COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

2005

AMBIENT AIR QUALITY MONITORING REPORT

DIVISION OF AIR QUALITY MONITORING
400 MARKET STREET
HARRISBURG, PA 17105

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

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
obs	observations
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

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 will be a crucial component of program planning and air pollution reduction strategies. The data will allow the Department to develop a comprehensive strategy to prevent the emission of certain air contaminants.

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 five 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.

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

Particulate matter is the 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 or cause respiratory ailments or carry other pollutants into the lungs.

The federal ambient air quality standard for particulate matter was revised to reflect the adverse health effects of particulate matter less than 10 microns in size (PM_{10}). PM_{10} measurements have 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. Thus, there is no federal or state air quality standard for TSP. In July 1997, EPA revised the standard for particulate matter by adding a standard for fine particulates that are less than 2.5 micrometers in diameter ($PM_{2.5}$). Although legal challenges to the $PM_{2.5}$ standard had initially left it unenforceable, a March 26, 2002 appellate court decision rejected all challenges and EPA has developed guidance to implement the new standard.

The annual mean composite of all areas of the Commonwealth has demonstrated a 19 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 in 2005.

Average PM_{10} levels have improved 12 percent over the last 10 years. There were no sites in the Commonwealth that exceeded the ambient air quality standards in 2005.

With only seven complete years of $PM_{2.5}$ data collected, no trend information is available. Eleven of the Federal Reference Method (FRM) monitoring sites exceeded the level of the $PM_{2.5}$ annual mean air quality standard of 15 $\mu g/m^3$ in 2005. Only one FRM site exceeded the 24 hour maximum level of 65 $\mu g/m^3$ on one day 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.

There are currently no long- or short-term 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.

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 long- or short-term 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 or remained the same over the last 10-year period.

The 2005 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 reactions of other pollutants. The primary pollutants entering into this reaction -- 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, with the ozone monitoring season (April 1 to Oct. 31). Since 1996, daily maximum 1-hour ozone levels have improved so that the majority of counties in Pennsylvania are meeting the air quality standard. The improvements that are seen in ozone concentrations can be attributed in part to controls on VOCs and gasoline volatility. Ozone concentrations (using all monitors in Pennsylvania) exceeded the 1-hour daily air quality standard on three occasions in 2005, and the 8-hour daily maximum level of 84 parts per billion (ppb) was exceeded on 24 days during 2005.

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 2005. Nitrogen dioxide levels have improved 26 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 56 percent from levels in 1996.

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).

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 made 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 nine acid rain and six mercury monitoring sites supported by the DEP. The remaining sites are supported by the National Atmospheric Deposition Program/National Trends Network (NADP/NTN) and various other 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)

This page intentionally left blank

.

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 2005 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 discrete total suspended particulate network consists of eight monitoring sites. Each site sampled total suspended particulate matter (TSP) on a schedule of once every six days. Selected filters are also analyzed for sulfates, nitrates, and lead. In addition, discrete sampling is also conducted at four sites for suspended particulate matter of 10 microns or less in size (PM_{10}) in 2005. No additional analysis is performed on the PM_{10} sample filters. The 2005 $PM_{2.5}$ monitoring network consists of 24 discrete $PM_{2.5}$ sites along with 10 continuous $PM_{2.5}$ monitoring 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 has renewed a cooperative agreement with Pennsylvania State University's (PSU) Department of Plant Pathology to conduct ozone monitoring in five remote areas. The collected ozone data will be used to determine possible 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; and in 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 (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 (only applies in areas that have not attained the standard)	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 PM_{10}	Annual Arithmetic Mean (based on 3-year average)	50 $\mu g/m^3$	Same as Primary Standard	
	24-hour (not to be exceeded more than once per year)	150 $\mu g/m^3$	Same as Primary Standard	
Particulate Matter $PM_{2.5}$	Annual Arithmetic Mean (based on 3- year average)	15 $\mu g/m^3$	Same as Primary Standard	
	24-hour (based on 3 year average of 98th percentile)	65 $\mu g/m^3$	Same as Primary Standard	
Sulfur Dioxide	Annual Arithmetic Mean	0.03 ppm	3-hour (block average) (not to be exceeded more than once per year)	0.50 ppm
	24-hour (daily mean) (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 Matter 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.

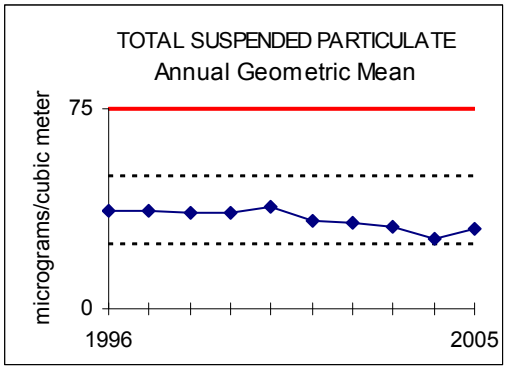


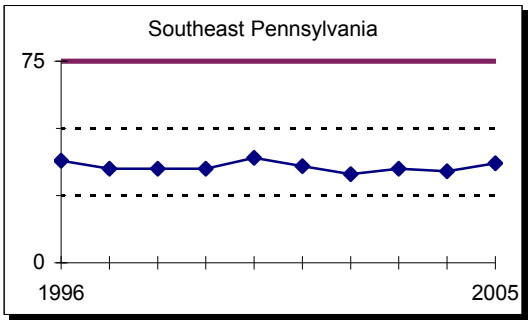
Figure 2-1. Trend in annual geometric mean TSP concentrations, 1996-2005.

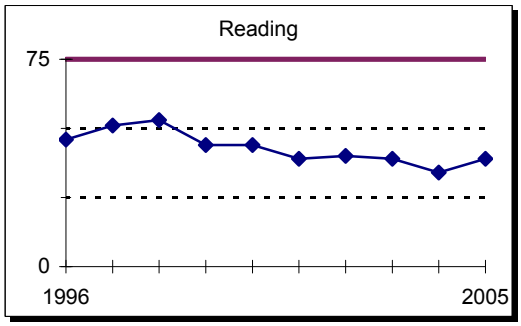
Figure 2-1 shows a decrease in annual geometric mean TSP concentrations. In 1996, the statewide average concentration was 37 micrograms per cubic meter ($\mu g/m^3$) and in 2005 the statewide average concentration was 30 micrograms per cubic meter ($\mu g/m^3$), representing a statewide decrease of 19% for this period. The solid line represents the former annual primary air quality standard of 75 micrograms per cubic meter ($\mu g/m^3$).

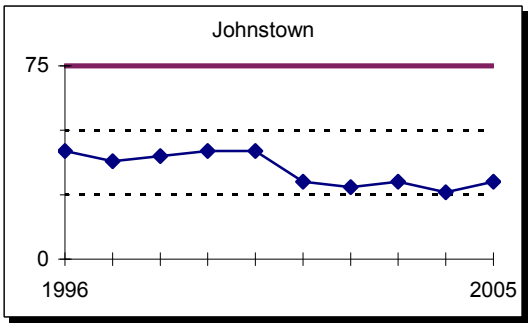
The 2005 calendar year TSP summary is contained in Appendix A, Table A-1. There were no sites in the Commonwealth that exceeded the former annual or 24-hour primary air quality standards in 2005. For comparison to the PM_{10} annual air quality standard, the TSP annual arithmetic mean was calculated by averaging the four quarterly arithmetic means.

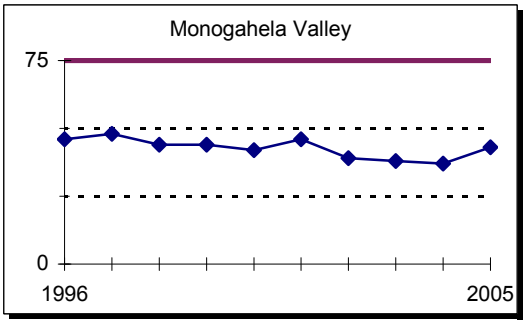
Figure 2-2, located on the following page, shows the TSP trends over the last 10 years in various areas of the Commonwealth where monitoring remains. The graphs of the air basin's annual geometric means consist of all stations that were operated during that year and which had at least 30 samples taken. 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 2005. The annual mean is shown if at least 30 samples were collected that year.

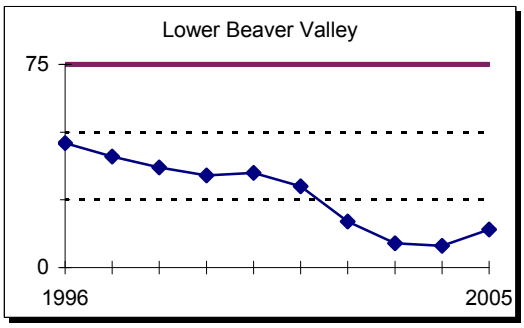
Figure 2-2. TSP Trends in Pennsylvania 1996 to 2005
Annual Geometric Means (micrograms per cubic meter)











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. However, elevated sulfate values, consistent with previous years, continue to be recorded statewide.

The 2005 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 2005. 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.

This page intentionally left blank.

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 the major source of lead emissions.

Lead concentrations for 1996 to 2005 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 have leveled off. Figure 2-3 indicates that the maximum quarterly lead concentrations have remained fairly constant and 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 ($\mu g/m^3$).

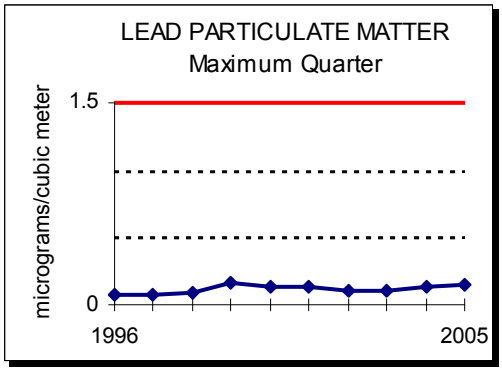


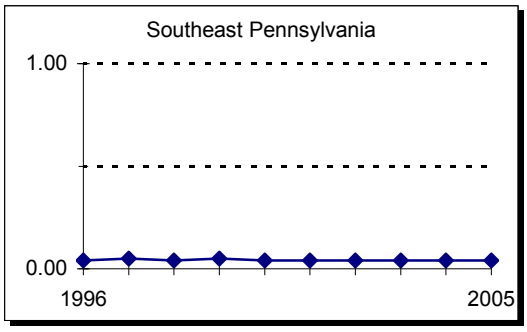
Figure 2-3. Trend in maximum quarterly average lead concentrations (including source-oriented sites), 1996-2005.

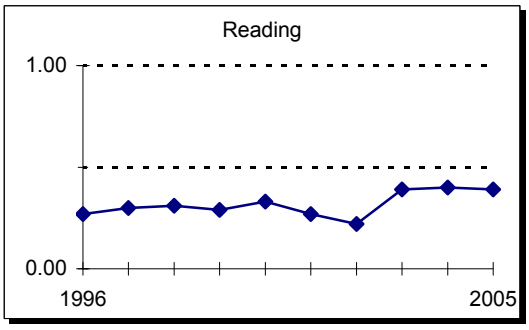
Lead trends for the individual areas in the state are shown in Figure 2-4, located on the following page, for 1996 to 2005.

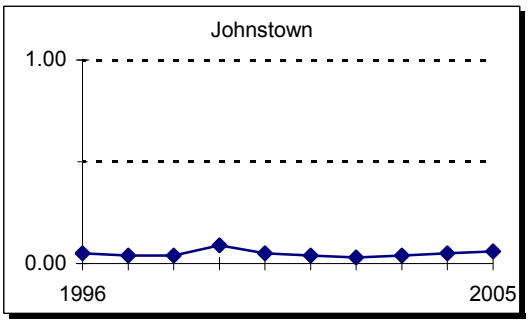
The particulate lead standard was not exceeded at any monitoring site in 2005, including source-oriented sites. Quarterly averages for all stations that monitored lead in 2005 are shown in Appendix A, Table A-5, along with the number of samples taken in each quarter, the annual arithmetic mean, and the total number of samples for the year.

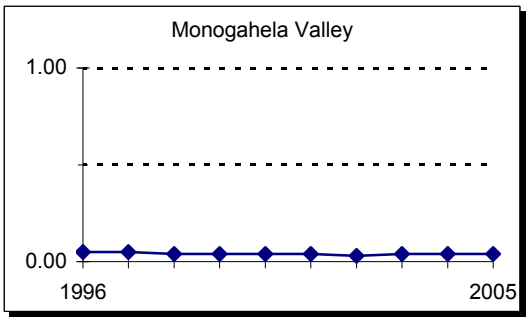
Lead historical trend data is presented in Appendix A, Table A-6 for 1996 to 2005. The table contains the maximum quarterly mean for each year. Trend data is shown for all sites that operated in 2005. The quarterly mean is shown if at least 30 samples were collected during the year. No current monitoring 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.

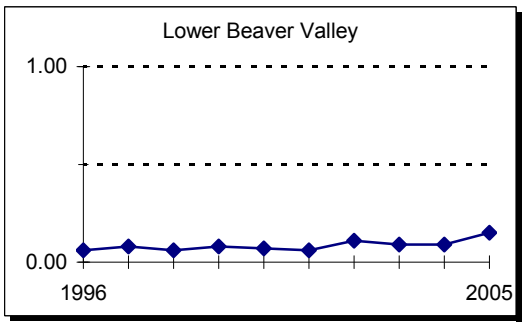
Figure 2-4. Lead Particulate Trends in Pennsylvania 1996 to 2005
Maximum Quarterly Means (micrograms per cubic meter)

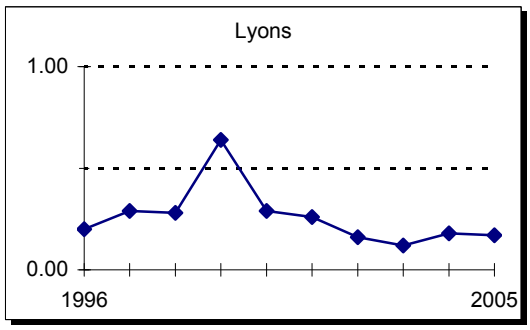


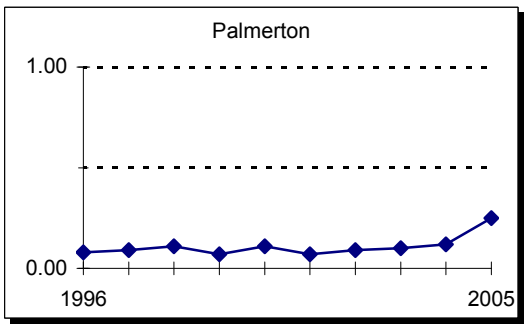












Lead National Ambient Air Quality Standard is a quarterly average of 1.5 micrograms per cubic meter

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.

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.

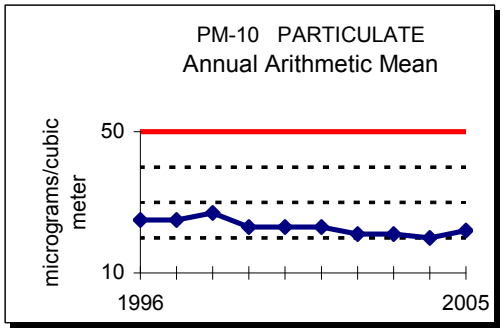


Figure 2-5. Trend in annual mean PM_{10} concentration, 1996-2005.

Figure 2-5 is a graph of the historical statewide PM_{10} trend from 1996 to 2005. 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 1996, the statewide average concentration was 25 micrograms per cubic meter ($\mu g/m^3$) and in 2005 the statewide average concentration was 22 micrograms per cubic meter ($\mu g/m^3$), representing a statewide decrease of 12% 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 2005 are included in this figure. All counties monitored by DEP are in attainment of the annual PM_{10} NAAQS. The map in Figure 2-7 displays the highest second maximum 24-hour PM_{10} by county in 2005. 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 1996 to 2005. 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 4 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 annual air quality standard of 50 micrograms per cubic meter ($\mu g/m^3$).

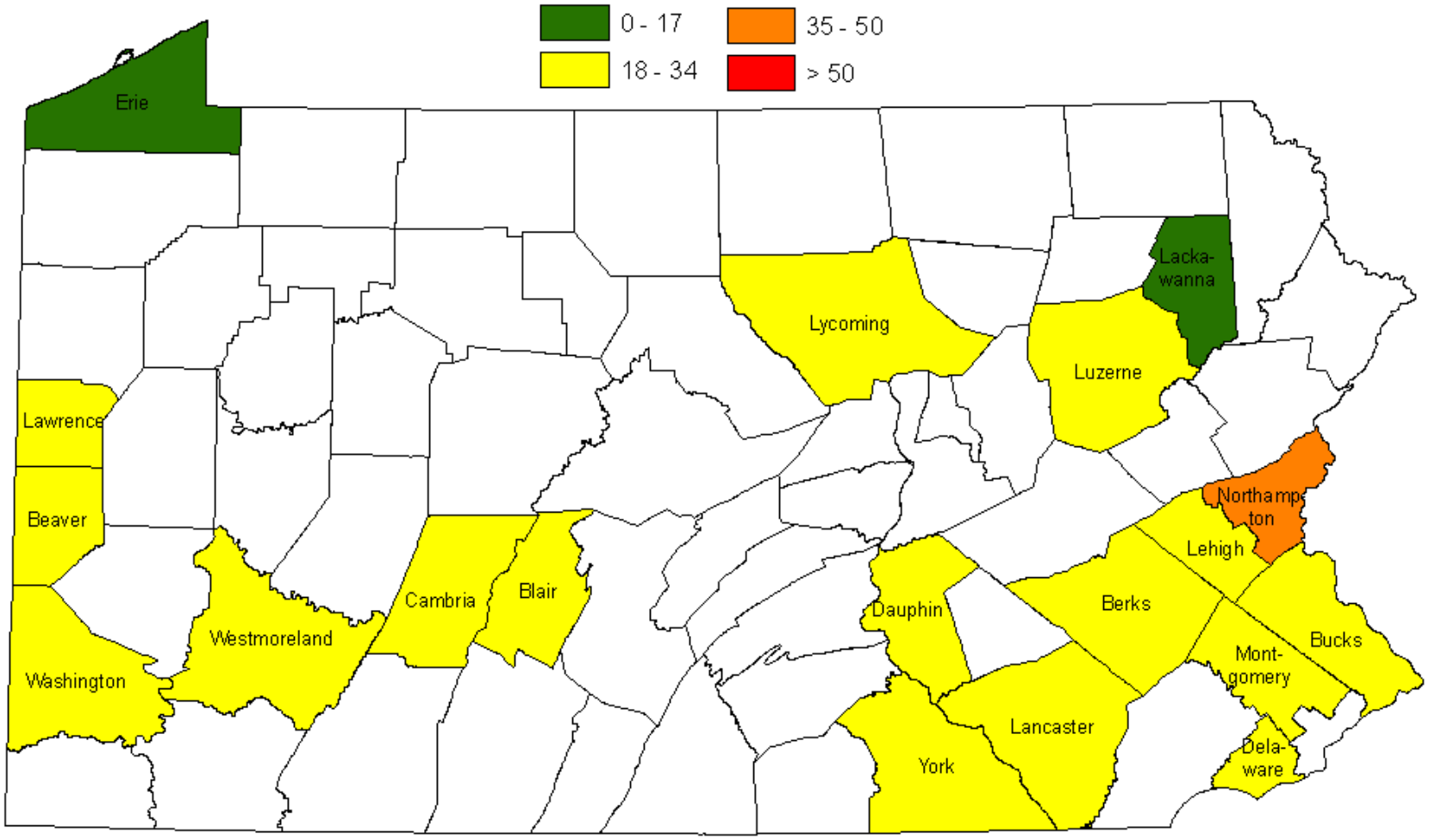
The 2005 PM_{10} data summary appears in Appendix A, Table A-7. Historical trend data for each site monitored in 2005 is shown in Appendix A, Table A-8. This table lists the annual arithmetic means and second maximum 24-hour mean over the last 10 years for each site that monitored in 2005 with at least 50 percent data completeness.

This page intentionally left blank.

Figure 2-6. PM-10 Concentrations

Annual Means (Average by County, for 2005)

(Micrograms per Cubic Meter)



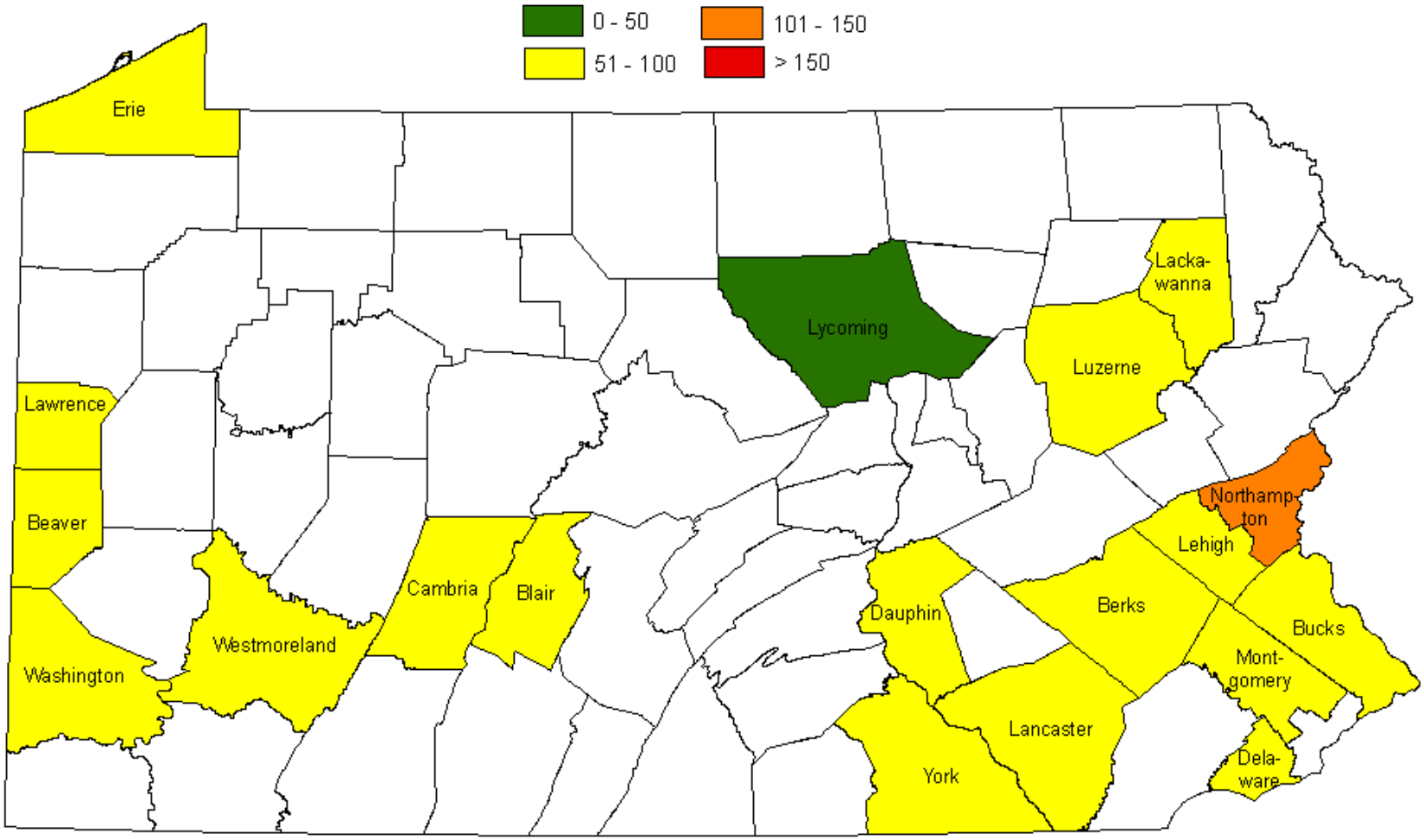
Primary and Secondary National Ambient Air Quality Standard for PM-10
Annual Mean = 50 micrograms per cubic meter
(Data are displayed for single calendar year, but the standard is based on a 3-year average)

This page intentionally left blank.

Figure 2-7. PM-10 Concentrations

Highest Second Maximum 24-Hour Mean (by County, for 2005)

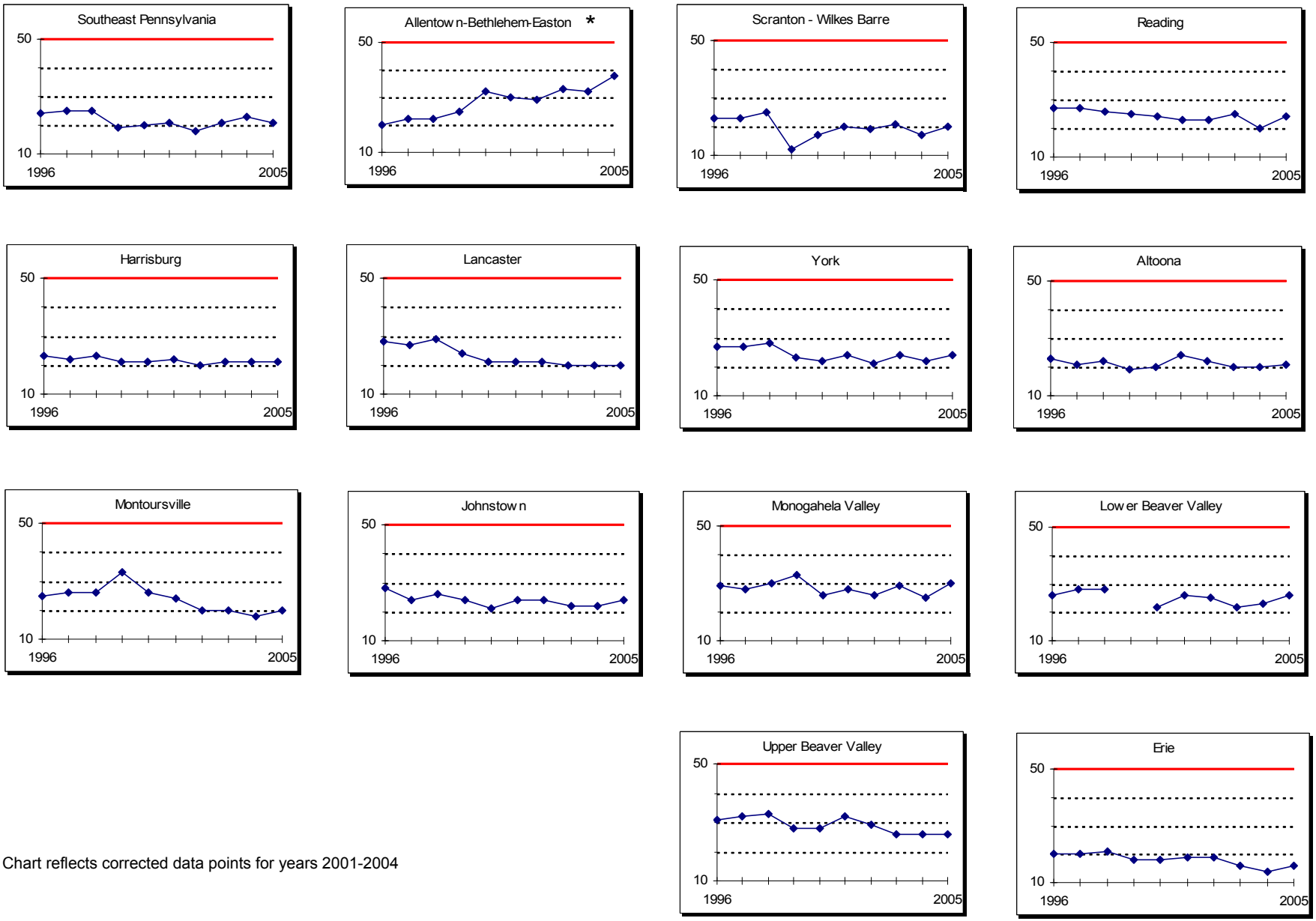
(Micrograms per Cubic Meter)



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)

This page intentionally left blank.

Figure 2-8. PM-10 Trends in Pennsylvania 1996 to 2005
Annual Arithmetic Means (micrograms per cubic meter)



* Chart reflects corrected data points for years 2001-2004

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

This page intentionally left blank.

$PM_{2.5}$ 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.

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 2005 are included in this figure. In 2005, ten counties monitored by DEP exceeded the level of the $PM_{2.5}$ annual mean air quality standard of 15.0 $\mu g/m^3$.

The map in Figure 2-10 displays the highest 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 2005, no counties monitored by DEP exceeded the 24-hour $PM_{2.5}$ maximum level of 65 $\mu g/m^3$.

