0.46	07 Oct 06 14:00	0.00
n-Propylbenzene	1.05	07 Jun 06 14:00	0.00
1,3,5-Trimethylbenzene	0.65	07 Aug 06 6:00	0.01
1,2,4-Trimethylbenzene	1.67	07 Aug 06 6:00	0.27
o-Ethyltoluene	0.49	22 May 06 13:00	0.00
m-Ethyltoluene	1.21	07 Aug 06 6:00	0.03
p-Ethyltoluene	1.37	11 Jul 06 6:00	0.07
m-Diethylbenzene	1.05	06 Sep 06 7:00	0.00
p-Diethylbenzene	7.07	06 Sep 06 7:00	0.01
1,2,3-Trimethylbenzene	2.70	06 Sep 06 7:00	0.18
n-Decane	1.87	11 Sep 06 13:00	0.02
Undecane	1.84	18 Sep 06 17:00	0.01
tnmoc*	135.00	10 Aug 06 8:00	19.08
pamshc**	131.11	10 Aug 06 8:00	17.25
Unidentifed VOC	41.57	06 Sep 06 7:00	1.51

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*Total Nonmethane Organic Compounds
**PAMS Hydrocarbons
VOCs refer to gaseous aliphatic and aromatic nonmethane organic compounds that have a vapor pressure greater than 0.14 mmHg at 25C and generally have a carbon number in the range of C2-C12.

2006 ELEMENTAL MERCURY VAPOR SUMMARY

Instrumental Method: Tekran 2537A Analyzer (Cold Vapor Atomic Fluorescence Spectrometry)

Site Location: Lancaster, Lincoln Junior High School

Monitoring for Mercury Vapor Started June 21, 1999

Valid Hours: 8457 (96.5% Data Availability)

Units: nanograms per cubic meter (ng/m^3)

Annual Average (Mean)	2.1	
1st Maximum Hour Average	122.1	12/12/2006 03:00
2nd Maximum Hour Average	84.5	12/7/2006 04:00
3rd Maximum Hour Average	75.2	12/6/2006 05:00
Maximum 5-minute Sample	225.6	12/7/2006 09:05

Number of 1-Hour Average Values in Ranges

0 to 1	1 to 2	2 to 4	4 to 6	6 or more
0.04%	84.39%	12.79%	0.86%	1.92%

Mercury Vapor Historical Trend

	1999*	2000	2001	2002	2003	2004	2005	2006
Annual Mean	1.8	1.8	1.8	1.8	1.8	1.7	1.6	2.1
1st Maximum Hour Average	7.9	37.2	7.4	16.7	6.95	26.0	9.09	122.1
2nd Maximum Hour Average	7.6	32.3	7.3	14.5	5.78	12.4	7.27	84.5

* June 21, 1999 through December 31, 1999

An episode of higher than normal mercury vapor concentrations started on December 6, 2006, and continued for several weeks with concentrations gradually decreasing. The Department investigated but did not locate the source of mercury emissions. Excluding this episode, the annual average was 1.66 ng.m3 and the highest one-hour average was 8.1 ng/m3, which is comparable to previous years.

There are no national or Pennsylvania Ambient Air Quality Standards
Other Standards or guidelines:
Agency for Toxic Substances and Disease Registry of the U. S. Dept. of Health and Human Services (ATSDR) Minimal Risk Level for Hazardous Substances, Inhalation Chronic 0.0002 mg/m3 (200 ng/m^3) Neurol. Final 03/99 007439-97-6

EPA Integrated Risk Information System (IRIS) Reference Concentration: 0.0003 mg/m^3 (300 ng/m^3)

The risk to human health from direct exposure by inhalation to elemental mercury vapor in ambient air is believed to be well below any level of concern. Mercury deposited to surface waters is concentrated in the food chain and may reach levels in fish that are unsafe for consumption.

