PENNSYLVANIA
AIR QUALITY MONITORING
2003 ANNUAL REPORT

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Air Quality
Division of Air Quality Monitoring
2003 REPORT

Edward G. Rendell
Governor

Kathleen A. McGinty
Secretary

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

2003

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
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
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
$\mu g/m^3$	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 and PM_{10} and $PM_{2.5}$ Suspended 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 is currently developing guidance to implement the new standard.

The annual mean composite of all areas of the Commonwealth has demonstrated a 30 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 2003.

Average PM_{10} levels have improved 25 percent over the last 10 years. There were no sites in the Commonwealth that exceeded the ambient air quality standards in 2003.

With only five complete years of $PM_{2.5}$ data collected, no trend information is available. Ten monitoring sites had annual means greater than the proposed standard, and no sites exceeded the 24-hour air quality standard in 2003.

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 2003 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 1994, 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 days and exceeded the 8-hour daily maximum level of 84 parts per billion (ppb) on 19 days during 2003.

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 2003. Nitrogen dioxide levels have improved 30 percent on average over the last 10 years.

Carbon Monoxide

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

All DEP sites in the Commonwealth have met the federal air quality standards for carbon monoxide for at least the last 10 years. Carbon monoxide levels have seen a long-term improvement of 59 percent from levels in 1994.

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 ten acid rain and seven 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 2003 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 2003. No additional analysis is performed on the PM_{10} sample filters. With the final installation phase of the $PM_{2.5}$ monitoring network completed, 24 sites were operating in 2003 along with three continuous monitoring sites.

The COPAMS network is a totally automatic, microprocessor-controlled system that consists of 47 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 the 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; Tiadaghton State Forest, Lycoming County; near Gleason, Tioga County; at the Department of Conservation and Natural Resources Penn Nursery, Centre County; and in State College, Centre County.

To continue the efforts to understand ozone formation and transport, DEP has also partnered with West Chester University in Chester County to operate an ozone monitor and collect air toxics (which include some ozone precursors) samples.

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 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 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 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.

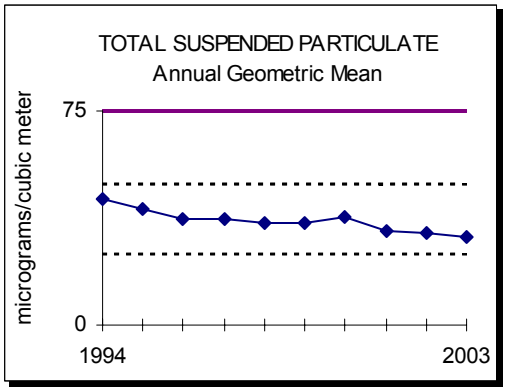


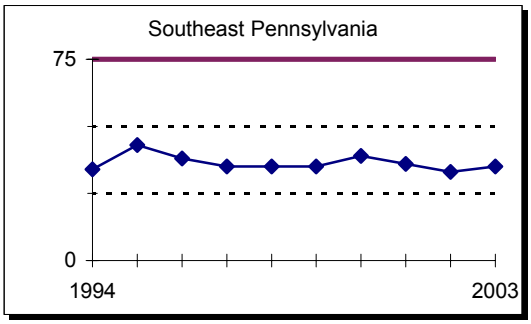
Figure 2-1. Trend in annual geometric mean TSP concentrations, 1994-2003.

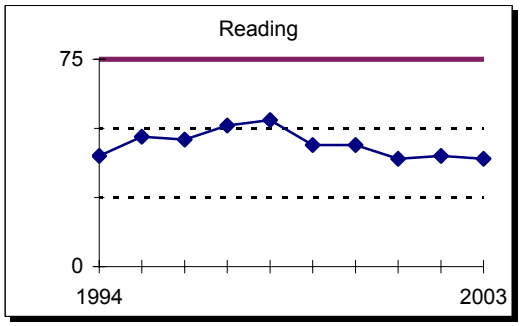
Figure 2-1 shows a decrease in annual geometric mean TSP concentrations. In 1994, the statewide average concentration was 44 micrograms per cubic meter ($\mu g/m^3$) and in 2003 the statewide average concentration was 31 micrograms per cubic meter ($\mu g/m^3$), representing a statewide decrease of 30% for this period. The solid line represents the former annual primary air quality standard of 75 micrograms per cubic meter ($\mu g/m^3$).

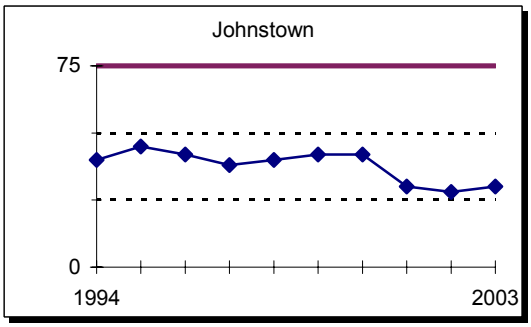
The 2003 calendar year TSP summary is contained in Appendix A, Table A-1. There were no sites in the Commonwealth that exceeded the former annual or 24-hour primary air quality standards in 2003. For comparison to the PM_{10} annual air quality standard, the TSP annual arithmetic mean was calculated by averaging the four quarterly arithmetic means.

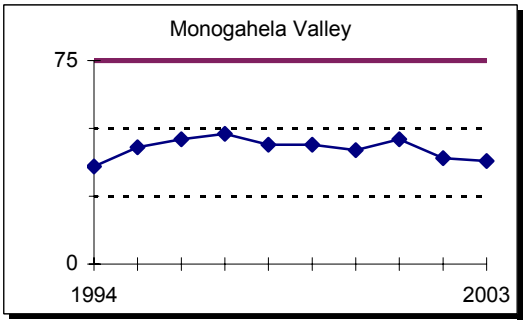
Figure 2-2, located on the following page, shows the TSP trends over the last 10 years in various areas of the Commonwealth where monitoring remains. The graphs of the air basin's annual geometric means consist of all stations that were operated during that year and which had at least 30 samples taken. 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 2003. The annual mean is shown if at least 30 samples were collected that year.

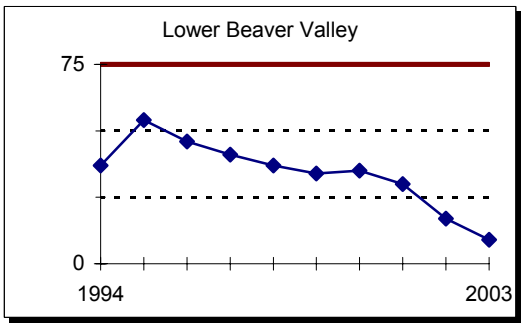
Figure 2-2. TSP Trends in Pennsylvania 1994 to 2003
Annual Geometric Means (micrograms per cubic meter)











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 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 2003 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 2003. 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 1994 to 2003 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 ($\mu g/m^3$).

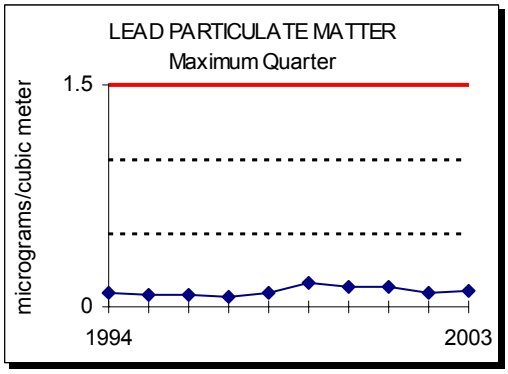


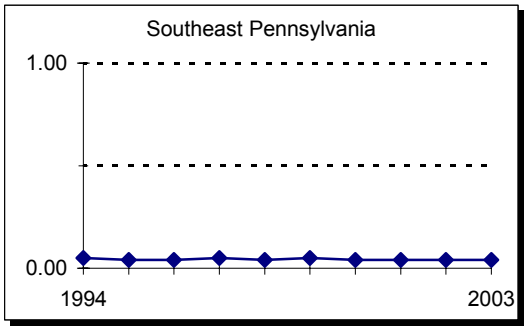
Figure 2-3. Trend in maximum quarterly average lead concentrations (including source-oriented sites), 1994-2003.

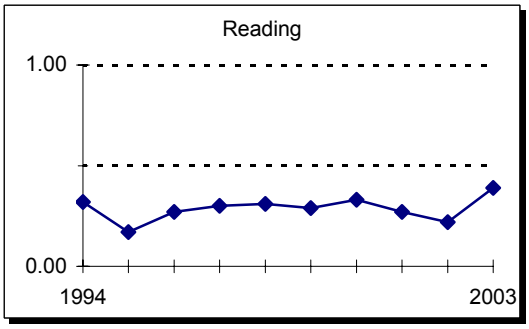
Lead trends for the individual areas in the state are shown in Figure 2-4, located on the following page, for 1994 to 2003.

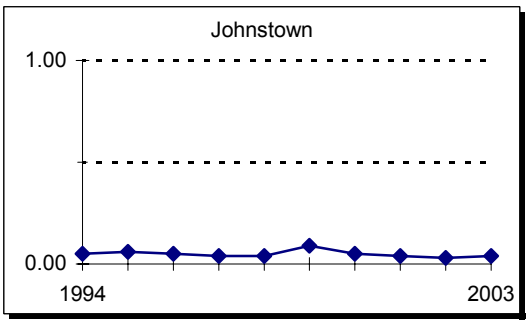
The particulate lead standard was not exceeded at any monitoring site in 2003, including source-oriented sites. Quarterly averages for all stations that monitored lead in 2003 are shown in Appendix A, Table A-5, along with the number of samples taken in each quarter, the annual arithmetic mean, and the total number of samples for the year.

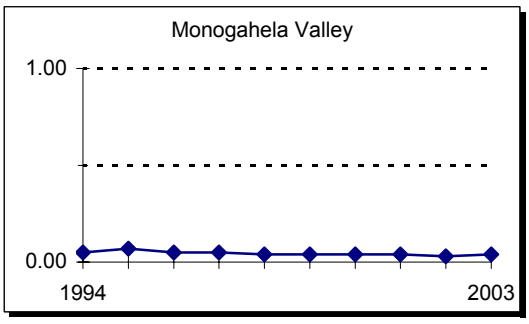
Lead historical trend data is presented in Appendix A, Table A-6 for 1994 to 2003. The table contains the maximum quarterly mean for each year. Trend data is shown for all sites that operated in 2003. The quarterly mean is shown if at least 30 samples were collected during the year. No current monitoring 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.

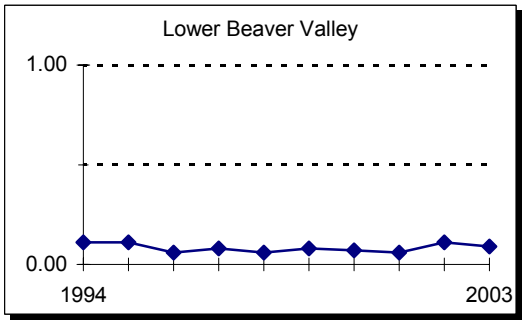
Figure 2-4. Lead Particulate Trends in Pennsylvania 1994 to 2003
Maximum Quarterly Means (micrograms per cubic meter)

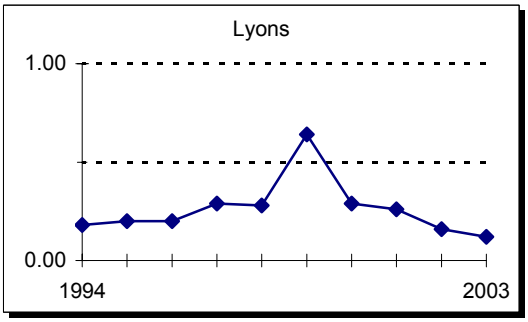


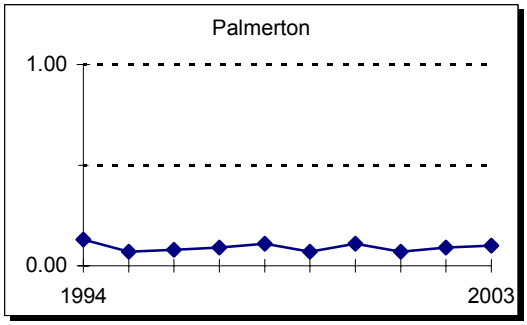












Lead National Ambient Air Quality Standard is a quarterly average of 1.5 micrograms per cubic meter

PM_{10} Suspended 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.

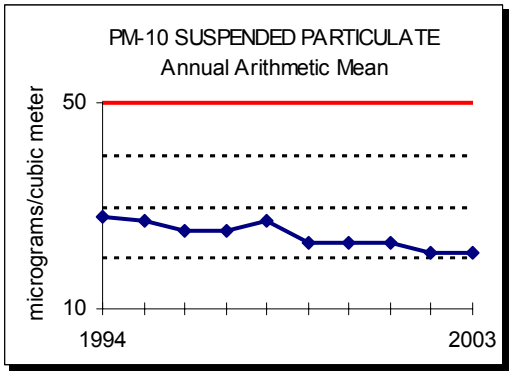


Figure 2-5. Trend in annual mean PM_{10} concentration, 1994-2003.

Figure 2-5 is a graph of the historical statewide PM_{10} trend from 1994 to 2003. Because of an EPA policy change, data prior to 1988-99 is reported in units corrected to standard conditions while data since 1998-99 is corrected to local conditions. In 1994, the statewide average concentration was 28 micrograms per cubic meter ($\mu g/m^3$) and in 2003 the statewide average concentration was 21 micrograms per cubic meter ($\mu g/m^3$), representing a statewide decrease of 25% 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 2003 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 2003. 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 1994 to 2003. 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 9 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 ($\mu g/m^3$).

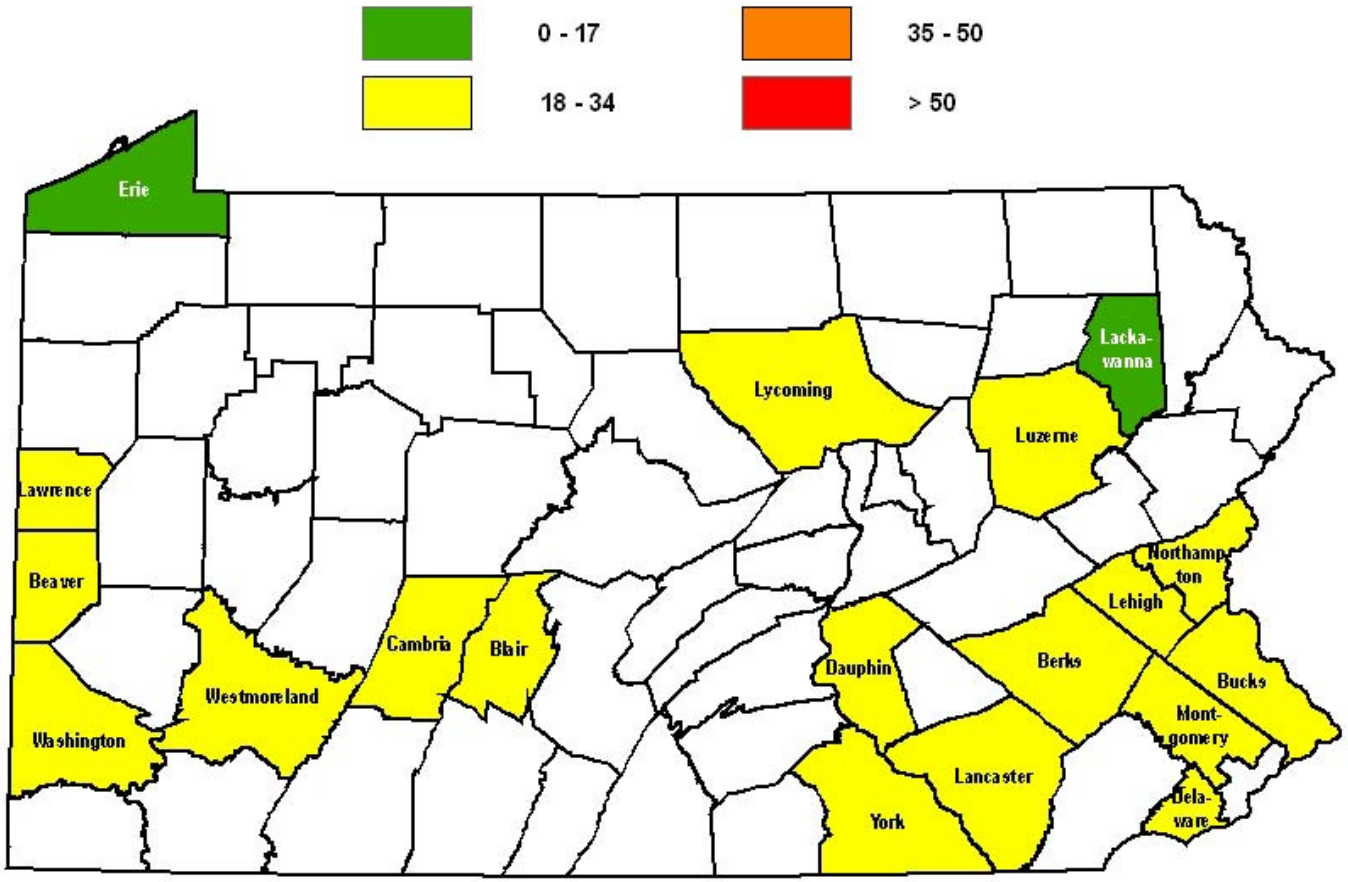
The 2003 PM_{10} data summary appears in Appendix A, Table A-7. Historical trend data for each site monitored in 2003 is shown in Appendix A, Table A-8. This table lists the annual arithmetic means and second maximum 24-hour mean over the last 10 years for each site that monitored in 2003 with at least 50 percent data completeness.

This page intentionally left blank.

Figure 2-6. PM-10 Concentrations

Annual Means (Average by County, for 2003)

(Micrograms per Cubic Meter)



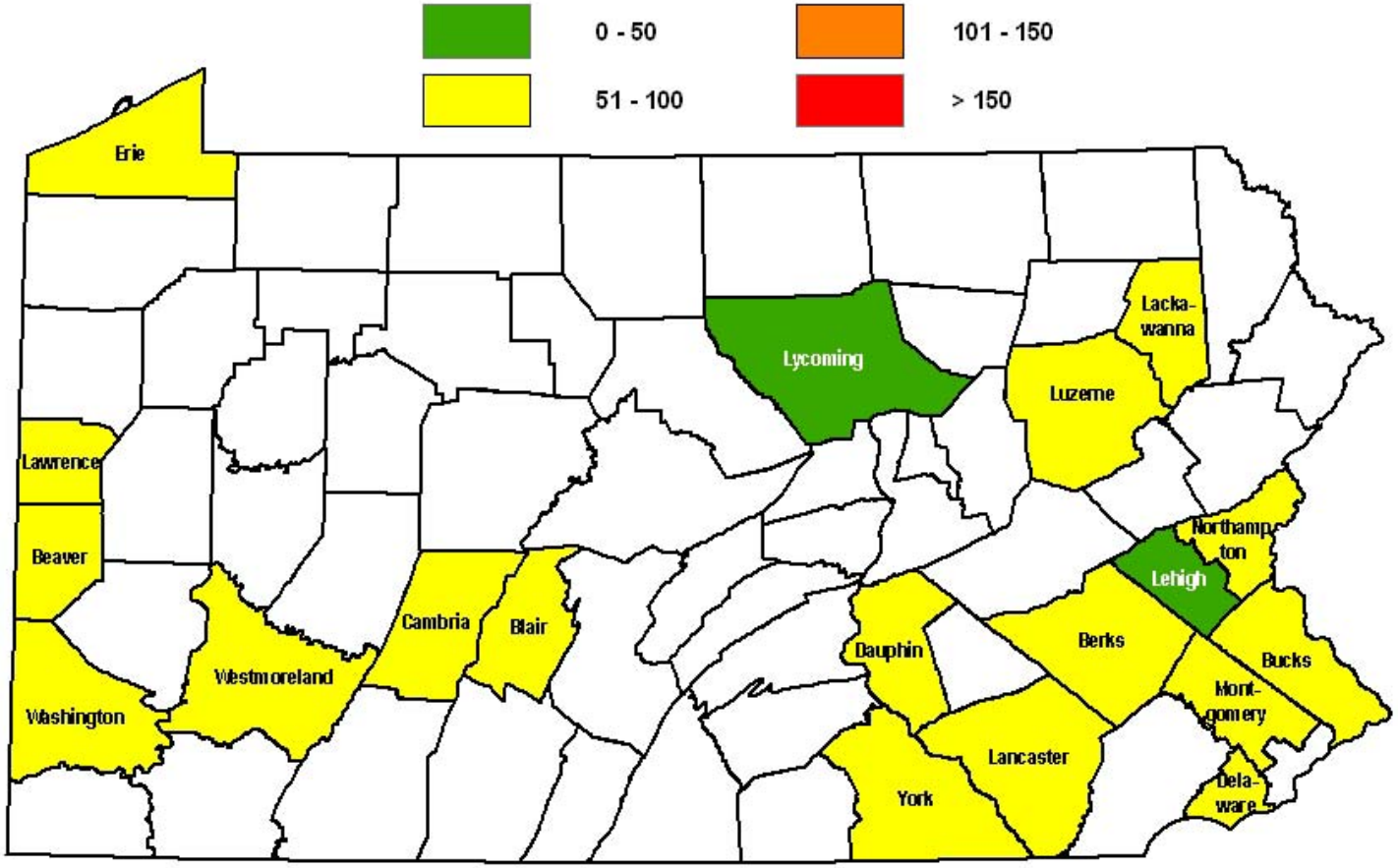
Primary and Secondary National Ambient Air Quality Standard for PM-10
Annual Mean = 50 micrograms per cubic meter
(Data are displayed for single calendar year, but the standard is based on a 3-year average)

This page intentionally left blank.

Figure 2-7. PM-10 Concentrations

Highest Second Maximum 24-Hour Mean (by County, for 2003)

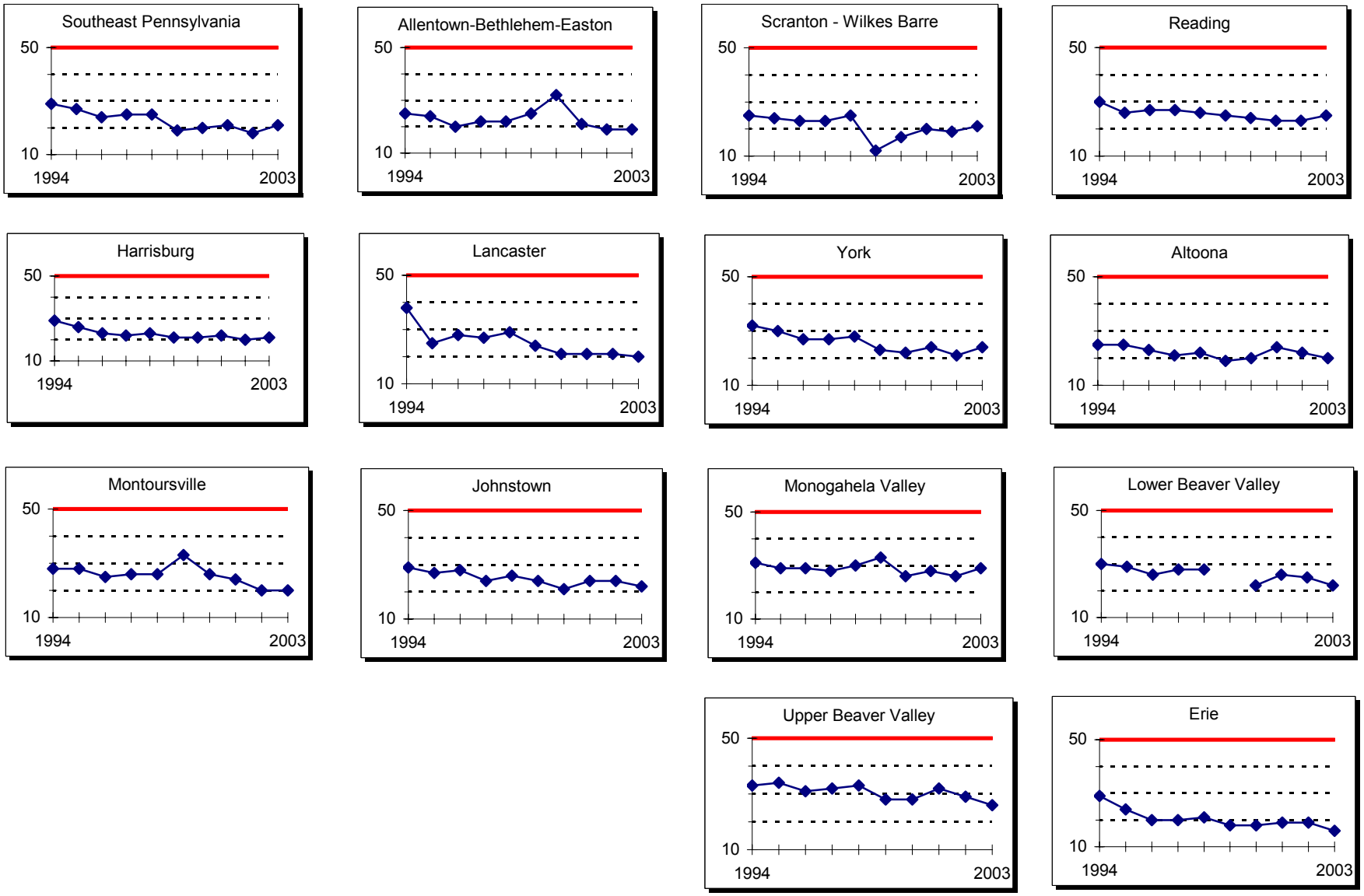
(Micrograms per Cubic Meter)



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 1994 to 2003
Annual Arithmetic Means (micrograms per cubic meter)



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

This page intentionally left blank.

$PM_{2.5}$ Suspended 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 $PM_{2.5}$ continuous monitor is the Tapered Element Oscillating Microbalance (TEOM), 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).

DEP has continuous monitors at three sites and discrete monitors at 24 sites (Arendtsville has both a discrete and a continuous monitor), but EPA only designates the discrete $PM_{2.5}$ monitor 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 sites in a county, the highest FRM monitor reading is used. Only sites that have monitored 50 percent of the time during 2003 are included in this figure. In 2003, ten counties monitored by DEP exceeded the annual $PM_{2.5}$ standard of 15 $\mu g/m^3$.

The map in Figure 2-10 displays the highest 98^{th} percentile 24-hour $PM_{2.5}$ mean by county. When there are multiple sites in a county, the highest FRM monitor reading is used. In 2003,no counties monitored by DEP exceeded the 24-hour $PM_{2.5}$ standard of 65 $\mu g/m^3$.