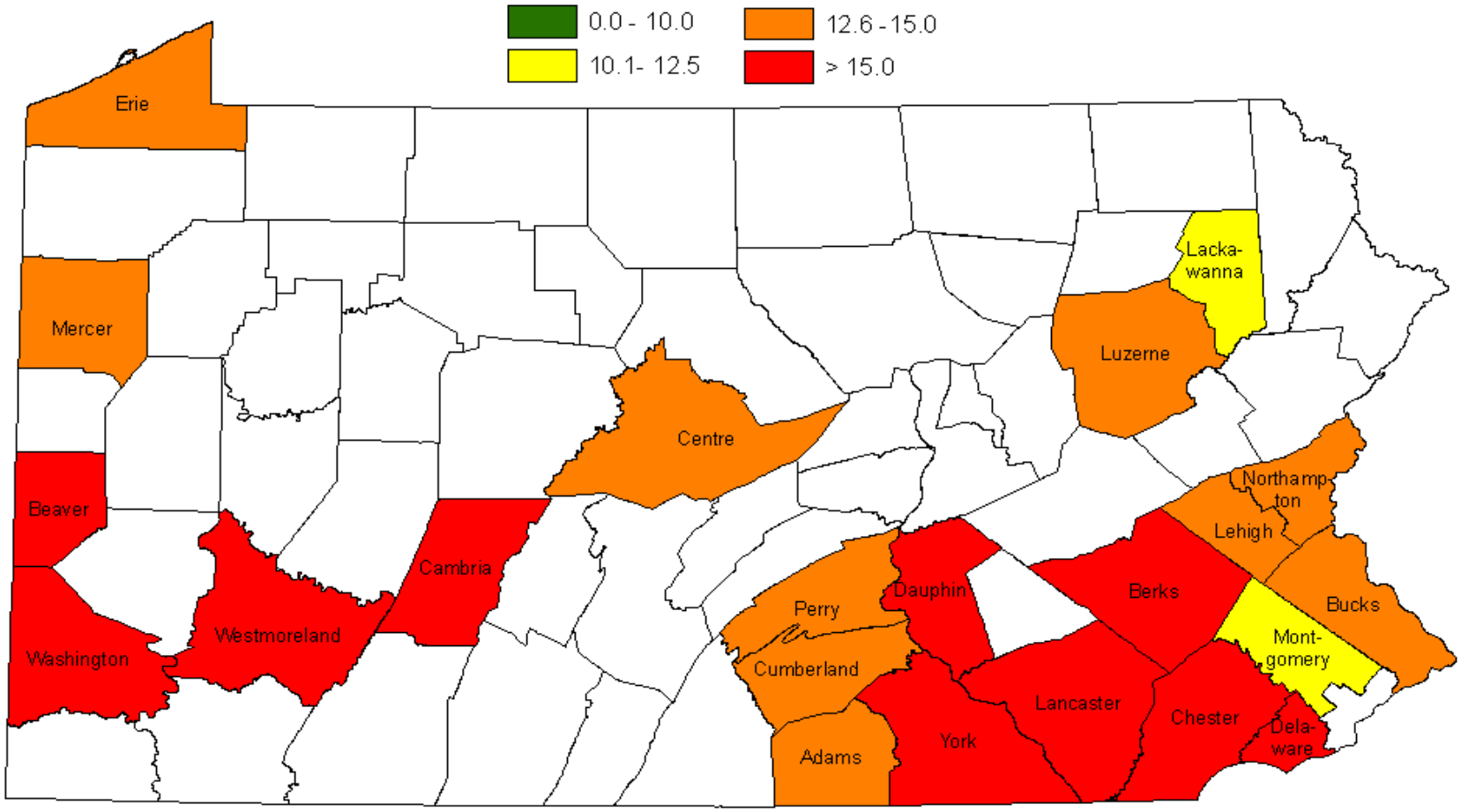
With only seven complete years of data collected, no graphical trend analysis is available. Data collected in 2005 is summarized in Appendix A, Table A-9 for all FRM monitors and continuous monitors. Historical trend data for each site that was monitored in 2005 is shown in Appendix A, Table A-10. Eleven of the FRM monitoring sites exceeded the level of the $PM_{2.5}$ annual mean air quality standard, but only one of the FRM sites exceeded the 24-hour maximum level of 65 $\mu g/m^{3.}$ This occurred on one day during 2005 in Erie, when a value of 72.3 $\mu g/m^3$ was recorded on September 14.

This page intentionally left blank.

Figure 2-9. PM-2.5 Concentrations

Annual Means (Average by County, for 2005)

(Micrograms per Cubic Meter)



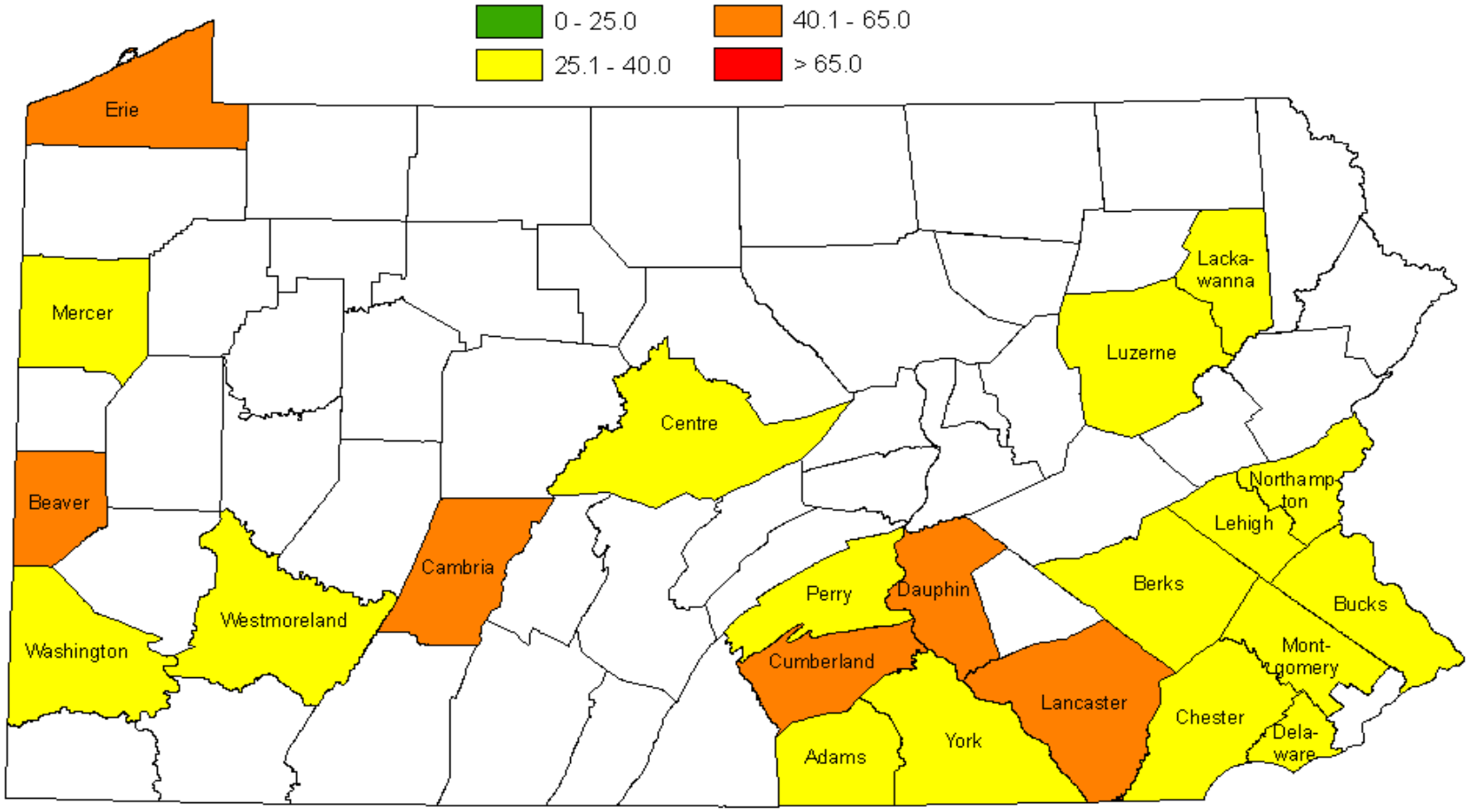
Primary and Secondary National Ambient Air Quality Standard for PM-2.5
Annual Mean = 15 micrograms per cubic meter
(Data are displayed for single calendar year, but the standard is based on a 3-year average)

This page intentionally left blank.

Figure 2-10. PM-2.5 Concentrations

98th Percentile 24- Hour Daily Mean (by County, for 2005)

(Micrograms per Cubic Meter)



Primary and Secondary National Ambient Air Quality Standard for PM-2.5
98th Percentile 24-Hour Mean = 65 micrograms per cubic meter
(Data are displayed for a single calendar year, but standard is based on a 3-year average)

This page intentionally left blank.

Chemical Speciation of $PM_{2.5}$ Suspended 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:

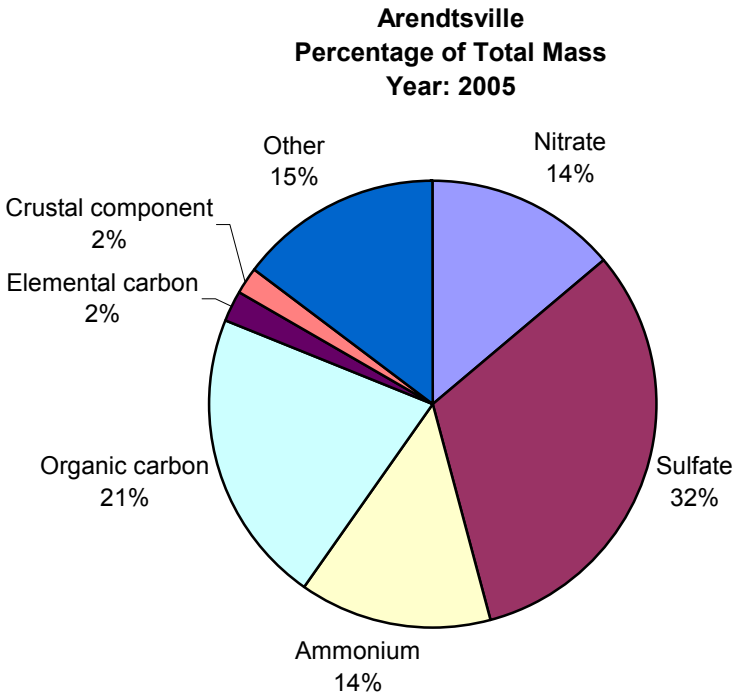
- Inputs to air quality modeling analyses used to implement the $PM_{2.5}$ standard;
- Indicators to track the progress of air pollution controls;
- Aids to interpret studies linking health effects to $PM_{2.5}$ constituents;
- Aids to understand the effects of atmospheric constituents on visibility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

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



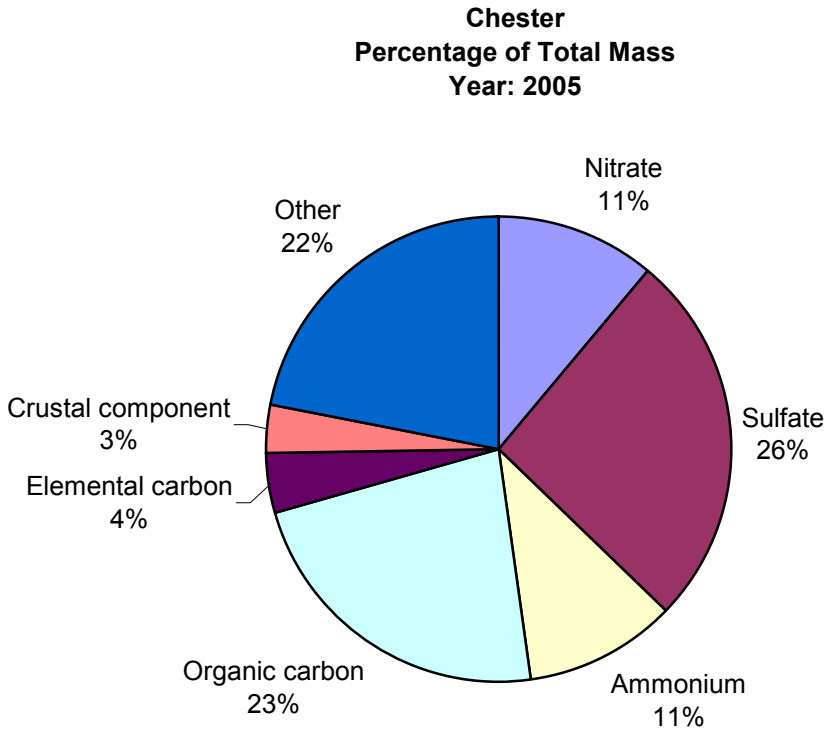
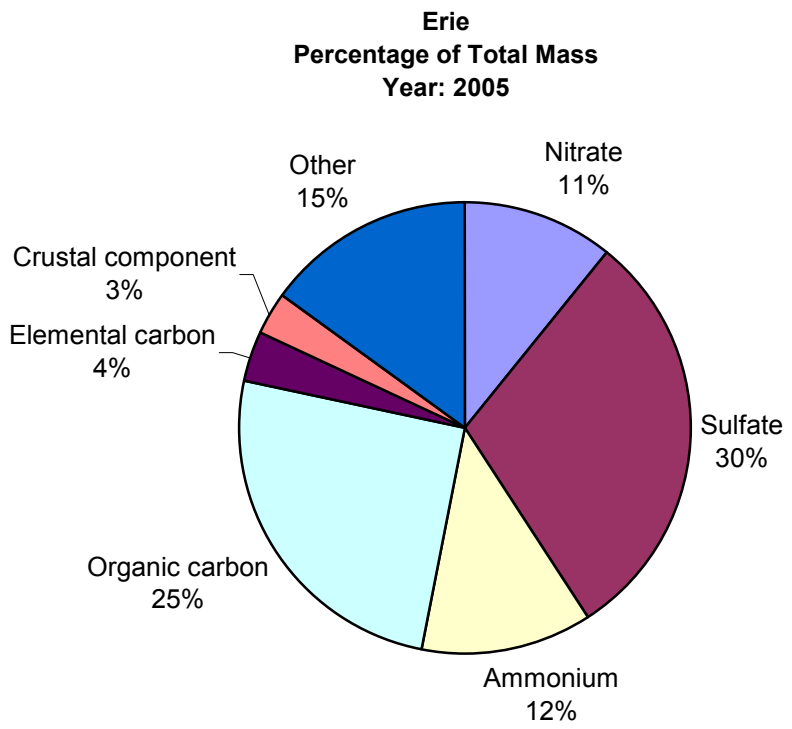


Figure 2-12. $PM_{2.5}$ Speciation Pie Charts for Erie and Florence



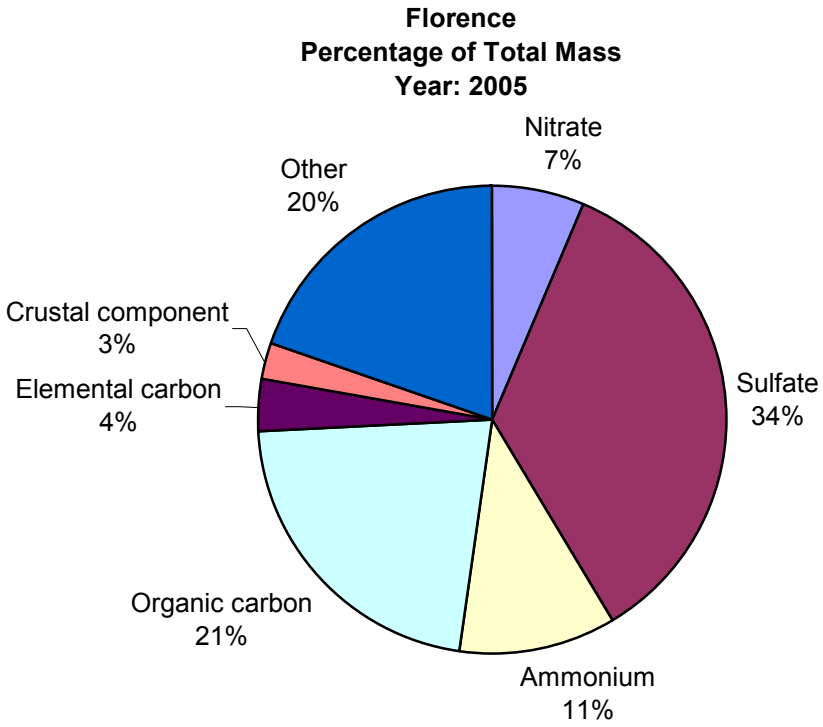
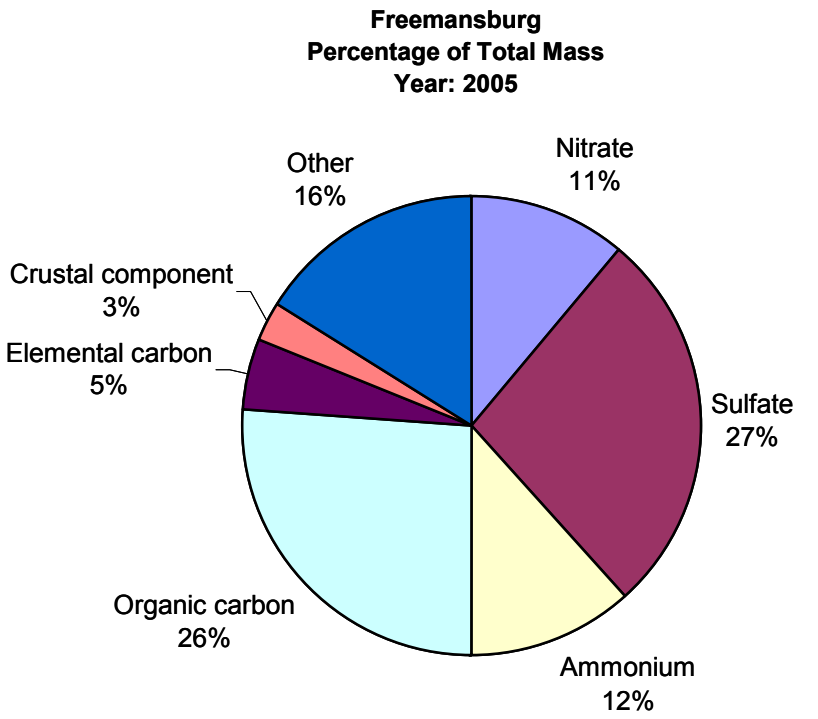


Figure 2-13. $PM_{2.5}$ Speciation Pie Charts for Freemansburg and Greensburg



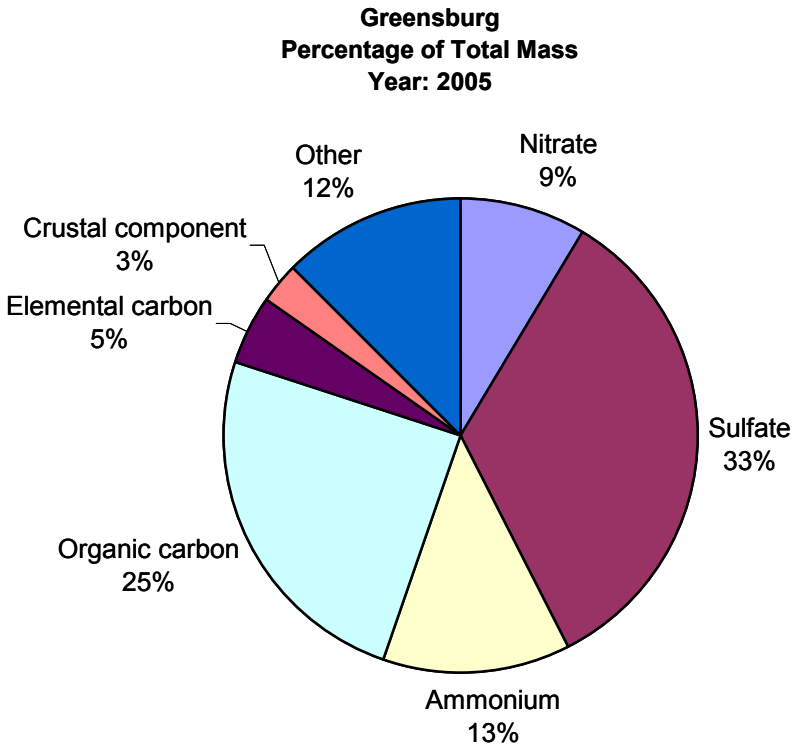
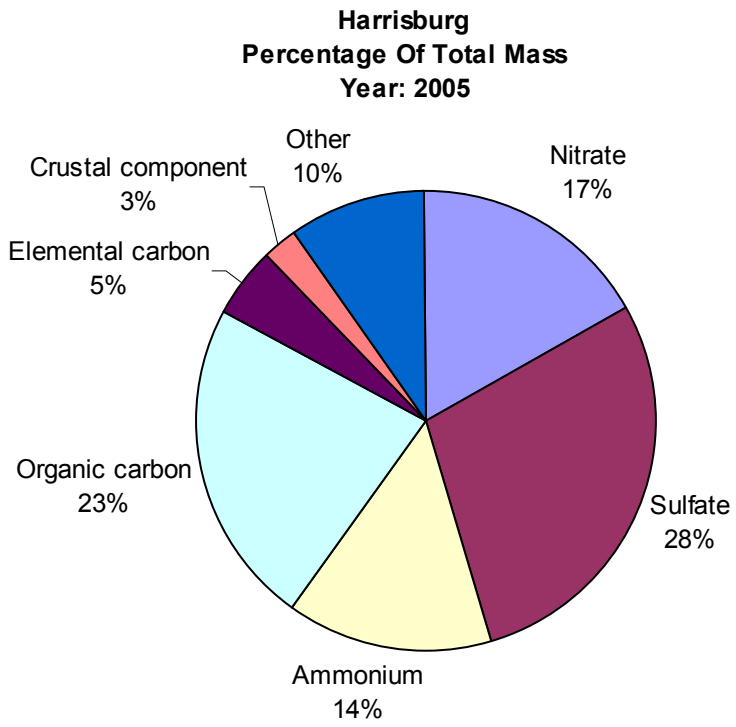


Figure 2-14. $PM_{2.5}$ Speciation Pie Charts for Harrisburg and Lancaster



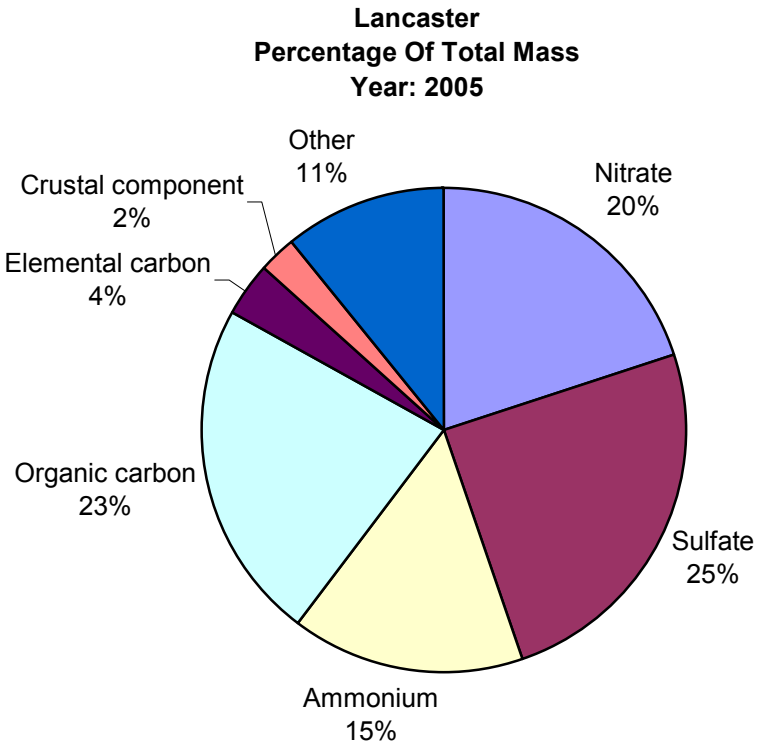
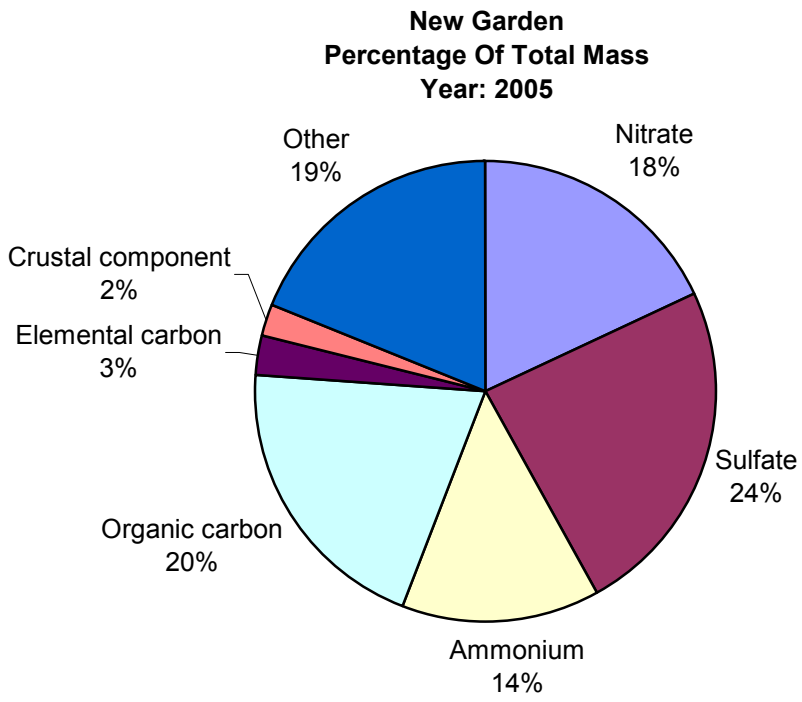


Figure 2-15. $PM_{2.5}$ Speciation Pie Charts for New Garden and Perry County



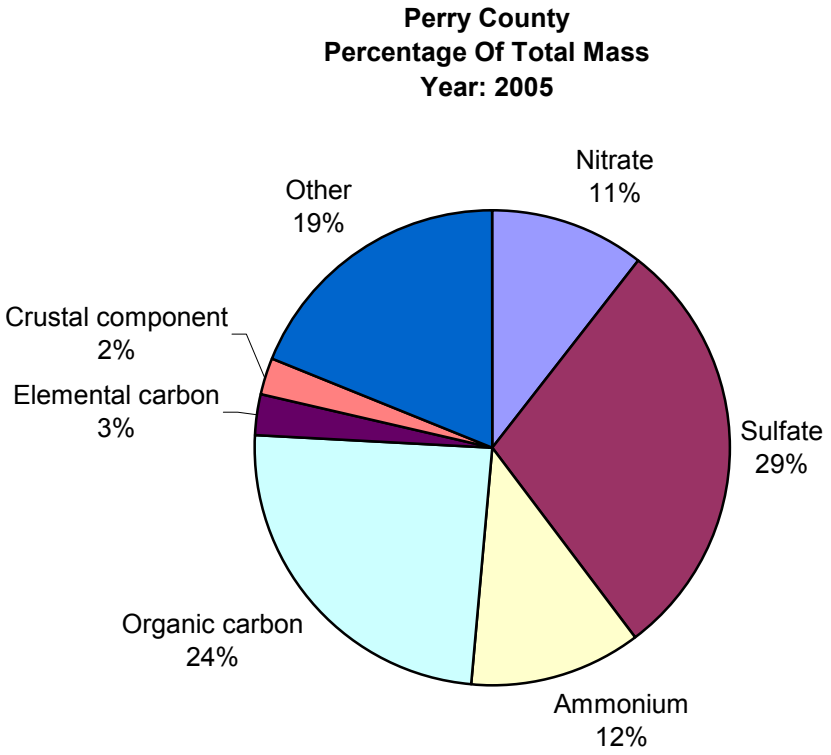
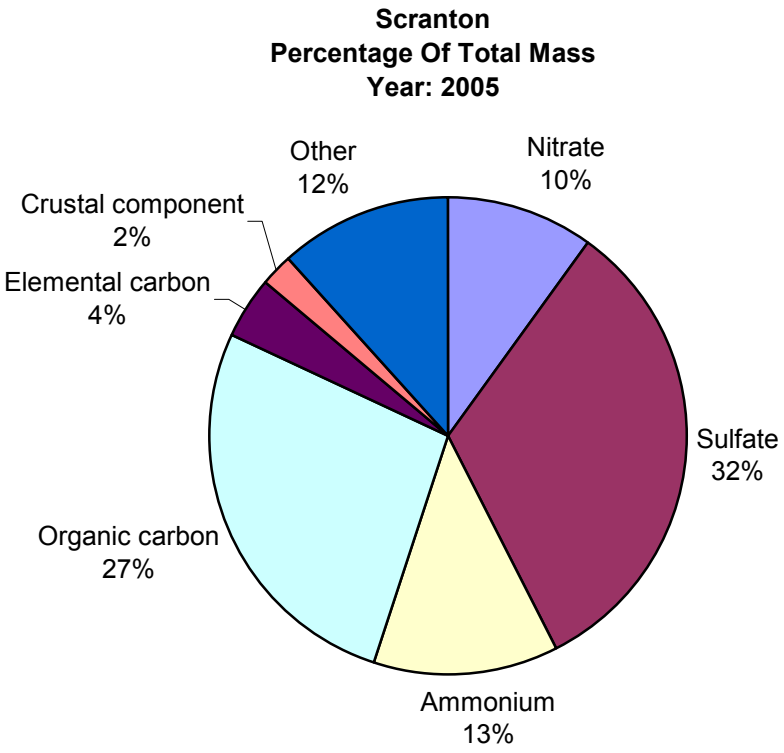


Figure 2-16. $PM_{2.5}$ Speciation Pie Charts for Scranton and State College



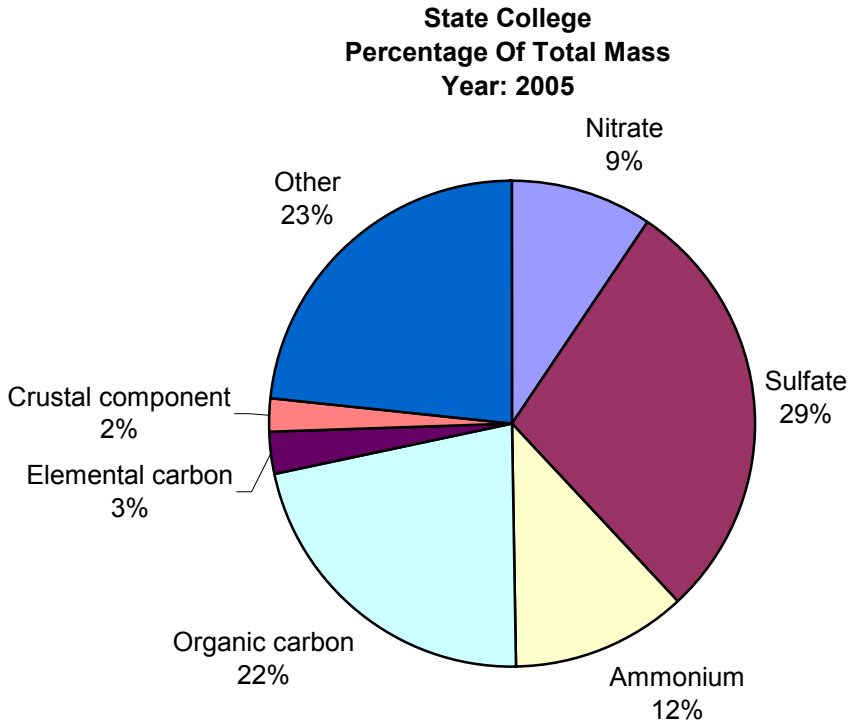
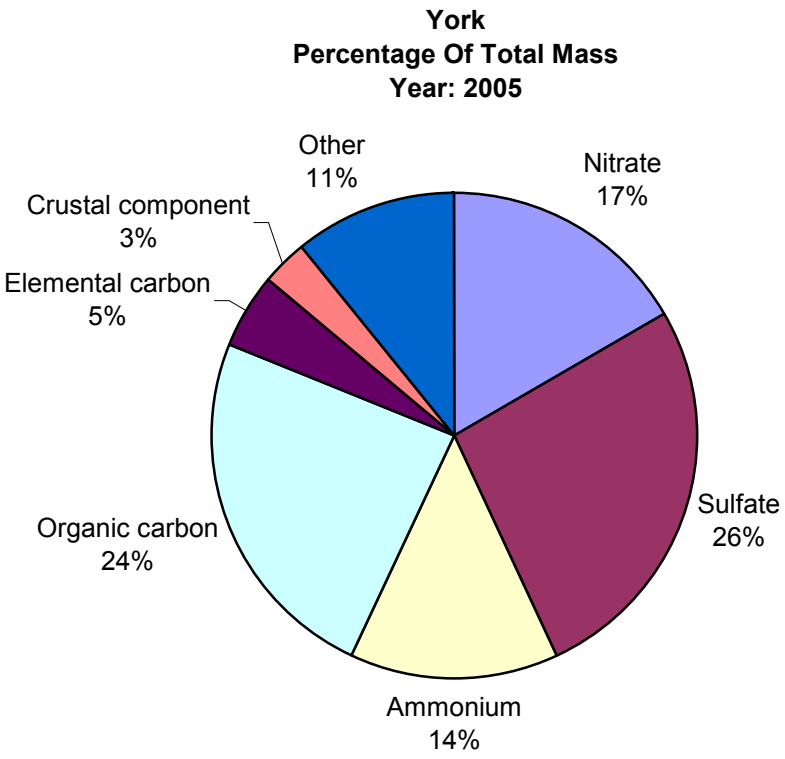


Figure 2-17. $PM_{2.5}$ Speciation Pie Chart for York



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.