APPENDIX B - Air Pollution Control Agencies in Pennsylvania

Allegheny County Health Department
39th Street and Penn Avenue
Pittsburgh, PA 15201
(412) 578-8104

City of Philadelphia
Department of Public Health
Air Management Services
321 University Avenue
Philadelphia, PA 19104
(215) 685-7584

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Air Quality
Division of Air Quality Monitoring
Rachel Carson State Office Building 12th Floor
400 Market Street
P.O. Box 8468
Harrisburg, PA 17105-8468
(717) 787-6548

Related environmental information is available electronically via the Internet. Access the DEP website at http://www.depweb.state.pa.us/ (DEP Keyword: Air, Air Pollution, Air Quality, Clean Air).

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APPENDIX C - Monitoring Sites, Equipment, and Addresses

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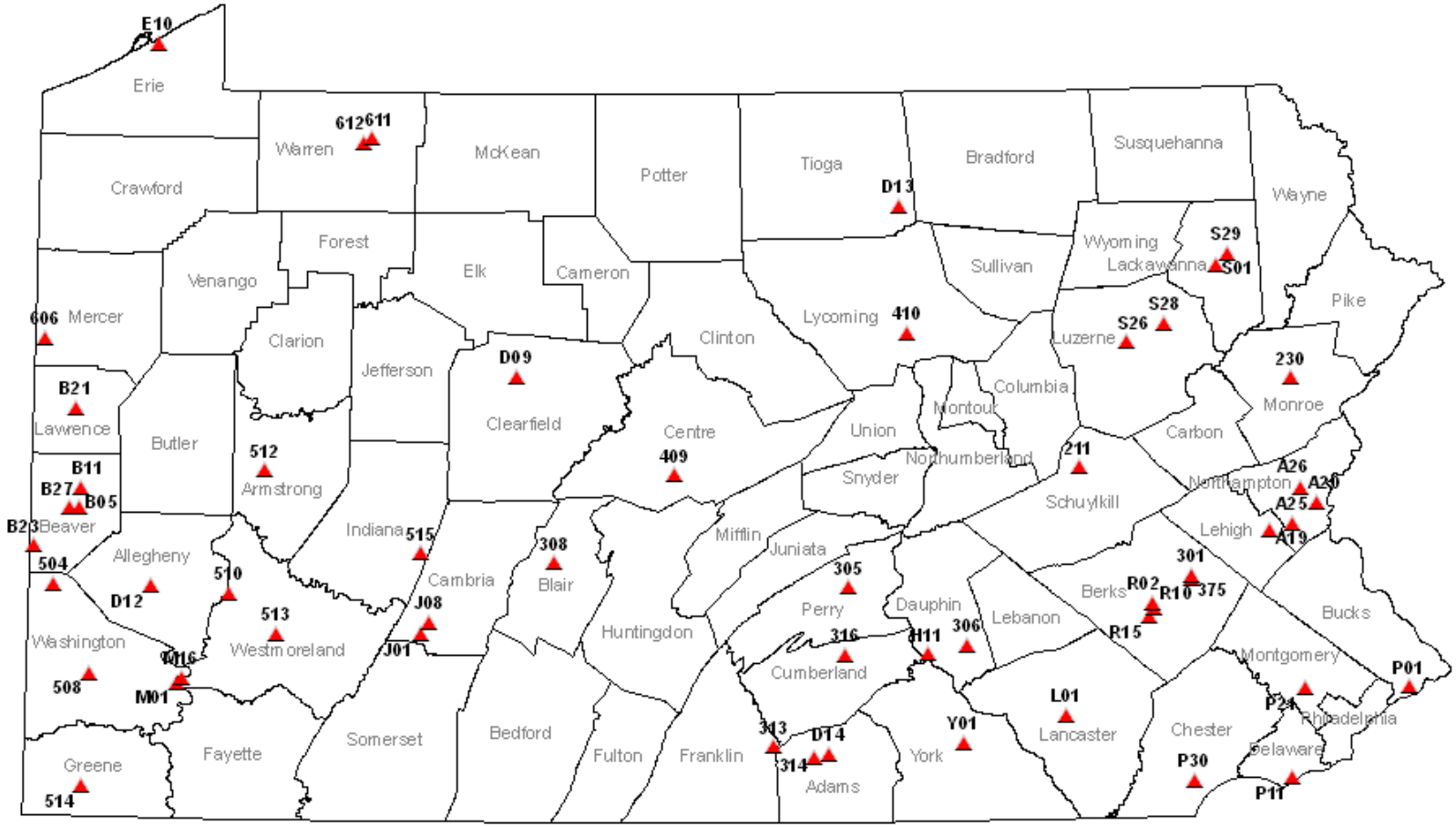
Figure C-1. Commonwealth of Pennsylvania Active Air Monitoring Sites