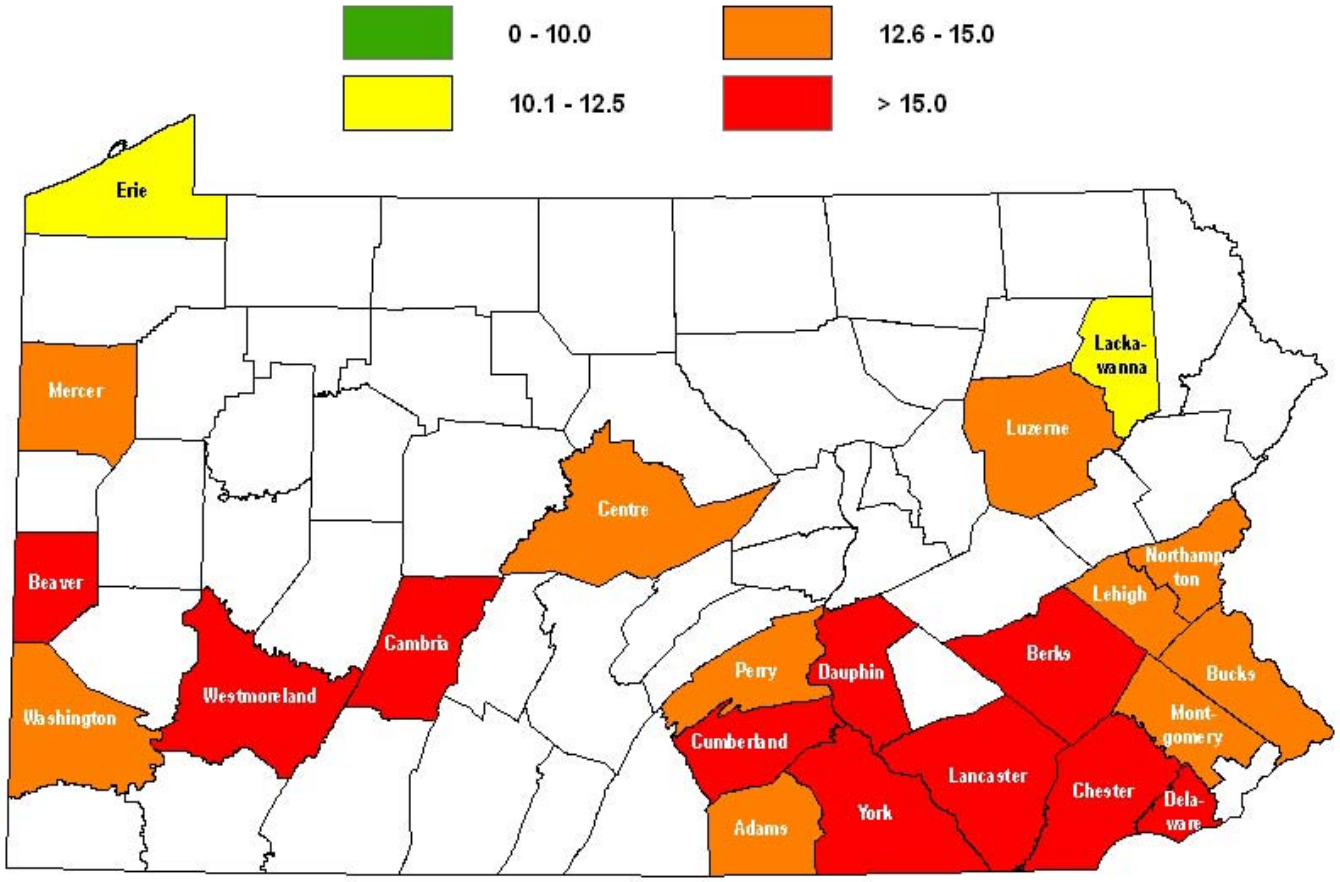
With only five complete years of data collected, no graphical trend analysis is available. Data collected in 2003 is summarized in Appendix A, Table A-9 for all FRM monitors and continuous (TEOM) monitors. Historical trend data for each site that was monitored in 2003 is shown in Appendix A, Table A-10. Ten of the FRM monitoring sites exceeded the annual air quality standard, and none of the FRM sites exceeded the 24-hour air quality standard in 2003.

This page intentionally left blank.

Figure 2-9. PM-2.5 Concentrations

Annual Mean (Average by County, for 2003)

(Micrograms per Cubic Meter)



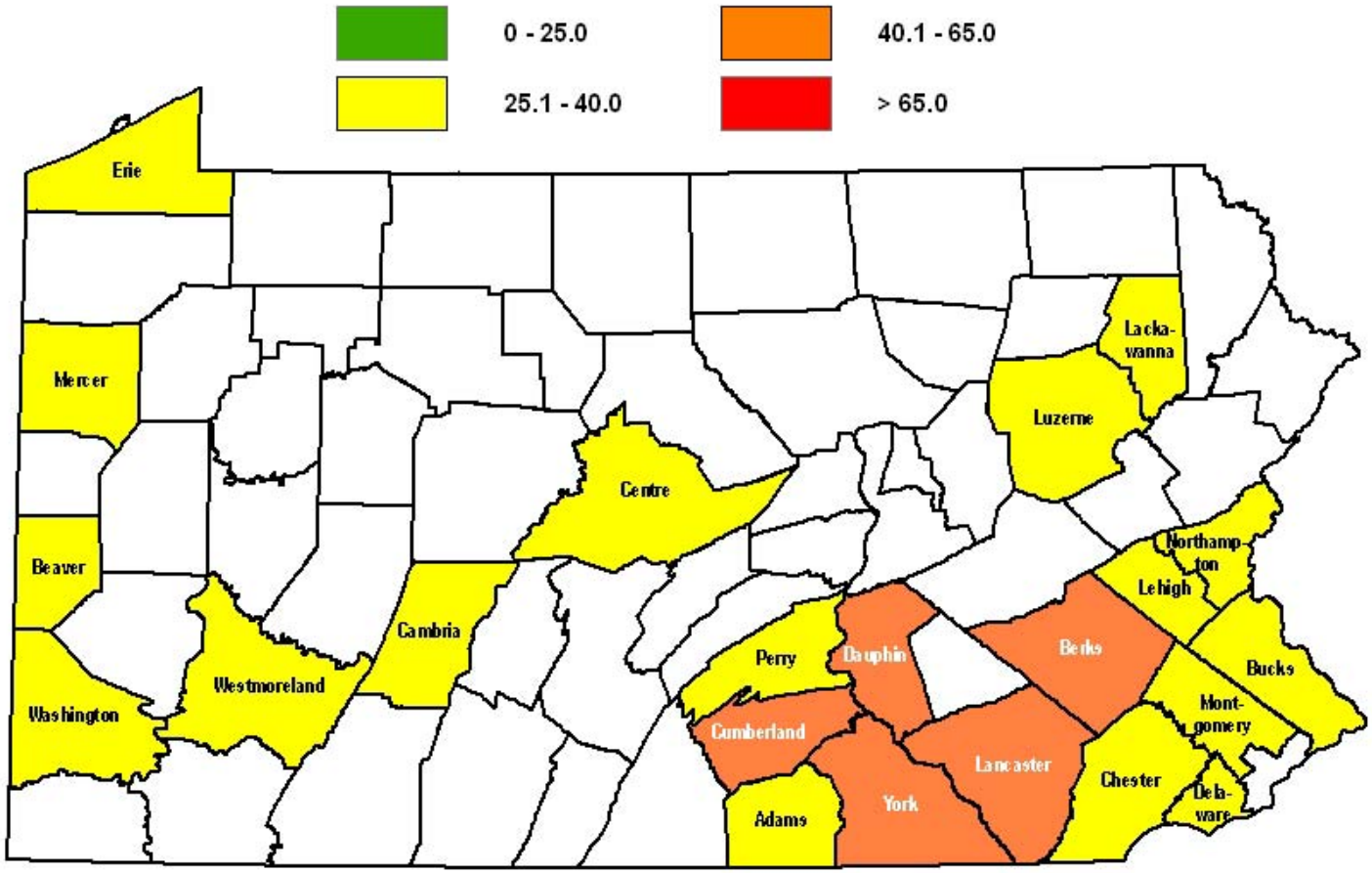
Primary and Secondary National Ambient Air Quality Standard for PM-2.5
Annual Mean = 15 micrograms per cubic meter
(Data are displayed for single calendar year, but standard is based on a 3-year average)

This page intentionally left blank.

Figure 2-10. PM-2.5 Concentrations

98th Percentile 24-Hour Daily Mean (by County, for 2003)

(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 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 as:

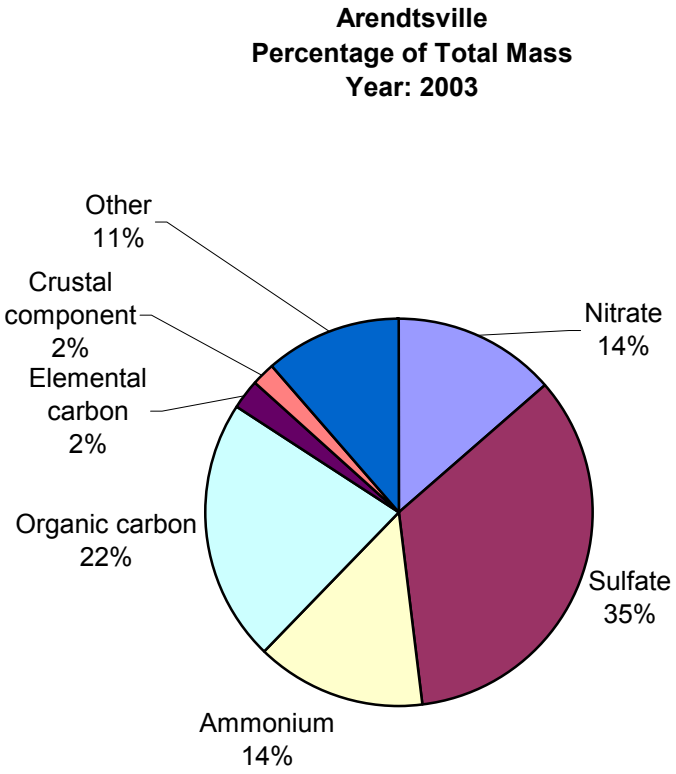
- Inputs to air quality modeling analyses used to implement the $PM_{2.5}$ standard;
- Indicators to track the progress of air pollution controls;
- Aids to interpret studies linking health effects to $PM_{2.5}$ constituents;
- Aids to understand the effects of atmospheric constituents on visibility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



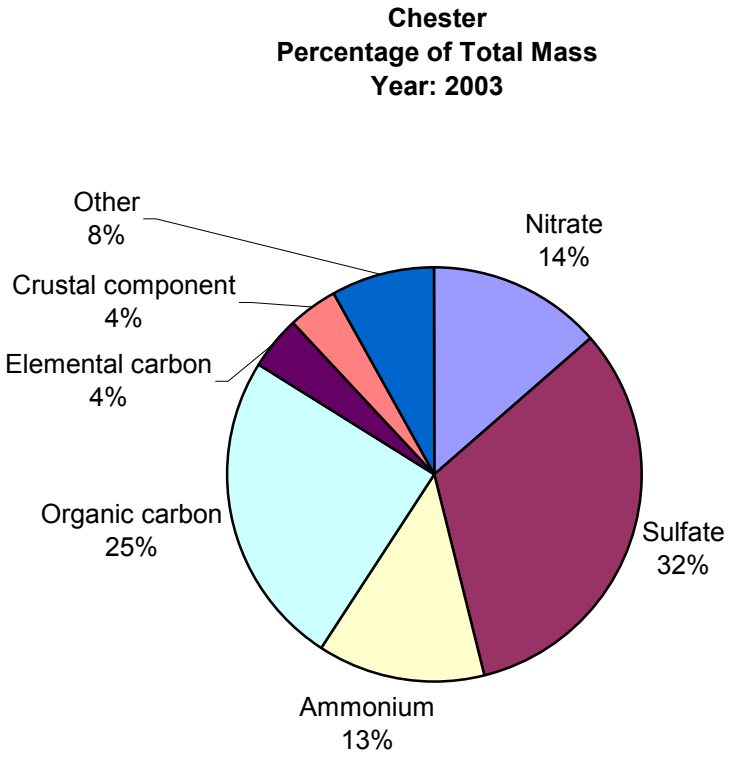
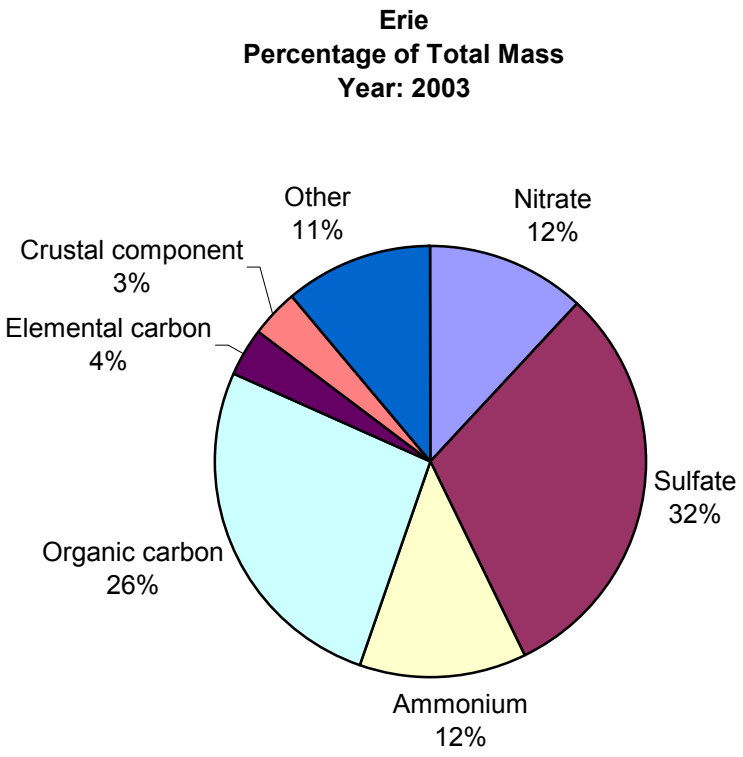


Figure 2-12. $PM_{2.5}$ Speciation Pie Charts for Erie and Florence



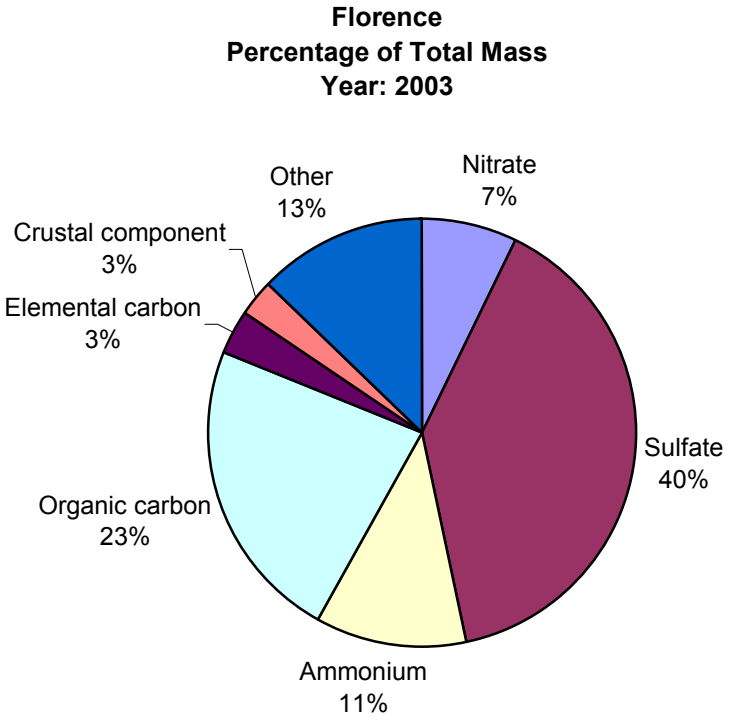
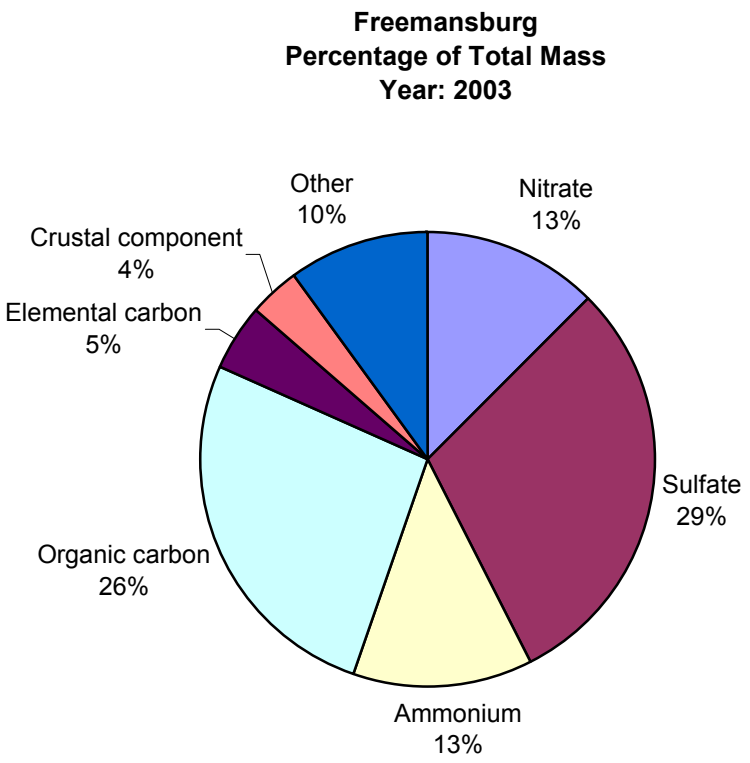


Figure 2-13. $PM_{2.5}$ Speciation Pie Charts for Freemansburg and Greensburg



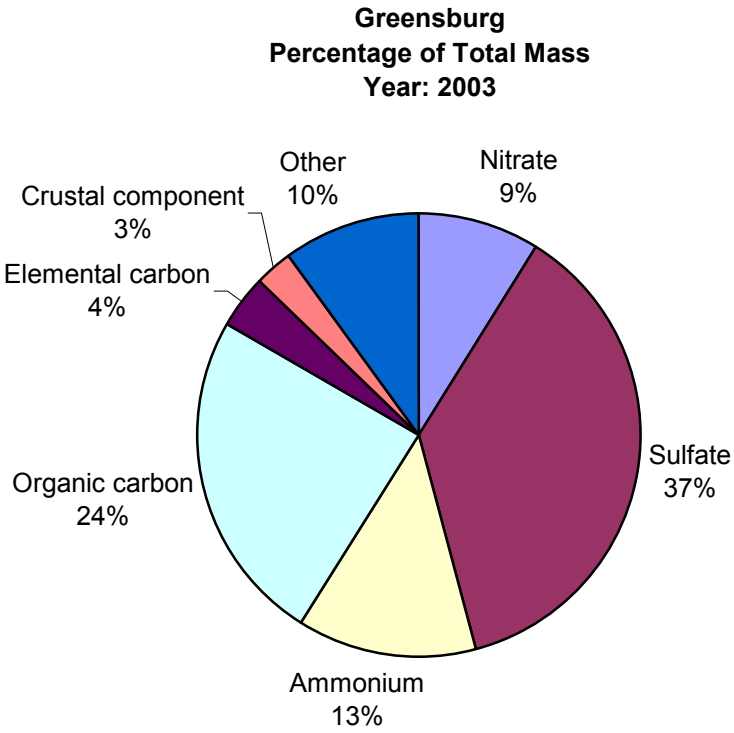
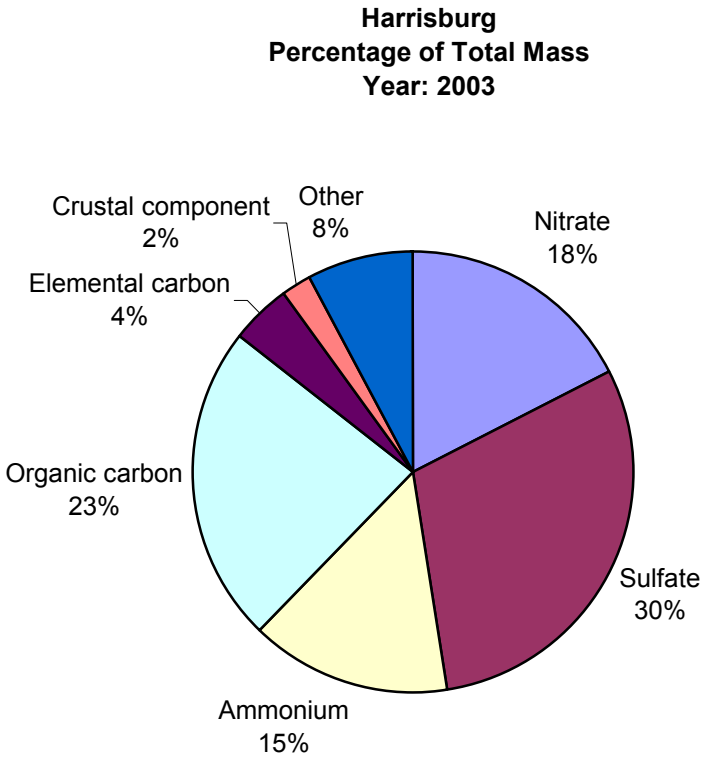


Figure 2-14. $PM_{2.5}$ Speciation Pie Charts for Harrisburg and Lancaster



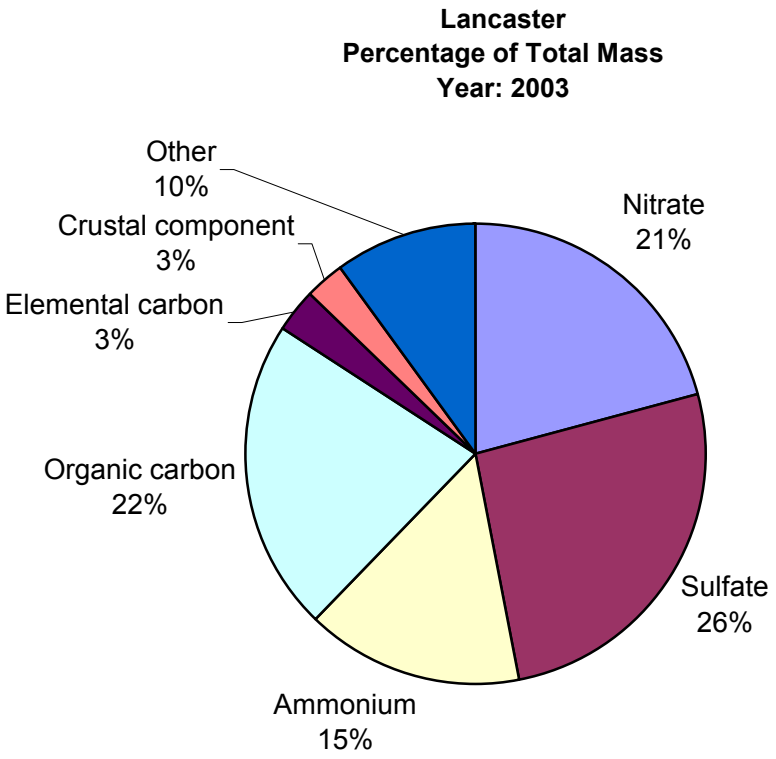
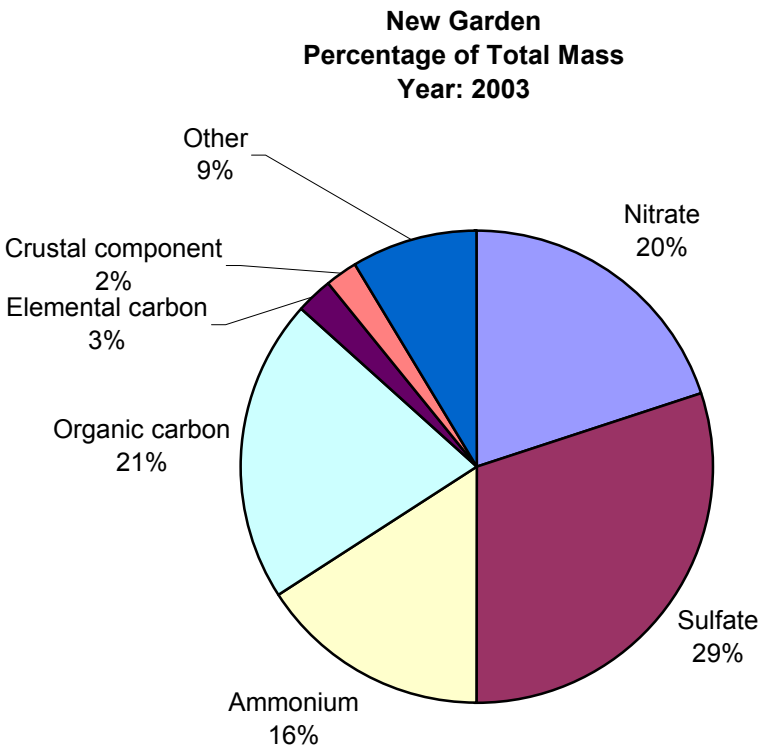


Figure 2-15. $PM_{2.5}$ Speciation Pie Charts for New Garden and Perry County



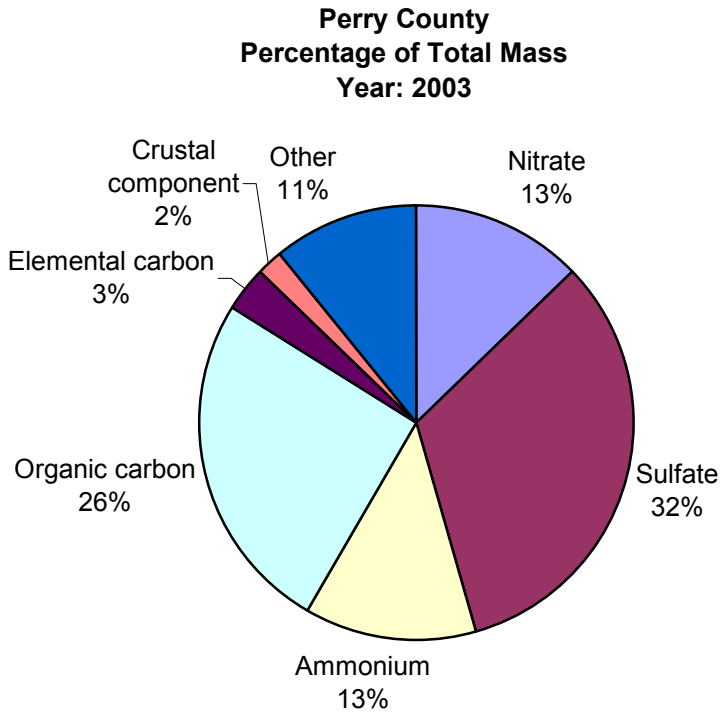
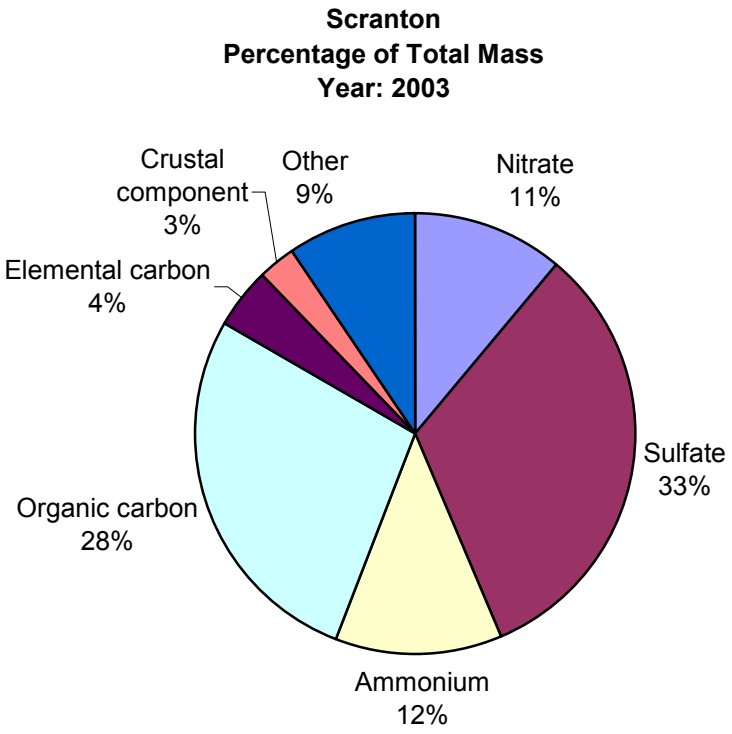


Figure 2-16. $PM_{2.5}$ Speciation Pie Charts for Scranton and State College



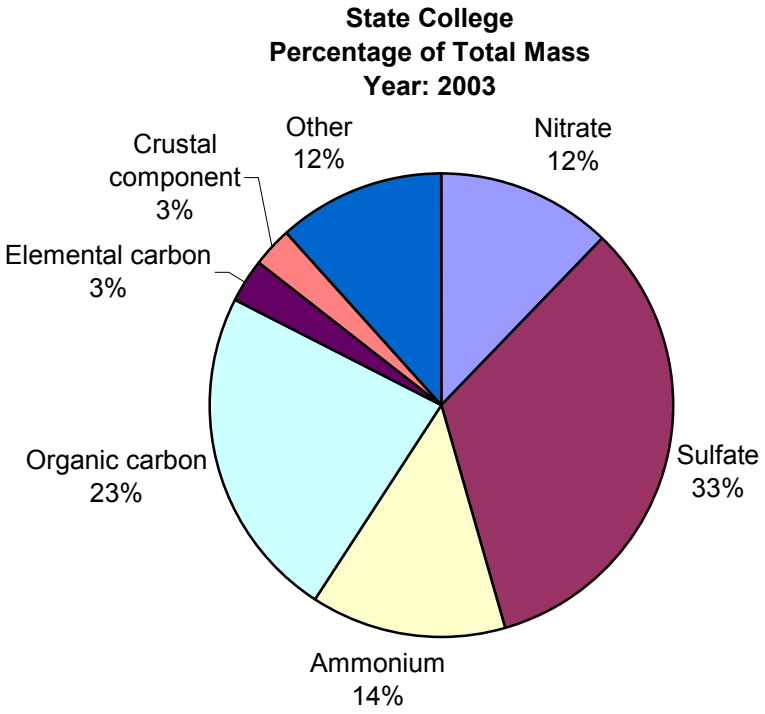
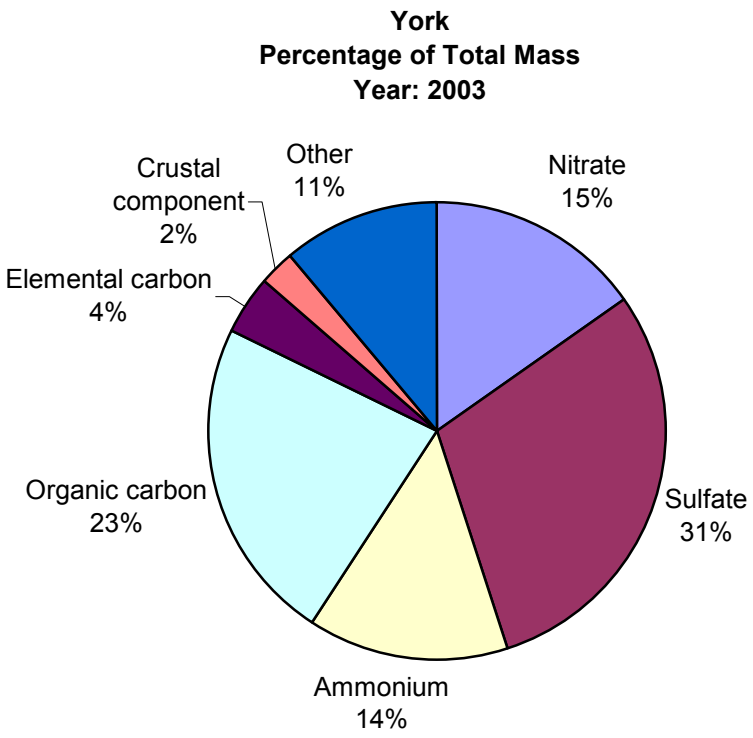


Figure 2-17. $PM_{2.5}$ Speciation Pie Chart for York



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.