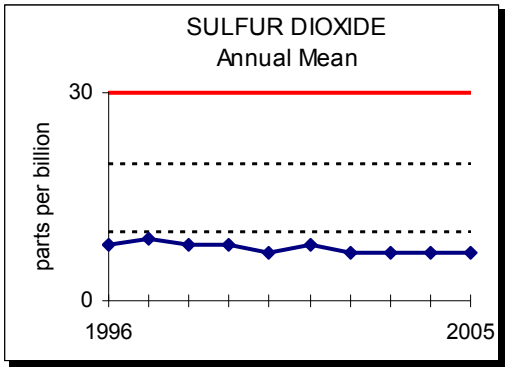


Figure 2-18. Trend in annual mean SO_2 concentrations, 1996-2005.

The statewide composite average of sulfur dioxide annual mean concentration for 1996 to 2005 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.

The map in Figure 2-19 displays the average sulfur dioxide annual mean by county in 2005. 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 2005. All areas of the Commonwealth met the 24-hour air quality standard of 140 ppb.

Figure 2-21 displays the last 10-year trend (1996 to 2005) 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 2005 is summarized in Appendix A, Table A-11. All sites in the Commonwealth met the annual mean, 3-hour, and 24-hour ambient air quality standards.

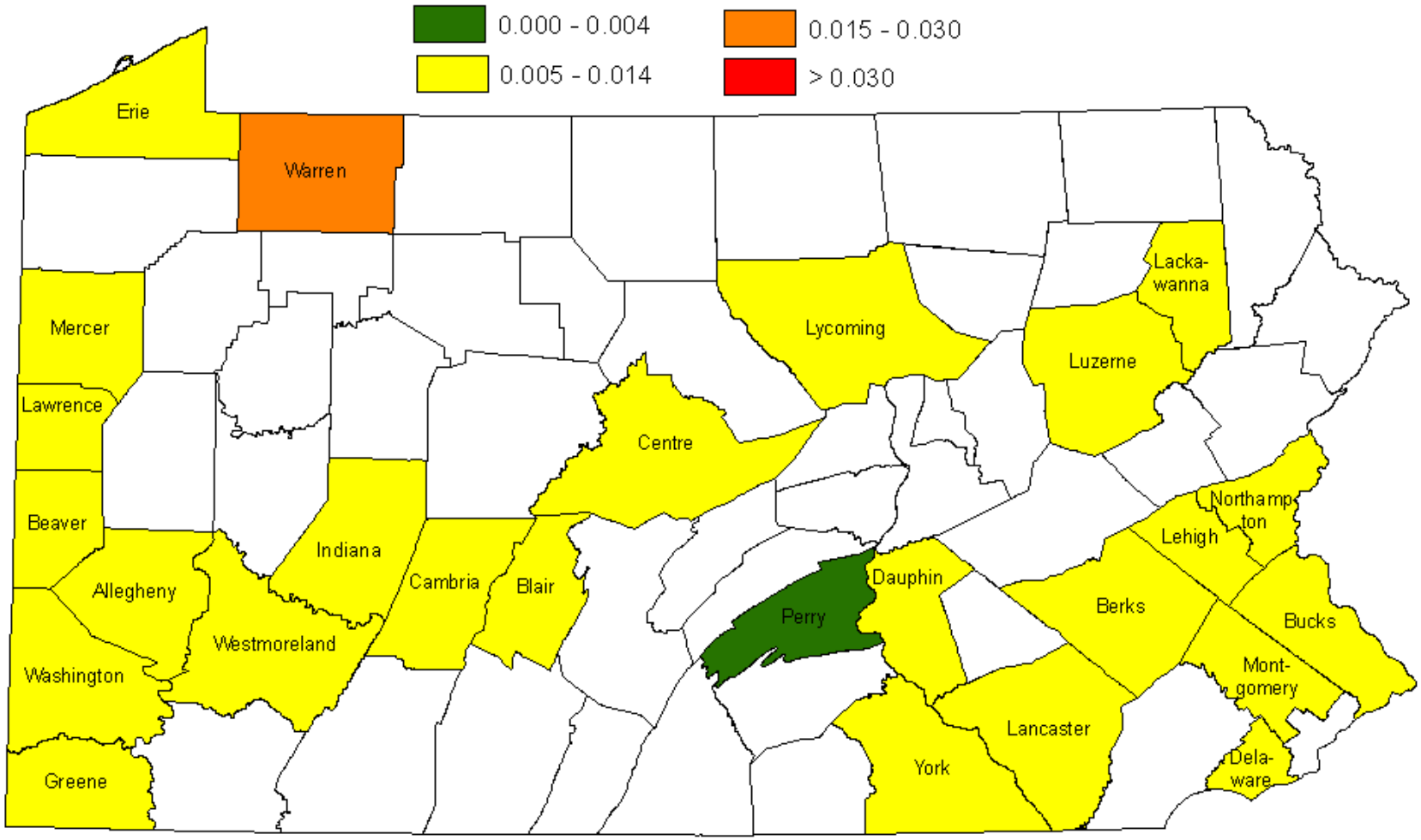
Sulfur dioxide historical data over the last 10 years is presented in Appendix A, Table A-12 for all stations that operated in 2005 with at least 50 percent valid data. This data was used to produce the trend chart shown in Figure 2-21.

This page intentionally left blank.

Figure 2-19. Sulfur Dioxide Concentrations

Annual Means (Average by County, for 2005)

(Parts per Million)



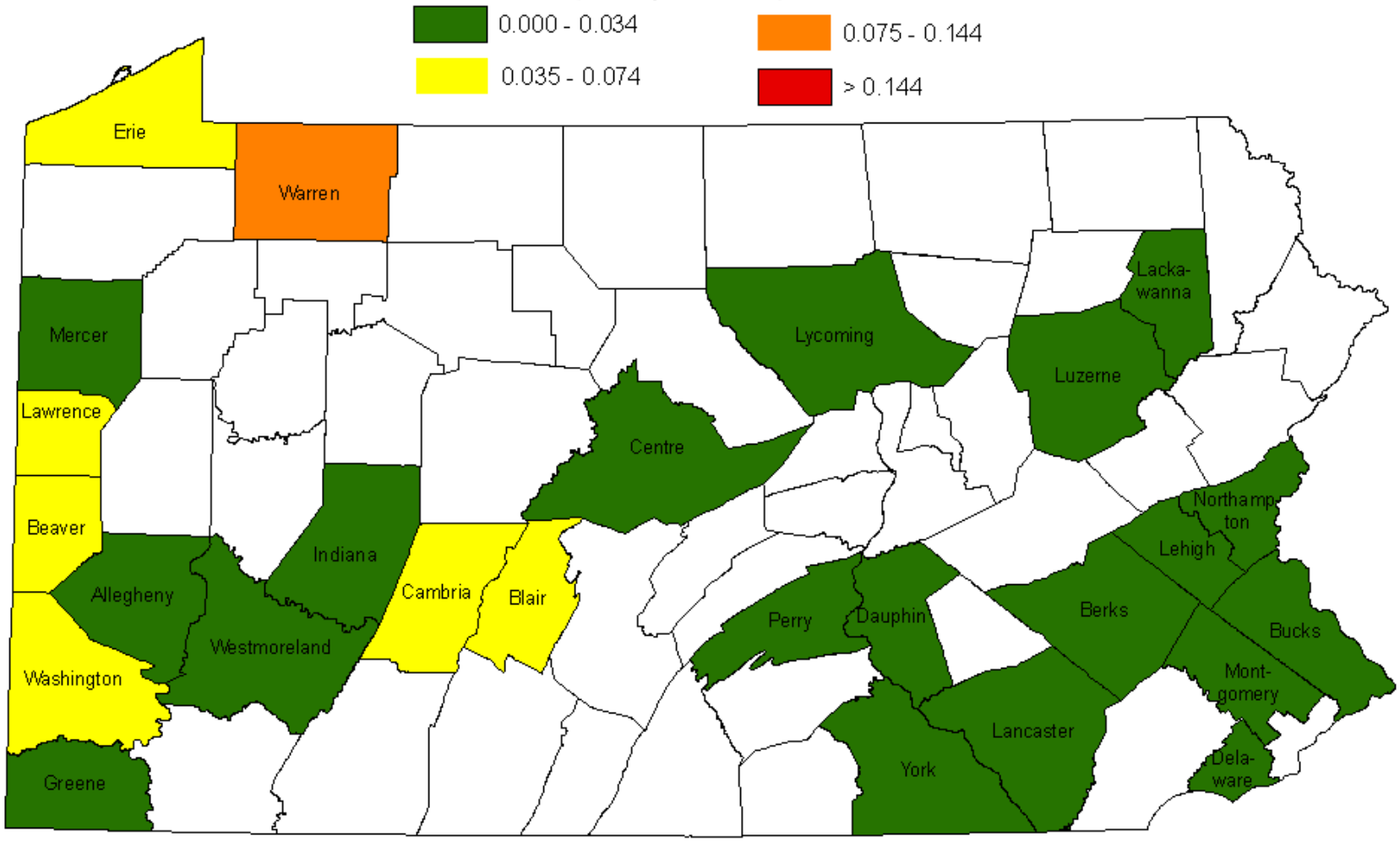
Primary National Ambient Air Quality Standard for Sulfur Dioxide
Annual Mean = 0.030 parts per million

This page intentionally left blank.

Figure 2-20. Sulfur Dioxide Concentrations

Highest Second Maximum 24-Hour Daily Mean (by County, for 2005)

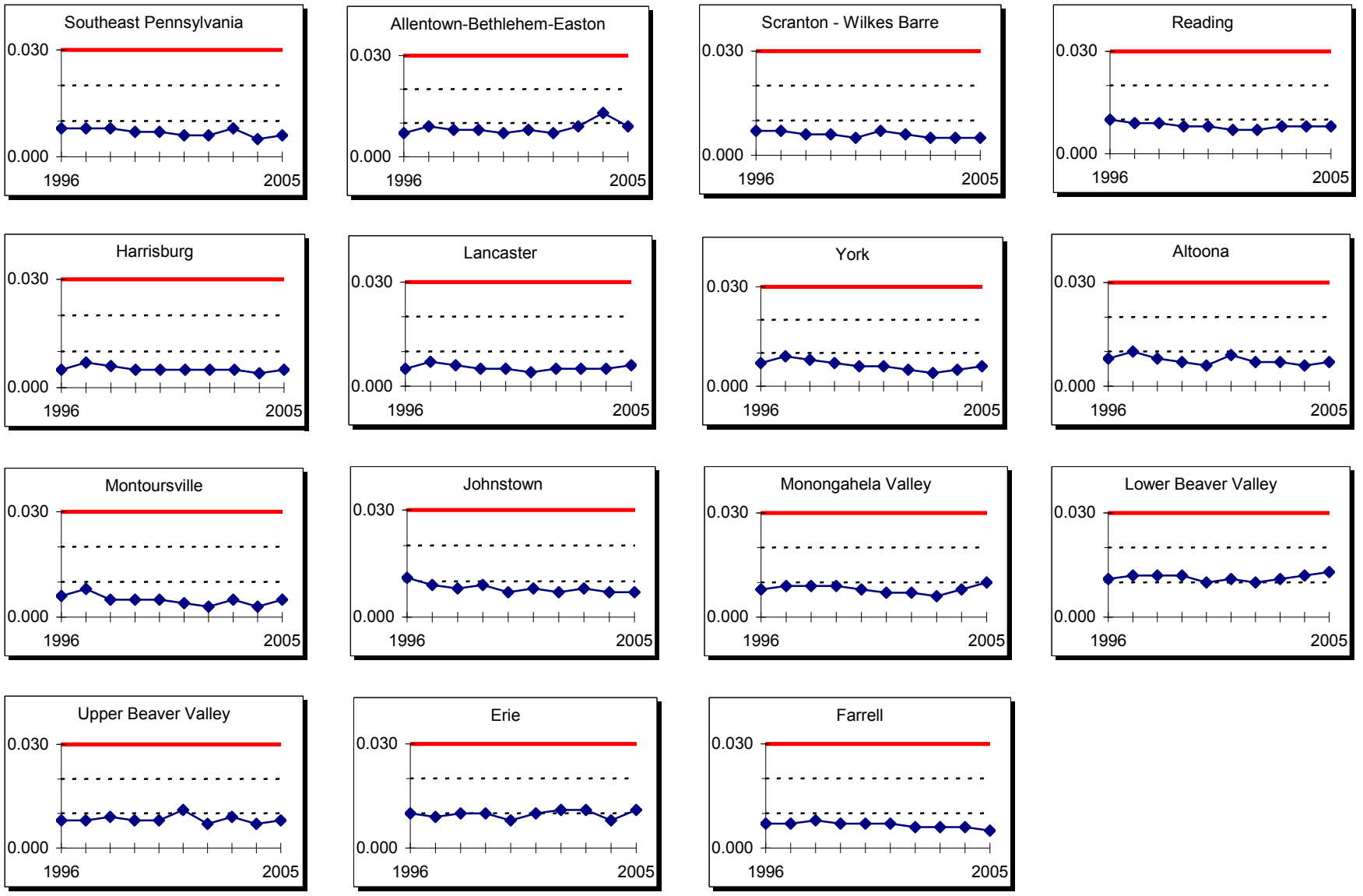
(Parts per Million)



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)

This page intentionally left blank.

Figure 2-21. Sulfur Dioxide Trends in Pennsylvania 1996 to 2005
Annual Arithmetic Means (parts per million)



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

This page intentionally left blank.

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. On June 15, 2005 EPA revoked the 1-hour standard with the exception of certain sites designated by EPA. No such sites are located in Pennsylvania. The secondary standard (welfare-based) was set identical to the 8-hour 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.

Since the 1-hour ozone standard still applied during part of 2005, this report continues to present 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 1996-2005 statewide (DEP sites only) average second daily maximum 1-hour ozone concentrations. Weather conditions were slightly more favorable for ozone formation in 2005. The solid line is at the primary 1-hour air quality standard of 125 parts per billion (ppb).

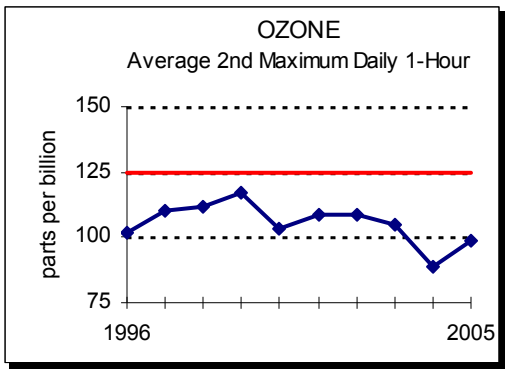


Figure 2-22. Trend in average second daily maximum 1-hour ozone concentrations, 1996-2005.

The map in Figure 2-23 presents the highest second daily maximum 1-hour ozone concentration by county in 2005. There were no exceedances of the 1-hour air quality standard in 2005. 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 2005. 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 (1996 to 2005) 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 (1996 to 2005) 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 2005 for all monitoring sites. Appendix A, Table A-13b summarizes the 8-hour ozone data during the ozone season of 2005 for all monitoring sites.

Appendix A, Table A-14 lists the days on which the 1-hour ozone air quality standard was exceeded in 2005 at all sites in Pennsylvania.

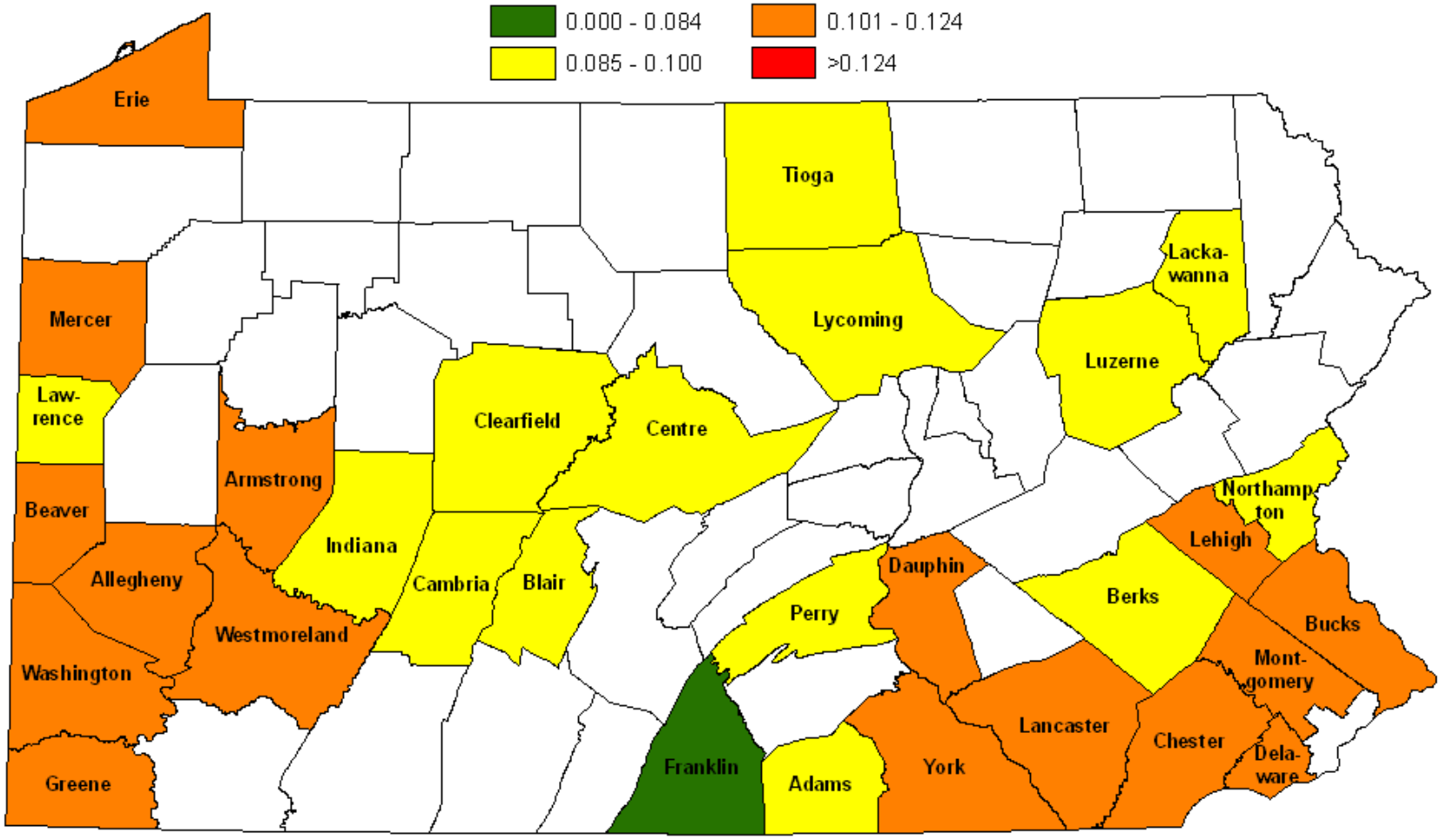
Appendix A, Tables A-15 and A-16 summarize the 1-hour and 8-hour data over the last three years (2003 - 2005). These tables include monitoring sites operated by DEP, the Allegheny County Health Department, Philadelphia Department of Public Health, Air Management Services, and the Pennsylvania State University.

Historical 1-hour data for ozone from 1996 to 2005 is contained in Appendix A, Table A-17 for all DEP sites that operated during the ozone monitoring season in 2005 with at least 50 percent valid data.

Figure 2-23. Ozone Concentrations

Highest Second Maximum Daily 1-hour Concentrations (by County, for 2005)

(Parts per Million)



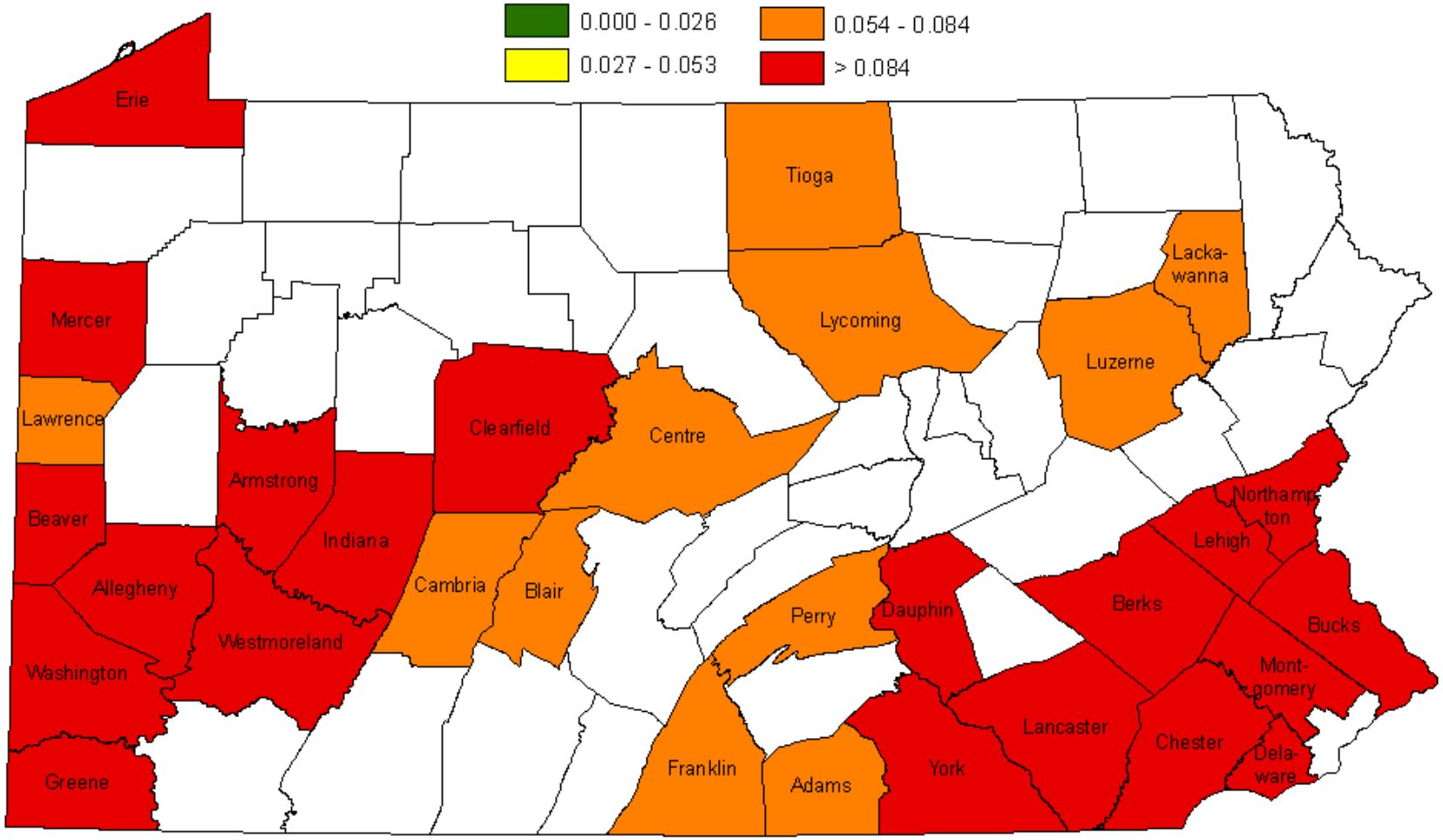
Primary and Secondary National Ambient Air Quality Standard for Ozone
Maximum Daily 1-Hour Average = 0.12 parts per million (not to be exceeded more than once per year)

This page intentionally left blank.

Figure 2-24. Ozone Concentrations

Fourth Maximum Daily 8-hour Concentrations (by County, for 2005)

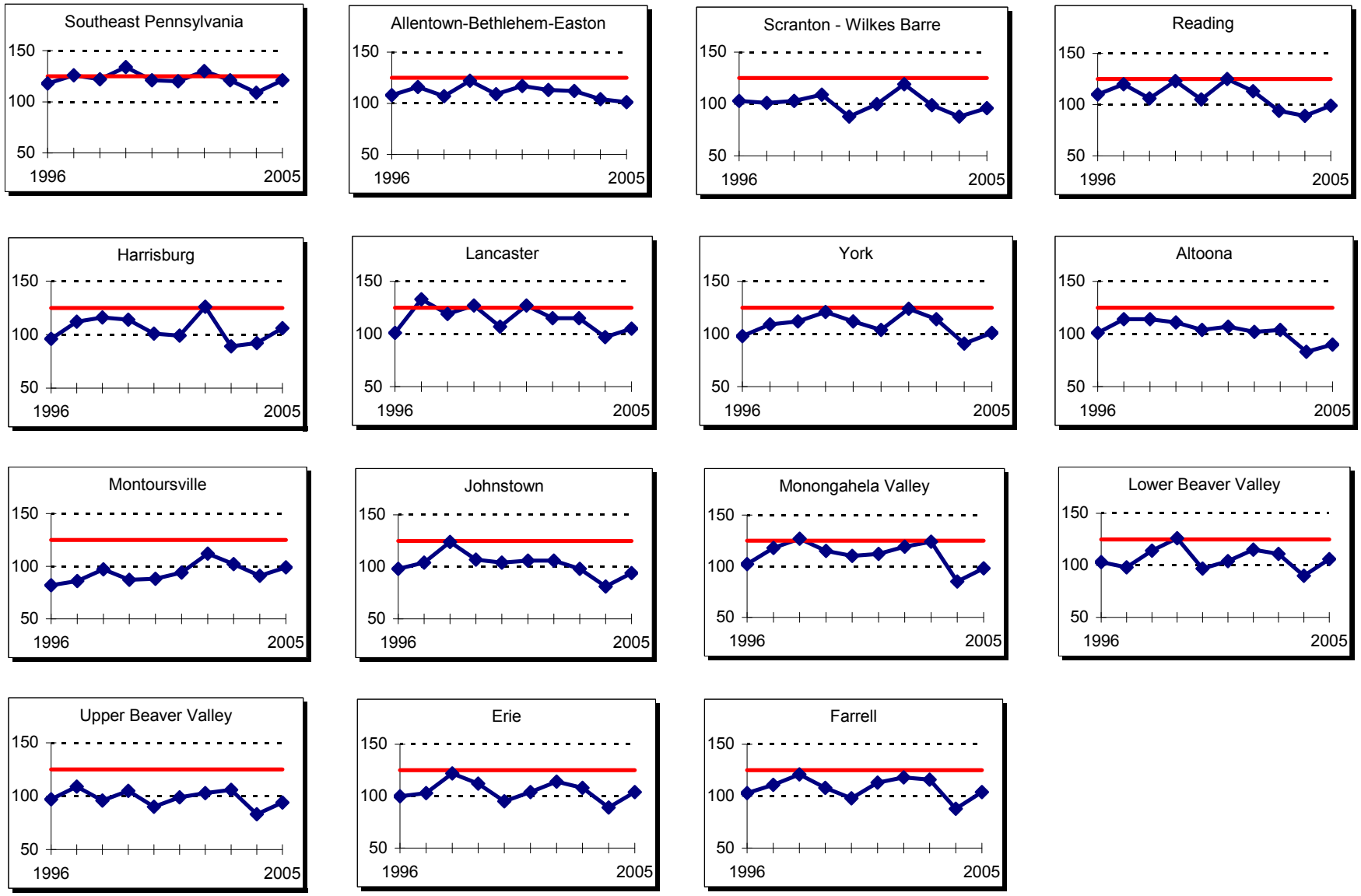
(Parts per Million)



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)

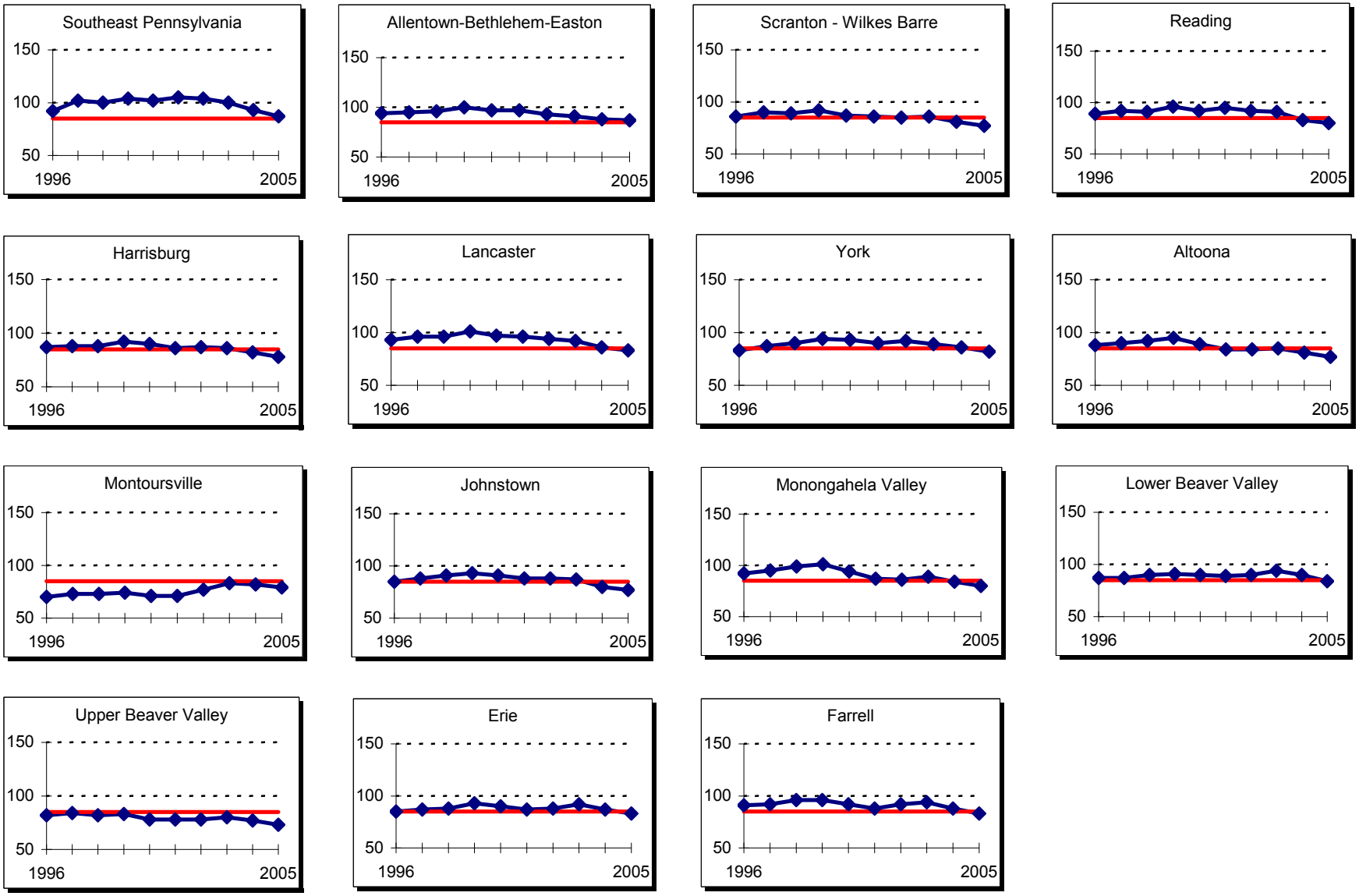
This page intentionally left blank.

