COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

2008 AMBIENT AIR QUALITY MONITORING and EMISSION TRENDS REPORT

DIVISION OF AIR QUALITY MONITORING
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HARRISBURG, PA 17101

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List of Acronyms Used in this Report

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

EXECUTIVE SUMMARY

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

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

The 2008 Ambient Air Quality Monitoring and Emission Trends Report contains summaries of air quality data collected by DEP's Bureau of Air Quality Ambient Air Monitoring Program during the 2008 calendar year. Monitoring results are presented from 199 air quality monitors at 56 sites throughout the Commonwealth of Pennsylvania. Point source emission inventories are summarized from data submitted to DEP from 2000 through 2008. Multi-year trends for both types of air quality data are presented for selected pollutants.

Data collected during 2008 demonstrate that of the six criteria pollutants regulated by the Environmental Protection Agency (EPA), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO) and lead (Pb) continue to remain in concentrations well below the National Ambient Air Quality Standards (NAAQS). Statewide average concentrations for these pollutants have been consistently below one-half the level of their respective NAAQS for the past ten years. Ozone (O_3) and particulate matter (PM), however, continue to be a challenge in Pennsylvania.

In 2008, EPA strengthened the 8-hour ozone standard from 0.08 ppm to 0.075 ppm. Although the statewide average 8-hour ozone concentration has declined by about 17% over the past ten years, more than half of ozone monitoring sites in Pennsylvania in 2008 yielded fourth-maximum 8-hour concentration averages exceeding the level of the newly-revised standard. Two-thirds of ozone monitoring sites yielded 3-year averages exceeding the level of the newly-revised standard.

Particulate matter concentrations are measured using two criteria – an aggregate average of all particles less than or equal to 10 microns in diameter (PM_{10}), and an average isolating fine particles, or particles with a diameter less than or equal to 2.5 microns ($PM_{2.5}$). Although statewide average PM_{10} concentrations have remained at levels less than half of the PM_{10} annual NAAQS for the past ten years, fine particle concentrations have hovered near the level of the $PM_{2.5}$ annual and 24-hour NAAQS. The highest $PM_{2.5}$ concentrations are predominantly found in southeastern and western Pennsylvania, although no sites exceeded the level of the $PM_{2.5}$ annual or 24-hour NAAQS during 2008. Five DEP sites yielded 3-year averages of 98^{th} percentile 24-hour averages exceeding the level of the 24-hour $PM_{2.5}$ NAAQS. No DEP site yielded a 3-year annual mean average exceeding the level of the annual standard.

Air toxics monitoring at the Arendtsville transport study site was temporarily suspended in 2008, as the older monitoring equipment at the site was removed and a new model analyzer was installed and tested. The improved monitoring site is expected to yield data beginning in 2009.

Emission inventories data also show a decreasing trend for the most common point source pollutants in Pennsylvania. From 1999 through 2008 sulfur dioxide (SO_2) emissions have decreased 17%, nitrogen oxides (NO_x) emissions have decreased 18%, carbon monoxide (CO) emissions have decreased 15% and volatile organic compounds (VOC) emissions have decreased 42%.

CHAPTER 1. INTRODUCTION

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. Pennsylvania's air basins are defined in the Pennsylvania Code.

DEP does not generally monitor air quality in Allegheny and Philadelphia counties (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). Monitoring and air quality standard compliance evaluation in these areas are performed by two independent county health agencies, the Allegheny County Health Department, and the Philadelphia Department of Health Air Management Services, respectively. 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 A.

Regulated Air Pollutants and Toxics

DEP devotes the bulk of its ambient air monitoring program to monitoring Pennsylvania's air for pollutants for which health-based National Ambient Air Quality Standards (NAAQS) have been established and defined in the Federal Code of Regulations (CFR). These pollutants include ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, particulate matter ($PM_{2.5}$ and PM_{10}) and lead. Supplemental particulate matter monitoring results presented in this report include those for total suspended particulates (TSP), nitrates, and sulfates. In addition to NAAQS-related monitoring, DEP also monitors for two contaminants, beryllium and hydrogen sulfide, for which air quality standards have been established and defined in the Pennsylvania Code.

DEP operates one Photochemical Assessment Monitoring Station (PAMS) air monitoring station in Arendtsville, Pennsylvania. This site utilizes specialized air monitoring instruments to gather air quality information relating to volatile organic compounds (VOCs) - chemical compounds that serve as precursors for ozone formation. In 2008, toxics monitoring at the Arendtsville PAMS site was temporarily suspended as the older analyzer was replaced with a new model. The new model was not fully operational in time for the start of the 2008 ozone season, but is expected to yield data beginning in 2009. DEP also operates a monitor for Mercury, another toxic air pollutant, at a monitoring station in Lancaster, Pennsylvania.

DEP utilizes federally-approved sampling and analytical methods for all NAAQS-regulated pollutants. Appendix E of this document provides a breakdown of monitoring methods used by DEP and their associated EPA-approved designation.

For additional information about Pennsylvania's air quality programs, visit the DEP website at http://www.depweb.state.pa.us/ (Choose "Air" from the left-hand menu.).

Air Quality Index

As a means of reporting air quality to the general public, DEP publishes a daily Air Quality Index (AQI) for all air quality monitoring sites in Pennsylvania. The AQI was developed by the U.S. Environmental Protection Agency (EPA) to standardize air pollution ratings and reports levels of six common air contaminants – ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and two categories of particulate matter, $PM_{2.5}$ and PM_{10}. Real time monitoring and current AQI information is available on DEP's website at http://www.dep.state.pa.us/dep/deputate/airwaste/aq/aqm/aqi.htm.

Quality Assurance Program

DEP's Bureau of Air Quality conducts regularly scheduled performance audits and precision checks on air monitoring equipment to assess the data accuracy of each monitoring system. Quality assurance checks for the ambient air monitoring program are scheduled in compliance with requirements outlined in the Federal Code of Regulations (CFR).

Acid Rain and Mercury in Rain

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 the chemistry of rain falling in Pennsylvania for environmental assessment purposes. Parameters monitored include pH, sulfate, nitrate, ammonium, chloride, calcium, magnesium, potassium, sodium and specific conductance. Starting in 1997, measurements of the amount of mercury in rain were included as part of the National Atmospheric Deposition Program Mercury Deposition Network (NAPD/MDN).

Eighteen acid rain monitoring sites were in operation in Pennsylvania in 2008. Included in this network were eleven acid rain and seven mercury monitoring sites supported by the DEP. The remaining sites were National Atmospheric Deposition Program National Trends Network (NADP/NTN) sites and were supported by various federal agencies.

The Elemental Mercury Vapor Summary is included in Appendix D of this document. Reports on acid rain and mercury in rain can also be found on the web at the following address: http://www.dep.state.pa.us/dep/deputate/airwaste/aq/monitoring.htm, including one report discussing the reductions in acid rain following implementation of the Clean Air Act Amendments of 1990.

Emission Inventories

The point source emissions inventory is one means used by the state to assess the level of pollutants released into the air from various sources. Each year, the Bureau of Air Quality (BAQ) processes approximately 1,200 Annual Emission Statement (AES) reports. The AES contains operating schedules, throughputs, and emission estimates to calculate air emissions from industrial sources. This report presents point source emission inventory trends for four types of air pollutants – carbon monoxide, nitrogen oxides, sulfur dioxide and volatile organic compounds.

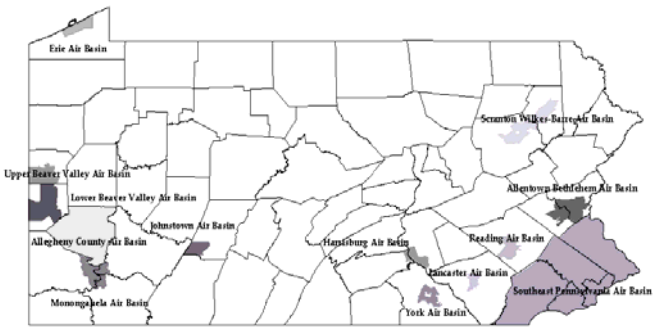
CHAPTER 2. AIR MONITORING PROGRAM

Monitoring Network Overview

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. Air basins are defined in 25 Pa. Code § 121.1 and consist of thirteen 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

Figure 2-1. Map of Pennsylvania Air Basins



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 several non-air basin regions. DEP also performs monitoring in Allegheny County at the Carnegie Science Center in Pittsburgh as part of an air quality exhibit. A listing of DEP air quality monitoring site locations is provided in Appendix C of this report.

DEP continued in 2008 with a cooperative agreement with Pennsylvania State University's (PSU) Department of Plant Pathology to conduct ozone monitoring in four remote areas - Adams County (near Biglerville), Centre County (near State College, Clearfield County (near Moshannon) and Tioga County (near Gleason). The university uses ozone data collected from this cooperative monitoring effort to determine the extent of detrimental effects to Pennsylvania's forests and crops, and to assess ozone transport in rural Pennsylvania.

The ambient air monitoring network plan can be found on the Bureau of Air Quality's website at the following address: http://www.dep.state.pa.us/dep/deputate/airwaste/aq/aqm/principal.htm.

COPAMS Network

DEP operates the Commonwealth of Pennsylvania Air Monitoring System (COPAMS) as its air monitoring network. The COPAMS network encompasses both continuous and discrete methods of pollutant sampling.

The continuous portion of the COPAMS network is a totally automatic, microprocessor-controlled system that consisted of 49 remote stations throughout the Commonwealth in 2008. Continuous methods employ specialized instruments designed to continuously sample and analyze ambient air *in situ*. The output of these devices is hourly pollutant concentrations. These concentrations are the raw data used to calculate the various pollutant averages needed for NAAQS comparisons. A centralized computer system operated by the Bureau of Air Quality collects the raw data on an hourly basis, enabling real-time monitoring. DEP utilizes continuous methods for the following pollutants: ozone, sulfur dioxide, nitrogen dioxide, oxides of nitrogen, carbon monoxide, hydrogen sulfide, $PM_{2.5}$ and PM_{10}.Various meteorological data from many of

the COPAMS stations are measured using continuous methods as well, including wind speed, wind direction (vector averaged and sigma theta), ambient temperature, and solar radiation.

The non-continuous portion of the COPAMS network utilizes discrete sampling methods, with analysis of the sample performed off-site. A discrete method is generally a "manual" method of sampling, most commonly using an air filter to trap air pollutants from ambient air for a defined or "discrete" period of time. The filter is then removed from the collection site and analyzed in a DEP-accredited laboratory. The discrete portion of the COPAMS network consisted of 29 monitoring sites in 2008, and includes analysis methods for particulate matter 2.5 microns or less in size ($PM_{2.5}$), particulate matter 10 microns or less in size (PM_{10}), total suspended particulate (TSP), lead, sulfates and nitrates.

Pollutants and Standards

Data collected by DEP can generally be divided into two groups: gaseous pollutants and particulate matter. An overview for both types follows.

Gaseous Pollutants

Ground-Level Ozone

Ground-level ozone, or photochemical smog, is a secondary pollutant. Ozone is generally not emitted directly into the atmosphere as ozone, but rather is formed by chemical reactions between other air pollutants. The primary pollutants involved in these reactions -- volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) -- form ozone in the presence of sunlight and warm temperatures. Thus, sources that emit these ozone precursors are sources of ozone. Nitrogen oxides result from fossil fuel combustion and sources commonly include power plants, industrial boilers, and motor vehicles. VOCs are emitted from a variety of sources, including motor vehicles, chemical plants, refineries and even natural (biogenic) sources. Ozone and the precursor pollutants that cause ozone also can be transported into an area from pollution sources located hundreds of miles away. Because the formation of ozone is boosted by increasing sunlight and temperatures, changing weather patterns contribute to yearly differences in ozone concentrations, with peak concentrations occurring during the summer months.

Ground-level ozone is a strong irritant to the eyes and upper respiratory system and can hamper breathing. It also damages vegetation, including forest and agricultural crops, and man-made materials such as monuments and statues.

Sulfur Dioxide

Sulfur dioxide is a gaseous pollutant that is emitted primarily by industrial furnaces or power plants burning sulfur-containing coal or oil.

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 vegetation, including forests 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.

Oxides of Nitrogen

Oxides of nitrogen (NO_x), or nitrogen oxides, are a class of pollutants containing compounds of oxidized nitrogen atoms chemically bonded to oxygen atoms. Nitrogen oxides are formed when fuel is burned at a very high temperature (above 1200° F), such as in automobiles and power plants. For air pollution purposes, the nitrogen oxides of concern are primarily nitric oxide (NO) and nitrogen dioxide (NO_2). Although there is no air quality standard for NO_x in general, the level of this pollutant is of concern due to its 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.

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 brown haze that causes eye and sinus irritation, blocks natural sunlight and reduces visibility. It can severely irritate the respiratory system and has been associated with acute effects in individuals diagnosed with respiratory disease. Nitrogen dioxide contributes to the creation of acid rain and plays a key role in nitrogen loading, adversely impacting forests and other ecosystems.

Carbon Monoxide

Carbon monoxide is a byproduct of the incomplete burning of fuels. Industrial processes contribute to carbon monoxide pollution levels, but 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. Peak carbon monoxide concentrations typically occur during the colder months of the year when automotive emissions are greater and nighttime inversion (a weather-related phenomenon) conditions are more frequent.

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, it inhibits the delivery of oxygen to the body's tissue, thereby causing or shortness of breath, asphyxia and eventually death. 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.

Particulate Matter

Particulate matter (PM) is solid or liquid matter formed by smoke, dust, fly ash, or condensing vapors that can be suspended in the air for long periods of time. PM may be emitted directly by a source or formed in the atmosphere. Particulate emissions come from 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. Particulates less than or equal to 10 micrometers in diameter (PM_{10}) are called "coarse" particles, while particulates less than or equal to 2.5 micrometers in diameter ($PM_{2.5}$) are called "fine" particles. The smaller of these particles are breathed into the lungs, where they can aggravate tissues, cause respiratory ailments, and carry other pollutants into the lungs. Particulate matter also can cause adverse impacts to the environment.

$PM_{2.5}$

Fine particulate emissions result primarily from industrial processes and fuel combustion - including motor vehicles, residential wood burning and forest or agricultural fires.

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. $PM_{2.5}$ 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.

PM_{10}

PM_{10} (including $PM_{2.5}$) 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). Although $PM_{2.5}$ is technically included in the definition of PM_{10}, the terms "PM_{10}" or "coarse" particles are commonly used to refer to particles greater than $PM_{2.5}$, but less than 10 micrometers in diameter.

Sources of coarse particles any include dust-producing process, such as crushing or grinding operations, as well as dust stirred up by vehicles traveling on roads. While they are not as much of a health concern as are fine particles, they can aggravate respiratory conditions and irritate the linings of the eyes, nose, throat and lungs. In the environment, PM_{10} contributes to reduced visibility and degradation of man-made materials.

Total Suspended Particulate

Total suspended particulates (TSP) refers to particle sizes 45 micrometers or less in diameter. Although $PM_{2.5}$ and PM_{10} are technically included in the definition of TSP, the term "TSP" is commonly used to refer to particles greater than 10 micrometers in diameter. TSP was used historically as the basis for particulate matter NAAQS, however studies have shown that these larger particles do not penetrate into the lungs and have very little effect on health. Over the years, EPA has emphasized the importance and effects of smaller particles on human health by revising particulate matter pollution standards to apply to smaller and smaller particles, first PM_{10} in 1987, then $PM_{2.5}$ in 1997. Currently, EPA does not regulate TSP levels in ambient air.

Lead

Lead is emitted to the atmosphere by vehicles burning leaded fuel and from certain industrial processes, primarily battery manufacturers and lead smelters. As a result of the reduction in lead in gasoline, metal processing is now the major source of lead emissions.

Lead 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.

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. Sulfate concentrations peak during the summer due to secondary sulfate formation in the presence of sunlight.

Studies have shown significant correlation between high sulfate levels and illness. Sulfates also reduce visibility and contribute to acid rain. There are currently no federal or state air quality standards for sulfates.

Nitrates

Nitrates are secondary 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 particulates that can be inhaled into the lungs and which affect visibility. As with sulfates, nitrates are contributors to acid rain and acid deposition. There are currently no federal or state air quality standards for nitrates.

Air Quality Standards

Pennsylvania has adopted and incorporated by reference all of the National Ambient Air Quality Standards (NAAQS), as well as state ambient air quality standards. These standards, designed to protect the public health and environmental welfare, are shown in Tables 2-1 and 2-2 on the following page.

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

Table 2-1. National Ambient Air Quality Standards (NAAQS).

Pollutant	Primary (Health Related)		Secondary (Environmental Welfare Related)	
	Type of Average	Standard Level Concentration	Type of Average	Standard Level Concentration
Carbon Monoxide	8-hour Running Mean (not to be exceeded more than once per year)	9 ppm	No Secondary Standard	
	1-hour (not to be exceeded more than once per year)	35 ppm	No Secondary Standard	
Lead	Maximum Quarterly Average	1.5 $\mu g/m^3$	Same as Primary Standard	
Nitrogen Dioxide	Annual Arithmetic Mean	0.053 ppm	Same as Primary Standard	
Ozone	Maximum Daily 1-hour Average[1]	0.12 ppm	Same as Primary Standard	
	Fourth-Highest Daily Maximum 8-hour Running Mean (based on 3- year average)	0.075 ppm	Same as Primary Standard	
Particulate Matter PM_{10}	24-hour (not to be exceeded more than once per year, based on 3- year average)	150 $\mu g/m^3$	Same as Primary Standard	
Particulate Matter $PM_{2.5}$	Annual Arithmetic Mean (based on 3- year average)	15.0 $\mu g/m^3$	Same as Primary Standard	
	24-hour (based on 3 year average of 98th percentile)	35 $\mu g/m^3$	Same as Primary Standard	
Sulfur Dioxide	Annual Arithmetic Mean	0.030 ppm	3-hour Block Average (not to be exceeded more than once per year)	0.5 ppm
	24-hour Block Average (not to be exceeded more than once per year)	0.14 ppm		

[1] The 1-hour ozone NAAQS was generally revoked June 15, 2005, and remains in effect only in limited, Early Action Compact (EAC) areas, designated "non-attainment deferred" by EPA, none of which are located in the Commonwealth of Pennsylvania.

Table 2-2. 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	0.005 ppm
	1-hour	0.1 ppm
Settled Particulate (Total)	30-day	1.5 mg/cm^2/month
	1-year	0.8 mg/cm^2/month

CHAPTER 3. AIR QUALITY RESULTS AND TRENDS – CONTIUOUS GASEOUS SAMPLING

Ground-Level Ozone

The ozone- monitoring season in Pennsylvania begins each year on April 1 and ends October 31. Although ground-level ozone levels can fluctuate depending on meteorological conditions, they are consistently higher during the summer months, when increased sunlight and warm temperatures amplify ozone formation.

Effective May 2008, EPA strengthened the 8-hour primary ozone standard to further protect children and other "at risk" populations, such as outdoor workers and individuals with asthma, lung disease or otherwise compromised respiratory systems, from the adverse health effects related to ozone exposure. The secondary standard (environmental welfare-based) was set identical to the primary (human health-based) standard. The current primary and secondary nation ambient air quality standard (NAAQS) for ozone is 0.075 part per million (ppm) based on a maximum daily 8-hour running average. The 8-hour average used for comparison to the NAAQS is a three year average of the fourth highest daily 8-hour maximums per year. The former 1-hour standard was generally revoked by EPA effective June 15, 2005, remaining applicable only in specific areas designated as Early Action Compact (EAC) areas by EPA. No areas in the DEP ozone network currently fall under this special designation.

The 2008 DEP ozone (O_3) monitoring network consisted of 44 sites. Individual site locations, including county and air basin designations, and parameters monitored are listed in Appendix C of this report. In addition to the established NAAQS-related 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.

As a way of focusing on the secondary standard, DEP continued in 2008 with a cooperative agreement with Pennsylvania State University's Department of Plant Pathology to monitor ozone four rural sites near Biglerville, State College, Moshannon and Gleason, PA. The university uses this data as part of its study of the concerns associated with ozone effects on vegetation.

Ozone data for 2008 for all DEP ozone monitoring sites are summarized in Appendix B, Tables B-1 and B-2. Table B-1 contains 8-hour data, while Table B-2 contains 1-hour data. Forty-one sites in the DEP ozone monitoring network registered at least one 8-hour daily maximum exceeding the level of the 8-hour standard in 2008. The total number of 8-hour exceedance days was 27. No sites in the DEP ozone monitoring network registered 1-hour averages exceeding the level of the former 1-hour standard in 2008.

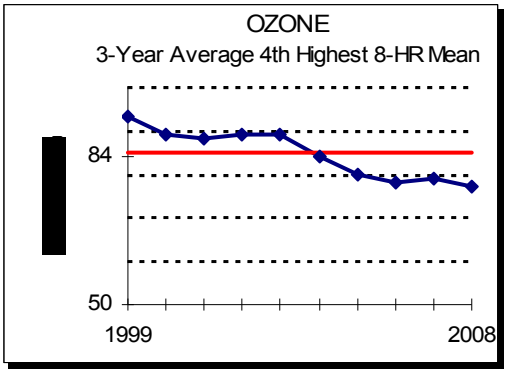
Figure 3-1 (on the 2nd following page) qualifies the fourth highest daily maximum running 8-hour O_3 concentrations and the second highest daily maximum 1-hour O_3 concentration, by county, for all DEP ozone monitoring sites in 2008. Although the majority of ozone monitoring sites decreased or maintained the level of 2007 concentration maximums, the majority of monitored counties in Pennsylvania contained sites with fourth daily maximum 8-hour concentrations exceeding the level of the 8-hour O_3 NAAQS, reflecting the 2008 strengthening of the O_3 standard. No county contained a site exceeding the former 1-hour O_3 NAAQS.

Appendix B, Tables B-3 and B-4 summarize 8-hour and 1-hour ozone data over the last three years. These tables include monitoring sites operated by DEP, the Allegheny County Health Department and Philadelphia Department of Public Health, Air Management Services. Twenty-eight DEP sites recorded 3-year averages of fourth highest 8-hour concentrations greater than the level of the 8-hour standard. No DEP sites recorded a 3-year average of second highest 1-hour concentrations greater than the level of the former 1-hour standard.

Figure 3-2 displays a 10-year trend of the statewide (DEP sites only) 3-year average of fourth daily maximum 8-hour ozone concentrations. Data points on or above the solid line represent an exceedance of the 8-hour NAAQS standard. As the graph indicates, there has been a continuing reduction overall during this period, about a 18% improvement. The overall

improvements that have been seen in ozone concentrations can be attributed in part to controls on VOCs and gasoline volatility.

Figure 3-2. Trend in 3-Year Average of Fourth Daily Maximum 8-Hour Ozone Concentrations, Statewide, 1999-2008.



Historical trends for individual air basin and non-air basin regions are shown in Figures 3-3 and 3-4. Figure 3-3 displays 10-year trends of the 3-year average of the fourth daily maximum 8-hour O_3 concentrations, while Figure 3-4 displays 10-year trends of the average second daily maximum 1-hour mean. Data points on or above the solid line represent an exceedance of the current 8-hour and former 1-hour NAAQS concentration level, respectively. All regions have followed the overall statewide trend of declining concentrations over the 10 year period for both types of averages. Current 3-year averages for most regions in Pennsylvania exceed the new NAAQS 8-hour standard of 0.075 parts per million (ppm). Three air basins - Johnstown, Monongahela Valley and Upper Beaver Valley - show a current 3-year average at or under the current 8-hour NAAQS. Historical 1-hour and 8-hour data for ozone from 1999 to 2008 are given in Appendix B, Table B-5 for DEP sites that operated during the 10-year period.

Figure 3-1. 2008 Ozone Concentration Ranges by County.

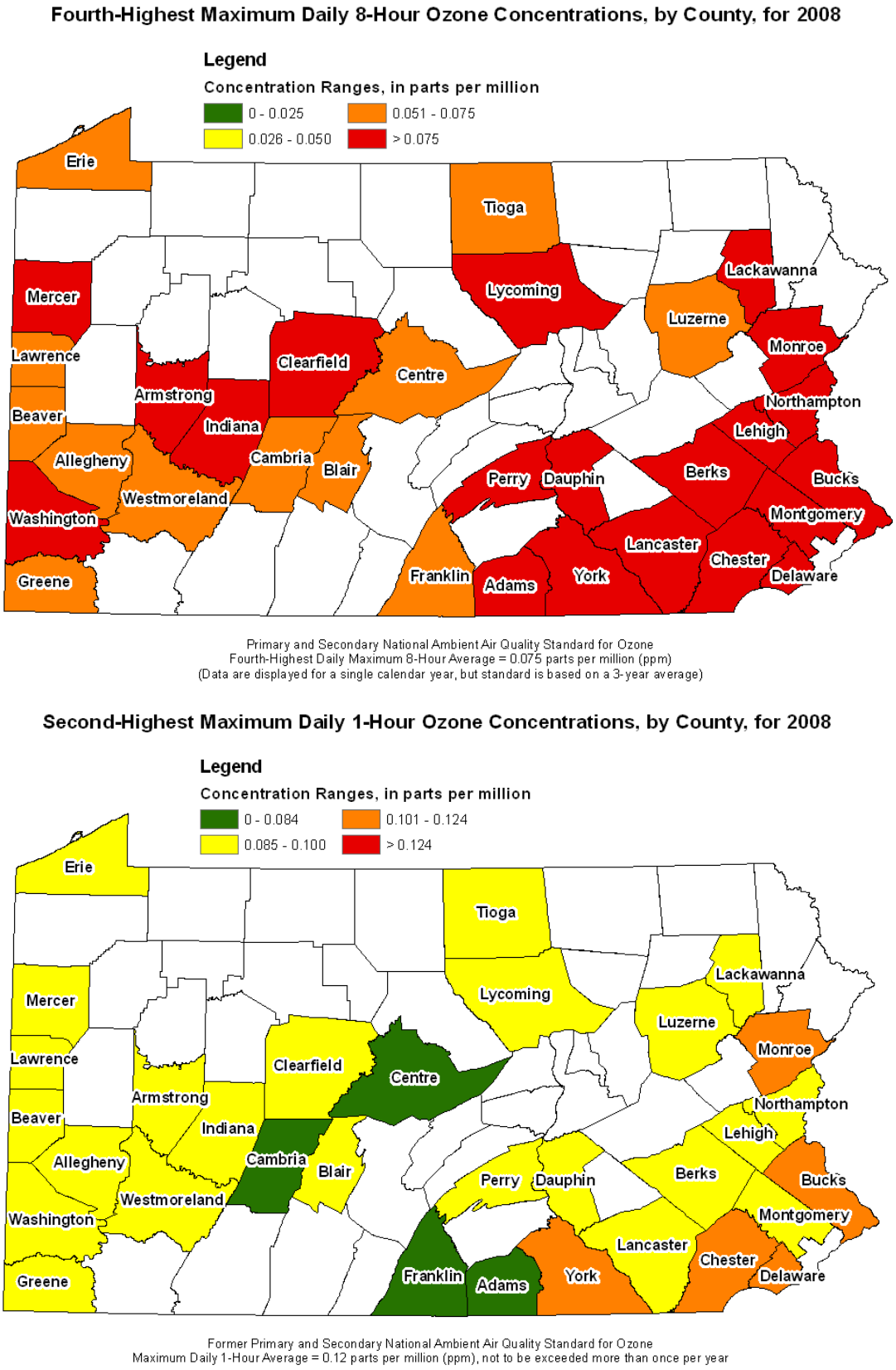
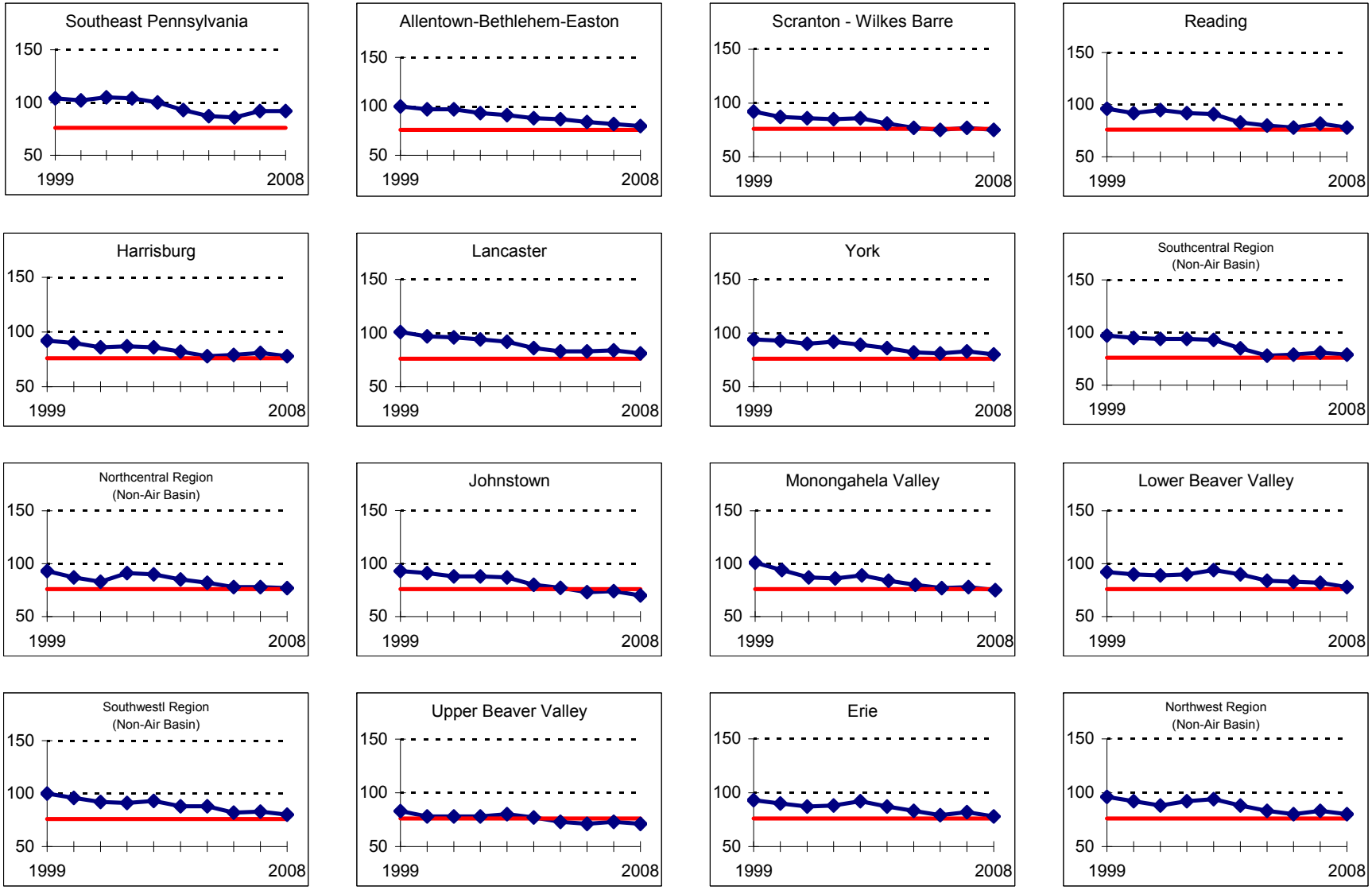
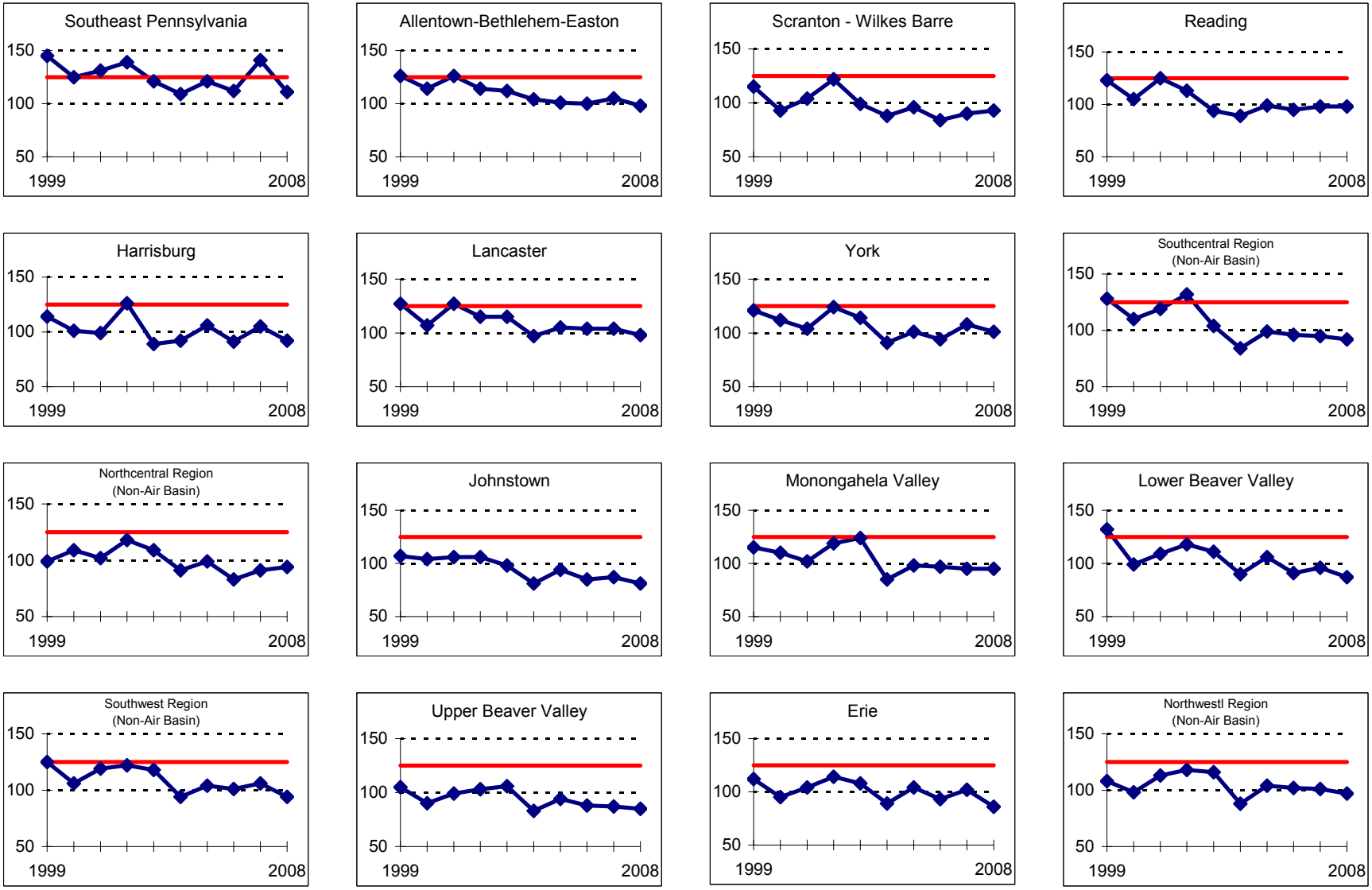


Figure 3-3. Ozone Trends in Pennsylvania 1999 to 2008, 3-Year Average of Fourth Daily Maximum 8-Hour Averages, in Parts per Billion.