The statewide composite average of sulfur dioxide annual mean concentration for 1994 to 2003 is shown in Figure 2-18. Sulfur dioxide levels have shown only a slight improvement over the last ten years and remain below 50 percent of the air quality standard.

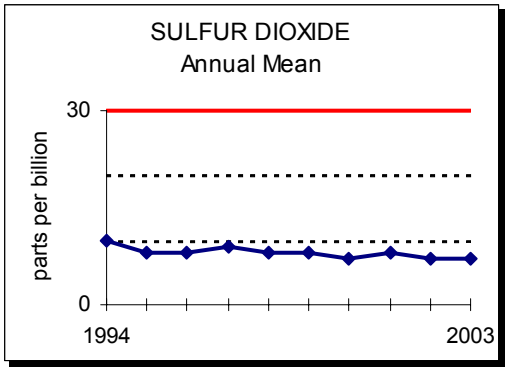


Figure 2-18. Trend in annual mean SO_2 concentrations, 1994-2003

The map in Figure 2-19 displays the average sulfur dioxide annual mean by county in 2003. 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 2003. All areas of the Commonwealth met the 24-hour air quality standard of 140 ppb.

Figure 2-21 displays the last 10-year trend (1994 to 2003) 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 levels correlate significantly with ambient temperatures. As outside temperatures go down, indoor space heating requirements increase, resulting in additional burning of coal and oil.

Sulfur dioxide data for all sites that operated in 2003 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.

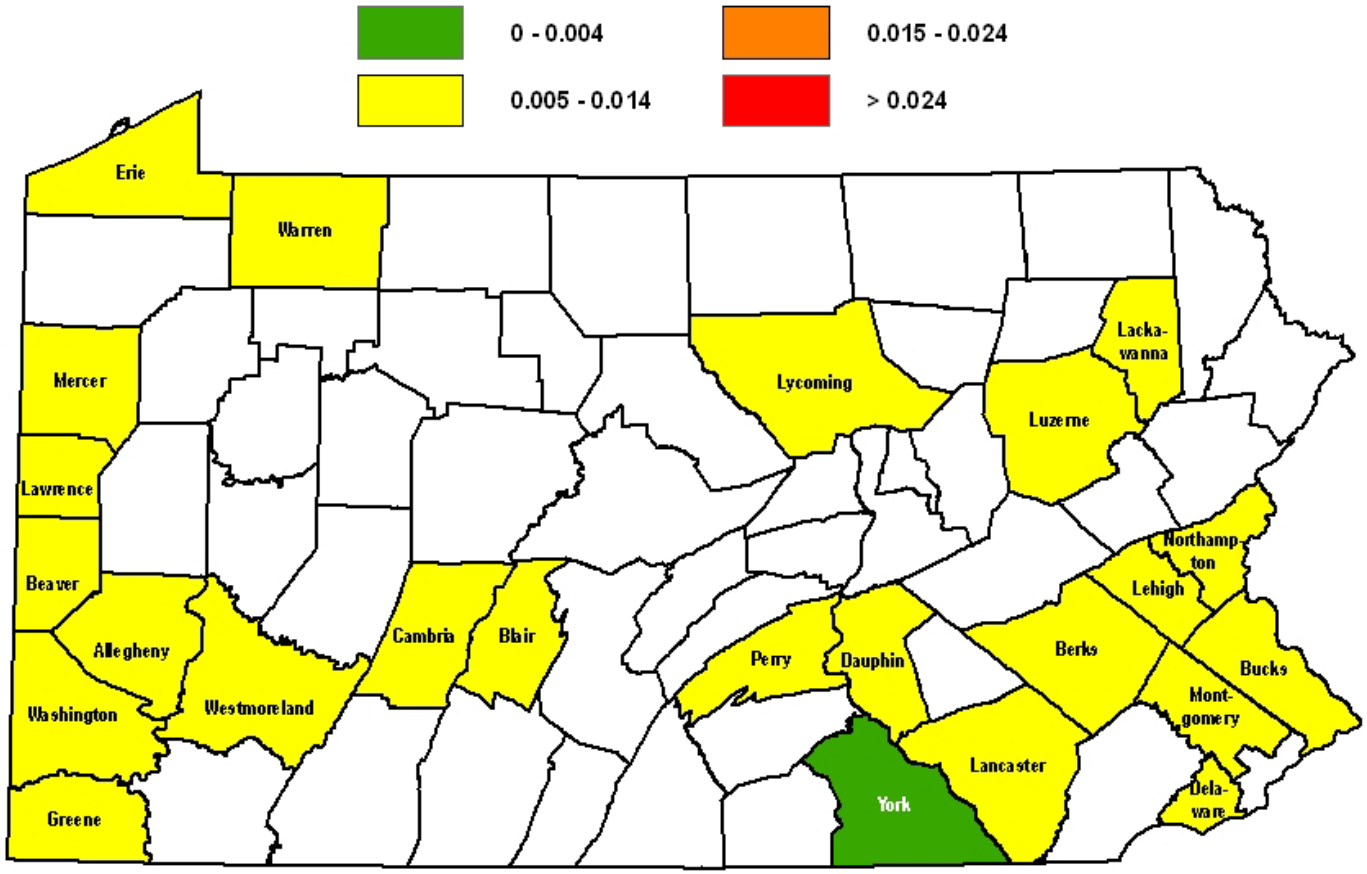
Sulfur dioxide historical data over the last 10 years is presented in Appendix A, Table A-12 for all stations that operated in 2003 with at least 50 percent valid data. This data was used to produce the trend chart shown in Figure 2-21.

This page intentionally left blank.

Figure 2-19. Sulfur Dioxide Concentrations

Annual Means (Average by County, for 2003)

(Parts per Million)



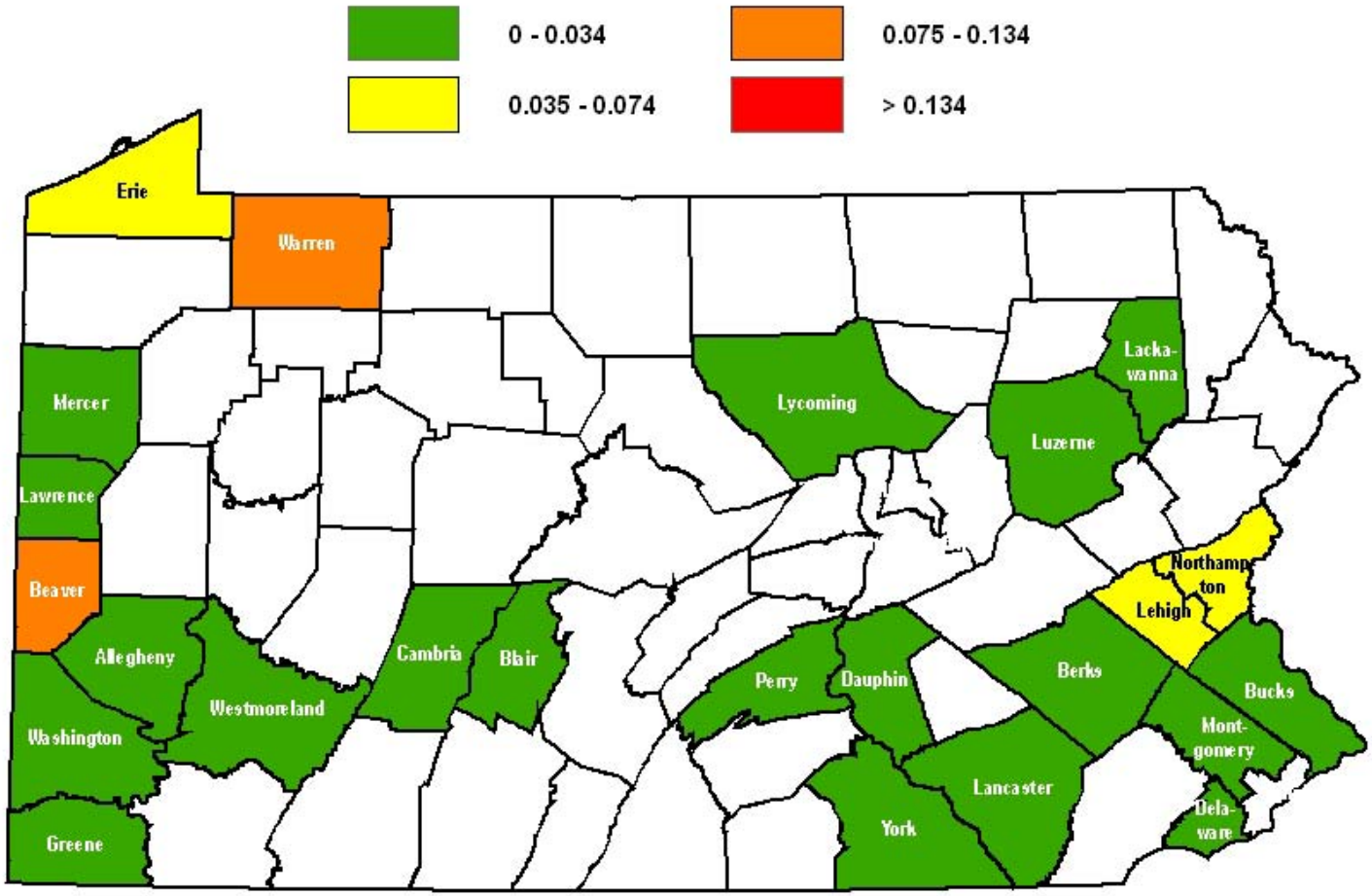
Primary National Ambient Air Quality Standard for Sulfur Dioxide
Annual Mean = 0.030 parts per million

This page intentionally left blank.

Figure 2-20. Sulfur Dioxide Concentrations

Highest Second Maximum 24-Hour Daily Mean (by County, for 2003)

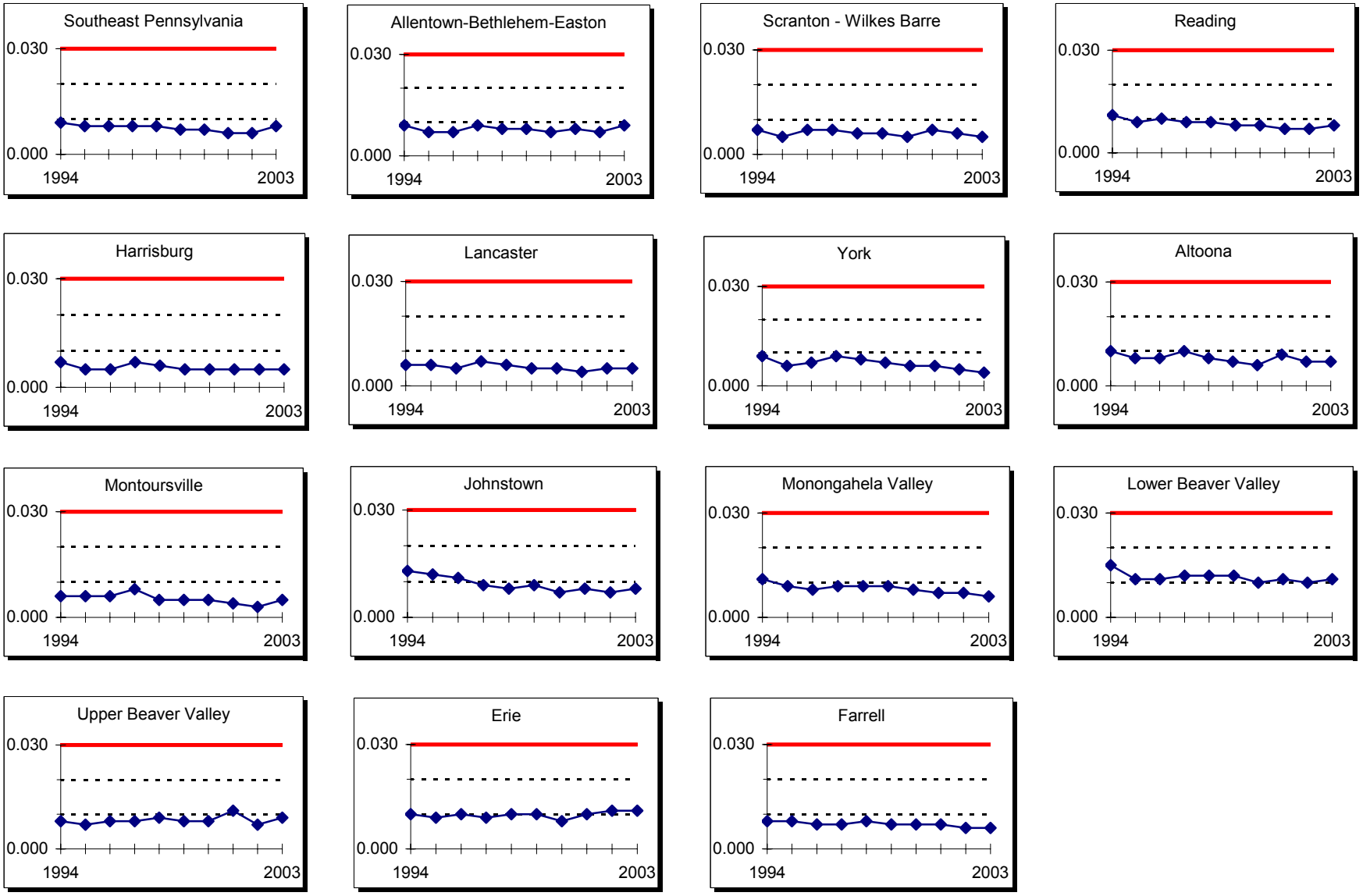
(Parts per Million)



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 1994 to 2003
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. The 1-hour ozone standard still applied in 2003 and EPA is developing regulations for the implementation of the 8-hour standard. 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 five rural sites: Moshannon State Forest, Clearfield County; Tiadaghton, Lycoming County; the Department of Conservation and Natural Resources Penn Nursery facility, Centre 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 applies in areas that have not attained compliance with the standard, this report presents both 1- and 8-hour ozone data. The ozone-monitoring season in Pennsylvania begins each year on April 1st and ends on October 31st.

Ambient ground-level ozone trends are erratic by nature. Changes in meteorological conditions, population growth, and changes in emissions (VOCs and NOx) influence ozone concentrations. Figure 2-22 shows the 1994-2003 statewide (DEP sites only) average second daily maximum 1-hour ozone concentrations. Weather conditions were not favorable for ozone formation in 2003. The solid line is at the primary 1-hour air quality standard of 125 parts per billion (ppb).

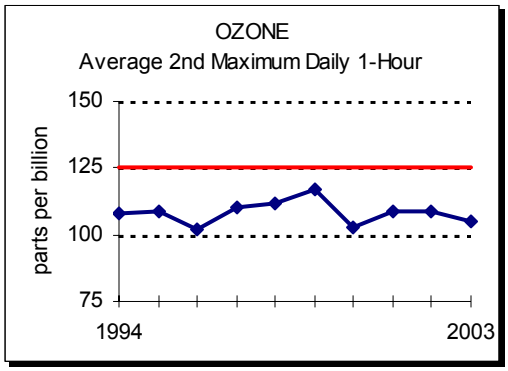


Figure 2-22. Trend in average second daily maximum 1-hour ozone concentrations, 1994-2003.

The map in Figure 2-23 presents the highest second daily maximum 1-hour ozone concentration by county in 2003. No counties had more than one exceedance of the 1-hour air quality standard in 2003. 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 2003. 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 (1994 to 2003) 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 (1994 to 2003) of the 3-year average of the fourth highest daily 8-hour running ozone mean. All sites, with the exception of the Montoursville site, 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.

Montoursville has been the only area consistently below the ozone air quality standards.

Appendix A, Table A-13a summarizes the 1-hour ozone data during the ozone season of 2003 for all monitoring sites. Appendix A, Table A-13b summarizes the 8-hour ozone data during the ozone season of 2003 for all monitoring sites.

Appendix A, Table A-14 lists the days on which the 1-hour ozone air quality standard was exceeded in 2003 at all sites in Pennsylvania.

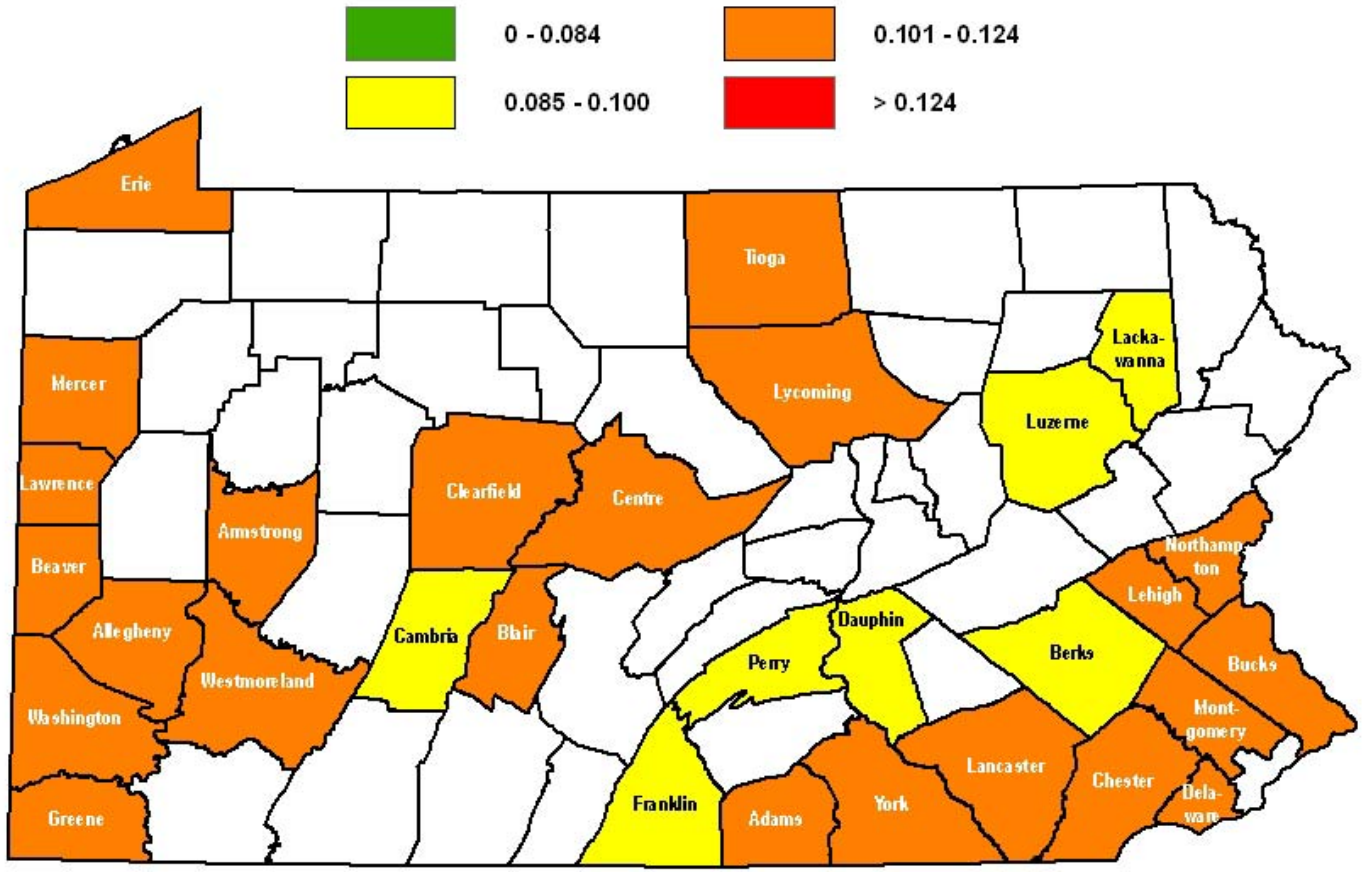
Appendix A, Tables A-15 and A-16 summarize the 1-hour and 8-hour data over the last three years (2001 - 2003). These tables include monitoring sites operated by DEP, the Allegheny County Health Department, Philadelphia Department of Public Health, Air Management Services, and the Pennsylvania State University.

Historical 1-hour data for ozone from 1994 to 2003 is contained in Appendix A, Table A-17 for all DEP sites that operated during the ozone monitoring season in 2003 with at least 50 percent valid data. To demonstrate that the 1-hour ozone NAAQS is achieved and maintained, a site can have no more than three exceedances of the 0.12 parts per million (ppm) standard over the last three years. DEP monitoring sites located in the Southeast Pennsylvania air basin have more than three exceedances in the last three years.

Figure 2-23. Ozone Concentrations

Highest Second Maximum Daily 1-hour Concentrations (by County, for 2003)

(Parts per Million)



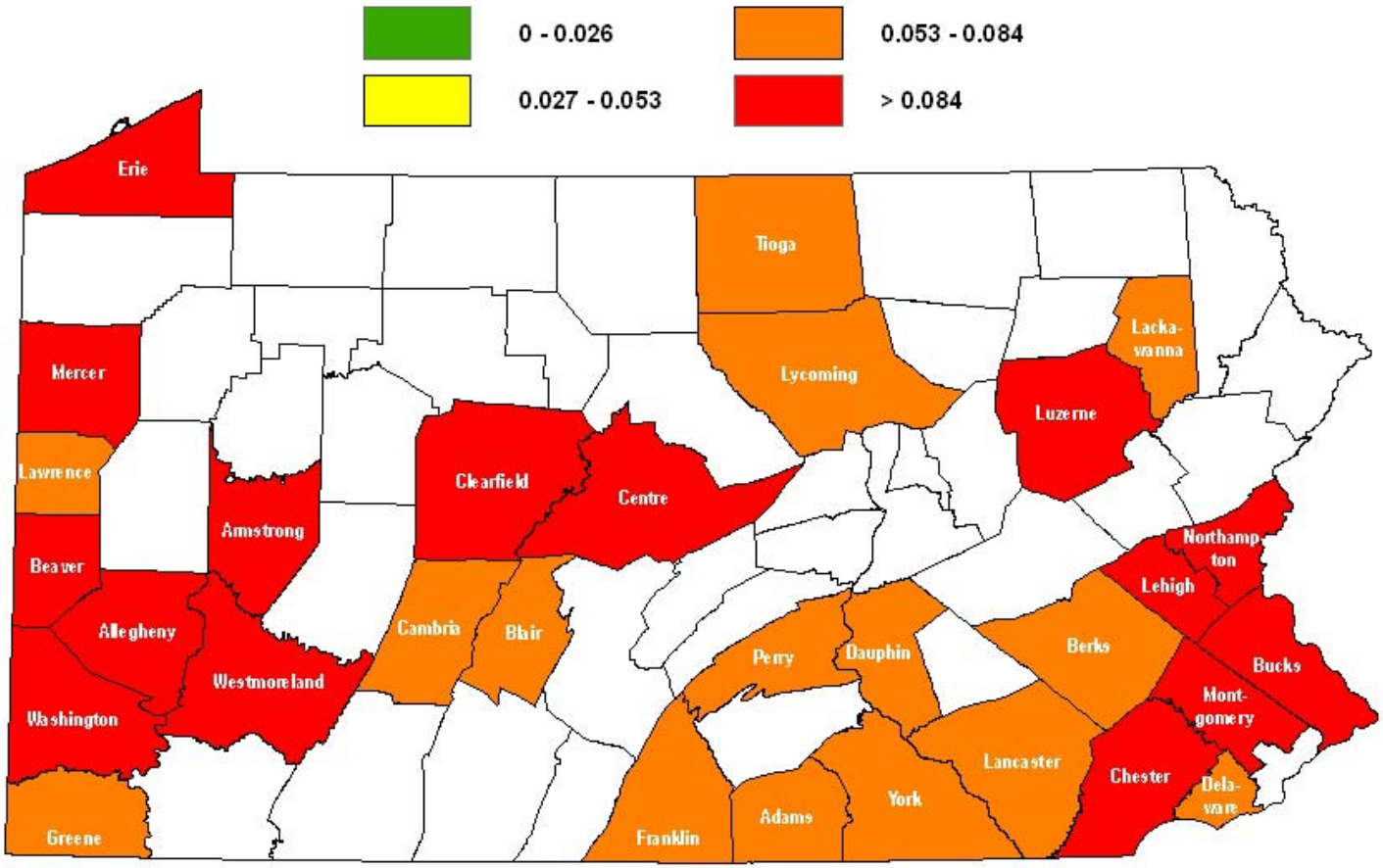
Primary and Secondary National Ambient Air Quality Standard for Ozone
Maximum Daily 1-Hour Average = 0.12 parts per million (not to be exceeded more than once per year)

This page intentionally left blank.