Figure 2-25. 10-Year Ozone Trend in Pennsylvania 1996 to 2005
Average Second Daily Maximum 1-Hour (parts per billion)



Daily maximum 1-Hour National Ambient Air Quality Standard is 125 parts per billion

Figure 2-26. 10-Year Ozone Trend in Pennsylvania 1996 to 2005
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 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.

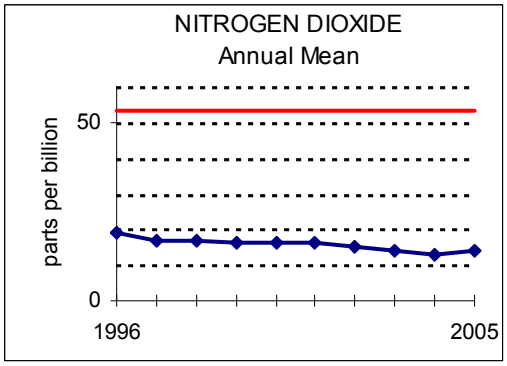


Figure 2-27. Trend in annual NO_2 concentrations, 1996-2005.

The trend in annual mean NO_2 concentrations statewide between 1996 and 2005 is shown in Figure 2-27. In 1996, the statewide average concentration was 19 parts per billion (ppb) and in 2005 the statewide average concentration was 14 parts per billion (ppb), representing a statewide decrease of 26% 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 1996 to 2005 in 12 air basins and the Altoona non-air basin. Nitrogen dioxide levels have remained relatively constant over the last 10 years. All areas are at or below 50 percent of the annual air quality standard.

Nitrogen dioxide data for 2005 is summarized in Appendix A, Table A-18. No site exceeded the annual primary air quality standard for nitrogen dioxide in Pennsylvania in 2005.

Historical trend data for those sites that monitored nitrogen dioxide in 2005 is presented in Appendix A, Table A-19 for 1996 to 2005. 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.

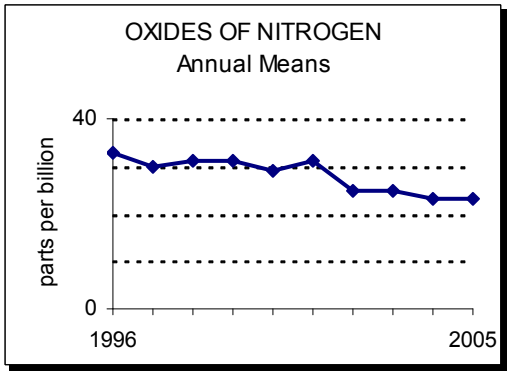
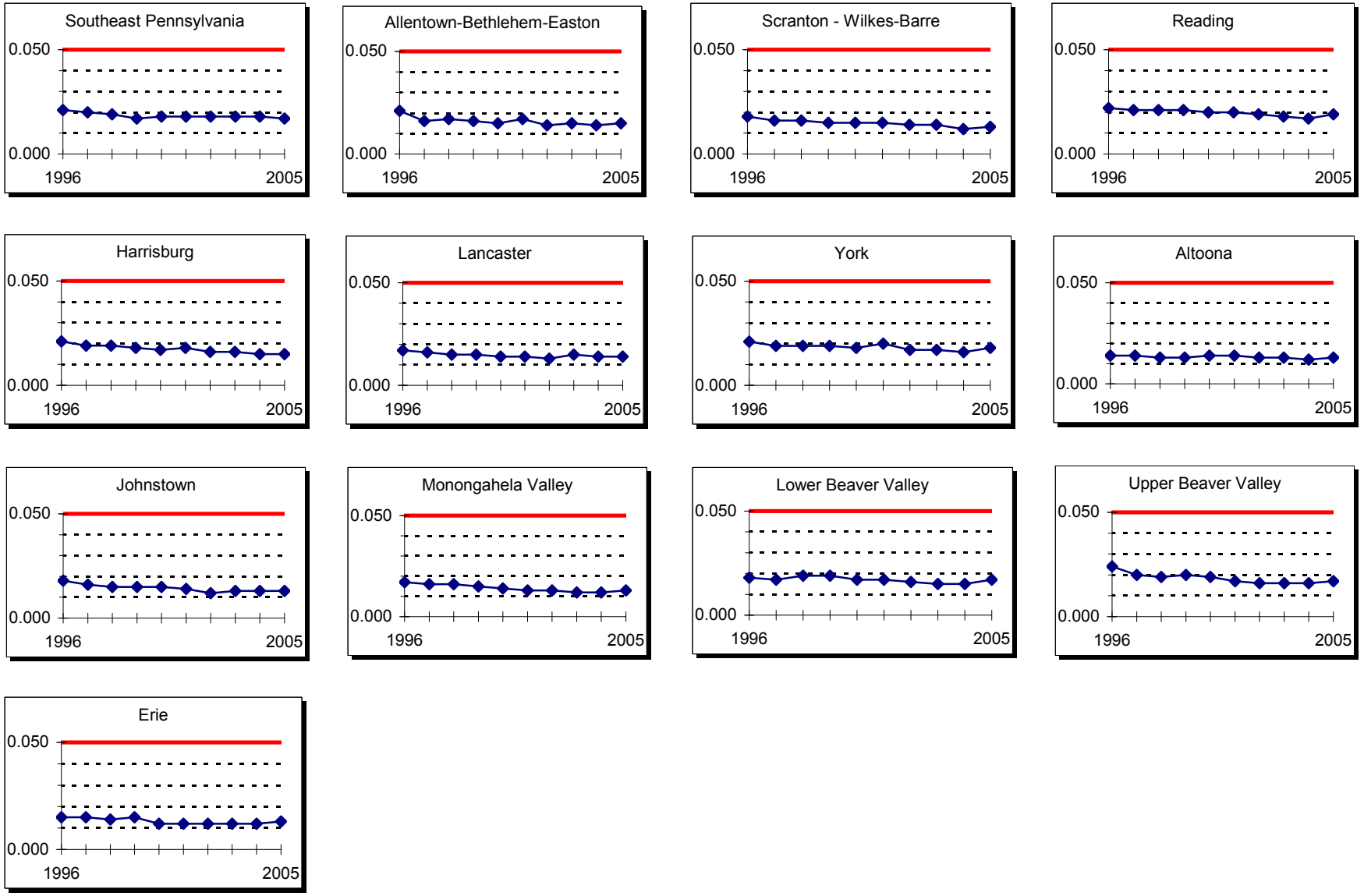


Figure 2-28. Trend of nitrogen oxides annual means, 1996-2005.

Appendix A, Table A-20 summarizes data for oxides of nitrogen (NO_X) in 2005. 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 1996, average NO_X concentrations have declined by 30 percent.

Figure 2-29. 10 – Year Nitrogen Dioxide Trend in Pennsylvania 1996 to 2005
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.

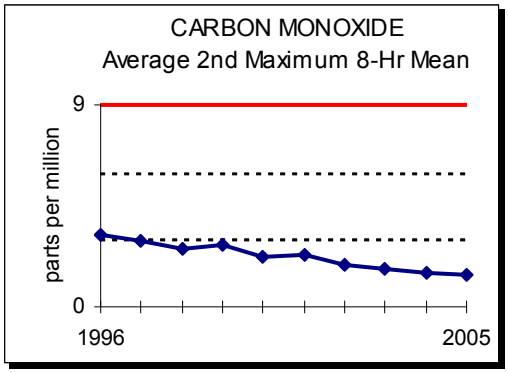


Figure 2-30. Trend in second maximum 8-hour average CO concentrations, 1996-2005.

Figure 2-30 shows the statewide average second maximum 8-hour carbon monoxide concentrations. In 1996, the statewide average concentration was 3.2 parts per million (ppm) and in 2005 the statewide average concentration was 1.4 parts per million (ppm), representing a statewide decrease of 56% 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.

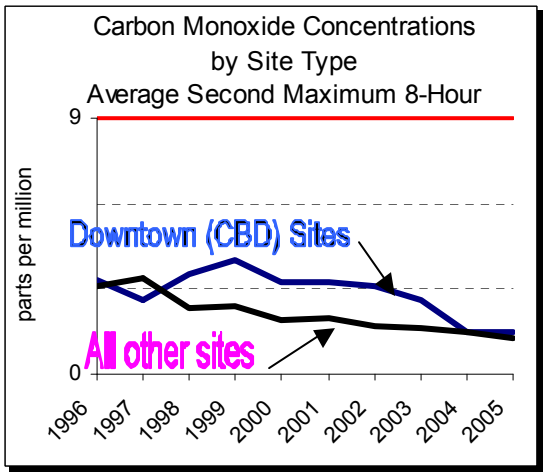


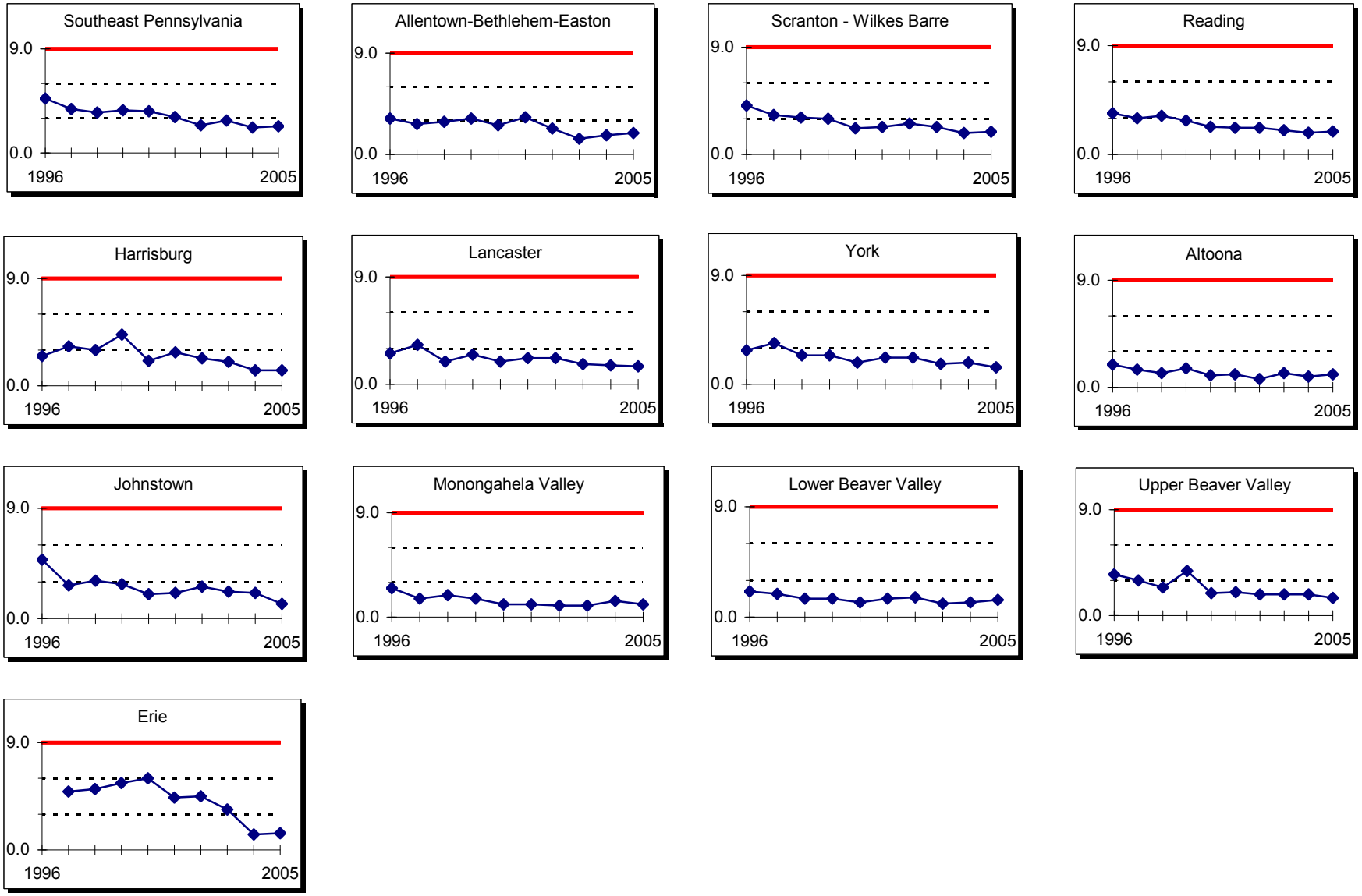
Figure 2-31. Trend in second maximum 8-hour average CO concentrations by location, 1996-2005.

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 2005 has been summarized in Appendix A, Table A-21. There were no exceedances of the 1- or 8-hour air quality standards observed in 2005.

Historical trend data for 1996 to 2005 for carbon monoxide is shown in Appendix A, Table A-22 for all air monitoring sites that operated in 2005 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 1996 to 2005
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 1996 until 2005. Units in Figure 2-33 are expressed in parts per billion Carbon (ppbC).

The 2005 data from the Arendtsville site has been summarized in Appendix A, Table A-23. There are no federal or state air quality standards for the monitored compounds.

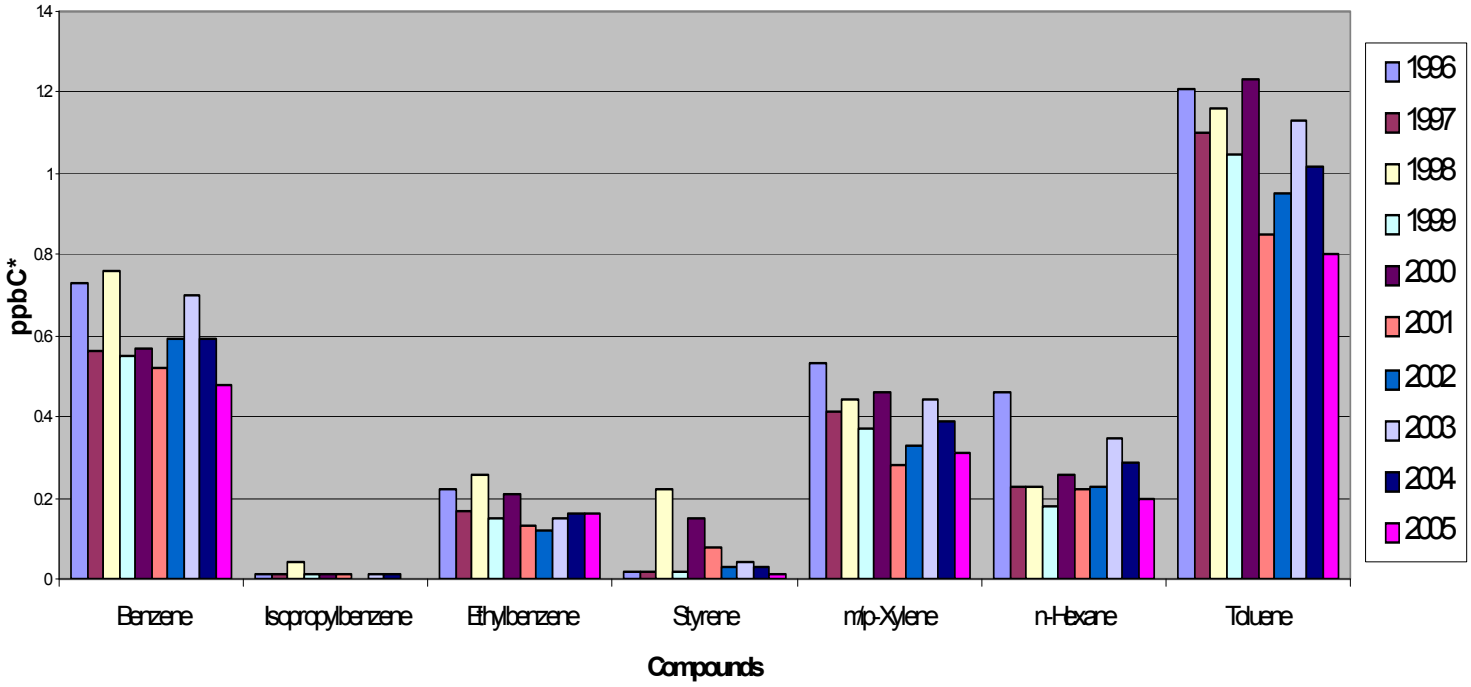
DEP performs air toxics monitoring for mercury at a site near Lancaster. This site is designed to comply with EPA's expanded national toxic monitoring program. Data supplied from this monitoring site, and the expanded national network, will assist in rulemaking and model validation. EPA will use these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

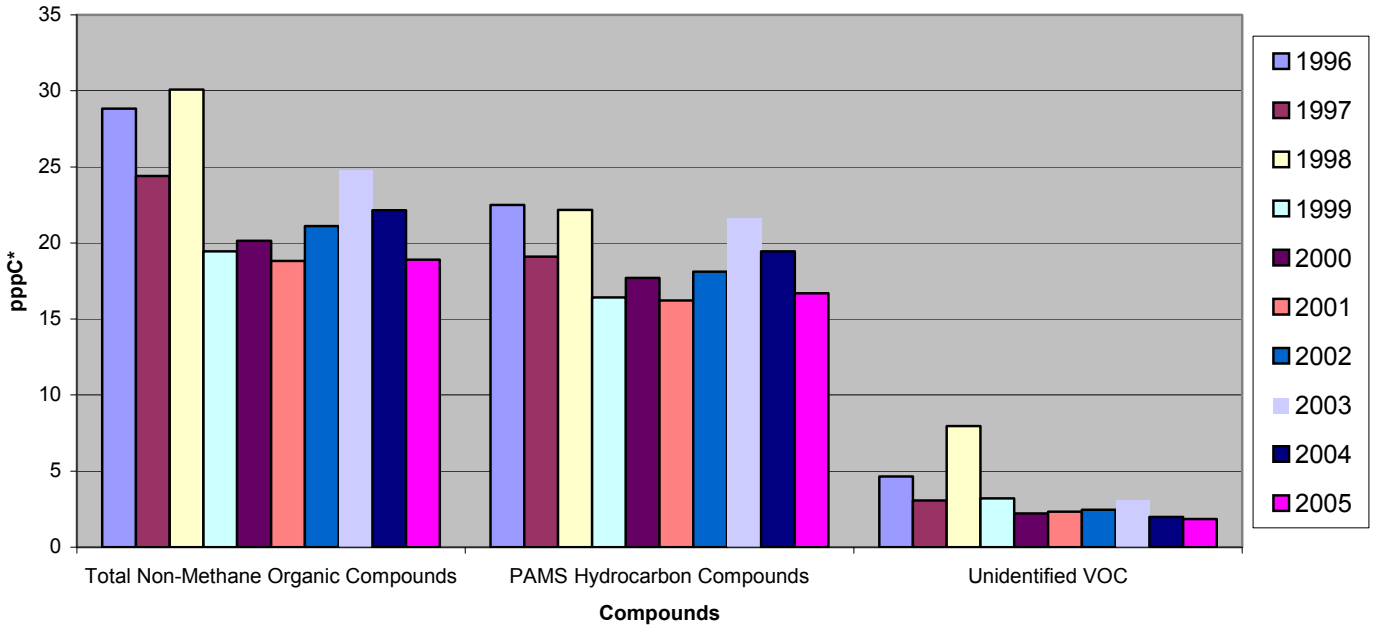
Data from the Lancaster site for 2005 has been summarized in Appendix A, Table A-24. There are no federal or state ambient air quality standards for mercury.

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).

This page intentionally left blank.

Figure 2-33. Air Toxics Trends at the Arendtsville Monitoring Site (1996-2005)
Annual Means





*ppbC = parts per Billion Carbon

This page intentionally left blank.

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.

This page intentionally left blank.

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.

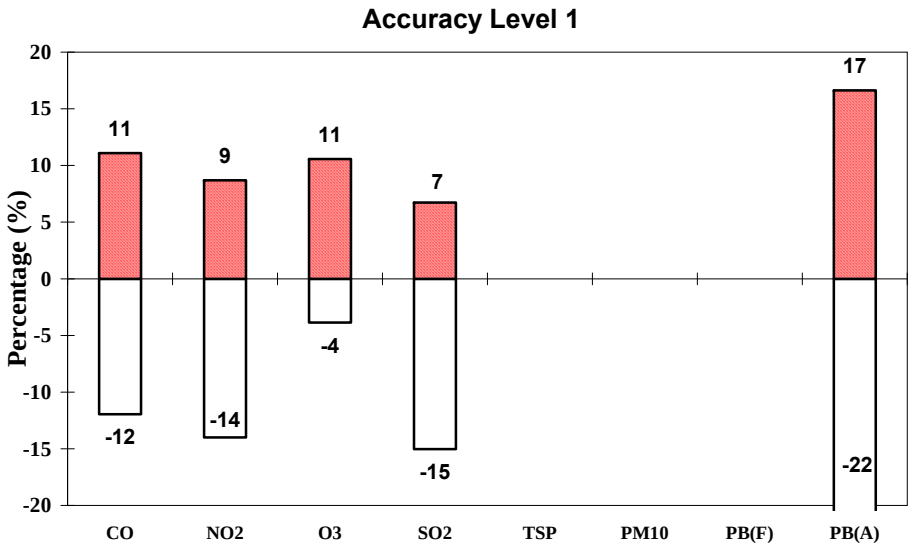
For precision, only one probability level is calculated for each parameter. Acceptable 95 percent probability limits for precision are met when the instrument response is within 15 percent for all parameters. For continuous analyzers, every two weeks the equipment is challenged by a low level gas of 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.

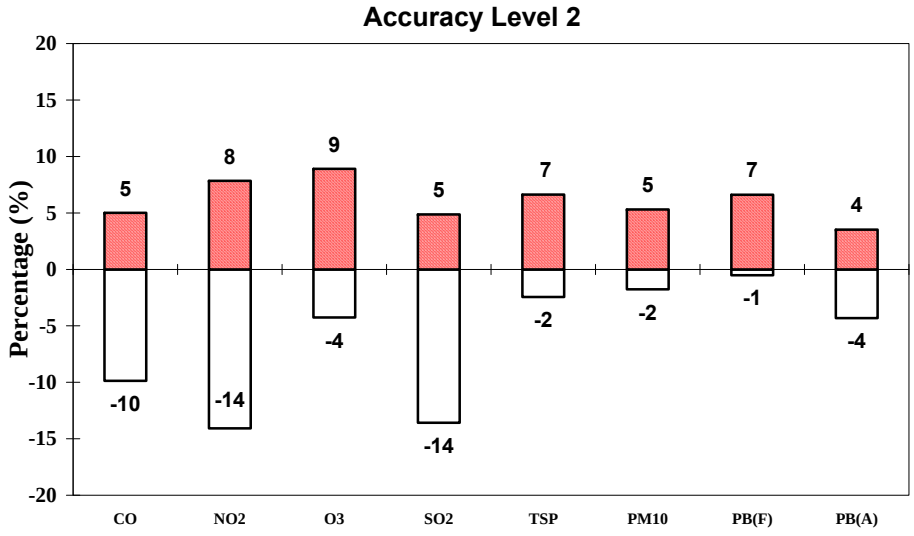
For accuracy, acceptable 95 percent probability limits are met when the instrument response is within 20 percent for continuous gaseous parameters and within 15 percent for discrete particulate parameters (TSP, PM_{10} and lead). Challenging the equipment quarterly with 3 known concentration levels of 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).

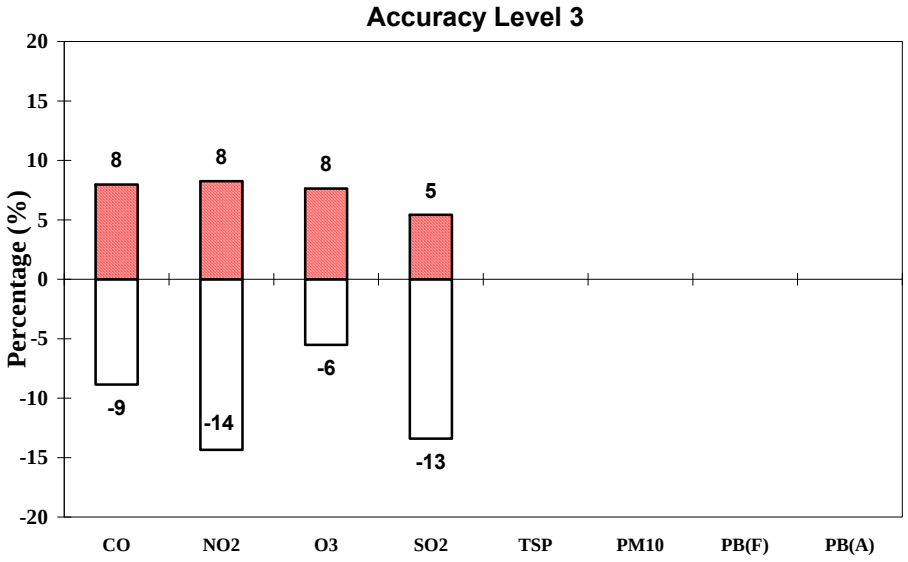
Figure 4-1 on the following page summarizes the 95 percent probability limits from all four quarterly reporting periods within the calendar year. The values presented were calculated from weighted arithmetic averages for each quarter's probability limits.

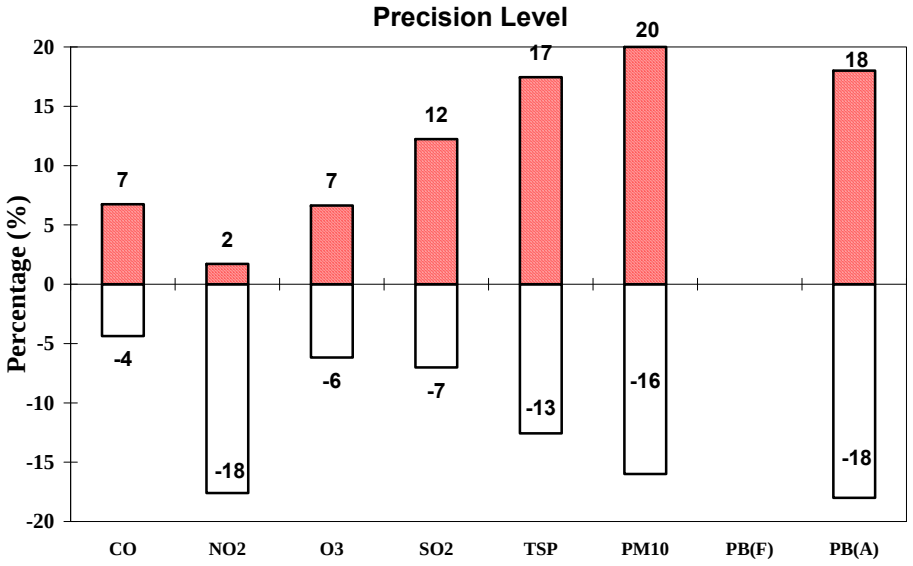
Note that there are two different types of accuracy checks for lead: the normal flow check, which is indicated by PB(F) and a quarterly analytical check, which is indicated by PB(A), on the legends of each graph. This analytical check is part of the EPA sponsored National Performance Audit Program (NPAP)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

Figure 4-1. Annual Accuracy and Precision Probability Limits 2005
95% Lower/Upper Limits









APPENDIX A - Data Tables

.