The 8-hour Ozone National Ambient Air Quality Standard is 0.075 parts per million (or 75 ppb), based on a 3-year average of 4th highest maximum 8-hour running averages.

Figure 3-4. Year Ozone Trends in Pennsylvania 1999 to 2008, Second Daily Maximum 1-Hour Average, in Parts per Billion.



The former 1-hour Ozone National Ambient Air Quality Standard is 0.12 parts per million, maximum hourly average.

Sulfur Dioxide

EPA last reviewed the NAAQS for SO_2 in 1996. At that time EPA decided that the levels of the SO_2 standards remained sufficient to protect human health and environmental welfare, and adopted only minor technical changes to the standard. The current national ambient air quality standards (NAAQS) for sulfur dioxide (SO_2) consist of two primary standards (human health-based) and one secondary standard (environmental welfare-based). The primary standards are 0.030 part per million (ppm) for an annual mean, and 0.14 ppm based on a 24-hour block average. The secondary standard is 0.5 ppm based on a 3-hour block average. The 24-hour primary and secondary standards may not be exceeded more than once per year.

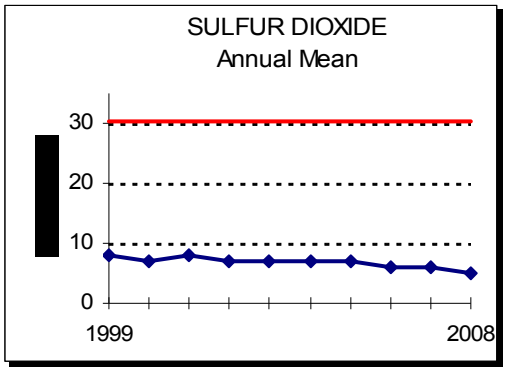
The 2008 DEP sulfur dioxide (SO_2) monitoring network consisted of 32 sites. Individual site locations, including county and air basin designations, and parameters monitored are listed in Appendix C of this report. All sites met the NAAQS for sulfur dioxide in 2008.

Sulfur dioxide data for 2008 for all SO_2 monitoring sites are summarized in Appendix B, Table B-6. No site in exceeded the level of the NAAQS in 2007, rather all sites yielded concentration averages less than half the level of all three NAAQS for SO_2.

Figures 3-5 (on following page) qualifies the annual mean and second highest daily maximum 24-hour sulfur dioxide concentration, by county, in 2008. No monitored county contained sites exceeding the levels of the current SO_2 air quality standards.

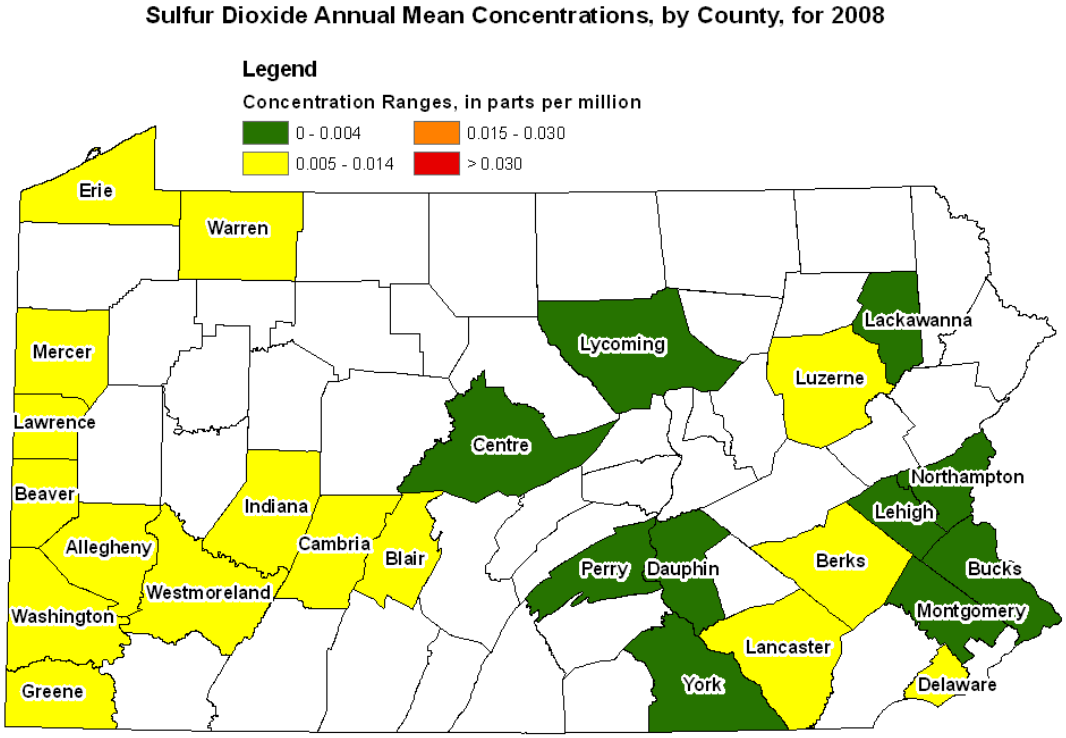
Figure 3-6 displays the statewide composite average of sulfur dioxide annual mean concentration from 1999 to 2008. Data points on or above the solid line represent an exceedance of the annual NAAQS for sulfur dioxide. In general, sulfur dioxide levels have remained relatively steady over the past 10 years, registering a slight improvement during that time

Figure 3-6. Trend in Annual Mean SO_2 Concentrations, Statewide, 1999-2008.



Annual mean historical trends for individual air basin and non-air basin regions are shown in Figure 3-7. Data points on or above the solid line represent an exceedance of the annual NAAQS for sulfur dioxide. The trend graphs demonstrate that all regions have consistently remained well under the annual mean NAAQS for SO_2. Sulfur dioxide historical data from 1999 to 2008 are given in Appendix B, Table B-7 for DEP sites that operated during the 10-year period.

Figure 3-5. 2008 Sulfur Dioxide Concentration Ranges by County.



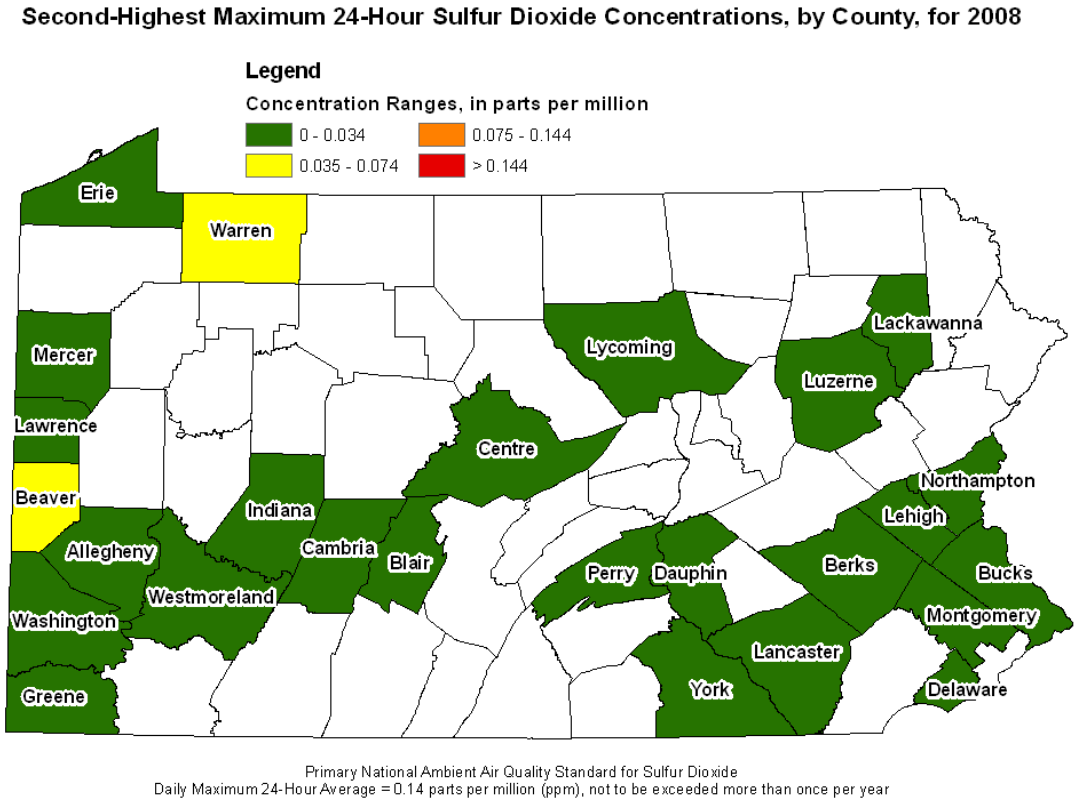
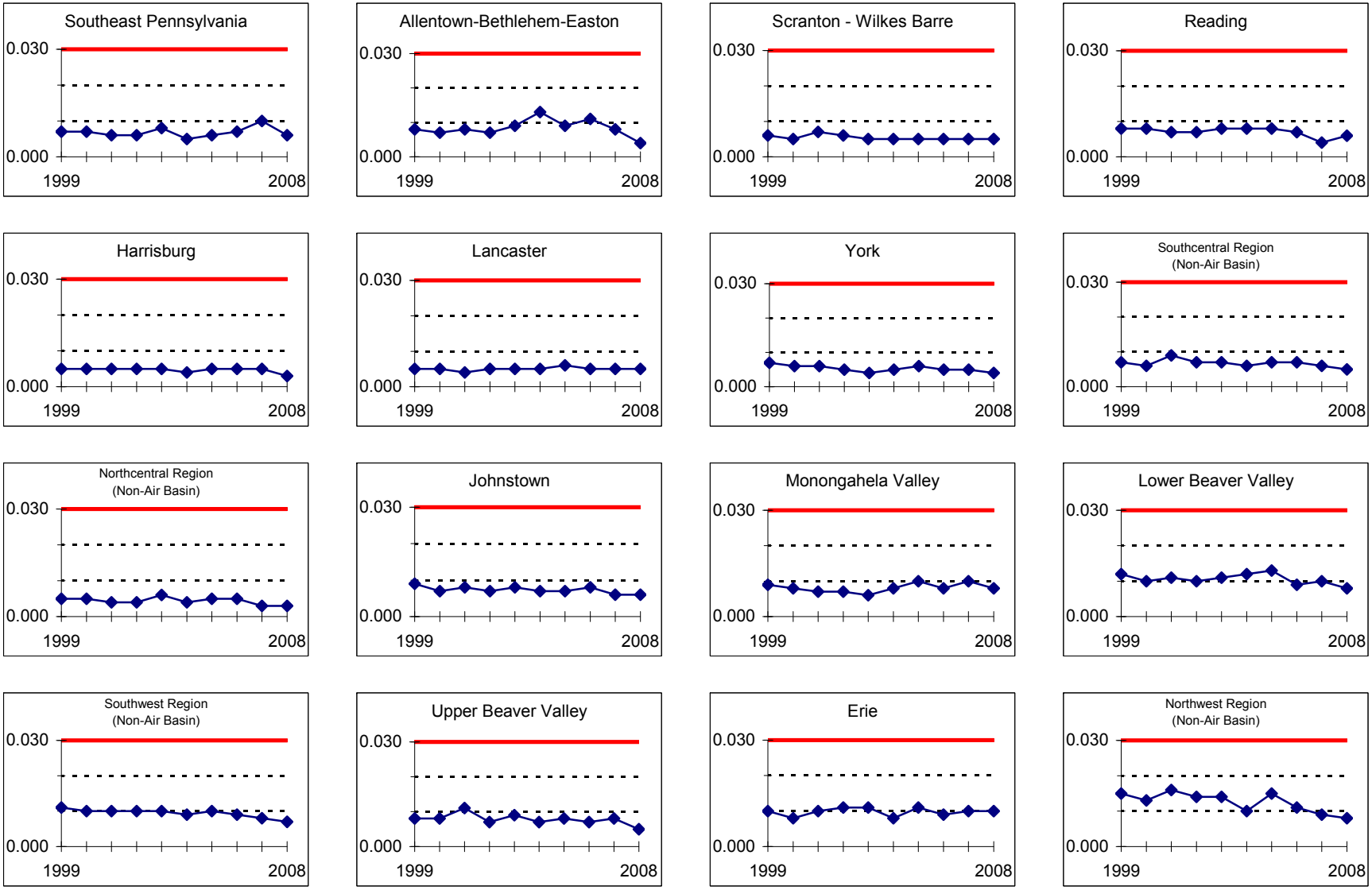


Figure 3-7. Sulfur Dioxide Trends in Pennsylvania 1999 to 2008, Annual Arithmetic Means, in Parts per Million.



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

Nitrogen Dioxide / Oxides of Nitrogen

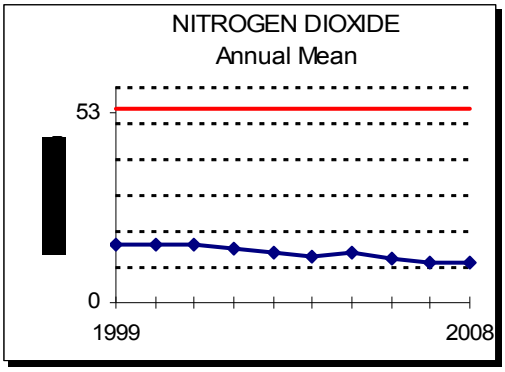
Nitrogen dioxide, a specific nitrogen oxide, is regulated by the EPA. The national ambient air quality standard for nitrogen dioxide (NO2) is set at 0.053 parts per million (ppm) as both a primary (human health-based) and secondary (environmental impact-based) standard. EPA last reviewed this standard in 1985.

The 2008 DEP nitrogen dioxide (NO_2) monitoring network consisted of 25 sites. Individual site locations, including county and air basin designations, and parameters monitored are listed in Appendix C of this report. All sites met the NAAQS for nitrogen dioxide in 2008.

Nitrogen dioxide and nitrogen oxide data for 2008 for all NO_2/NO_x monitoring sites are summarized in Appendix B, Tables B-8 and B-9, respectively. No site in exceeded the level of the NAAQS in 2008, rather all sites yielded concentration averages less than one half the level of the NAAQS for NO_2.

Figure 3-8 displays the statewide composite average of nitrogen dioxide annual mean concentration for 1999 to 2008. Data points on or above the solid line represent an exceedance of the annual NAAQS for nitrogen dioxide. The graph demonstrates that concentrations levels have decreased by about about 28% and have remained consistently well below the annual NAAQS for nitrogen dioxide during the 10-year period.

Figure 3-8. Annual Mean NO_2 Concentrations, Statewide, 1999-2008.



Annual mean historical trends for individual air basin and non-air basin regions for nitrogen dioxide are shown in Figure 3-9 (on the following page). Data points on or above the solid line represent an exceedance of the annual NAAQS for nitrogen dioxide. All regions have followed the statewide trend, remaining consistently below the NO_2 NAAQS. Historical data for nitrogen dioxide from 1999 to 2008 are given in Appendix B, Table B-10 for DEP sites that operated during the 10-year period.

Figure 3-10 represents the annual mean statewide trend of oxides of nitrogen (NO_x) over the last 10 years. Measured NO_x concentrations represent the combined total of NO_2 and nitric oxide (NO) concentrations. There is no federal or state air quality standard for NO_x. Since 1998, average NO_x concentrations have declined by about 45 percent.

Figure 3-10. Trend in Annual Mean NO_x Concentrations, Statewide, 1999-2008.

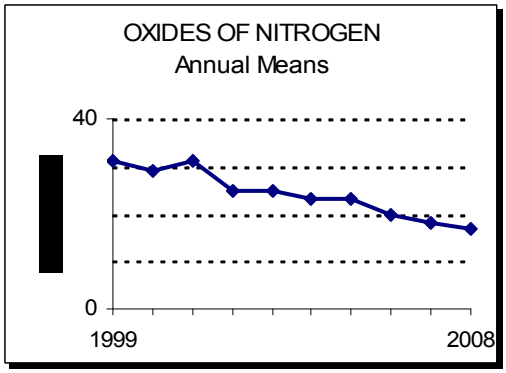
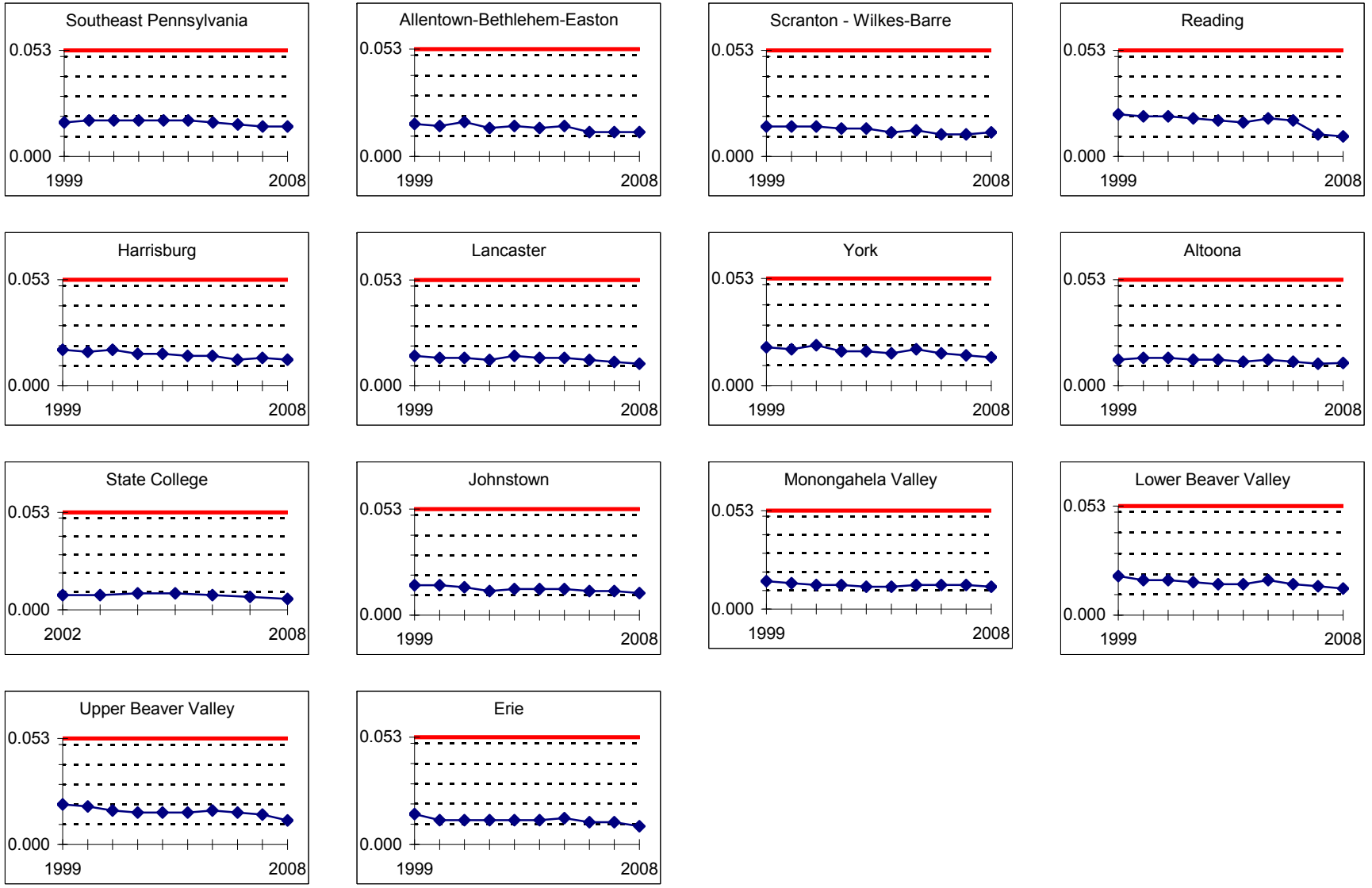


Figure 3-9. Nitrogen Dioxide Trends in Pennsylvania 1999 to 2008, Annual Arithmetic Means, in Parts per Million.



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

Carbon Monoxide

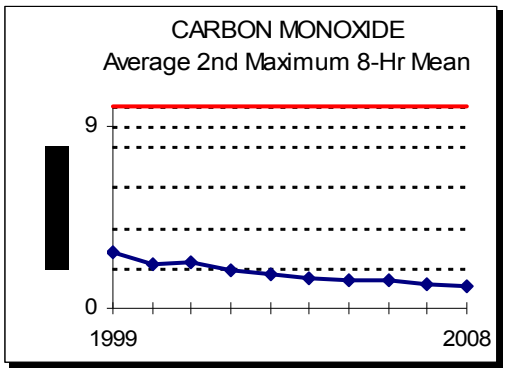
The national ambient air quality standard (NAAQS) for carbon monoxide (CO) consisted of two primary (human health-based) standards. In September 1985, EPA revoked the previous secondary (environmental welfare-based) standards, citing studies that showed no environmental welfare effects could be expected at levels found in ambient air at the time of review. EPA did not revise the primary standard at that time, and they are currently applicable at 9 parts per million (ppm) based on an 8-hour maximum, and 35 ppm based on a 1-hour maximum. To meet the standard, neither criterion may be exceeded more than once per year.

The 2008 DEP carbon monoxide (CO) monitoring network consisted of 19 sites. Individual site locations, including county and air basin designations, and parameters monitored are listed in Appendix C of this report. All sites met the NAAQS for carbon monoxide in 2008.

Carbon monoxide data for 2008 for CO monitoring sites are summarized in Appendix B, Table B-11. No site in exceeded the level of the NAAQS in 2008, rather all sites yielded concentration averages less than one half the level of the NAAQS for CO, for both 8-hour and 1-hour averages.

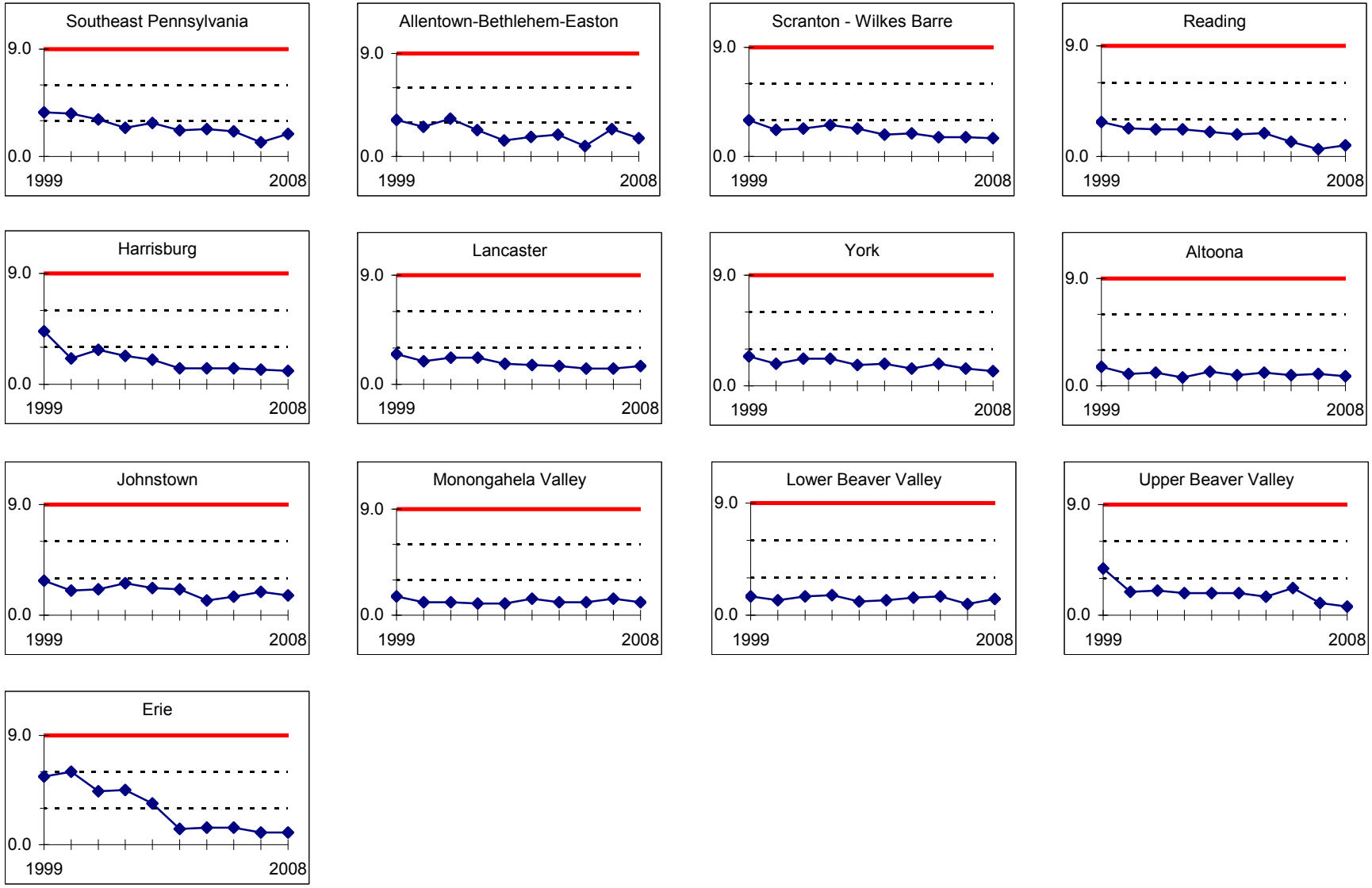
Figure 3-11 displays a 10-year trend of the statewide second daily maximum 8-hour CO concentration. Data points on or above the solid line represent an exceedance of the NAAQS. Carbon monoxide levels have seen a long-term improvement of over 50% percent from levels in 1999, and have remained well below one-half the CO NAAQS during the past 10 years.

Figure 3-11. Trend in Second Maximum 8-hour Average CO Concentrations, Statewide, 1999-2008.



Annual mean historical trends for individual air basin and non-air basin regions for carbon monoxide are shown in Figure 3-12. Data points on or above the solid line represent an exceedance of the annual NAAQS for carbon monoxide. All regions have followed the statewide trend, remaining consistently below the CO NAAQS. Historical data for carbon monoxide from 1999 to 2008 are given in Appendix B, Table B-12 for DEP sites that operated during the 10-year period.

Figure 3-12. Ten–Year Carbon Monoxide Trend in Pennsylvania 1999 to 2008, Second Maximum 8-Hour Running Mean, in Parts per Million.



The Carbon Monoxide 8-Hour National Ambient Air Quality Standard is 9 ppm based on an 8-hour maximum average (not to be exceeded more than once per year).

CHAPTER 4. AIR QUALITY RESULTS AND TRENDS – PARTICULATE SAMPLING

$PM_{2.5}$ Particulate Matter

Citing current scientific evidence pointing strongly to significant adverse effects on human health, EPA tightened the primary (human health-based) $PM_{2.5}$ standard on December 18, 2006. The national ambient air quality standard (NAAQS) for the 24 hour level was lowered from 65 to 35 micrograms per cubic meter. The 24-hour standard is based on the 98th percentile value (the concentration below which 98 percent of 24-hour averages fall) of all 24-hour values over a calendar year. The annual mean standard of 15 micrograms per cubic meter was not adjusted. Secondary (environmental welfare-based) standard levels are identical to the primary standards.

The 2008 $PM_{2.5}$ monitoring network consisted of 21 discrete monitoring sites along with 12 supplemental continuous monitoring sites. Additionally, $PM_{2.5}$ samples were collected for constituent analysis from 14 speciation sites (detailed next section). Individual site locations, including county and air basin designations, and parameters monitored are listed in Appendix C of this report.

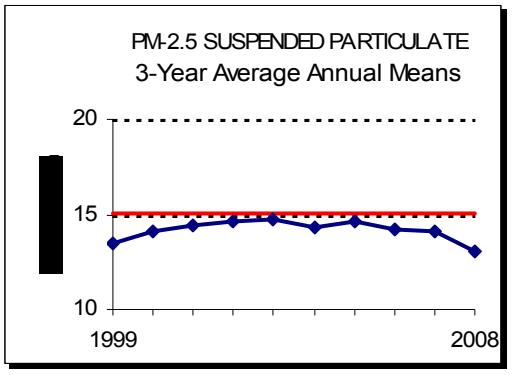
$PM_{2.5}$ data for 2008 for all $PM_{2.5}$ FRM and continuous monitoring sites are summarized in Appendix B, Tables B-13 and B-14, respectively. No FRM sites exceeded the level of the annual mean NAAQS for $PM_{2.5}$, while all sites registered at least one 24-hour maximum at or exceeding the level of the 24-hour NAAQS in 2008.

Figures 4-1 (on the following page) qualifies the $PM_{2.5}$ annual mean and 24-hour maximum 98th percentile, by county in 2008. Only FRM sites were considered in the creation of these representations. Although many counties in southeastern and western Pennsylvania contained sites yielding concentration maximums close to national standard levels, no sites yielded an annual mean or 98th percentile 24-hour concentration average exceeding the level of the $PM_{2.5}$ NAAQS in 2008

Appendix B, Table B-15 summarizes 24-hour and annual mean $PM_{2.5}$ data over the last three years. This table includes monitoring sites operated by DEP, the Allegheny County Health Department and Philadelphia Department of Public Health, Air Management Services. Five DEP sites recorded 3-year averages of 24-hour 98th percentile concentrations greater than the level of the 24-hour standard. No DEP sites recorded a 3-year average of annual mean concentrations greater than the level of the annual standard.

Figure 4-2 displays the statewide composite average of $PM_{2.5}$ 3-year average annual mean concentration from 1999 to 2008. Data points on or above the solid line represent an exceedance of the annual NAAQS for $PM_{2.5}$. The graph demonstrates an improvement in average concentrations levels, yielding a 10-year overall decrease of about 7%

Figure 4-2. Trend in 3-Year Average Annual Mean $PM_{2.5}$ Concentrations, Statewide, 1999-2008.



Historical trends for individual air basin and non-air basin regions for $PM_{2.5}$ are shown in Figures 4-3 and 4-4. Figure 4-3 displays 10-year trends of the 3-year average annual mean $PM_{2.5}$ concentrations, while Figure 4-4 displays 10-year trends of the 24-hour maximum 98th percentile. Data points on or above the solid line represent an exceedance of the annual mean and 24-hour NAAQS concentration level, respectively. These graphs show that the three-year annual mean averages have hovered around the level of the annual mean NAAQS during this time, with all regions showing a decreasing trend over the past eight years for both the annual and 24-hour averages. The 24-hour data illustrates an overall decrease of about 12 percent overall from the 1999-2001 average concentration levels.

Historical trend data from 1999 to 2008 for $PM_{2.5}$ FRM and continuous methods are given in Appendix B, Tables B-16 and B-17 for DEP sites that operated during the 10-year period.

Figure 4-1. 2008 $PM_{2.5}$ Concentration Ranges by County.