Figure 2-24. Ozone Concentrations

Fourth Maximum Daily 8-hour Concentrations (by County, for 2003)

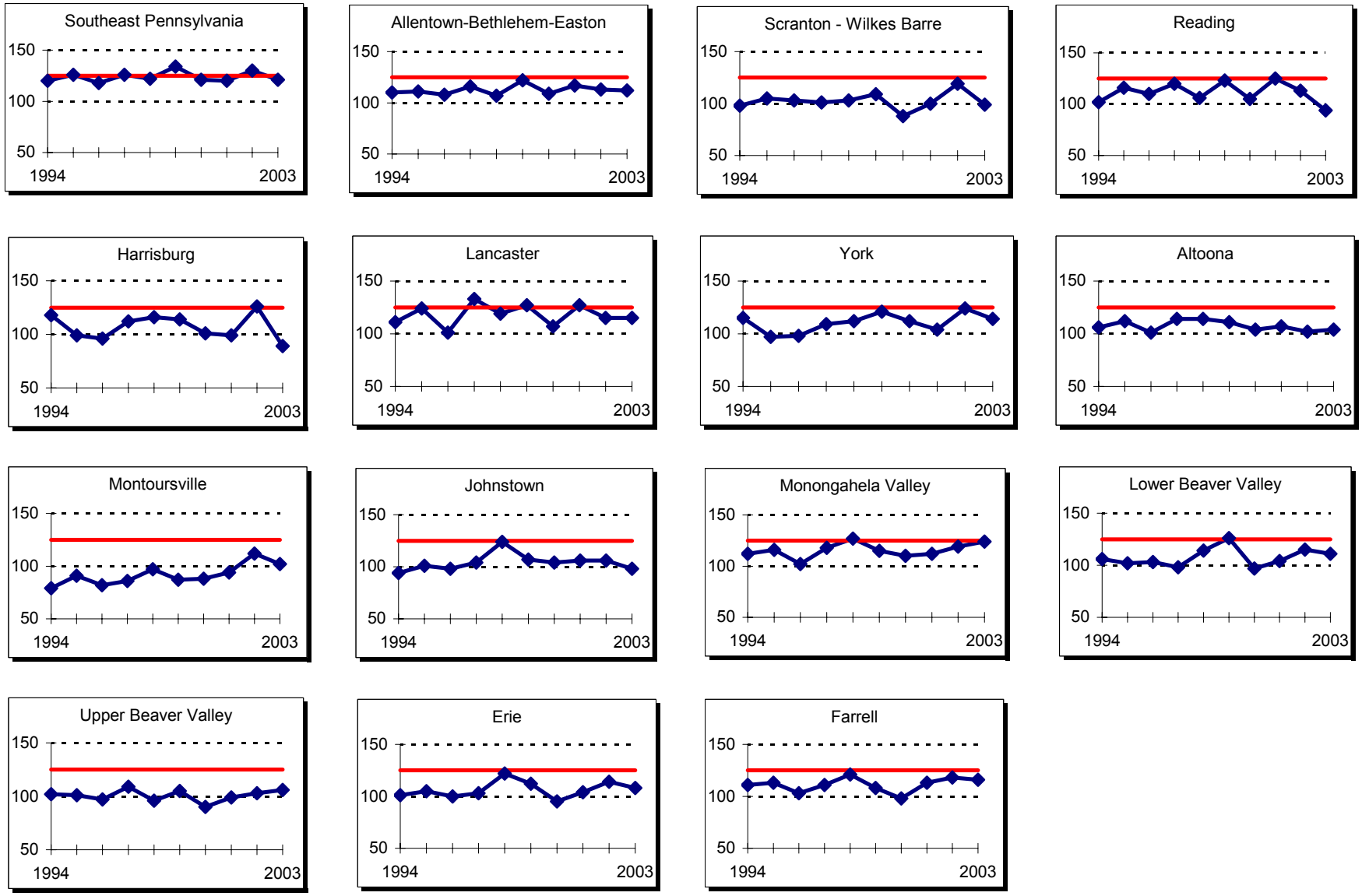
(Parts per Million)



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)

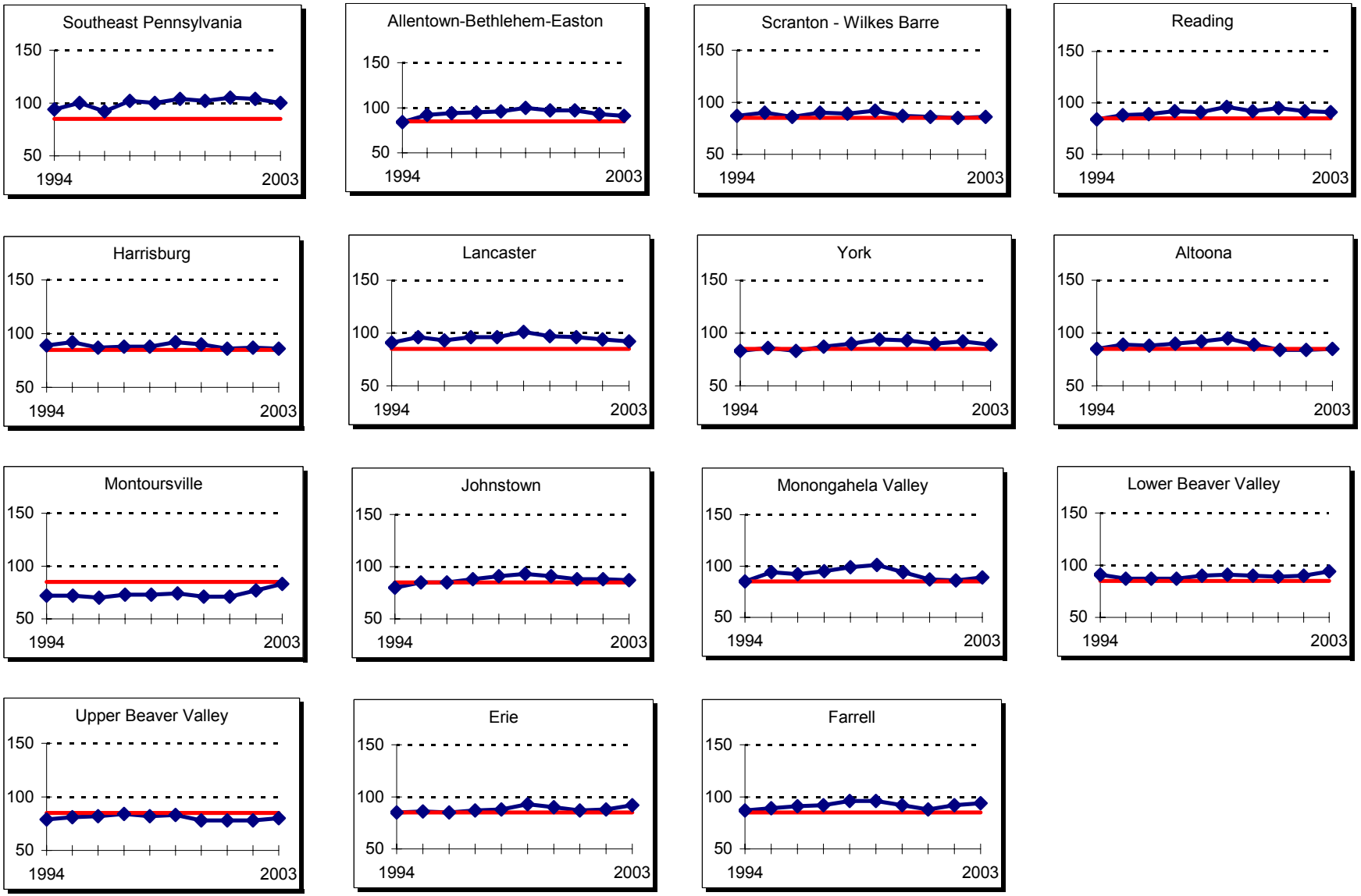
This page intentionally left blank.

Figure 2-25. 10-Year Ozone Trend in Pennsylvania 1994 to 2003
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 1994 to 2003
3-Year Average of 4th Daily Maximum 8-Hour Mean (parts per billion)



The eight-hour Ozone National Ambient Air Quality Standard is the average of the yearly 4th daily maximum 8-hour values over 3 years. The standard is exceeded when the 3-year average is greater than 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.

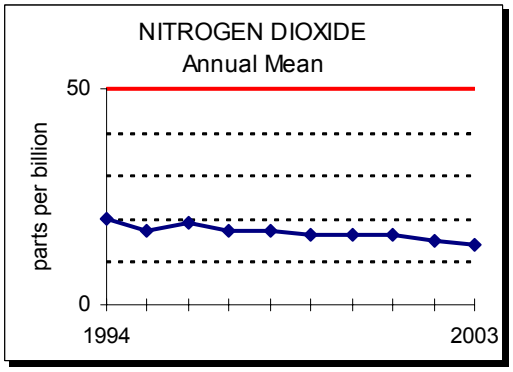


Figure 2-27. Trend in annual NO_2 concentrations, 1994-2003.

The trend in annual mean NO_2 concentrations statewide between 1994 and 2003 is shown in Figure 2-27. In 1994, the statewide average concentration was 20 parts per billion (ppb) and in 2003 the statewide average concentration was 14 parts per billion (ppb), representing a statewide decrease of 30% 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 1994 to 2003 in 12 air basins and the Altoona site. 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 2003 is summarized in Appendix A, Table A-18. No site exceeded the annual primary air quality standard for nitrogen dioxide in Pennsylvania in 2003.

Historical trend data for those sites that monitored nitrogen dioxide in 2003 is presented in Appendix A, Table A-19 for 1994 to 2003. 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.

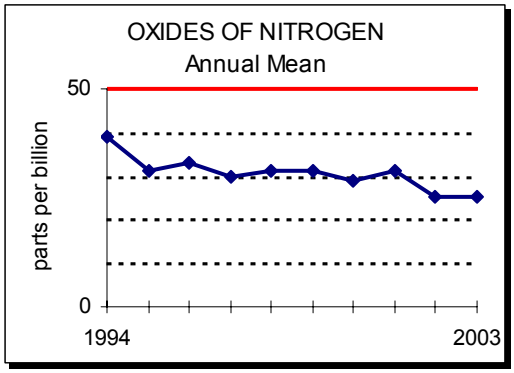
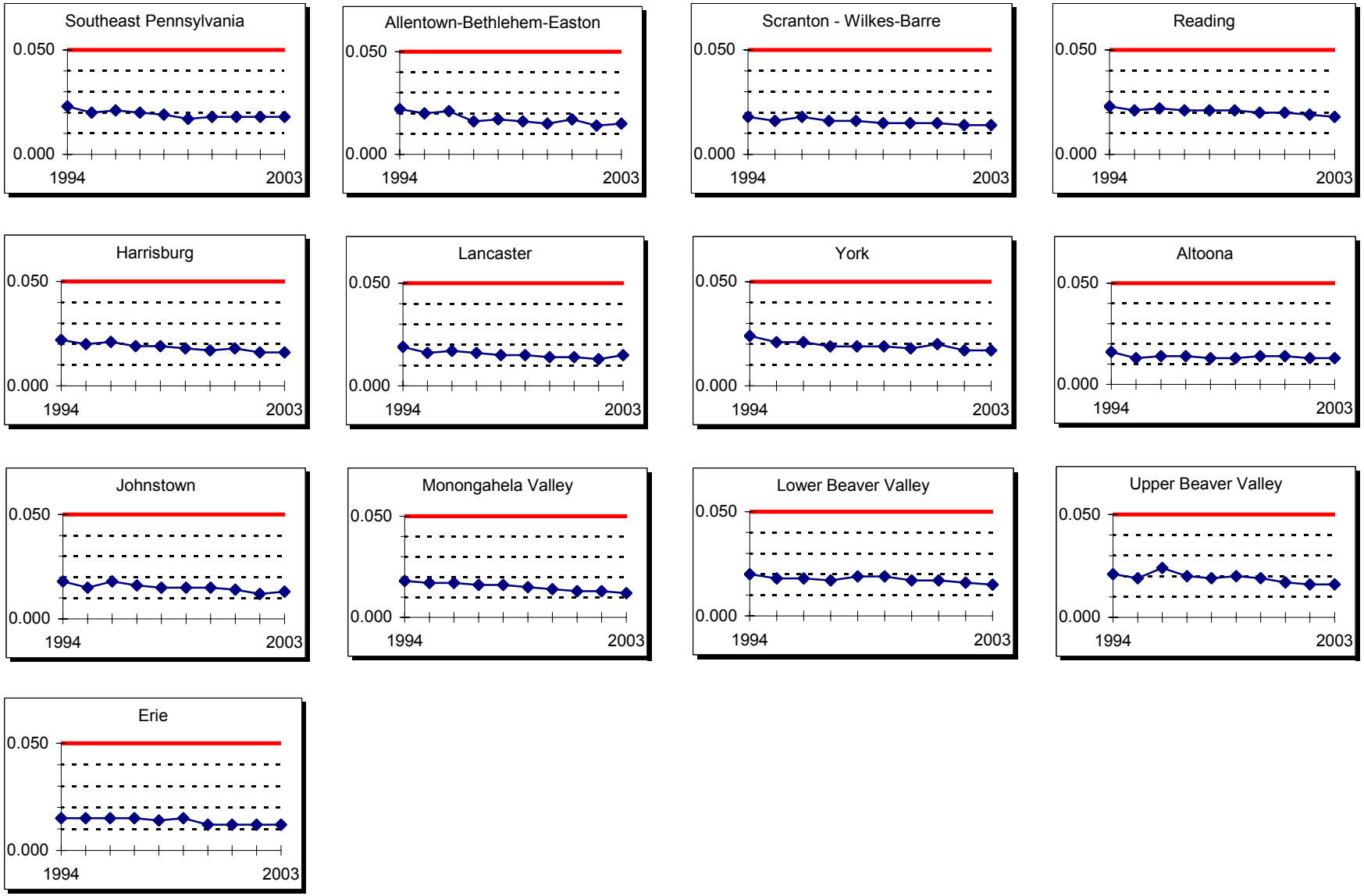


Figure 2-28. Trend of nitrogen oxides annual means, 1994-2003.

Appendix A, Table A-20 summarizes data for oxides of nitrogen (NO_X) in 2003. 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 1994, average NO_X concentrations have declined by 36 percent.

Figure 2-29. 10 – Year Nitrogen Dioxide Trend in Pennsylvania 1994 to 2003
Annual Arithmetic Means (parts per million)



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

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.

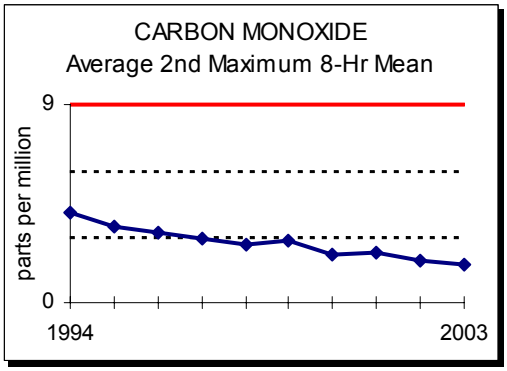


Figure 2-30. Trend in second maximum 8-hour average CO concentrations, 1994-2003.

Figure 2-30 shows the statewide average second maximum 8-hour carbon monoxide concentrations. In 1994, the statewide average concentration was 4.1 parts per million (ppm) and in 2003 the statewide average concentration was 1.7 parts per million (ppm), representing a statewide decrease of 59% for this period. The carbon monoxide improvement occurred across all spatial scales – downtown central business district (CBD), rural, and suburban. As expected, Figure 2-31 shows that, historically, CBD sites recorded higher carbon monoxide concentrations on average than other monitoring site locations. The solid line at 9 parts per million in Figures 2-30 and 2-31 indicates the 8-hour running mean air quality standard.

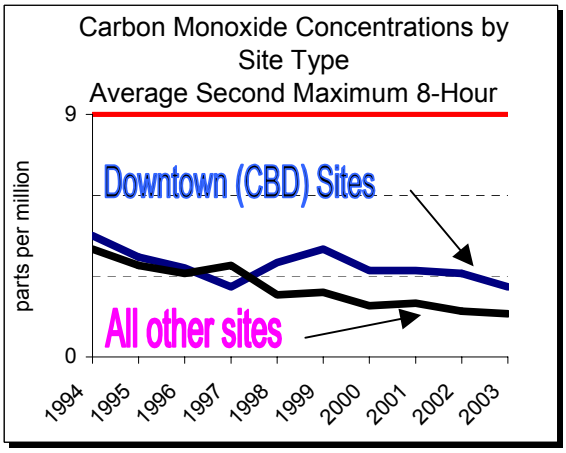


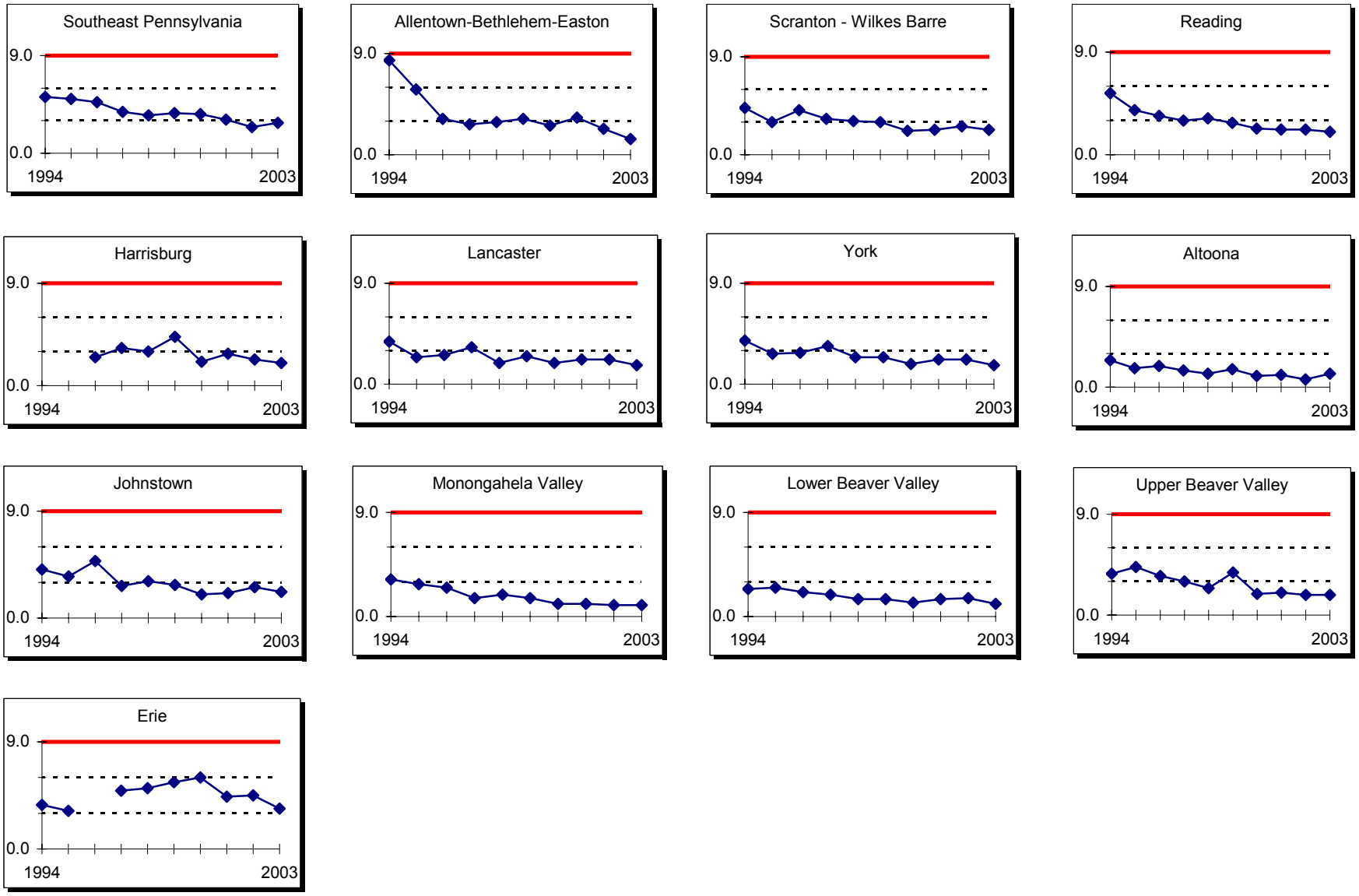
Figure 2-31. Trend in second maximum 8-hour average CO concentrations by location, 1994-2003.

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 2003 has been summarized in Appendix A, Table A-21. There were no exceedances of the 1- or 8-hour air quality standards observed in 2003.

Historical trend data for 1994 to 2003 for carbon monoxide is shown in Appendix A, Table A-22 for all air monitoring sites that operated in 2003 with at least 50 percent valid data. The second maximum value is presented to indicate whether the site is attaining the air quality standard. The 1994 levels were abnormally elevated in the Allentown-Bethlehem-Easton air basin due to two significant air stagnation events that occurred during morning rush hours that trapped vehicle emissions.

Figure 2-32. 10 – Year Carbon Monoxide Trend in Pennsylvania 1994 to 2003
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 2003. Units in Figure 2-33 are expressed in parts per billion Carbon (ppbC).

The 2003 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.

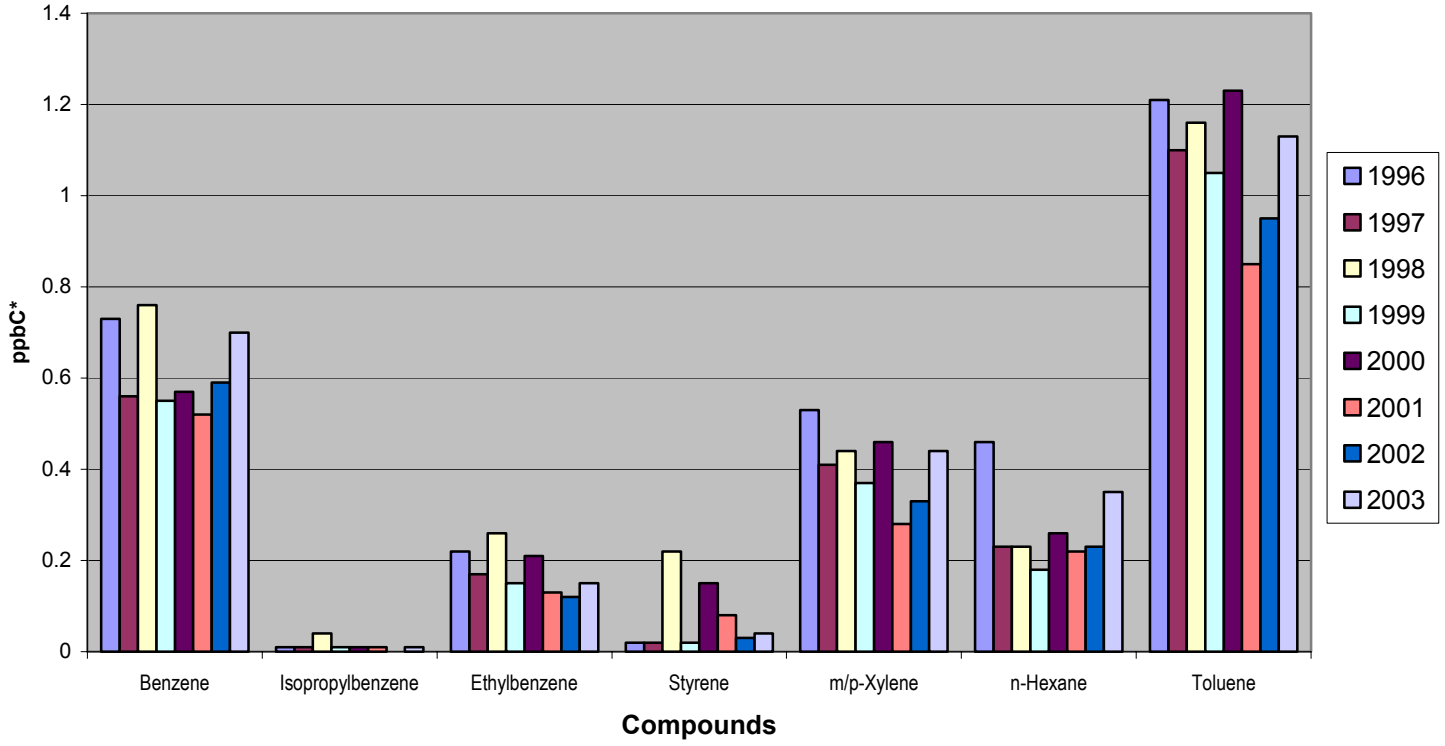
DEP performs air toxics monitoring for mercury at a site near Lancaster. This site is designed to comply with EPA's expanded national toxic monitoring program. Data supplied from this monitoring site, and the expanded national network, will assist in rulemaking and model validation. EPA will use these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

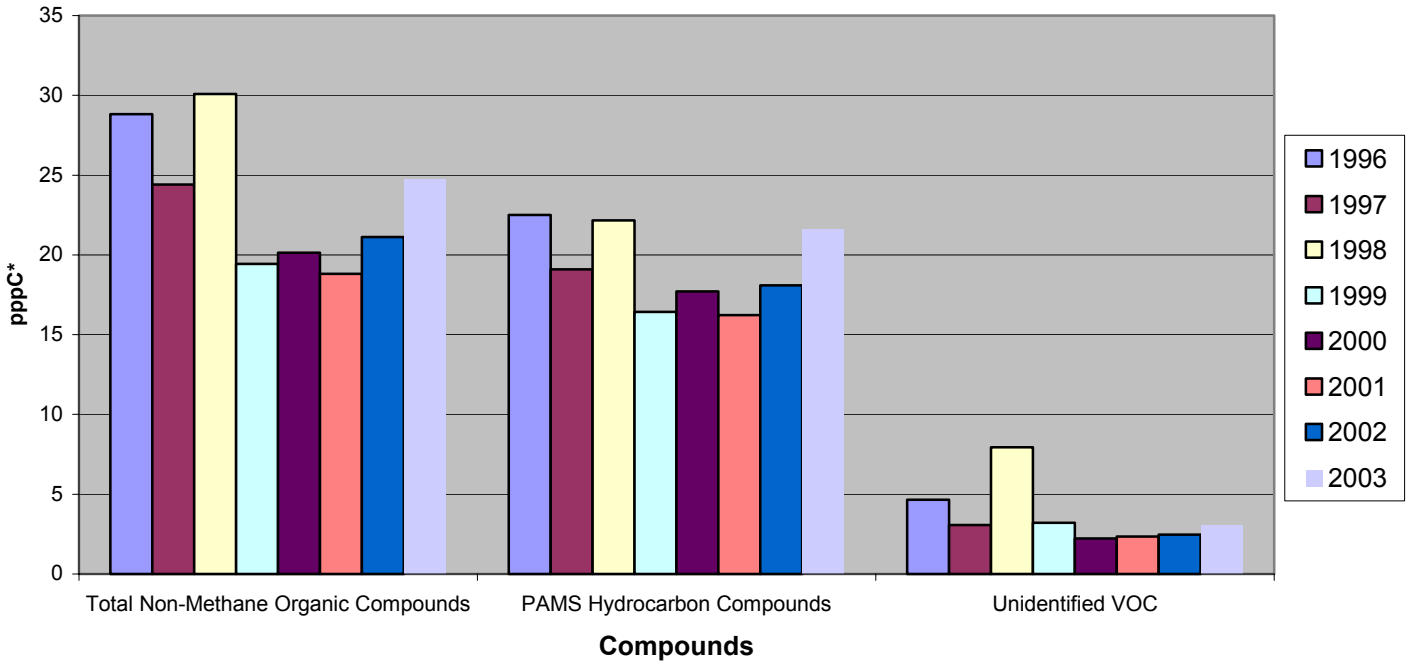
Data from the Lancaster site for 2003 has been summarized in Appendix A, Table A-24. There are no federal or state ambient air quality standards for mercury.

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 (1996-2003)
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.