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Appendix C: Table C-1

Ambient Air Monitoring Equipment

Particulate Sampling

PARAMETER	MANUFACTURER/INSTRUMENT/MODEL	EPA DESIGNATION
PM_{10}		
Discrete	Thermo GMW PM_{10} High-Volume Air Sampler - Volumetric http://www.thermo.com/com/cda/product/detail/1,1055,23297,00.html	Manual Reference Method: RFPS-1287-063 52 FR 45684, 12/01/87 53FR 1062, 1/15/88
Continuous	Rupprecht & Patashnick (R&P) Tapered Element Oscillating Microbalance (TEOM) Series 1400 Ambient Particulate Monitor http://www.rpco.com/products/ambprod/amb1400/index.htm	Automated Equivalent Method: EQPM-1090-079 55 FR 43406, 10/29/90
$PM_{2.5}$		
Discrete	R&P Partisol-Plus Model 2025 Sequential Air Sampler http://www.rpco.com/products/ambprod/amb2025/index.htm	Manual Reference Method: RFPS-0498-118 63 FR 18911, 4/16/98
Continuous	R&P TEOM Series 8500a Filter Dynamics Measurement System (FDMS) and TEOM Series 1400ab http://www.rpco.com/products/ambprod/amb8500/index.htm	
	Met One Instruments Beta-Attenuation Mass (BAM) Model 1020 http://www.metone.com/documents/BAM1020Particulate.pdf	
$PM_{2.5}$ Speciation	Met One Instruments SASS $PM_{2.5}$ Ambient Chemical Speciation Air Sampler http://www.metone.com/documents/SASS0301Particulate.pdf	
TSP	Thermo GMW TSP High Volume Air Sampler – Mass Flow http://www.thermo.com/com/cda/product/detail/1,1055,23329,00.html and Thermo GMW TSP High Volume Air Sampler – Volumetric http://www.thermo.com/com/cda/product/detail/1,1055,23328,00.html	Manual Reference Method 40 CFR Part 50, Appendix B 47 FR 54912, 12/6/82 48 FR 17355, 4/22/83
Pb	Laboratory analysis of TSP filters by Inductively Coupled Argon Plasma-Optical Emission Spectrometry	Manual Equivalent Method EQL-0592-086 57 FR 20823, 5/15/92
SO_4, NO_3	Laboratory analysis of TSP filters by Ion Chromatography	EPA Method 300.0

Appendix C: Table C-1

Ambient Air Monitoring Equipment

Continuous Gaseous Sampling

PARAMETER	MANUFACTURER/INSTRUMENT/MODEL	EPA DESIGNATION
SO_2	Teledyne Advanced Pollution Instrumentation Model 100A UV Fluorescence SO_2 Analyzer http://www.teledyne-api.com/products/100e.asp	Automated Equivalent Method: EQSA-0990-077 55 FR 38149, 9/17/90
NO/ NO_2 /NO_x	Teledyne Advanced Pollution Instrumentation Model 200A Chemiluminescence Nitrogen Oxides Analyzer for Ambient Concentrations http://www.teledyne-api.com/products/200e.asp	Automated Reference Method: RFNA-0691-082 56 FR 27014, 6/12/91
O_3	Teledyne Advanced Pollution Instrumentation Model 400 Photometric Ozone Analyzer http://www.teledyne-api.com/products/400e.asp	Automated Equivalent Method: EQOA-0992-087 57 FR 44565, 9/28/92 63 FR 31992, 6/11/98 67 FR 57811, 9/12/02
CO	Teledyne Advanced Pollution Instrumentation Model 300 CO Gas Filter Correlation Analyzer http://www.teledyne-api.com/products/300e.asp	Automated Reference Method: RFCA-1093-093 58 FR 58166, 10/29/93