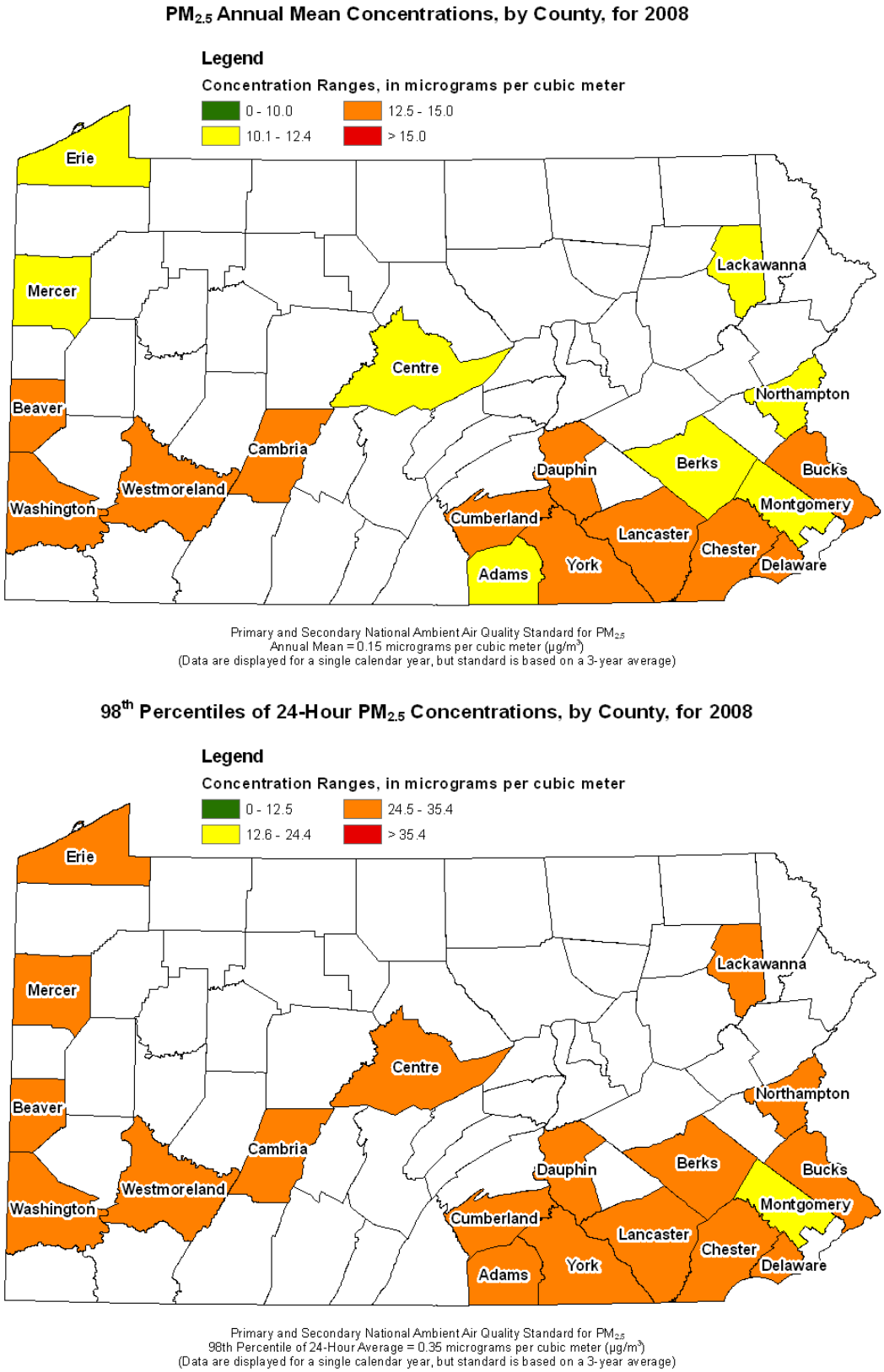
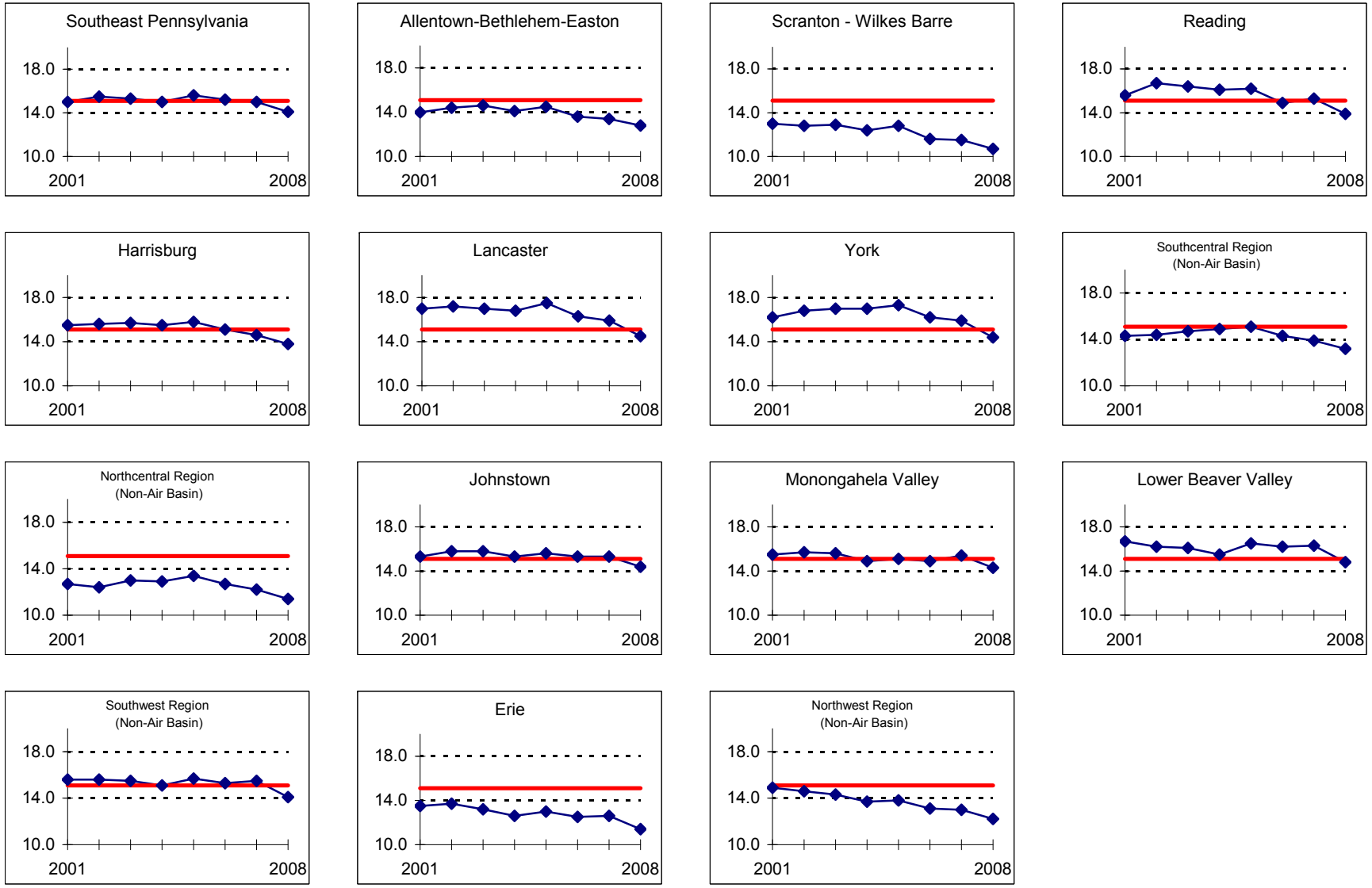
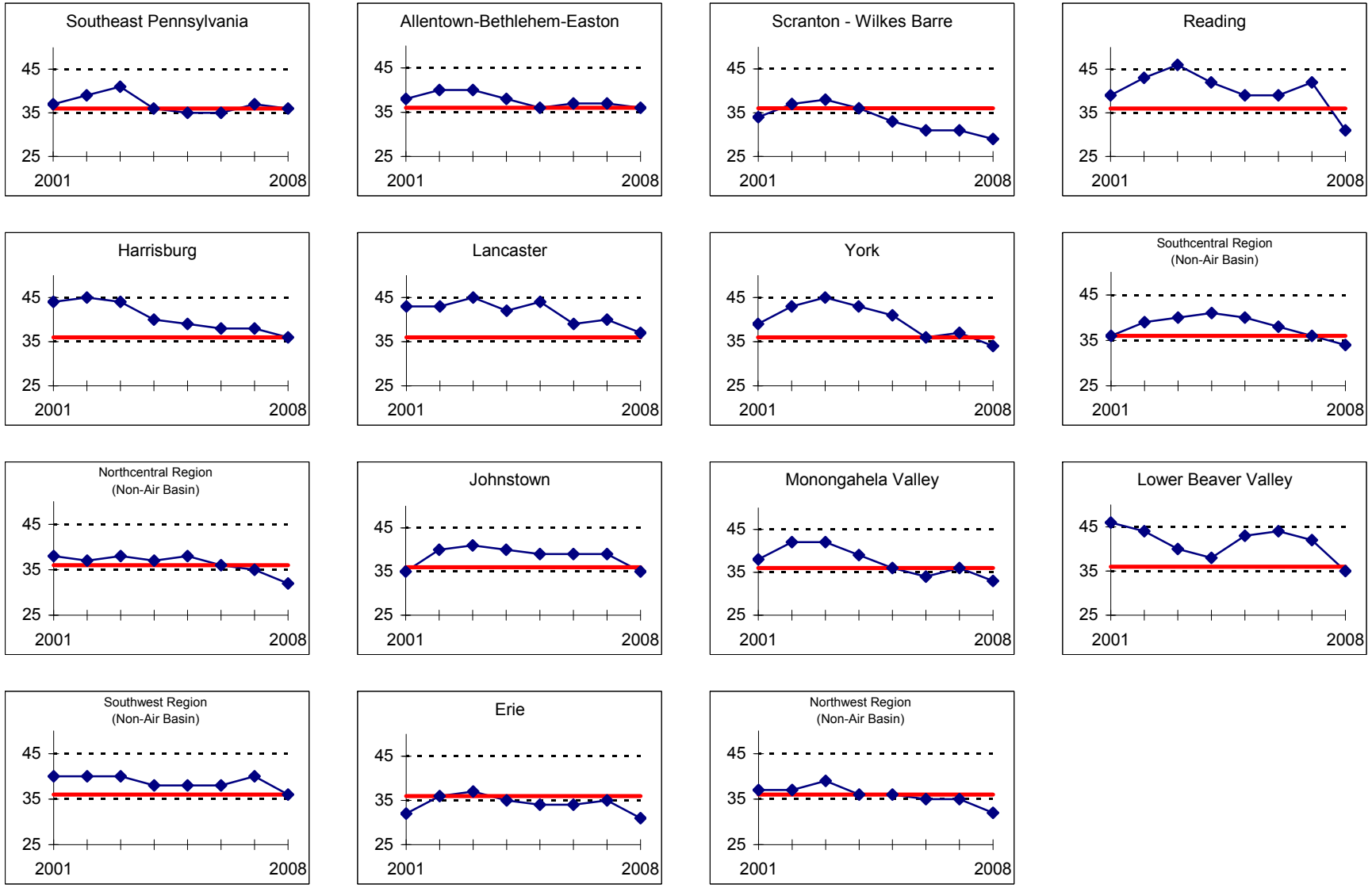


Figure 4-3. $PM_{-2.5}$ Trends in Pennsylvania 2001 to 2008, 3-Year Average of Annual Means, in Micrograms per Cubic Meter.



The Annual $PM_{2.5}$ National Ambient Air Quality Standard is 15.0 micrograms/cubic meter, based on a 3-year average.

Figure 4-4. $PM_{-2.5}$ Trends in Pennsylvania 2001 to 2008, 3-Year Average of 98th Percentile Concentration Micrograms per Cubic Meter.



The 24-hour $PM_{2.5}$ National Ambient Air Quality Standard is 35 micrograms/cubic meter, based on a 3-year average of 98th percentile 24-hour averages.

Chemical Speciation of $PM_{2.5}$ Particulate Matter

As part of an effort started in 2002, DEP continued in 2008 with constituent analysis (speciation) of $PM_{2.5}$ particulate matter. $PM_{2.5}$ Speciation is a physical or chemical analysis of the captured particles that provide a first order characterization of the metals, ions, and carbon constituents of $PM_{2.5}$.

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

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

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

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

The 2008 $PM_{2.5}$ speciation network consisted of 13 sampling sites. Individual site locations, including county and air basin designations, and parameters monitored are listed in Appendix C of this report.

Figure 4-5 provides a percentage-based breakdown, by site, for the major $PM_{2.5}$ constituents -nitrates, sulfates, ammonium, organic carbon, elemental carbon and other trace elements – on average from data collected during 2008.

Figure 4-5. $PM_{2.5}$ Speciation Major Component Distribution, by Mass.

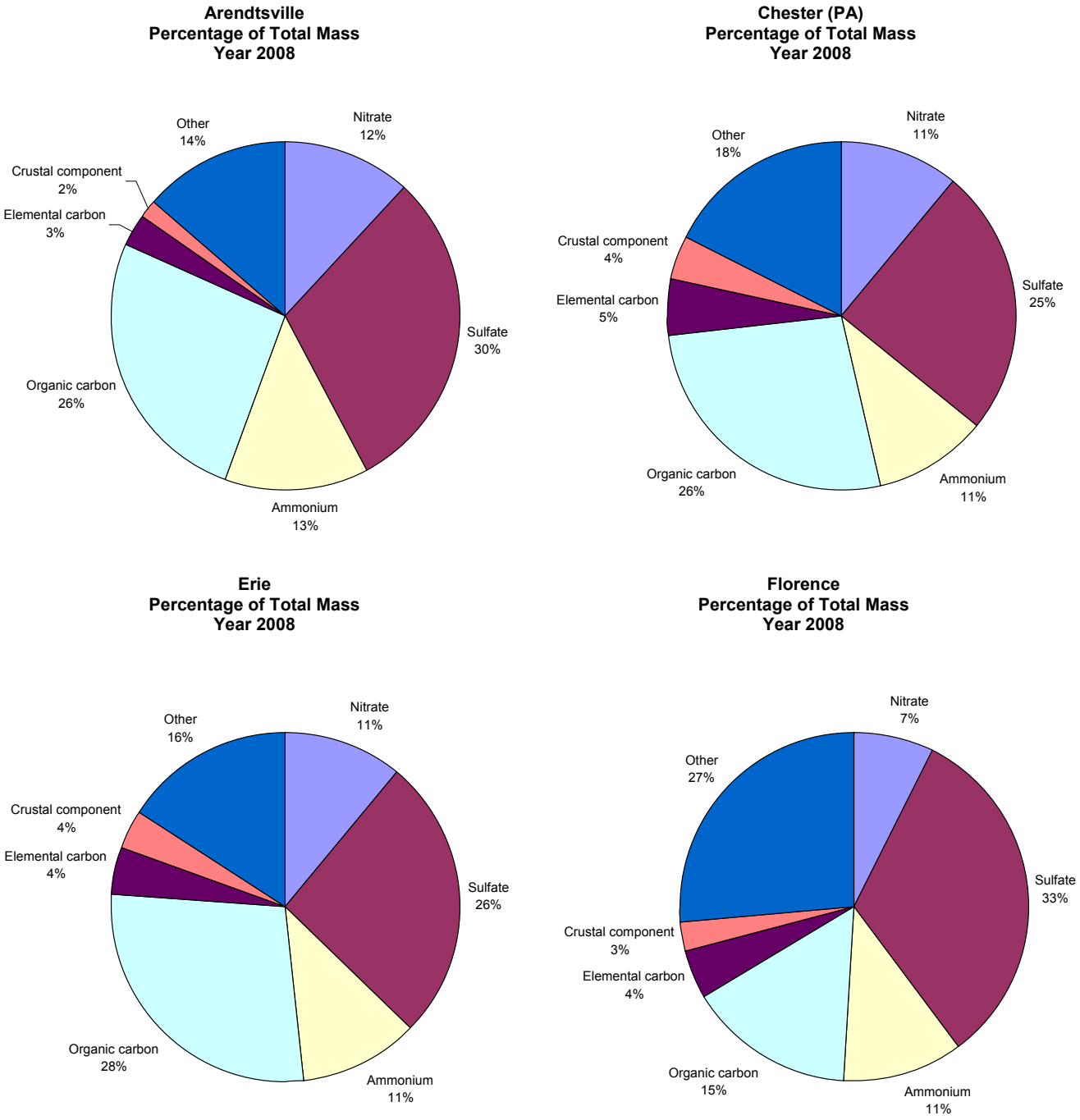
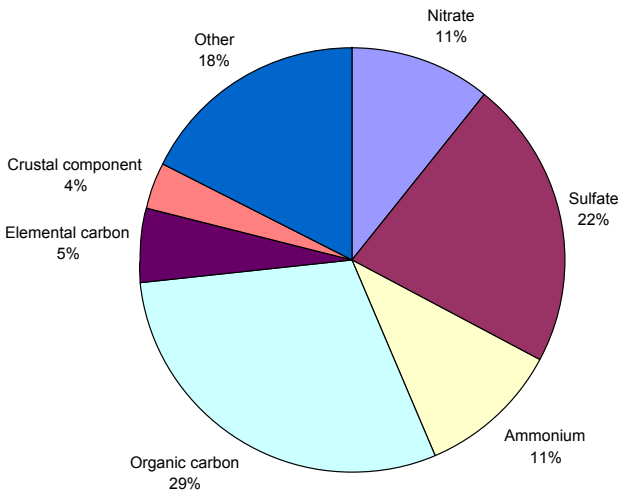
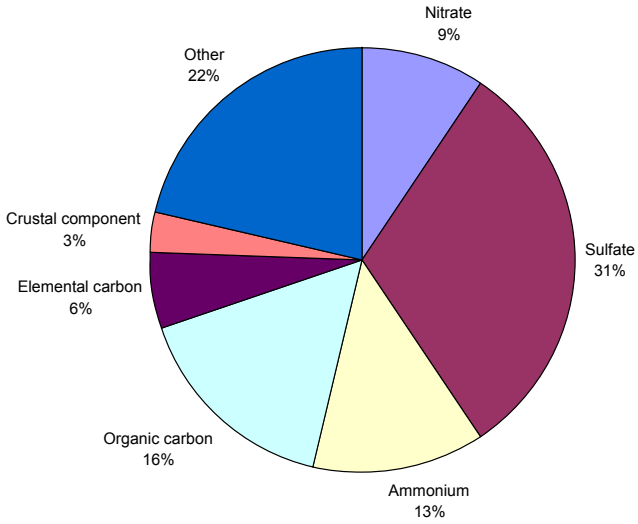


Figure 4-5. $PM_{2.5}$ Speciation Major Component Distribution, by Mass (cont.).

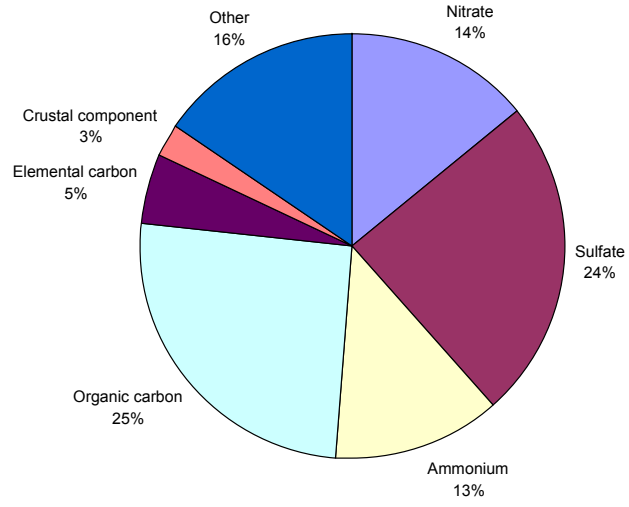
Freemansburg
Percentage of Total Mass
Year 2008



Greensburg
Percentage of Total Mass
Year 2008



Harrisburg
Percentage of Total Mass
Year 2008



Lancaster
Percentage of Total Mass
Year 2008

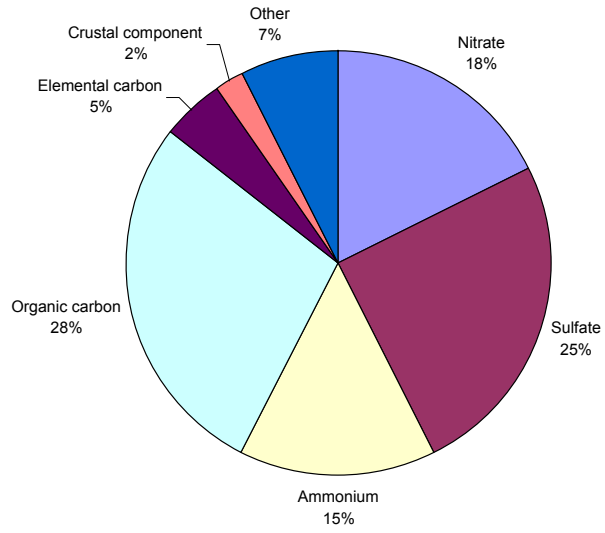


Figure 4-5. $PM_{2.5}$ Speciation Major Component Distribution, by Mass (cont.).

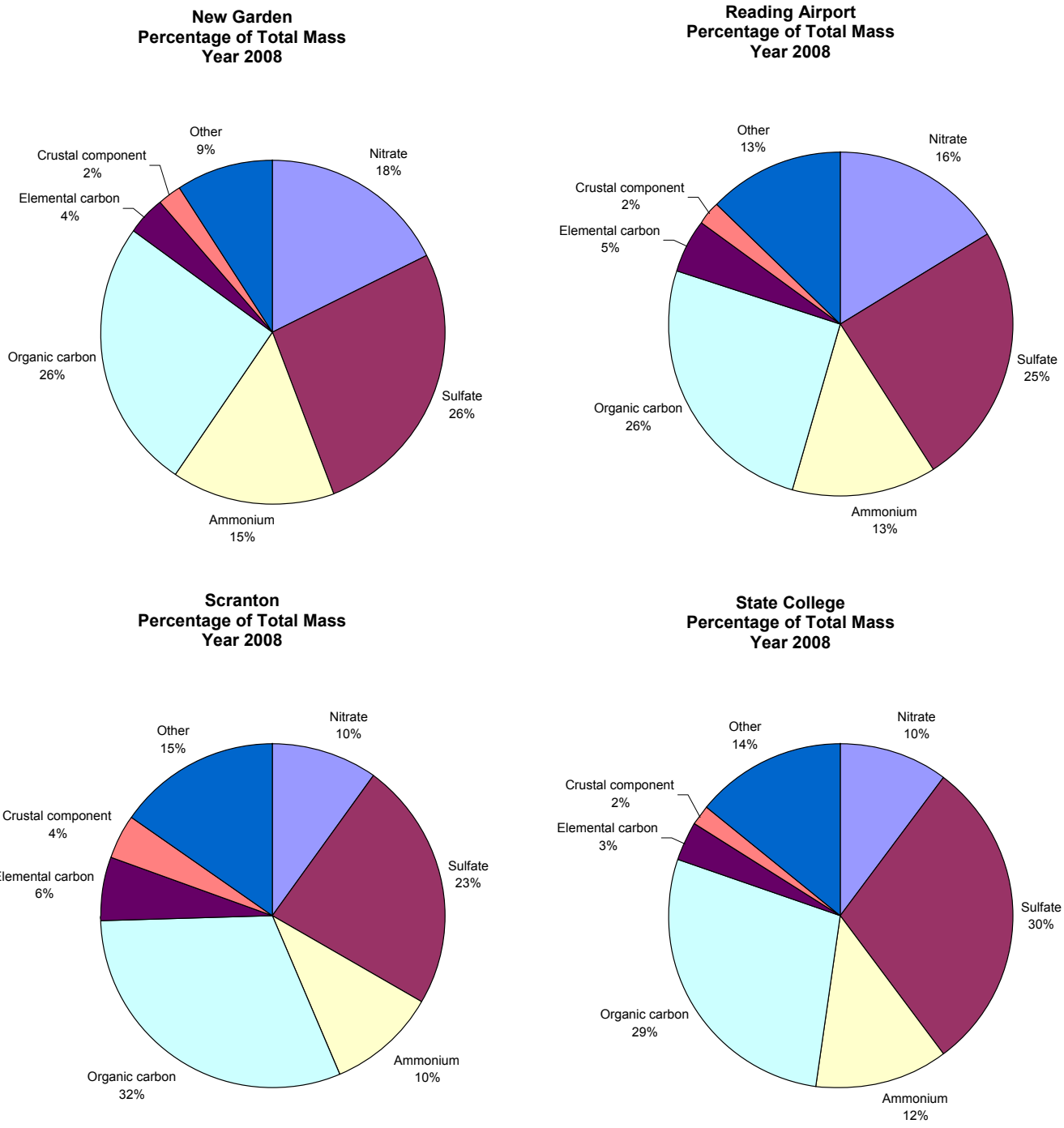
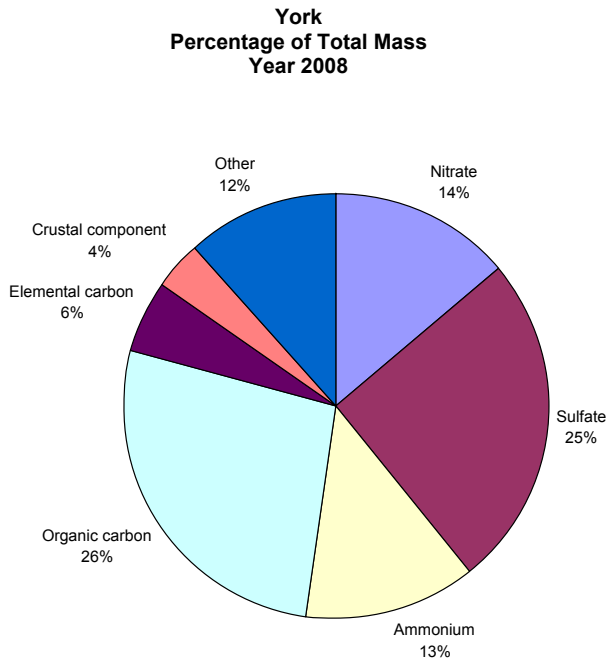


Figure 4-5. $PM_{2.5}$ Speciation Major Component Distribution, by Mass (cont.).



PM_{10} Particulate Matter

On December 18, 2006, EPA revised the national ambient air quality standard (NAAQS) for particulate matter less than or equal to 10 micrometers in diameter (PM_{10}). Citing the lack of evidence linking health problems and long-term exposure to inhalable coarse particle pollution, EPA revoked the annual PM_{10} primary (human health-based) and secondary (environmental welfare-based) standard, while implementing a tightened fine particulate ($PM_{2.5}$) standard. The 24-hour PM_{10} air quality standard was not changed and remains at 150 micrograms per cubic meter, not to be exceeded more than once per year, as both a primary and secondary standard.

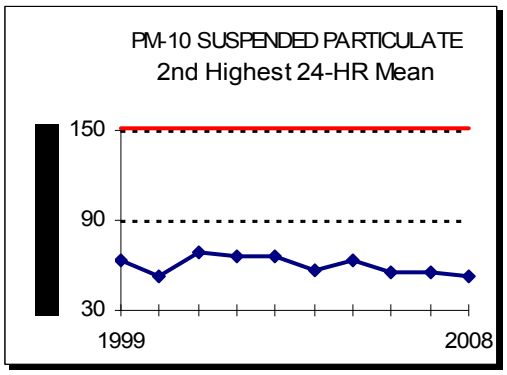
The 2008 DEP PM_{10} monitoring network consisted of 23 sites. Individual site locations, including county and air basin designations, and parameters monitored are listed in Appendix C of this report. All sites met the NAAQS for PM_{10} in 2008.

PM_{10} data for 2008 for all DEP monitoring sites are summarized in Appendix B, Table B-18. No site exceeded the level of the current 24-hour PM_{10} air quality standard during 2008.

Figures 4-6 (on the following page) qualifies the second highest daily PM_{10} 24-hour maximums and annual means, by county in 2008. No monitored county contained sites exceeding the level of the current or former PM_{10} NAAQS.

Figure 4-7 displays a 10-year trend of the statewide second daily maximum 8-hour PM_{10} concentration. Data points on or above the solid line represent an exceedance of the NAAQS. During the past 10 years, PM_{10} levels have consistently remained at or less than one half the PM_{10} NAAQS, improving approximately 17% overall.

Figure 4-7. Trend in Second Maximum 24-hour Average PM_{10} Concentrations, Statewide, 1999-2008.



Annual mean historical trends for individual air basin and non-air basin regions are shown in Figure 4-8. Data points on or above the solid line represent an exceedance of the annual NAAQS for sulfur dioxide. The trend graphs demonstrate that all regions have remained under the 24-hour NAAQS for PM_{10}. PM_{10} historical data from 1999 to 2008 are given in Appendix B, Table B-19 for DEP sites that operated during the 10-year period.

Figure 4-6. 2008 PM_{10} Concentration Ranges by County.

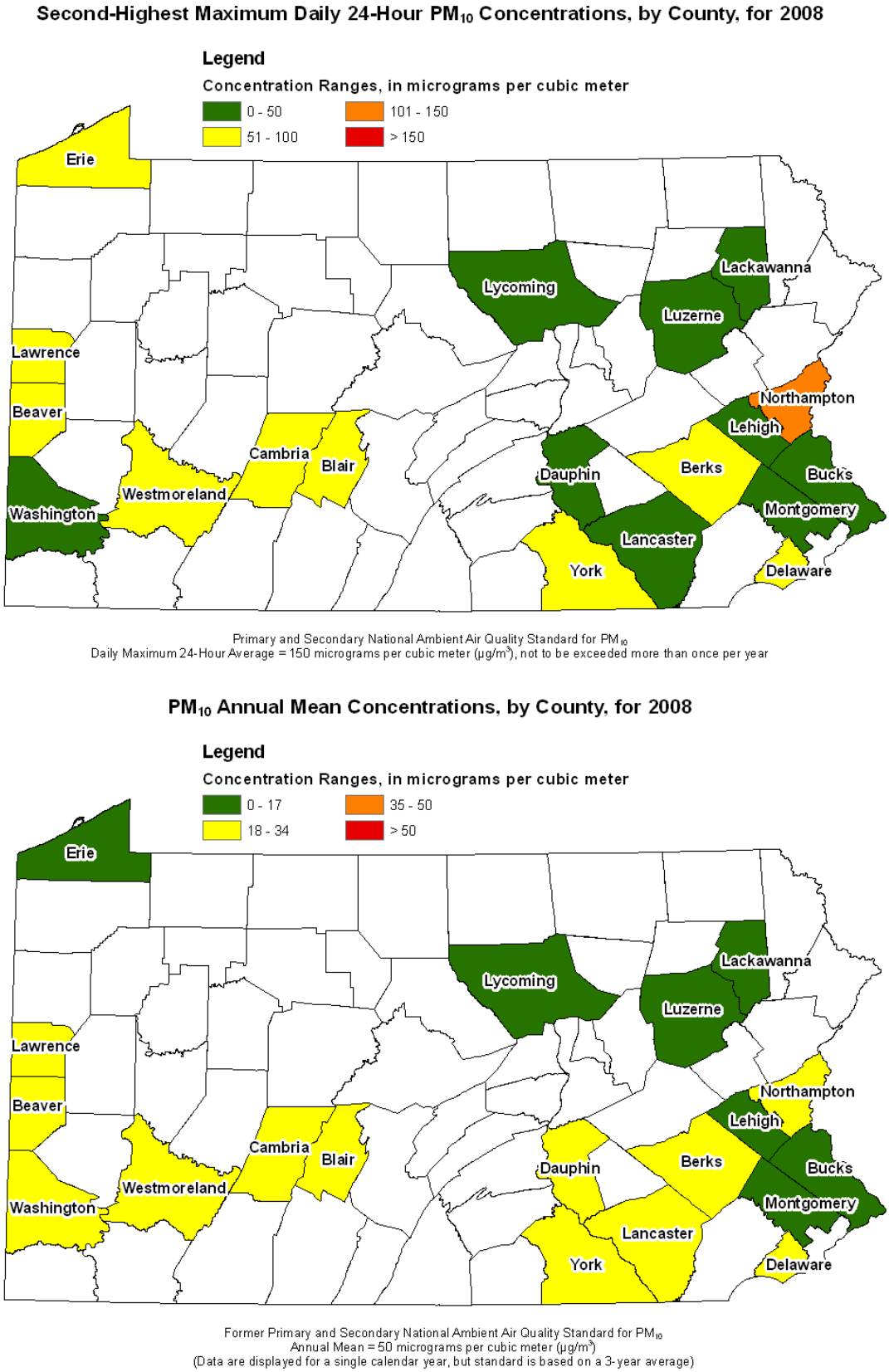
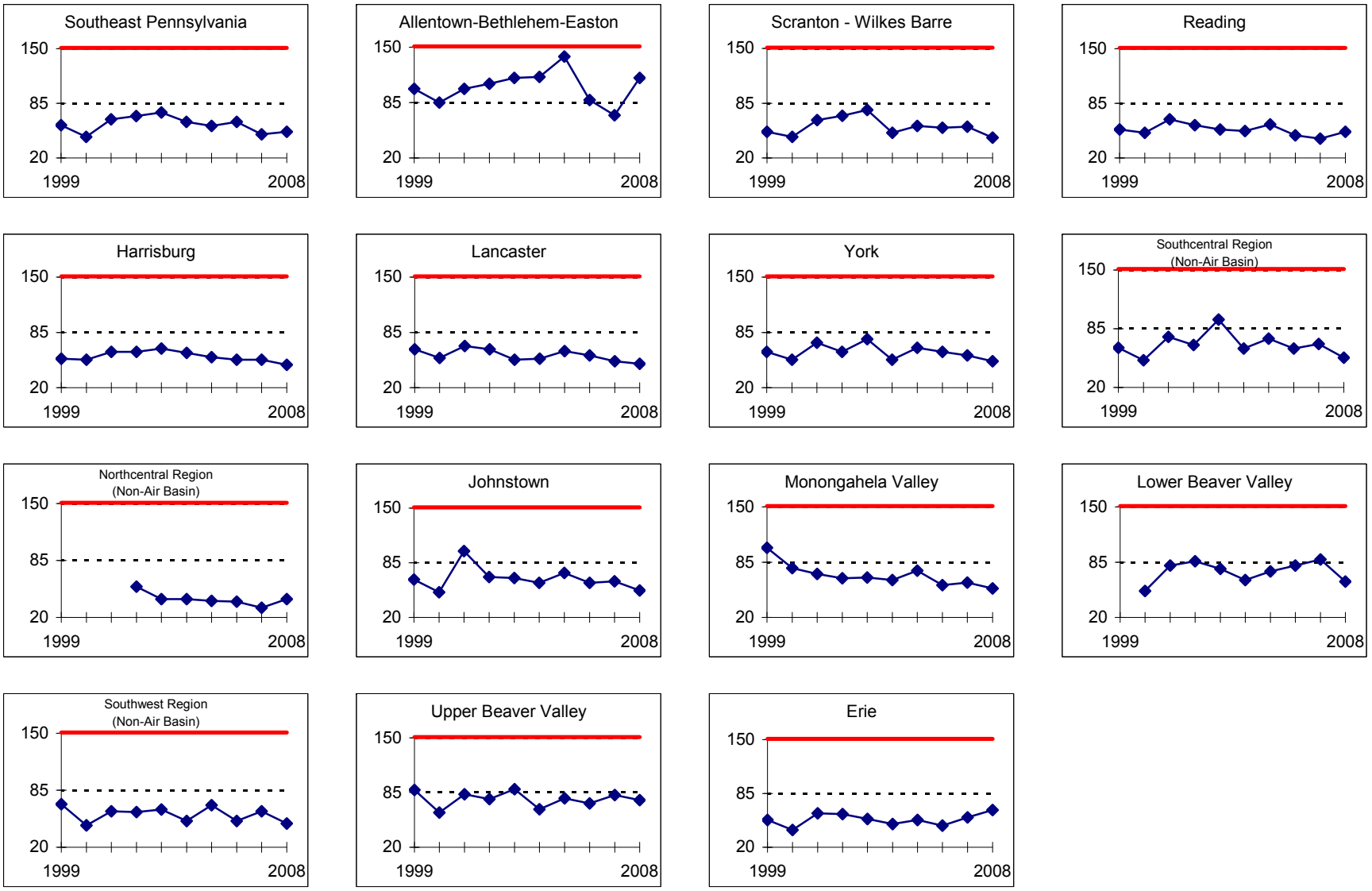


Figure 4-8. PM_{10} Trends in Pennsylvania 1999 to 2008, Second 24-Hour Maximums, in Micrograms per Cubic Meter.