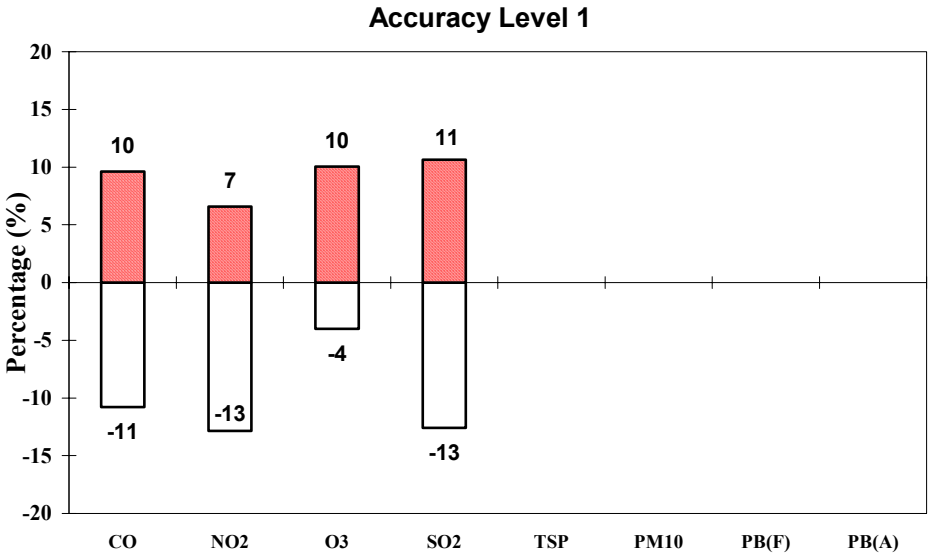
For precision, only one probability level is calculated for each parameter. Acceptable 95 percent probability limits for precision are met when the instrument response is within 15 percent for all parameters. For continuous analyzers, every two weeks the equipment is challenged by a low level gas of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

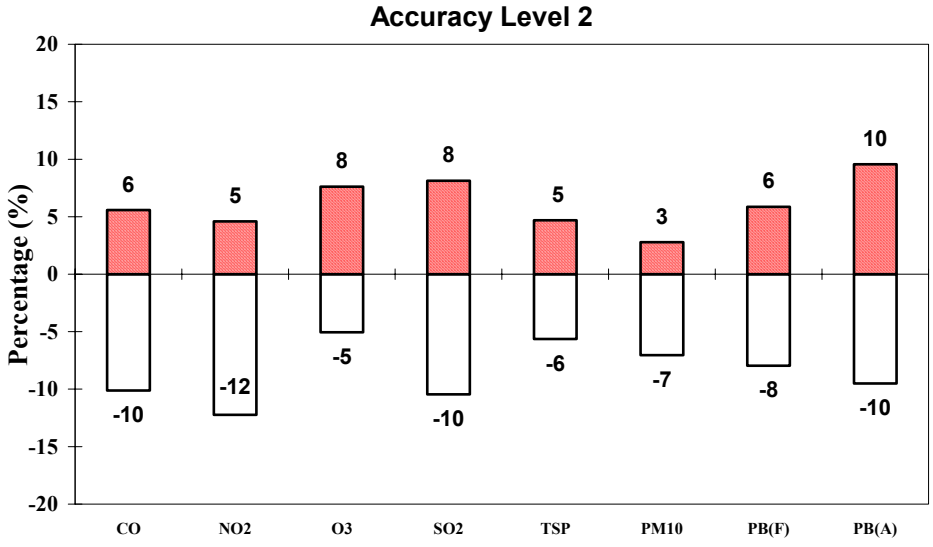
For accuracy, acceptable 95 percent probability limits are met when the instrument response is within 20 percent for continuous gaseous parameters and within 15 percent for discrete particulate parameters (TSP, PM_{10} and lead). Challenging the equipment quarterly with 3 known concentration levels of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

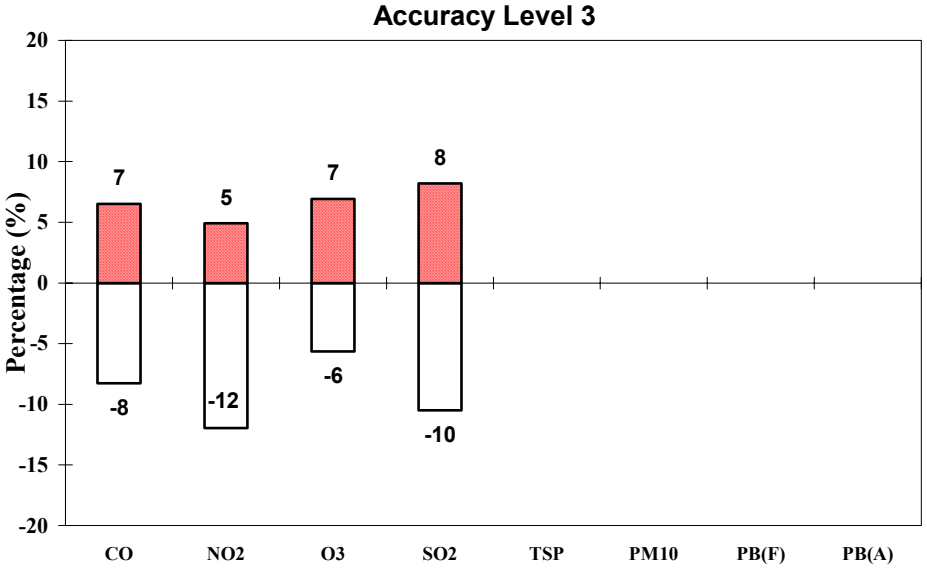
Figure 4-1 on the following page summarizes the 95 percent probability limits from all four quarterly reporting periods within the calendar year. The values presented were calculated from weighted arithmetic averages for each quarter's probability limits.

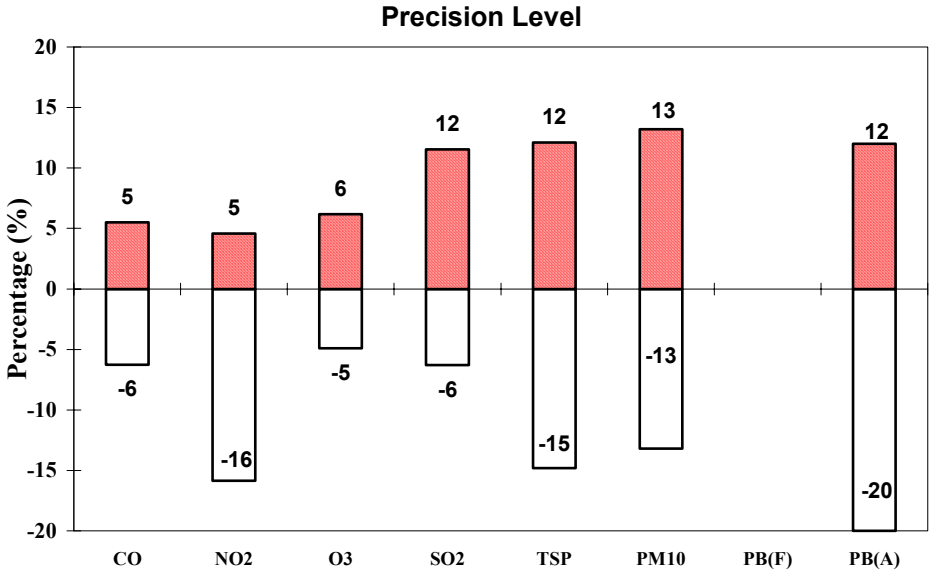
Note that there are two different types of accuracy checks for lead: the normal flow check, which is indicated by PB(F) and a quarterly analytical check, which is indicated by PB(A), on the legends of each graph. This analytical check is part of the EPA sponsored National Performance Audit Program (NPAP)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

Figure 4-1. Annual Accuracy and Precision Probability Limits 2003
95% Lower/Upper Limits









APPENDIX A - Data Tables

.

This page intentionally left blank.

Appendix A: Table A-1

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

Year: 2003

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	35	1.56	39	58	98	04/03	87	06/26	10
Northeast Region Non-Air Basin										
Palmerton	205	30	1.73	33	56	91	06/26	69	04/15	6
Reading Air Basin										
Laureldale	R10	39	1.71	44	61	166	04/15	110	06/26	9
Southcentral Region Non-Air Basin										
Lyons	301	42	1.96	52	57	225	08/25	216	04/15	10
Lyons	375	23	1.67	26	60	97	06/26	47	04/15	5
Johnstown Air Basin										
East Conemaugh	J08	30	1.53	33	60	68	06/26	64	04/15	9
Monogahela Valley Air Basin										
Monessen	M16	38	1.61	41	60	86	06/26	77	04/15	11
Lower Beaver Valley Air Basin										
Vanport	B05	9	4.49	19	54	88	06/26	70	08/25	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	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Southeast Pennsylvania Air Basin											
Chester	P11	44	43	43	55	40	35	39	36	33	35
Northeast Region Non-Air Basin											
Palmerton	205	34	29	32	31	29	27	28	27	28	30
Reading Air Basin											
Laureldale	R10	48	50	51	53	51	44	44	39	40	39
Southcentral Region Non-Air Basin											
Lyons	301	37	36	34	32	30	***	39	30	28	42
Lyons	375	***	***	***	***	***	***	***	***	26	23
Johnstown Air Basin											
East Conemaugh	J08	***	***	37	40	41	42	42	30	28	30
Monongahela Valley Air Basin											
Monessen	M16	***	***	***	44	44	44	42	46	39	38
Lower Beaver Valley Air Basin											
Vanport	B05	50	***	35	35	33	34	35	30	17?	9

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: 2003

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	8.5	52	3	13.1	5	11.3	6	0	29.5	06/26	15.3	08/13
Reading Air Basin													
Laureldale	R10	8.4	57	2	12.8	6	11.4	5	0	20.0	08/13	17.9	08/07
Johnstown Air Basin													
East Conemaugh	J08	9.2	60	4	13.1	5	12.2	6	0	25.7	06/26	15.3	08/25
Monongahela Valley Air Basin													
Monessen	M16	10.6	60	5	15.3	5	14.5	6	0	29.0	06/26	18.9	08/07

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: 2003

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	3.85	52	13.0	04/03	9.2	03/04	8.85	03/16	0.97
Reading Air Basin										
Laureldale	R10	4.43	57	16.9	04/03	13.4	02/14	10.4	02/20	0.95
Johnstown Air Basin										
East Conemaugh	J08	2.76	60	8.4	01/15	7.5	02/26	7.1	02/14	0.61
Monongahela Valley Air Basin										
Monessen	M16	3.25	60	7.4	01/15	7.3	02/26	7.2	02/20	0.74

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: 2003

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	0.03	0.03	15	14	14	14
Northeast Region Non-Air Basin									
Palmerton	205	0.08	0.08	0.08	0.10	14	15	15	12
Reading Air Basin									
Laureldale	R10	0.16	0.24	0.31	0.39	15	15	16	15
Southcentral Region Non-Air Basin									
Lyons	301	0.09	0.12	0.12	0.12	13	14	16	15
Lyons	375	0.08	0.04	0.03	0.05	14	15	16	14
Johnstown Air Basin									
East Conemaugh	J08	0.03	0.03	0.03	0.04	15	15	16	14
Monongahela Valley Air Basin									
Monessen	M16	0.03	0.03	0.04	0.04	14	15	16	15
Lower Beaver Valley Air Basin									
Vanport	B05	0.04	0.04	0.09	0.04	14	14	16	11

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	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Southeast Pennsylvania Air Basin											
Chester	P11	0.05	0.05	0.04	0.05	0.04	0.05	0.04	0.04	0.04	0.04
Northeast Region Non-Air Basin											
Palmerton	205	0.13	0.07	0.08	0.09	0.11	0.07	0.11	0.07	0.09	0.10
Reading Air Basin											
Laureldale	R10	0.56	0.29	0.27	0.30	0.31	0.29	0.33	0.27	0.22	0.39
Southcentral Region Non-Air Basin											
Lyons	301	0.12	0.17	0.17	0.29	0.22	***	0.22	0.23	0.16	0.12
Lyons	375	***	***	***	***	***	***	***	***	0.09	0.08
Johnstown Air Basin											
East Conemaugh	J08	***	***	0.04	0.04	0.04	0.09	0.05	0.04	0.03	0.04
Monongahela Valley Air Basin											
Monessen	M16	***	***	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.04
Lower Beaver Valley Air Basin											
Vanport	B05	0.17	0.15	0.06	0.08	0.06	0.08	0.07	0.06	0.11	0.09

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 Suspended Particulate Matter Summary
(Units: micrograms per cubic meter / standard conditions)

Year: 2003

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	19	356	82	11/26	74	06/26	67	56	56	3
Chester (TEOM)	P11	21	354	82	06/26	74	10/10	57	54	54	0
Norristown (TEOM)	P21	19	359	80	06/26	55	06/27	50	50	50	3
Allentown-Bethlehem-Easton Air Basin											
Allentown (TEOM)	A19	18	357	83	06/26	49	06/27	46	45	45	0
Freemansburg (TEOM)	A25	19	365	86	06/26	68	06/27	57	55	55	3
Scranton-Wilkes-Barre Air Basin											
Scranton (TEOM)	S01	17	360	76	06/26	66	07/04	54	48	48	3
Wilkes-Barre (TEOM)	S28	21	354	87	07/04	77	06/26	68	68	68	3
Northeast Region Non-Air Basin											
Nazareth (TEOM)	A26	33	356	125	10/09	114	06/26	108	104	104	3
Reading Air Basin											
Reading (TEOM)	R01	19	360	89	06/26	54	06/25	53	50	50	2
Reading	R15	25	53	83	06/26	50	08/07	50	47	83	6
Harrisburg Air Basin											
Harrisburg (TEOM)	H11	21	362	82	06/26	66	03/12	55	53	53	4
Lancaster Air Basin											
Lancaster (TEOM)	L01	20	364	86	06/26	53	10/09	51	49	49	3
York Air Basin											
York (TEOM)	Y01	24	356	102	06/26	77	08/08	73	71	71	2
Southcentral Region Non-Air Basin											
Altoona (TEOM)	308	20	349	113	06/26	95	04/15	76	69	69	3
Northcentral Region Non-Air Basin											
Montoursville	410	20	58	45	08/07	41	03/16	39	37	45	5
Johnstown Air Basin											
Johnstown (TEOM)	J01	22	358	80	06/26	67	06/25	65	64	64	5

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 Suspended Particulate Matter Summary
(Units: micrograms per cubic meter / standard conditions)

Year: 2003

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	19	354	69	06/26	67	06/25	56	56	56	4
Monessen	M16	29	56	59	08/13	56	08/07	48	46	59	6
Lower Beaver Valley Air Basin											
Beaver Falls (TEOM)	B11	22	363	81	06/26	77	06/25	72	70	70	4
Southwest Region Non-Air Basin											
Florence	504	20	58	72	06/26	42	08/13	41	41	72	2
Greensburg (TEOM)	513	22	361	63	03/04	63	06/25	61	60	60	4
Upper Beaver Valley Air Basin											
New Castle (TEOM)	B21	26	359	98	12/29	89	06/25	81	79	79	4
Erie Air Basin											
Erie (TEOM)	E10	16	359	56	08/21	54	06/26	51	47	47	3

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 Suspended Particulate Matter Historical Trend
(Units: micrograms per cubic meter / standard conditions)

Site Name / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Southeast Pennsylvania Air Basin											
Bristol (TEOM)	***	21?	21	20	23	17	18	21	18	19	Annual Mean
P01	***	58	55	59	57	51	53	57	56	56	99th Percentile 24HR Mean
Chester (TEOM)	***	25	24	24	25	21	22	23	20	21	Annual Mean
P11	***	68	65	60	63	55	62	60	60	54	99th Percentile 24HR Mean
Norristown (TEOM)	***	***	22?	21	21	18	19	20	16	19	Annual Mean
P21	***	***	54	66	56	49	49	56	49	50	99th Percentile 24HR Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown (TEOM)	***	***	21?	19	17	11	29	21	18	18	Annual Mean
A19	***	***	52	55	46	36	94	64	54	45	99th Percentile 24HR Mean
Freemansburg (TEOM)	***	***	***	***	26?	38	35	20	20	19	Annual Mean
A25	***	***	***	***	65	97	98	60	60	55	99th Percentile 24HR Mean
Scranton-Wilkes-Barre Air Basin											
Scranton (TEOM)	***	23	21	20	21	12?	16	20	18	17	Annual Mean
S01	***	71	59	61	59	51	41	57	63	48	99th Percentile 24HR Mean
Wilkes-Barre (TEOM)	***	21	21	21	24	***	18	20	19	21	Annual Mean
S28	***	59	57	62	64	***	49	57	63	68	99th Percentile 24HR Mean
Northeast Region Non-Air Basin											
Nazareth (TEOM)	***	***	***	***	***	***	28	30	29	33	Annual Mean
A26	***	***	***	***	***	***	76	99	95	104	99th Percentile 24HR Mean
Reading Air Basin											
Reading (TEOM)	***	***	24?	21	21	21	20	22	20	19	Annual Mean
R01	***	***	52	59	55	49	52	63	58	50	99th Percentile 24HR Mean
Reading	***	***	29	29	27	29	27	24	25	25	Annual Mean
R15	***	***	81	79	67	53	66	62	60	83	99th Percentile 24HR Mean
Harrisburg Air Basin											
Harrisburg (TEOM)	24?	22	23	22	23	21	21	22	20	21	Annual Mean
H11	60	61	58	62	65	53	65	60	62	53	99th Percentile 24HR Mean
Lancaster Air Basin											
Lancaster (TEOM)	***	27	24	23	24	24	21	23	21	20	Annual Mean
L01	***	72	64	68	62	63	55	67	61	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-8

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

Site Name / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
York Air Basin											
York (TEOM)	***	***	***	23	26	23	22	24	21	24	Annual Mean
Y01	***	***	***	70	60	56	55	68	61	71	99th Percentile 24HR Mean
Southcentral Region Non-Air Basin											
Altoona (TEOM)	***	26?	23	21	22	19	20	24	22	20	Annual Mean
308	***	69	53	59	58	57	54	69	63	69	99th Percentile 24HR Mean
Northcentral Region Non-Air Basin											
Montoursville	***	***	***	***	***	***	***	***	20	20	Annual Mean
410	***	***	***	***	***	***	***	***	66	45	99th Percentile 24HR Mean
Johnstown Air Basin											
Johnstown (TEOM)	***	***	28?	24	26	24	21	24	24	22	Annual Mean
J01	***	***	60	66	64	61	53	74	64	64	99th Percentile 24HR Mean
Monongahela Valley Air Basin											
Charleroi (TEOM)	***	25?	26	24	26	27	21	25	21	19	Annual Mean
M01	***	74	69	57	62	95	51	69	57	56	99th Percentile 24HR Mean
Monessen	***	***	***	32	34	38	31	31	30	29	Annual Mean
M16	***	***	***	75	74	79	62	67	76	59	99th Percentile 24HR Mean
Lower Beaver Valley Air Basin											
Beaver Falls (TEOM)	***	***	26	27	28	***	22	26	25	22	Annual Mean
B11	***	***	64	80	83	***	53	75	82	70	99th Percentile 24HR Mean
Southwest Region Non-Air Basin											
Florence	***	***	***	***	***	27	22	20	21	20	Annual Mean
504	***	***	***	***	***	72	54	60	80	72	99th Percentile 24HR Mean
Greensburg (TEOM)	***	***	***	***	***	20	19	23	22	22	Annual Mean
513	***	***	***	***	***	52	47	57	59	60	99th Percentile 24HR Mean
Upper Beaver Valley Air Basin											
New Castle (TEOM)	***	***	32	33	33	28	28	32	29	26	Annual Mean
B21	***	***	89	90	90	78	74	79	73	79	99th Percentile 24HR Mean
Erie Air Basin											
Erie (TEOM)	***	***	19?	20	21	18	18	19	19	16	Annual Mean
E10	***	***	52	59	62	51	47	54	58	47	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 Suspended Particulate Matter Summary
(Units: micrograms per cubic meter / local conditions)

Year: 2003

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	14.4	112	55.9	06/26	40.9	08/22	39.6	37.4	39.6	3.2
Chester	P11	15.3	116	64.4	06/26	40.5	08/13	37.8	37.0	37.8	3.4
Norristown	P21	13.9	110	64.0	06/26	43.9	08/22	37.5	33.6	37.5	2.9
New Garden	P30	15.6	118	73.1	06/26	42.2	08/13	38.5	37.7	38.5	2.6
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	15.0?	307	69.3	06/26	46.4	01/29	44.9	44.2	36.6	2.5
Easton (TEOM)	A20	14.5	363	71.0	06/26	59.0	06/27	49.0	44.0	38.0	3.0
Freemansburg	A25	14.3	348	65.9	06/26	49.9	01/29	47.4	45.5	37.8	2.4
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	12.5	344	57.9	06/26	48.3	07/04	41.4	38.8	33.8	2.1
Wilkes-Barre	S28	13.1	350	69.6	07/04	61.9	06/26	41.4	40.9	35.1	2.1
Reading Air Basin											
Reading	R01	16.1	119	76.1	06/26	46.5	01/30	45.0	44.5	45.0	3.4
Harrisburg Air Basin											
Harrisburg	H11	16.2	335	70.9	06/26	56.7	03/12	48.5	47.1	41.5	2.2
Lancaster Air Basin											
Lancaster	L01	17.6	120	71.6	06/26	55.7	01/30	51.5	46.9	51.5	3.0
York Air Basin											
York	Y01	17.4	112	71.5	06/26	48.0	08/22	47.0	46.2	47.0	2.9
Southcentral Region Non-Air Basin											
Perry County	305	13.1?	109	58.7	06/26	38.0	08/22	34.5	31.8	34.5	2.0
Arendtsville	314	13.6	330	61.6	06/26	45.8	10/10	42.2	41.5	36.5	2.3
Arendtsville (TEOM)	314	13.3	365	56.0	06/26	47.0	10/10	43.0	42.0	33.0	3.0
Carlisle	316	15.3	349	66.7	06/26	47.0	03/12	46.5	43.5	41.6	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 Suspended Particulate Matter Summary
(Units: micrograms per cubic meter / local conditions)

Year: 2003

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	13.6	344	62.5	06/26	44	06/25	43.7	43.4	35.4	1.9
Johnstown Air Basin											
Johnstown	J01	15.5	117	54.7	06/26	40.9	08/22	36.8	36.3	36.8	3.7
Monongahela Valley Air Basin											
Charleroi	M01	14.9	119	54.1	06/26	40.7	03/01	35.6	33.0	35.6	2.3
Lower Beaver Valley Air Basin											
Beaver Falls	B11	15.7	117	55.4	06/26	35.2	08/22	33.8	32.2	33.8	3.3
Southwest Region Non-Air Basin											
Florence	504	13.4	328	54.4	06/25	53.0	06/26	40.1	35.4	33.9	2.2
Washington	508	14.7	116	54.1	06/26	42.7	03/01	33.4	33.0	33.4	2.2
Kittanning (TEOM)	512	12.4	359	51.0	06/25	50.0	06/26	50.0	44.0	32.0	2.0
Greensburg	513	15.3	113	54.7	06/26	39.1	08/22	34.8	33.5	34.8	1.6
Erie Air Basin											
Erie	E10	12.6?	262	46.4	08/21	38.0	06/26	32.1	31.8	29.7	2.2
Northwest Region Non-Air Basin											
Farrell	606	13.8	330	54.9	06/30	53.3	06/25	47.1	38.8	35.4	2.5

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 Suspended Particulate Matter Historical Trend
(Units: micrograms per cubic meter / local conditions)

Site Name / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Southeast Pennsylvania Air Basin											
Bristol	***	***	***	***	***	12.0?	13.8?	14.6	14.2	14.4	Annual Mean
P01	***	***	***	***	***	32.8	38.4	38.5	37.2	39.6	98th Percentile 24HR Mean
Chester	***	***	***	***	***	13.1?	15.9	16.0	14.6	15.3	Annual Mean
P11	***	***	***	***	***	35.9	36.2	39.5	31.9	37.8	98th Percentile 24HR Mean
Norristown	***	***	***	***	***	13.0?	13.6?	15.1?	13.7	13.9	Annual Mean
P21	***	***	***	***	***	31.3	37.5	47.6	36.8	37.5	98th Percentile 24HR Mean
New Garden	***	***	***	***	***	***	***	***	14.7	15.6	Annual Mean
P30	***	***	***	***	***	***	***	***	33.7	38.5	98th Percentile 24HR Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown	***	***	***	***	***	11.9?	14.3	15.3?	13.1?	15.0?	Annual Mean
A19	***	***	***	***	***	31.5	38.2	44.5	38.9	36.6	98th Percentile 24HR Mean
Easton (TEOM)	***	***	***	***	***	***	12.2	14.9	14.8	14.5	Annual Mean
A20	***	***	***	***	***	***	33.0	40.0	43.5	37.7	98th Percentile 24HR Mean
Freemansburg	***	***	***	***	***	12.9?	13.6?	15.5	14.1	14.3	Annual Mean
A25	***	***	***	***	***	31.3	37.3	42.9	40.9	37.8	98th Percentile 24HR Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	***	***	***	***	***	11.0?	11.7	12.9	12.4	12.5	Annual Mean
S01	***	***	***	***	***	29.7	31.5	36.7	42.7	33.8	98th Percentile 24HR Mean
Wilkes-Barre	***	***	***	***	***	12.5?	12.7	13.8	12.0?	13.1	Annual Mean
S28	***	***	***	***	***	32.8	32.9	37.4	28.2	35.1	98th Percentile 24HR Mean
Reading Air Basin											
Reading	***	***	***	***	***	13.5?	16.9	16.5	16.7?	16.1	Annual Mean
R01	***	***	***	***	***	35.7	37.5	43.0	48.5	45.0	98th Percentile 24HR Mean
Harrisburg Air Basin											
Harrisburg	***	***	***	***	***	14.4?	15.4?	16.6	14.5	16.2	Annual Mean
H11	***	***	***	***	***	39.7	45.6	47.7	42.7	41.5	98th Percentile 24HR Mean
Lancaster Air Basin											
Lancaster	***	***	***	***	***	15.6?	17.8	17.3	16.2	17.6	Annual Mean
L01	***	***	***	***	***	38.2	47.0	42.1	40.2	51.5	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 Suspended Particulate Matter Historical Trend
(Units: micrograms per cubic meter / local conditions)

Site Name / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
York Air Basin											
York	***	***	***	***	***	15.4?	16.7	16.9	17.1	17.4	Annual Mean
Y01	***	***	***	***	***	34.9	41.1	41.3	47.3	47.0	98th Percentile 24HR Mean
Southcentral Region Non-Air Basin											
Perry County	***	***	***	***	***	***	12.2	12.6	13.3	13.1?	Annual Mean
305	***	***	***	***	***	***	30.2	33.7	36.9	34.5	98th Percentile 24HR Mean
Arendtsville	***	***	***	***	***	13.1?	13.1?	14.1	12.6	13.6	Annual Mean
314	***	***	***	***	***	34.0	36.5	36.0	38.9	36.5	98th Percentile 24HR Mean
Arendtsville (TEOM)	***	***	***	***	***	***	***	13.8	13.4	13.3	Annual Mean
314	***	***	***	***	***	***	***	38.0	39.3	33.4	98th Percentile 24HR Mean
Carlisle	***	***	***	***	***	***	***	15.6	14.4	15.3	Annual Mean
316	***	***	***	***	***	***	***	45.0	41.5	41.6	98th Percentile 24HR Mean
Northcentral Region Non-Air Basin											
State College	***	***	***	***	***	***	***	13.9?	11.9?	13.6	Annual Mean
409	***	***	***	***	***	***	***	45.0	36.9	35.4	98th Percentile 24HR Mean
Johnstown Air Basin											
Johnstown	***	***	***	***	***	14.8?	16.1?	15.5?	16.1	15.5	Annual Mean
J01	***	***	***	***	***	31.0	35.4	42.1	16.6	36.8	98th Percentile 24HR Mean
Monongahela Valley Air Basin											
Charleroi	***	***	***	***	***	15.4?	15.5?	15.7	15.2	14.9	Annual Mean
M01	***	***	***	***	***	33.2	36.0	44.4	43.3	35.6	98th Percentile 24HR Mean
Lower Beaver Valley Air Basin											
Beaver Falls	***	***	***	***	***	***	15.9?	16.5	15.3	15.7	Annual Mean
B11	***	***	***	***	***	***	43.6	42.4	37.7	33.8	98th Percentile 24HR Mean
Southwest Region Non-Air Basin											
Florence	***	***	***	***	***	13.0?	13.3	14.3?	13.6?	13.4	Annual Mean
504	***	***	***	***	***	38.1	30.5	35.5	36.7	33.9	98th Percentile 24HR Mean
Washington	***	***	***	***	***	14.6?	15.1	15.8?	14.7	14.7	Annual Mean
508	***	***	***	***	***	42.4	33.3	36.6	37.2	33.4	98th Percentile 24HR Mean
Kittanning (TEOM)	***	***	***	***	***	***	12.2	14.9	14.3?	12.4	Annual Mean
512	***	***	***	***	***	***	29.0	42.0	48.3	28.8	98th Percentile 24HR Mean
Greensburg	***	***	***	***	***	14.9?	16.0?	15.9	14.9?	15.3	Annual Mean
513	***	***	***	***	***	37.5	37.2	36.0	40.0	34.8	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 Suspended Particulate Matter Historical Trend
(Units: micrograms per cubic meter / local conditions)

Site Name / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Erie Air Basin											
Erie	***	***	***	***	***	12.6?	13.8?	13.8?	13.3?	12.6?	Annual Mean
E10	***	***	***	***	***	30.5	28.2	37.5	42.9	29.7	98th Percentile 24HR Mean
Northwest Region Non-Air Basin											
Farrell	***	***	***	***	***	***	***	14.9?	14.0	13.8	Annual Mean
606	***	***	***	***	***	***	***	43.0	36.6	35.4	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: 2003