This page intentionally left blank.

Appendix A: Table A1

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

Year: 2005

Site Name	PA Site Code	Geometric Annual Mean	Geometric Standard Deviation	Arithmetic Annual Mean	Number 24HR Samples	1st 24HR Mean	Daily Averages Date MM/DD	2nd 24HR Mean	Date MM/DD	Minimum 24 Hour Mean
Southeast Pennsylvania Air Basin										
Chester	P11	37	1.51	41	58	94	04/16	89	10/07	11
Northeast Region Non-Air Basin										
Palmerton	205	29	1.84	32	48	62	09/13	61	02/03	2
Reading Air Basin										
Laureldale	R10	39	1.57	43	58	104	05/10	101	02/03	12
Southcentral Region Non-Air Basin										
Lyons	301	27	1.78	31	57	71	02/03	52	07/21	2
Lyons	375	22	2.07	26	58	51	02/03	51	08/14	0
Johnstown Air Basin										
East Conemaugh	J08	30	1.66	34	61	74	08/26	73	10/13	4
Monogahela Valley Air Basin										
Monessen	M16	43	1.46	46	60	92	03/17	80	06/27	15
Lower Beaver Valley Air Basin										
Vanport	B05	14	3.86	26	53	109	09/13	83	09/19	0

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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Southeast Pennsylvania Air Basin											
Chester	P11	43	55	40	35	39	36	33	35	34	37
Northeast Region Non-Air Basin											
Palmerton	205	32	31	29	27	28	27	28	30	25	29
Reading Air Basin											
Laureldale	R10	51	53	51	44	44	39	40	39	34	39
Southcentral Region Non-Air Basin											
Lyons	301	34	32	30	***	39	30	28	42	25	27
Lyons	375	***	***	***	***	***	***	26	23	21	22
Johnstown Air Basin											
East Conemaugh	J08	37	40	41	42	42	30	28	30	26	30
Monongahela Valley Air Basin											
Monessen	M16	***	44	44	44	42	46	39	38	37	43
Lower Beaver Valley Air Basin											
Vanport	B05	35	35	33	34	35	30	17?	9	8	14

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: 2005

Site Name	PA Site Code	Annual Mean	Number 24 HR 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 HR > 30	1st Max 24 Hour Mean	1st Max 24 Hour MM/DD	2nd Max 24 Hour Mean	2nd Max 24 Hour MM/DD
Northeast Region Non-Air Basin													
Palmerton	205	9.3	52	3	14.3	8	10.9	6	0	20.1	08/14	19.2	09/13
Reading Air Basin													
Laureldale	R10	9.9	59	4	16.1	8	12.1	7	0	21.0	08/14	20.3	08/20
Johnstown Air Basin													
East Conemaugh	J08	10.8	61	6	14.7	9	13.4	7	0	20.8	09/13	18.2	06/21
Monongahela Valley Air Basin													
Monessen	M16	12.2	60	9	17.0	9	15.5	8	0	20.3	09/19	19.7	09/07

No Long- or Short-Term Air Quality Standard

This page intentionally left blank.

Appendix A: Table A-4

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

Year: 2005

Site Name	PA Site Code	Annual Mean	Number 24HR 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
Northeast Region Non-Air Basin										
Palmerton	205	3.17	52	12.3	03/11	8.0	05/10	7.1	03/17	0.41
Reading Air Basin										
Laureldale	R10	3.85	59	9.6	02/09	9.1	03/11	9.0	02/03	0.42
Johnstown Air Basin										
East Conemaugh	J08	2.71	60	8.2	02/03	6.9	03/17	6.8	03/05	0.33
Monongahela Valley Air Basin										
Monessen	M16	3.52	60	11.0	03/05	9.5	03/17	8.4	02/03	0.85

No Long- or Short-Term Air Quality Standard

This page intentionally left blank.

Appendix A: Table A-5

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

Year: 2005

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	0.04	0.04	0.04	15	15	12	16
Northeast Region Non-Air Basin									
Palmerton	205	0.25	0.10	0.07	0.21	15	15	15	7
Reading Air Basin									
Laureldale	R10	0.28	0.16	0.18	0.39	15	14	15	15
Southcentral Region Non-Air Basin									
Lyons	301	0.14	0.17	0.17	0.12	11	15	11	16
Lyons	375	0.06	0.05	0.04	0.09	11	15	15	16
Johnstown Air Basin									
East Conemaugh	J08	0.04	0.04	0.04	0.06	15	15	15	16
Monongahela Valley Air Basin									
Monessen	M16	0.04	0.03	0.03	0.04	14	15	15	16
Lower Beaver Valley Air Basin									
Vanport	B05	0.04	0.07	0.15	0.13	12	9	13	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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Southeast Pennsylvania Air Basin											
Chester	P11	0.04	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04
Northeast Region Non-Air Basin											
Palmerton	205	0.08	0.09	0.11	0.07	0.11	0.07	0.09	0.10	0.12	0.25
Reading Air Basin											
Laureldale	R10	0.27	0.30	0.31	0.29	0.33	0.27	0.22	0.39	0.40	0.39
Southcentral Region Non-Air Basin											
Lyons	301	0.17	0.29	0.22	***	0.22	0.23	0.16	0.12	0.18	0.17
Lyons	375	***	***	***	***	***	***	0.09	0.08	0.09	0.09
Johnstown Air Basin											
East Conemaugh	J08	0.04	0.04	0.04	0.09	0.05	0.04	0.03	0.04	0.05	0.06
Monongahela Valley Air Basin											
Monessen	M16	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04
Lower Beaver Valley Air Basin											
Vanport	B05	0.06	0.08	0.06	0.08	0.07	0.06	0.11	0.09	0.09	0.15

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: 2005

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24HR 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	18	350	58	08/13	56	08/12	53	50	50	0
Chester (TEOM)	P11	21	342	62	04/15	58	04/19	57	57	57	3
Norristown (TEOM)	P21	19	338	60	08/12	58	08/13	52	51	51	2
Allentown-Bethlehem-Easton Air Basin											
Allentown (TEOM)	A19	18	362	62	08/13	54	08/12	51	51	51	0
Freemansburg (TEOM)	A25	19	344	62	08/13	55	08/12	53	50	50	1
Nazareth (TEOM)	A26	38	349	172	04/19	139	09/13	120	117	117	1
Scranton-Wilkes-Barre Air Basin											
Scranton (TEOM)	S01	17	354	62	06/26	55	06/25	54	51	51	0
Wilkes-Barre (TEOM)	S28	20	362	65	06/26	58	06/25	55	52	52	0
Reading Air Basin											
Reading (TEOM)	R01	21	365	61	08/13	60	02/02	57	56	56	3
Reading	R15	24?	51	85	09/01	58	02/03	48	48	85	5
Harrisburg Air Basin											
Harrisburg (TEOM)	H11	21	356	65	02/01	56	04/19	54	53	53	3
Lancaster Air Basin											
Lancaster (TEOM)	L01	20	365	72	02/02	63	08/13	60	55	55	1
York Air Basin											
York (TEOM)	Y01	24	353	69	04/19	67	02/08	63	62	62	1
Southcentral Non-Air Basin											
Altoona (TEOM)	308	21	353	96	04/20	74	04/19	68	65	65	2
Northcentral Region Non-Air Basin											
Montoursville	410	20	55	40	09/07	39	06/27	38	37	40	2
Johnstown Air Basin											
Johnstown (TEOM)	J01	24	365	96	08/18	73	09/15	65	65	65	4

Primary and Secondary National Ambient Air Quality Standards
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: 2005

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24HR 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
Monongahela Valley Air Basin											
Charleroi (TEOM)	M01	23	365	83	09/15	75	08/11	74	71	71	2
Monessen	M16	30	59	73	09/13	53	03/17	52	51	73	7
Lower Beaver Valley Air Basin											
Beaver Falls (TEOM)	B11	26	356	83	09/13	74	06/25	74	72	72	3
Southwest Region Non-Air Basin											
Florence	504	21	58	54	06/27	47	09/13	43	41	54	4
Greensburg (TEOM)	513	23	362	74	09/15	68	09/13	60	59	59	2
Upper Beaver Valley Air Basin											
New Castle (TEOM)	B21	26	363	79	09/14	78	07/04	76	72	72	3
Erie Air Basin											
Erie (TEOM)	E10	16	343	53	06/25	53	10/03	49	49	49	2

Primary and Secondary National Ambient Air Quality Standards
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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Southeast Pennsylvania Air Basin											
Bristol (TEOM)	21	20	23	17	18	21	18	19	18	18	Annual Mean
P01	55	59	57	51	53	57	56	56	49	50	99th Percentile 24HR Mean
Chester (TEOM)	24	24	25	21	22	23	20	21	23	21	Annual Mean
P11	65	60	63	55	62	60	60	54	53	57	99th Percentile 24HR Mean
Norristown (TEOM)	22?	21	21	18	19	20	16	19	17	19	Annual Mean
P21	54	66	56	49	49	56	49	50	43	51	99th Percentile 24HR Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown (TEOM)	21?	19	17	11	29	21	18	18	15	18	Annual Mean
A19	52	55	46	36	94	64	54	45	38	51	99th Percentile 24HR Mean
Freemansburg (TEOM)	***	***	26?	38	35	20	20	19	19	19	Annual Mean
A25	***	***	65	97	98	60	60	55	55	50	99th Percentile 24HR Mean
Nazareth (TEOM)	***	***	***	***	28	30	29	33	32	38	Annual Mean
A26	***	***	***	***	76	99	95	104	101	117	99th Percentile 24HR Mean
Scranton-Wilkes-Barre Air Basin											
Scranton (TEOM)	21	20	21	12?	16	20	18	17	16	17	Annual Mean
S01	59	61	59	51	41	57	63	48	42	51	99th Percentile 24HR Mean
Wilkes-Barre (TEOM)	21	21	24	***	18	20	19	21	17	20	Annual Mean
S28	57	62	64	***	49	57	63	68	45	52	99th Percentile 24HR Mean
Reading Air Basin											
Reading (TEOM)	24?	21	21	21	20	22	20	19	20	21	Annual Mean
R01	52	59	55	49	52	63	58	50	47	56	99th Percentile 24HR Mean
Reading	29	29	27	29	27	24	25	25	20	24?	Annual Mean
R15	81	79	67	53	66	62	60	83	46	85	99th Percentile 24HR Mean
Harrisburg Air Basin											
Harrisburg (TEOM)	23	22	23	21	21	22	20	21	21	21	Annual Mean
H11	58	62	65	53	65	60	62	53	51	53	99th Percentile 24HR Mean
Lancaster Air Basin											
Lancaster (TEOM)	24	23	24	24	21	23	21	20	20	20	Annual Mean
L01	64	68	62	63	55	67	61	49	49	55	99th Percentile 24HR Mean

Primary and Secondary National Ambient Air Quality Standards
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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
York Air Basin											
York (TEOM)	***	23	26	23	22	24	21	24	22	24	Annual Mean
Y01	***	70	60	56	55	68	61	71	52	62	99th Percentile 24HR Mean
Southcentral Region Non-Air Basin											
Altoona (TEOM)	23	21	22	19	20	24	22	20	20	21	Annual Mean
308	53	59	58	57	54	69	63	69	58	65	99th Percentile 24HR Mean
Northcentral Region Non-Air Basin											
Montoursville	***	***	***	***	***	***	20	20	18?	20	Annual Mean
410	***	***	***	***	***	***	66	45	42	40	99th Percentile 24HR Mean
Johnstown Air Basin											
Johnstown (TEOM)	28?	24	26	24	21	24	24	22	22	24	Annual Mean
J01	60	66	64	61	53	74	64	64	57	65	99th Percentile 24HR Mean
Monongahela Valley Air Basin											
Charleroi (TEOM)	26	24	26	27	21	25	21	19	20	23	Annual Mean
M01	69	57	62	95	51	69	57	56	50	71	99th Percentile 24HR Mean
Monessen	***	32	34	38	31	31	30	29	25	30	Annual Mean
M16	***	75	74	79	62	67	76	59	77	73	99th Percentile 24HR Mean
Lower Beaver Valley Air Basin											
Beaver Falls (TEOM)	26	27	28	***	22	26	25	22	23	26	Annual Mean
B11	64	80	83	***	53	75	82	70	59	72	99th Percentile 24HR Mean
Southwest Region Non-Air Basin											
Florence	***	***	***	27	22	20	21	20	16	21	Annual Mean
504	***	***	***	72	54	60	80	72	49	54	99th Percentile 24HR Mean
Greensburg (TEOM)	***	***	***	20	19	23	22	22	20?	23	Annual Mean
513	***	***	***	52	47	57	59	60	48	59	99th Percentile 24HR Mean
Upper Beaver Valley Air Basin											
New Castle (TEOM)	32	33	33	28	28	32	29	26	26	26	Annual Mean
B21	89	90	90	78	74	79	73	79	62	72	99th Percentile 24HR Mean
Erie Air Basin											
Erie (TEOM)	19?	20	21	18	18	19	19	16	14?	16	Annual Mean
E10	52	59	62	51	47	54	58	47	48	49	99th Percentile 24HR Mean

Primary and Secondary National Ambient Air Quality Standards
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: 2005

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24HR 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	14.3	110	37.7	08/14	37.1	02/09	35.4	35.3	35.4	1.7
Chester	P11	16.5	110	40.9	08/14	40.1	03/23	37.0	36.9	37.0	3.4
Norristown	P21	13.2?	88	35.2	11/21	32.8	08/05	32.0	31.6	32.0	1.9
Norristown (TEOM)	P21	18.6	359	55.8	08/13	54.0	08/12	48.4	47.3	42.3	1.2
New Garden	P30	15.9?	93	41.2	08/14	33.7	08/11	33.3	33.0	33.7	1.3
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	14.5	351	55.4	08/13	47.7	12/11	45.8	44.6	36.7	1.4
Freemansburg	A25	14.3	349	55.9	08/13	48.1	12/11	45.9	44.4	36.2	1.3
Freemansburg (TEOM)	A25	14.6	361	59.6	08/13	48.7	08/14	47.2	41.5	36.9	2.3
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	12.5	341	49.9	06/26	42.2	06/25	40.8	38.5	32.8	0.0
Wilkes-Barre	S28	13.0	356	48.4	06/26	41.4	06/25	38.4	36.9	31.5	1.0
Reading Air Basin											
Reading	R01	16.8	118	45.7	02/03	43.0	08/14	39.4	38.1	39.4	3.0
Reading (TEOM)	R01	18.1?	302	58.4	08/13	53.3	12/11	52.4	50.6	42.4	1.5
Harrisburg Air Basin											
Harrisburg	H11	15.5	339	52.1	02/01	49.9	02/02	42.9	41.0	40.1	0.0
Harrisburg (BAM)	H11	18.6	360	70.5	08/13	60.2	08/14	59.7	59.4	48.9	0.7
Lancaster Air Basin											
Lancaster	L01	18.2	121	57.5	02/03	49.0	11/21	45.2	41.2	45.2	1.7
Lancaster (TEOM)	L01	18.0	362	84.1	02/02	55.9	02/03	52.2	52.1	44.7	0.9
York Air Basin											
York	Y01	18.1	112	58.4	02/03	45.5	08/14	39.4	38.4	39.4	0.0
York (TEOM)	Y01	16.8	338	64.3	02/03	61.9	02/02	56.8	51.3	44.3	0.5
Southcentral Region Non-Air Basin											
Perry County	305	13.1	118	36.4	07/30	29.0	06/30	29.0	28.2	29.0	1.3
Arendtsville	314	13.6	348	47.3	08/12	46.7	07/13	45.2	38.0	35.8	0.0
Arendtsville (TEOM)	314	11.4	340	46.6	08/12	46.5	07/13	43.7	38.0	34.1	0.1
Carlisle	316	14.9	345	43.1	02/02	43.0	08/12	42.5	42.1	40.1	1.1

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 15 micrograms per cubic meter
24 Hour Mean (3-year average of 98th Percentile) = 65 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: 2005

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24HR 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	13.4	344	49.1	06/26	48.6	08/13	42.4	42.1	39.7	1.0
Johnstown Air Basin											
Johnstown	J01	16.8	118	44.9	06/24	44.1	09/16	43.2	39.6	43.2	3.1
Johnstown (BAM)	J01	16.9	356	61.0	09/15	56.6	06/25	55.1	51.5	45.8	1.1
Monongahela Valley Air Basin											
Charleroi	M01	16.4	117	51.6	09/13	37.6	02/06	36.4	35.0	36.4	3.7
Lower Beaver Valley Air Basin											
Beaver Falls	B11	18.3	109	61.9	10/04	53.6	09/13	51.8	39.5	51.8	2.8
Beaver Falls (TEOM)	B11	17.1	362	57.5	09/13	55.8	06/27	55.0	54.8	48.1	0.1
Southwest Region Non-Air Basin											
Florence	504	14.2	346	57.2	06/26	49.4	06/24	46.4	43.3	39.2	2.0
Washington	508	15.9	120	46.5	09/13	36.5	06/24	33.1	30.2	33.1	3.7
Kittanning (TEOM)	512	14.6	359	53.5	06/26	51.5	09/14	50.0	45.4	41.2	2.9
Greensburg	513	16.8	115	53.2	05/19	44.3	06/24	38.7	38.7	38.7	4.3
Erie Air Basin											
Erie	E10	14.3	341	72.3	09/14	48.0	09/12	47.5	44.6	40.7	1.5
Northwest Region Non-Air Basin											
Farrell	606	14.1	340	53.2	06/27	46.9	10/03	45.9	42.6	39.0	0.0

Primary and Secondary National Ambient Air Quality Standards
Annual Mean = 15 micrograms per cubic meter
24 Hour Mean (3-year average of 98th Percentile) = 65 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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Southeast Pennsylvania Air Basin											
Bristol	***	***	***	12.0?	13.8?	14.6	14.2	14.4	13.0?	14.3	Annual Mean
P01	***	***	***	32.8	38.4	38.5	37.2	39.6	29.9	35.4	98th Percentile 24HR Mean
Chester	***	***	***	13.1?	15.9	16.0	14.6	15.3	15.0	16.5	Annual Mean
P11	***	***	***	35.9	36.2	39.5	31.9	37.8	30.5	37.0	98th Percentile 24HR Mean
Norristown	***	***	***	13.0?	13.6?	15.1?	13.7	13.9	12.0?	12.5?	Annual Mean
P21	***	***	***	31.3	37.5	47.6	36.8	37.5	28.8	32.8	98th Percentile 24HR Mean
Norristown (TEOM)	***	***	***	***	***	***	***	***	17.6	18.6	Annual Mean
P21	***	***	***	***	***	***	***	***	40.4	42.3	98th Percentile 24HR Mean
New Garden	***	***	***	***	***	***	14.7	15.6	14.3?	15.9?	Annual Mean
P30	***	***	***	***	***	***	33.7	38.5	32.7	33.7	98th Percentile 24HR 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 24HR 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 24HR Mean
Freemansburg	***	***	***	12.9?	13.6?	15.5	14.1	14.3	13.7	14.2	Annual Mean
A25	***	***	***	31.3	37.3	42.9	40.9	37.8	35.2	39.1	98th Percentile 24HR Mean
Freemansburg (TEOM)	***	***	***	***	***	***	***	***	15.7?	14.6	Annual Mean
A25	***	***	***	***	***	***	***	***	37.9	36.9	98th Percentile 24HR Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	***	***	***	11.0?	11.7	12.9	12.4	12.5	11.6	12.5	Annual Mean
S01	***	***	***	29.7	31.5	36.7	42.7	33.8	31.2	32.8	98th Percentile 24HR 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 24HR Mean
Reading Air Basin											
Reading	***	***	***	13.5?	16.9	16.5	16.7?	16.1	15.6	16.8	Annual Mean
R01	***	***	***	35.7	37.5	43.0	48.5	45.0	33.1	39.4	98th Percentile 24HR Mean
Reading (TEOM)	***	***	***	***	***	***	***	***	15.3?	18.1?	Annual Mean
R01	***	***	***	***	***	***	***	***	35.3	42.4	98th Percentile 24HR Mean
Harrisburg Air Basin											
Harrisburg	***	***	***	14.4?	15.4?	16.6	14.5	16.2	15.7	15.5	Annual Mean
H11	***	***	***	39.7	45.6	47.7	42.7	41.5	35.5	40.1	98th Percentile 24HR Mean
Harrisburg (BAM)	***	***	***	***	***	***	***	***	21.2?	18.6	Annual Mean
H11	***	***	***	***	***	***	***	***	43.4	48.9	98th Percentile 24HR 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) = 65 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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Lancaster Air Basin											
Lancaster	***	***	***	15.6?	17.8	17.3	16.2	17.6	16.6	18.2	Annual Mean
L01	***	***	***	38.2	47.0	42.1	40.2	51.5	35.5	45.2	98th Percentile 24HR Mean
Lancaster (TEOM)	***	***	***	***	***	***	***	***	18.7	18.0	Annual Mean
L01	***	***	***	***	***	***	***	***	46.1	44.7	98th Percentile 24HR Mean
York Air Basin											
York	***	***	***	15.4?	16.7	16.9	17.1	17.4	16.5	18.1	Annual Mean
Y01	***	***	***	34.9	41.1	41.3	47.3	47.0	39.0	39.4	98th Percentile 24HR Mean
York (TEOM)	***	***	***	***	***	***	***	***	17.7?	16.8	Annual Mean
Y01	***	***	***	***	***	***	***	***	38.8	44.3	98th Percentile 24HR 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 24HR Mean
Arendtsville	***	***	***	13.1?	13.1?	14.1	12.6	13.6	13.7	13.6	Annual Mean
314	***	***	***	34.0	36.5	36.0	38.9	36.5	36.3	35.8	98th Percentile 24HR Mean
Arendtsville (TEOM)	***	***	***	***	***	13.8	13.4	13.3	12.3	11.4	Annual Mean
314	***	***	***	***	***	38.0	39.3	33.4	32.4	34.1	98th Percentile 24HR Mean
Carlisle	***	***	***	***	***	15.6	14.4	15.3	15.1	14.9	Annual Mean
316	***	***	***	***	***	45.0	41.5	41.6	39.1	40.1	98th Percentile 24HR Mean
Northcentral Region Non-Air Basin											
State College	***	***	***	***	***	13.9?	11.9?	13.6	13.3	13.4	Annual Mean
409	***	***	***	***	***	45.0	36.9	35.4	37.8	39.7	98th Percentile 24HR Mean
Johnstown Air Basin											
Johnstown	***	***	***	14.8?	16.1?	15.5?	16.1	15.5	14.4	16.8	Annual Mean
J01	***	***	***	31.0	35.4	42.1	46.6	36.8	36.2	43.2	98th Percentile 24HR Mean
Johnstown (BAM)	***	***	***	***	***	***	***	***	16.1?	16.9	Annual Mean
J01	***	***	***	***	***	***	***	***	40.4	45.8	98th Percentile 24HR Mean
Monongahela Valley Air Basin											
Charleroi	***	***	***	15.4?	15.5?	15.7	15.2	14.9	14.0	16.4	Annual Mean
M01	***	***	***	33.2	36.0	44.4	43.3	35.6	35.4	36.4	98th Percentile 24HR Mean
Lower Beaver Valley Air Basin											
Beaver Falls	***	***	***	***	15.9?	16.5	15.3	15.7	15.4	18.3	Annual Mean
B11	***	***	***	***	43.6	42.4	37.7	33.8	43.0	51.8	98th Percentile 24HR Mean
Beaver Falls (TEOM)	***	***	***	***	***	***	***	***	17.9?	17.1	Annual Mean
B11	***	***	***	***	***	***	***	***	45.7	48.1	98th Percentile 24HR 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) = 65 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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Southwest Region Non-Air Basin											
Florence	***	***	***	13.0?	13.3	14.3?	13.6?	13.4	13.2	14.2	Annual Mean
504	***	***	***	38.1	30.5	35.5	36.7	33.9	36.0	39.2	98th Percentile 24HR Mean
Washington	***	***	***	14.6?	15.1	15.8?	14.7	14.7	14.1	15.9	Annual Mean
508	***	***	***	42.4	33.3	36.6	37.2	33.4	34.0	33.1	98th Percentile 24HR Mean
Kittanning (TEOM)	***	***	***	***	12.2	14.9	14.3?	12.4	14.3	14.6	Annual Mean
512	***	***	***	***	29.0	42.0	48.3	28.8	37.8	41.2	98th Percentile 24HR Mean
Greensburg	***	***	***	14.9?	16.0?	15.9	14.9?	15.3	14.9	16.8	Annual Mean
513	***	***	***	37.5	37.2	36.0	40.0	34.8	39.0	38.7	98th Percentile 24HR Mean
Erie Air Basin											
Erie	***	***	***	12.6?	13.8?	13.8?	13.3?	12.6?	11.9	14.4	Annual Mean
E10	***	***	***	30.5	28.2	37.5	42.9	29.7	32.5	40.7	98th Percentile 24HR Mean
Northwest Region Non-Air Basin											
Farrell	***	***	***	***	***	14.9?	14.0	13.8	13.4	14.1	Annual Mean
606	***	***	***	***	***	43.0	36.6	35.4	34.5	39.0	98th Percentile 24HR 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) = 65 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

This page intentionally left blank.