PM_{10} 24-Hour Mean National Ambient Air Quality Standard is 150 micrograms per cubic meter (not to be exceeded more than once per year), based on a 3-year average.

Lead

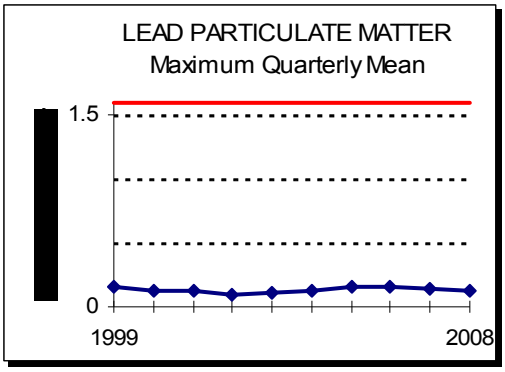
The national ambient air quality standard for lead is a 1.5 micrograms per cubic meter maximum, based on a calendar quarterly average.

Lead levels in the Commonwealth have remained well below the federal standards for at least the past 10 years. Lead levels improved dramatically once lead was removed from gasoline in the mid-seventies, and now relatively few improvements are seen.

The DEP 2008 lead monitoring network consisted of seven discrete monitoring sites. All sites met the level of the lead NAAQS. Individual site locations, including county and air basin designations, and parameters monitored are listed in Appendix C of this report. All sites met the NAAQS for lead in 2008.

Figure 4-9 displays the statewide composite average of the maximum quarterly average concentration from 1999 to 2008. Data points on or above the solid line represent an exceedance of the annual NAAQS for lead. In general, lead levels have remained relatively steady over the past 10 years.

Figure 4-9. Trend in Maximum Quarterly Average Lead Concentrations, Statewide, 1999-2008.



Lead data for 2008 for all DEP monitoring sites are summarized in Appendix B, Tables B-20. No sites yielded a quarterly mean exceeding the level of the lead air quality standard during 2008. 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.

Lead historical data from 1999 to 2008 are given in Appendix B, Table B-21 for DEP sites that operated during the 10-year period.

Analyses for total suspended particulates (TSP), sulfates and nitrates are also performed on the same sample collection filters that are analyzed for lead. For reference purposes, TSP, sulfate and nitrate data are given in Appendix B, Tables 22-25. Currently, there are no standards for these pollutants.

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. There are no federal or state air quality standards for the monitored compounds.

In 2008, toxics monitoring at the Arendtsville PAMS site was temporarily suspended as the older analyzer was replaced with a new model. The new model was not fully operational in time for the start of the 2008 ozone season, but is expected to yield data beginning in 2009.

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, assists in rulemaking and model validation. EPA uses these computer models to estimate lifetime chemical exposures and subsequent health-effect risks. 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. However, mercury deposited to surface waters is concentrated in the food chain and may reach levels in fish that are unsafe for consumption. There are no federal or state ambient air quality standards for mercury.

Data from the Lancaster site for 2008, as well as multi-year trend data, are summarized in the 2008 Elemental Mercury Vapor Summary, Appendix D of this document.

For more information on PA's Air Toxics monitoring, visit us through the Department's website at http://www.dep.state.pa.us/dep/deputate/airwaste/aq/toxics/toxics.htm.

CHAPTER 5. AIR QUALITY INDEX

The Air Quality Index (AQI) is the primary tool used by numerous state and local agencies, including DEP, for measuring and reporting health effects of six primary air pollutants – ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), suspended particulate matter 10 microns or less in size (PM_{10}) and 2.5 microns or less ($PM_{2.5}$). The AQI is also used widely for public air quality forecasting purposes.

The AQI has been in use since October 1999, when EPA established the index to replace the former Pollutant Standards Index (PSI). The AQI reflected updated health information considered in the 1997 EPA revisions of the air quality standards for ground-level ozone (smog) and fine particulate matter. The revised index ensures 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 AQI added an additional air quality category to the former PSI categories just above the level of the standard, for each pollutant. The AQI index established a category from 101 -150 characterized as "unhealthy for sensitive groups" and a category of 151 - 200 as "unhealthy". The AQI also included modifications to the ozone sub-index (an 8-hour sub-index) and a sub-index for fine particulate matter.

In 2008, the AQI breakpoints for ozone were revised to reflect the new 8-hour National Ambient Air Quality Standard (NAAQS) for ozone.

The AQI is used extensively by DEP and is published on DEP's web site with hourly updates at http://www.dep.state.pa.us/dep/deputate/airwaste/aq/aqm/aqi.htm. The breakpoints for the AQI in terms of pollutant concentrations are shown in Table 3.

Table 5-1. 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 – 0.059	-	0.0 – 15.4	0 – 54	0.0 – 4.4	0.000 – 0.034	([2])	0 - 50	Good
0.060 – 0.075	-	15.5 – 40.4	55 – 154	4.5 – 9.4	0.035 – 0.144	([2])	51 - 100	Moderate
0.076 – 0.095	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
0.096 – 0.115	1.65 – 0.204	65.5 – 150.4	255 – 354	12.5 – 15.4	0.225 – 0.304	([2])	151 - 200	Unhealthy
0.116 – 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] NO_2 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.

CHAPTER 6. 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.

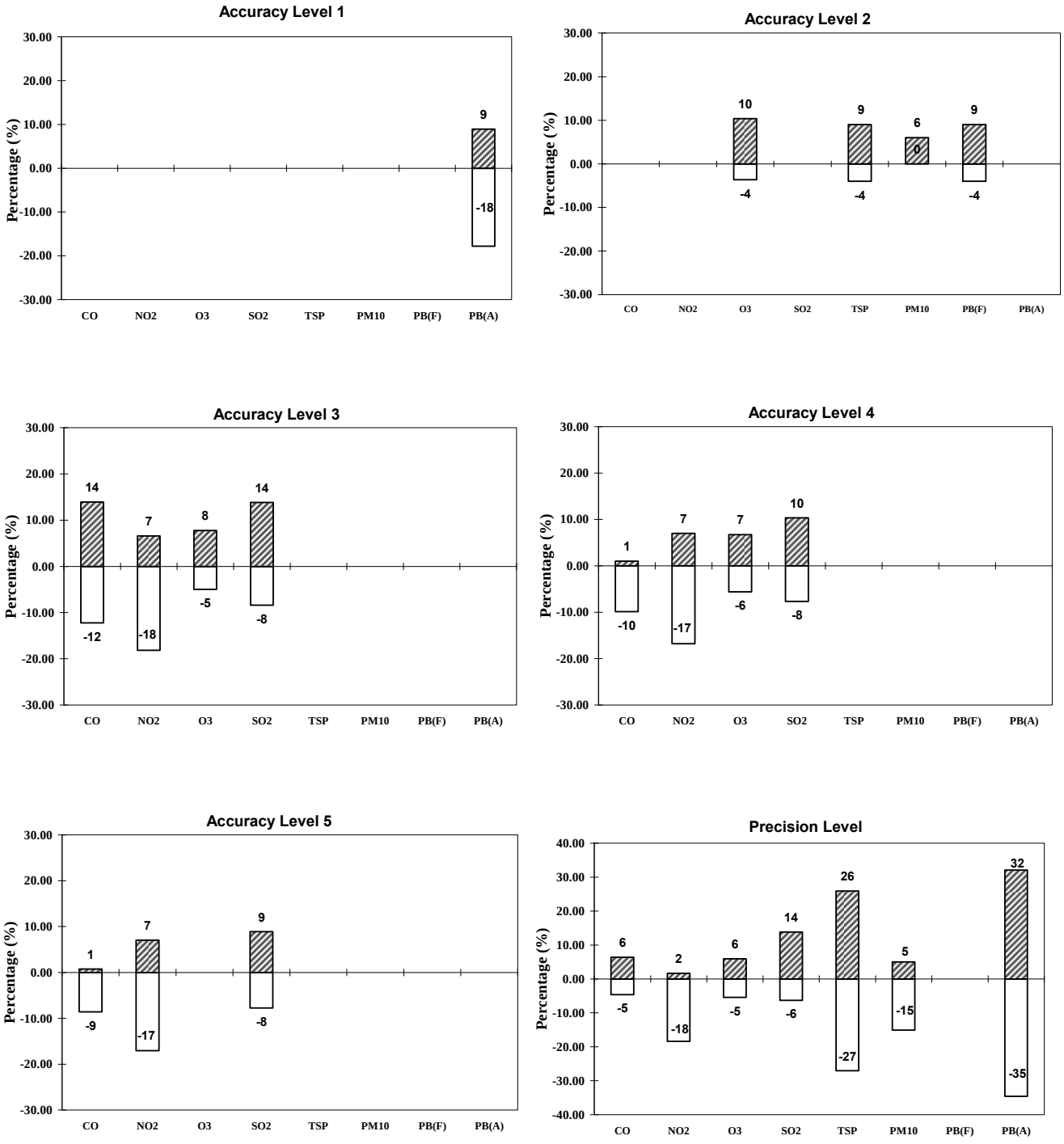
Figure 6-1 on the following page summarizes the 95 percent probability limits from all four quarterly reporting periods within the calendar year. The values presented were calculated from weighted arithmetic averages for each quarter's probability limits.

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). 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 1 graph (Figure 6-1). Challenging the equipment quarterly with 3 known concentration levels of audit gas, which are shown as Accuracy Levels 2, 3, 4 and 5 (Figure 6-1), respectively, determines accuracy for continuous analyzers.

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 6-1.

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 6-1. 2008 Annual Accuracy and Precision Probability Limits, 95% Lower/Upper Limits.



CHAPTER 7. EMISSION INVENTORIES

Point Sources

An emission inventory is a compilation of data describing emissions from different sources of air pollution. The source may be a utility, refinery, automobile, train, etc. Each type of source can be placed into a point, area or mobile source category. A point source is a stationary source that can best be described as a manufacturing plant or a similar entity having one or more emissions units discharging air emissions into the atmosphere, and located at one specific geographic area.

Emissions from point sources are reported for 65 of the Commonwealth's 67 counties. Point source emissions from sources located in Allegheny County are reported directly to EPA by the Allegheny County Health Department. Point source emissions from sources located in Philadelphia Counties are reported directly by the Philadelphia County Health Department, Air Management Services.

There are many other purposes and uses of an emission inventory but in general it is the primary tool to identify where the State currently stands in terms of air pollution and what needs to be done in the future to reduce emissions. An inventory serves as a starting point, or a baseline, which allows the Commonwealth to develop goals and how best to meet them.

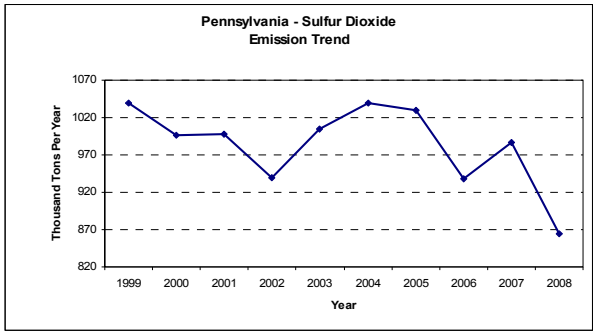
Applications for the use of emission inventory data are numerous. In addition to use as a building block in developing air quality control strategies and maintenance strategies, other specific uses of this data include:

- State oversight of point sources
- Public requests and web sites
- Use in the EPA National Annual Trends Report
- Emission trading
- Compliance demonstrations
- Emission fee programs
- To develop new methodologies and techniques to estimate emissions (emission factors)
- Document regulatory impact assessments
- Permitting
- Air Quality assessments
- Human exposure modeling

Statewide trends for the most common point source pollutants are shown below. These trends do not include data from Allegheny or Philadelphia County.

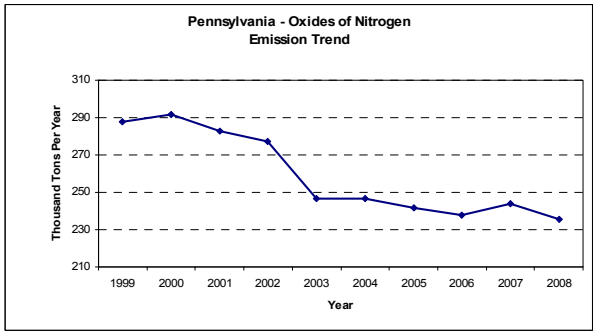
The statewide trend for point source sulfur dioxide emissions for 1999 to 2008 is shown in Figure 7-1, representing a 17% decrease over the last ten years.

Figure 7-1. Trend in Sulfur Dioxide Point Source Emissions, 1999-2008.



The statewide trend for point source nitrogen oxide emissions for 1999 to 2008 is shown in Figure 7-2, representing an 18% decrease over the last ten years.

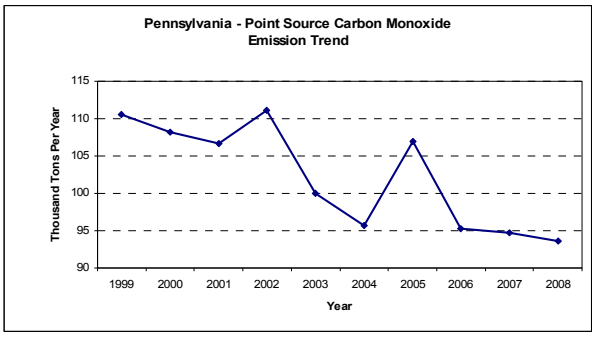
Figure 7-2. Trend in Nitrogen Oxide Point Source Emissions, 1999-2008.



The statewide trend for point source carbon monoxide emissions for 1999 to 2008 is shown in

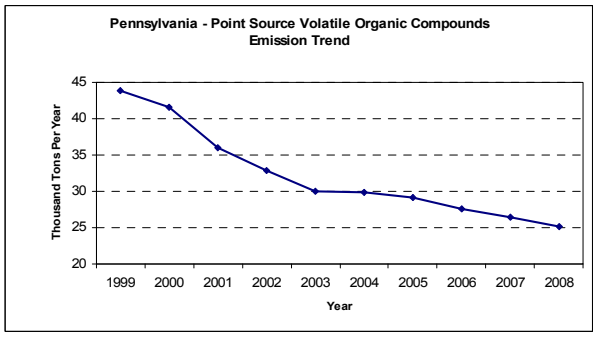
Figure 7-3, representing a 15% decrease over the last ten years.

Figure 7-3. Trend in Carbon Monoxide Point Source Emissions, 1999-2008.



The statewide trend for point source volatile organic compounds (VOCs) emissions for 1999 to 2008 is shown in Figure 7-4, representing a 42% decrease over the last ten years.

Figure 7-4. Trend in Volatile Organic Compound Point Source Emissions, 1999-2008.



Historical data for each of these pollutants is listed by county in Appendix B, Tables B-26-29.

APPENDIX A. AIR POLLUTION CONTROL AGENCIES IN PENNSYLVANIA

Allegheny County Health Department
39th Street and Penn Avenue
Pittsburgh, PA 15201
(412) 578-8104
Website: http://www.achd.net/
(Choose “Environmental”, then “Air Quality” from the left-hand menu)

City of Philadelphia
Department of Public Health
Air Management Services
321 University Avenue
Philadelphia, PA 19104
(215) 685-7584
Website: http://www.phila.gov/health/units/ams/

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
Website: http://www.depweb.state.pa.us/
(Choose “Air” from the left-hand menu)

APPENDIX B. DATA TABLES

Table B-1. Ozone Summary (8-Hour).

Year: 2008 (April – October)

Units: parts per million

Site Name	PA Site Code	Number of Valid Days	Percent Valid Data	1st Daily Max 8-hour Mean	1st Daily Max Date MM/DD	2nd Daily Max 8-hour Mean	2nd Daily Max Date MM/DD	3rd Daily Max 8-hour Mean	3rd Daily Max Date MM/DD	4th Daily Max 8-hour Mean	4th Daily Max Date MM/DD
Southeast Pennsylvania Air Basin											
Bristol	P01	210	98	0.102	06/10	0.092	06/14	0.091	07/18	0.089	07/22
Chester	P11	214	100	0.092	07/18	0.086	07/17	0.083	06/21	0.081	06/14
Norristown	P21	207	97	0.096	07/18	0.090	07/03	0.084	04/19	0.084	06/13
New Garden Airport	P30	212	99	0.094	07/18	0.088	07/03	0.086	07/29	0.084	04/19
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	213	100	0.091	06/13	0.085	04/19	0.083	07/18	0.080	04/18
Easton	A20	209	98	0.091	06/13	0.079	04/19	0.078	07/18	0.076	04/18
Freemansburg	A25	214	100	0.094	06/13	0.082	04/19	0.080	06/10	0.075	04/18
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	212	99	0.094	04/19	0.086	06/13	0.079	09/04	0.076	05/07
Nanticoke	S26	205	96	0.091	04/19	0.084	06/13	0.074	04/18	0.074	07/12
Wilkes-Barre	S28	211	99	0.091	04/19	0.080	06/13	0.078	04/18	0.075	09/04
Peckville	S29	214	100	0.099	04/19	0.084	06/13	0.076	09/04	0.075	04/18
Northeast Region Non-Air Basin											
Swiftwater	230	210	98	0.093	06/13	0.092	04/19	0.076	04/18	0.076	05/07
Reading Air Basin											
Reading Airport	R03	211	99	0.088	04/19	0.084	08/22	0.083	07/18	0.083	07/19
Harrisburg Air Basin											
Harrisburg	H11	206	96	0.091	06/13	0.083	04/19	0.082	09/04	0.079	04/18
Lancaster Air Basin											
Lancaster	L01	214	100	0.083	04/19	0.082	07/16	0.081	07/17	0.080	06/13
York Air Basin											
York	Y01	213	100	0.096	06/13	0.081	04/19	0.081	07/18	0.081	09/04
Southcentral Region Non-Air Basin											
Perry County	305	212	99	0.089	04/19	0.086	06/13	0.082	09/04	0.081	08/22
Hershey	306	207	97	0.095	06/13	0.082	09/04	0.079	07/19	0.078	04/18
Altoona	308	204	95	0.082	07/19	0.078	09/04	0.075	05/30	0.075	09/03
Kutztown	311	210	98	0.086	04/19	0.082	06/13	0.081	07/19	0.077	06/10
Methodist Hill	313	201	94	0.075	09/03	0.074	04/18	0.074	06/13	0.073	06/12
Biglerville	D14	214	100	0.085	06/13	0.078	04/19	0.077	04/18	0.076	09/04
Lancaster Downwind	L12	213	100	0.083	07/17	0.082	04/19	0.079	06/13	0.077	07/16
York Downwind	Y11	188	97	0.089	07/16	0.085	06/13	0.079	07/18	0.078	05/07

Primary and Secondary 8-hour National Ambient Air Quality Standard

0.075 parts per million for 4th daily maximum 8-hour mean, averaged over 3 years

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-1. Ozone Summary (8-Hour) (cont.).

Year: 2008 (April – October)

Units: parts per million

Site Name	PA Site Code	Number of Valid Days	Percent Valid Data	1st Daily Max 8-hour Mean	1st Daily Max Date MM/DD	2nd Daily Max 8-hour Mean	2nd Daily Max Date MM/DD	3rd Daily Max 8-hour Mean	3rd Daily Max Date MM/DD	4th Daily Max 8-hour Mean	4th Daily Max Date MM/DD
Northcentral Region Non-Air Basin											
State College	409	209	98	0.081	04/19	0.077	09/04	0.074	04/18	0.074	05/30
Montoursville	410	203	95	0.089	06/13	0.087	04/19	0.084	08/22	0.082	09/04
Moshannon	D09	204	95	0.078	04/19	0.078	07/18	0.078	07/19	0.077	04/18
Tioga County	D13	193	90	0.085	04/19	0.081	09/04	0.075	06/13	0.073	08/22
Johnstown Air Basin											
Johnstown	J01	212	99	0.072	07/19	0.070	09/03	0.069	09/04	0.067	07/29
Monongahela Valley Air Basin											
Charleroi	M01	211	99	0.080	09/04	0.078	06/11	0.073	07/19	0.071	08/21
Lower Beaver Valley Air Basin											
Beaver Falls	B11	214	100	0.079	09/04	0.076	08/21	0.075	06/12	0.074	07/19
Hookstown	B23	207	97	0.079	08/21	0.078	09/04	0.077	09/03	0.073	05/30
Brighton Township	B27	204	95	0.079	07/29	0.077	07/19	0.076	05/30	0.075	08/21
Allegheny County Air Basin											
Pittsburgh	D12	208	97	0.080	07/29	0.075	07/19	0.075	08/21	0.074	07/17
Southwest Region Non-Air Basin											
Florence	504	191	89	0.081	07/29	0.078	08/21	0.077	09/03	0.077	09/04
Washington	508	213	100	0.072	06/11	0.072	08/21	0.071	07/19	0.069	04/18
Murrysville	510	213	100	0.083	07/29	0.079	09/04	0.072	07/16	0.072	07/19
Kittanning	512	214	100	0.087	07/19	0.079	08/21	0.079	09/04	0.078	05/30
Greensburg	513	214	100	0.082	09/03	0.080	07/29	0.075	07/16	0.075	07/19
Holbrook	514	206	96	0.084	06/11	0.075	04/18	0.073	05/02	0.073	08/21
Strongstown	515	214	100	0.083	07/29	0.078	09/04	0.077	09/03	0.076	07/17
Upper Beaver Valley Air Basin											
New Castle	B21	211	99	0.083	09/04	0.077	08/21	0.072	06/12	0.069	04/19
Erie Air Basin											
Erie	E10	211	99	0.079	04/19	0.077	04/18	0.075	07/28	0.074	07/18
Northwest Region Non-Air Basin											
Farrell	606	214	100	0.085	07/18	0.084	07/29	0.081	09/04	0.078	04/18

Primary and Secondary 8-hour National Ambient Air Quality Standard

0.075 parts per million for 4th daily maximum 8-hour mean, averaged over 3 years

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-2. Ozone Summary (1-Hour).

Year: 2008 (April – October)

Units: parts per million

Site Name	PA Site Code	Number of Valid Days	Percent Valid Data	1st Daily Max 1-hour Mean	1st Daily Max Date MM/DD	2nd Daily Max 1-hour Mean	2nd Daily Max Date MM/DD	3rd Daily Max 1-hour Mean	3rd Daily Max Date MM/DD	4th Daily Max 1-hour Mean	4th Daily Max Date MM/DD
Southeast Pennsylvania Air Basin											
Bristol	P01	212	99	0.119	06/10	0.109	06/07	0.108	07/18	0.105	07/22
Chester	P11	214	100	0.116	07/18	0.111	07/17	0.096	06/21	0.093	07/03
Norristown	P21	208	97	0.113	07/18	0.099	07/03	0.094	06/21	0.093	07/30
New Garden Airport	P30	213	99	0.114	07/18	0.101	08/18	0.099	07/03	0.096	07/29
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	214	100	0.100	06/13	0.098	04/19	0.091	07/18	0.088	04/18
Easton	A20	209	97	0.106	06/13	0.093	04/19	0.085	07/18	0.084	04/18
Freemansburg	A25	214	100	0.107	06/13	0.095	04/19	0.088	06/10	0.086	06/14
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	212	100	0.102	04/19	0.093	09/04	0.088	06/13	0.084	05/07
Nanticoke	S26	207	98	0.102	04/19	0.089	06/13	0.086	08/22	0.083	07/12
Wilkes-Barre	S28	211	99	0.103	04/19	0.087	04/18	0.085	06/13	0.083	09/04
Peckville	S29	214	100	0.108	04/19	0.089	09/04	0.087	06/13	0.080	05/07
Northeast Region Non-Air Basin											
Swiftwater	230	213	99	0.108	06/13	0.102	04/19	0.087	09/04	0.081	06/10
Reading Air Basin											
Reading Airport	R03	211	99	0.098	07/19	0.098	08/22	0.095	07/17	0.095	07/18
Harrisburg Air Basin											
Harrisburg	H11	210	98	0.105	06/13	0.092	04/19	0.091	09/04	0.088	04/18
Lancaster Air Basin											
Lancaster	L01	214	100	0.101	06/10	0.097	07/16	0.096	07/17	0.089	04/19
York Air Basin											
York	Y01	213	100	0.114	06/13	0.099	06/21	0.091	07/18	0.091	09/04
Southcentral Region Non-Air Basin											
Perry County	305	212	100	0.093	09/04	0.092	04/19	0.091	08/22	0.089	06/13
Hershey	306	207	99	0.112	06/13	0.090	09/04	0.089	07/19	0.086	04/18
Altoona	308	205	95	0.090	09/03	0.088	07/19	0.084	09/04	0.080	05/30
Kutztown	311	211	98	0.095	04/19	0.092	06/10	0.092	07/18	0.091	07/19
Methodist Hill	313	204	96	0.085	06/13	0.081	07/16	0.081	08/22	0.080	07/17
Biglerville	D14	214	100	0.093	06/13	0.084	04/19	0.083	08/21	0.080	04/18
Lancaster Downwind	L12	214	99	0.103	06/10	0.098	07/17	0.090	06/14	0.089	08/22
York Downwind	Y11	190	99	0.108	06/10	0.101	06/13	0.099	07/16	0.091	07/18

Former Primary and Secondary Daily 1-hour National Ambient Air Quality Standard is 0.12 parts per million

(not to be exceeded more than once per year).

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-2. Ozone Summary (1-Hour) (cont.).

Year: 2008 (April – October)

Units: parts per million

Site Name	PA Site Code	Number of Valid Days	Percent Valid Data	1st Daily Max 1-hour Mean	1st Daily Max Date MM/DD	2nd Daily Max 1-hour Mean	2nd Daily Max Date MM/DD	3rd Daily Max 1-hour Mean	3rd Daily Max Date MM/DD	4th Daily Max 1-hour Mean	4th Daily Max Date MM/DD
Northcentral Region Non-Air Basin											
State College	409	211	98	0.084	04/19	0.082	09/04	0.080	07/19	0.078	04/18
Montoursville	410	205	97	0.096	09/04	0.094	04/19	0.094	06/13	0.092	08/22
Moshannon	D09	205	96	0.091	07/18	0.085	04/19	0.084	07/19	0.083	09/04
Tioga County	D13	195	91	0.091	04/19	0.087	09/04	0.081	06/13	0.078	08/22
Johnstown Air Basin											
Johnstown	J01	212	99	0.089	09/03	0.081	07/19	0.079	09/04	0.078	08/01
Monongahela Valley Air Basin											
Charleroi	M01	211	99	0.095	06/11	0.095	09/04	0.084	07/19	0.082	07/29
Lower Beaver Valley Air Basin											
Beaver Falls	B11	214	100	0.098	09/04	0.087	09/02	0.085	08/21	0.084	09/03
Hookstown	B23	209	97	0.086	09/04	0.085	09/03	0.083	05/30	0.083	08/21
Brighton Township	B27	208	97	0.091	07/29	0.085	05/30	0.084	09/03	0.083	08/21
Allegheny County Air Basin											
Pittsburgh	D12	208	97	0.095	07/29	0.092	08/21	0.089	09/04	0.084	09/02
Southwest Region Non-Air Basin											
Florence	504	201	93	0.088	07/29	0.088	09/04	0.084	08/21	0.083	09/03
Washington	508	213	100	0.084	08/21	0.079	06/11	0.078	07/18	0.078	09/04
Murrysville	510	213	100	0.098	07/29	0.094	09/04	0.087	09/03	0.083	08/21
Kittanning	512	214	100	0.095	09/04	0.094	07/19	0.094	09/02	0.091	05/30
Greensburg	513	214	99	0.094	09/03	0.089	07/29	0.081	07/16	0.081	07/17
Holbrook	514	207	97	0.097	06/11	0.087	08/21	0.081	09/04	0.080	04/18
Strongstown	515	214	100	0.097	07/29	0.090	09/04	0.083	09/03	0.082	07/17
Upper Beaver Valley Air Basin											
New Castle	B21	212	99	0.100	09/04	0.085	08/21	0.079	06/12	0.078	04/19
Erie Air Basin											
Erie	E10	211	99	0.090	07/28	0.086	04/19	0.082	04/18	0.082	07/18
Northwest Region Non-Air Basin											
Farrell	606	214	100	0.098	09/04	0.097	07/18	0.095	07/29	0.085	08/21

Former Primary and Secondary Daily 1-hour National Ambient Air Quality Standard is 0.12 parts per million

(not to be exceeded more than once per year).

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-3. Eight-Hour Ozone Days Greater than 75 ppb and Maximums Summary (2006 – 2008).

Units: parts per billion

Station	Design Value	2006 Daily Maximums					2007 Daily Maximums					2008 Daily Maximums				
		Days > 75	1st 8-Hr	2nd 8-Hr	3rd 8-Hr	4th 8-Hr	Days > 75	1st 8-Hr	2nd 8-Hr	3rd 8-Hr	4th 8-Hr	Days > 75	1st 8-Hr	2nd 8-Hr	3rd 8-Hr	4th 8-Hr
Frankford (Lab)	67	0	72	69	68	66	3	94	82	79	73	0	74	64	63	62
Northwest (Rox)	78*	4	85	81	76	76	11	87	84	81	81	***	***	***	***	***
Northeast (Airport)	89	16	96	87	86	85	21	106	104	97	95	15	99	88	87	87
Southwest (Elm)	81*	7	86	85	83	81	6	110	95	89	82	***	***	***	***	***
Bristol	92	14	103	93	88	87	24	121	119	109	102	12	102	92	91	89
Chester	83	12	92	90	87	82	13	107	89	86	86	8	92	86	83	81
Norristown	84	14	89	87	86	84	15	91	88	86	84	13	96	90	84	84
New Garden (Airport)	82	12	100	89	86	83	13	116	87	85	81	7	94	88	86	84
Allentown	80	9	92	89	89	80	12	91	87	82	81	9	91	85	83	80
Easton	77	5	99	88	79	78	7	88	82	82	78	5	91	79	78	76
Freemansburg	78	7	96	89	87	78	11	93	89	84	83	3	94	82	80	75
Scranton	74	1	80	73	72	70	5	81	80	78	78	4	94	86	79	76
Nanticoke	67	0	69	68	68	64	1	79	69	66	63	2	91	84	74	74
Wilkes-Barre	75	2	82	80	75	73	5	80	79	78	77	3	91	80	78	75
Peckville	72	2	78	77	75	71	0	72	72	72	71	3	99	84	76	75
Swiftwater	76	5	82	82	77	77	2	86	78	75	75	4	93	92	76	76
Reading Airport	82*	***	***	***	***	***	10	90	85	83	82	13	88	84	83	83
Harrisburg	79	6	87	83	78	77	15	86	83	82	82	4	91	83	82	79
Lancaster	82	11	93	88	86	85	17	92	85	83	83	8	83	82	81	80
York	80	5	84	83	79	77	17	91	88	86	84	7	96	81	81	81
Perry County	77	4	83	81	77	77	2	77	76	73	73	6	89	86	82	81
Hershey	79	7	88	85	82	81	11	80	80	79	79	7	95	82	79	78
Altoona	72	2	80	77	71	71	1	77	74	73	71	2	82	78	75	75
Kutztown	77*	***	***	***	***	***	***	***	***	***	***	7	86	82	81	77
Methodist Hill	72	0	71	69	66	66	6	79	77	77	77	0	75	74	74	73
Biglerville (PSU)	77	3	77	76	76	74	10	83	83	81	81	4	85	78	77	76
Lancaster DW	77*	***	***	***	***	***	***	***	***	***	***	5	83	82	79	77
York DW	78*	***	***	***	***	***	***	***	***	***	***	6	89	85	79	78
State College (PSU)	75	4	78	78	78	78	3	82	79	77	74	2	81	77	74	74
Montoursville	77	2	80	79	74	73	4	83	78	78	77	6	89	87	84	82
Moshannon (PSU)	73	1	81	73	72	72	2	78	76	74	72	4	78	78	78	77
Tioga County (PSU)	73	0	75	74	74	73	2	78	77	75	74	2	85	81	75	73
Johnstown	70	0	75	75	75	73	2	79	77	75	72	0	72	70	69	67
Charleroi	75	4	85	80	79	79	4	84	83	83	77	2	80	78	73	71
Beaver Falls	73	2	83	81	74	69	4	79	79	79	77	2	79	76	75	74
Hookstown	78	8	85	82	82	82	8	93	87	80	80	3	79	78	77	73
Brighton Twp	74	4	88	84	77	77	3	84	79	77	72	3	79	77	76	75
Florence	76	4	85	78	77	76	3	77	76	76	75	4	81	78	77	77
Washington	70	1	76	75	70	70	3	78	77	76	73	0	72	72	71	69

Primary and Secondary 8-hour National Ambient Air Quality Standard

0.075 parts per million for 4th daily maximum averaged over 3 years

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-3. Eight-Hour Ozone Days Greater than 75 ppb and Maximums Summary (2006 – 2008) (cont.).