Southeast Region Air Basin Sites

Appendix C: Table C-2.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
P01	BRISTOL	42-017-0012	BUCKS	Roosevelt Junior High School Rockview Lane	40 06 27 N 74 52 57 W
P11	CHESTER	42-045-0002	DELAWARE	Front & Norris Streets	39 50 08 N 75 22 22 W
P21	NORRISTOWN	42-091-0013	MONTGOMERY	State Armory 1046 Belvoir Road	40 06 45 N 75 18 34 W
P30	NEW GARDEN (TOUGHKENAMON)	42-029-0100	CHESTER	1235 Newark Road New Garden Airport	39 50 04 N 75 46 05 W
P32	WEST CHESTER	42-029-0050	CHESTER	South Campus Road West Chester University	39 56 09 N 75 36 16 W

Appendix C: Table C-3.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
BUCKS	P01	X_{C10}	$X_{D2.5}$						X	X	X	X
DELAWARE	P11	X_{C10}	$X_{D2.5}$ $X_{C2.5B}$	X	X		X		X	X	X	
MONTGOMERY	P21	X_{C10}	$X_{D2.5}$ $X_{C2.5T}$						X	X	X	X
CHESTER	P30		$X_{D2.5}$	X							X	
	P32										X	

Southeast Region. Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Allentown - Bethlehem - Easton Air Basin Sites

Appendix C: Table C-4.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
A19	ALLENTOWN	42-077-0004	LEHIGH	Allentown State Hospital Rear 1600 Hanover Avenue	40 36 43 N 75 25 58 W
A20	EASTON	42-095-8000	NORTHAMPTON	Spring Garden	40 41 32 N 75 14 14 W
A25	FREEMANSBURG	42-095-0025	NORTHAMPTON	Washington & Cambria Streets	40 37 41 N 75 20 28 W
A26	NAZARETH	42-095-1000	NORTHAMPTON	South Green & Delaware	40 44 04 N 75 18 46 W
A51	ALLENTOWN (CBD)	42-077-0100	LEHIGH	2 North Ninth Street Hamilton Street Side	40 35 57 N 75 28 28 W

Appendix C: Table C-5.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
LEHIGH	A19	X_{C10}	$X_{D2.5}$						X	X	X	
	A51											X
NORTHAMPTON	A20		$X_{C2.5T}$						X		X	
	A25	X_{C10}	$X_{D2.5}$ $X_{C2.5T}$	X					X	X	X	X
	A26	X_{C10}										

Northeast Region. Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, and Wyoming Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Scranton - Wilkes-Barre Air Basin Sites

Appendix C: Table C-6.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
S01	SCRANTON	42-069-2006	LACKAWANNA	Behind Penn State Campus George Street	41 26 34 N 75 37 23 W
S26	NANTICOKE	42-079-1100	LUZERNE	255 Lower Broadway	41 12 33 N 76 00 13 W
S27	WILKES-BARRE CBD	42-079-2100	LUZERNE	North River Street	41 15 01 N 75 52 49 W
S28	WILKES-BARRE	42-079-1101	LUZERNE	Chilwick & Washington Streets	41 15 58 N 75 50 47 W
S29	PECKVILLE	42-069-0101	LACKAWANNA	Pleasant Avenue & Erie Street Wilson Fire Company No. 1	41 28 45 N 75 34 41 W

Appendix C: Table C-7.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
LACKAWANNA	S01	X_{C10}	$X_{D2.5}$	X					X	X	X	X
	S29										X	
LUZERNE	S26										X	
	S27											X
	S28	X_{C10}	$X_{D2.5}$						X	X	X	X

Northeast Region. Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, and Wyoming Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Northeast Region Non-Air Basin Sites

Appendix C: Table C-8.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
205	PALMERTON	42-025-0105	CARBON	New Jersey Zinc Research Bldg. Fourth Street & Franklin Avenue	40 48 12 N 75 36 31 W
211	SHENANDOAH	42-107-0003	SCHUYLKILL	Coal & Stadium Streets	40 49 14 N 76 12 44 W
230	SWIFTWATER	42-089-0002	MONROE	DEP/DCNR Pocono District Office	41 04 59 N 75 19 24 W

Appendix C: Table C-9.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
CARBON	205				X		X					
SCHUYLKILL	211								X			X
MONROE	230										X	