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	0.008	0.031	03/12	0.029	01/26	0.046	01/28	0.042	01/26	0.053
Chester	P11	97.3	0.006	0.031	03/12	0.028	01/26	0.059	03/12	0.049	01/26	0.074
Norristown	P21	98.3	0.005	0.024	02/21	0.023	02/19	0.046	02/21	0.036	02/21	0.070
Allentown-Bethlehem-Easton Air Basin												
Allentown	A19	95.6	0.009	0.040	02/16	0.038	01/03	0.062	02/17	0.058	01/03	0.082
Easton	A20	99.6	0.008	0.037	01/31	0.037	02/17	0.056	02/17	0.054	02/16	0.083
Freemansburg	A25	99.5	0.004	0.019	01/31	0.018	02/19	0.040	12/18	0.036	12/14	0.109
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	99.1	0.005	0.021	02/21	0.020	02/09	0.037	02/21	0.034	11/12	0.059
Wilkes-Barre	S28	97.8	0.005	0.021	02/09	0.021	02/21	0.039	02/21	0.035	12/21	0.050
Northeast Region Non-Air Basin												
Shenandoah	211	99.0	0.006	0.028	02/21	0.023	01/29	0.048	02/21	0.045	02/21	0.067
Reading Air Basin												
Reading	R01	96.0	0.008	0.025	03/25	0.023	09/19	0.134	10/07	0.087	10/31	0.185
Harrisburg Air Basin												
Harrisburg	H11	99.1	0.005	0.017	02/03	0.017	02/28	0.050	04/20	0.048	03/21	0.099
Lancaster Air Basin												
Lancaster	L01	99.2	0.005	0.018	02/14	0.018	02/19	0.044	02/20	0.032	02/19	0.078
York Air Basin												
York	Y01	98.3	0.004	0.013	05/07	0.012	05/21	0.045	08/17	0.039	06/19	0.066
Southcentral Region Non-Air Basin												
Perry County	305	97.2	0.005	0.020	02/18	0.017	02/15	0.040	06/26	0.033	02/24	0.049
Altoona	308	99.0	0.007	0.031	02/14	0.030	12/26	0.067	11/21	0.060	02/14	0.085
Northcentratl Region Non-Air Basin												
Montoursville	410	91.1	0.005	0.018	01/29	0.017	01/25	0.089	07/14	0.070	08/31	0.157
State College	409	87.9	0.006	0.023	01/25	0.019	02/19	0.035	10/08	0.031	01/25	0.059
Johnstown Air Basin												
Johnstown	J01	98.5	0.008	0.029	01/25	0.028	01/29	0.076	01/29	0.074	08/30	0.119

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: 2003

Site Name	PA Site Code	Percent Valid Data	Annual Mean		Daily (Block) Averages 1st Max 24HR Mean	1st Max Date MM/DD	2nd Max 24HR Mean	2nd Max Date MM/DD	Block Averages 1st Max 3HR Mean	1st Max Date MM/DD	2nd Max 3HR Mean	2nd Max Date MM/DD	Max 1 HR Mean
Monongahela Valley Air Basin													
Charleroi	M01	99.5	0.006		0.031	02/15	0.029	02/18	0.081	09/27	0.079	09/24	0.131
Lower Beaver Valley Air Basin													
Beaver Falls	B11	97.1	0.007		0.033	01/25	0.031	02/20	0.086	11/21	0.082	10/07	0.118
Hookstown	B23	98.5	0.010		0.047	10/08	0.045	01/09	0.127	08/25	0.118	10/13	0.209
Brighton Twp.	B27	99.3	0.011		0.086	11/04	0.083	12/29	0.199	11/04	0.174	12/29	0.301
Allegheny County Air Basin													
Pittsburgh	D12	98.5	0.010		0.035	06/15	0.028	02/21	0.122	06/15	0.066	06/15	0.163
Southwest Region Non-Air Basin													
Florence	504	98.2	0.010		0.051	12/22	0.033	12/21	0.103	10/07	0.100	12/27	0.141
Washington	508	99.8	0.009		0.031	02/21	0.028	02/15	0.093	02/21	0.078	05/07	0.099
Greensburg	513	99.1	0.008		0.031	01/16	0.029	09/07	0.085	09/07	0.070	09/07	0.160
Holbrook	514	66.6	0.006	?	0.032	08/12	0.029	08/28	0.099	08/12	0.077	09/17	0.176
Upper Beaver Valley Air Basin													
New Castle	B21	99.4	0.009		0.039	02/19	0.028	03/04	0.091	11/10	0.076	02/19	0.108
Erie Air Basin													
Erie	E10	98.4	0.011		0.039	02/15	0.038	02/17	0.095	09/19	0.078	02/15	0.104
Northwest Region Non-Air Basin													
Farrell	606	99.3	0.006		0.030	01/16	0.025	01/31	0.099	01/16	0.067	01/16	0.113
Warren	611	96.1	0.006		0.029	02/19	0.028	11/26	0.100	08/15	0.067	05/27	0.157
Warren	612	96.2	0.014		0.123	03/15	0.103	03/16	0.314	03/15	0.249	03/16	0.350

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	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Southeast Pennsylvania Air Basin											
Bristol	0.008	0.007	0.007	0.007	0.008	0.005	0.007	0.006	0.008	0.008	Annual Mean
P01	0.040	0.035	0.028	0.029	0.024	0.020	0.027	0.029	0.028	0.029	2nd Max 24-Hour Mean
	0.076	0.047	0.048	0.043	0.043	0.035	0.044	0.041	0.041	0.042	2nd Max 3-Hour Mean
Chester	0.010	0.008	0.008	0.008	0.009	0.009	0.008	0.007	0.006	0.006	Annual Mean
P11	0.035	0.028	0.025	0.026	0.027	0.025	0.026	0.023	0.022	0.028	2nd Max 24-Hour Mean
	0.073	0.054	0.047	0.062	0.048	0.057	0.048	0.045	0.044	0.049	2nd Max 3-Hour Mean
Norristown	0.010	0.009	0.008	0.008	0.006	0.006	0.004	0.004	0.005	0.005	Annual Mean
P21	0.045	0.025	0.028	0.025	0.022	0.020	0.022	0.019	0.019	0.023	2nd Max 24-Hour Mean
	0.066	0.036	0.042	0.048	0.030	0.042	0.032	0.041	0.031	0.036	2nd Max 3-Hour Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown	0.008	0.006	0.006	0.008	0.008	0.006	0.007	0.007	0.008	0.009	Annual Mean
A19	0.053	0.028	0.035	0.030	0.030	0.030	0.027	0.028	0.028	0.038	2nd Max 24-Hour Mean
	0.078	0.054	0.051	0.058	0.047	0.058	0.053	0.044	0.041	0.058	2nd Max 3-Hour Mean
Easton	***	***	***	***	***	***	0.008	0.014	0.006	0.008	Annual Mean
A20	***	***	***	***	***	***	0.023	0.030	0.024	0.037	2nd Max 24-Hour Mean
	***	***	***	***	***	***	0.069	0.055	0.046	0.054	2nd Max 3-Hour Mean
Freemansburg	***	***	***	***	0.006	0.009	0.006	0.004	0.006	0.004	Annual Mean
A25	***	***	***	***	0.027	0.021	0.020	0.019	0.020	0.018	2nd Max 24-Hour Mean
	***	***	***	***	0.040	0.047	0.034	0.028	0.046	0.036	2nd Max 3-Hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	0.007	0.005	0.007	0.006	0.005	0.005	0.004	0.005	0.004	0.005	Annual Mean
S01	0.036	0.045	0.033	0.031	0.026	0.021	0.021	0.026	0.023	0.020	2nd Max 24-Hour Mean
	0.086	0.068	0.043	0.049	0.044	0.033	0.038	0.044	0.036	0.034	2nd Max 3-Hour Mean
Wilkes-Barre	0.007	0.005	0.006	0.007	0.006	0.007	0.006	0.008	0.008	0.005	Annual Mean
S28	0.034	0.027	0.023	0.026	0.022	0.023	0.026	0.031	0.024	0.021	2nd Max 24-Hour Mean
	0.058	0.056	0.042	0.047	0.041	0.039	0.052	0.048	0.044	0.035	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	Annual Mean
211	***	***	***	0.035	0.026	0.038	0.025	0.035	0.026	0.023	2nd Max 24-Hour Mean
	***	***	***	0.064	0.059	0.074	0.053	0.052	0.140	0.045	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	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Reading Air Basin											
Reading	0.010	0.009	0.009	0.008	0.009	0.008	0.008	0.007	0.007	0.008	Annual Mean
R01	0.037	0.032	0.037	0.028	0.022	0.027	0.028	0.025	0.019	0.023	2nd Max 24-Hour Mean
	0.084	0.087	0.094	0.067	0.096	0.094	0.075	0.091	0.083	0.087	2nd Max 3-Hour Mean
Harrisburg Air Basin											
Harrisburg	0.007	0.005	0.006	0.007	0.006	0.005	0.005	0.005	0.005	0.005	Annual Mean
H11	0.040	0.020	0.022	0.022	0.021	0.021	0.024	0.015	0.013	0.017	2nd Max 24-Hour Mean
	0.055	0.065	0.047	0.049	0.043	0.047	0.050	0.026	0.056	0.048	2nd Max 3-Hour Mean
Lancaster Air Basin											
Lancaster	0.006	0.006	0.005	0.007	0.006	0.005	0.005	0.004	0.005	0.005	Annual Mean
L01	0.030	0.018	0.021	0.023	0.020	0.021	0.024	0.018	0.014	0.018	2nd Max 24-Hour Mean
	0.045	0.043	0.035	0.050	0.047	0.045	0.048	0.036	0.034	0.032	2nd Max 3-Hour Mean
York Air Basin											
York	0.009	0.006	0.007	0.009	0.008	0.007	0.006	0.006	0.005	0.004	Annual Mean
Y01	0.041	0.020	0.022	0.026	0.023	0.019	0.020	0.019	0.014	0.012	2nd Max 24-Hour Mean
	0.071	0.061	0.054	0.073	0.063	0.058	0.059	0.043	0.036	0.039	2nd Max 3-Hour Mean
Southcentral Region Non-Air Basin											
Perry County	0.007	0.005	0.005	0.003	0.003	0.003	0.003	0.002	0.003	0.005	Annual Mean
305	0.029	0.014	0.020	0.021	0.012	0.012	0.015	0.010	0.008	0.017	2nd Max 24-Hour Mean
	0.040	0.050	0.039	0.032	0.028	0.034	0.034	0.036	0.026	0.033	2nd Max 3-Hour Mean
Altoona	0.010	0.008	0.008	0.010	0.008	0.007	0.006	0.009	0.007	0.007	Annual Mean
308	0.058	0.037	0.033	0.046	0.032	0.030	0.045	0.042	0.032	0.030	2nd Max 24-Hour Mean
	0.107	0.066	0.070	0.070	0.060	0.058	0.071	0.066	0.051	0.060	2nd Max 3-Hour Mean
Northcentral Region Non-Air Basin											
Montoursville	***	***	***	***	***	***	***	***	0.003	0.005	Annual Mean
410	***	***	***	***	***	***	***	***	0.015	0.017	2nd Max 24-Hour Mean
	***	***	***	***	***	***	***	***	0.027	0.070	2nd Max 3-Hour Mean
State College	***	***	***	***	***	***	***	***	0.004	0.006	Annual Mean
409	***	***	***	***	***	***	***	***	0.023	0.019	2nd Max 24-Hour Mean
	***	***	***	***	***	***	***	***	0.044	0.031	2nd Max 3-Hour Mean
Johnstown Air Basin											
Johnstown	0.014	0.012	0.011	0.009	0.008	0.009	0.007	0.008	0.007	0.008	Annual Mean
J01	0.080	0.042	0.034	0.030	0.027	0.025	0.026	0.031	0.025	0.028	2nd Max 24-Hour Mean
	0.111	0.128	0.067	0.069	0.080	0.069	0.065	0.078	0.074	0.074	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	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Monongahela Valley Air Basin											
Charleroi	0.011	0.009	0.008	0.009	0.009	0.009	0.008	0.007	0.007	0.006	Annual Mean
M01	0.063	0.030	0.033	0.035	0.025	0.023	0.031	0.022	0.023	0.029	2nd Max 24-Hour Mean
	0.146	0.097	0.084	0.074	0.056	0.059	0.059	0107	0.070	0.079	2nd Max 3-Hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	0.012	0.009	0.007	0.009	0.006	0.009	0.007	0.008	0.007	0.007	Annual Mean
B11	0.059	0.030	0.038	0.034	0.035	0.028	0.036	0.032	0.030	0.031	2nd Max 24-Hour Mean
	0.127	0.075	0.078	0.081	0.079	0.070	0.070	0.076	0.064	0.082	2nd Max 3-Hour Mean
Hookstown	0.018	0.012	0.011	0.011	0.013	0.010	0.011	0.011	0.010	0.010	Annual Mean
B23	0.072	0.046	0.038	0.049	0.046	0.044	0.039	0.037	0.038	0.045	2nd Max 24-Hour Mean
	0.166	0.127	0.105	0.163	0.129	0.145	0.126	0.108	0.115	0.118	2nd Max 3-Hour Mean
Brighton Twp.	0.016?	0.015	0.015	0.015	0.016	0.015	0.012	0.014	0.014	0.011	Annual Mean
B27	0.092	0.080	0.058	0.078	0.094	0.070	0.086	0.072	0.075	0.083	2nd Max 24-Hour Mean
	0.199	0.216	0.207	0.251	0.207	0.215	0.247	0.249	0.319	0.174	2nd Max 3-Hour Mean
Allegheny County Air Basin											
Pittsburgh	***	***	***	***	0.005	0.006	0.010	0.009	0.010	0.010	Annual Mean
	***	***	***	***	0.014	0.019	0.037	0.033	0.024	0.028	2nd Max 24-Hour Mean
	***	***	***	***	0.047	0.042	0.078	0.077	0.075	0.066	2nd Max 3-Hour Mean
Southwest Region Non-Air Basin											
Florence	0.012	0.009	0.010	0.012	0.013	0.010	0.009	0.009	0.010	0.010	Annual Mean
504	0.087	0.034	0.035	0.050	0.043	0.036	0.031	0.039	0.037	0.033	2nd Max 24-Hour Mean
	0.159	0.095	0.086	0.127	0.102	0.099	0.100	0.102	0.092	0.100	2nd Max 3-Hour Mean
Washington	0.012	0.009	0.008	0.010	0.010	0.009	0.009	0.010	0.009	0.009	Annual Mean
508	0.043	0.045	0.030	0.047	0.040	0.030	0.027	0.038	0.032	0.028	2nd Max 24-Hour Mean
	0.122	0.093	0.094	0.086	0.072	0.062	0.059	0.069	0.080	0.078	2nd Max 3-Hour Mean
Greensburg	***	***	***	***	0.008	0.011	0.010	0.009	0.006	0.008	Annual Mean
513	***	***	***	***	0.039	0.037	0.029	0.027	0.024	0.029	2nd Max 24-Hour Mean
	***	***	***	***	0.065	0.100	0.071	0.053	0.048	0.070	2nd Max 3-Hour Mean
Holbrook	***	***	***	0.007?	0.010?	0.009?	0.007?	0.006?	0.007?	0.006?	Annual Mean
514				0.020	0.021	0.022	0.022	0.023	0.022	0.029	2nd Max 24-Hour Mean
				0.045	0.038	0.050	0.062	0.070	0.055	0.077	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	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Upper Beaver Valley Air Basin											
New Castle	0.008	0.007	0.008	0.008	0.009	0.008	0.008	0.011	0.007	0.009	Annual Mean
B21	0.037	0.032	0.034	0.033	0.032	0.035	0.031	0.041	0.033	0.028	2nd Max 24-Hour Mean
	0.091	0.070	0.063	0.114	0.117	0.086	0.079	0.120	0.082	0.076	2nd Max 3-Hour Mean
Erie Air Basin											
Erie	0.010	0.009	0.011?	0.009	0.010	0.010	0.008	0.010	0.011	0.011	Annual Mean
E10	0.076	0.050	0.066	0.035	0.068	0.043	0.041	0.043	0.037	0.038	2nd Max 24-Hour Mean
	0.155	0.112	0.173	0.096	0.152	0.152	0.076	0.098	0.070	0.078	2nd Max 3-Hour Mean
Northwest Region Non-Air Basin											
Farrell	0.008	0.008	0.007	0.007	0.007	0.007?	0.007	0.007	0.006	0.006	Annual Mean
606	0.047	0.032	0.029	0.032	0.029	0.039	0.024	0.033	0.024	0.025	2nd Max 24-Hour Mean
	0.092	0.064	0.059	0.073	0.063	0.060	0.052	0.071	0.067	0.067	2nd Max 3-Hour Mean
Warren	***	***	0.008	0.009	0.008	0.008	0.006	0.007	0.006	0.006	Annual Mean
611	***	***	0.028	0.038	0.028	0.031	0.024	0.027	0.023	0.028	2nd Max 24-Hour Mean
	***	***	0.096	0.082	0.103	0.072	0.070	0.075	0.066	0.067	2nd Max 3-Hour Mean
Warren	***	***	***	0.015	0.016	0.015	0.013	0.016	0.014	0.014	Annual Mean
612	***	***	***	0.069	0.098	0.094	0.092	0.087	0.100	0.103	2nd Max 24-Hour Mean
	***	***	***	0.330	0.252	0.227	0.214	0.209	0.273	0.249	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: 2003 (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	210	98.3	0	.121	06/25	.121	08/13	.119	06/26	.103	07/04
Chester	P11	211	98.5	0	.119	06/26	.118	06/25	.099	08/13	.096	07/04
Norristown	P21	210	98.2	0	.114	06/26	.111	06/25	.100	06/28	.099	07/04
New Garden (Toughkenamon)	P30	211	98.3	0	.120	06/25	.115	06/26	.100	08/21	.099	06/11
West Chester	P32	209	97.5	0	.114	06/26	.110	06/25	.103	06/28	.094	06/24
Allentown-Bethlehem-Easton Air Basin												
Allentown	A19	211	98.7	0	.112	06/25	.109	06/26	.097	07/02	.094	07/15
Easton	A20	213	99.5	0	.108	06/26	.107	06/25	.105	07/02	.095	08/21
Freemansburg	A25	213	99.7	0	.114	06/26	.112	06/25	.106	07/15	.099	07/02
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	210	98.0	0	.101	06/25	.099	06/26	.088	04/15	.086	06/28
Nanticoke	S26	210	98.2	0	.100	06/26	.097	06/25	.096	04/15	.091	06/24
Wilkes-Barre	S28	211	98.7	0	.102	06/26	.098	06/25	.089	04/15	.086	07/03
Peckville	S29	212	99.2	0	.100	06/25	.097	06/26	.091	04/15	.083	07/02
Reading Air Basin												
Reading	R01	211	98.6	1	.125	06/26	.094	06/25	.091	07/04	.088	04/16
Harrisburg Air Basin												
Harrisburg	H11	212	99.3	0	.109	06/26	.089	06/25	.088	04/15	.084	08/08
Lancaster Air Basin												
Lancaster	L01	210	98.2	1	.135	06/26	.115	06/25	.094	07/04	.093	06/24
York Air Basin												
York	Y01	211	98.7	0	.115	06/26	.114	06/25	.101	06/24	.093	07/04
Southcentral Region Non-Air Basin												
Perry County	305	204	95.2	0	.097	06/26	.095	04/15	.094	07/30	.092	06/25
Hershey	306	212	99.1	0	.122	06/26	.099	06/25	.091	08/08	.090	04/15
Kutztown	310	197	91.9	0	.102	06/26	.084	04/16	.082	04/15	.080	07/02
Methodist Hill	313	199	92.8	0	.110	06/25	.085	04/15	.085	06/24	.084	04/16
Biglerville	D14	203	94.6	0	.103	06/25	.102	06/26	.081	06/24	.081	07/15
Altoona	308	213	99.4	1	.127	06/25	.104	06/26	.092	06/24	.091	04/15

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: 2003 (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	213	99.5	0	.112	06/26	.102	07/02	.095	04/15	.095	06/25
State College	409	207	96.7	0	.105	06/26	.100	06/25	.096	04/15	.088	07/30
Moshannon (Elliott State Park)	D09	195	90.9	0	.107	06/25	.103	06/26	.097	04/15	.091	06/24
Tiadaghton	D10	193	90.0	0	.098	06/26	.094	04/15	.090	06/25	.083	07/04
Penn Nursery	D11	195	91.0	0	.111	06/25	.109	06/26	.099	04/15	.097	06/24
Tioga County	D13	198	92.4	0	.111	06/25	.102	06/26	.094	07/02	.086	06/27
Johnstown Air Basin												
Johnstown	J01	211	98.4	0	.113	06/25	.098	06/24	.093	06/23	.089	04/15
Monongahela Valley Air Basin												
Charleroi	M01	212	99.2	1	.135	06/24	.124	06/25	.110	08/14	.101	06/23
Lower Beaver Valley Air Basin												
Beaver Falls	B11	213	99.4	1	.133	06/24	.107	06/23	.100	06/25	.089	07/01
Hookstown	B23	213	99.4	1	.125	06/24	.111	06/23	.111	06/25	.096	08/14
Brighton Township	B27	213	99.6	1	.126	06/24	.107	06/23	.100	06/25	.094	08/14
Allegheny County Air Basin												
Pittsburgh	D12	214	99.7	1	.135	06/24	.110	06/25	.105	06/23	.101	08/13
Southwest Region Non-Air Basin												
Florence	504	212	99.0	1	.133	06/24	.107	06/25	.098	06/23	.091	08/14
Washington	508	214	99.9	0	.122	06/24	.118	06/25	.102	08/15	.095	06/23
Murrysville	510	207	96.7	1	.125	06/24	.100	08/15	.095	07/03	.094	06/23
Kittanning	512	212	98.9	0	.120	06/25	.109	06/24	.103	08/20	.093	04/15
Greensburg	513	213	99.4	1	.126	06/24	.115	06/25	.110	08/15	.100	06/23
Holbrook	514	210	98.3	0	.117	06/25	.106	06/24	.091	06/23	.086	04/15
Upper Beaver Valley Air Basin												
New Castle	B21	213	99.4	1	.131	06/24	.106	06/25	.097	06/23	.088	08/15
Erie Air Basin												
Erie	E10	209	97.7	0	.116	06/23	.108	06/25	.105	06/24	.099	07/03
Northwest Region Non-Air Basin												
Farrell	606	212	99.3	0	.120	06/25	.116	06/24	.109	08/15	.096	06/23

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: 2003 (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	209	97.8	9	.110	06/26	.109	06/25	.097	07/04	.087	06/28
Chester	P11	211	98.4	3	.108	06/25	.106	06/26	.089	07/04	.080	06/24
Norristown	P21	210	98.2	4	.107	06/26	.103	06/25	.090	07/04	.085	06/28
New Garden (Toughkenamon)	P30	211	98.4	4	.112	06/25	.112	06/26	.088	06/24	.085	06/11
West Chester	P32	209	97.5	4	.107	06/26	.105	06/25	.087	06/24	.085	06/28
Allentown-Bethlehem-Easton Air Basin												
Allentown	A19	211	98.8	4	.107	06/25	.102	06/26	.089	07/04	.087	07/02
Easton	A20	213	99.6	3	.100	06/26	.099	06/25	.086	07/02	.083	07/04
Freemansburg	A25	214	99.9	4	.108	06/26	.106	06/25	.089	07/04	.087	07/02
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	210	97.9	2	.094	06/26	.088	06/25	.076	04/15	.075	06/28
Nanticoke	S26	211	98.4	3	.090	06/26	.088	06/25	.085	04/15	.077	07/04
Wilkes-Barre	S28	211	98.8	2	.094	06/25	.093	06/26	.080	04/15	.078	07/03
Peckville	S29	213	99.4	2	.093	06/26	.088	06/25	.079	04/15	.075	07/02
Reading Air Basin												
Reading	R01	211	98.6	3	.106	06/26	.091	06/25	.085	07/04	.080	04/16
Harrisburg Air Basin												
Harrisburg	H11	213	99.5	2	.096	06/26	.086	06/25	.080	04/15	.074	06/24
Lancaster Air Basin												
Lancaster	L01	210	98.2	3	.121	06/26	.109	06/25	.088	06/24	.083	07/04
York Air Basin												
York	Y01	212	98.9	3	.107	06/26	.104	06/25	.091	06/24	.081	04/15
Southcentral Region Non-Air Basin												
Perry County	305	202	94.3	3	.092	06/26	.088	06/25	.086	04/15	.084	04/16
Hershey	306	212	98.9	2	.108	06/26	.093	06/25	.082	04/15	.079	06/24
Kutztown	310	197	91.8	1	.095	06/26	.076	04/16	.076	07/04	.072	07/02
Methodist Hill	313	197	91.9	3	.095	06/25	.090	06/26	.085	06/24	.080	04/15
Biglerville	D14	201	94.1	2	.099	06/25	.098	06/26	.078	06/24	.076	07/30
Altoona	308	213	99.5	3	.104	06/25	.096	06/26	.087	06/24	.083	04/15

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: 2003 (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	99.9	3	.100	06/26	.090	07/02	.087	0625	.083	04/15
State College	409	206	96.4	3	.099	06/26	.096	06/25	.089	04/15	.082	06/24
Moshannon (Elliott State Park)	D09	191	89.4	4	.102	06/25	.097	06/26	.087	04/15	.087	06/24
Tiadaghton	D10	192	89.6	2	.091	06/26	.087	04/15	.081	06/25	.076	06/24
Penn Nursery	D11	195	91.0	4	.107	06/25	.106	06/26	.093	04/15	.093	06/24
Tioga County	D13	197	92.1	3	.099	06/25	.094	06/26	.085	07/02	.084	06/24
Johnstown Air Basin												
Johnstown	J01	211	98.6	2	.101	06/25	.090	06/24	.084	06/26	.083	04/15
Monongahela Valley Air Basin												
Charleroi	M01	212	99.0	4	.107	06/24	.101	06/25	.090	06/23	.088	08/14
Lower Beaver Valley Air Basin												
Beaver Falls	B11	213	99.6	3	.121	06/24	.092	06/23	.092	06/25	.078	04/15
Hookstown	B23	213	99.6	6	.121	06/24	.106	06/23	.100	06/25	.087	08/14
Brighton Township	B27	213	99.7	3	.120	06/24	.100	06/23	.094	06/25	.083	08/14
Allegheny County Air Basin												
Pittsburgh	D12	214	99.9	5	.122	06/24	.103	06/25	.090	08/14	.088	06/23
Southwest Region Non-Air Basin												
Florence	504	212	99.1	3	.121	06/24	.098	06/25	.091	06/23	.078	04/15
Washington	508	214	99.9	5	.114	06/24	.104	06/25	.090	06/23	.088	08/15
Murrysville	510	207	96.8	2	.110	06/24	.090	06/25	.084	08/15	.083	06/23
Kittanning	512	211	98.8	5	.113	06/25	.103	06/24	.087	06/26	.086	08/20
Greensburg	513	213	99.7	4	.110	06/24	.102	06/25	.092	08/15	.091	06/23
Holbrook	514	210	97.9	3	.105	06/25	.100	06/24	.087	06/23	.083	04/15
Upper Beaver Valley Air Basin												
New Castle	B21	213	99.4	2	.122	06/24	.085	06/25	.083	06/23	.077	08/15
Erie Air Basin												
Erie	E10	209	97.8	4	.109	06/23	.103	06/25	.100	06/24	.091	07/03
Northwest Region Non-Air Basin												
Farrell	606	213	99.4	6	.112	06/25	.105	06/24	.090	08/15	.087	07/03

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 – 2003

Date of Occurrence	Monitoring Site	County	Daily 1-Hour Concentration (ppb*)
June 24, 2003	Beaver Falls	Beaver	133
	Hookstown	Beaver	125
	Brighton Township	Beaver	126
	Pittsburgh	Allegheny	135
	Charleroi	Washington	135
	Florence	Washington	133
	Murrysville	Westmoreland	125
	Greensburg	Westmoreland	126
	New Castle	Lawrence	131
June 25, 2003	Altoona	Blair	127
June 26, 2003	Reading	Berks	125
	Lancaster	Lancaster	135

- 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 (2001 – 2003)
(Units: parts per billion)