Units: parts per billion

Station	Design Value	2006					2007					2008				
		Daily Maximums					Daily Maximums					Daily Maximums				
		Days	1st	2nd	3rd	4th	Days	1st	2nd	3rd	4th	Days	1st	2nd	3rd	4th
		> 75	8-Hr	8-Hr	8-Hr	8-Hr	> 75	8-Hr	8-Hr	8-Hr	8-Hr	> 75	8-Hr	8-Hr	8-Hr	8-Hr
Murrysville	74	1	76	73	72	71	4	88	82	81	79	2	83	79	72	72
Kittanning	**80**	11	101	89	84	80	19	100	91	90	83	9	87	79	79	78
Greensburg	**76**	4	86	85	79	76	4	85	82	78	77	2	82	80	75	75
Holbrook	**76**	5	85	81	78	77	8	80	79	79	78	1	84	75	73	73
Strongstown	**76**	3	87	85	77	73	9	82	81	81	79	4	83	78	77	76
Pittsburgh (Carnegie SC)	**77**	7	83	81	79	78	11	86	83	82	81	1	80	75	75	74
Harrison Twp	**86**	8	93	91	88	88	13	99	89	87	86	10	91	88	86	85
Lawrenceville	**80**	9	86	85	80	78	12	92	91	85	83	7	84	79	79	79
South Fayette	**77***	8	87	81	81	80	9	87	78	78	77	3	79	78	78	75
New Castle	71	2	79	77	74	70	3	76	76	76	75	2	83	77	72	69
Erie	**78**	4	90	83	77	77	13	98	87	84	84	2	79	77	75	74
Farrell	**80**	8	93	86	86	79	14	86	85	84	83	7	85	84	81	78

Primary and Secondary 8-hour National Ambient Air Quality Standard

0.075 parts per million for 4th daily maximum averaged over 3 years

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-4. One-hour Ozone Days Greater than 124 ppb and Maximums Summary (2006 – 2008).

Units: parts per billion

Station	Design Value	2006					2007					2008				
		Daily Maximums					Daily Maximums					Daily Maximums				
		Days	1st	2nd	3rd	4th	Days	1st	2nd	3rd	4th	Days	1st	2nd	3rd	4th
		> 124	1-Hr	1-Hr	1-Hr	1-Hr	> 124	1-Hr	1-Hr	1-Hr	1-Hr	> 124	1-Hr	1-Hr	1-Hr	1-Hr
Frankford (Lab)	94	0	80	77	77	76	0	107	104	100	94	0	93	78	77	73
Northwest (Rox)	96	0	98	98	96	89	0	98	96	95	94	***	***	***	***	***
Northeast (Airport)	118	0	108	106	104	96	2	135	126	118	115	0	120	110	109	106
Southwest (Elm)	96	0	94	93	93	92	1	136	113	104	96	***	***	***	***	***
Bristol	123	0	116	112	109	98	3	142	141	140	123	0	119	109	108	105
Chester	103	0	103	102	102	96	1	128	102	101	101	0	116	111	96	93
Norristown	101	0	96	96	95	95	0	107	103	101	100	0	113	99	94	93
New Garden (Airport)	107	0	115	107	104	102	1	141	102	94	94	0	114	101	99	96
Allentown	100	0	115	100	98	94	0	104	102	90	90	0	100	98	91	88
Easton	95	0	118	95	93	93	0	105	95	94	88	0	106	93	85	84
Freemansburg	105	0	111	100	94	91	0	105	105	93	91	0	107	95	88	86
Scranton	90	0	90	82	79	78	0	92	90	89	87	0	102	93	88	84
Nanticoke	87	0	74	73	72	71	0	88	87	79	77	0	102	89	86	83
Wilkes-Barre	89	0	94	84	80	77	0	89	89	88	85	0	103	87	85	83
Peckville	87	0	82	81	80	80	0	92	85	83	83	0	108	89	87	80
Swiftwater	92	0	119	88	87	86	0	92	90	86	85	0	108	102	87	81
Reading Airport	98	***	***	***	***	***	0	102	98	94	92	0	98	98	95	95
Harrisburg	97	0	96	91	91	85	0	105	105	97	96	0	105	92	91	88
Lancaster	104	0	106	104	100	100	0	107	104	102	99	0	101	97	96	89
York	105	0	95	94	89	87	0	121	108	105	100	0	114	99	91	91
Perry County	93	0	101	94	94	88	0	89	88	83	82	0	93	92	91	89
Hershey	96	0	97	96	96	96	0	102	95	92	92	0	112	90	89	86
Altoona	85	0	95	82	80	78	0	85	81	80	80	0	90	88	84	80
Kutztown	91	***	***	***	***	***	***	***	***	***	***	0	95	92	92	91
Methodist Hill	86	0	79	78	76	71	0	90	89	89	86	0	85	81	81	80
Biglerville (PSU)	90	0	86	84	82	80	0	101	91	90	88	0	93	84	83	80
Lancaster DW	89	***	***	***	***	***	***	***	***	***	***	0	103	98	90	
York DW	91	***	***	***	***	***	***	***	***	***	***	0	108	101	99	
State College (PSU)	84	0	84	83	82	81	0	90	87	86	82	0	84	82	80	78
Montoursville	92	0	89	83	81	81	0	91	91	87	85	0	96	94	94	92
Moshannon (PSU)	85	0	92	79	78	77	0	88	83	81	80	0	91	85	84	83
Tioga County (PSU)	85	0	86	80	77	75	0	85	84	81	80	0	91	87	81	78
Johnstown	87	0	89	85	83	82	0	96	87	86	85	0	89	81	79	78
Charleroi	95	0	100	97	92	88	0	99	95	89	87	0	95	95	84	82
Beaver Falls	91	0	91	90	84	84	0	97	92	89	88	0	98	87	85	84
Hookstown	92	0	95	91	88	87	0	99	96	92	91	0	86	85	83	83
Brighton Twp	90	0	92	90	87	87	0	96	87	84	84	0	91	85	84	83
Florence	91	0	93	91	87	86	0	96	94	87	86	0	88	88	84	83
Washington	84	0	91	89	81	80	0	90	84	81	81	0	84	79	78	78

Former Primary and Secondary Daily 1-hour National Ambient Air Quality Standard is 0.12 parts per million

(not to be exceeded more than once per year)

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-4. One-hour Ozone Days Greater than 124 ppb and Maximums Summary (2006 – 2008) (cont.).

Units: parts per billion

Station	Design Value	2006 Daily Maximums					2007 Daily Maximums					2008 Daily Maximums				
		Days > 124	1st 1-Hr	2nd 1-Hr	3rd 1-Hr	4th 1-Hr	Days > 124	1st 1-Hr	2nd 1-Hr	3rd 1-Hr	4th 1-Hr	Days > 124	1st 1-Hr	2nd 1-Hr	3rd 1-Hr	4th 1-Hr
Murrysville	94	0	82	81	81	80	0	98	98	92	91	0	98	94	87	83
Kittanning	102	0	118	101	101	96	0	117	106	102	98	0	95	94	94	91
Greensburg	93	0	95	95	91	91	0	93	88	88	87	0	94	89	81	81
Holbrook	90	0	94	92	88	87	0	90	90	87	85	0	97	87	81	80
Strongstown	95	0	106	93	87	84	0	89	88	86	86	0	97	90	83	82
Pittsburgh (Carnegie SC)	95	0	94	92	91	91	0	113	104	97	92	0	95	92	89	84
Harrison Twp	103	0	118	103	100	96	0	111	106	103	99	0	100	99	98	97
Lawrenceville	97	0	96	95	91	90	0	118	114	97	94	0	99	95	94	92
South Fayette	91	0	94	92	88	88	0	97	89	87	85	0	91	86	85	82
New Castle	87	0	88	88	86	79	0	87	87	87	86	0	100	85	79	78
Erie	100	0	100	93	93	91	0	107	102	100	100	0	90	86	82	82
Farrell	101	0	107	102	92	90	0	103	101	95	94	0	98	97	95	85

Former Primary and Secondary Daily 1-hour National Ambient Air Quality Standard is 0.12 parts per million

(not to be exceeded more than once per year)

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-5. Ozone Historical Trend.

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Southeast Pennsylvania Air Basin											
Bristol	0.145	0.121	0.131	0.135	0.121	0.098	0.121	0.112	0.141	0.109	2nd Max Daily 1-hour Average
P01	6	1	2	4	0	0	1	0	3	0	Number Days 1-hour ≥ 0.125 ppm
	0.112	0.099	0.104	0.111	0.087	0.082	0.089	0.087	0.102	0.089	4th Max Daily 8-hour Average
	32	21	28	28	16	7	15	14	24	12	Number Days 8-hour ≥ 0.075 ppm
Chester	0.130	0.117	0.108	0.125	0.118	0.109	0.119	0.102	0.102	0.111	2nd Max Daily 1-hour Average
P11	3	0	1	2	0	0	1	0	1	0	Number Days 1-hour ≥ 0.125 ppm
	0.100	0.091	0.093	0.103	0.080	0.081	0.087	0.082	0.086	0.081	4th Max Daily 8-hour Average
	31	13	20	33	12	6	10	12	13	8	Number Days 8-hour ≥ 0.075 ppm
Norristown	0.126	0.125	0.120	0.122	0.111	0.094	0.107	0.096	0.103	0.099	2nd Max Daily 1-hour Average
P21	2	2	1	1	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.104	0.100	0.096	0.096	0.085	0.083	0.090	0.084	0.084	0.084	4th Max Daily 8-hour Average
	32	20	24	27	8	8	20	14	15	13	Number Days 8-hour ≥ 0.075 ppm
New Garden Airport	***	0.095	0.122	0.139	0.115	0.102	0.109	0.107	0.102	0.101	2nd Max Daily 1-hour Average
P30	***	0	0	2	0	0	1	0	1	0	Number Days 1-hour ≥ 0.125 ppm
	***	0.077	0.105	0.104	0.085	0.085	0.092	0.083	0.081	0.084	4th Max Daily 8-hour Average
	***	5	32	46	10	16	23	12	13	7	Number Days 8-hour ≥ 0.075 ppm
West Chester	***	***	0.117	0.113	0.110	***	***	***	***	***	2nd Max Daily 1-hour Average
P32	***	***	0	1	0	***	***	***	***	***	Number Days 1-hour ≥ 0.125 ppm
	***	***	0.103	0.097	0.085	***	***	***	***	***	4th Max Daily 8-hour Average
	***	***	35	35	10	***	***	***	***	***	Number Days 8-hour ≥ 0.075 ppm
Allentown-Bethlehem-Easton Air Basin											
Allentown	0.125	0.112	0.126	0.114	0.109	0.101	0.101	0.100	0.102	0.098	2nd Max Daily 1-hour Average
A19	2	0	2	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.105	0.091	0.094	0.094	0.087	0.083	0.086	0.080	0.081	0.080	4th Max Daily 8-hour Average
	31	13	26	31	9	11	12	9	12	9	Number Days 8-hour ≥ 0.075 ppm
Easton	***	0.100	0.113	0.113	0.107	0.104	0.096	0.095	0.095	0.093	2nd Max Daily 1-hour Average
A20	***	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	***	0.083	0.092	0.092	0.083	0.083	0.080	0.078	0.078	0.076	4th Max Daily 8-hour Average
	***	6	20	24	7	9	10	5	7	5	Number Days 8-hour ≥ 0.075 ppm
Freemansburg	0.126	0.114	0.113	0.112	0.112	0.104	0.100	0.100	0.105	0.095	2nd Max Daily 1-hour Average
A25	2	1	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.107	0.092	0.094	0.090	0.087	0.088	0.086	0.078	0.083	0.075	4th Max Daily 8-hour Average
	35	15	28	25	10	15	11	7	11	3	Number Days 8-hour ≥ 0.075 ppm
Scranton-Wilkes-Barre Air Basin											
Scranton	0.107	0.082	0.097	0.122	0.099	0.088	0.096	0.082	0.090	0.093	2nd Max Daily 1-hour Average
S01	0	0	0	1	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.093	0.073	0.088	0.089	0.075	0.073	0.080	0.070	0.078	0.076	4th Max Daily 8-hour Average
	20	1	18	20	3	3	8	1	5	4	Number Days 8-hour ≥ 0.075 ppm

Primary and Secondary 8-hour National Ambient Air Quality Standards

8-Hour Mean = 0.075 parts per million for 4th daily maximum 8-hour mean, averaged over 3 years

Former 1-hour = 0.12 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-5. Ozone Historical Trend (cont.).

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Nanticoke	0.102	0.093	0.104	0.112	0.097	0.079	0.090	0.073	0.087	0.089	2nd Max Daily 1-hour Average
S26	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.086	0.076	0.086	0.089	0.077	0.068	0.074	0.064	0.063	0.074	4th Max Daily 8-hour Average
	10	6	11	21	4	0	2	0	1	2	Number Days 8-hour ≥ 0.075 ppm
Wilkes-Barre	0.111	0.086	0.100	0.119	0.098	0.088	0.095	0.084	0.089	0.087	2nd Max Daily 1-hour Average
S28	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.093	0.073	0.088	0.092	0.078	0.073	0.081	0.073	0.077	0.075	4th Max Daily 8-hour Average
	18	3	17	22	5	2	9	2	5	3	Number Days 8-hour ≥ 0.075 ppm
Peckville	0.115	0.090	0.099	0.122	0.097	0.085	0.093	0.081	0.085	0.089	2nd Max Daily 1-hour Average
S29	0	0	0	1	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.096	0.077	0.086	0.094	0.075	0.071	0.080	0.071	0.071	0.075	4th Max Daily 8-hour Average
	23	6	16	25	3	3	11	2	0	3	Number Days 8-hour ≥ 0.075 ppm
Northeast Region Non-Air Basin											
Swiftwater	***	***	***	***	***	***	***	0.088	0.090	0.102	2nd Max Daily 1-hour Average
230	***	***	***	***	***	***	***	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	***	***	***	***	***	***	***	0.077	0.075	0.076	4th Max Daily 8-hour Average
	***	***	***	***	***	***	***	5	2	4	Number Days 8-hour ≥ 0.075 ppm
Reading Air Basin											
Reading	0.123	0.105	0.125	0.113	0.094	0.089	0.099	***	***	***	2nd Max Daily 1-hour Average
R01	1	0	2	0	1	0	0	***	***	***	Number Days 1-hour ≥ 0.125 ppm
	0.102	0.084	0.099	0.095	0.080	0.076	0.085	***	***	***	4th Max Daily 8-hour Average
	26	7	20	27	5	5	15	***	***	***	Number Days 8-hour ≥ 0.075 ppm
Reading (Temporary)	***	***	***	***	***	***	***	0.095*	0.077	***	2nd Max Daily 1-hour Average
R02	***	***	***	***	***	***	***	0	0	***	Number Days 1-hour ≥ 0.125 ppm
	***	***	***	***	***	***	***	0.078*	0.063	***	4th Max Daily 8-hour Average
	***	***	***	***	***	***	***	6	1	***	Number Days 8-hour ≥ 0.075 ppm
Reading Airport	***	***	***	***	***	***	***	***	0.098	0.098	2nd Max Daily 1-hour Average
R03	***	***	***	***	***	***	***	***	0	0	Number Days 1-hour ≥ 0.125 ppm
	***	***	***	***	***	***	***	***	0.082	0.083	4th Max Daily 8-hour Average
	***	***	***	***	***	***	***	***	10	13	Number Days 8-hour ≥ 0.075 ppm
Harrisburg Air Basin											
Harrisburg	0.114	0.101	0.099	0.126	0.089	0.092	0.106	0.091	0.105	0.092	2nd Max Daily 1-hour Average
H11	0	0	0	2	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.095	0.079	0.086	0.098	0.074	0.076	0.084	0.077	0.082	0.079	4th Max Daily 8-hour Average
	22	6	22	24	3	4	10	6	15	4	Number Days 8-hour ≥ 0.075 ppm

Primary and Secondary 8-hour National Ambient Air Quality Standards

8-Hour Mean = 0.075 parts per million for 4th daily maximum 8-hour mean, averaged over 3 years

Former 1-hour = 0.12 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-5. Ozone Historical Trend (cont.).

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Lancaster Air Basin											
Lancaster	0.127	0.107	0.127	0.115	0.115	0.097	0.105	0.104	0.104	0.097	2nd Max Daily 1-hour Average
L01	2	0	2	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.102	0.090	0.097	0.096	0.083	0.081	0.085	0.085	0.083	0.080	4th Max Daily 8-hour Average
	30	9	30	27	6	8	18	11	17	8	Number Days 8-hour ≥ 0.075 ppm
York Air Basin											
York	0.121	0.112	0.104	0.124	0.114	0.091	0.101	0.094	0.108	0.099	2nd Max Daily 1-hour Average
Y01	1	0	0	1	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.094	0.090	0.087	0.101	0.081	0.077	0.089	0.077	0.084	0.081	4th Max Daily 8-hour Average
	23	11	24	25	6	5	16	5	17	7	Number Days 8-hour ≥ 0.075 ppm
Southcentral Region Non-Air Basin											
Perry County	0.106	0.099	0.102	0.110	0.095	0.081	0.099	0.094	0.088	0.092	2nd Max Daily 1-hour Average
305	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.090	0.073	0.089	0.088	0.084	0.069	0.082	0.077	0.073	0.081	4th Max Daily 8-hour Average
	25	3	21	23	6	0	12	4	2	6	Number Days 8-hour ≥ 0.075 ppm
Hershey	0.126	0.110	0.105	0.132	0.099	0.084	0.099	0.096	0.095	0.090	2nd Max Daily 1-hour Average
306	2	0	0	2	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.104	0.088	0.091	0.094	0.079	0.072	0.085	0.081	0.079	0.078	4th Max Daily 8-hour Average
	25	5	33	26	8	1	8	7	11	7	Number Days 8-hour ≥ 0.075 ppm
Altoona	0.111	0.104	0.107	0.102	0.104	0.083	0.090	0.082	0.081	0.088	2nd Max Daily 1-hour Average
308	0	0	0	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.091	0.080	0.083	0.089	0.083	0.073	0.077	0.071	0.071	0.075	4th Max Daily 8-hour Average
	16	8	16	24	4	0	4	2	1	2	Number Days 8-hour ≥ 0.075 ppm
Kutztown	0.128	0.101	0.119	0.106	0.084	***	***	***	***	***	2nd Max Daily 1-hour Average
(Grim Sci Bldg)	2	0	0	0	0	***	***	***	***	***	Number Days 1-hour ≥ 0.125 ppm
310	0.099	0.080	0.091	0.091	0.072	***	***	***	***	***	4th Max Daily 8-hour Average
	28	4	23	24	3	***	***	***	***	***	Number Days 8-hour ≥ 0.075 ppm
Kutztown	***	***	***	***	***	***	***	***	***	0.092	2nd Max Daily 1-hour Average
311	***	***	***	***	***	***	***	***	***	0	Number Days 1-hour ≥ 0.125 ppm
	***	***	***	***	***	***	***	***	***	0.077	4th Max Daily 8-hour Average
	***	***	***	***	***	***	***	***	***	7	Number Days 8-hour ≥ 0.075 ppm
Methodist Hill	0.115	0.100	0.104	0.115	0.085	0.078	0.082	0.078	0.089	0.081	2nd Max Daily 1-hour Average
313	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.098	0.085	0.095	0.104	0.080	0.071	0.074	0.066	0.077	0.073	4th Max Daily 8-hour Average
	41	15	42	42	5	1	1	0	6	0	Number Days 8-hour ≥ 0.075 ppm
Biglerville	***	***	0.096	0.104	0.102	0.079	0.091	0.084	0.091	0.084	2nd Max Daily 1-hour Average
D14	***	***	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	***	***	0.088	0.093	0.076	0.072	0.080	0.074	0.081	0.076	4th Max Daily 8-hour Average
	***	***	0	22	4	0	13	3	10	4	Number Days 8-hour ≥ 0.075 ppm

Primary and Secondary 8-hour National Ambient Air Quality Standards

8-Hour Mean = 0.075 parts per million for 4th daily maximum 8-hour mean, averaged over 3 years

Former 1-hour = 0.12 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-5. Ozone Historical Trend (cont.).

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Lancaster Downwind	***	***	***	***	***	***	***	***	***	0.098	2nd Max Daily 1-hour Average
L12	***	***	***	***	***	***	***	***	***	0	Number Days 1-hour ≥ 0.125 ppm
	***	***	***	***	***	***	***	***	***	0.077	4th Max Daily 8-hour Average
	***	***	***	***	***	***	***	***	***	5	Number Days 8-hour ≥ 0.075 ppm
York Downwind	***	***	***	***	***	***	***	***	***	0.101	2nd Max Daily 1-hour Average
Y11	***	***	***	***	***	***	***	***	***	0	Number Days 1-hour ≥ 0.125 ppm
	***	***	***	***	***	***	***	***	***	0.078	4th Max Daily 8-hour Average
	***	***	***	***	***	***	***	***	***	6	Number Days 8-hour ≥ 0.075 ppm
Northcentral Region Non-Air Basin											
State College	***	0.101	0.097	0.108	0.100	0.081	0.091	0.083	0.087	0.082	2nd Max Daily 1-hour Average
409	***	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	***	0.079	0.086	0.090	0.082	0.074	0.083	0.078	0.074	0.074	4th Max Daily 8-hour Average
	***	6	17	21	8	2	8	4	3	2	Number Days 8-hour ≥ 0.075 ppm
Montoursville	***	***	***	0.112	0.102	0.091	0.099	0.083	0.091	0.094	2nd Max Daily 1-hour Average
410	***	***	***	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	***	***	***	0.091	0.083	0.074	0.082	0.073	0.077	0.082	4th Max Daily 8-hour Average
	***	***	***	25	7	3	9	2	4	6	Number Days 8-hour ≥ 0.075 ppm
Moshannon	0.092	0.105	0.102	0.106	0.103	0.082	0.096	0.079	0.083	0.085	2nd Max Daily 1-hour Average
D09	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.081	0.079	0.089	0.095	0.087	0.074	0.086	0.072	0.072	0.077	4th Max Daily 8-hour Average
	15	10	18	25	7	1	12	1	2	4	Number Days 8-hour ≥ 0.075 ppm
Tiadaghton	0.091	0.092	0.089	0.101	0.094	0.080	***	***	***	***	2nd Max Daily 1-hour Average
D10	0	0	0	0	0	0	***	***	***	***	Number Days 1-hour ≥ 0.125 ppm
	0.076	0.073	0.080	0.084	0.076	0.073	***	***	***	***	4th Max Daily 8-hour Average
	4	3	7	13	4	2	***	***	***	***	Number Days 8-hour ≥ 0.075 ppm
Penn Nursery	0.099	0.109	0.091	0.113	0.109	0.078	***	***	***	***	2nd Max Daily 1-hour Average
D11	0	0	0	0	0	0	***	***	***	***	Number Days 1-hour ≥ 0.125 ppm
	0.085	0.075	0.082	0.091	0.093	0.069	***	***	***	***	4th Max Daily 8-hour Average
	15	3	16	33	9	0	***	***	***	***	Number Days 8-hour ≥ 0.075 ppm
Tioga County	0.093*	0.103	0.094	0.118	0.102	0.085	0.086	0.080	0.084	0.087	2nd Max Daily 1-hour Average
D13	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.082*	0.078	0.083	0.093	0.084	0.079	0.080	0.073	0.074	0.073	4th Max Daily 8-hour Average
	10	5	18	23	4	5	8	0	2	2	Number Days 8-hour ≥ 0.075 ppm
Johnstown Air Basin											
Johnstown	0.107	0.104	0.106	0.106	0.098	0.081	0.094	0.085	0.087	0.081	2nd Max Daily 1-hour Average
J01	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.090	0.086	0.090	0.088	0.083	0.071	0.077	0.073	0.072	0.067	4th Max Daily 8-hour Average
	21	10	18	21	5	1	6	0	2	0	Number Days 8-hour ≥ 0.075 ppm
Monongahela Valley Air Basin											

Primary and Secondary 8-hour National Ambient Air Quality Standards

8-Hour Mean = 0.075 parts per million for 4th daily maximum 8-hour mean, averaged over 3 years

Former 1-hour = 0.12 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-5. Ozone Historical Trend (cont.).

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Charleroi	0.115	0.110	0.102	0.119	0.124	0.085	0.098	0.097	0.095	0.095	2nd Max Daily 1-hour Average
M01	0	0	0	1	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.096	0.080	0.087	0.093	0.088	0.072	0.080	0.079	0.077	0.071	4th Max Daily 8-hour Average
	21	9	19	29	7	2	9	4	4	2	Number Days 8-hour ≥ 0.075 ppm
Lower Beaver Valley Air Basin											
Beaver Falls	0.131	0.099	0.109	0.112	0.107	0.085	0.099	0.090	0.092	0.087	2nd Max Daily 1-hour Average
B11	2	0	0	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.087	0.084	0.086	0.096	0.078	0.069	0.080	0.069	0.077	0.074	4th Max Daily 8-hour Average
	15	8	17	23	7	0	7	2	4	2	Number Days 8-hour ≥ 0.075 ppm
Hookstown	0.116	0.095	0.101	0.115	0.111	0.090	0.106	0.091	0.096	0.085	2nd Max Daily 1-hour Average
B23	0	0	0	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.095	0.077	0.092	0.103	0.087	0.081	0.086	0.082	0.080	0.073	4th Max Daily 8-hour Average
	26	6	20	32	9	7	16	8	8	3	Number Days 8-hour ≥ 0.075 ppm
Brighton Township	0.132	0.096	0.103	0.118	0.107	0.085	0.095	0.090	0.087	0.085	2nd Max Daily 1-hour Average
B27	2	0	0	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.101	0.077	0.089	0.104	0.083	0.074	0.086	0.077	0.072	0.075	4th Max Daily 8-hour Average
	20	4	19	32	8	3	10	4	3	3	Number Days 8-hour ≥ 0.075 ppm
Allegheny County Air Basin											
Pittsburgh	0.120	0.111	0.112	0.119	0.110	0.094	0.105	0.092	0.104	0.092	2nd Max Daily 1-hour Average
D12	1	0	0	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.099	0.086	0.093	0.100	0.088	0.072	0.092	0.078	0.081	0.074	4th Max Daily 8-hour Average
	26	15	20	34	13	2	15	7	11	1	Number Days 8-hour ≥ 0.075 ppm
Southwest Region Non-Air Basin											
Florence	0.110	0.098	0.106	0.114	0.107	0.083	0.101	0.091	0.094	0.088	2nd Max Daily 1-hour Average
504	0	0	0	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.096	0.080	0.089	0.096	0.078	0.073	0.085	0.076	0.075	0.077	4th Max Daily 8-hour Average
	25	5	21	28	7	2	11	4	3	4	Number Days 8-hour ≥ 0.075 ppm
Washington	0.106	0.105	0.109	0.112	0.118	0.086	0.096	0.089	0.084	0.079	2nd Max Daily 1-hour Average
508	0	0	0	1	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.090	0.080	0.090	0.088	0.088	0.071	0.085	0.070	0.073	0.069	4th Max Daily 8-hour Average
	21	7	17	23	7	4	12	1	3	0	Number Days 8-hour ≥ 0.075 ppm
Murrysville	0.115	0.103	0.097	0.110	0.100	0.092	0.102	0.081	0.098	0.094	2nd Max Daily 1-hour Average
510	1	0	0	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.087	0.076	0.078	0.091	0.083	0.070	0.087	0.071	0.079	0.072	4th Max Daily 8-hour Average
	12	4	5	20	5	0	10	1	4	2	Number Days 8-hour ≥ 0.075 ppm
Kittanning	0.121	0.103	0.119	0.122	0.109	0.093	0.104	0.101	0.106	0.094	2nd Max Daily 1-hour Average

Primary and Secondary 8-hour National Ambient Air Quality Standards

8-Hour Mean = 0.075 parts per million for 4th daily maximum 8-hour mean, averaged over 3 years

Former 1-hour = 0.12 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-5. Ozone Historical Trend (cont.).

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
512	1	0	1	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.100	0.079	0.098	0.097	0.086	0.082	0.086	0.080	0.083	0.078	4th Max Daily 8-hour Average
	30	7	28	27	10	10	16	11	19	9	Number Days 8-hour ≥ 0.075 ppm
Greensburg	0.125	0.097	0.100	0.119	0.115	0.094	0.098	0.095	0.088	0.089	2nd Max Daily 1-hour Average
513	2	0	0	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.099	0.076	0.084	0.098	0.091	0.073	0.083	0.076	0.077	0.075	4th Max Daily 8-hour Average
	32	6	14	23	6	3	10	4	4	2	Number Days 8-hour ≥ 0.075 ppm
Holbrook	0.116	0.106	0.099	0.113	0.106	0.082	0.103	0.092	0.090	0.087	2nd Max Daily 1-hour Average
514	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.101	0.087	0.090	0.094	0.083	0.075	0.085	0.077	0.078	0.073	4th Max Daily 8-hour Average
	38	18	31	21	6	2	19	5	8	1	Number Days 8-hour ≥ 0.075 ppm
Strongstown	***	***	***	***	***	***	0.097	0.093	0.088	0.090	2nd Max Daily 1-hour Average
515	***	***	***	***	***	***	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	***	***	***	***	***	***	0.088	0.073	0.079	0.076	4th Max Daily 8-hour Average
	***	***	***	***	***	***	17	3	9	4	Number Days 8-hour ≥ 0.075 ppm
Upper Beaver Valley Air Basin											
New Castle	0.105	0.090	0.099	0.103	0.106	0.083	0.094	0.088	0.087	0.085	2nd Max Daily 1-hour Average
B21	1	0	0	0	1	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.088	0.069	0.078	0.087	0.077	0.068	0.075	0.070	0.075	0.069	4th Max Daily 8-hour Average
	13	0	5	21	4	1	3	2	3	2	Number Days 8-hour ≥ 0.075 ppm
Erie Air Basin											
Erie	0.112	0.095	0.104	0.114	0.108	0.089	0.104	0.093	0.102	0.086	2nd Max Daily 1-hour Average
E10	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.096	0.078	0.089	0.098	0.091	0.074	0.086	0.077	0.084	0.074	4th Max Daily 8-hour Average
	33	7	14	25	7	3	16	4	13	2	Number Days 8-hour ≥ 0.075 ppm
Northwest Region Non-Air Basin											
Farrell	0.108	0.098	0.113	0.118	0.116	0.088	0.104	0.102	0.101	0.097	2nd Max Daily 1-hour Average
606	0	0	0	0	0	0	0	0	0	0	Number Days 1-hour ≥ 0.125 ppm
	0.091	0.081	0.094	0.103	0.087	0.076	0.087	0.079	0.083	0.078	4th Max Daily 8-hour Average
	16	7	38	30	9	4	19	8	14	7	Number Days 8-hour ≥ 0.075 ppm

Primary and Secondary 8-hour National Ambient Air Quality Standards

8-Hour Mean = 0.075 parts per million for 4th daily maximum 8-hour mean, averaged over 3 years

Former 1-hour = 0.12 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-6. Sulfur Dioxide Summary.