Appendix A: Table A-11

Sulfur Dioxide Summary
(Units: parts per million)

Year: 2005

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	97.2	0.006	0.024	02/02	0.023	02/08	0.038	08/04	0.034	02/02	0.048
Chester	P11	93.7	0.006	0.018	01/25	0.016	02/02	0.050	06/26	0.043	01/25	0.068
Norristown	P21	98.9	0.006	0.020	12/24	0.018	12/10	0.033	12/18	0.031	12/24	0.047
Allentown-Bethlehem-Easton Air Basin												
Allentown	A19	99.3	0.008	0.035	01/22	0.032	12/15	0.079	01/22	0.072	01/22	0.104
Easton	A20	98.8	0.009	0.035	12/15	0.034	02/03	0.081	08/06	0.080	10/31	0.132
Freemansburg	A25	97.2	0.007	0.028	02/03	0.021	02/02	0.059	08/04	0.058	01/22	0.093
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	97.2	0.005	0.029	12/11	0.025	12/10	0.036	01/24	0.035	10/31	0.057
Wilkes-Barre	S28	99.3	0.005	0.022	11/21	0.019	12/11	0.037	12/10	0.034	12/24	0.060
Northeast Region Non-Air Basin												
Shenandoah	211	97.8	0.006	0.029	01/29	0.027	02/08	0.050	02/08	0.044	02/08	0.062
Reading Air Basin												
Reading	R01	98.8	0.008	0.023	02/03	0.023	02/07	0.090	07/04	0.075	02/07	0.127
Harrisburg Air Basin												
Harrisburg	H11	99.4	0.005	0.023	02/05	0.020	02/03	0.056	08/09	0.054	07/03	0.102
Lancaster Air Basin												
Lancaster	L01	98.1	0.006	0.026	12/20	0.022	11/07	0.062	12/20	0.050	04/20	0.090
York Air Basin												
York	Y01	98.1	0.006	0.030	02/01	0.030	02/05	0.100	02/01	0.099	08/17	0.181
Southcentral Region Non-Air Basin												
Perry County	305	98.1	0.003	0.010	12/09	0.010	12/15	0.029	03/19	0.028	12/15	0.045
Altoona	308	97.4	0.007	0.036	01/24	0.036	12/18	0.069	12/18	0.066	01/24	0.108
Northcentral Region Non-Air Basin												
Montoursville	410	99.7	0.005	0.019	01/24	0.018	02/03	0.051	10/10	0.044	02/27	0.070
State College	409	90.3	0.005	0.020	01/16	0.018	01/24	0.041	01/16	0.036	08/13	0.060

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: 2005

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
Johnstown Air Basin												
Johnstown	J01	97.8	0.007	0.039	02/04	0.037	03/05	0.101	02/04	0.097	03/05	0.144
Monongahela Valley Air Basin												
Charleroi	M01	98.2	0.010	0.034	02/04	0.030	02/05	0.069	09/07	0.064	01/21	0.116
Lower Beaver Valley Air Basin												
Beaver Falls	B11	98.9	0.007	0.037	12/10	0.032	12/23	0.067	01/25	0.065	12/10	0.098
Hookstown	B23	99.1	0.009	0.038	06/23	0.034	01/25	0.099	02/25	0.096	03/17	0.222
Brighton Twp.	B27	97.6	0.013	0.069	10/31	0.050	08/09	0.204	04/17	0.202	04/07	0.345
Allegheny County Air Basin												
Pittsburgh	D12	99.7	0.008	0.033	10/10	0.022	02/04	0.064	10/10	0.061	10/10	0.098
Southwest Region Non-Air Basin												
Florence	504	98.2	0.010	0.048	02/25	0.047	02/26	0.126	10/31	0.080	02/26	0.145
Washington	508	99.5	0.009	0.035	01/31	0.027	02/04	0.093	01/31	0.078	03/17	0.106
Greensburg	513	99.1	0.006	0.031	01/21	0.030	07/16	0.118	01/21	0.083	01/21	0.143
Holbrook	514	57.1	0.006?	0.023	06/26	0.021	10/10	0.069	10/04	0.059	06/26	0.133
Strongstown	515	99.5	0.008	0.049	12/18	0.032	01/24	0.176	12/18	0.112	03/17	0.222
Upper Beaver Valley Air Basin												
New Castle	B21	99.4	0.008	0.042	12/10	0.037	01/25	0.096	02/25	0.089	02/25	0.201
Erie Air Basin												
Erie	E10	99.3	0.011	0.051	03/23	0.041	01/05	0.080	04/11	0.071	01/05	0.097
Northwest Region Non-Air Basin												
Farrell	606	95.3	0.005	0.022	01/25	0.022	01/29	0.067	04/10	0.045	02/15	0.090
Warren	611	96.6	0.004	0.021	11/26	0.018	01/24	0.055	07/28	0.050	05/17	0.072
Warren	612	99.6	0.015	0.094	12/25	0.075	02/05	0.237	04/16	0.235	12/24	0.325

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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Southeast Pennsylvania Air Basin											
Bristol	0.007	0.007	0.008	0.005	0.007	0.006	0.008	0.008	0.004	0.006	Annual Mean
P01	0.028	0.029	0.024	0.020	0.027	0.029	0.028	0.029	0.023	0.023	2nd Max 24-Hour Mean
	0.048	0.043	0.043	0.035	0.044	0.041	0.041	0.042	0.035	0.034	2nd Max 3-Hour Mean
Chester	0.008	0.008	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.006	Annual Mean
P11	0.025	0.026	0.027	0.025	0.026	0.023	0.022	0.028	0.019	0.016	2nd Max 24-Hour Mean
	0.047	0.062	0.048	0.057	0.048	0.045	0.044	0.049	0.038	0.043	2nd Max 3-Hour Mean
Norristown	0.008	0.008	0.006	0.006	0.004	0.004	0.005	0.005	0.004	0.006	Annual Mean
P21	0.028	0.025	0.022	0.020	0.022	0.019	0.019	0.023	0.018	0.018	2nd Max 24-Hour Mean
	0.042	0.048	0.030	0.042	0.032	0.041	0.031	0.036	0.027	0.031	2nd Max 3-Hour Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown	0.006	0.008	0.008	0.006	0.007	0.007	0.008	0.009	0.007	0.008	Annual Mean
A19	0.035	0.030	0.030	0.030	0.027	0.028	0.028	0.038	0.045	0.032	2nd Max 24-Hour Mean
	0.051	0.058	0.047	0.058	0.053	0.044	0.041	0.058	0.068	0.072	2nd Max 3-Hour Mean
Easton	***	***	***	***	0.008	0.014	0.006	0.008	0.013	0.009	Annual Mean
A20	***	***	***	***	0.023	0.030	0.024	0.037	0.044	0.034	2nd Max 24-Hour Mean
	***	***	***	***	0.069	0.055	0.046	0.054	0.096	0.080	2nd Max 3-Hour Mean
Freemansburg	***	***	0.006	0.009	0.006	0.004	0.006	0.004	0.005	0.007	Annual Mean
A25	***	***	0.027	0.021	0.020	0.019	0.020	0.018	0.023	0.021	2nd Max 24-Hour Mean
	***	***	0.040	0.047	0.034	0.028	0.046	0.036	0.036	0.058	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	Annual Mean
211	***	0.035	0.026	0.038	0.025	0.035	0.026	0.023	0.027	0.027	2nd Max 24-Hour Mean
	***	0.064	0.059	0.074	0.053	0.052	0.140	0.045	0.058	0.044	2nd Max 3-Hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	0.007	0.006	0.005	0.005	0.004	0.005	0.004	0.005	0.005	0.005	Annual Mean
S01	0.033	0.031	0.026	0.021	0.021	0.026	0.023	0.020	0.016	0.025	2nd Max 24-Hour Mean
	0.043	0.049	0.044	0.033	0.038	0.044	0.036	0.034	0.030	0.035	2nd Max 3-Hour Mean
Wilkes-Barre	0.006	0.007	0.006	0.007	0.006	0.008	0.008	0.005	0.005	0.005	Annual Mean
S28	0.023	0.026	0.022	0.023	0.026	0.031	0.024	0.021	0.019	0.019	2nd Max 24-Hour Mean
	0.042	0.047	0.041	0.039	0.052	0.048	0.044	0.035	0.035	0.034	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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Reading Air Basin											
Reading	0.009	0.008	0.009	0.008	0.008	0.007	0.007	0.008	0.008	0.008	Annual Mean
R01	0.037	0.028	0.022	0.027	0.028	0.025	0.019	0.023	0.020	0.023	2nd Max 24-Hour Mean
	0.094	0.067	0.096	0.094	0.075	0.091	0.083	0.087	0.068	0.075	2nd Max 3-Hour Mean
Harrisburg Air Basin											
Harrisburg	0.007	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005	Annual Mean
H11	0.022	0.021	0.021	0.024	0.015	0.013	0.017	0.017	0.018	0.020	2nd Max 24-Hour Mean
	0.049	0.043	0.047	0.050	0.026	0.056	0.048	0.048	0.061	0.054	2nd Max 3-Hour Mean
Lancaster Air Basin											
Lancaster	0.005	0.007	0.006	0.005	0.005	0.004	0.005	0.005	0.005	0.006	Annual Mean
L01	0.021	0.023	0.020	0.021	0.024	0.018	0.014	0.018	0.017	0.022	2nd Max 24-Hour Mean
	0.035	0.050	0.047	0.045	0.048	0.036	0.034	0.032	0.049	0.050	2nd Max 3-Hour Mean
York Air Basin											
York	0.007	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.005	0.006	Annual Mean
Y01	0.022	0.026	0.023	0.019	0.020	0.019	0.014	0.012	0.020	0.030	2^{nd} Max 24-Hour Mean
	0.054	0.073	0.063	0.058	0.059	0.043	0.036	0.039	0.070	0.099	2^{nd} Max 3-Hour Mean
Southcentral Region Non-Air Basin											
Perry County	0.005	0.003	0.003	0.003	0.003	0.002	0.003	0.005	0.003	0.003	Annual Mean
305	0.020	0.021	0.012	0.012	0.015	0.010	0.008	0.017	0.013	0.010	2nd Max 24-Hour Mean
	0.039	0.032	0.028	0.034	0.034	0.036	0.026	0.033	0.030	0.028	2nd Max 3-Hour Mean
Altoona	0.008	0.010	0.008	0.007	0.006	0.009	0.007	0.007	0.006	0.007	Annual Mean
308	0.033	0.046	0.032	0.030	0.045	0.042	0.032	0.030	0.030	0.036	2nd Max 24-Hour Mean
	0.070	0.070	0.060	0.058	0.071	0.066	0.051	0.060	0.065	0.066	2nd Max 3-Hour Mean
Northcentral Non-Air Basin											
Montoursville	***	***	***	***	***	***	0.003	0.005	0.003	0.005	Annual Mean
410	***	***	***	***	***	***	0.015	0.017	0.015	0.018	2nd Max 24-Hour Mean
	***	***	***	***	***	***	0.027	0.070	0.032	0.044	2nd Max 3-Hour Mean
State College	***	***	***	***	***	***	0.004	0.006	0.004	0.005	Annual Mean
409	***	***	***	***	***	***	0.023	0.019	0.019	0.018	2nd Max 24-Hour Mean
	***	***	***	***	***	***	0.044	0.031	0.028	0.036	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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Johnstown Air Basin											
Johnstown	0.011	0.009	0.008	0.009	0.007	0.008	0.007	0.008	0.007	0.007	Annual Mean
J01	0.034	0.030	0.027	0.025	0.026	0.031	0.025	0.028	0.037	0.037	2nd Max 24-Hour Mean
	0.067	0.069	0.080	0.069	0.065	0.078	0.074	0.074	0.115	0.097	2nd Max 3-Hour Mean
Monongahela Valley Air Basin											
Charleroi	0.008	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.008	0.010	Annual Mean
M01	0.033	0.035	0.025	0.023	0.031	0.022	0.023	0.029	0.021	0.030	2nd Max 24-Hour Mean
	0.084	0.074	0.056	0.059	0.059	0107	0.070	0.079	0.051	0.064	2nd Max 3-Hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	0.007	0.009	0.006	0.009	0.007	0.008	0.007	0.007	0.007	0.007	Annual Mean
B11	0.038	0.034	0.035	0.028	0.036	0.032	0.030	0.031	0.026	0.032	2nd Max 24-Hour Mean
	0.078	0.081	0.079	0.070	0.070	0.076	0.064	0.082	0.064	0.065	2nd Max 3-Hour Mean
Hookstown	0.011	0.011	0.013	0.010	0.011	0.011	0.010	0.010	0.009	0.009	Annual Mean
B23	0.038	0.049	0.046	0.044	0.039	0.037	0.038	0.045	0.048	0.034	2nd Max 24-Hour Mean
	0.105	0.163	0.129	0.145	0.126	0.108	0.115	0.118	0.126	0.096	2nd Max 3-Hour Mean
Brighton Twp.	0.015	0.015	0.016	0.015	0.012	0.014	0.014	0.011	0.012	0.013	Annual Mean
B27	0.058	0.078	0.094	0.070	0.086	0.072	0.075	0.083	0.046	0.050	2nd Max 24-Hour Mean
	0.207	0.251	0.207	0.215	0.247	0.249	0.319	0.174	0.150	0.202	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	Annual Mean
	***	***	0.014	0.019	0.037	0.033	0.024	0.028	0.024	0.022	2nd Max 24-Hour Mean
	***	***	0.047	0.042	0.078	0.077	0.075	0.066	0.057	0.061	2nd Max 3-Hour Mean
Southwest Region Non-Air Basin											
Florence	0.010	0.012	0.013	0.010	0.009	0.009	0.010	0.010	0.009	0.010	Annual Mean
504	0.035	0.050	0.043	0.036	0.031	0.039	0.037	0.033	0.034	0.047	2nd Max 24-Hour Mean
	0.086	0.127	0.102	0.099	0.100	0.102	0.092	0.100	0.081	0.080	2nd Max 3-Hour Mean
Washington	0.008	0.010	0.010	0.009	0.009	0.010	0.009	0.009	0.009	0.009	Annual Mean
508	0.030	0.047	0.040	0.030	0.027	0.038	0.032	0.028	0.026	0.027	2nd Max 24-Hour Mean
	0.094	0.086	0.072	0.062	0.059	0.069	0.080	0.078	0.067	0.078	2nd Max 3-Hour Mean
Greensburg	***	***	0.008	0.011	0.010	0.009	0.006	0.008	0.006	0.006	Annual Mean
513	***	***	0.039	0.037	0.029	0.027	0.024	0.029	0.023	0.030	2nd Max 24-Hour Mean
	***	***	0.065	0.100	0.071	0.053	0.048	0.070	0.058	0.083	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	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Holbrook	***	0.007?	0.010?	0.009?	0.007?	0.006?	0.007?	0.006?	0.006?	0.006?	Annual Mean
514	***	0.020	0.021	0.022	0.022	0.023	0.022	0.029	0.028	0.021	2nd Max 24-Hour Mean
	***	0.045	0.038	0.050	0.062	0.070	0.055	0.077	0.062	0.059	2nd Max 3-Hour Mean
Strongstown	***	***	***	***	***	***	***	***	***	0.008	Annual Mean
515	***	***	***	***	***	***	***	***	***	0.032	2nd Max 24-Hour Mean
	***	***	***	***	***	***	***	***	***	0.112	2nd Max 3-Hour Mean
Upper Beaver Valley Air Basin											
New Castle	0.008	0.008	0.009	0.008	0.008	0.011	0.007	0.009	0.007	0.008	Annual Mean
B21	0.034	0.033	0.032	0.035	0.031	0.041	0.033	0.028	0.035	0.037	2nd Max 24-Hour Mean
	0.063	0.114	0.117	0.086	0.079	0.120	0.082	0.076	0.072	0.089	2nd Max 3-Hour Mean
Erie Air Basin											
Erie	0.011?	0.009	0.010	0.010	0.008	0.010	0.011	0.011	0.008	0.011	Annual Mean
E10	0.066	0.035	0.068	0.043	0.041	0.043	0.037	0.038	0.029	0.041	2nd Max 24-Hour Mean
	0.173	0.096	0.152	0.152	0.076	0.098	0.070	0.078	0.077	0.071	2nd Max 3-Hour Mean
Northwest Region Non-Air Basin											
Farrell	0.007	0.007	0.007	0.007?	0.007	0.007	0.006	0.006	0.006	0.005	Annual Mean
606	0.029	0.032	0.029	0.039	0.024	0.033	0.024	0.025	0.019	0.022	2nd Max 24-Hour Mean
	0.059	0.073	0.063	0.060	0.052	0.071	0.067	0.067	0.044	0.045	2nd Max 3-Hour Mean
Warren	0.008	0.009	0.008	0.008	0.006	0.007	0.006	0.006	0.004	0.004	Annual Mean
611	0.028	0.038	0.028	0.031	0.024	0.027	0.023	0.028	0.019	0.018	2nd Max 24-Hour Mean
	0.096	0.082	0.103	0.072	0.070	0.075	0.066	0.067	0.037	0.050	2nd Max 3-Hour Mean
Warren	***	0.015	0.016	0.015	0.013	0.016	0.014	0.014	0.010	0.015	Annual Mean
612	***	0.069	0.098	0.094	0.092	0.087	0.100	0.103	0.061	0.075	2nd Max 24-Hour Mean
	***	0.330	0.252	0.227	0.214	0.209	0.273	0.249	0.212	0.235	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: 2005 (April – October)

Site Name	PA Site Code	Number of Valid Days	Percent Valid Data	Number Days >= 0.125	1st Daily Max 1 HR Mean	1st Daily Max Date MM/DD	2nd Daily Max 1 HR Mean	2nd Daily Max Date MM/DD	3nd Daily Max 1 HR Mean	3nd Daily Max Date MM/DD	4th Daily Max 1 HR Mean	4th Daily Max Date MM/DD
Southeast Pennsylvania Air Basin												
Bristol	P01	212	99.1	1	.127	08/13	.121	09/13	.106	06/25	.105	08/05
Chester	P11	201	93.6	1	.128	07/12	.119	09/13	.109	08/13	.098	09/08
Norristown	P21	214	99.5	0	.114	06/26	.107	06/08	.105	09/13	.104	08/13
New Garden (Toughkenamon)	P30	211	98.3	1	.130	08/12	.109	06/21	.109	08/04	.108	07/04
Allentown-Bethlehem-Easton Air Basin												
Allentown	A19	213	99.7	0	.107	08/12	.101	06/25	.101	09/13	.096	06/26
Easton	A20	214	99.6	0	.099	09/13	.096	08/12	.092	07/12	.091	06/25
Freemansburg	A25	211	99.2	0	.102	09/13	.100	06/26	.099	08/12	.097	06/25
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	212	99.3	0	.096	06/25	.096	10/03	.095	09/07	.092	06/27
Nanticoke	S26	213	99.2	0	.091	06/25	.090	06/24	.087	10/03	.084	09/13
Wilkes-Barre	S28	211	98.8	0	.097	06/25	.095	06/26	.094	09/07	.092	06/27
Peckville	S29	212	99.5	0	.093	06/24	.093	09/07	.093	10/03	.092	06/25
Reading Air Basin												
Reading	R01	214	99.2	0	.103	08/12	.099	06/25	.099	09/13	.098	06/24
Harrisburg Air Basin												
Harrisburg	H11	210	98.5	0	.109	06/25	.106	06/26	.096	06/08	.096	09/13
Lancaster Air Basin												
Lancaster	L01	213	99.1	0	.109	08/13	.105	06/25	.102	08/04	.099	06/24
York Air Basin												
York	Y01	210	99.0	0	.110	06/08	.101	09/13	.100	06/24	.098	07/04
Southcentral Region Non-Air Basin												
Perry County	305	205	96.1	0	.103	06/26	.099	06/08	.099	06/24	.099	09/13
Hershey	306	213	99.5	0	.105	06/26	.099	09/13	.098	06/25	.096	08/13
Methodist Hill	313	209	97.5	0	.085	06/26	.082	09/13	.080	04/19	.080	08/04
Biglerville	D14	212	96.3	0	.096	06/26	.091	10/03	.089	06/08	.089	08/04
Altoona	308	213	99.4	0	.093	09/12	.090	06/25	.089	08/04	.087	08/12

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: 2005 (April – October)

Site Name	PA Site Code	Number of Valid Days	Percent Valid Data	Number Days >= 0.125	1st Daily Max 1 HR Mean	1st Daily Max Date MM/DD	2nd Daily Max 1 HR Mean	2nd Daily Max Date MM/DD	3nd Daily Max 1 HR Mean	3nd Daily Max Date MM/DD	4th Daily Max 1 HR Mean	4th Daily Max Date MM/DD
Northcentral Region Non-Air Basin												
Montoursville	410	214	99.7	0	.099	08/13	.099	10/03	.096	09/13	.095	06/25
State College	409	201	93.8	0	.098	06/25	.091	07/13	.091	08/12	.091	08/13
Moshannon (Elliott State Park)	D09	207	96.2	0	.098	06/27	.096	06/24	.094	06/25	.093	08/04
Tioga County	D13	211	97.2	0	.091	06/24	.086	06/25	.086	08/04	.086	10/03
Johnstown Air Basin												
Johnstown	J01	214	99.4	0	.094	06/25	.094	07/20	.090	08/03	.090	08/04
Monongahela Valley Air Basin												
Charleroi	M01	212	99.6	0	.099	06/24	.098	06/26	.095	07/31	.095	08/04
Lower Beaver Valley Air Basin												
Beaver Falls	B11	214	99.6	0	.112	06/27	.099	07/11	.094	06/24	.094	07/12
Hookstown	B23	213	99.3	0	.115	06/27	.106	06/26	.097	07/11	.096	08/03
Brighton Township	B27	213	99.2	0	.107	06/27	.095	07/11	.094	06/26	.093	06/24
Allegheny County Air Basin												
Pittsburgh	D12	213	99.7	0	.119	07/11	.105	06/24	.103	08/07	.101	06/26
Southwest Region Non-Air Basin												
Florence	504	211	98.6	0	.109	06/26	.101	06/27	.096	07/11	.095	06/24
Washington	508	214	99.7	0	.101	08/04	.096	06/24	.096	06/26	.094	06/25
Murrysville	510	211	97.9	0	.107	06/25	.102	06/24	.102	06/26	.100	08/03
Kittanning	512	214	99.7	0	.123	06/24	.104	06/25	.101	06/28	.097	09/14
Greensburg	513	213	99.3	0	.101	08/01	.098	06/26	.097	06/24	.093	08/03
Holbrook	514	208	97.3	0	.115	06/26	.103	06/27	.098	08/03	.093	06/25
Strongstown	515	213	99.5	0	.106	06/25	.097	08/04	.095	06/24	.094	09/13
Upper Beaver Valley Air Basin												
New Castle	B21	212	99.2	0	.097	07/12	.094	06/27	.094	08/03	.085	06/29
Erie Air Basin												
Erie	E10	209	97.8	0	.109	06/25	.104	06/27	.100	06/24	.099	06/07
Northwest Region Non-Air Basin												
Farrell	606	208	96.7	0	.107	06/25	.104	06/27	.099	07/20	.097	09/12

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: 2005 (April – October)

Site Name	PA Site Code	Number of Valid Days	Percent Data Complete	Days > 0.84	1st Daily Max 8 HR Mean	1st Daily Max Date MM/DD	2nd Daily Max 8 HR Mean	2nd Daily Max Date MM/DD	3nd Daily Max 8 HR Mean	3nd Daily Max Date MM/DD	4th Daily Max 8 HR Mean	4th Daily Max Date MM/DD
Southeast Pennsylvania Air Basin												
Bristol	P01	212	99.2	7	.098	09/13	.093	08/13	.091	06/25	.089	07/21
Chester	P11	199	93.3	4	.090	09/08	.090	09/13	.089	07/12	.087	06/21
Norristown	P21	213	99.6	8	.093	09/08	.092	09/13	.090	06/26	.090	07/21
New Garden (Toughkenamon)	P30	208	98.1	8	.103	08/12	.093	06/21	.093	09/13	.092	06/08
Allentown-Bethlehem-Easton Air Basin												
Allentown	A19	213	99.8	6	.092	08/12	.091	06/25	.089	09/13	.086	06/26
Easton	A20	214	99.7	1	.087	06/25	.083	06/26	.083	08/12	.080	06/08
Freemansburg	A25	210	99.2	5	.089	06/25	.088	06/26	.087	08/12	.086	07/21
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	212	99.1	1	.089	06/25	.083	06/24	.081	10/03	.080	04/20
Nanticoke	S26	212	99.0	0	.083	06/25	.078	06/24	.075	09/13	.074	04/20
Wilkes-Barre	S28	209	98.7	1	.090	06/25	.083	04/20	.083	06/24	.081	06/26
Peckville	S29	212	99.4	2	.089	06/25	.086	06/24	.084	10/03	.080	08/12
Reading Air Basin												
Reading	R01	213	99.5	4	.093	06/25	.091	06/24	.086	08/12	.085	06/26
Harrisburg Air Basin												
Harrisburg	H11	209	98.4	3	.095	06/25	.094	06/26	.086	06/08	.084	09/13
Lancaster Air Basin												
Lancaster	L01	213	99.6	6	.096	08/13	.090	06/24	.090	08/04	.085	06/25
York Air Basin												
York	Y01	209	98.9	6	.097	06/08	.093	09/13	.090	06/26	.089	06/25
Southcentral Region Non-Air Basin												
Perry County	305	202	96.0	1	.088	06/24	.084	04/20	.082	04/19	.082	09/13
Hershey	306	213	99.6	4	.090	06/26	.089	06/08	.088	09/13	.085	10/03
Methodist Hill	313	201	96.9	0	.076	06/26	.075	04/19	.074	04/20	.074	08/04
Biglerville	D14	207	96.7	1	.090	06/26	.083	10/03	.082	06/08	.080	04/20
Altoona	308	213	99.7	1	.085	06/25	.081	06/24	.080	08/04	.077	09/12

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: 2005 (April – October)

Site Name	PA Site Code	Number of Valid Days	Percent Data Complete	Days > 0.84	1st Daily Max 8 HR Mean	1st Daily Max Date MM/DD	2nd Daily Max 8 HR Mean	2nd Daily Max Date MM/DD	3nd Daily Max 8 HR Mean	3nd Daily Max Date MM/DD	4th Daily Max 8 HR Mean	4th Daily Max Date MM/DD
Northcentral Region Non-Air Basin												
Montoursville	410	214	99.8	3	.088	06/25	.087	08/04	.085	08/13	.082	07/31
State College	409	199	93.7	1	.090	06/25	.083	06/24	.083	08/04	.083	08/13
Moshannon (Elliott State Park)	D09	206	96.7	4	.090	06/27	.088	06/24	.086	06/25	.086	08/04
Tioga County	D13	208	98.3	0	.083	06/24	.081	10/03	.080	08/04	.080	09/13
Johnstown Air Basin												
Johnstown	J01	214	99.7	1	.086	06/25	.081	08/04	.079	08/03	.077	06/24
Monongahela Valley Air Basin												
Charleroi	M01	212	99.7	2	.089	06/26	.085	06/24	.083	08/04	.080	06/25
Lower Beaver Valley Air Basin												
Beaver Falls	B11	214	99.7	2	.103	06/27	.086	06/24	.084	07/11	.080	08/02
Hookstown	B23	212	99.6	5	.100	06/26	.100	06/27	.089	07/11	.086	06/24
Brighton Township	B27	212	98.9	4	.097	06/27	.088	06/26	.086	06/24	.086	07/11
Allegheny County Air Basin												
Pittsburgh	D12	213	99.6	4	.098	07/11	.096	06/24	.092	06/25	.092	06/26
Southwest Region Non-Air Basin												
Florence	504	210	98.6	4	.092	06/26	.091	06/24	.089	06/27	.085	06/25
Washington	508	214	99.8	4	.088	06/25	.088	08/04	.086	06/26	.085	08/03
Murrysville	510	208	98.1	4	.097	06/25	.090	08/03	.089	06/26	.087	06/24
Kittanning	512	214	99.9	4	.109	06/24	.094	06/25	.088	08/04	.086	06/28
Greensburg	513	213	99.6	2	.089	06/24	.089	08/01	.084	08/03	.083	06/25
Holbrook	514	205	97.2	5	.094	06/26	.087	06/27	.085	04/19	.085	08/01
Strongstown	515	213	99.8	5	.094	06/25	.091	06/24	.091	08/04	.088	09/13
Upper Beaver Valley Air Basin												
New Castle	B21	212	99.2	1	.087	06/27	.082	07/12	.082	08/03	.075	07/20
Erie Air Basin												
Erie	E10	207	97.6	4	.103	06/25	.096	06/27	.090	06/24	.086	06/21
Northwest Region Non-Air Basin												
Farrell	606	206	96.7	4	.096	06/27	.090	06/25	.090	09/12	.087	06/24

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

Table A-14. Ozone 1-Hour Exceedance Days in Pennsylvania – 2005

Date of Occurrence	Monitoring Site	County	Daily 1-Hour Concentration (ppb*)
July 12,2005	Chester	Delaware	128
August 12,2005	New Garden (Toughkenamon)	Chester	130
August 13,2005	Bristol	Bucks	127

- Former 1-Hour Ozone National Ambient Air Quality Standard is 0.12 ppm or 125 ppb

Table A-15. One-Hour Ozone Exceedances and Maximums Summary (2003 – 2005)
(Units: parts per billion)

Station	Design Value	2003 Days > 124	2003 Daily Maximums 1st 1-Hr	2nd 1-Hr	3rd 1-Hr	4th 1-Hr	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
Bristol	121	0	121	121	119	103	0	99	98	95	93	1	127	121	106	105
Chester	118	0	119	118	99	96	0	109	109	93	92	1	128	119	109	98
Norristown	107	0	114	111	100	99	0	95	94	94	91	0	114	107	105	104
New Garden (Airport)	113	0	120	115	100	99	0	113	102	97	96	1	130	109	109	108
Northwest (Rox)	108	0	111	108	102	91	0	98	92	91	91	0	118	115	106	101
Northeast (Airport)	110	0	110	105	101	100	0	110	108	107	105	2	130	128	110	109
Southwest (Elm)	90	0	107	97	86	85	0	96	88	86	81	0	90	77	76	75
Frankford (Lab)	95	0	99	95	94	81	0	77	73	73	69	0	108	96	85	80
Allentown	103	0	112	109	97	94	0	103	101	100	100	0	107	101	101	96
Freemansburg	106	0	114	112	106	99	0	118	104	102	97	0	102	100	99	97
Easton	105	0	108	107	105	95	0	111	104	95	94	0	99	96	92	91
Reading	99	1	125	94	91	88	0	98	89	87	85	0	103	99	99	98
Scranton	96	0	101	99	88	86	0	92	88	85	79	0	96	96	95	92
Peckville	93	0	100	97	91	83	0	88	85	83	79	0	93	93	93	92
Nanticoke	91	0	100	97	96	91	0	81	79	78	77	0	91	90	87	84
Wilkes-Barre	95	0	102	98	89	86	0	90	88	84	82	0	97	95	94	92
Harrisburg	98	0	109	89	88	84	0	98	92	90	88	0	109	106	96	96
Hershey	99	0	122	99	91	90	0	94	84	84	84	0	105	99	98	96
Perry County	99	0	97	95	94	92	0	88	81	80	78	0	103	99	99	99
Lancaster	107	1	135	115	94	93	0	107	97	96	94	0	109	105	102	99
York	101	0	115	114	101	93	0	100	91	91	90	0	110	101	100	98
Biglerville (PSU)	91	0	103	102	81	81	0	91	79	79	78	0	96	91	89	89
Methodist Hill	85	0	110	101	85	85	0	78	78	78	77	0	85	82	80	80
Montoursville	99	0	112	102	95	95	0	98	91	86	85	0	99	99	96	95
Tiadaghton (PSU)		0	98	94	90	83	0	81	80	80	79					
Tioga County (PSU)	91	0	111	102	94	86	0	88	85	84	84	0	91	86	86	86
State College (PSU)	96	0	105	100	96	88	0	83	81	80	79	0	98	91	91	91
Penn Nursery (PSU)		0	111	109	99	97	0	81	78	75	74					
Altoona	92	1	127	104	92	91	0	83	83	81	80	0	93	90	89	87
Johnstown	94	0	113	98	93	89	0	82	81	80	79	0	94	94	90	90
Moshannon (PSU)	97	0	107	103	97	91	0	83	82	81	79	0	98	96	94	93
Strongstown												0	106	97	95	94
Greensburg	101	1	126	115	110	100	0	100	94	91	85	0	101	98	97	93
Murrysville	102	1	125	100	95	94	0	96	92	82	80	0	107	102	102	100
Kittanning	104	0	120	109	103	93	0	96	93	93	91	0	123	104	101	97
Brighton Twp	100	1	126	107	100	94	0	94	85	85	83	0	107	95	94	93
Beaver Falls	100	1	133	107	100	89	0	86	85	83	79	0	112	99	94	94
Hookstown	111	1	125	111	111	96	0	94	90	89	87	0	115	106	97	96
Florence	101	1	133	107	98	91	0	87	83	83	82	0	109	101	96	95
Charleroi	101	1	135	124	110	101	0	89	85	82	81	0	99	98	95	95
Washington	101	0	122	118	102	95	0	94	86	81	79	0	101	96	96	94
Holbrook	103	0	117	106	91	86	0	89	82	81	80	0	115	103	98	93
Pittsburgh (Carnegie SC)	105	1	135	110	105	101	0	95	94	85	80	0	119	105	103	101
Harrison Twp	106	0	122	114	91	89	0	94	91	88	87	0	121	106	103	101
Lawrenceville	102	1	130	109	104	102	0	89	86	83	81	0	97	94	92	90
South Fayette	107	1	132	112	109	103	0	102	93	82	80	0	107	106	105	95
New Castle	97	1	131	106	97	88	0	85	83	81	77	0	97	94	94	85
Farrell	107	0	120	116	109	96	0	91	88	87	82	0	107	104	99	97
Erie	105	0	116	108	105	99	0	91	89	87	84	0	109	104	100	99