Station	Design Value	2001 Days > 124	2001 Daily Maximums 1st 1-Hr	2nd 1-Hr	3rd 1-Hr	4th 1-Hr	2002 Days > 124	2002 Daily Maximums 1st 1-Hr	2nd 1-Hr	3rd 1-Hr	4th 1-Hr	2003 Days > 124	2003 Daily Maximums 1st 1-Hr	2nd 1-Hr	3rd 1-Hr	4th 1-Hr
Bristol	131	2	142	131	123	120	4	143	135	126	125	0	121	121	119	103
Chester	124	1	127	108	108	106	2	131	125	124	123	0	119	118	99	96
Norristown	120	1	125	120	116	115	1	144	122	113	108	0	114	111	100	99
New Garden (Airport)	124	0	122	122	115	115	2	149	139	124	124	0	120	115	100	99
West Chester	116	0	118	117	116	112	1	129	113	111	110	0	114	110	103	94
Northwest (Rox)	116	0	113	112	110	109	1	146	118	117	116	0	111	108	102	91
Northeast (Airport)	132	3	136	130	126	118	4	140	135	132	127	0	110	105	101	100
Southwest (Elm)	114	0	114	104	98	97	1	126	122	119	113	0	107	97	86	85
Frankford (Lab)	96	0	95	91	90	84	0	110	105	96	96	0	99	95	94	81
Allentown	114	2	129	126	104	102	0	117	114	110	107	0	112	109	97	94
Freemansburg	113	0	124	113	108	105	0	114	112	105	102	0	114	112	106	99
Easton	113	0	120	113	109	107	0	121	113	111	106	0	108	107	105	95
Reading	116	2	126	125	107	106	0	116	113	113	111	1	125	94	91	88
Kutztown	111	0	122	119	113	99	0	111	106	106	103	0	102	84	82	80
Scranton	101	0	101	97	96	95	1	134	122	99	98	0	101	99	88	86
Peckville	106	0	106	99	95	91	1	137	122	106	104	0	100	97	91	83
Nanticoke	108	0	108	104	98	96	0	117	112	112	108	0	100	97	96	91
Wilkes-Barre	107	0	107	100	100	98	0	121	119	107	106	0	102	98	89	86
Harrisburg	111	0	108	99	99	97	2	128	126	113	111	0	109	89	88	84
Hershey	109	0	109	105	104	103	2	138	132	109	109	0	122	99	91	90
Perry County	106	0	114	102	97	97	0	118	110	106	98	0	97	95	94	92
Lancaster	124	2	127	127	118	114	0	124	115	112	110	1	135	115	94	93
York	114	0	110	104	100	97	1	134	124	114	112	0	115	114	101	93
Biglerville (PSU)	103	0	97	96	96	96	0	117	104	103	102	0	103	102	81	81
Methodist Hill	114	0	106	104	103	103	0	115	115	114	114	0	110	101	85	85
Williamsport	87	0	96	94	91	87										
Montoursville	103						0	118	112	103	102	0	112	102	95	95
Tiadaghton (PSU)	98	0	96	89	86	86	0	103	101	99	95	0	98	94	90	83
Tioga County (PSU)	102	0	94	94	92	92	0	119	118	98	97	0	111	102	94	86
State College (PSU)	105	0	98	97	95	95	0	109	108	106	104	0	105	100	96	88
Penn Nursery (PSU)	109	0	91	91	91	89	0	114	113	105	102	0	111	109	99	97
Altoona	107	0	107	107	99	95	0	117	102	102	100	1	127	104	92	91
Johnstown	106	0	109	106	106	103	0	107	106	104	101	0	113	98	93	89
Moshannon (PSU)	106	0	112	102	100	98	0	107	106	104	102	0	107	103	97	91
Greensburg	115	0	110	100	95	94	0	120	119	107	106	1	126	115	110	100
Murrysville	108	0	98	97	88	87	0	113	110	108	105	1	125	100	95	94
Kittanning	120	1	140	119	117	109	0	122	122	116	110	0	120	109	103	93
Brighton Twp	117	0	103	103	97	97	0	120	118	117	114	1	126	107	100	94
Beaver Falls	112	0	115	109	103	97	0	115	112	111	109	1	133	107	100	89
Hookstown	115	0	105	101	100	99	0	116	115	115	113	1	125	111	111	96
Florence	111	0	111	106	100	99	0	116	114	107	107	1	133	107	98	91
Charleroi	119	0	112	102	96	95	1	125	119	106	105	1	135	124	110	101
Washington	116	0	116	109	106	98	1	126	112	104	103	0	122	118	102	95
Holbrook	107	0	107	99	97	97	0	118	113	107	100	0	117	106	91	86
Pittsburgh (Carnegie SC)	115	0	114	112	105	103	0	119	119	115	114	1	135	110	105	101
Harrison Twp	120	0	121	109	108	107	0	123	120	118	116	0	122	114	91	89
Lawrenceville	110	0	103	102	100	96	0	115	114	110	109	1	130	109	104	102
Penn Hills	100	0	115	112	103	100										
South Fayette	109	0	123	107	103	102	0	109	106	104	104	1	132	112	109	103
New Castle	103	0	103	99	90	86	0	113	103	101	99	1	131	106	97	88
Farrell	117	0	116	113	111	107	0	120	118	117	114	0	120	116	109	96
Erie	110	0	108	104	103	101	0	122	114	110	107	0	116	108	105	99

Table A-16. Eight-Hour Ozone Days Greater Than 84 ppb and Maximums Summary (2001 – 2003)
(Units: parts per billion)

Station	Design Value	2001 Days > 84	2001 Daily Maximums 1st 8-Hr	2nd 8-Hr	3rd 8-Hr	4th 8-Hr	2002 Days > 84	2002 Daily Maximums 1st 8-Hr	2nd 8-Hr	3rd 8-Hr	4th 8-Hr	2003 Days > 84	2003 Daily Maximums 1st 8-Hr	2nd 8-Hr	3rd 8-Hr	4th 8-Hr
Bristol	**100**	16	119	112	105	104	17	124	113	113	111	9	110	109	97	87
Chester	**92**	12	98	98	94	93	16	108	106	105	103	3	108	106	89	80
Norristown	**92**	18	111	110	106	96	12	102	101	98	96	4	107	103	90	85
New Garden (Airport)	**98**	17	109	107	106	105	23	123	112	111	104	4	112	112	88	85
West Chester	**95**	20	108	104	104	103	19	111	104	100	97	4	107	105	87	85
Northwest (Rox)	**93**	10	102	101	100	97	13	104	103	99	98	2	102	101	84	84
Northeast (Airport)	**97**	13	113	107	104	97	22	117	116	114	110	4	104	96	87	86
Southwest (Elm)	83	5	99	92	87	86	13	101	98	95	94	2	98	92	75	70
Frankford (Lab)	75	0	78	78	77	74	0	84	82	82	82	2	92	85	77	69
Allentown	**91**	9	109	101	95	94	16	108	108	97	94	4	107	102	89	87
Freemansburg	**90**	14	105	101	98	94	12	106	105	91	90	4	108	106	89	87
Easton	**89**	11	105	100	93	92	13	106	99	94	92	3	100	99	86	83
Reading	**91**	8	106	101	99	99	13	104	102	97	95	3	106	91	85	80
Kutztown	84	7	105	95	93	91	11	102	100	92	91	1	95	76	76	72
Scranton	84	5	90	90	88	88	8	106	95	95	89	2	94	88	76	75
Peckville	**85**	5	93	87	86	86	14	117	104	101	94	2	93	88	79	75
Nanticoke	84	5	91	88	87	86	6	108	104	94	89	3	90	88	85	77
Wilkes-Barre	**86**	7	94	90	89	88	7	111	109	96	92	2	94	93	80	78
Harrisburg	**86**	7	91	88	86	86	11	112	108	99	98	2	96	86	80	74
Hershey	**88**	12	98	92	91	91	13	120	116	97	94	2	108	93	82	79
Perry County	**87**	10	104	95	90	89	7	110	103	90	88	3	92	88	86	84
Lancaster	**92**	15	105	102	101	97	18	118	104	97	96	3	121	109	88	83
York	**89**	8	93	91	88	87	12	106	106	103	101	3	107	104	91	81
Methodist Hill	**93**	15	98	98	95	95	27	108	106	104	104	3	95	90	85	80
Biglerville (PSU)	**85**	7	91	90	89	88	7	106	99	94	93	2	99	98	78	76
Williamsport	75	1	88	83	77	75										
Montoursville	**87**						7	110	99	93	91	3	100	90	87	83
Tiadaghton (PSU)	80	1	86	83	82	80	3	92	88	85	84	2	91	87	81	76
Tioga County (PSU)	**86**	3	86	86	85	83	8	105	99	97	93	3	99	94	85	84
State College (PSU)	**86**	5	92	90	86	86	8	101	100	92	90	3	99	96	89	82
Penn Nursery (PSU)	**88**	1	87	84	83	82	12	106	103	92	91	4	107	106	93	93
Altoona	**85**	3	96	89	87	83	9	108	93	89	89	3	104	96	87	83
Johnstown	**87**	5	96	94	94	90	6	97	90	89	88	2	101	90	84	83
Moshannon (PSU)	**90**	8	98	92	90	89	13	100	97	95	95	4	102	97	87	87
Greensburg	**91**	3	95	86	85	84	10	107	100	100	98	4	110	102	92	91
Murrysville	84	1	88	82	79	78	9	100	97	92	91	2	110	90	84	83
Kittanning	**93**	16	117	111	99	98	15	115	104	103	97	5	113	103	87	86
Brighton Twp	**92**	8	95	92	89	89	23	107	107	106	104	3	120	100	94	83
Beaver Falls	**86**	4	101	89	87	86	9	100	99	99	96	3	121	92	92	78
Hookstown	**94**	9	97	95	93	92	19	107	105	105	103	6	121	106	100	87
Florence	**87**	7	95	92	92	89	17	109	98	97	96	3	121	98	91	78
Charleroi	**89**	7	90	88	88	87	14	108	97	97	93	4	107	101	90	88
Washington	**88**	6	99	94	92	90	9	107	99	91	88	5	114	104	90	88
Holbrook	**89**	12	93	92	91	90	9	108	99	99	94	3	105	100	87	83
Pittsburgh (Carnegie SC)	**93**	9	104	95	93	93	25	114	108	105	100	5	122	103	90	88
Harrison Twp	**92**	8	101	97	93	92	14	110	106	105	105	2	111	107	83	81
Lawrenceville	**92**	4	95	91	87	87	16	107	102	100	100	5	122	105	92	90
Penn Hills	**87**	4	102	95	95	87										
South Fayette	**91**	7	98	97	90	87	17	105	99	99	98	4	121	105	94	89
New Castle	80	1	92	82	82	78	6	97	95	89	87	2	122	85	83	77
Farrell	**94**	15	105	101	97	94	20	106	105	105	103	6	112	105	90	87
Erie	**92**	4	99	96	96	89	17	103	102	101	98	4	109	103	100	91

This page intentionally left blank.

Appendix A: Table A-17

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Southeast Pennsylvania Air Basin											
Bristol	0.128	0.137	0.120	0.119	0.115	0.145	0.121	0.131	0.135	0.121	2nd Max Daily 1 Hour Average
P01	2	5	1	1	0	6	1	2	4	0	Number Days 1-Hr > 0.124 ppm
	0.093	0.111	0.093	0.102	0.096	0.112	0.099	0.104	0.111	0.087	4th Max Daily 8 Hour Average
	14	23	10	14	17	24	14	16	17	9	Number Days 8-Hr > 0.084 ppm
Chester	0.118	0.126	0.117	0.127	0.125	0.130	0.117	0.108	0.125	0.118	2nd Max Daily 1 Hour Average
P11	1	2	0	3	2	3	0	1	2	0	Number Days 1-Hr > 0.124 ppm
	0.087	0.108	0.091	0.101	0.099	0.100	0.091	0.093	0.103	0.080	4th Max Daily 8 Hour Average
	6	15	7	19	17	19	7	12	16	3	Number Days 8-Hr > 0.084 ppm
Norristown	0.115	0.114	0.118	0.131	0.126	0.126	0.125	0.120	0.122	0.111	2nd Max Daily 1 Hour Average
P21	0	1	0	2	2	2	2	1	1	0	Number Days 1-Hr > 0.124 ppm
	0.091	0.096	0.090	0.107	0.103	0.104	0.100	0.096	0.096	0.085	4th Max Daily 8 Hour Average
	11	13	8	19	17	20	11	18	12	4	Number Days 8-Hr > 0.084 ppm
New Garden	***	***	***	***	***	***	0.095	0.122	0.139	0.115	2nd Max Daily 1 Hour Average
P30	***	***	***	***	***	***	0	0	2	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	***	0.077	0.105	0.104	0.085	4th Max Daily 8 Hour Average
	***	***	***	***	***	***	1	17	23	4	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	0.105	0.109	0.114	0.116	0.106	0.125	0.112	0.126	0.114	0.109	2nd Max Daily 1 Hour Average
A19	0	0	0	1	0	2	0	2	0	0	Number Days 1-Hr > 0.124 ppm
	0.084	0.091	0.094	0.101	0.095	0.105	0.091	0.094	0.094	0.087	4th Max Daily 8 Hour Average
	3	7	6	12	18	19	5	9	16	4	Number Days 8-Hr > 0.084 ppm
Easton	***	***	***	***	***	***	0.100	0.113	0.113	0.107	2nd Max Daily 1 Hour Average
A20	***	***	***	***	***	***	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	***	0.083	0.092	0.092	0.083	4th Max Daily 8 Hour Average
	***	***	***	***	***	***	2	11	13	3	Number Days 8-Hr > 0.084 ppm
Freemansburg	***	***	***	***	0.104	0.126	0.114	0.113	0.112	0.112	2nd Max Daily 1 Hour Average
A25	***	***	***	***	0	2	1	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	0.087	0.107	0.092	0.094	0.090	0.087	4th Max Daily 8 Hour Average
	***	***	***	***	5	22	6	14	12	4	Number Days 8-Hr > 0.084 ppm

Appendix A: Table A-17

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Scranton-Wilkes-Barre Air Basin											
Scranton	0.106	0.105	0.108	0.095	0.108	0.107	0.082	0.097	0.122	0.099	2nd Max Daily 1 Hour Average
S01	0	0	0	0	0	0	0	0	1	0	Number Days 1-Hr > 0.124 ppm
	0.085	0.091	0.083	0.085	0.088	0.093	0.073	0.088	0.089	0.075	4th Max Daily 8 Hour Average
	4	8	3	4	5	11	1	5	8	2	Number Days 8-Hr > 0.084 ppm
Nanticoke	0.083	0.100	0.087	0.091	0.098	0.102	0.093	0.104	0.112	0.097	2nd Max Daily 1 Hour Average
S26	0	0	0	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.067	0.081	0.075	0.079	0.081	0.086	0.076	0.086	0.089	0.077	4th Max Daily 8 Hour Average
	0	3	0	0	2	4	1	5	6	3	Number Days 8-Hr > 0.084 ppm
Wiilkes-Barre	0.100	0.105	0.105	0.111	0.102	0.111	0.086	0.100	0.119	0.098	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	0.089	0.085	0.096	0.088	0.093	0.073	0.088	0.092	0.087	4th Max Daily 8 Hour Average
	4	10	4	8	7	9	1	7	7	2	Number Days 8-Hr > 0.084 ppm
Peckville	0.102	0.110	0.113	0.106	0.105	0.115	0.090	0.099	0.122	0.097	2nd Max Daily 1 Hour Average
S29	0	0	0	0	0	0	0	0	1	0	Number Days 1-Hr > 0.124 ppm
	0.088	0.089	0.082	0.087	0.089	0.096	0.077	0.086	0.094	0.075	4th Max Daily 8 Hour Average
	5	6	3	6	5	11	1	5	14	2	Number Days 8-Hr > 0.084 ppm
Reading Air Basin											
Reading	0.102	0.116	0.110	0.120	0.106	0.123	0.105	0.125	0.113	0.094	2nd Max Daily 1 Hour Average
R01	1	0	0	1	0	1	0	2	0	1	Number Days 1-Hr > 0.124 ppm
	0.085	0.095	0.088	0.095	0.092	0.102	0.084	0.099	0.095	0.080	4th Max Daily 8 Hour Average
	4	11	4	10	16	14	3	8	13	3	Number Days 8-Hr > 0.084 ppm
Harrisburg Air Basin											
Harrisburg	0.118	0.099	0.096	0.112	0.116	0.114	0.101	0.099	0.126	0.089	2nd Max Daily 1 Hour Average
H11	0	0	0	0	0	0	0	0	2	0	Number Days 1-Hr > 0.124 ppm
	0.091	0.084	0.078	0.084	0.097	0.095	0.079	0.086	0.098	0.074	4th Max Daily 8 Hour Average
	9	3	3	3	22	15	3	7	11	2	Number Days 8-Hr > 0.084 ppm
Lancaster Air Basin											
Lancaster	0.111	0.124	0.101	0.133	0.119	0.127	0.107	0.127	0.115	0.115	2nd Max Daily 1 Hour Average
L01	0	1	0	3	0	2	0	2	0	1	Number Days 1-Hr > 0.124 ppm
	0.093	0.102	0.085	0.102	0.101	0.102	0.090	0.097	0.096	0.083	4th Max Daily 8 Hour Average
	6	18	4	21	27	18	5	15	18	3	Number Days 8-Hr > 0.084 ppm
York Air Basin											
York	0.115	0.097	0.098	0.109	0.112	0.121	0.112	0.104	0.124	0.114	2nd Max Daily 1 Hour Average
Y01	0	0	0	0	0	1	0	0	1	0	Number Days 1-Hr > 0.124 ppm
	0.082	0.086	0.081	0.094	0.095	0.094	0.090	0.087	0.101	0.081	4th Max Daily 8 Hour Average
	2	6	3	13	18	10	6	8	12	3	Number Days 8-Hr > 0.084 ppm

Appendix A: Table A-17

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Southcentral Region Non-Air Basin											
Perry County	0.106	0.103	0.090	0.103	0.110	0.106	0.099	0.102	0.110	0.095	2nd Max Daily 1 Hour Average
305	0	0	0	0	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.087	0.085	0.077	0.090	0.092	0.090	0.073	0.089	0.088	0.084	4th Max Daily 8 Hour Average
	5	4	1	7	8	13	2	10	7	3	Number Days 8-Hr > 0.084 ppm
Hershey	0.122	0.113	0.104	0.116	0.111	0.126	0.110	0.105	0.132	0.099	2nd Max Daily 1 Hour Average
306	0	0	0	0	0	2	0	0	2	0	Number Days 1-Hr > 0.124 ppm
	0.089	0.090	0.084	0.092	0.088	0.104	0.088	0.091	0.094	0.079	4th Max Daily 8 Hour Average
	8	9	3	9	9	15	5	12	13	2	Number Days 8-Hr > 0.084 ppm
Kutztown	0.106	0.107	0.100	0.109	0.104	0.128	0.101	0.119	0.106	0.084	2nd Max Daily 1 Hour Average
310	1	0	0	0	0	2	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.083	0.091	0.083	0.089	0.090	0.099	0.075	0.091	0.091	0.072	4th Max Daily 8 Hour Average
	3	7	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	2nd Max Daily 1 Hour Average
313	***	***	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	4th Max Daily 8 Hour Average
	***	***	3	7	22	20	4	15	27	3	Number Days 8-Hr > 0.084 ppm
Biglerville	***	***	***	***	***	***	***	0.096	0.104	0.102	2nd Max Daily 1 Hour Average
D14	***	***	***	***	***	***	***	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	***	***	0.088	0.093	0.076	4th Max Daily 8 Hour Average
	***	***	***	***	***	***	***	7	7	2	Number Days 8-Hr > 0.084 ppm
Altoona	0.106	0.112	0.101	0.114	0.114	0.111	0.104	0.107	0.102	0.104	2nd Max Daily 1 Hour Average
308	0	0	0	0	0	0	0	0	0	1	Number Days 1-Hr > 0.124 ppm
	0.092	0.091	0.083	0.096	0.098	0.091	0.080	0.083	0.089	0.083	4th Max Daily 8 Hour Average
	6	8	2	7	17	6	2	3	9	3	Number Days 8-Hr > 0.084 ppm
Northcentral Region Non-Air Basin											
Montoursville	***	***	***	***	***	***	***	***	0.112	0.102	2nd Max Daily 1 Hour Average
410	***	***	***	***	***	***	***	***	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	***	***	***	0.091	0.083	4th Max Daily 8 Hour Average
	***	***	***	***	***	***	***	***	7	3	Number Days 8-Hr > 0.084 ppm
State College	***	***	***	***	***	***	0.102	0.101	0.108	0.100	2nd Max Daily 1 Hour Average
409	***	***	***	***	***	***	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	***	0.079	0.086	0.090	0.082	4th Max Daily 8 Hour Average
	***	***	***	***	***	***	2	5	8	3	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	2nd Max Daily 1 Hour Average
D09	***	***	0	0	1	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	4th Max Daily 8 Hour Average
	***	***	0	12	16	1	2	8	13	4	Number Days 8-Hr > 0.084 ppm

Appendix A: Table A-17

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Tiadaghton	***	***	***	0.075	0.099	0.091	0.092	0.089	0.101	0.094	2nd Max Daily 1 Hour Average
D10	***	***	***	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	4th Max Daily 8 Hour Average
	***	***	***	0	3	0	1	1	3	2	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	2nd Max Daily 1 Hour Average
D11	***	***	0	1	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	4th Max Daily 8 Hour Average
	***	***	1	7	8	4	2	1	12	4	Number Days 8-Hr > 0.084 ppm
Tioga County	***	***	***	***	***	0.093?	0.103	0.094	0.118	0.102	2nd Max Daily 1 Hour Average
D13	***	***	***	***	***	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	0.082?	0.078	0.083	0.093	0.084	4th Max Daily 8 Hour Average
	***	***	***	***	***	2	2	3	8	3	Number Days 8-Hr > 0.084 ppm
Johnstown Air Basin											
Johnstown	0.101	0.098	0.104	0.124	0.107	0.104	0.106	0.106	0.106	0.098	2nd Max Daily 1 Hour Average
J01	0	0	1	1	0	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.090	0.083	0.092	0.098	0.090	0.086	0.090	0.088	0.088	0.083	4th Max Daily 8 Hour Average
	6	3	7	13	11	5	5	6	6	2	Number Days 8-Hr > 0.084 ppm
Monongahela Valley Air Basin											
Charleroi	0.112	0.116	0.102	0.118	0.127	0.115	0.110	0.112	0.119	0.124	2nd Max Daily 1 Hour Average
M01	0	0	0	0	3	0	0	0	1	1	Number Days 1-Hr > 0.124 ppm
	0.091	0.096	0.090	0.099	0.108	0.096	0.080	0.087	0.093	0.088	4th Max Daily 8 Hour Average
	9	16	5	14	34	11	3	7	14	4	Number Days 8-Hr > 0.084 ppm
Lower Beaver Valley Air Basin											
Beaver Falls	0.107	0.106	0.105	0.101	0.116	0.131	0.099	0.109	0.112	0.107	2nd Max Daily 1 Hour Average
B11	0	0	0	0	0	2	0	0	0	1	Number Days 1-Hr > 0.124 ppm
	0.084	0.084	0.085	0.085	0.098	0.087	0.084	0.086	0.096	0.078	4th Max Daily 8 Hour Average
	3	3	4	5	6	3	14	4	9	3	Number Days 8-Hr > 0.084 ppm
Hookstown	***	0.102?	0.104	0.098	0.113	0.116	0.095	0.101	0.115	0.111	2nd Max Daily 1 Hour Average
B23	***	0	0	0	0	0	0	0	0	1	Number Days 1-Hr > 0.124 ppm
	***	0.085?	0.090	0.086	0.095	0.095	0.077	0.092	0.103	0.087	4th Max Daily 8 Hour Average
	***	4	6	4	11	9	1	9	19	6	Number Days 8-Hr > 0.084 ppm
	0.086	0.089	0.083	0.082	0.092	0.101	0.077	0.089	0.104	0.083	4th Max Daily 8 Hour Average
	5	5	3	3	15	11	1	8	23	3	Number Days 8-Hr > 0.084 ppm
Allegheny County Air Basin											
Pittsburgh	***	***	***	***	0.105	0.120	0.111	0.112	0.119	0.110	2nd Max Daily 1 Hour Average
D12	***	***	***	***	0	1	0	0	0	1	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	0.089	0.099	0.086	0.093	0.100	0.088	4th Max Daily 8 Hour Average
	***	***	***	***	6	16	4	9	25	5	Number Days 8-Hr > 0.084 ppm

Appendix A: Table A-17

Ozone Historical Trend
(Units: parts per million)

Station / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Southwest Region Non-Air Basin											
Florence	***	0.104	0.092	0.111	0.109	0.110	0.098	0.106	0.114	0.107	2nd Max Daily 1 Hour Average
504	***	0	0	0	0	0	0	0	0	1	Number Days 1-Hr > 0.124 ppm
	***	0.085	0.084	0.085	0.094	0.096	0.080	0.089	0.096	0.078	4th Max Daily 8 Hour Average
	***	6	2	4	11	9	2	7	17	3	Number Days 8-Hr > 0.084 ppm
Washington	0.115	0.111	0.103	0.107	0.112	0.106	0.105	0.109	0.112	0.118	2nd Max Daily 1 Hour Average
508	0	0	0	0	0	0	0	0	1	0	Number Days 1-Hr > 0.124 ppm
	0.093	0.088	0.084	0.088	0.095	0.090	0.080	0.090	0.088	0.088	4th Max Daily 8 Hour Average
	9	6	3	6	15	11	3	6	9	5	Number Days 8-Hr > 0.084 ppm
Murrysville	0.118	0.127	0.104	0.123	0.101	0.115	0.103	0.097	0.110	0.100	2nd Max Daily 1 Hour Average
510	0	3	0	1	0	1	0	0	0	1	Number Days 1-Hr > 0.124 ppm
	0.091?	0.096	0.081	0.088	0.082	0.087	0.076	0.078	0.091	0.083	4th Max Daily 8 Hour Average
	7	7	2	4	3	5	2	1	9	2	Number Days 8-Hr > 0.084 ppm
Kittanning	***	***	***	***	0.113	0.121	0.103	0.119	0.122	0.109	2nd Max Daily 1 Hour Average
512	***	***	***	***	0	1	0	1	0	0	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	0.100	0.100	0.079	0.098	0.097	0.086	4th Max Daily 8 Hour Average
	***	***	***	***	21	18	2	16	15	5	Number Days 8-Hr > 0.084 ppm
Greensburg	***	***	***	***	***	0.125	0.097	0.100	0.119	0.115	2nd Max Daily 1 Hour Average
513	***	***	***	***	***	2	0	0	0	1	Number Days 1-Hr > 0.124 ppm
	***	***	***	***	***	0.099	0.076	0.084	0.098	0.091	4th Max Daily 8 Hour Average
	***	***	***	***	***	16	3	3	10	4	Number Days 8-Hr > 0.084 ppm
Holbrook	***	***	***	0.123?	0.110?	0.116	0.106	0.099	0.113	0.106	2nd Max Daily 1 Hour Average
514	***	***	***	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	4th Max Daily 8 Hour Average
	***	***	***	10	16	21	6	12	9	3	Number Days 8-Hr > 0.084 ppm
Upper Beaver Valley Air Basin											
New Castle	0.102	0.101	0.097	0.109	0.096	0.105	0.090	0.099	0.103	0.106	2nd Max Daily 1 Hour Average
B21	0	0	0	0	0	1	0	0	0	1	Number Days 1-Hr > 0.124 ppm
	0.079	0.083	0.084	0.086	0.077	0.088	0.069	0.079	0.087	0.077	4th Max Daily 8 Hour Average
	2	3	2	4	2	5	0	1	6	2	Number Days 8-Hr > 0.084 ppm
Erie Air Basin											
Erie	0.101	0.105	0.100	0.103	0.122	0.112	0.095	0.104	0.114	0.108	2nd Max Daily 1 Hour Average
E10	0	0	0	0	1	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.090	0.088	0.083	0.087	0.098	0.096	0.078	0.089	0.098	0.091	4th Max Daily 8 Hour Average
	8	8	3	6	12	13	2	4	17	4	Number Days 8-Hr > 0.084 ppm
Northwest Region Non-Air Basin											
Farrell	0.111	0.113	0.103	0.111	0.121	0.108	0.098	0.113	0.118	0.116	2nd Max Daily 1 Hour Average
606	0	0	0	0	1	0	0	0	0	0	Number Days 1-Hr > 0.124 ppm
	0.090	0.095	0.090	0.092	0.106	0.091	0.081	0.094	0.103	0.087	4th Max Daily 8 Hour Average
	6	9	9	9	24	8	2	15	20	6	Number Days 8-Hr > 0.084 ppm

This page intentionally left blank.