Northeast Region. Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, and Wyoming Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Reading Air Basin Sites

Appendix C: Table C-10.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
R01	READING	42-011-0009	BERKS	UGI Property 234 Morgantown Road	40 19 14 N 75 55 37 W
R02	READING TEMP	42-011-0010	BERKS	503 North 6th Street	40 23 33 N 75 55 30 W
R10	LAURELDALE	42-011-1717	BERKS	Muhlenberg Township Authority Spring Valley Road Substation	40 22 38 N 75 54 53 W
R15	READING (CENTRAL)	42-011-0015	BERKS	Northwest Junior High School North Front & West Spring Streets	40 21 04 N 75 56 08 W

Appendix C: Table C-11.
Parameters Monitored

COUNTY	PA SITE CODE	PM-10	PM-2.5	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
BERKS	R01	X_{C10}	$X_{D2.5}$ $X_{C2.5T}$						X	X	X	X
	R02		$X_{D2.5}$ $X_{C2.5T}$	X							X	
	R10				X	X	X	X				
	R15	X_{D10}										

Southcentral Region. Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, and York Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Harrisburg Air Basin Sites

Appendix C: Table C-12.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
H11	HARRISBURG	42-043-0401	DAUPHIN	1833 UPS Drive	40 14 42 N 76 50 41 W
H16	HARRISBURG (CBD)	42-043-0102	DAUPHIN	PA Dept. of Agriculture Parking Lot 2301 North Cameron Street	40 17 09 N 76 52 53 W

Appendix C: Table C-13.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
DAUPHIN	H11	X_{C10}	$X_{D2.5}$ $X_{C2.5B}$	X					X	X	X	X
	H16											X

Southcentral Region. Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, and York Counties.
.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Lancaster Air Basin Sites

Appendix C: Table C-14.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
L01	LANCASTER	42-071-0007	LANCASTER	Lincoln Junior High School	40 02 49 N 76 17 00 W

Appendix C: Table C-15.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
LANCASTER	L01	X_{C10}	$X_{D2.5}$ $X_{C2.5T}$	X					X	X	X	X

Southcentral Region. Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, and York Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

York Air Basin Sites

Appendix C: Table C-16.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
Y01	YORK	42-133-0008	YORK	Davis Junior High School Hill Street	39 57 56 N 76 41 59 W

Appendix C: Table C-17.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
YORK	Y01	X_{C10}	$X_{D2.5}$ $X_{C2.5T}$	X					X	X	X	X

Southcentral Region. Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, and York Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Southcentral Region Non-Air Basin Sites

Appendix C: Table C-18.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
301	LYONS EAST	42-011-0717	BERKS	Near State & Kemp Streets	40 28 36 N 75 45 33 W
305	PERRY COUNTY	42-099-0301	PERRY	Little Buffalo State Park	40 27 26 N 77 09 57 W
306	HERSHEY	42-043-1100	DAUPHIN	Hershey Foods Technical Center Sipe Avenue & Mae Street	40 16 21 N 76 40 53 W
308	ALTOONA	42-013-0801	BLAIR	Ward Trucking Corporation Second Avenue & Seventh Street	40 32 07 N 78 22 15 W
310	KUTZTOWN	42-011-0001	BERKS	Kutztown State College Grim Science Building	40 30 40 N 75 47 11 W
313	METHODIST HILL	42-055-0001	FRANKLIN	Forest Road (High Elevation Site)	39 57 40 N 77 28 31 W
314	ARENDTSVILLE	42-001-0001	ADAMS	Penn State Research Orchard	39 55 25 N 77 18 29 W
316	CARLISLE	42-041-0101	CUMBERLAND	Imperial Court	40 14 48 N 77 11 12 W
375	LYONS SOUTH	42-011-0005	BERKS	Heffner & Dryville Roads	40 27 59 N 75 45 32 W
D14	BIGLERVILLE	42-001-0002	ADAMS	University Drive Penn State Research Orchard	39 56 06 N 77 15 10 W

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Southcentral Region Non-Air Basin Sites