Year: 2008

Units: parts per million

Site Name	PA Site Code	Percent Valid Data	Annual Mean	Maximum Daily (Block) Averages 1st Maximum 24HR Mean	Date MM/DD	2nd Maximum 24HR Mean	Date MM/DD	3-Hour Block Averages 1st Maximum 3HR Mean	Date MM/DD	2nd Maximum 3HR Mean	Date MM/DD	1-Hour Average Maximum 3HR Mean	Date MM/DD
Southeast Pennsylvania Air Basin													
Bristol	P01	91	0.004	0.016	01/04	0.016	01/06	0.027	01/07	0.021	01/06	0.036	01/07
Chester	P11	90	0.006	0.019	02/25	0.017	04/18	0.037	01/06	0.037	02/03	0.051	01/06
Norristown	P21	93	0.004	0.020	11/23	0.012	11/20	0.024	11/23	0.024	11/23	0.032	01/05
Allentown-Bethlehem-Easton Air Basin													
Allentown	A19	99	0.004	0.031	12/20	0.024	12/11	0.069	12/20	0.041	12/19	0.077	12/20
Easton	A20	97	0.004	0.017	03/04	0.017	11/01	0.069	03/04	0.034	11/05	0.082	03/04
Freemansburg	A25	99	0.004	0.015	02/25	0.013	02/26	0.026	02/25	0.026	03/08	0.038	03/08
Scranton-Wilkes-Barre Air Basin													
Scranton	S01	97	0.003	0.015	02/03	0.015	02/25	0.029	01/04	0.024	01/04	0.039	02/25
Wilkes-Barre	S28	98	0.005	0.022	02/03	0.017	01/19	0.044	01/18	0.044	02/03	0.053	01/18
Reading Air Basin													
Reading Airport	R03	99	0.006	0.019	12/09	0.017	01/27	0.042	01/27	0.040	07/12	0.095	07/12
Harrisburg Air Basin													
Harrisburg	H11	98	0.003	0.019	04/08	0.016	01/26	0.082	04/08	0.048	08/23	0.125	04/08
Lancaster Air Basin													
Lancaster	L01	98	0.005	0.017	02/25	0.016	01/25	0.049	09/13	0.049	11/01	0.080	11/01
York Air Basin													
York	Y01	98	0.004	0.017	04/24	0.015	07/16	0.075	07/16	0.065	04/18	0.130	07/11
Southcentral Region Non-Air Basin													
Perry County	305	98	0.003	0.019	04/08	0.014	01/26	0.055	04/08	0.034	04/26	0.092	04/08
Altoona	308	99	0.005	0.020	02/25	0.019	01/15	0.047	02/24	0.042	01/25	0.059	02/24
Northcentral Region Non-Air Basin													
State College	409	99	0.003	0.020	01/26	0.011	02/25	0.042	03/25	0.032	01/26	0.091	03/25
Montoursville	410	99	0.003	0.022	01/26	0.016	02/26	0.076	01/26	0.030	02/25	0.111	01/26
Johnstown Air Basin													
Johnstown	J01	99	0.006	0.028	11/11	0.026	01/16	0.061	11/11	0.056	08/19	0.093	08/19

Primary National Ambient Air Quality Standards: Annual Mean = 0.030 parts per million;

24-hour Mean (Daily Block Average) = 0.14 parts per million, not to be exceeded more than once per year

Secondary National Ambient Air Quality Standard: 3-hour Mean (Block Average) = 0.5 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-6. Sulfur Dioxide Summary (cont.).

Year: 2008

Units: parts per million

Site Name	PA Site Code	Percent Valid Data	Annual Mean	Maximum Daily (Block) Averages 1st Maximum 24HR Mean	Date MM/DD	2nd Maximum 24HR Mean	Date MM/DD	3-Hour Block Averages 1st Maximum 3HR Mean	Date MM/DD	2nd Maximum 3HR Mean	Date MM/DD	1-Hour Average Maximum 3HR Mean	Date MM/DD
Monongahela Valley Air Basin													
Charleroi	M01	100	0.008	0.022	02/17	0.018	11/12	0.085	01/08	0.073	02/17	0.119	01/08
Lower Beaver Valley Air Basin													
Beaver Falls	B11	100	0.005	0.026	01/04	0.019	01/07	0.047	03/17	0.041	02/24	0.084	01/31
Hookstown	B23	99	0.008	0.050	12/22	0.038	07/29	0.113	07/29	0.096	01/28	0.149	04/18
Brighton Township	B27	96	0.008	0.039	04/17	0.037	07/29	0.156	04/17	0.125	11/05	0.349	04/17
Allegheny County Air Basin													
Pittsburgh	D12	99	0.005	0.021	12/08	0.019	09/26	0.071	09/05	0.057	03/17	0.106	09/05
Southwest Region Non-Air Basin													
Florence	504	96	0.004	0.022	01/04	0.016	01/05	0.045	12/15	0.043	01/04	0.068	12/23
Washington	508	99	0.007	0.023	08/22	0.019	09/19	0.082	04/08	0.067	09/19	0.129	04/08
Greensburg	513	97	0.005	0.025	01/04	0.021	01/05	0.055	07/30	0.053	02/15	0.088	07/11
Holbrook	514	51	0.006*	0.018	06/12	0.017	08/26	0.068	08/20	0.053	10/10	0.104	10/10
Strongstown	515	99	0.007	0.033	07/29	0.024	01/25	0.079	07/29	0.071	07/29	0.106	02/24
Upper Beaver Valley Air Basin													
New Castle	B21	99	0.005	0.022	01/04	0.021	01/05	0.050	01/04	0.049	01/28	0.071	02/21
Erie Air Basin													
Erie	E10	96	0.010	0.020	01/04	0.019	01/17	0.042	03/13	0.036	11/04	0.054	03/13
Northwest Region Non-Air Basin													
Farrell	606	84	0.005	0.021	04/08	0.019	03/02	0.051	03/02	0.032	03/02	0.062	03/02
Warren High School	611	96	0.003	0.021	01/04	0.018	01/05	0.040	02/14	0.029	01/04	0.047	02/14
Warren Overlook	612	91	0.008	0.048	10/07	0.036	04/17	0.128	10/20	0.125	10/07	0.261	10/20

Primary National Ambient Air Quality Standards: Annual Mean = 0.030 parts per million;

24-hour Mean (Daily Block Average) = 0.14 parts per million, not to be exceeded more than once per year

Secondary National Ambient Air Quality Standard: 3-hour Mean (Block Average) = 0.5 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-7. Sulfur Dioxide Historical Trend.

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Southeast Pennsylvania Air Basin											
Bristol	0.005	0.007	0.006	0.008	0.008	0.004	0.006	0.005	0.006	0.004	Annual Mean
P01	0.020	0.027	0.029	0.028	0.029	0.023	0.023	0.022	0.021	0.016	2nd Max 24-hour Mean
	0.035	0.044	0.041	0.041	0.042	0.035	0.034	0.033	0.032	0.021	2nd Max 3-hour Mean
Chester	0.009	0.008	0.007	0.006	0.006	0.005	0.006	0.005	0.010	0.006	Annual Mean
P11	0.025	0.026	0.023	0.022	0.028	0.019	0.016	0.017	0.022	0.017	2nd Max 24-hour Mean
	0.057	0.048	0.045	0.044	0.049	0.038	0.043	0.043	0.042	0.037	2nd Max 3-hour Mean
Norristown	0.006	0.004	0.004	0.005	0.005	0.004	0.006	0.007	0.005	0.004	Annual Mean
P21	0.020	0.022	0.019	0.019	0.023	0.018	0.018	0.019	0.014	0.012	2nd Max 24-hour Mean
	0.042	0.032	0.041	0.031	0.036	0.027	0.031	0.033	0.023	0.024	2nd Max 3-hour Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown	0.006	0.007	0.007	0.008	0.009	0.007	0.008	0.006	0.005	0.004	Annual Mean
A19	0.030	0.027	0.028	0.028	0.038	0.045	0.032	0.032	0.019	0.024	2nd Max 24-hour Mean
	0.058	0.053	0.044	0.041	0.058	0.068	0.072	0.042	0.043	0.041	2nd Max 3-hour Mean
Easton	***	0.008	0.014	0.006	0.008	0.013	0.009	0.011	0.008	0.004	Annual Mean
A20	***	0.023	0.030	0.024	0.037	0.044	0.034	0.147	0.063	0.017	2nd Max 24-hour Mean
	***	0.069	0.055	0.046	0.054	0.096	0.080	0.256	0.140	0.034	2nd Max 3-hour Mean
Freemansburg	0.009	0.006	0.004	0.006	0.004	0.005	0.007	0.005	0.004	0.004	Annual Mean
A25	0.021	0.020	0.019	0.020	0.018	0.023	0.021	0.019	0.015	0.013	2nd Max 24-hour Mean
	0.047	0.034	0.028	0.046	0.036	0.036	0.058	0.038	0.037	0.026	2nd Max 3-hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	0.005	0.004	0.005	0.004	0.005	0.005	0.005	0.004	0.005	0.003	Annual Mean
S01	0.021	0.021	0.026	0.023	0.020	0.016	0.025	0.016	0.018	0.015	2nd Max 24-hour Mean
	0.033	0.038	0.044	0.036	0.034	0.030	0.035	0.040	0.031	0.024	2nd Max 3-hour Mean
Wilkes-Barre	0.007	0.006	0.008	0.008	0.005	0.005	0.005	0.005	0.005	0.005	Annual Mean
S28	0.023	0.026	0.031	0.024	0.021	0.019	0.019	0.017	0.016	0.017	2nd Max 24-hour Mean
	0.039	0.052	0.048	0.044	0.035	0.035	0.034	0.039	0.032	0.044	2nd Max 3-hour Mean
Northeast Region Non-Air Basin											
Shenandoah	0.006	0.006	0.007	0.006	0.006	0.007	0.006	0.005	0.006	***	Annual Mean
211	0.038	0.025	0.035	0.026	0.023	0.027	0.027	0.021	0.020	***	2nd Max 24-hour Mean
	0.074	0.053	0.052	0.140	0.045	0.058	0.044	0.067	0.036	***	2nd Max 3-hour Mean
Reading Air Basin											
Reading	0.008	0.008	0.007	0.007	0.008	0.008	0.008	0.007*	***	***	Annual Mean
R01	0.027	0.028	0.025	0.019	0.023	0.020	0.023	0.016	***	***	2nd Max 24-hour Mean
	0.094	0.075	0.091	0.083	0.087	0.068	0.075	0.041	***	***	2nd Max 3-hour Mean

Primary National Ambient Air Quality Standards: Annual Mean = 0.030 parts per million;

24-hour Mean (Daily Block Average) = 0.14 parts per million, not to be exceeded more than once per year

Secondary National Ambient Air Quality Standard: 3-hour Mean (Block Average) = 0.5 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-7. Sulfur Dioxide Historical Trend (cont.).

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Reading Airport	***	***	***	***	***	***	***	***	0.004	0.006	Annual Mean
R03	***	***	***	***	***	***	***	***	0.014	0.017	2nd Max 24-hour Mean
	***	***	***	***	***	***	***	***	0.034	0.040	2nd Max 3-hour Mean
Harrisburg Air Basin											
Harrisburg	0.005	0.005	0.005	0.005	0.005	0.004	0.005	0.005	0.005	0.003	Annual Mean
H11	0.024	0.015	0.013	0.017	0.017	0.018	0.020	0.014	0.015	0.016	2nd Max 24-hour Mean
	0.050	0.026	0.056	0.048	0.048	0.061	0.054	0.045	0.042	0.048	2nd Max 3-hour Mean
Lancaster Air Basin											
Lancaster	0.005	0.005	0.004	0.005	0.005	0.005	0.006	0.005	0.005	0.005	Annual Mean
L01	0.021	0.024	0.018	0.014	0.018	0.017	0.022	0.018	0.018	0.016	2nd Max 24-hour Mean
	0.045	0.048	0.036	0.034	0.032	0.049	0.050	0.044	0.051	0.049	2nd Max 3-hour Mean
York Air Basin											
York	0.007	0.006	0.006	0.005	0.004	0.005	0.006	0.005	0.005	0.004	Annual Mean
Y01	0.019	0.020	0.019	0.014	0.012	0.020	0.030	0.021	0.023	0.015	2nd Max 24-hour Mean
	0.058	0.059	0.043	0.036	0.039	0.070	0.099	0.075	0.122	0.065	2nd Max 3-hour Mean
Southcentral Region Non-Air Basin											
Perry County	0.003	0.003	0.002	0.003	0.005	0.003	0.003	0.002	0.003	0.003	Annual Mean
305	0.012	0.015	0.010	0.008	0.017	0.013	0.010	0.014	0.011	0.014	2nd Max 24-hour Mean
	0.034	0.034	0.036	0.026	0.033	0.030	0.028	0.030	0.022	0.034	2nd Max 3-hour Mean
Altoona	0.007	0.006	0.009	0.007	0.007	0.006	0.007	0.007	0.006	0.005	Annual Mean
308	0.030	0.045	0.042	0.032	0.030	0.030	0.036	0.024	0.022	0.019	2nd Max 24-hour Mean
	0.058	0.071	0.066	0.051	0.060	0.065	0.066	0.049	0.044	0.042	2nd Max 3-hour Mean
Northcentral Region Non-Air Basin											
State College	***	***	***	0.004	0.006	0.004	0.005	0.002	0.002	0.003	Annual Mean
409	***	***	***	0.023	0.019	0.019	0.018	0.011	0.011	0.011	2nd Max 24-hour Mean
	***	***	***	0.044	0.031	0.028	0.036	0.024	0.023	0.032	2nd Max 3-hour Mean
Montoursville	***	***	***	0.003	0.005	0.003	0.005	0.005	0.003	0.003	Annual Mean
410	***	***	***	0.015	0.017	0.015	0.018	0.027	0.015	0.016	2nd Max 24-hour Mean
	***	***	***	0.027	0.070	0.032	0.044	0.047	0.052	0.030	2nd Max 3-hour Mean
Johnstown Air Basin											
Johnstown	0.009	0.007	0.008	0.007	0.008	0.007	0.007	0.008	0.006	0.006	Annual Mean
J01	0.025	0.026	0.031	0.025	0.028	0.037	0.037	0.024	0.026	0.026	2nd Max 24-hour Mean
	0.069	0.065	0.078	0.074	0.074	0.115	0.097	0.072	0.049	0.056	2nd Max 3-hour Mean

Primary National Ambient Air Quality Standards: Annual Mean = 0.030 parts per million;

24-hour Mean (Daily Block Average) = 0.14 parts per million, not to be exceeded more than once per year

Secondary National Ambient Air Quality Standard: 3-hour Mean (Block Average) = 0.5 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-7. Sulfur Dioxide Historical Trend (cont.).

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Monongahela Valley Air Basin											
Charleroi	0.009	0.008	0.007	0.007	0.006	0.008	0.010	0.008	0.010	0.008	Annual Mean
M01	0.023	0.031	0.022	0.023	0.029	0.021	0.030	0.021	0.025	0.018	2nd Max 24-hour Mean
	0.059	0.059	0.107	0.070	0.079	0.051	0.064	0.063	0.099	0.073	2nd Max 3-hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	0.009	0.007	0.008	0.007	0.007	0.007	0.007	0.007	0.008	0.005	Annual Mean
B11	0.028	0.036	0.032	0.030	0.031	0.026	0.032	0.023	0.023	0.019	2nd Max 24-hour Mean
	0.070	0.070	0.076	0.064	0.082	0.064	0.065	0.053	0.053	0.041	2nd Max 3-hour Mean
Hookstown	0.010	0.011	0.011	0.010	0.010	0.009	0.009	0.009	0.009	0.008	Annual Mean
B23	0.044	0.039	0.037	0.038	0.045	0.048	0.034	0.036	0.036	0.038	2nd Max 24-hour Mean
	0.145	0.126	0.108	0.115	0.118	0.126	0.096	0.084	0.124	0.096	2nd Max 3-hour Mean
Brighton Township	0.015	0.012	0.014	0.014	0.011	0.012	0.013	0.009	0.010	0.008	Annual Mean
B27	0.070	0.086	0.072	0.075	0.083	0.046	0.050	0.054	0.044	0.037	2nd Max 24-hour Mean
	0.215	0.247	0.249	0.319	0.174	0.150	0.202	0.231	0.128	0.125	2nd Max 3-hour Mean
Allegheny County Air Basin											
Pittsburgh	0.006	0.010	0.009	0.010	0.010	0.007	0.008	0.007	0.006	0.005	Annual Mean
D12	0.019	0.037	0.033	0.024	0.028	0.024	0.022	0.020	0.021	0.019	2nd Max 24-hour Mean
	0.042	0.078	0.077	0.075	0.066	0.057	0.061	0.068	0.054	0.057	2nd Max 3-hour Mean
Southwest Region Non-Air Basin											
Florence	0.010	0.009	0.009	0.010	0.010	0.009	0.010	0.006	0.006	0.004	Annual Mean
504	0.036	0.031	0.039	0.037	0.033	0.034	0.047	0.029	0.025	0.016	2nd Max 24-hour Mean
	0.099	0.100	0.102	0.092	0.100	0.081	0.080	0.062	0.113	0.043	2nd Max 3-hour Mean
Washington	0.009	0.009	0.010	0.009	0.009	0.009	0.009	0.009	0.008	0.007	Annual Mean
508	0.030	0.027	0.038	0.032	0.028	0.026	0.027	0.024	0.020	0.019	2nd Max 24-hour Mean
	0.062	0.059	0.069	0.080	0.078	0.067	0.078	0.063	0.053	0.067	2nd Max 3-hour Mean
Greensburg	0.011	0.010	0.009	0.006	0.008	0.006	0.006	0.005	0.005	0.005	Annual Mean
513	0.037	0.029	0.027	0.024	0.029	0.023	0.030	0.021	0.023	0.021	2nd Max 24-hour Mean
	0.100	0.071	0.053	0.048	0.070	0.058	0.083	0.068	0.049	0.053	2nd Max 3-hour Mean
Holbrook	0.009*	0.007*	0.006*	0.007*	0.006*	0.006*	0.006*	0.006*	0.006*	0.006*	Annual Mean
514	0.022	0.022	0.023	0.022	0.029	0.028	0.021	0.017	0.018	0.017	2nd Max 24-hour Mean
	0.050	0.062	0.070	0.055	0.077	0.062	0.059	0.046	0.064	0.053	2nd Max 3-hour Mean
Strongstown	***	***	***	***	***	***	0.008	0.008	0.007	0.007	Annual Mean
515	***	***	***	***	***	***	0.032	0.028	0.029	0.024	2nd Max 24-hour Mean
	***	***	***	***	***	***	0.112	0.108	0.081	0.071	2nd Max 3-hour Mean

Primary National Ambient Air Quality Standards: Annual Mean = 0.030 parts per million;

24-hour Mean (Daily Block Average) = 0.14 parts per million, not to be exceeded more than once per year

Secondary National Ambient Air Quality Standard: 3-hour Mean (Block Average) = 0.5 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-7. Sulfur Dioxide Historical Trend (cont.).

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Upper Beaver Valley Air Basin											
New Castle	0.008	0.008	0.011	0.007	0.009	0.007	0.008	0.007	0.008	0.005	Annual Mean
B21	0.035	0.031	0.041	0.033	0.028	0.035	0.037	0.024	0.027	0.021	2nd Max 24-hour Mean
	0.086	0.079	0.120	0.082	0.076	0.072	0.089	0.065	0.083	0.049	2nd Max 3-hour Mean
Erie Air Basin											
Erie	0.010	0.008	0.010	0.011	0.011	0.008	0.011	0.009	0.010	0.010	Annual Mean
E10	0.043	0.041	0.043	0.037	0.038	0.029	0.041	0.023	0.021	0.019	2nd Max 24-hour Mean
	0.152	0.076	0.098	0.070	0.078	0.077	0.071	0.040	0.034	0.036	2nd Max 3-hour Mean
Northwest Region Non-Air Basin											
Farrell	0.007*	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005	Annual Mean
606	0.039	0.024	0.033	0.024	0.025	0.019	0.022	0.019	0.015	0.019	2nd Max 24-hour Mean
	0.060	0.052	0.071	0.067	0.067	0.044	0.045	0.035	0.040	0.032	2nd Max 3-hour Mean
Warren (High School)	0.008	0.006	0.007	0.006	0.006	0.004	0.004	0.004	0.004	0.003	Annual Mean
611	0.031	0.024	0.027	0.023	0.028	0.019	0.018	0.017	0.037	0.018	2nd Max 24-hour Mean
	0.072	0.070	0.075	0.066	0.067	0.037	0.050	0.047	0.063	0.029	2nd Max 3-hour Mean
Warren (Overlook)	0.015	0.013	0.016	0.014	0.014	0.010	0.015	0.011	0.009	0.008	Annual Mean
612	0.094	0.092	0.087	0.100	0.103	0.061	0.075	0.086	0.049	0.036	2nd Max 24-hour Mean
	0.227	0.214	0.209	0.273	0.249	0.212	0.235	0.200	0.129	0.125	2nd Max 3-hour Mean

Primary National Ambient Air Quality Standards: Annual Mean = 0.030 parts per million;

24-hour Mean (Daily Block Average) = 0.14 parts per million, not to be exceeded more than once per year

Secondary National Ambient Air Quality Standard: 3-hour Mean (Block Average) = 0.5 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-8. Nitrogen Dioxide Summary.

Year: 2008

Units: parts per million

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Maximum 1-HR Mean	1st Maximum Date MM/DD	2nd Maximum 1-HR Mean	2nd Maximum Date MM/DD	3rd Maximum 1-HR Mean	3rd Maximum Date MM/DD	4th Maximum 1-HR Mean	4th Maximum Date MM/DD
Southeast Pennsylvania Air Basin											
Bristol	P01	87	0.013	0.058	01/24	0.056	01/24	0.050	02/25	0.050	04/10
Chester	P11	95	0.015	0.066	04/19	0.065	04/19	0.058	10/13	0.057	05/06
Norristown	P21	98	0.013	0.080	04/03	0.058	02/25	0.053	02/25	0.052	11/24
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	99	0.011	0.051	01/05	0.049	01/05	0.049	03/07	0.048	01/05
Freemansburg	A25	100	0.012	0.056	02/25	0.053	02/25	0.053	03/07	0.053	04/18
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	99	0.012	0.064	04/17	0.052	02/24	0.051	02/25	0.050	02/24
Wilkes-Barre	S28	98	0.011	0.045	02/24	0.045	04/17	0.044	04/17	0.043	02/24
Reading Air Basin											
Reading Airport	R03	97	0.010	0.044	09/03	0.043	09/03	0.041	02/25	0.040	09/03
Harrisburg Air Basin											
Harrisburg	H11	97	0.013	0.060	04/17	0.057	04/18	0.057	04/18	0.052	04/17
Lancaster Air Basin											
Lancaster	L01	96	0.011	0.047	04/18	0.044	03/11	0.044	04/17	0.044	07/16
York Air Basin											
York	Y01	98	0.014	0.055	01/23	0.055	04/18	0.053	04/18	0.053	04/18
Southcentral Region Non-Air Basin											
Perry County	305	94	0.005	0.033	02/12	0.033	02/12	0.031	02/12	0.031	02/13
Altoona	308	98	0.011	0.060	03/03	0.056	04/18	0.055	03/02	0.055	03/04
Arendtsville	314	66	0.003*	0.013	08/29	0.013	10/04	0.013	10/04	0.013	10/24
Northcentral Region Non-Air Basin											
State College	409	90	0.006	0.042	03/02	0.041	02/16	0.041	02/16	0.040	02/14
Johnstown Air Basin											
Johnstown	J01	98	0.011	0.061	03/03	0.060	03/04	0.055	03/03	0.055	03/04
Monongahela Valley Air Basin											
Charleroi	M01	100	0.012	0.045	11/24	0.044	04/25	0.043	03/19	0.043	04/16
Lower Beaver Valley Air Basin											
Beaver Falls	B11	93	0.013	0.049	03/03	0.046	02/29	0.046	03/03	0.044	02/14

Primary and Secondary National Ambient Air Quality Standard

Annual Mean 0.053 parts per million

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-8. Nitrogen Dioxide Summary (cont.).

Year: 2008

Units: parts per million

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Maximum 1-HR Mean	1st Maximum Date MM/DD	2nd Maximum 1-HR Mean	2nd Maximum Date MM/DD	3rd Maximum 1-HR Mean	3rd Maximum Date MM/DD	4th Maximum 1-HR Mean	4th Maximum Date MM/DD
Allegheny County Air Basin											
Pittsburgh	D12	91	0.018	0.086	04/18	0.080	04/17	0.074	01/28	0.074	03/19
Southwest Region Non-Air Basin											
Florence	504	93	0.005	0.032	02/24	0.032	04/23	0.030	03/07	0.030	11/03
Washington	508	97	0.011	0.067	04/18	0.065	04/17	0.065	04/24	0.063	04/24
Greensburg	513	93	0.009	0.056	02/05	0.050	04/18	0.050	04/18	0.048	04/17
Strongstown	515	99	0.006	0.047	06/25	0.046	05/07	0.043	03/03	0.038	05/07
Upper Beaver Valley Air Basin											
New Castle	B21	98	0.012	0.054	03/03	0.053	03/03	0.048	03/03	0.047	08/05
Erie Air Basin											
Erie	E10	97	0.009	0.064	04/18	0.062	04/18	0.060	03/11	0.060	03/11

Primary and Secondary National Ambient Air Quality Standard

Annual Mean 0.053 parts per million

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-9. Oxides of Nitrogen Summary.

Year: 2008

Units: parts per million

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Maximum 1-HR Mean	1st Maximum Date MM/DD	2nd Maximum 1-HR Mean	2nd Maximum Date MM/DD	3rd Maximum 1-HR Mean	3rd Maximum Date MM/DD	4th Maximum 1-HR Mean	4th Maximum Date MM/DD
Southeast Pennsylvania Air Basin											
Bristol	P01	87	0.022	0.435	01/24	0.370	01/08	0.344	01/24	0.315	01/24
Chester	P11	95	0.022	0.334	11/24	0.234	11/24	0.219	01/24	0.207	10/31
Norristown	P21	98	0.020	0.321	04/03	0.298	11/24	0.274	01/24	0.256	02/29
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	99	0.017	0.288	01/05	0.262	01/05	0.251	01/05	0.247	01/08
Freemansburg	A25	100	0.020	0.281	01/08	0.256	01/07	0.243	01/08	0.236	01/08
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	99	0.015	0.184	01/23	0.178	01/29	0.169	01/29	0.166	01/29
Wilkes-Barre	S28	98	0.019	0.241	01/08	0.228	01/08	0.189	01/08	0.186	01/08
Reading Air Basin											
Reading Airport	R03	97	0.016	0.159	12/03	0.152	01/08	0.147	01/08	0.147	01/29
Harrisburg Air Basin											
Harrisburg	H11	97	0.022	0.248	01/08	0.244	01/08	0.236	02/05	0.231	02/25
Lancaster Air Basin											
Lancaster	L01	96	0.018	0.340	01/08	0.275	01/08	0.230	12/03	0.201	01/08
York Air Basin											
York	Y01	98	0.023	0.314	01/08	0.245	01/08	0.236	01/07	0.234	01/08
Southcentral Region Non-Air Basin											
Perry County	305	94	0.005	0.058	02/15	0.055	02/15	0.047	12/19	0.046	02/15
Altoona	308	98	0.017	0.281	01/08	0.214	12/15	0.202	01/08	0.202	12/10
Arendtsville	314	67	0.003*	0.017	05/15	0.017	10/08	0.017	10/31	0.016	05/20
Northcentral Region Non-Air Basin											
State College	409	90	0.009	0.117	01/08	0.102	01/08	0.099	01/07	0.099	01/10
Johnstown Air Basin											
Johnstown	J01	98	0.017	0.262	03/04	0.215	03/04	0.208	03/04	0.203	01/29
Monongahela Valley Air Basin											
Charleroi	M01	100	0.019	0.217	11/05	0.210	11/24	0.195	12/09	0.194	02/04
Lower Beaver Valley Air Basin											
Beaver Falls	B11	93	0.023	0.214	12/09	0.206	02/04	0.195	05/02	0.194	11/24

No Primary or Secondary Air Quality Standards

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-9. Oxides of Nitrogen Summary (cont.).

Year: 2008

Units: parts per million

Site Name	PA Site Code	Percent Valid Data	Annual Mean	1st Maximum 1-HR Mean	1st Maximum Date MM/DD	2nd Maximum 1-HR Mean	2nd Maximum Date MM/DD	3rd Maximum 1-HR Mean	3rd Maximum Date MM/DD	4th Maximum 1-HR Mean	4th Maximum Date MM/DD
Allegheny County Air Basin											
Pittsburgh	D12	91	0.030	0.353	03/19	0.348	03/19	0.321	03/25	0.312	10/31
Southwest Region Non-Air Basin											
Florence	504	93	0.006	0.084	11/23	0.047	01/10	0.047	01/10	0.043	02/26
Washington	508	96	0.019	0.289	01/28	0.225	02/29	0.208	01/10	0.206	01/10
Greensburg	513	92	0.015	0.164	01/28	0.162	01/28	0.140	02/04	0.135	11/07
Strongstown	515	99	0.007	0.109	03/03	0.093	05/07	0.079	05/02	0.073	07/11
Upper Beaver Valley Air Basin											
New Castle	B21	98	0.018	0.225	03/03	0.205	03/03	0.154	03/10	0.148	02/14
Erie Air Basin											
Erie	E10	96	0.012	0.178	11/06	0.171	10/13	0.153	10/13	0.149	10/23

No Primary or Secondary Air Quality Standards

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-10. Nitrogen Dioxide Historical Trend.

Annual Means

Units: parts per million

Site Name	PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Southeast Pennsylvania Air Basin											
Bristol	P01	0.018	0.017	0.018	0.016	0.016	0.016	0.017	0.015	0.013	0.013
Chester	P11	0.017	0.019	0.019	0.018	0.018	0.018	0.017	0.016	0.015	0.015
Norristown	P21	0.016	0.018	0.017	0.015	0.017	0.014	0.016	0.014	0.014	0.013
Allentown-Bethlehem-Easton Air Basin											
Allentown	A19	0.015	0.013	0.017	0.014	0.015	0.013	0.014	0.012	0.012	0.011
Freemansburg	A25	0.017	0.017	0.016	0.013	0.013	0.014	0.015	0.012	0.012	0.012
Scranton-Wilkes-Barre Air Basin											
Scranton	S01	0.014	0.015	0.015	0.014	0.014	0.012	0.013	0.011	0.011	0.012
Wilkes-Barre	S28	0.015	0.014	0.014	0.013	0.013	0.012	0.013	0.011	0.011	0.011
Reading Air Basin											
Reading	R01	0.021	0.020	0.020	0.019	0.018	0.017	0.019	0.018*	***	***
Reading Airport	R03	***	***	***	***	***	***	***	***	0.011*	0.010
Harrisburg Air Basin											
Harrisburg	H11	0.018	0.017	0.018	0.016	0.016	0.015	0.015	0.013	0.014	0.013
Lancaster Air Basin											
Lancaster	L01	0.015	0.014	0.014	0.013	0.015	0.014	0.014	0.013	0.012	0.011
York Air Basin											
York	Y01	0.019	0.018	0.020	0.017	0.017	0.016	0.018	0.016	0.015	0.014
Southcentral Region Non-Air Basin											
Perry County	305	0.006	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.005
Altoona	308	0.013	0.014	0.014	0.013	0.013	0.012	0.013	0.012	0.011	0.011
Arendtsville	314	***	0.004*	0.004*	0.004*	0.004*	0.004*	0.004*	0.004*	0.004*	0.003*
Northcentral Region Non-Air Basin											
State College	409	***	***	***	0.008	0.008	0.009	0.009	0.008	0.007	0.006
Johnstown Air Basin											
Johnstown	J01	0.015	0.015	0.014	0.012	0.013	0.013	0.013	0.012	0.012	0.011
Monongahela Valley Air Basin											
Charleroi	M01	0.015	0.014	0.013	0.013	0.012	0.012	0.013	0.013	0.013	0.012
Lower Beaver Valley Air Basin											

Primary and Secondary National Ambient Air Quality Standard

Annual Mean 0.053 parts per million

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-10. Nitrogen Dioxide Historical Trend (cont.).

Annual Means

Units: parts per million

Site Name	PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Beaver Falls	B11	0.019	0.017	0.017	0.016	0.015	0.015	0.017	0.015	0.014	0.013
Allegheny County Air Basin											
Pittsburgh	D12	0.023	0.022	0.021	0.020	0.021	0.021	0.022	0.018	0.019	0.018
Southwest Region Non-Air Basin											
Florence	504	0.008	0.008	0.008	0.006	0.013	0.006	0.007	0.005	0.006	0.005
Washington	508	0.016	0.015	0.015	0.012	0.012	0.013	0.014	0.012	0.013	0.011
Greensburg	513	0.018	0.017	0.017	0.016	0.015	0.013	0.013	0.011	0.011	0.009
Strongstown	515	***	***	***	***	***	***	0.006	0.006	0.006	0.006
Upper Beaver Valley Air Basin											
New Castle	B21	0.020	0.019	0.017	0.016	0.016	0.016	0.017	0.016	0.015	0.012
Erie Air Basin											
Erie	E10	0.015	0.012	0.012	0.012	0.012	0.012	0.013	0.011	0.011	0.009

Primary and Secondary National Ambient Air Quality Standard

Annual Mean 0.053 parts per million

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-11. Carbon Monoxide Summary.