Appendix A: Table A-18

Nitrogen Dioxide Summary
(Units: parts per million)

Year: 2003

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	97.7	0.016	0.105	02/21	0.081	03/13	0.074	02/21	0.070	02/19
Chester	P11	95.7	0.018	0.099	10/09	0.090	10/09	0.085	10/09	0.084	10/10
Norristown	P21	93.7	0.017	0.099	02/19	0.073	02/21	0.069	02/14	0.064	04/02
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	98.5	0.015	0.056	12/29	0.055	02/28	0.053	01/19	0.053	02/21
Freemansburg	A25	98.6	0.013	0.057	02/21	0.056	02/21	0.054	02/21	0.053	06/25
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	97.9	0.014	0.064	04/16	0.061	04/16	0.059	04/16	0.056	04/16
Wilkes-Barre	S28	98.9	0.013	0.072	02/21	0.059	02/21	0.056	02/21	0.054	02/21
Reading Air Basin											
Reading	R01	98.7	0.018	0.074	02/21	0.070	02/21	0.068	02/21	0.065	06/25
Harrisburg Air Basin											
Harrisburg	H11	98.5	0.016	0.087	02/21	0.087	02/21	0.086	02/21	0.085	02/21
Lancaster Air Basin											
Lancaster	L01	98.7	0.015	0.057	02/21	0.056	03/05	0.055	02/21	0.055	03/05
York Air Basin											
York	Y01	98.1	0.017	0.068	02/21	0.066	12/29	0.064	12/22	0.061	06/24
Southcentral Region Non-Air Basin											
Perry County	305	96.9	0.006	0.047	02/27	0.047	02/27	0.046	02/28	0.045	02/28
Arendtsville	314	55.7	0.004?	0.035	04/03	0.035	04/08	0.033	04/03	0.033	04/09
Altoona	308	98.4	0.013	0.086	01/19	0.086	08/27	0.062	03/20	0.062	08/27
Northcentral Region Non-Air Basin											
State College	408	88.8	0.008	0.054	05/20	0.051	11/04	0.048	05/20	0.045	02/20
Johnstown Air Basin											
Johnstown	J01	98.3	0.013	0.051	03/25	0.048	03/25	0.046	04/01	0.046	04/01
Monogahela Valley Air Basin											
Charleroi	M01	97.7	0.012	0.050	02/21	0.050	02/21	0.049	02/21	0.048	02/21
Lower Beaver Valley Air Basin											
Beaver Falls	B11	99.4	0.015	0.058	03/12	0.056	12/29	0.055	01/31	0.055	04/15

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: 2003

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	96.8	0.021	0.086	06/24	0.082	06/23	0.080	06/24	0.079	06/24
Southwest Region Non-Air Basin											
Florence	504	98.2	0.013	0.045	01/31	0.044	02/21	0.043	02/21	0.042	02/21
Washington	508	98.8	0.012	0.063	02/21	0.062	02/21	0.054	02/21	0.050	02/21
Greensburg	513	98.7	0.015	0.052	12/16	0.049	04/02	0.049	12/16	0.048	03/17
Upper Beaver Valley Air Basin											
New Castle	B21	99.2	0.016	0.053	01/27	0.052	04/15	0.050	02/21	0.049	02/21
Erie Air Basin											
Erie	E10	96.8	0.012	0.062	10/09	0.057	08/20	0.057	10/07	0.057	10/08

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	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Southeast Pennsylvania Air Basin											
Bristol	P01	0.023	0.020	0.021	0.020	0.018	0.018	0.017	0.018	0.016	0.016
Chester	P11	0.022	0.020	0.021	0.020	0.019	0.017	0.019	0.019	0.018	0.018
Norristown	P21	0.023	0.020	0.021	0.019	0.019	0.016	0.018	0.017	0.015	0.017
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	0.021	0.018	0.018	0.016	0.016	0.015	0.013	0.017	0.014	0.015
Freemansburg	A25	***	***	***	***	0.017	0.017	0.017	0.016	0.013	0.013
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	0.020	0.018	0.018	0.018	0.016	0.014	0.015	0.015	0.014	0.014
Wilkes-Barre	S28	0.016	0.014	0.018	0.015	0.015	0.015	0.014	0.014	0.013	0.013
Reading Air Basin											
Reading	R01	0.023	0.021	0.022	0.021	0.021	0.021	0.020	0.020	0.019	0.018
Harrisburg Air Basin											
Harrisburg	H11	0.022	0.020	0.021	0.019	0.019	0.018	0.017	0.018	0.016	0.016
Lancaster Air Basin											
Lancaster	L01	0.019	0.016	0.017	0.016	0.015	0.015	0.014	0.014	0.013	0.015
York Air Basin											
York	Y01	0.024	0.021	0.021	0.019	0.019	0.019	0.018	0.020	0.017	0.017
Southcentral Region Non-Air Basin											
Perry County	305	0.008	0.007	0.009	0.007	0.006	0.006	0.007	0.006	0.006	0.006
Arendtsville	314	***	***	***	***	***	***	0.004?	0.004?	0.004?	0.004?
Altoona	308	0.016	0.013	0.014	0.014	0.013	0.013	0.014	0.014	0.013	0.013
Northcentral Region Non-Air Basin											
State College	408	***	***	***	***	***	***	***	***	0.008	0.008
Johnstown Air Basin											
Johnstown	J01	0.018	0.015	0.018	0.016	0.015	0.015	0.015	0.014	0.012	0.013
Monogahela Valley Air Basin											
Charleroi	M01	0.018	0.017	0.017	0.016	0.016	0.015	0.014	0.013	0.013	0.012

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	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Lower Beaver Valley Air Basin											
Beaver Falls	B11	0.020	0.018	0.018	0.017	0.019	0.019	0.017	0.017	0.016	0.015
Allegheny County Air Basin											
Pittsburgh	D12	***	***	***	***	0.021	0.023	0.022	0.021	0.020	0.021
Southwest Region Non-Air Basin											
Florence	504	***	***	***	***	***	0.008	0.008	0.008	0.006	0.013
Washington	508	0.019	0.016	0.015	0.018	0.017	0.016	0.015	0.015	0.012	0.012
Greensburg	513	***	***	***	***	0.018	0.018	0.017	0.017	0.016	0.015
Upper Beaver Valley Air Basin											
New Castle	B21	0.021	0.019	0.024	0.020	0.019	0.020	0.019	0.017	0.016	0.016
Erie Air Basin											
Erie	E10	0.015	0.015	0.015	0.015	0.014	0.015	0.012	0.012	0.012	0.012

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: 2003

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	97.7	0.034	0.670	02/21	0.541	11/11	0.533	11/11	0.504	02/21
Chester	P11	94.6	0.033	0.358	11/11	0.343	02/14	0.325	10/31	0.325	12/04
Norristown	P21	90.1	0.028	0.505	10/31	0.432	04/25	0.382	02/14	0.363	11/11
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	98.5	0.025	0.306	12/29	0.279	12/29	0.277	11/26	0.277	12/29
Freemansburg	A25	98.8	0.028	0.313	12/23	0.286	02/21	0.268	12/29	0.262	12/04
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	97.9	0.024	0.367	12/04	0.350	12/29	0.350	12/29	0.325	12/29
Wilkes-Barre	S28	98.9	0.028	0.299	02/21	0.273	02/21	0.257	12/29	0.228	12/29
Reading Air Basin											
Reading	R01	98.7	0.035	0.513	12/22	0.458	12/22	0.412	02/21	0.409	02/21
Harrisburg Air Basin											
Harrisburg	H11	98.5	0.031	0.638	03/13	0.564	02/21	0.557	02/21	0.506	02/21
Lancaster Air Basin											
Lancaster	L01	98.7	0.026	0.368	12/22	0.320	11/21	0.292	12/22	0.277	11/21
York Air Basin											
York	Y01	98.1	0.033	0.544	12/29	0.456	02/21	0.443	12/29	0.416	12/22
Southcentral Region Non-Air Basin											
Perry County	305	96.9	0.008	0.112	04/21	0.097	04/30	0.090	03/12	0.078	03/12
Arendtsville	314	55.9	0.004?	0.051	04/03	0.046	04/03	0.044	05/01	0.043	04/03
Altoona	308	97.9	0.021	0.277	12/17	0.271	12/17	0.257	02/21	0.236	11/24
Northcentral Region Non-Air Basin											
State College	408	88.5	0.012	0.148	12/16	0.143	11/22	0.143	12/16	0.136	11/21
Johnstown Air Basin											
Johnstown	J01	98.3	0.021	0.243	12/16	0.241	12/16	0.232	12/16	0.226	02/03
Monogahela Valley Air Basin											
Charleroi	M01	97.8	0.023	0.271	02/03	0.269	11/18	0.266	01/31	0.248	01/31

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: 2003

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	99.4	0.031	0.304	03/12	0.299	12/29	0.295	03/12	0.293	12/29
Allegheny County Air Basin											
Pittsburgh	D12	96.8	0.044	0.394	12/29	0.380	03/12	0.377	12/16	0.363	12/17
Southwest Region Non-Air Basin											
Florence	504	98.2	0.009	0.146	01/31	0.126	01/31	0.124	01/31	0.120	01/31
Washington	508	98.8	0.023	0.321	02/21	0.295	02/21	0.286	01/31	0.282	12/16
Greensburg	513	98.7	0.026	0.353	12/16	0.333	12/16	0.295	12/16	0.284	12/16
Upper Beaver Valley Air Basin											
New Castle	B21	99.2	0.028	0.401	12/29	0.301	12/29	0.281	02/03	0.264	12/16
Erie Air Basin											
Erie	E10	95.5	0.018	0.309	01/03	0.232	01/30	0.228	02/28	0.224	01/30

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: 2003

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	98.8	0	4.9	02/21	4.5	02/19	0	3.1	02/21	2.8	02/19
Norristown	P21	95.4	0	2.6	02/21	2.4	10/06	0	2.0	10/07	1.8	10/07
Allentown-Bethlehem-Easton Air Basin												
Freemansburg	A25	98.1	0	2.4	12/29	2.3	12/23	0	1.5	12/29	1.4	02/21
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	98.9	0	2.5	12/29	2.4	12/17	0	1.8	12/29	1.5	01/31
Wilkes-Barre	S27	99.7	0	3.9	11/21	3.2	12/28	0	2.7	11/21	2.3	06/23
Northeast Region Non-Air Basin												
Shenandoah	211	95.5	0	3.0	12/22	2.8	12/22	0	1.4	05/21	1.4	12/22
Reading Air Basin												
Reading	R01	98.4	0	3.2	12/22	3.2	12/22	0	2.2	11/22	2.0	12/22
Harrisburg Air Basin												
Harrisburg	H16	99.7	0	3.1	12/22	3.0	12/22	0	2.4	12/22	2.0	12/23
Lancaster Air Basin												
Lancaster	L01	98.9	0	2.8	11/21	2.7	02/06	0	2.2	11/22	1.7	11/02
York Air Basin												
York	Y01	97.6	0	2.9	02/21	2.6	02/19	0	1.8	03/13	1.7	11/22
Southcentral Region Non-Air Basin												
Arendtsville	314	57.7	0	1.0	08/13	0.7	04/03	0	0.5	09/26	0.4	04/03
Altoona	308	98.8	0	1.7	12/16	1.6	02/21	0	1.3	11/12	1.2	12/17
Johnstown Air Basin												
Johnstown	J01	98.9	0	3.1	12/16	3.0	02/03	0	2.3	12/16	2.2	11/05
Monogahela Valley Air Basin												
Charleroi	M01	99.1	0	2.0	12/16	1.6	12/31	0	1.1	02/22	1.0	01/31

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: 2003

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
Lower Beaver Valley Air Basin												
Beaver Falls	B11	99.5	0	1.7	11/21	1.6	11/05	0	1.4	12/29	1.1	02/03
Allegheny County Air Basin												
Pittsburgh	D12	95.4	0	2.5	12/29	2.4	01/30	0	2.2	01/31	2.0	02/21
Southwest Region Non-Air Basin												
Greensburg	513	98.7	0	3.7	12/16	3.1	12/16	0	2.5	11/21	2.1	11/22
Holbrook	514	65.5	0	0.7	06/04	0.6	06/28	0	0.3	03/01	0.3	03/01
Upper Beaver Valley Air Basin												
New Castle	B21	99.4	0	4.7	12/29	3.3	12/29	0	2.2	12/29	1.8	02/03
Erie Air Basin												
Erie	E12	99.6	0	8.2	06/29	7.6	04/15	0	4.9	04/16	3.4	07/18

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	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Southeast Pennsylvania Air Basin											
Bristol	7.9	9.2	6.3	6.8	5.2	6.6	4.3	4.0	4.3	4.5	2nd Maximum 1 Hour Mean
P01	5.2	5.0	4.7	3.8	3.5	3.7	3.6	3.1	2.4	2.8	2nd Maximum 8 Hour Mean
Norristown	5.0	4.8	3.5	3.2	2.9	3.1	2.8	2.5	2.7	2.4	2nd Maximum 1 Hour Mean
P21	3.9	4.1	2.9	2.2	1.8	1.9	1.7	1.7	2.3	1.8	2nd Maximum 8 Hour Mean
Allentown-Bethlehem-Easton Air Basin											
Freemansburg	***	***	***	***	3.4	4.4	5.5	3.1	2.3	2.3	2nd Maximum 1 Hour Mean
A25	***	***	***	***	2.4	3.0	2.4	2.4	1.8	1.4	2nd Maximum 8 Hour Mean
Allentown	7.5	7.3	5.3	4.8	5.0	5.5	4.1	4.0	4.4	***	2nd Maximum 1 Hour Mean
A51	4.7	4.8	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	4.6	5.2	7.0	4.7	3.4	3.5	4.4	2.9	2.7	2.4	2nd Maximum 1 Hour Mean
S01	2.8	2.6	3.5	2.8	1.9	1.7	2.1	1.8	1.6	1.5	2nd Maximum 8 Hour Mean
Wilkes-Barre	6.9	5.7	7.4	4.6	7.0	4.2	3.8	2.8	5.1	3.2	2nd Maximum 1 Hour Mean
S27	4.3	3.0	4.1	3.3	3.1	3.0	2.2	2.3	2.6	2.3	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	2nd Maximum 1 Hour Mean
211	***	***	***	1.3	1.4	1.6	1.3	0.9	1.2	1.4	2nd Maximum 8 Hour Mean
Reading Air Basin											
Reading	***	***	***	***	4.7	4.6	3.8	3.8	4.1	3.2	2nd Maximum 1 Hour Mean
R01	***	***	***	***	3.2	2.8	2.3	2.2	2.2	2.0	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	2nd Maximum 1 Hour Mean
H16	***	***	2.5	3.3	3.0	4.3	2.1	2.8	2.3	2.0	2nd Maximum 8 Hour Mean
Lancaster Air Basin											
Lancaster	5.2	4.4	3.6	5.1	3.4	3.1	3.0	2.9	3.0	2.7	2nd Maximum 1 Hour Mean
L01	3.8	2.4	2.6	3.3	1.9	2.5	1.9	2.2	2.2	1.7	2nd Maximum 8 Hour Mean
York Air Basin											
York	6.3	5.5	5.0	5.7	5.0	5.3	3.7	3.8	4.3	2.6	2nd Maximum 1 Hour Mean
Y01	3.9	2.7	2.8	3.4	2.4	2.4	1.8	2.2	2.2	1.7	2nd Maximum 8 Hour Mean

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

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

Appendix A: Table A-22

Carbon Monoxide Historical Trend
(Units: Parts Per Million)

Station / Site Code	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Southcentral Region Non-Air Basin											
Arendtsville	***	***	***	***	0.7	1.2	1.4	1.4	1.0	0.7	2nd Maximum 1 Hour Mean
314	***	***	***	***	0.6	1.1	1.2	1.2	0.6	0.4	2nd Maximum 8 Hour Mean
Altoona	3.5	3.1	2.7	2.7	2.0	2.6	1.7	2.4	1.5	1.6	2nd Maximum 1 Hour Mean
308	2.4	1.7	1.9	1.5	1.2	1.6	1.0	1.1	0.7	1.2	2nd Maximum 8 Hour Mean
Johnstown Air Basin											
Johnstown	5.4	5.4	7.0	4.7	4.2	4.4	2.8	2.8	3.9	3.0	2nd Maximum 1 Hour Mean
J01	4.1	3.5	4.8	2.7	3.1	2.8	2.0	2.1	2.6	2.2	2nd Maximum 8 Hour Mean
Monongahela Valley Air Basin											
Charleroi	3.5	3.5	2.8	1.8	3.0	2.0	1.8	1.4	1.7	1.6	2nd Maximum 1 Hour Mean
M01	3.2	2.8	2.5	1.6	1.9	1.6	1.1	1.1	1.0	1.0	2nd Maximum 8 Hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	3.4	3.2	3.2	2.6	2.2	2.5	1.7	2.4	2.1	1.6	2nd Maximum 1 Hour Mean
B11	2.4	2.5	2.1	1.9	1.5	1.5	1.2	1.5	1.6	1.1	2nd Maximum 8 Hour Mean
Allegheny County Air Basin											
Pittsburgh	***	***	***	***	3.5	3.3	3.2	3.0	2.5	2.4	2nd Maximum 1 Hour Mean
D12	***	***	***	***	2.7	2.5	2.4	2.5	2.0	2.0	2nd Maximum 8 Hour Mean
Southwest Region Non-Air Basin											
Greensburg	***	***	***	***	3.3	3.2	2.6	3.0	2.1	3.1	2nd Maximum 1 Hour Mean
513	***	***	***	***	2.3	2.4	1.8	1.8	1.2	2.1	2nd Maximum 8 Hour Mean
Holbrook	***	***	***	***	***	1.7	0.6	1.3	0.25	0.6	2nd Maximum 1 Hour Mean
514	***	***	***	***	***	1.5	0.3	1.1	0.3	0.3	2nd Maximum 8 Hour Mean
Upper Beaver Valley Air Basin											
New Castle	6.7	6.1	6.5	4.6	7.2	5.5	3.5	3.0	4.1	3.3	2nd Maximum 1 Hour Mean
B21	3.7	4.3	3.5	3.0	2.4	3.8	1.9	2.0	1.8	1.8	2nd Maximum 8 Hour Mean
Erie Air Basin											
Erie	***	***	***	9.3	9.5	10.6	11.9	7.2	7.5	7.6	2nd Maximum 1 Hour Mean
E12	***	***	***	4.9	5.1	5.6	6.0	4.4	4.5	3.4	2nd Maximum 8 Hour Mean

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

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

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 2003 (May-October)

Compound	1 Hour Max	Date/Time of Max	Mean
Acetylene	3.79	14 Oct 03 08:00	0.50
Ethylene	6.59	01 Nov 03 09:00	0.98
Ethane	14.99	07 Nov 03 05:00	4.51
Propylene	3.71	24 May 03 04:00	0.56
Propane	13.13	04 Nov 03 22:00	3.27
Isobutane	7.80	04 Nov 03 22:00	0.77
Butene-1	0.31	28 Aug 03 12:00	0.01
n-Butane	17.29	06 Nov 03 19:00	1.54
t-Butene-2	1.15	30 Aug 03 06:00	0.06
c-Butene-2	0.44	01 Sep 03 01:00	0.02
Isopentane	13.95	06 Nov 03 19:00	1.56
Pentene-1	0.39	15 Sep 03 06:00	0.07
n-Pentane	5.97	06 Nov 03 19:00	0.89
Isoprene	13.29	04 Jul 03 16:00	0.61
trans-2-Pentene	1.45	06 Aug 03 14:00	0.04
c-2-Pentene	0.73	02 Aug 03 11:00	0.02
2,2-Dimethylbutane	0.72	01 Nov 03 09:00	0.12
cyclopentane	0.77	06 Nov 03 19:00	0.10
2,3-Dimethylbutane	0.93	04 Nov 03 22:00	0.16
2-Methylpentane	2.83	04 Nov 03 22:00	0.43
3-Methylpentane	1.83	04 Nov 03 22:00	0.27
n-Hexane	2.36	04 Nov 03 22:00	0.35
Methylcyclopentane	1.29	04 Nov 03 22:00	0.11
2,4-Dimethylpentane	0.54	05 Nov 03 00:00	0.01
Benzene	3.13	01 Nov 03 09:00	0.70
Cyclohexane	0.81	04 Nov 03 23:00	0.03
2-Methylhexane	1.14	04 Jul 03 21:00	0.09
2,3-Dimethylpentane	0.76	04 Nov 03 22:00	0.04
3-Methylhexane	1.86	28 May 03 01:00	0.16
2,2,4-Trimethylpentane	2.90	04 Nov 03 22:00	0.67
n-Heptane	3.83	04 Jul 03 21:00	0.15
Methylcyclohexane	4.30	04 Jul 03 21:00	0.09
2,3,4-Trimethylpentane	1.82	18 Jul 03 08:00	0.07
Toluene	7.89	04 Nov 03 22:00	1.13

*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 2003 (May-October)

Compound	1 Hour Max	Date/Time of Max	Mean
2-Methylheptane	1.38	04 Jul 03 21:00	0.03
3-Methylheptane	1.88	04 Jul 03 21:00	0.03
n-Octane	4.99	04 Jul 03 21:00	0.08
Ethylbenzene	1.18	29 May 03 08:00	0.15
m/p-Xylene	3.76	14 Oct 03 08:00	0.44
Styrene	0.74	05 Nov 03 15:00	0.04
o-Xylene	1.44	29 May 03 06:00	0.16
n-Nonane	2.02	05 Nov 03 15:00	0.06
Isopropylbenzene	0.44	24 May 03 03:00	0.01
n-Propylbenzene	0.44	25 May 03 19:00	0.02
1,3,5-Trimethylbenzene	0.82	05 Nov 03 15:00	0.02
1,2,4-Trimethylbenzene	1.81	29 May 03 08:00	0.16
o-Ethyltoluene	0.82	26 Oct 03 08:00	0.02
m-Ethyltoluene	1.29	05 Nov 03 15:00	0.08
p-Ethyltoluene	0.96	14 Oct 03 08:00	0.04
m-Diethylbenzene	0.50	07 Nov 03 00:00	0.01
p-Diethylbenzene	0.34	29 May 03 06:00	0.01
1,2,3-Trimethylbenzene	3.49	07 Aug 03 12:00	0.12
n-Decane	2.22	28 Oct 03 14:00	0.06
Undecane	1.19	28 Oct 03 14:00	0.05
tnmoc*	126.0	04 Nov 03 22:00	24.76
pamshc**	115.8	04 Nov 03 22:00	21.63
Unidentifed VOC	40.35	21 Aug 03 11:00	3.06

.

*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 2003

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: 8198 (93.6% Data Availability)

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

Annual Average (Mean)	1.8 ng/m^3	
1st Maximum Hour Average	6.95 ng/m^3	02/04/2003 02:00
2nd Maximum Hour Average	5.78 ng/m^3	11/07/2003 23:00
3rd Maximum Hour Average	5.74 ng/m^3	10/09/2003 18:00
Maximum 5-minute Sample	11.4 ng/m^3	04/02/2003 12:30

Number of 1-Hour Average Values in Ranges

Mercury Vapor Historical Trend

	1999*	2000	2001	2002	2003
Annual Mean	1.8	1.8	1.8	1.8	1.8
1st Maximum Hour Average	7.9	37.2	7.4	16.7	6.95
2nd Maximum Hour Average	7.6	32.3	7.3	14.5	5.78

* 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

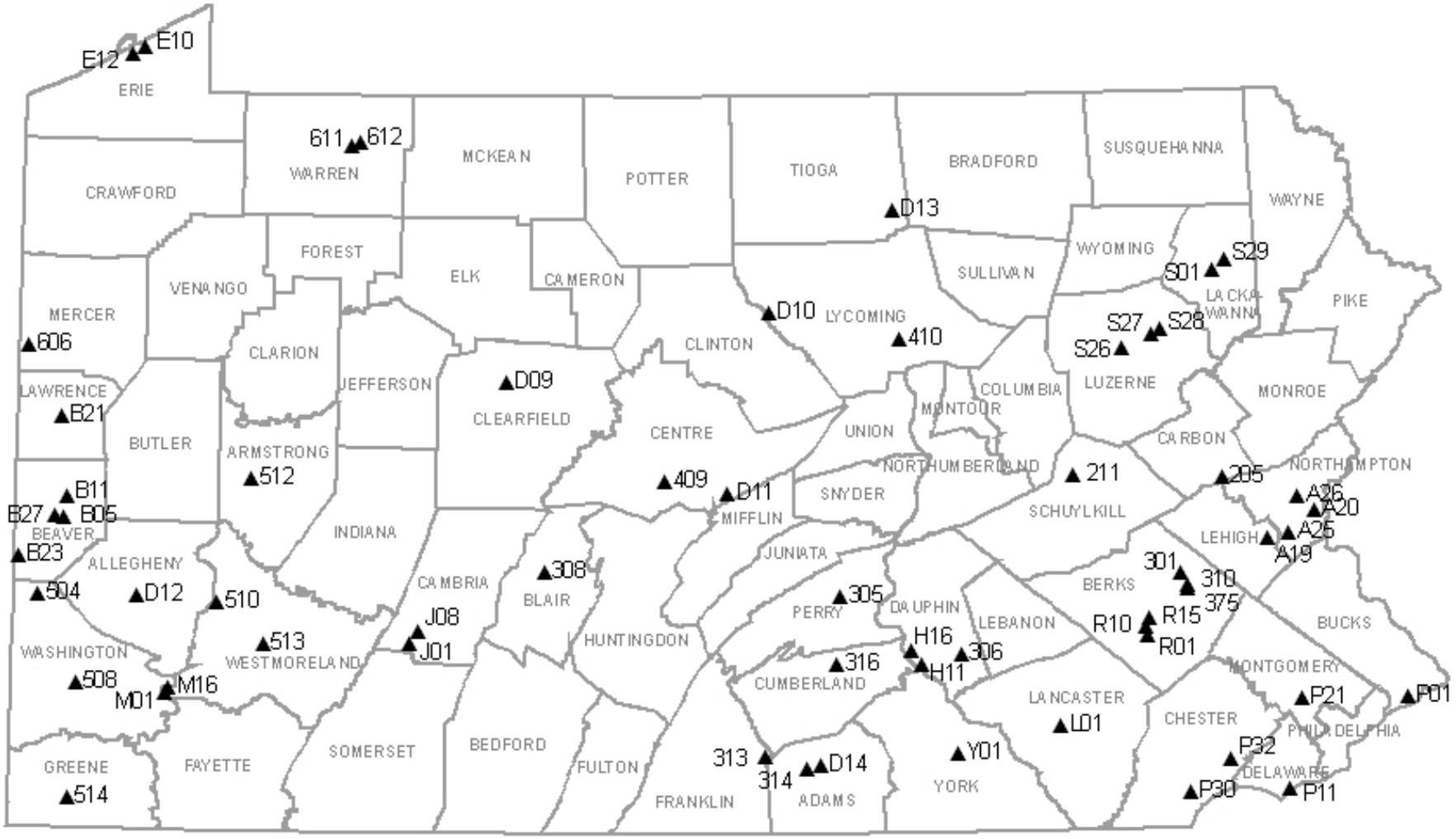
Related environmental information is available electronically via the Internet. Access the DEP website at http://www.depweb.state.pa.us/
(DEP Keyword: Air, Air Pollution, Air Quality, Clean Air).

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	
$PM_{2.5}$ 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/model_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/model_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/model_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/model_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	X	X	X
CHESTER	P30		$X_{D2.5}$	X							X	
CHESTER	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)

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

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					X	X	X	X

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

X Parameter monitored at the site

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

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)

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
A26	NAZARETH	42-095-1000	NORTHAMPTON	South Green & Delaware	40 44 04 75 18 46

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
NORTHAMPTON	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)

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	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)

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					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)

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					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)

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					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)

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)

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

Appendix C: Table C-21.
Parameters Monitored

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

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

X Parameter monitored at the site

X_{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)

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	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)

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)

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	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)

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 Site

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)

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

Southwest Region Non-Air Basin Sites

Appendix C: Table C-31.
Parameters Monitored

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

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)

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)

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)

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	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)

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