Table A-16. Eight-Hour Ozone Days Greater Than 84 ppb and Maximums Summary (2003 – 2005)
(Units: parts per billion)

Station	Design Value	2003 Days > 84	2003 Daily Maximums 1st 8-Hr	2nd 8-Hr	3rd 8-Hr	4th 8-Hr	2004 Days > 84	2004 Daily Maximums 1st 8-Hr	2nd 8-Hr	3rd 8-Hr	4th 8-Hr	2005 Days > 84	2005 Daily Maximums 1st 8-Hr	2nd 8-Hr	3rd 8-Hr	4th 8-Hr
Bristol	86	9	110	109	97	87	2	88	88	84	82	7	98	93	91	89
Chester	82	3	108	106	89	80	2	90	87	84	81	4	90	90	89	87
Norristown	86	4	107	103	90	85	1	85	84	84	83	8	93	92	90	90
New Garden (Airport)	87	4	112	112	88	85	5	95	88	87	85	8	103	93	93	92
Northwest (Rox)	81	2	102	101	84	84	0	83	83	78	77	3	95	89	86	83
Northeast (Airport)	90	4	104	96	87	86	6	94	92	91	91	8	104	100	95	94
Southwest (Elm)	71	2	98	92	75	74	0	80	79	79	73	0	78	72	69	68
Frankford (Lab)	64	2	92	85	77	69	0	64	62	59	57	0	81	74	72	66
Allentown	85	4	107	102	89	87	3	95	91	89	83	6	92	91	89	86
Freemansburg	87	4	108	106	89	87	6	105	90	88	88	5	89	88	87	86
Easton	82	3	100	99	86	83	1	101	84	84	83	1	87	83	83	80
Reading	80	3	106	91	85	80	1	86	80	79	76	4	93	91	86	85
Scranton	76	2	94	88	76	75	0	80	80	77	73	1	89	83	81	80
Peckville	75	2	93	88	79	75	0	79	78	77	71	2	89	86	84	80
Nanticoke	73	3	90	88	85	77	0	73	73	72	68	0	83	78	75	74
Wilkes-Barre	77	2	94	93	80	78	0	81	77	74	73	1	90	83	83	81
Harrisburg	78	2	96	86	80	74	1	85	79	78	76	3	95	94	86	84
Hershey	78	2	108	93	82	79	0	84	74	73	72	4	90	89	88	85
Perry County	78	3	92	88	86	84	0	73	72	70	69	1	88	84	82	82
Lancaster	83	3	121	109	88	83	1	98	84	83	81	6	96	90	90	85
York	82	3	107	104	91	81	1	86	78	77	77	6	97	93	90	89
Methodist Hill	75	3	95	90	85	80	0	76	72	72	71	0	76	75	74	74
Biglerville (PSU)	76	2	99	98	78	76	0	74	73	73	72	1	90	83	82	80
Montoursville	79	3	100	90	87	83	0	83	80	80	74	3	88	87	85	82
Tiadaghton (PSU)		2	91	87	81	76	0	77	77	75	73					
Tioga County (PSU)	81	3	99	94	85	84	0	81	80	79	79	0	83	81	80	80
State College (PSU)	79	3	99	96	89	82	0	79	76	74	74	1	90	83	83	83
Penn Nursery (PSU)		4	107	106	93	93	0	75	70	70	69					
Altoona	77	3	104	96	87	83	0	75	75	74	73	1	85	81	80	77
Johnstown	77	2	101	90	84	83	0	77	73	72	71	1	86	81	79	77
Moshannon (PSU)	82	4	102	97	87	87	0	79	74	74	74	4	90	88	86	86
Strongstown												5	94	91	91	88
Greensburg	82	4	110	102	92	91	0	84	80	76	73	2	89	89	84	83
Murrysville	80	2	110	90	84	83	0	75	71	70	70	4	97	90	89	87
Kittanning	84	5	113	103	87	86	1	85	84	83	82	4	109	94	88	86
Brighton Twp	81	3	120	100	94	83	0	81	79	78	74	4	97	88	86	86
Beaver Falls	75	3	121	92	92	78	0	72	71	69	69	2	103	86	84	80
Hookstown	84	6	121	106	100	87	0	84	82	81	81	5	100	100	89	86
Florence	78	3	121	98	91	78	0	76	76	74	73	4	92	91	89	85
Charleroi	80	4	107	101	90	88	0	80	77	75	72	2	89	85	83	80
Washington	81	5	114	104	90	88	0	81	76	72	71	4	88	88	86	85
Holbrook	81	3	105	100	87	83	0	82	76	75	75	5	94	87	85	85
Pittsburgh (Carnegie SC)	84	5	122	103	90	88	0	84	80	73	72	4	98	96	92	92
Harrison Twp	81	2	111	107	83	81	0	81	79	78	76	6	107	98	88	87
Lawrenceville	81	5	122	105	92	90	0	77	74	73	72	1	85	82	81	81
South Fayette	82	4	121	105	94	89	1	89	80	75	74	4	103	95	94	85
New Castle	73	2	122	85	83	77	0	78	73	70	68	1	87	82	82	75
Farrell	83	6	112	105	90	87	1	86	82	76	76	4	96	90	90	87
Erie	83	4	109	103	100	91	0	83	79	76	74	4	103	96	90	86

This page intentionally left blank.

Appendix A: Table A-17

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Southeast Pennsylvania Air Basin											
Bristol	0.120	0.119	0.115	0.145	0.121	0.131	0.135	0.121	0.098	0.121	2nd Max Daily 1 Hour Average
P01	1	1	0	6	1	2	4	0	0	1	Number Days 1-Hr > 0.124 ppm
	0.093	0.102	0.096	0.112	0.099	0.104	0.111	0.087	0.082	0.089	4th Max Daily 8 Hour Average
	10	14	17	24	14	16	17	9	2	7	Number Days 8-Hr > 0.084 ppm
Chester	0.117	0.127	0.125	0.130	0.117	0.108	0.125	0.118	0.109	0.119	2nd Max Daily 1 Hour Average
P11	0	3	2	3	0	1	2	0	0	1	Number Days 1-Hr > 0.124 ppm
	0.091	0.101	0.099	0.100	0.091	0.093	0.103	0.080	0.081	0.087	4th Max Daily 8 Hour Average
	7	19	17	19	7	12	16	3	2	4	Number Days 8-Hr > 0.084 ppm
Norristown	0.118	0.131	0.126	0.126	0.125	0.120	0.122	0.111	0.094	0.107	2nd Max Daily 1 Hour Average
P21	0	2	2	2	2	1	1	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.090	0.107	0.103	0.104	0.100	0.096	0.096	0.085	0.083	0.090	4th Max Daily 8 Hour Average
	8	19	17	20	11	18	12	4	1	8	Number Days 8-Hr > 0.084 ppm
New Garden	***	***	***	***	0.095	0.122	0.139	0.115	0.102	0.109	2nd Max Daily 1 Hour Average
P30	***	***	***	***	0	0	2	0	0	1	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	0.077	0.105	0.104	0.085	0.085	0.092	4th Max Daily 8 Hour Average
	***	***	***	***	1	17	23	4	5	8	Number Days 8-Hr > 0.084 ppm
West Chester	***	***	***	***	***	0.117	0.113	0.110	***	***	2nd Max Daily 1 Hour Average
P32	***	***	***	***	***	0	1	0	***	***	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	0.103	0.097	0.085	***	***	4th Max Daily 8 Hour Average
	***	***	***	***	***	20	19	4	***	***	Number Days 8-Hr > 0.084 ppm
Allentown-Bethlehem-Easton Air Basin											
Allentown	0.114	0.116	0.106	0.125	0.112	0.126	0.114	0.109	0.101	0.101	2nd Max Daily 1 Hour Average
A19	0	1	0	2	0	2	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.094	0.101	0.095	0.105	0.091	0.094	0.094	0.087	0.083	0.086	4th Max Daily 8 Hour Average
	6	12	18	19	5	9	16	4	3	6	Number Days 8-Hr > 0.084 ppm
Easton	***	***	***	***	0.100	0.113	0.113	0.107	0.104	0.096	2nd Max Daily 1 Hour Average
A20	***	***	***	***	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	0.083	0.092	0.092	0.083	0.083	0.080	4th Max Daily 8 Hour Average
	***	***	***	***	2	11	13	3	1	1	Number Days 8-Hr > 0.084 ppm
Freemansburg	***	***	0.104	0.126	0.114	0.113	0.112	0.112	0.104	0.100	2nd Max Daily 1 Hour Average
A25	***	***	0	2	1	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	0.087	0.107	0.092	0.094	0.090	0.087	0.088	0.086	4th Max Daily 8 Hour Average
	***	***	5	22	6	14	12	4	6	5	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

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Scranton-Wilkes-Barre Air Basin											
Scranton	0.108	0.095	0.108	0.107	0.082	0.097	0.122	0.099	0.088	0.096	2nd Max Daily 1 Hour Average
S01	0	0	0	0	0	0	1	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.083	0.085	0.088	0.093	0.073	0.088	0.089	0.075	0.073	0.080	4th Max Daily 8 Hour Average
	3	4	5	11	1	5	8	2	0	1	Number Days 8-Hr > 0.084 ppm
Nanticoke	0.087	0.091	0.098	0.102	0.093	0.104	0.112	0.097	0.079	0.090	2nd Max Daily 1 Hour Average
S26	0	0	0	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.075	0.079	0.081	0.086	0.076	0.086	0.089	0.077	0.068	0.074	4th Max Daily 8 Hour Average
	0	0	2	4	1	5	6	3	0	0	Number Days 8-Hr > 0.084 ppm
Wiilkes-Barre	0.105	0.111	0.102	0.111	0.086	0.100	0.119	0.098	0.088	0.095	2nd Max Daily 1 Hour Average
S28	0	0	0	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.085	0.096	0.088	0.093	0.073	0.088	0.092	0.087	0.073	0.081	4th Max Daily 8 Hour Average
	4	8	7	9	1	7	7	2	0	1	Number Days 8-Hr > 0.084 ppm
Peckville	0.113	0.106	0.105	0.115	0.090	0.099	0.122	0.097	0.085	0.093	2nd Max Daily 1 Hour Average
S29	0	0	0	0	0	0	1	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.082	0.087	0.089	0.096	0.077	0.086	0.094	0.075	0.071	0.080	4th Max Daily 8 Hour Average
	3	6	5	11	1	5	14	2	0	2	Number Days 8-Hr > 0.084 ppm
Reading Air Basin											
Reading	0.110	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	0	1	0	1	0	2	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.088	0.095	0.092	0.102	0.084	0.099	0.095	0.080	0.076	0.085	4th Max Daily 8 Hour Average
	4	10	16	14	3	8	13	3	1	4	Number Days 8-Hr > 0.084 ppm
Harrisburg Air Basin											
Harrisburg	0.096	0.112	0.116	0.114	0.101	0.099	0.126	0.089	0.092	0.106	2nd Max Daily 1 Hour Average
H11	0	0	0	0	0	0	2	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.078	0.084	0.097	0.095	0.079	0.086	0.098	0.074	0.076	0.084	4th Max Daily 8 Hour Average
	3	3	22	15	3	7	11	2	1	3	Number Days 8-Hr > 0.084 ppm
Lancaster Air Basin											
Lancaster	0.101	0.133	0.119	0.127	0.107	0.127	0.115	0.115	0.097	0.105	2nd Max Daily 1 Hour Average
L01	0	3	0	2	0	2	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.085	0.102	0.101	0.102	0.090	0.097	0.096	0.083	0.081	0.085	4th Max Daily 8 Hour Average
	4	21	27	18	5	15	18	3	1	6	Number Days 8-Hr > 0.084 ppm
York Air Basin											
York	0.098	0.109	0.112	0.121	0.112	0.104	0.124	0.114	0.091	0.101	2nd Max Daily 1 Hour Average
Y01	0	0	0	1	0	0	1	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.081	0.094	0.095	0.094	0.090	0.087	0.101	0.081	0.077	0.089	4th Max Daily 8 Hour Average
	3	13	18	10	6	8	12	3	1	6	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

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Southcentral Region Non-Air Basin											
Perry County	0.090	0.103	0.110	0.106	0.099	0.102	0.110	0.095	0.081	0.099	2nd Max Daily 1 Hour Average
305	0	0	0	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.077	0.090	0.092	0.090	0.073	0.089	0.088	0.084	0.069	0.082	4th Max Daily 8 Hour Average
	1	7	8	13	2	10	7	3	0	1	Number Days 8-Hr > 0.084 ppm
Hershey	0.104	0.116	0.111	0.126	0.110	0.105	0.132	0.099	0.084	0.099	2nd Max Daily 1 Hour Average
306	0	0	0	2	0	0	2	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.084	0.092	0.088	0.104	0.088	0.091	0.094	0.079	0.072	0.085	4th Max Daily 8 Hour Average
	3	9	9	15	5	12	13	2	0	4	Number Days 8-Hr > 0.084 ppm
Kutztown	0.100	0.109	0.104	0.128	0.101	0.119	0.106	0.084	***	***	2nd Max Daily 1 Hour Average
310	0	0	0	2	0	0	0	0	***	***	Number Days 1-Hr > 0.124 ppm
	0.083	0.089	0.090	0.099	0.075	0.091	0.091	0.072	***	***	4th Max Daily 8 Hour Average
	2	6	14	12	2	7	11	1	***	***	Number Days 8-Hr > 0.084 ppm
Methodist Hill	0.096	0.114	0.120	0.115	0.100	0.104	0.115	0.085	0.078	0.082	2nd Max Daily 1 Hour Average
313	0	0	0	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.082	0.091	0.104	0.098	0.085	0.095	0.104	0.080	0.071	0.074	4th Max Daily 8 Hour Average
	3	7	22	20	4	15	27	3	0	0	Number Days 8-Hr > 0.084 ppm
Biglerville	***	***	***	***	***	0.096	0.104	0.102	0.079	0.091	2nd Max Daily 1 Hour Average
D14	***	***	***	***	***	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	0.088	0.093	0.076	0.072	0.080	4th Max Daily 8 Hour Average
	***	***	***	***	***	7	7	2	0	1	Number Days 8-Hr > 0.084 ppm
Altoona	0.101	0.114	0.114	0.111	0.104	0.107	0.102	0.104	0.083	0.090	2nd Max Daily 1 Hour Average
308	0	0	0	0	0	0	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.083	0.096	0.098	0.091	0.080	0.083	0.089	0.083	0.073	0.077	4th Max Daily 8 Hour Average
	2	7	17	6	2	3	9	3	0	1	Number Days 8-Hr > 0.084 ppm
Northcentral Region Non-Air Basin											
Montoursville	***	***	***	***	***	***	0.112	0.102	0.091	0.099	2nd Max Daily 1 Hour Average
410	***	***	***	***	***	***	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	***	0.091	0.083	0.074	0.082	4th Max Daily 8 Hour Average
	***	***	***	***	***	***	7	3	0	3	Number Days 8-Hr > 0.084 ppm
State College	***	***	***	***	0.102	0.101	0.108	0.100	0.081	0.091	2nd Max Daily 1 Hour Average
409	***	***	***	***	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	0.079	0.086	0.090	0.082	0.074	0.083	4th Max Daily 8 Hour Average
	***	***	***	***	2	5	8	3	0	1	Number Days 8-Hr > 0.084 ppm
Moshannon (Elliott State Park)	0.079?	0.117	0.116	0.092	0.105	0.102	0.106	0.103	0.082	0.096	2nd Max Daily 1 Hour Average
D09	0	0	1	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.070?	0.098	0.101	0.081	0.079	0.089	0.095	0.087	0.074	0.086	4th Max Daily 8 Hour Average
	0	12	16	1	2	8	13	4	0	4	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

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
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-Hr > 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-Hr > 0.084 ppm
Penn Nursery	0.102?	0.124	0.113	0.099	0.109	0.091	0.113	0.109	0.078	***	2nd Max Daily 1 Hour Average
D11	0	1	0	0	0	0	0	0	0	***	Number Days 1-Hr > 0.124 ppm
	0.073?	0.094	0.092	0.085	0.075	0.082	0.091	0.093	0.069	***	4th Max Daily 8 Hour Average
	1	7	8	4	2	1	12	4	0	***	Number Days 8-Hr > 0.084 ppm
Tioga County	***	***	***	0.093?	0.103	0.094	0.118	0.102	0.085	0.086	2nd Max Daily 1 Hour Average
D13	***	***	***	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	0.082?	0.078	0.083	0.093	0.084	0.079	0.080	4th Max Daily 8 Hour Average
	***	***	***	2	2	3	8	3	0	0	Number Days 8-Hr > 0.084 ppm
Johnstown Air Basin											
Johnstown	0.124	0.107	0.104	0.106	0.106	0.106	0.098	0.098	0.081	0.094	2nd Max Daily 1 Hour Average
J01	1	0	0	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.098	0.090	0.086	0.090	0.088	0.088	0.083	0.083	0.071	0.077	4th Max Daily 8 Hour Average
	13	11	5	5	6	6	2	2	0	1	Number Days 8-Hr > 0.084 ppm
Monongahela Valley Air Basin											
Charleroi	0.102	0.118	0.127	0.115	0.110	0.112	0.119	0.124	0.085	0.098	2nd Max Daily 1 Hour Average
M01	0	0	3	0	0	0	1	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.090	0.099	0.108	0.096	0.080	0.087	0.093	0.088	0.072	0.080	4th Max Daily 8 Hour Average
	5	14	34	11	3	7	14	4	0	2	Number Days 8-Hr > 0.084 ppm
Lower Beaver Valley Air Basin											
Beaver Falls	0.105	0.101	0.116	0.131	0.099	0.109	0.112	0.107	0.085	0.099	2nd Max Daily 1 Hour Average
B11	0	0	0	2	0	0	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.085	0.085	0.098	0.087	0.084	0.086	0.096	0.078	0.069	0.080	4th Max Daily 8 Hour Average
	4	5	6	3	14	4	9	3	0	2	Number Days 8-Hr > 0.084 ppm
Hookstown	0.104	0.098	0.113	0.116	0.095	0.101	0.115	0.111	0.090	0.106	2nd Max Daily 1 Hour Average
B23	0	0	0	0	0	0	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.090	0.086	0.095	0.095	0.077	0.092	0.103	0.087	0.081	0.086	4th Max Daily 8 Hour Average
	6	4	11	9	1	9	19	6	0	5	Number Days 8-Hr > 0.084 ppm
Brighton Township	0.099	0.096	0.113	0.132	0.096	0.103	0.118	0.107	0.085	0.095	2nd Max Daily 1 Hour Average
B27	0	0	0	2	0	0	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.083	0.082	0.092	0.101	0.077	0.089	0.104	0.083	0.074	0.086	4th Max Daily 8 Hour Average
	3	3	15	11	1	8	23	3	0	4	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

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Allegheny County Air Basin											
Pittsburgh	***	***	0.105	0.120	0.111	0.112	0.119	0.110	0.094	0.105	2nd Max Daily 1 Hour Average
D12	***	***	0	1	0	0	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	0.089	0.099	0.086	0.093	0.100	0.088	0.072	0.092	4th Max Daily 8 Hour Average
	***	***	6	16	4	9	25	5	0	4	Number Days 8-Hr > 0.084 ppm
Southwest Region Non-Air Basin											
Florence	0.092	0.111	0.109	0.110	0.098	0.106	0.114	0.107	0.083	0.101	2nd Max Daily 1 Hour Average
504	0	0	0	0	0	0	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.084	0.085	0.094	0.096	0.080	0.089	0.096	0.078	0.073	0.085	4th Max Daily 8 Hour Average
	2	4	11	9	2	7	17	3	0	4	Number Days 8-Hr > 0.084 ppm
Washington	0.103	0.107	0.112	0.106	0.105	0.109	0.112	0.118	0.086	0.096	2nd Max Daily 1 Hour Average
508	0	0	0	0	0	0	1	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.084	0.088	0.095	0.090	0.080	0.090	0.088	0.088	0.071	0.085	4th Max Daily 8 Hour Average
	3	6	15	11	3	6	9	5	0	4	Number Days 8-Hr > 0.084 ppm
Murrysville	0.104	0.123	0.101	0.115	0.103	0.097	0.110	0.100	0.092	0.102	2nd Max Daily 1 Hour Average
510	0	1	0	1	0	0	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.081	0.088	0.082	0.087	0.076	0.078	0.091	0.083	0.070	0.087	4th Max Daily 8 Hour Average
	2	4	3	5	2	1	9	2	0	4	Number Days 8-Hr > 0.084 ppm
Kittanning	***	***	0.113	0.121	0.103	0.119	0.122	0.109	0.093	0.104	2nd Max Daily 1 Hour Average
512	***	***	0	1	0	1	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	0.100	0.100	0.079	0.098	0.097	0.086	0.082	0.086	4th Max Daily 8 Hour Average
	***	***	21	18	2	16	15	5	1	4	Number Days 8-Hr > 0.084 ppm
Greensburg	***	***	***	0.125	0.097	0.100	0.119	0.115	0.094	0.098	2nd Max Daily 1 Hour Average
513	***	***	***	2	0	0	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	0.099	0.076	0.084	0.098	0.091	0.073	0.083	4th Max Daily 8 Hour Average
	***	***	***	16	3	3	10	4	0	2	Number Days 8-Hr > 0.084 ppm
Holbrook	***	0.123?	0.110?	0.116	0.106	0.099	0.113	0.106	0.082	0.103	2nd Max Daily 1 Hour Average
514	***	0	0	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	0.092?	0.100?	0.101	0.087	0.090	0.094	0.083	0.075	0.085	4th Max Daily 8 Hour Average
	***	10	16	21	6	12	9	3	0	5	Number Days 8-Hr > 0.084 ppm
Strongstown	***	***	***	***	***	***	***	***	***	0.097	2nd Max Daily 1 Hour Average
515	***	***	***	***	***	***	***	***	***	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	***	***	***	***	0.088	4th Max Daily 8 Hour Average
	***	***	***	***	***	***	***	***	***	5	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

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Upper Beaver Valley Air Basin											
New Castle	0.097	0.109	0.096	0.105	0.090	0.099	0.103	0.106	0.083	0.094	2nd Max Daily 1 Hour Average
B21	0	0	0	1	0	0	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	0.084	0.086	0.077	0.088	0.069	0.079	0.087	0.077	0.068	0.075	4th Max Daily 8 Hour Average
	2	4	2	5	0	1	6	2	0	1	Number Days 8-Hr > 0.084 ppm
Erie Air Basin											
Erie	0.100	0.103	0.122	0.112	0.095	0.104	0.114	0.108	0.089	0.104	2nd Max Daily 1 Hour Average
E10	0	0	1	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.083	0.087	0.098	0.096	0.078	0.089	0.098	0.091	0.074	0.086	4th Max Daily 8 Hour Average
	3	6	12	13	2	4	17	4	0	4	Number Days 8-Hr > 0.084 ppm
Northwest Region Non-Air Basin											
Farrell	0.103	0.111	0.121	0.108	0.098	0.113	0.118	0.116	0.088	0.104	2nd Max Daily 1 Hour Average
606	0	0	1	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.090	0.092	0.106	0.091	0.081	0.094	0.103	0.087	0.076	0.087	4th Max Daily 8 Hour Average
	9	9	24	8	2	15	20	6	1	4	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-18

Nitrogen Dioxide Summary
(Units: parts per million)

Year: 2005

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Max 1 HR Mean	1st Max Date MM/DD	2nd Max 1 HR Mean	2nd Max Date MM/DD	3rd Max 1 HR Mean	3rd Max Date MM/DD	4th Max 1 HR Mean	4th Max Date MM/DD
Southeast Pennsylvania Air Basin											
Bristol	P01	97.5	0.017	0.099	02/01	0.091	02/01	0.080	02/02	0.077	02/02
Chester	P11	81.6	0.017	0.070	03/23	0.068	02/02	0.067	02/02	0.065	03/23
Norristown	P21	97.6	0.016	0.063	02/09	0.062	02/03	0.062	02/03	0.061	02/03
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	99.2	0.014	0.066	02/02	0.065	02/01	0.064	02/02	0.064	02/08
Freemansburg	A25	99.3	0.015	0.067	02/08	0.065	02/08	0.062	02/08	0.060	02/01
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	96.7	0.013	0.069	04/06	0.066	04/06	0.058	06/24	0.056	06/24
Wilkes-Barre	S28	96.5	0.013	0.062	02/07	0.060	02/03	0.055	02/03	0.055	02/03
Reading Air Basin											
Reading	R01	99.0	0.019	0.067	04/19	0.066	04/20	0.063	02/03	0.063	02/03
Harrisburg Air Basin											
Harrisburg	H11	99.6	0.015	0.071	02/07	0.069	12/14	0.064	02/01	0.064	02/07
Lancaster Air Basin											
Lancaster	L01	99.1	0.014	0.059	02/02	0.057	02/02	0.056	10/03	0.053	04/10
York Air Basin											
York	Y01	99.0	0.018	0.078	02/07	0.076	02/07	0.074	02/07	0.072	02/03
Southcentral Region Non-Air Basin											
Perry County	305	98.2	0.005	0.041	02/03	0.041	02/03	0.039	02/03	0.038	02/03
Arendtsville	314	56.7	0.004?	0.023	10/28	0.022	10/24	0.022	10/24	0.020	04/22
Altoona	308	99.1	0.013	0.074	02/05	0.067	12/15	0.063	12/15	0.063	12/15
Northcentral Region Non-Air Basin											
State College	409	95.3	0.009	0.054	01/31	0.048	02/01	0.048	04/06	0.046	04/06
Johnstown Air Basin											
Johnstown	J01	99.2	0.013	0.049	02/03	0.048	01/24	0.047	02/03	0.047	02/04
Monogahela Valley Air Basin											
Charleroi	M01	98.5	0.013	0.056	09/15	0.050	02/07	0.049	02/07	0.047	02/01
Lower Beaver Valley Air Basin											
Beaver Falls	B11	99.1	0.017	0.062	02/07	0.062	02/07	0.059	04/07	0.058	03/31

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 Summary
(Units: parts per million)

Year: 2005

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Max 1 HR Mean	1st Max Date MM/DD	2nd Max 1 HR Mean	2nd Max Date MM/DD	3rd Max 1 HR Mean	3rd Max Date MM/DD	4th Max 1 HR Mean	4th Max Date MM/DD
Allegheny County Air Basin											
Pittsburgh	D12	97.0	0.022	0.078	12/28	0.077	04/06	0.077	04/19	0.076	04/06
Southwest Region Non-Air Basin											
Florence	504	98.2	0.007	0.046	02/02	0.046	02/02	0.046	02/03	0.045	02/02
Washington	508	99.1	0.014	0.056	01/31	0.056	02/01	0.055	10/04	0.054	04/05
Greensburg	513	98.1	0.013	0.062	11/21	0.060	09/22	0.056	04/18	0.054	02/07
Strongstown	515	98.8	0.006	0.049	02/03	0.048	02/03	0.045	02/03	0.045	11/13
Upper Beaver Valley Air Basin											
New Castle	B21	98.8	0.017	0.062	04/05	0.061	02/04	0.060	02/04	0.055	02/03
Erie Air Basin											
Erie	E10	98.8	0.013	0.063	05/09	0.062	05/06	0.062	10/04	0.060	02/04

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-19

Nitrogen Dioxide Historical Trend
Annual Means
(Units: Parts Per Million)

Site Name	PA Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Southeast Pennsylvania Air Basin											
Bristol	P01	0.021	0.020	0.018	0.018	0.017	0.018	0.016	0.016	0.016	0.017
Chester	P11	0.021	0.020	0.019	0.017	0.019	0.019	0.018	0.018	0.018	0.017
Norristown	P21	0.021	0.019	0.019	0.016	0.018	0.017	0.015	0.017	0.014	0.016
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	0.018	0.016	0.016	0.015	0.013	0.017	0.014	0.015	0.013	0.014
Freemansburg	A25	***	***	0.017	0.017	0.017	0.016	0.013	0.013	0.014	0.015
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	0.018	0.018	0.016	0.014	0.015	0.015	0.014	0.014	0.012	0.013
Wilkes-Barre	S28	0.018	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.013
Reading Air Basin											
Reading	R01	0.022	0.021	0.021	0.021	0.020	0.020	0.019	0.018	0.017	0.019
Harrisburg Air Basin											
Harrisburg	H11	0.021	0.019	0.019	0.018	0.017	0.018	0.016	0.016	0.015	0.015
Lancaster Air Basin											
Lancaster	L01	0.017	0.016	0.015	0.015	0.014	0.014	0.013	0.015	0.014	0.014
York Air Basin											
York	Y01	0.021	0.019	0.019	0.019	0.018	0.020	0.017	0.017	0.016	0.018
Southcentral Region Non-Air Basin											
Perry County	305	0.009	0.007	0.006	0.006	0.007	0.006	0.006	0.006	0.005	0.005
Arendtsville	314	***	***	***	***	0.004?	0.004?	0.004?	0.004?	0.004?	0.004?
Altoona	308	0.014	0.014	0.013	0.013	0.014	0.014	0.013	0.013	0.012	0.013
Northcentral Region Non-Air Basin											
State College	409	***	***	***	***	***	***	0.008	0.008	0.009	0.009
Johnstown Air Basin											
Johnstown	J01	0.018	0.016	0.015	0.015	0.015	0.014	0.012	0.013	0.013	0.013
Monogahela Valley Air Basin											
Charleroi	M01	0.017	0.016	0.016	0.015	0.014	0.013	0.013	0.012	0.012	0.013

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

Nitrogen Dioxide Historical Trend
Annual Means
(Units: Parts Per Million)