Year: 2008

Units: parts per million

Site Name	PA Site Code	Percent Valid Data	1st Maximum 1-HR Mean	1st Maximum Date MM/DD	2nd Maximum 1-HR Mean	2nd Maximum Date MM/DD	1st Maximum 8-HR Mean	1st Maximum Date MM/DD	2nd Maximum 8-HR Mean	2nd Maximum Date MM/DD
Southeast Pennsylvania Air Basin										
Bristol	P01	94	4.3	01/07	2.9	03/23	2.0	01/08	1.9	01/07
Norristown	P21	100	1.2	11/24	1.2	11/24	1.0	11/03	0.9	11/04
Allentown-Bethlehem-Easton Air Basin										
Freemansburg	A25	99	2.1	02/13	2.0	02/03	1.6	02/03	1.6	02/04
Scranton-Wilkes-Barre Air Basin										
Scranton	S01	99	1.8	01/08	1.4	01/07	1.2	01/29	1.0	01/08
Wilkes-Barre	S28	99	2.8	12/29	2.6	01/08	1.9	01/08	1.5	01/07
Reading Air Basin										
Reading Airport	R03	98	1.5	06/06	1.3	06/08	0.9	01/08	0.9	04/10
Harrisburg Air Basin										
Harrisburg	H11	98	1.4	01/12	1.4	02/03	1.1	02/05	1.1	02/25
Lancaster Air Basin										
Lancaster	L01	92	2.6	01/08	2.1	12/03	1.6	01/08	1.5	11/01
York Air Basin										
York	Y01	99	2.0	01/08	2.0	01/10	1.3	01/07	1.2	02/05
Southcentral Region Non-Air Basin										
Altoona	308	99	2.6	12/10	2.0	11/06	1.1	12/10	0.8	02/05
Arendtsville	314	57	0.8	05/13	0.8	07/17	0.5	05/13	0.4	07/17
Johnstown Air Basin										
Johnstown	J01	99	2.7	12/27	2.2	12/27	1.9	12/27	1.6	12/09
Monongahela Valley Air Basin										
Charleroi	M01	97	1.6	12/27	1.4	11/03	1.2	07/17	1.1	07/12
Lower Beaver Valley Air Basin										
Beaver Falls	B11	97	2.6	06/16	2.0	02/10	1.6	02/10	1.3	02/10
Allegheny County Air Basin										
Pittsburgh	D12	92	1.9	03/19	1.8	04/17	1.6	09/03	1.5	02/04

Primary National Ambient Air Quality Standards

1-hour Mean = 35 parts per million

8-hour Running Mean = 9 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-11. Carbon Monoxide Summary (cont.).

Year: 2008

Units: parts per million

Site Name	PA Site Code	Percent Valid Data	1st Maximum 1-HR Mean	1st Maximum Date MM/DD	2nd Maximum 1-HR Mean	2nd Maximum Date MM/DD	1st Maximum 8-HR Mean	1st Maximum Date MM/DD	2nd Maximum 8-HR Mean	2nd Maximum Date MM/DD
Southwest Region Non-Air Basin										
Greensburg	513	99	1.4	01/28	1.0	01/28	0.8	01/28	0.5	01/21
Holbrook	514	68	0.5	06/13	0.5	06/13	0.3	04/01	0.3	04/01
Upper Beaver Valley Air Basin										
New Castle	B21	97	1.2	03/03	1.2	06/12	0.7	04/26	0.7	09/03
Erie Air Basin										
Erie	E10	97	2.8	10/07	1.6	03/11	1.0	01/13	1.0	03/11

Primary National Ambient Air Quality Standards

1-hour Mean = 35 parts per million

8-hour Running Mean = 9 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-12. Carbon Monoxide Historical Trend.

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Southeast Pennsylvania Air Basin											
Bristol	6.6	4.3	4	4.3	4.5	3.2	3.8	2.8	2.1	2.9	2nd Max 1-hour Mean
P01	3.7	3.6	3.1	2.4	2.8	2.2	2.3	2.1	1.2	1.9	2nd Max 8-hour Mean
Norristown	3.1	2.8	2.5	2.7	2.4	1.9	1.7	2	1.4	1.2	2nd Max 1-hour Mean
P21	1.9	1.7	1.7	2.3	1.8	1.4	1.2	1.4	1.1	0.9	2nd Max 8-hour Mean
Allentown-Bethlehem-Easton Air Basin											
Freemansburg	4.4	5.5	3.1	2.3	2.3	2.4	2.5	1.3	4	2.0	2nd Max 1-hour Mean
A25	3	2.4	2.4	1.8	1.4	1.7	1.9	0.9	2.4	1.6	2nd Max 8-hour Mean
Allentown (CBD)	5.5	4.1	4	4.4	***	***	***	***	***	***	2nd Max 1-hour Mean
A51	3.2	2.6	3.3	2.3	***	***	***	***	***	***	2nd Max 8-hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	3.5	4.4	2.9	2.7	2.4	2.9	2.6	2.3	2.2	1.4	2nd Max 1-hour Mean
S01	1.7	2.1	1.8	1.6	1.5	1.8	1.5	1.4	1.5	1.0	2nd Max 8-hour Mean
Wilkes-Barre (CBD)	4.2	3.8	2.8	5.1	3.2	2.4	2.4	2.3	***	***	2nd Max 1-hour Mean
S27	3	2.2	2.3	2.6	2.3	1.8	1.9	1.6	***	***	2nd Max 8-hour Mean
Wilkes-Barre	***	***	***	***	***	***	***	2.5	2.4	2.6	2nd Max 1-hour Mean
S28	***	***	***	***	***	***	***	1.6	1.6	1.5	2nd Max 8-hour Mean
Northeast Region Non-Air Basin											
Shenandoah	2.9	2.6	2	2.3	2.8	1.5	2.6	2.1	1.9	***	2nd Max 1-hour Mean
211	1.6	1.3	0.9	1.2	1.4	0.8	1.4	1.3	1.4	***	2nd Max 8-hour Mean
Reading Air Basin											
Reading	4.6	3.8	3.8	4.1	3.2	2.5	2.4	1.8	***	***	2nd Max 1-hour Mean
R01	2.8	2.3	2.2	2.2	2	1.8	1.9	1.2	***	***	2nd Max 8-hour Mean
Reading Airport	***	***	***	***	***	***	***	***	0.8	1.3	2nd Max 1-hour Mean
R03	***	***	***	***	***	***	***	***	0.6	0.9	2nd Max 8-hour Mean
Harrisburg Air Basin											
Harrisburg	***	***	***	***	***	***	***	1.7	1.6	1.4	2nd Max 1-hour Mean
H11	***	***	***	***	***	***	***	1.3	1.2	1.1	2nd Max 8-hour Mean
Harrisburg (CBD)	4.9	3.5	4.4	3.6	3	2.3	2	1.8	***	***	2nd Max 1-hour Mean
H16	4.3	2.1	2.8	2.3	2	1.3	1.3	1.2	***	***	2nd Max 8-hour Mean
Lancaster Air Basin											
Lancaster	3.1	3	2.9	3	2.7	3.2	2.5	2.2	1.7	2.1	2nd Max 1-hour Mean
L01	2.5	1.9	2.2	2.2	1.7	1.6	1.5	1.3	1.3	1.5	2nd Max 8-hour Mean

Primary National Ambient Air Quality Standards

1-hour Mean = 35 parts per million

8-hour Running Mean = 9 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-12. Carbon Monoxide Historical Trend (cont.).

Units: parts per million

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
York Air Basin											
York	5.3	3.7	3.8	4.3	2.6	2.8	2.5	3.3	2.5	2.0	2nd Max 1-hour Mean
Y01	2.4	1.8	2.2	2.2	1.7	1.8	1.4	1.8	1.4	1.2	2nd Max 8-hour Mean
Southcentral Region Non-Air Basin											
Altoona	2.6	1.7	2.4	1.5	1.6	2.3	1.9	1.9	1.6	2.0	2nd Max 1-hour Mean
308	1.6	1	1.1	0.7	1.2	0.9	1.1	0.9	1	0.8	2nd Max 8-hour Mean
Arendtsville	1.2	1.4	1.4	1	0.7	1.7	0.3	1.3	0.9	0.8	2nd Max 1-hour Mean
314	1.1	1.2	1.2	0.6	0.4	1.6	0.3	1.2	0.6	0.4	2nd Max 8-hour Mean
Johnstown Air Basin											
Johnstown	4.4	2.8	2.8	3.9	3	2	1.7	2.1	3.1	2.2	2nd Max 1-hour Mean
J01	2.8	2	2.1	2.6	2.2	2.1	1.2	1.5	1.9	1.6	2nd Max 8-hour Mean
Monongahela Valley Air Basin											
Charleroi	2	1.8	1.4	1.7	1.6	1.8	1.6	3.2	1.6	1.4	2nd Max 1-hour Mean
M01	1.6	1.1	1.1	1	1	1.4	1.1	1.1	1.4	1.1	2nd Max 8-hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	2.5	1.7	2.4	2.1	1.6	1.7	1.6	2	1.8	2.0	2nd Max 1-hour Mean
B11	1.5	1.2	1.5	1.6	1.1	1.2	1.4	1.5	0.9	1.3	2nd Max 8-hour Mean
Allegheny County Air Basin											
Pittsburgh	3.3	3.2	3	2.5	2.4	2	1.9	1.5	2	1.8	2nd Max 1-hour Mean
D12	2.5	2.4	2.5	2	2	1.7	1.5	1.4	1.3	1.5	2nd Max 8-hour Mean
Southwest Region Non-Air Basin											
Greensburg	3.2	2.6	3	2.1	3.1	2.1	1.3	1.6	1.5	1.0	2nd Max 1-hour Mean
513	2.4	1.8	1.8	1.2	2.1	1.4	0.9	0.9	0.9	0.5	2nd Max 8-hour Mean
Holbrook	1.7	0.6	1.3	0.3	0.6	0.6	0.7	1.9	1	0.5	2nd Max 1-hour Mean
514	1.5	0.3	1.1	0.3	0.3	0.3	0.7	1.3	0.6	0.3	2nd Max 8-hour Mean
Upper Beaver Valley Air Basin											
New Castle	5.5	3.5	3	4.1	3.3	2.8	2.4	2.7	1.6	1.2	2nd Max 1-hour Mean
B21	3.8	1.9	2	1.8	1.8	1.8	1.5	2.2	1	0.7	2nd Max 8-hour Mean
Erie Air Basin											
Erie	***	***	***	***	***	***	3.1	2.3	1.4	1.6	2nd Max 1-hour Mean
E10	***	***	***	***	***	***	1.4	1.4	1	1.0	2nd Max 8-hour Mean
Erie (CBD)	10.6	11.9	7.2	7.5	7.6	1.8	***	***	***	***	2nd Max 1-hour Mean
E12	5.6	6	4.4	4.5	3.4	1.3	***	***	***	***	2nd Max 8-hour Mean

Primary National Ambient Air Quality Standards

1-hour Mean = 35 parts per million

8-hour Running Mean = 9 parts per million, not to be exceeded more than once per year

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-13. $PM_{2.5}$ Particulate Matter Summary, Federal Reference Method (FRM) Monitors

Year: 2008

Units: micrograms per cubic meter / local conditions

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24HR Means	Maximum 24-hour Means: 1st Maximum 24HR Mean	1st Maximum Date MM/DD	2nd Maximum 24HR Mean	2nd Maximum Date MM/DD	3rd Maximum 24HR Mean	3rd Maximum Date MM/DD	4th Maximum 24HR Mean	4th Maximum Date MM/DD	98th PCTL 24HR Mean
Southeast Pennsylvania Air Basin												
Bristol	P01	12.66*	103	37.5	02/03	36.7	07/29	30.9	01/07	29.6	07/05	30.9
Chester	P11	13.84	105	36.5	07/29	35.0	02/03	28.6	01/07	28.2	06/14	28.6
Norristown	P21	11.66	109	37.2	07/29	30.3	02/03	23.7	06/26	23.5	01/07	23.7
New Garden Airport	P30	13.68*	102	38.5	07/29	36.7	02/18	32.0	07/17	28.7	01/07	32.0
Allentown-Bethlehem-Easton Air Basin												
Freemansburg	A25	12.26	360	40.4	07/30	40.1	07/29	39.2	01/29	37.4	02/05	33.1
Scranton-Wilkes-Barre Air Basin												
Scranton	S01	10.06	349	38.2	07/19	35.2	07/20	32.9	01/29	28.0	06/07	27.7
Reading Air Basin												
Reading Airport	R03	12.48	116	36.5	07/29	30.4	02/03	28.4	02/15	27.4	06/14	28.4
Harrisburg Air Basin												
Harrisburg	H11	13.18	347	43.7	01/29	43.2	02/05	39.8	01/07	38.7	05/03	34.3
Lancaster Air Basin												
Lancaster	L01	13.93	114	42.8	02/03	39.2	01/07	35.0	07/29	34.7	07/17	35.0
York Air Basin												
York	Y01	13.64	113	37.0	05/03	33.1	07/17	32.3	02/03	30.2	02/09	32.3
Southcentral Region Non-Air Basin												
Arendtsville	314	11.45	340	45.2	05/03	41.1	06/13	38.7	02/04	31.3	01/29	30.5
Carlisle	316	13.03	355	46.0	05/03	42.4	01/29	36.8	02/05	36.7	05/02	33.7
Northcentral Region Non-Air Basin												
State College	409	10.79	359	37.6	01/27	35.9	07/18	35.0	07/19	32.9	07/30	29.7
Johnstown Air Basin												
Johnstown	J01	13.86	122	36.4	07/29	32.6	09/21	32.2	03/04	31.9	07/17	32.2
Monongahela Valley Air Basin												
Charleroi	M01	13.03	114	45.1	07/29	29.0	09/21	27.2	09/03	24.5	04/18	27.2
Lower Beaver Valley Air Basin												
Beaver Falls	B11	13.69	114	37.2	07/29	32.4	02/03	31.2	09/21	30.4	01/28	31.2

Primary and Secondary National Ambient Air Quality Standards

Annual Mean (3-year average) = 15 micrograms per cubic meter

24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-13. $PM_{2.5}$ Particulate Matter Summary, Federal Reference Method (FRM) Monitors (cont).

Year: 2008

Units: micrograms per cubic meter / local conditions

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24HR Means	Maximum 24-hour Means: 1st Maximum 24HR Mean	1st Maximum Date MM/DD	2nd Maximum 24HR Mean	2nd Maximum Date MM/DD	3rd Maximum 24HR Mean	3rd Maximum Date MM/DD	4th Maximum 24HR Mean	4th Maximum Date MM/DD	98th PCTL 24HR Mean
Southwest Region Non-Air Basin												
Florence	504	11.30*	320	39.2	05/01	32.0	07/30	30.6	06/13	29.7	08/29	26.4
Washington	508	12.27	110	29.3	07/29	28.4	07/17	25.6	09/03	25.6	09/21	25.6
Greensburg	513	12.67	114	35.4	07/29	32.7	07/17	29.2	01/28	25.4	02/03	29.2
Erie Air Basin												
Erie	E10	10.72	341	64.9	07/29	35.2	02/25	34.2	07/18	32.6	07/19	28.8
Northwest Region Non-Air Basin												
Farrell	606	11.61	334	40.2	07/18	33.7	05/28	33.0	09/04	32.8	07/19	30.3

Primary and Secondary National Ambient Air Quality Standards

Annual Mean (3-year average) = 15 micrograms per cubic meter

24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-14. $PM_{2.5}$ Particulate Matter Summary, Continuous Method Monitors.

Year: 2008

Units: micrograms per cubic meter / local conditions

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24HR Means	Maximum 24-hour Means: 1st Maximum 24HR Mean	1st Maximum Date MM/DD	2nd Maximum 24HR Mean	2nd Maximum Date MM/DD	3rd Maximum 24HR Mean	3rd Maximum Date MM/DD	4th Maximum 24HR Mean	4th Maximum Date MM/DD	98th PCTL 24HR Mean
Southeast Pennsylvania Air Basin												
Chester (BAM)	P11	18.21	326	47.6	06/07	42.6	07/18	41.9	02/03	39.0	01/29	37.6
Norristown (TEOM)	P21	22.92*	261	56.0	07/29	52.5	06/07	50.9	07/30	48.1	07/18	44.0
Allentown-Bethlehem-Easton Air Basin												
Freemansburg (TEOM)	A25	13.43*	327	41.1	07/29	40.9	07/30	35.4	07/19	34.2	06/10	31.1
Reading Air Basin												
Reading Airport (TEOM)	R03	16.07*	331	51.0	01/29	48.2	07/30	47.7	06/07	44.5	07/29	43.2
Harrisburg Air Basin												
Harrisburg (BAM)	H11	14.63	294	45.0	01/29	42.8	01/07	42.0	05/03	41.1	02/05	37.5
Lancaster Air Basin												
Lancaster (TEOM)	L01	16.25*	210	49.4	01/07	48.1	02/26	48.0	02/03	46.9	02/05	45.6
York Air Basin												
York (TEOM)	Y01	14.92*	299	43.8	07/19	43.7	07/30	41.3	01/29	40.8	07/18	38.4
Southcentral Region Non-Air Basin												
Arendtsville (TEOM)	314	13.57	358	44.8	06/13	37.6	05/03	34.1	07/18	33.2	09/04	30.5
Johnstown Air Basin												
Johnstown (BAM)	J01	15.40	292	50.2	01/29	43.6	07/18	40.7	02/04	38.0	09/22	36.7
Monongahela Valley Air Basin												
Charleroi (BAM)	M01	16.28	303	55.1	07/29	46.8	09/22	44.3	07/17	41.8	09/04	36.6
Lower Beaver Valley Air Basin												
Beaver Falls (TEOM)	B11	13.84*	242	40.3	02/04	33.1	01/28	33.0	02/03	32.2	11/04	31.5
Southwest Region Non-Air Basin												
Kittanning (TEOM)	512	12.17	353	41.8	07/19	37.9	07/18	36.4	07/29	32.0	07/28	28.2

The $PM_{2.5}$ Primary and Secondary National Ambient Air Quality Standards are not applicable to these methods, but are provided below for reference purposes only

Annual Mean (3-year average) = 15 micrograms per cubic meter

24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-15. $PM_{2.5}$ Particulate Matter 24- Hour Maximums Days Greater than 35 µg/m^3, 24-Hour 98th Percentiles and Annual Means Summary (2006 – 2008), Federal Reference Method (FRM) Monitors.

Units: micrograms per cubic meter / local conditions

Station	24-Hour Design Value	Annual Design Value	2006		2007		2008		
			24-Hr 98th Percentile	Wtd. Annual Mean	24-Hr 98th Percentile	Wtd. Annual Mean	24-Hr Days > 35	24-Hr 98th Percentile	Wtd. Annual Mean
Frankford (Lab)	**36**	13.4*	37.9	13.48	35.4	13.74	5	34.5	13.01
Northeast (Airport)	33	12.4*	34.7	12.40	33.5	12.85	3	30.5	11.99
Broad St	**36**	14.5*	38.5	15.52	35.2	14.37	8	32.8	13.50
Ritner St	35	13.5					5	34.5	13.49
Spring Garden St	33	12.7*			33.1	12.04	7	32.8	13.29
Southwest (Elmwood)	35	13.2*	37.7	13.14	31.7	13.33			
Bristol	33	12.6*	34.2	12.15	35.0	13.02	2	30.9	12.66
Chester	33	14.1*	36.7	13.99	34.5	14.45	2	28.6	13.84
Norristown	30	12.3	36.4	12.05	30.1	13.09	1	23.7	11.66
New Garden	**36**	13.4*	38.3	12.59	38.1	14.07	2	32.0	13.68
Freemansburg	**36**	12.8	38.3	12.75	37.9	13.31	5	33.1	12.26
Scranton	29	10.7	28.7	10.61	32.0	11.28	1	27.7	10.06
Reading Airport	31	13.9			33.9	15.28	1	28.4	12.48
Harrisburg	**36**	13.8	37.0	13.95	35.6	14.28	4	34.3	13.18
Lancaster	**37**	14.5	34.9	14.11	39.6	15.40	2	35.0	13.93
York	34	14.5	33.2	14.04	37.0	15.68	1	32.3	13.64
Arendtsville	32	11.9	33.6	11.82	30.7	12.31	3	30.5	11.45
Carlisle	34	13.2	33.3	13.00	35.3	13.70	4	33.7	13.03
State College	32	11.4	31.7	11.38	33.1	11.93	2	29.7	10.79
Johnstown	35	14.4*	39.0	14.78	34.6	14.42	1	32.2	13.86
Charleroi	33	14.3	31.6	14.42	40.9	15.51	2	27.2	13.03
Beaver Falls	35	14.8*	37.0	14.87	38.2	15.72	2	31.2	13.69
Florence	**36**	12.3*	39.3	11.94	41.2	13.79	1	26.4	11.30
Washington	32	13.4*	33.0	13.08	37.9	14.83	0	25.6	12.27
Greensburg	34	14.1	33.5	14.32	38.2	15.26	0	29.2	12.67
Lawrenceville	**36**	14.1	37.6	14.40	39.8	14.89	3	30.3	12.87
Liberty	**54**	**18.3**	58.4	19.03	54.7	18.88	38	50.0	17.00
South Fayette	32	11.8*	28.6	11.14	42.4	13.47	0	25.5	10.77
North Park	35	12.3*	37.2	11.50	32.9	13.02			
Coraopolis	35	13	36.7	12.38	32.8	13.64			
Natrona	**37**	14.2	37.8	14.03	39.9	15.06	2	32.1	13.39
North Braddock	**39**	**15.2**	38.1	15.03	43.7	16.38	7	36.3	14.15
Clairton	35	14.3	35.8	14.49	35.0	15.11	1	34.6	13.32
Erie	31	11.4*	30.2	11.32	35.1	12.06	1	28.8	10.72
Farrell	32	12.2*	30.7	11.84	34.9	13.16	1	30.3	11.61

Primary and Secondary National Ambient Air Quality Standards

Annual Mean (3-year average) = 15 micrograms per cubic meter

24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-16. $PM_{2.5}$ Particulate Matter Historical Trend, Federal Reference (FRM) Monitors.

Units: micrograms per cubic meter / local conditions

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Southeast Pennsylvania Air Basin											
Bristol	12.0*	13.8*	14.6	14.2	14.4	13.0*	14.3	12.2*	13.02*	12.66*	Annual Mean
P01	32.8	38.4	38.5	37.2	39.6	29.9	35.4	34.2	35.0	30.9	98th Percentile 24-hour Mean
Chester	13.1*	15.9	16.0	14.6	15.3	15.0	16.5	14.0*	14.45	13.84	Annual Mean
P11	35.9	36.2	39.5	31.9	37.8	30.5	37.0	36.7	34.5	28.6	98th Percentile 24-hour Mean
Norristown	13.0*	13.6*	15.1*	13.7	13.9	12.0*	12.5*	12.1	13.09	11.66	Annual Mean
P21	31.3	37.5	47.6	36.8	37.5	28.8	32.8	36.4	30.1	23.7	98th Percentile 24-hour Mean
New Garden Airport	***	***	***	14.7	15.6	14.3*	15.9*	12.6*	14.07*	13.68*	Annual Mean
P30	***	***	***	33.7	38.5	32.7	33.7	38.3	38.1	32.0	98th Percentile 24-hour Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown	11.9*	14.3	15.3*	13.1*	15.0*	14.0	14.5	***	***	***	Annual Mean
A19	31.5	38.2	44.5	38.9	36.6	35.9	36.7	***	***	***	98th Percentile 24-hour Mean
Freemansburg	12.9*	13.6*	15.5	14.1	14.3	13.7	14.2	12.8	13.31	12.26	Annual Mean
A25	31.3	37.3	42.9	40.9	37.8	35.2	39.1	38.3	37.9	33.1	98th Percentile 24-hour Mean
Scranton-Wilkes-Barre Air Basin											
Scranton	11.0*	11.7	12.9	12.4	12.5	11.6	12.5	10.6	11.28	10.06	Annual Mean
S01	29.7	31.5	36.7	42.7	33.8	31.2	32.8	28.7	32	27.7	98th Percentile 24-hour Mean
Wilkes-Barre	12.5*	12.7	13.8	12.0*	13.1	12.2	13.0	***	***	***	Annual Mean
S28	32.8	32.9	37.4	28.2	35.1	30.8	31.5	***	***	***	98th Percentile 24-hour Mean
Reading Air Basin											
Reading	13.5*	16.9	16.5	16.7*	16.1	15.6	16.8	12.2*	***	***	Annual Mean
R01	35.7	37.5	43	48.5	45	33.1	39.4	36.9	***	***	98th Percentile 24-hour Mean
Reading (Temporary)	***	***	***	***	***	***	***	14.9*	13.26*	***	Annual Mean
R02	***	***	***	***	***	***	***	39.4	43.6	***	98th Percentile 24-hour Mean
Reading Airport	***	***	***	***	***	***	***	***	15.28*	12.48	Annual Mean
R03	***	***	***	***	***	***	***	***	33.9	28.4	98th Percentile 24-hour Mean
Harrisburg Air Basin											
Harrisburg	14.4*	15.4*	16.6	14.5	16.2	15.7	15.5	14.0	14.28	13.18	Annual Mean
H11	39.7	45.6	47.7	42.7	41.5	35.5	40.1	37	35.6	34.3	98th Percentile 24-hour Mean
Lancaster Air Basin											
Lancaster	15.6*	17.8	17.3	16.2	17.6	16.6	18.2	14.1	15.40	13.93	Annual Mean
L01	38.2	47	42.1	40.2	51.5	35.5	45.2	34.9	39.6	35.0	98th Percentile 24-hour Mean

Primary and Secondary National Ambient Air Quality Standards

Annual Mean (3-year average) = 15 micrograms per cubic meter

24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-16. $PM_{2.5}$ Particulate Matter Historical Trend, Federal Reference (FRM) Monitors (cont,).

(Units: micrograms per cubic meter / local conditions)

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
York Air Basin											
York	15.4*	16.7	16.9	17.1	17.4	16.5	18.1	14.0	15.68	13.64	Annual Mean
Y01	34.9	41.1	41.3	47.3	47	39	39.4	33.2	37	32.3	98th Percentile 24-hour Mean
Southcentral Region Non-Air Basin											
Perry County	***	12.2	12.6	13.3	13.1*	12.2	13.1	***	***	***	Annual Mean
305	***	30.2	33.7	36.9	34.5	27.9	29	***	***	***	98th Percentile 24-hour Mean
Arendtsville	13.1*	13.1*	14.1	12.6	13.6	13.7	13.6	11.8	12.31	11.45	Annual Mean
314	34	36.5	36	38.9	36.5	36.3	35.8	33.6	30.7	30.5	98th Percentile 24-hour Mean
Carlisle	***	***	15.6	14.4	15.3	15.1	14.9	13.0	13.70	13.03	Annual Mean
316	***	***	45	41.5	41.6	39.1	40.1	33.3	35.3	33.7	98th Percentile 24-hour Mean
Northcentral Region Non-Air Basin											
State College	***	***	13.9*	11.9*	13.6	13.3	13.4	11.4	11.93	10.79	Annual Mean
409	***	***	45	36.9	35.4	37.8	39.7	31.7	33.1	29.7	98th Percentile 24-hour Mean
Johnstown Air Basin											
Johnstown	14.8*	16.1*	15.5*	16.1	15.5	14.4	16.8	14.8	14.42*	13.86	Annual Mean
J01	31	35.4	42.1	46.6	36.8	36.2	43.2	39	34.6	32.2	98th Percentile 24-hour Mean
Monongahela Valley Air Basin											
Charleroi	15.4*	15.5*	15.7	15.2	14.9	14.0	16.4	14.4	15.51	13.03	Annual Mean
M01	33.2	36	44.4	43.3	35.6	35.4	36.4	31.6	40.9	27.2	98th Percentile 24-hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls	***	15.9*	16.5	15.3	15.7	15.4	18.3	14.9	15.72*	13.69	Annual Mean
B11	***	43.6	42.4	37.7	33.8	43	51.8	37	38.2	31.2	98th Percentile 24-hour Mean
Southwest Region Non-Air Basin											
Florence	13.0*	13.3	14.3*	13.6*	13.4	13.2	14.2	11.9*	13.79	11.30*	Annual Mean
504	38.1	30.5	35.5	36.7	33.9	36	39.2	39.3	41.2	26.4	98th Percentile 24-hour Mean
Washington	14.6*	15.1	15.8*	14.7	14.7	14.1	15.9	13.1*	14.83	12.27	Annual Mean
508	42.4	33.3	36.6	37.2	33.4	34	33.1	33	37.9	25.6	98th Percentile 24-hour Mean
Greensburg	14.9*	16.0*	15.9	14.9*	15.3	14.9	16.8	14.3	15.26	12.67	Annual Mean
513	37.5	37.2	36	40	34.8	39	38.7	33.5	38.2	29.2	98th Percentile 24-hour Mean
Erie Air Basin											
Erie	12.6*	13.8*	13.8*	13.3*	12.6*	11.9	14.4	11.3*	12.06	10.72	Annual Mean
E10	30.5	28.2	37.5	42.9	29.7	32.5	40.7	30.2	35.1	28.8	98th Percentile 24-hour Mean

Primary and Secondary National Ambient Air Quality Standards

Annual Mean (3-year average) = 15 micrograms per cubic meter

24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-16. $PM_{2.5}$ Particulate Matter Historical Trend, Federal Reference (FRM) Monitors (cont,).

(Units: micrograms per cubic meter / local conditions)

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Northwest Region Non-Air Basin											
Farrell	***	***	14.9*	14.0	13.8	13.4	14.1	11.8*	13.16	11.61	Annual Mean
606	***	***	43	36.6	35.4	34.5	39	30.7	34.9	30.3	98th Percentile 24-hour Mean

Primary and Secondary National Ambient Air Quality Standards

Annual Mean (3-year average) = 15 micrograms per cubic meter

24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-17. $PM_{2.5}$ Particulate Matter Historical Trend, Continuous Method Monitors.

Units: micrograms per cubic meter / local conditions

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Southeast Pennsylvania Air Basin											
Chester (BAM)	***	***	***	***	***	***	***	11.6*	15.15	18.21	Annual Mean
P11	***	***	***	***	***	***	***	27.4	36.8	37.6	98th Percentile 24-hour Mean
Norristown (TEOM)	***	***	***	***	***	17.6	18.6	17.8	21.41	22.92*	Annual Mean
P21	***	***	***	***	***	40.4	42.3	44.5	45.0	44.0	98th Percentile 24-hour Mean
Allentown-Bethlehem-Easton Air Basin											
Easton (TEOM)	***	12.2	14.9	14.8	14.5	13.6*	***	***	***	***	Annual Mean
A20	***	33.0	40.0	43.5	37.7	32.1	***	***	***	***	98th Percentile 24-hour Mean
Freemansburg (TEOM)	***	***	***	***	***	15.7*	14.6	12.8	14.24	13.43*	Annual Mean
A25	***	***	***	***	***	37.9	36.9	35.5	35.5	31.1	98th Percentile 24-hour Mean
Reading Air Basin											
Reading (TEOM)	***	***	***	***	***	15.3*	18.1*	13.6*	***	***	Annual Mean
R01	***	***	***	***	***	35.3	42.4	36.1	***	***	98th Percentile 24-hour Mean
Reading (Temporary) (TEOM)	***	***	***	***	***	***	***	18.0*	15.08	***	Annual Mean
R02	***	***	***	***	***	***	***	45.4	36.9	***	98th Percentile 24-hour Mean
Reading Airport (TEOM)	***	***	***	***	***	***	***	***	16.72	16.07*	Annual Mean
R03	***	***	***	***	***	***	***	***	41.2	43.2	98th Percentile 24-hour Mean
Harrisburg Air Basin											
Harrisburg (BAM)	***	***	***	***	***	21.2*	18.6	15.7	14.75	14.63	Annual Mean
H11	***	***	***	***	***	43.4	48.9	43.8	36.4	37.5	98th Percentile 24-hour Mean
Lancaster Air Basin											
Lancaster (TEOM)	***	***	***	***	***	18.7	18.0	18.7	20.45	16.25*	Annual Mean
L01	***	***	***	***	***	46.1	44.7	46.9	46.6	45.6	98th Percentile 24-hour Mean
York Air Basin											
York (TEOM)	***	***	***	***	***	17.7*	16.8	16.9	16.68*	14.92*	Annual Mean
Y01	***	***	***	***	***	38.8	44.3	42.5	43.3	38.4	98th Percentile 24-hour Mean
Southcentral Region Non-Air Basin											
Arendtsville (TEOM)	***	***	13.8	13.4	13.3	12.3	11.4	13.6	14.23	13.57	Annual Mean
314	***	***	38.0	39.3	33.4	32.4	34.1	34.2	34.3	30.5	98th Percentile 24-hour Mean
Johnstown Air Basin											
Johnstown (BAM)	***	***	***	***	***	16.1*	16.9	15.8	16.04	15.40	Annual Mean
J01	***	***	***	***	***	40.4	45.8	40.9	42.8	36.7	98th Percentile 24-hour Mean

The $PM_{2.5}$ Primary and Secondary National Ambient Air Quality Standards are not applicable to these methods, but are provided below for reference purposes only

Annual Mean (3-year average) = 15 micrograms per cubic meter

24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-17. $PM_{2.5}$ Particulate Matter Historical Trend, Continuous Method Monitors (cont.).

Units: micrograms per cubic meter / local conditions

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Monongahela Valley Air Basin											
Charleroi (BAM)	***	***	***	***	***	***	***	10.0*	14.10	16.28	Annual Mean
M01	***	***	***	***	***	***	***	18.9	40.9	36.6	98th Percentile 24-hour Mean
Lower Beaver Valley Air Basin											
Beaver Falls (TEOM)	***	***	***	***	***	17.9*	17.1	15.4	16.19	13.84*	Annual Mean
B11	***	***	***	***	***	45.7	48.1	39.8	44.0	31.5	98th Percentile 24-hour Mean
Southwest Region Non-Air Basin											
Kittanning (TEOM)	***	12.2	14.9	14.3*	12.4	14.3	14.6	13.3	13.58	12.17	Annual Mean
512	***	29.0	42.0	48.3	28.8	37.8	41.2	37.3	36.0	28.2	98th Percentile 24-hour Mean

Primary and Secondary National Ambient Air Quality Standards

Annual Mean (3-year average) = 15 micrograms per cubic meter

24-hour Mean (3-year average of 98th Percentile) = 35 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-18. PM_{10} Particulate Matter Summary.