Appendix C: Table C-19.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
BERKS	301				X		X					
	310										X	
	375				X		X					
PERRY	305		$X_{D2.5}$	X					X	X	X	
DAUPHIN	306										X	
BLAIR	308	X_{C10}							X	X	X	X
FRANKLIN	313										X	
ADAMS	314		$X_{D2.5}$ $X_{C2.5T}$	X						X		X
	D14										X	
CUMBERLAND	316		$X_{D2.5}$									

Southcentral Region. Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, and York Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Northcentral Region Non-Air Basin Sites

Appendix C: Table C-20.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
409	STATE COLLEGE	42-027-0100	CENTRE	Pennsylvania State University West of Big Hollow Road State College	40 48 40 N 77 52 38 W
410	MONTOURSVILLE	42-081-0100	LYCOMING	899 Cherry Street Rear Parking Lot of PA State Police	41 15 01 N 76 54 51 W
D09	MOSHANNON	42-033-4000	CLEARFIELD	Moshannon State Forest Elliott State Park North of Cessna	41 07 03 N 78 31 34 W
D10	TIADAGHTON	42-081-4000	LYCOMING	Tiadaghton Sportmans Club Northeast of Haneyville	41 20 03 N 77 26 56 W
D11	PENN NURSERY	42-027-4000	CENTRE	Department of Conservation and Natural Resources Penn Nursery Facility South of Potters Mills	40 46 28 N 77 37 19 W
D13	TIOGA COUNTY	42-117-4000	TIOGA	North of Gleason	41 38 44 N 76 56 17 W

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Appendix C: Table C-21.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
CENTRE	409		$X_{D2.5}$	X					X	X	X	
	D11										X	
LYCOMING	410	X_{D10}							X		X	
CLEARFIELD	D09										X	
LYCOMING	D10										X	
TIOGA	D13										X	

Northcentral Region. Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Synder, Sullivan, Tioga, and Union Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Johnstown Air Basin Sites

Appendix C: Table C-22.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
J01	JOHNSTOWN	42-021-0011	CAMBRIA	Miller Auto Body Crafts Shop One Messenger Street	40 18 35 N 78 54 54 W
J08	EAST CONEMAUGH	42-021-0808	CAMBRIA	Recreation Field Citron Alley & First Street	40 20 53 N 78 52 58 W

Appendix C: Table C-23.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
CAMBRIA	J01	X_{C10}	$X_{D2.5}$ $X_{C2.5B}$						X	X	X	X
	J08				X	X	X	X				

Southwest Region. Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington, and Westmoreland Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Monongahela Valley Air Basin Sites

Appendix C: Table C-24.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
M01	CHARLEROI	42-125-0005	WASHINGTON	Borough Waste Treatment Plant Front Street	40 08 48 N 79 54 08 W
M16	MONESSEN	42-129-0007	WESTMORELAND	Monessen Community Center 435 Donner Avenue	40 10 00 N 79 52 30 W

Appendix C: Table C-25.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
WASHINGTON	M01	X_{C10}	$X_{D2.5}$ $X_{C2.5B}$						X	X	X	X
WESTMORELAND	M16	X_{D10}			X	X	X	X				

Southwest Region. Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington, and Westmoreland Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Lower Beaver Valley Air Basin Sites

Appendix C: Table C-26.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
B05	VANPORT	42-007-0505	BEAVER	Vanport Water Works Tamaqui Drive	40 41 05 N 80 19 30 W
B11	BEAVER FALLS	42-007-0014	BEAVER	Eighth Street & River Alley	40 44 52 N 80 19 00 W
B23	HOOKSTOWN	42-007-0002	BEAVER	FAA Microwave Relay Tower	40 33 47 N 80 30 16 W
B27	BRIGHTON TOWNSHIP	42-007-0005	BEAVER	1015 Sebring Road	40 41 05 N 80 21 35 W

Appendix C: Table C-27.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
BEAVER	B05				X		X					
	B11	X_{C10}	$X_{D2.5}$ $X_{C2.5T}$						X	X	X	X
	B23								X		X	
	B27								X		X	

Southwest Region. Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington, and Westmoreland Counties.

X Parameter monitored at the site

X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Allegheny County Air Basin Sites

Appendix C: Table C-28.
Site Location

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
D12	PITTSBURGH	42-003-0010	ALLEGHENY	Carnegie Science Center	40 26 44 N 80 00 59 W

Allegheny County Air Basin Sites

Appendix C: Table C-29.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
ALLEGHENY	D12							X	X	X	X

Southwest Region. Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington, and Westmoreland Counties.