Site Name	PA Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Lower Beaver Valley Air Basin											
Beaver Falls	B11	0.018	0.017	0.019	0.019	0.017	0.017	0.016	0.015	0.015	0.017
Allegheny County Air Basin											
Pittsburgh	D12	***	***	0.021	0.023	0.022	0.021	0.020	0.021	0.021	0.022
Southwest Region Non-Air Basin											
Florence	504	***	***	***	0.008	0.008	0.008	0.006	0.013	0.006	0.007
Washington	508	0.015	0.018	0.017	0.016	0.015	0.015	0.012	0.012	0.013	0.014
Greensburg	513	***	***	0.018	0.018	0.017	0.017	0.016	0.015	0.013	0.013
Strongstown	515	***	***	***	***	***	***	***	***	***	0.006
Upper Beaver Valley Air Basin											
New Castle	B21	0.024	0.020	0.019	0.020	0.019	0.017	0.016	0.016	0.016	0.017
Erie Air Basin											
Erie	E10	0.015	0.015	0.014	0.015	0.012	0.012	0.012	0.012	0.012	0.013

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-20

Oxides of Nitrogen Summary
(Units: Parts Per Million)

Year: 2005

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Max 1 HR Mean	1st Max Date MM/DD	2nd Max 1 HR Mean	2nd Max Date MM/DD	3rd Max 1 HR Mean	3rd Max Date MM/DD	4th Max 1 HR Mean	4th Max Date MM/DD
Southeast Pennsylvania Air Basin											
Bristol	P01	97.5	0.033	0.675	02/01	0.580	02/02	0.573	02/01	0.511	02/02
Chester	P11	83.5	0.030	0.301	02/02	0.295	03/18	0.286	02/02	0.283	02/02
Norristown	P21	97.7	0.026	0.501	02/09	0.458	02/09	0.324	11/21	0.303	12/22
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	99.4	0.022	0.321	02/08	0.311	02/07	0.294	02/02	0.270	02/08
Freemansburg	A25	99.3	0.026	0.329	02/02	0.308	02/01	0.285	02/02	0.283	02/02
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	97.6	0.019	0.271	02/16	0.250	02/16	0.242	02/08	0.233	02/07
Wilkes-Barre	S28	96.5	0.022	0.266	12/15	0.255	02/08	0.251	12/15	0.245	02/03
Reading Air Basin											
Reading	R01	99.0	0.035	0.414	11/08	0.389	11/14	0.378	10/31	0.370	02/01
Harrisburg Air Basin											
Harrisburg	H11	99.6	0.027	0.399	12/14	0.372	02/07	0.361	02/01	0.361	02/07
Lancaster Air Basin											
Lancaster	L01	99.5	0.023	0.365	11/21	0.326	01/31	0.313	02/02	0.282	11/08
York Air Basin											
York	Y01	98.7	0.032	0.479	02/07	0.478	11/01	0.389	02/07	0.383	11/03
Southcentral Region Non-Air Basin											
Perry County	305	98.1	0.006	0.072	02/03	0.068	02/03	0.067	02/09	0.063	02/03
Arendtsville	314	56.2	0.004?	0.059	10/28	0.029	04/22	0.029	10/24	0.027	10/24
Altoona	308	98.8	0.020	0.254	02/05	0.234	02/07	0.231	02/01	0.223	01/31
Northcentral Region Non-Air Basin											
State College	409	95.2	0.013	0.202	01/31	0.177	02/01	0.139	12/05	0.137	12/13
Johnstown Air Basin											
Johnstown	J01	99.2	0.019	0.223	02/09	0.214	01/12	0.195	01/12	0.195	02/09
Monogahela Valley Air Basin											
Charleroi	M01	98.5	0.022	0.301	12/28	0.255	12/28	0.255	12/28	0.251	12/28

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

Oxides of Nitrogen Summary
(Units: Parts Per Million)

Year: 2005

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Max 1 HR Mean	1st Max Date MM/DD	2nd Max 1 HR Mean	2nd Max Date MM/DD	3rd Max 1 HR Mean	3rd Max Date MM/DD	4th Max 1 HR Mean	4th Max Date MM/DD
Lower Beaver Valley Air Basin											
Beaver Falls	B11	99.2	0.032	0.319	12/28	0.318	01/12	0.317	12/29	0.312	01/12
Allegheny County Air Basin											
Pittsburgh	D12	97.0	0.041	0.538	12/28	0.515	12/28	0.412	12/28	0.383	12/28
Southwest Region Non-Air Basin											
Florence	504	98.1	0.008	0.080	12/08	0.075	10/11	0.072	12/08	0.069	01/11
Washington	508	99.1	0.025	0.298	02/02	0.293	02/02	0.291	02/01	0.281	02/02
Greensburg	513	96.7	0.024	0.376	11/21	0.339	02/07	0.290	09/22	0.241	02/07
Strongstown	515	98.8	0.007	0.119	04/05	0.104	09/13	0.097	11/13	0.093	10/04
Upper Beaver Valley Air Basin											
New Castle	B21	98.7	0.028	0.351	01/12	0.270	01/12	0.259	01/12	0.257	02/07
Erie Air Basin											
Erie	E10	98.4	0.018	0.265	01/31	0.255	02/01	0.249	01/31	0.245	04/14

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-21

Carbon Monoxide Summary
(Units: Parts Per Million)

Year: 2005

Site Name	PA Site Code	Percent Valid Data	Number 1 HR > 35	1st Max 1 HR Mean	1st Max Date MM/DD	2nd Max 1 HR Mean	2nd Max Date MM/DD	Number 8 HR > 9	Running Average 1st Max 8 HR Mean	Running Average 1st Max Date MM/DD	Running Average 2nd Max 8 HR Mean	Running Average 2nd Max Date MM/DD
Southeast Pennsylvania Air Basin												
Bristol	P01	98.9	0	4.2	02/01	3.8	02/02	0	2.4	02/02	2.3	02/01
Norristown	P21	97.6	0	2.0	11/08	1.7	02/02	0	1.3	11/08	1.2	02/01
Allentown-Bethlehem-Easton Air Basin												
Freemansburg	A25	98.8	0	2.7	02/02	2.5	02/01	0	2.0	02/02	1.9	02/06
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	98.4	0	3.0	02/16	2.6	01/31	0	1.5	02/01	1.5	02/02
Wilkes-Barre	S27	99.6	0	2.6	02/01	2.4	02/07	0	1.9	02/02	1.9	02/07
Northeast Region Non-Air Basin												
Shenandoah	211	96.1	0	2.8	10/26	2.6	11/20	0	2.1	10/26	1.4	10/27
Reading Air Basin												
Reading	R01	99.5	0	2.6	02/01	2.4	02/05	0	1.9	02/02	1.9	02/06
Harrisburg Air Basin												
Harrisburg	H16	98.3	0	2.2	02/08	2.0	11/01	0	1.5	02/08	1.3	01/03
Lancaster Air Basin												
Lancaster	L01	98.5	0	2.7	02/02	2.5	04/05	0	1.6	02/02	1.5	11/21
York Air Basin												
York	Y01	99.5	0	2.7	02/07	2.5	10/31	0	1.5	02/07	1.4	11/21
Southcentral Region Non-Air Basin												
Arendtsville	314	58.4	0	0.7	09/15	0.3	04/01	0	0.3	04/01	0.3	04/01
Altoona	308	96.7	0	2.5	02/01	1.9	11/04	0	1.2	01/31	1.1	08/08
Johnstown Air Basin												
Johnstown	J01	99.5	0	1.9	01/12	1.7	02/21	0	1.2	01/12	1.2	02/09
Monogahela Valley Air Basin												
Charleroi	M01	97.6	0	1.7	11/12	1.6	11/03	0	1.1	06/02	1.1	06/03

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 Summary
(Units: Parts Per Million)

Year: 2005

Site Name	PA Site Code	Percent Valid Data	Number 1 HR > 35	1st Max 1 HR Mean	1st Max Date MM/DD	2nd Max 1 HR Mean	2nd Max Date MM/DD	Number 8 HR > 9	Running Average 1st Max 8 HR Mean	1st Max Date MM/DD	Running Average 2nd Max 8 HR Mean	2nd Max Date MM/DD
Lower Beaver Valley Air Basin												
Beaver Falls	B11	98.2	0	1.7	11/01	1.6	09/07	0	1.5	12/28	1.4	12/28
Allegheny County Air Basin												
Pittsburgh	D12	97.3	0	1.9	02/04	1.9	02/05	0	1.7	02/05	1.5	02/05
Southwest Region Non-Air Basin												
Greensburg	513	97.1	0	1.4	11/21	1.3	01/31	0	0.9	02/05	0.9	02/13
Holbrook	514	56.9	0	0.8	04/06	0.7	04/05	0	0.7	04/07	0.7	04/07
Upper Beaver Valley Air Basin												
New Castle	B21	98.8	0	2.5	12/28	2.4	12/23	0	1.6	12/28	1.5	12/23
Erie Air Basin												
Erie	E10	99.4	0	3.4	10/21	3.1	10/31	0	1.5	11/05	1.4	02/01

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-22

Carbon Monoxide Historical Trend
(Units: Parts Per Million)

Station / Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Southeast Pennsylvania Air Basin											
Bristol	6.3	6.8	5.2	6.6	4.3	4.0	4.3	4.5	3.2	3.8	2nd Maximum 1 Hour Mean
P01	4.7	3.8	3.5	3.7	3.6	3.1	2.4	2.8	2.2	2.3	2nd Maximum 8 Hour Mean
Norristown	3.5	3.2	2.9	3.1	2.8	2.5	2.7	2.4	1.9	1.7	2nd Maximum 1 Hour Mean
P21	2.9	2.2	1.8	1.9	1.7	1.7	2.3	1.8	1.4	1.2	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	2nd Maximum 1 Hour Mean
A25	***	***	2.4	3.0	2.4	2.4	1.8	1.4	1.7	1.9	2nd Maximum 8 Hour Mean
Allentown	5.3	4.8	5.0	5.5	4.1	4.0	4.4	***	***	***	2nd Maximum 1 Hour Mean
A51	3.2	2.7	2.9	3.2	2.6	3.3	2.3	***	***	***	2nd Maximum 8 Hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	7.0	4.7	3.4	3.5	4.4	2.9	2.7	2.4	2.9	2.6	2nd Maximum 1 Hour Mean
S01	3.5	2.8	1.9	1.7	2.1	1.8	1.6	1.5	1.8	1.5	2nd Maximum 8 Hour Mean
Wilkes-Barre	7.4	4.6	7.0	4.2	3.8	2.8	5.1	3.2	2.4	2.4	2nd Maximum 1 Hour Mean
S27	4.1	3.3	3.1	3.0	2.2	2.3	2.6	2.3	1.8	1.9	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	2nd Maximum 1 Hour Mean
211	***	1.3	1.4	1.6	1.3	0.9	1.2	1.4	0.8	1.4	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	2nd Maximum 1 Hour Mean
R01	***	***	3.2	2.8	2.3	2.2	2.2	2.0	1.8	1.9	2nd Maximum 8 Hour Mean
Harrisburg Air Basin											
Harrisburg	4.2	5.2	4.1	4.9	3.5	4.4	3.6	3.0	2.3	2.0	2nd Maximum 1 Hour Mean
H16	2.5	3.3	3.0	4.3	2.1	2.8	2.3	2.0	1.3	1.3	2nd Maximum 8 Hour Mean
Lancaster Air Basin											
Lancaster	3.6	5.1	3.4	3.1	3.0	2.9	3.0	2.7	3.2	2.5	2nd Maximum 1 Hour Mean
L01	2.6	3.3	1.9	2.5	1.9	2.2	2.2	1.7	1.6	1.5	2nd Maximum 8 Hour Mean
York Air Basin											
York	5.0	5.7	5.0	5.3	3.7	3.8	4.3	2.6	2.8	2.5	2nd Maximum 1 Hour Mean
Y01	2.8	3.4	2.4	2.4	1.8	2.2	2.2	1.7	1.8	1.4	2nd Maximum 8 Hour Mean
Southcentral Region Non-Air Basin											
Arendtsville	***	***	0.7	1.2	1.4	1.4	1.0	0.7	1.7	0.3	2nd Maximum 1 Hour Mean
314	***	***	0.6	1.1	1.2	1.2	0.6	0.4	1.6	0.3	2nd Maximum 8 Hour Mean
Altoona	2.7	2.7	2.0	2.6	1.7	2.4	1.5	1.6	2.3	1.9	2nd Maximum 1 Hour Mean
308	1.9	1.5	1.2	1.6	1.0	1.1	0.7	1.2	0.9	1.1	2nd Maximum 8 Hour Mean

Appendix A: Table A-22

Carbon Monoxide Historical Trend
(Units: Parts Per Million)

Station / Site Code	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Johnstown Air Basin											
Johnstown	7.0	4.7	4.2	4.4	2.8	2.8	3.9	3.0	2.0	1.7	2nd Maximum 1 Hour Mean
J01	4.8	2.7	3.1	2.8	2.0	2.1	2.6	2.2	2.1	1.2	2nd Maximum 8 Hour Mean
Monongahela Valley Air Basin											
Charleroi	2.8	1.8	3.0	2.0	1.8	1.4	1.7	1.6	1.8	1.6	2nd Maximum 1 Hour Mean
M01	2.5	1.6	1.9	1.6	1.1	1.1	1.0	1.0	1.4	1.1	2nd Maximum 8 Hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	3.2	2.6	2.2	2.5	1.7	2.4	2.1	1.6	1.7	1.6	2nd Maximum 1 Hour Mean
B11	2.1	1.9	1.5	1.5	1.2	1.5	1.6	1.1	1.2	1.4	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	2nd Maximum 1 Hour Mean
D12	***	***	2.7	2.5	2.4	2.5	2.0	2.0	1.7	1.5	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	2nd Maximum 1 Hour Mean
513	***	***	2.3	2.4	1.8	1.8	1.2	2.1	1.4	0.9	2nd Maximum 8 Hour Mean
Holbrook	***	***	***	1.7	0.6	1.3	0.25	0.6	0.6	0.7	2nd Maximum 1 Hour Mean
514	***	***	***	1.5	0.3	1.1	0.3	0.3	0.3	0.7	2nd Maximum 8 Hour Mean
Upper Beaver Valley Air Basin											
New Castle	6.5	4.6	7.2	5.5	3.5	3.0	4.1	3.3	2.8	2.4	2nd Maximum 1 Hour Mean
B21	3.5	3.0	2.4	3.8	1.9	2.0	1.8	1.8	1.8	1.5	2nd Maximum 8 Hour Mean
Erie Air Basin											
Erie	***	***	***	***	***	***	***	***	***	3.1	2nd Maximum 1 Hour Mean
E10	***	***	***	***	***	***	***	***	***	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-23

Arendtsville, Pennsylvania
Photochemical Assessment Monitoring Station (PAMS) Compounds
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 2005 (May-October)

Compound	1 Hour Max	Date/Time of Max	Mean
Acetylene	3.78	6/7/2005 9:00	0.36
Ethylene	5.03	10/8/2005 7:00	0.63
Ethane	13.84	6/22/2005 3:00	3.49
Propylene	2.84	10/8/2005 7:00	0.43
Propane	17.4	6/8/2005 16:00	2.5
Isobutane	5.92	5/2/2005 7:00	0.68
Butene-1	0.98	5/2/2005 7:00	0.15
n-Butane	12.7	5/2/2005 7:00	1
t-Butene-2	1.6	5/2/2005 7:00	0.18
c-Butene-2	1.32	5/2/2005 7:00	0.02
Isopentane	22.3	5/2/2005 7:00	1.2
Pentene-1	0.52	5/2/2005 7:00	0.01
n-Pentane	8.49	5/2/2005 7:00	0.65
Isoprene	28.4	7/11/2005 19:00	1.26
trans-2-Pentene	1.2	5/2/2005 7:00	0.01
c-2-Pentene	0.64	5/2/2005 7:00	0
2,2-Dimethylbutane	0.98	5/2/2005 7:00	0.03
cyclopentane	1.49	5/6/2005 7:00	0.19
2,3-Dimethylbutane	0.76	8/12/2005 6:00	0.11
2-Methylpentane	2.46	8/13/2005 7:00	0.26
3-Methylpentane	3.35	5/2/2005 7:00	0.16
n-Hexane	1.77	5/2/2005 7:00	0.20
Methylcyclopentane	1.07	5/2/2005 7:00	0.05
2,4-Dimethylpentane	0.54	5/2/2005 7:00	0
Benzene	2.6	10/8/2005 7:00	0.48
Cyclohexane	0.79	6/13/2005 16:00	0
2-Methylhexane	0.9	6/13/2005 16:00	0.02
2,3-Dimethylpentane	0.6	8/18/2005 21:00	0.01
3-Methylhexane	1.39	6/13/2005 16:00	0.07
2,2,4-Trimethylpentane	1.61	5/2/2005 7:00	0.22
n-Heptane	3.45	6/13/2005 16:00	0.06
Methylcyclohexane	3.11	6/13/2005 16:00	0.02
2,3,4-Trimethylpentane	0.51	5/2/2005 7:00	0.02
Toluene	5.94	7/22/2005 6:00	0.80

*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-23

Arendtsville, Pennsylvania
Photochemical Assessment Monitoring Station (PAMS) Compounds
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 2005 (May-October)

Compound	1 Hour Max	Date/Time of Max	Mean
2-Methylheptane	1.56	6/13/2005 16:00	0.01
3-Methylheptane	1.22	6/13/2005 16:00	0.01
n-Octane	3.41	6/13/2005 16:00	0.02
Ethylbenzene	1.18	8/18/2005 19:00	0.16
m/p-Xylene	3.83	8/18/2005 19:00	0.31
Styrene	0.88	9/5/2005 3:00	0.01
o-Xylene	1.4	7/22/2005 6:00	0.12
n-Nonane	1.33	6/13/2005 16:00	0.03
Isopropylbenzene	0.33	8/3/2005 10:00	0
n-Propylbenzene	0.54	10/5/2005 11:00	0.01
1,3,5-Trimethylbenzene	0.76	6/5/2005 4:00	0.01
1,2,4-Trimethylbenzene	1.32	7/22/2005 6:00	0.18
o-Ethyltoluene	0.57	7/22/2005 6:00	0.05
m-Ethyltoluene	1.35	10/8/2005 7:00	0.11
p-Ethyltoluene	0.69	9/17/2005 3:00	0.01
m-Diethylbenzene	0.41	8/26/2005 10:00	0
p-Diethylbenzene	1.02	8/17/2005 6:00	0
1,2,3-Trimethylbenzene	1.94	8/8/2005 2:00	0.19
n-Decane	1.37	7/15/2005 14:00	0.03
Undecane	2.51	9/6/2005 14:00	0.05
tnmoc*	122	5/2/2005 7:00	18.9
pamshc**	111	5/2/2005 7:00	16.68
Unidentified VOC	11.9	10/8/2005 7:00	1.85

.

*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.

ELEMENTAL MERCURY VAPOR SUMMARY

YEAR 2005

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: 8511 (97.1% Data Availability)

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

Annual Average (Mean)	1.6	
1st Maximum Hour Average	9.09	06/04/2005 20:00
2nd Maximum Hour Average	7.27	06/18/2005 02:00
3rd Maximum Hour Average	7.13	05/20/2005 22:00
Maximum 5-minute Sample	38.6	06/04/05 20:30

Number of 1-Hour Average Values in Ranges

0 to 1	1 to 2	2 to 4	4 to 6	6 or more
0.26%	87.98%	11.47%	0.23%	0.06%

Mercury Vapor Historical Trend

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

*June 21, 1999 through December 31, 1999

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.

This page intentionally left blank.

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

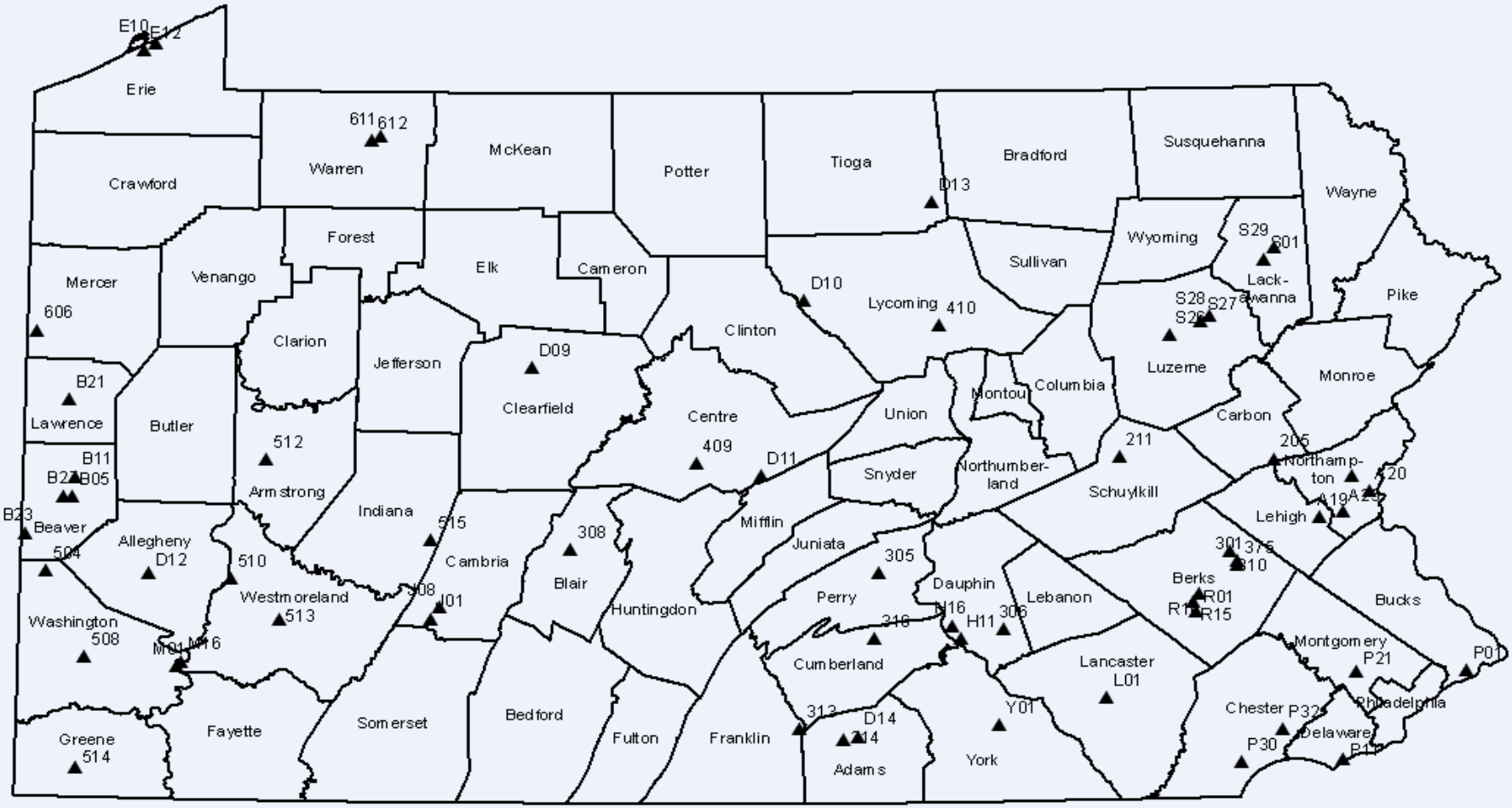
Related environmental information is available electronically via the Internet. Access the DEP website at http://www.depweb.state.pa.us/ (DEP Keyword: Air, Air Pollution, Air Quality, Clean Air).

This page intentionally left blank.

APPENDIX C - Monitoring Sites, Equipment, and Addresses

This page intentionally left blank.

Figure C-1. Commonwealth of Pennsylvania Air Monitoring Sites



This page intentionally left blank.

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 74 52 57
P11	CHESTER	42-045-0002	DELAWARE	Front & Norris Streets	39 50 08 75 22 22
P21	NORRISTOWN	42-091-0013	MONTGOMERY	State Armory 1046 Belvoir Road	40 06 45 75 18 34
P30	NEW GARDEN (TOUGHKENAMON)	42-029-0100	CHESTER	1235 Newark Road New Garden Airport	39 50 04 75 46 05
P32	WEST CHESTER	42-029-0050	CHESTER	South Campus Road West Chester University	39 56 09 75 36 16

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	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 75 25 58
A20	EASTON	42-095-8000	NORTHAMPTON	Spring Garden	40 41 32 75 14 14
A25	FREEMANSBURG	42-095-0025	NORTHAMPTON	Washington & Cambria Streets	40 37 41 75 20 28
A26	NAZARETH	42-095-1000	NORTHAMPTON	South Green & Delaware	40 44 04 75 18 46

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	
NORTHAMPTON	A20		$X_{C2.5}$						X		X	
	A25	X_{C10}	$X_{D2.5}$ $X_{C2.5}$	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 75 37 23
S26	NANTICOKE	42-079-1100	LUZERNE	255 Lower Broadway	41 12 33 76 00 13
S27	WILKES-BARRE CBD	42-079-2100	LUZERNE	North River Street	41 15 01 75 52 49
S28	WILKES-BARRE	42-079-1101	LUZERNE	Chilwick & Washington Streets	41 15 58 75 50 47
S29	PECKVILLE	42-069-0101	LACKAWANNA	Pleasant Avenue & Erie Street Wilson Fire Company No. 1	41 28 45 75 34 41

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	

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 75 36 31
211	SHENANDOAH	42-107-0003	SCHUYLKILL	Coal & Stadium Streets	40 49 14 76 12 44

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	X	X				
SCHUYLKILL	211								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)

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 75 55 37
R10	LAURELDALE	42-011-1717	BERKS	Muhlenberg Township Authority Spring Valley Road Substation	40 22 38 75 54 53
R15	READING	42-011-0015	BERKS	Northwest Junior High School North Front & West Spring Streets	40 21 04 75 56 08

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
	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)

Lancaster Air Basin Sites

Appendix C: Table C-12.
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 76 17 00

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
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)

Harrisburg Air Basin Sites

Appendix C: Table C-14.
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 76 50 41
H16	HARRISBURG CBD	42-043-0102	DAUPHIN	PA Dept. of Agriculture Parking Lot 2301 North Cameron Street	40 17 09 76 52 53

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
DAUPHIN	H11	X_{C10}	$X_{D2.5}$ $X_{C2.5B}$	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)

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 76 41 59

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

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	
CUMBERLAND	316		$X_{D2.5}$									
DAUPHIN	306										X	
FRANKLIN	313										X	
ADAMS	314		$X_{D2.5}$ $X_{C2.5T}$	X						X		X
	D14										X	
BLAIR	308	X_{C10}							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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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
410	MONTOURSVILLE	42-081-0100	LYCOMING	899 Cherry Street Rear Parking Lot of PA State Police	41 15 01 76 54 51
409	STATE COLLEGE	42-027-0100	CENTRE	Pennsylvania State University West of Big Hollow Road State College	40 48 40 77 52 38
D09	MOSHANNON	42-033-4000	CLEARFIELD	Moshannon State Forest Elliott State Park North of Cessna	41 07 03 78 31 34
D10	TIADAGHTON	42-081-4000	LYCOMING	Tiadaghton Sportmans Club Northeast of Haneyville	41 20 03 77 26 56
D11	PENN NURSERY	42-027-4000	CENTRE	Department of Conservation and Natural Resources Penn Nursery Facility South of Potters Mills	40 46 28 77 37 19
D13	TIOGA COUNTY	42-117-4000	TIOGA	North of Gleason	41 38 44 76 56 17

X Parameter monitored at the site

X_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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
LYCOMING	410	X_{D10}							X		X	
CENTRE	409		$X_{D2.5}$	X					X	X	X	
	D11										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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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 78 54 54
J08	EAST CONEMAUGH	42-021-0808	CAMBRIA	Recreation Field Citron Alley & First Street	40 20 53 78 52 58

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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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 79 54 08
M16	MONESSEN	42-129-0007	WESTMORELAND	Monessen Community Center 435 Donner Avenue	40 10 00 79 52 30

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	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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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 80 19 30
B11	BEAVER FALLS	42-007-0014	BEAVER	Eighth Street & River Alley	40 44 52 80 19 00
B23	HOOKSTOWN	42-007-0002	BEAVER	FAA Microwave Relay Tower	40 33 47 80 30 16
B27	BRIGHTON TOWNSHIP	42-007-0005	BEAVER	1015 Sebring Road	40 41 05 80 21 35

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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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 80 00 59

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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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 80 25 16
508	WASHINGTON	42-125-0200	WASHINGTON	McCarrell & Fayette Streets	40 10 14 80 15 42
510	MURRYSVILLE	42-129-0006	WESTMORELAND	Murrysville Volunteer Fire Co. Old William Penn Hwy & Sardis Ave.	40 25 41 79 41 35
512	KITTANNING	42-005-0001	ARMSTRONG	Glade Drive & Nolte Road PA State Police Barracks	40 48 51 79 33 54
513	GREENSBURG	42-129-0008	WESTMORELAND	Donohue Road PA Dept. of Transportation Bldg.	40 18 17 79 30 20
514	HOLBROOK	42-059-0002	GREENE	Field 5 km southeast of Holbrook	39 48 58 80 17 06
515	STRONGSTOWN	42-063-0004	INDIANA	Rte. 403 PA Dept. of Transportation Bldg.	40 33 48 78 55 12

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	X	
	513	X_{C10}	$X_{D2.5}$	X					X	X	X	X
ARMSTRONG	512		$X_{C2.5T}$								X	
GREENE	514								X	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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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 80 20 48

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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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 80 02 19
E12	ERIE CBD	42-049-0101	ERIE	West 12th & Myrtle Streets	42 07 14 80 05 21

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	
	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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ 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 80 28 59
611	WARREN	42-123-0003	WARREN	School District Building 345 East 5th Avenue	41 51 26 79 08 15
612	WARREN (OVERLOOK)	42-123-0004	WARREN	Overlook Site near Stone Hill Road	41 50 41 79 10 11

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_{M10} Manual PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)
$X_{M2.5}$ Manual $PM_{2.5}$ Sampler, FRM
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)

This page intentionally left blank.

This and related environmental information are available electronically via the Internet. For more information, visit us through the DEP web site at http://www.depweb.state.pa.us/(DEP Keyword **:** Air, Air Pollution, Air Quality, Clean Air).

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