X Parameter monitored at the site
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Southwest Region Non-Air Basin Sites

Appendix C: Table C-30.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
504	FLORENCE	42-125-5001	WASHINGTON	Hillman State Park	40 26 44 N 80 25 16 W
508	WASHINGTON	42-125-0200	WASHINGTON	McCarrell & Fayette Streets	40 10 14 N 80 15 42 W
510	MURRYSVILLE	42-129-0006	WESTMORELAND	Murrysville Volunteer Fire Co. Old William Penn Hwy & Sardis Ave.	40 25 41 N 79 41 35 W
512	KITTANNING	42-005-0001	ARMSTRONG	Glade Drive & Nolte Road PA State Police Barracks	40 48 51 N 79 33 54 W
513	GREENSBURG	42-129-0008	WESTMORELAND	Donohue Road PA Dept. of Transportation Bldg.	40 18 17 N 79 30 20 W
514	HOLBROOK	42-059-0002	GREENE	Field 5 km southeast of Holbrook	39 48 58 N 80 17 06 W
515	STRONGSTOWN	42-063-0004	INDIANA	Rte. 403 PA Dept. of Transportation Bldg.	40 33 48 N 78 55 12 W

X Parameter monitored at the site
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Southwest Region Non-Air Basin Sites

Appendix C: Table C-31.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
WASHINGTON	504	X_{D10}	$X_{D2.5}$	X					X	X	X	
	508		$X_{D2.5}$						X	X	X	
WESTMORELAND	510										X	
	513	X_{C10}	$X_{D2.5}$	X					X	X	X	X
ARMSTRONG	512		$X_{C2.5T}$								X	
GREENE	514								X		X	X
INDIANA	515								X	X	X	

Southwest Region. Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington, and Westmoreland Counties.

X Parameter monitored at the site
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Upper Beaver Valley Air Basin Sites

Appendix C: Table C-32.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
B21	NEW CASTLE	42-073-0015	LAWRENCE	Croton Avenue & Jefferson Street	40 59 45 N 80 20 48 W

Appendix C: Table C-33.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
LAWRENCE	B21	X_{C10}							X	X	X	X

Northwest Region. Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, and Warren Counties.

X Parameter monitored at the site
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Erie Air Basin Sites

Appendix C: Table C-34.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
E10	ERIE	42-049-0003	ERIE	East 10th & Marne Streets	42 08 30 N 80 02 19 W
E12	ERIE CBD	42-049-0101	ERIE	West 12th & Myrtle Streets	42 07 14 N 80 05 21 W

Appendix C: Table C-35.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
ERIE	E10	X_{C10}	$X_{D2.5}$	X					X	X	X	X
	E12											X

Northwest Region. Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, and Warren Counties.

X Parameter monitored at the site
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

Northwest Region Non-Air Basin Sites

Appendix C: Table C-36.
Site Locations

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE
606	FARRELL	42-085-0100	MERCER	Farrell High School Field New Castle Road & Mercer Avenue	41 12 52 N 80 28 59 W
611	WARREN	42-123-0003	WARREN	School District Building 345 East 5th Avenue	41 51 26 N 79 08 15 W
612	WARREN (OVERLOOK)	42-123-0004	WARREN	Overlook Site near Stone Hill Road	41 50 41 N 79 10 11 W

Appendix C: Table C-37.
Parameters Monitored

COUNTY	PA SITE CODE	PM_{10}	$PM_{2.5}$	$PM_{2.5}$ SPEC	TSP	SULFATES	LEAD	NITRATES	SULFUR DIOXIDE	NITROGEN DIOXIDE	OZONE	CARBON MONOXIDE
MERCER	606		$X_{D2.5}$						X		X	
WARREN	611								X			
	612								X			

Northwest Region. Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, and Warren Counties.

X Parameter monitored at the site
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{D2.5}$ Discrete $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

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Comments or questions regarding this document should be directed to:
Kirit Dalal at 717-787-6548 or kdalal state.pa.us