Year: 2008

Units: micrograms per cubic meter / standard conditions

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24HR Means	Maximum 24-hour Means: 1st Maximum 24HR Mean	1st Maximum Date MM/DD	2nd Maximum 24HR Mean	2nd Maximum Date MM/DD	3rd Maximum 24HR Mean	3rd Maximum Date MM/DD	4th Maximum 24HR Mean	4th Maximum Date MM/DD
Southeast Pennsylvania Air Basin											
Bristol (TEOM)	P01	15.5	344	49	04/19	45	06/07	42	06/10	42	07/29
Chester (TEOM)	P11	19.4	356	64	04/21	51	04/19	49	09/25	48	07/18
Norristown (TEOM)	P21	15.2	363	48	04/19	44	07/29	41	07/30	40	04/09
Allentown-Bethlehem-Easton Air Basin											
Allentown (TEOM)	A19	15.5	355	45	07/29	45	07/30	43	04/19	41	06/07
Freemansburg (TEOM)	A25	16.5	350	53	07/29	50	07/30	48	04/19	46	04/18
Nazareth (TEOM)	A26	25.9	318	138	06/26	114	06/27	90	07/03	82	06/25
Scranton-Wilkes-Barre Air Basin											
Scranton (TEOM)	S01	16.3	355	43	07/19	42	04/19	39	06/07	38	07/20
Wilkes-Barre (TEOM)	S28	15.9	355	48	07/19	44	04/18	43	07/04	42	04/19
Reading Air Basin											
Reading Airport (TEOM)	R03	12.2	366	42	06/07	39	07/29	39	07/30	36	07/19
Reading (Central)	R15	21.5	54	82	07/17	51	01/07	43	04/18	37	05/06
Harrisburg Air Basin											
Harrisburg (TEOM)	H11	18.8	355	48	09/04	47	07/30	45	07/12	44	01/07
Lancaster Air Basin											
Lancaster (TEOM)	L01	17.9	365	48	04/19	48	07/18	48	07/30	47	07/17
York Air Basin											
York (TEOM)	Y01	20.3	358	52	04/18	51	07/17	49	07/18	47	06/10
Southcentral Region Non-Air Basin											
Altoona (TEOM)	308	17.6	363	56	07/18	53	07/29	52	07/30	49	07/17
Northcentral Region Non-Air Basin											
Montoursville	410	16.9	55	49	07/17	41	07/29	38	01/07	35	02/24
Johnstown Air Basin											
Johnstown (TEOM)	J01	20.2	363	56	07/18	52	05/07	48	01/29	47	07/29
Monongahela Valley Air Basin											
Charleroi (TEOM)	M01	19.0	364	56	07/29	50	07/17	50	09/04	47	09/22
Monessen	M16	25.1	61	56	07/17	54	07/29	52	09/03	47	04/18

Primary and Secondary National Ambient Air Quality Standards

24-hour Mean = 150 micrograms per cubic meter (3-year average, not to be exceeded more than once per year)

Former Annual Mean = 50 micrograms per cubic meter (3-year average)

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-18. PM_{10} Particulate Matter Summary (cont.).

Year: 2008

Units: micrograms per cubic meter / standard conditions

Site Name	PA Site Code	Arithmetic Annual Mean	Number 24HR Means	Maximum 24-hour Means: 1st Maximum 24HR Mean	1st Maximum Date MM/DD	2nd Maximum 24HR Mean	2nd Maximum Date MM/DD	3rd Maximum 24HR Mean	3rd Maximum Date MM/DD	4th Maximum 24HR Mean	4th Maximum Date MM/DD
Lower Beaver Valley Air Basin											
Beaver Falls (TEOM)	B11	20.4	366	65	04/17	62	07/18	61	04/18	58	09/04
Southwest Region Non-Air Basin											
Florence	504	18.0*	57	47	07/17	46	07/29	37	09/21	35	05/30
Greensburg (TEOM)	513	17.6	320	49	07/18	47	07/17	41	07/29	39	07/19
Upper Beaver Valley Air Basin											
New Castle (TEOM)	B21	27.4	352	91	10/26	76	05/07	74	07/18	73	07/19
Erie Air Basin											
Erie (TEOM)	E10	16.2*	291	65	09/10	65	09/11	63	09/14	57	09/09

Primary and Secondary National Ambient Air Quality Standards

24-hour Mean = 150 micrograms per cubic meter (3-year average, not to be exceeded more than once per year)

Former Annual Mean = 50 micrograms per cubic meter (3-year average)

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-19. PM_{10} Particulate Matter Historical Trend.

Units: micrograms per cubic meter

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Southeast Pennsylvania Air Basin											
Bristol (TEOM)	59	39	59	64	74	59	56	52	48	45	2nd Max 24-hour Average
P01	17	18	21	18	19	18	18	17	16.6	15.5	Annual Mean
Chester (TEOM)	57	45	66	111	74	63	58	63	46	51	2nd Max 24-hour Average
P11	21	22	23	20	21	23	21	20	18.8	19.4	Annual Mean
Norristown (TEOM)	50	41	58	72	55	52	58	55	48	44	2nd Max 24-hour Average
P21	18	19	20	16	19	17	19	17	16.4	15.2	Annual Mean
Allentown-Bethlehem-Easton Air Basin											
Allentown (TEOM)	38	78	78	90	49	45	54	52	45	45	2nd Max 24-hour Average
A19	11	29	21	18	18	15	18	17	14.5	15.5	Annual Mean
Freemansburg (TEOM)	101	85	64	90	68	59	55	50	54	50	2nd Max 24-hour Average
A25	38	35	20	20	19	19	19	18	18	16.5	Annual Mean
Nazareth (TEOM)	***	76	101	107	114	115	139	88	70	114	2nd Max 24-hour Average
A26	***	28	30	29	33	32	38	28	20.6	25.9	Annual Mean
Scranton-Wilkes-Barre Air Basin											
Scranton (TEOM)	51	40	60	74	66	43	55	52	49	42	2nd Max 24-hour Average
S01	12*	16	20	18	17	16	17	17	17.4	16.3	Annual Mean
Wilkes-Barre (TEOM)	46	45	65	69	77	50	58	56	57	44	2nd Max 24-hour Average
S28	***	18	20	19	21	17	20	18	18.5	15.9	Annual Mean
Reading Air Basin											
Reading (TEOM)	54	44	66	82	54	52	60	34	***	***	2nd Max 24-hour Average
R01	21	20	22	20	19	20	21	13*	***	***	Annual Mean
Reading Airport (TEOM)	***	***	***	***	***	***	***	***	38	39	2nd Max 24-hour Average
R03	***	***	***	***	***	***	***	***	14.1*	12.2	Annual Mean
Reading (Central)	51	50	57	59	50	45	58	47	43	51	2nd Max 24-hour Average
R15	29	27	24	25	25	20	24*	21	21.5*	21.5	Annual Mean
Harrisburg Air Basin											
Harrisburg (TEOM)	54	53	62	72	66	61	56	53	53	47	2nd Max 24-hour Average
H11	21	21	22	20	21	21	21	20	19.9	18.8	Annual Mean
Lancaster Air Basin											
Lancaster (TEOM)	62	55	69	107	53	54	63	58	51	48	2nd Max 24-hour Average
L01	24	21	23	21	20	20	20	19	19.2	17.9	Annual Mean

24-hour Mean = 150 micrograms per cubic meter (3-year average, not to be exceeded more than once per year)

Former Annual Mean = 50 micrograms per cubic meter (3-year average)

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-19. PM_{10} Particulate Matter Historical Trend (cont.).

Units: micrograms per cubic meter

Site Name/PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
York Air Basin											
York (TEOM)	62	53	73	85	77	53	67	62	58	51	2nd Max 24-hour Average
Y01	23	22	24	21	24	22	24	23	21.9	20.3	Annual Mean
Southcentral Region Non-Air Basin											
Altoona (TEOM)	64	50	76	67	95	63	74	63	68	53	2nd Max 24-hour Average
308	19	20	24	22	20	20	21	19	18	17.6	Annual Mean
Northcentral Region Non-Air Basin											
Montoursville	***	***	***	55	41	41	39	38	31	41	2nd Max 24-hour Average
410	***	***	***	20	20	18*	20	17	16.7*	16.9	Annual Mean
Johnstown Air Basin											
Johnstown (TEOM)	65	50	99	68	67	61	73	61	63	52	2nd Max 24-hour Average
J01	24	21	24	24	22	22	24	23	20.9	20.2	Annual Mean
Monongahela Valley Air Basin											
Charleroi (TEOM)	102	78	71	62	67	64	75	58	61	50	2nd Max 24-hour Average
M01	27	21	25	21	19	20	23	21	21.4	19.0	Annual Mean
Monessen	71	57	58	66	56	60	53	49	55	54	2nd Max 24-hour Average
M16	38	31	31	30	29	25	30	25	27.4	25.1	Annual Mean
Lower Beaver Valley Air Basin											
Beaver Falls (TEOM)	77	51	81	86	77	64	74	81	88	62	2nd Max 24-hour Average
B11	***	22	26	25	22	23	26	26	26.4	20.4	Annual Mean
Southwest Region Non-Air Basin											
Florence	60	39	46	59	42	46	47	48	49	46	2nd Max 24-hour Average
504	27	22	20	21	20	16	21	17	21.0*	18.0*	Annual Mean
Greensburg (TEOM)	69	45	61	60	63	50	68	50	61	47	2nd Max 24-hour Average
513	20	19	23	22	22	20*	23	20	20.6	17.6	Annual Mean
Upper Beaver Valley Air Basin											
New Castle (TEOM)	88	61	83	77	89	65	78	72	82	76	2nd Max 24-hour Average
B21	28	28	32	29	26	26	26	27	26.6	27.4	Annual Mean
Erie Air Basin											
Erie (TEOM)	53	41	61	60	54	48	53	46	56	65	2nd Max 24-hour Average
E10	18	18	19	19	16	14*	16	15	16.1	16.2*	Annual Mean

Primary and Secondary National Ambient Air Quality Standards

24-hour Mean = 150 micrograms per cubic meter (3-year average, not to be exceeded more than once per year)

Former Annual Mean = 50 micrograms per cubic meter (3-year average)

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-20. Lead Suspended Particulate Matter Summary.

Year: 2008

Units: micrograms per cubic meter

Site Name	PA Site Code	Quarterly Averages 1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Number of Samples 1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Southeast Pennsylvania Air Basin									
Chester	P11	0.05	0.04*	***	***	16	7	0	0
Reading Air Basin									
Laureldale	R10	0.18	0.23	0.16	0.09	14	15	14	15
Southcentral Region Non-Air Basin									
Lyons East	301	0.11	0.09	0.08	0.20	15	14	15	15
Lyons South	375	0.05	0.06	0.04	0.06	16	15	14	15
Johnstown Air Basin									
East Conemaugh	J08	0.05	0.04	0.04	0.04	16	14	15	15
Monongahela Valley Air Basin									
Monessen	M16	0.05	0.05	0.04	0.04	16	15	15	14
Lower Beaver Valley Air Basin									
Vanport	B05	0.12	0.18	0.10	0.13	13	13	14	12

Primary and Secondary Quarterly National Ambient Air Quality Standard is 1.5 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-21. Lead Suspended Particulate Matter Historical Trend.

Maximum Quarterly Means

Units: micrograms per cubic meter

Site Name	PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Southeast Pennsylvania Air Basin											
Chester	P11	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.04	***
Northeast Region Non-Air Basin											
Palmerton	205	0.07	0.11	0.07	0.09	0.10	0.12	0.25	***	***	***
Reading Air Basin											
Laureldale	R10	0.29	0.33	0.27	0.22	0.39	0.40	0.39	0.38	0.34	0.23
Southcentral Region Non-Air Basin											
Lyons East	301	***	0.22	0.23	0.16	0.12	0.18	0.17	0.14	0.11	0.20
Lyons South	375	***	***	***	0.09	0.08	0.09	0.09	0.10	0.06	0.06
Johnstown Air Basin											
East Conemaugh	J08	0.09	0.05	0.04	0.03	0.04	0.05	0.06	0.05	0.07	0.05
Monongahela Valley Air Basin											
Monessen	M16	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.05
Lower Beaver Valley Air Basin											
Vanport	B05	0.08	0.07	0.06	0.11	0.09	0.09	0.15	0.18	0.12	0.18

Primary and Secondary Quarterly National Ambient Air Quality Standard is 1.5 micrograms per cubic meter

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-22. Total Suspended Particulate Matter Summary.

Units: micrograms per cubic meter

Year: 2008

Site Name	PA Site Code	Geometric Annual Mean	Geometric Standard Deviation	Arithmetic Annual Mean	Number 24-hour Samples	1st Maximum 24HR Mean	1st Maximum Date MM/DD	2nd Maximum 24HR Mean	2nd Maximum Date MM/DD	Minimum 24HR Mean	Minimum Date MM/DD
Southeast Pennsylvania Air Basin											
Chester	P11	***	***	***	***	***	***	***	***	***	***
Reading Air Basin											
Laureldale	R10	31	1.67	35	58	89	03/25	83	05/30	8	09/27
Southcentral Region Non-Air Basin											
Lyons East	301	23	1.77	27	60	56	04/18	56	07/29	3	02/24
Lyons South	375	19	1.67	22	60	57	05/06	55	04/18	6	03/19
Johnstown Air Basin											
East Conemaugh	J08	23	1.57	25	60	53	04/30	52	07/29	8	11/26
Monongahela Valley Air Basin											
Monessen	M16	34	1.71	38	61	85	09/03	77	07/17	7	02/06
Lower Beaver Valley Air Basin											
Vanport	B05	24	1.78	27	53	58	07/29	55	09/03	7	08/10

No Primary or Secondary Air Quality Standards

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-23. Total Suspended Particulate Matter Historical Trend.

Annual Geometric Means

Units: micrograms per cubic meter

Site Name	PA Site Code	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Southeast Pennsylvania Air Basin											
Chester	P11	35	39	36	33	35	34	37	28	32	***
Northeast Region Non-Air Basin											
Palmerton	205	27	28	27	28	30	25	29	***	***	***
Reading Air Basin											
Laureldale	R10	44	44	39	40	39	34	39	31	32	31
Southcentral Region Non-Air Basin											
Lyons East	301	***	39	30	28	42	25	27	26	26	23
Lyons South	375	***	***	***	26	23	21	22	19	21	19
Johnstown Air Basin											
East Conemaugh	J08	42	42	30	28	30	26	30	26	27	23
Monongahela Valley Air Basin											
Monessen	M16	44	42	46	39	38	37	43	40	37	34
Lower Beaver Valley Air Basin											
Vanport	B05	34	35	30	17*	9	8	14	23	29	24

No Primary or Secondary Air Quality Standards

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-24. Sulfate Suspended Particulate Matter Summary.

Year: 2008

Units: micrograms per cubic meter

Site Name	PA Site Code	Annual Mean	Number 24HR Samples	Number 30-Day >10	1st Maximum 30-Day Mean	1st Maximum Date MM	2nd Maximum 30-Day Mean	2nd Maximum Date MM	Number 24HR >30	1st Maximum 24HR Mean	1st Maximum Date MM/DD	2nd Maximum 24HR Mean	2nd Maximum Date MM/DD
Reading Air Basin													
Laureldale	R10	8.6	60	3	12.2	7	10.2	2	0	15.4	07/29	15.3	07/17
Johnstown Air Basin													
East Conemaugh	J08	8.8	60	1	13	7	9.6	10	0	18.3	07/29	16.7	09/21
Monongahela Valley Air Basin													
Monessen	M16	11.6	60	9	17	7	15.8	9	0	24.1	09/03	22.9	07/17

No Primary or Secondary Air Quality Standards

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-25. Nitrate Suspended Particulate Matter Summary.

Year: 2008

Units: micrograms per cubic meter

Site Name	PA Site Code	Annual Mean	Number 24HR Samples	1st Maximum 24HR Mean	1st Maximum Date MM/DD	2nd Maximum 24HR Mean	2nd Maximum Date MM/DD	3rd Maximum 24HR Mean	3rd Maximum Date MM/DD	Minimum 24HR Mean	Minimum Date MM/DD
Reading Air Basin											
Laureldale	R10	3.47	60	7.8	02/24	7.1	01/07	7.0	03/07	0.92	09/15
Johnstown Air Basin											
East Conemaugh	J08	2.18	60	5.5	01/25	5.0	02/24	4.6	02/12	0.25	11/26
Monongahela Valley Air Basin											
Monessen	M16	3.11	60	8.4	02/24	6.4	11/02	6.1	06/11	1.20	10/21

No Primary or Secondary Air Quality Standards

* does not satisfy summary criteria

*** less than 50 percent valid data for year

Table B-26. Sulfur Dioxide Point Source Historical Trend.

Units: Tons Per Year

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Change Since 1999
Adams	16	6	19	16	21	28	19	13	20	9	-44%
Armstrong	190523	187915	190639	183156	197675	204299	209456	191494	202608	211810	11%
Beaver	38644	40560	35711	40840	39763	44981	41338	32523	27807	17592	-54%
Bedford	3	3	3	3	3	3	3	3	4	3	0%
Berks	14159	16820	11612	14828	16953	14732	16307	14213	15280	12848	-9%
Blair	3249	3347	3078	1168	1650	2940	2280	3426	3021	3954	22%
Bradford	65	53	162	33	132	145	173	83	52	15	-77%
Bucks	435	371	365	388	397	413	440	463	359	265	-39%
Butler	3381	2607	2820	2265	2177	2162	1424	1334	1365	1068	-68%
Cambria	6552	5856	5911	5842	5620	6924	7168	7363	7691	7183	10%
Cameron	0	0	0	0	0	0	0	0	0	0	0%
Carbon	727	795	762	774	806	768	747	768	752	741	2%
Centre	4370	4223	4182	4360	4316	4319	4527	4541	4279	3450	-21%
Chester	3998	4874	5203	3127	4204	6153	5532	4057	3719	3562	-11%
Clarion	1262	1177	1176	1214	1249	1080	1245	1321	1460	1493	18%
Clearfield	51822	48298	42057	38283	43411	44362	47015	47348	49117	51863	0%
Clinton	6702	6232	4159	1355	8	12	12	5	5	3	-100%
Columbia	484	495	379	207	263	336	240	193	179	238	-51%
Crawford	545	505	259	356	383	452	434	480	370	381	-30%
Cumberland	709	806	764	708	1064	1180	1065	1171	1126	799	13%
Dauphin	677	764	789	403	808	508	711	460	488	242	-64%
Delaware	15405	15398	16184	14539	17370	15964	17050	12638	12295	10316	-33%
Elk	4911	4887	5120	4792	3748	560	642	596	551	615	-87%
Erie	14837	10163	8471	4125	3433	2317	2040	807	272	215	-99%
Fayette	259	263	259	261	264	263	25	25	34	27	-90%
Forest	0	0	0	0	0	0	0	0	0	0	0%
Franklin	72	79	79	78	51	43	44	33	48	36	-50%
Fulton	2	1	0	0	0	0	0	0	0	0	-100%
Greene	142473	166238	186131	159506	140295	149220	146147	135586	145477	160807	13%
Huntingdon	277	178	189	155	223	220	207	277	225	170	-39%
Indiana	181032	149281	157438	122466	168248	160744	146835	122172	135657	116555	-36%
Jefferson	552	550	287	364	395	486	543	537	583	441	-20%
Juniata	0	1	2	2	2	2	2	2	2	2	**
Lackawanna	259	87	97	91	73	89	145	140	143	137	-47%
Lancaster	5175	670	847	498	721	483	385	181	107	93	-98%
Lawrence	27250	28699	32378	28809	24135	26060	21237	15411	19932	14532	-47%
Lebanon	753	815	767	764	670	252	227	247	250	247	-67%
Lehigh	2129	2048	1964	1626	1360	1620	1150	1146	898	831	-61%
Luzerne	4167	3552	4313	3788	3472	3875	4699	4558	3702	3868	-7%
Lycoming	64	77	83	86	80	71	77	104	102	74	16%
McKean	2723	3151	4051	3575	3361	3449	3304	3625	3083	3372	24%

*** no emissions reported

** percentage change N/A

Table B-26. Sulfur Dioxide Point Source Historical Trend (cont.).

Units: Tons Per Year

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Change Since 1999
Mercer	47	45	100	92	121	113	115	108	73	41	-13%
Mifflin	5	9	11	4	6	8	8	7	7	8	60%
Monroe	286	194	76	58	85	38	35	30	36	31	-89%
Montgomery	822	825	835	712	726	787	821	635	548	311	-62%
Montour	113824	107989	111541	111489	124819	127031	127654	129407	127858	42730	-62%
Northampton	54620	54854	51910	56808	61817	62833	58589	53819	53318	36692	-33%
Northumberland	464	545	571	347	498	524	546	516	531	451	-3%
Perry	0	0	1	1	2	1	1	1	2	2	**
Pike	0	0	0	0	0	0	0	0	0	0	0%
Potter	60	64	50	41	50	53	84	78	78	77	28%
Schuylkill	5254	4894	5095	5186	4920	4993	4852	5089	4738	4377	-17%
Snyder	32916	28213	28914	25335	28377	27928	27921	24033	29957	33927	3%
Somerset	138	219	205	183	242	253	243	247	265	223	62%
Sullivan	***	***	***	***	***	***	***	***	***	***	***
Susquehanna	0	0	0	0	0	0	0	0	0	0	0%
Tioga	82	85	79	84	67	88	52	54	51	44	-46%
Union	40	23	11	9	68	11	9	23	19	12	-70%
Venango	2961	1860	1260	1623	1589	1547	1465	1811	1813	1710	-42%
Warren	6948	5214	5981	4896	3204	2858	2977	2949	2628	1616	-77%
Washington	4977	6034	6572	6612	5133	5086	4935	5963	5122	3746	-25%
Wayne	165	176	74	157	106	83	92	136	142	133	-19%
Westmoreland	1229	1143	1581	621	515	674	424	471	456	568	-54%
Wyoming	426	54	611	72	110	456	653	138	84	11	-97%
York	83034	71715	53600	80408	83545	102770	113352	102710	115905	108159	30%
Statewide	**1038961**	**996000**	**997788**	**939589**	**1004804**	**1039650**	**1029723**	**937569**	**986694**	**864726**	**-17%**

*** no emissions reported

** percentage change N/A

Table B-27. Oxides of Nitrogen Point Source Historical Trend.

Units: Tons Per Year

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Change Since 1999
Adams	317	187	192	270	774	451	469	182	268	163	-49%
Armstrong	24603	23354	23990	23342	16441	18430	18348	16545	16709	18861	-23%
Beaver	30521	34047	30038	35427	28508	28684	27895	30361	29848	30172	-1%
Bedford	520	432	336	460	401	385	209	238	282	257	-51%
Berks	5666	5957	4941	5566	5962	5912	5811	5178	5917	5283	-7%
Blair	959	1059	966	779	868	843	911	898	928	847	-12%
Bradford	370	458	392	464	494	468	514	453	375	324	-12%
Bucks	1694	1380	1313	1502	1248	1337	1446	1357	1334	1364	-19%
Butler	2278	2422	2268	1937	1841	1672	1809	1634	1823	1738	-24%
Cambria	2670	2664	2665	2396	1836	2388	2253	2231	2591	2592	-3%
Cameron	14	1	1	1	1	1	1	1	1	1	-93%
Carbon	699	732	685	702	737	711	688	717	693	692	-1%
Centre	3469	3426	3134	2172	1727	1420	1452	1469	1401	1391	-60%
Chester	3062	3442	3555	2554	2833	3123	3413	2893	3155	3069	0%
Clarion	1040	912	761	805	645	641	801	874	922	863	-17%
Clearfield	7610	7281	6797	6681	7315	6966	6940	7490	7423	7439	-2%
Clinton	1886	1954	1665	725	589	554	547	532	556	587	-69%
Columbia	205	207	151	158	182	184	197	156	181	172	-16%
Crawford	3586	4031	3748	2930	2052	1876	1719	829	865	1099	-69%
Cumberland	3646	3442	4531	4423	4386	3027	4213	4997	3448	2638	-28%
Dauphin	1137	1008	776	771	784	694	629	629	769	813	-28%
Delaware	10952	11663	13210	11654	12115	11674	13225	11506	11321	9702	-11%
Elk	2169	1724	2026	1619	1526	1359	1363	1325	1255	1288	-41%
Erie	5313	3333	2499	1500	1239	1183	916	706	661	571	-89%
Fayette	429	440	507	540	611	579	166	128	167	144	-66%
Forest	433	378	461	451	446	349	351	369	358	396	-9%
Franklin	83	91	83	136	148	232	399	254	324	288	247%
Fulton	8	8	5	4	4	7	9	8	8	7	-13%
Greene	21169	24336	28455	23809	18585	19969	18091	20792	24616	25457	20%
Huntingdon	92	110	88	76	78	77	78	70	75	78	-15%
Indiana	50453	49041	48638	46949	44918	41115	39945	40804	39837	37921	-25%
Jefferson	1345	1573	514	589	635	672	699	573	566	586	-56%
Juniata	284	235	224	200	270	230	213	201	324	276	-3%
Lackawanna	425	379	385	367	358	374	387	304	276	249	-41%
Lancaster	3311	1528	1463	1368	1413	1465	1424	1188	1202	1279	-61%
Lawrence	7853	6622	6628	7027	5877	6980	5705	5976	6870	5825	-26%
Lebanon	665	650	705	854	702	845	695	707	677	664	0%
Lehigh	1258	1484	1268	1371	1061	1167	994	1024	929	861	-32%
Luzerne	1843	1898	2617	2041	1718	1374	896	887	1013	1065	-42%
Lycoming	324	399	369	416	431	426	430	396	446	391	21%
McKean	1880	1758	1612	1819	1624	1734	1652	1539	1500	1339	-29%

*** no emissions reported

** percentage change N/A

Table B-27. Oxides of Nitrogen Point Source Historical Trend (cont.).

Units: Tons Per Year

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Change Since 1999
Mercer	1403	1469	1296	1124	1196	911	833	995	1009	1052	-25%
Mifflin	122	117	90	88	82	79	85	79	74	77	-37%
Monroe	150	190	70	67	82	63	60	63	70	82	-45%
Montgomery	1902	1957	1847	1857	1894	1878	1881	1660	1650	1481	-22%
Montour	15980	16344	12423	12391	11547	11685	12932	13704	13443	13159	-18%
Northampton	14179	14844	15579	15431	15868	16339	16560	11954	12874	9819	-31%
Northumberland	546	573	605	522	611	605	653	600	595	634	16%
Perry	120	147	74	118	164	148	105	79	167	171	43%
Pike	2	3	3	1	5	15	0	0	0	2	0%
Potter	1238	1338	1317	1209	1386	1110	1193	1105	1145	1052	-15%
Schuylkill	1479	1399	1498	1513	1324	1343	1554	1392	1281	1283	-13%
Snyder	7320	6563	7588	5479	3644	2998	2995	2800	3871	4255	-42%
Somerset	133	218	216	234	286	260	257	250	252	191	44%
Sullivan	***	***	***	***	***	***	***	***	***	***	***
Susquehanna	13	29	22	37	22	22	26	32	37	24	85%
Tioga	442	526	393	476	623	568	463	447	453	427	-3%
Union	114	100	105	124	134	120	101	107	102	100	-12%
Venango	1381	997	906	700	644	678	609	764	860	805	-42%
Warren	1797	1581	1642	1336	961	843	963	867	797	707	-61%
Washington	9104	11617	11669	10941	8752	7957	7771	9645	8098	6732	-26%
Wayne	38	41	34	36	43	31	33	31	33	31	-18%
Westmoreland	3008	3030	2801	2874	2872	2833	2820	2281	2180	2035	-32%
Wyoming	781	700	696	742	697	852	826	672	637	628	-20%
York	20031	21767	17172	22912	20492	23874	20833	19617	22195	21816	9%
Statewide	**287524**	**291596**	**282708**	**277067**	**246712**	**246790**	**241456**	**237565**	**243737**	**235315**	**-18%**

*** no emissions reported

** percentage change N/A

Table B-28. Carbon Monoxide Point Source Historical Trend.

Units: Tons Per Year

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Change Since 1999
Adams	66	41	34	99	227	201	354	243	333	347	426%
Armstrong	1783	1709	1694	1597	1783	1647	1796	1651	1595	1755	-2%
Beaver	32617	31342	39938	33731	23484	22394	27297	26482	28769	30740	-6%
Bedford	119	125	101	126	147	114	85	77	83	94	-21%
Berks	1573	1508	1368	1534	1729	1758	1583	1606	1648	1759	12%
Blair	1054	1048	1131	1011	1079	835	796	662	628	660	-37%
Bradford	264	266	290	305	438	498	473	482	434	340	29%
Bucks	356	344	369	342	352	521	327	415	491	477	34%
Butler	1938	2137	1974	2005	1961	2146	2154	2184	2253	2079	7%
Cambria	5934	3639	1252	1214	1196	1324	1306	1258	1294	1295	-78%
Cameron	2	0	1	1	1	1	0	0	1	1	-50%
Carbon	8657	9420	9301	9450	9414	9626	9450	9340	9564	9143	6%
Centre	1392	1340	1267	1249	1311	1200	1111	1205	942	888	-36%
Chester	8577	7483	6147	6226	6120	7180	7123	7906	6529	1900	-78%
Clarion	314	173	244	440	328	318	460	508	402	356	13%
Clearfield	384	390	360	358	385	361	461	474	458	446	16%
Clinton	730	766	647	410	426	439	445	488	478	525	-28%
Columbia	19	30	29	31	24	27	36	32	40	50	163%
Crawford	29	88	68	59	60	55	59	62	49	52	79%
Cumberland	109	103	169	174	131	123	127	123	130	187	72%
Dauphin	464	533	383	339	419	516	504	685	656	783	69%
Delaware	6862	6590	3471	3410	3249	3470	3822	3688	3575	3196	-53%
Elk	1843	2584	1281	912	729	1615	2207	2365	2348	2519	37%
Erie	3977	3526	2832	852	566	568	643	602	664	626	-84%
Fayette	81	156	174	87	116	101	82	61	53	45	-44%
Forest	236	216	257	248	272	239	225	227	220	241	2%
Franklin	49	53	63	88	86	132	271	154	216	263	437%
Fulton	2	2	1	4	4	6	7	6	6	6	200%
Greene	1773	1986	1705	1543	1312	1163	1263	1426	1689	1779	0%
Huntingdon	83	73	74	73	76	72	77	69	70	75	-10%
Indiana	2471	2312	3224	3102	3394	4117	5191	5367	5400	4974	101%
Jefferson	204	283	203	220	214	257	213	219	220	207	1%
Juniata	19	43	24	22	28	17	20	23	29	24	26%
Lackawanna	606	380	415	406	500	533	524	507	493	338	-44%
Lancaster	1389	1392	1364	1370	1310	1206	1146	1162	1151	1159	-17%
Lawrence	1985	2069	1863	1796	1781	1978	1961	1902	1652	1893	-5%
Lebanon	1863	2318	2208	1811	1489	515	448	504	502	481	-74%
Lehigh	587	536	550	473	419	458	469	501	360	4205	616%
Luzerne	316	325	299	293	320	354	367	252	260	287	-9%
Lycoming	748	830	656	654	704	722	906	828	733	782	5%
McKean	229	360	271	254	251	252	275	292	261	258	13%

*** no emissions reported

** percentage change N/A

Table B-28. Carbon Monoxide Point Source Historical Trend (cont.).

Units: Tons Per Year

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Change Since 1999
Mercer	175	193	232	338	349	383	376	389	343	420	140%
Mifflin	259	243	193	188	217	250	273	244	236	249	-4%
Monroe	47	122	94	150	147	132	117	152	180	189	302%
Montgomery	1020	1021	1114	1150	1183	1250	1200	1133	1102	1107	9%
Montour	776	832	813	843	898	863	950	966	868	821	6%
Northampton	5100	4993	4933	18771	17920	14131	18189	6650	5156	4122	-19%
Northumberland	476	510	555	471	561	552	567	515	505	509	7%
Perry	35	18	5	12	13	8	8	2	5	3	-91%
Pike	0	1	1	0	2	4	0	1	0	1	**
Potter	1037	1081	1143	1264	1153	767	831	1146	1084	972	-6%
Schuylkill	913	910	933	1150	1310	1305	1347	1380	1410	1364	49%
Snyder	352	354	432	415	376	366	378	343	394	421	20%
Somerset	302	522	478	520	760	671	666	673	715	634	110%
Sullivan	***	***	***	***	***	***	***	***	***	***	***
Susquehanna	3	3	2	7	2	3	2	2	3	2	-33%
Tioga	655	854	775	715	840	267	217	195	189	199	-70%
Union	168	156	148	126	122	127	109	103	80	75	-55%
Venango	305	342	295	292	342	336	310	300	292	319	5%
Warren	577	535	535	540	494	500	520	440	571	643	11%
Washington	1344	1317	672	602	600	272	432	504	456	361	-73%
Wayne	3	3	2	2	3	2	2	2	0	2	-33%
Westmoreland	1763	2494	2889	2254	1839	1304	1309	1176	1239	1300	-26%
Wyoming	638	395	453	398	460	461	534	553	462	437	-32%
York	2838	2811	2335	2582	2638	2661	2513	2313	2739	2162	-24%
Statewide	**110490**	**108229**	**106734**	**111109**	**100064**	**95674**	**106914**	**95220**	**94708**	**93547**	**-15%**

*** no emissions reported

** percentage change N/A

Table B-29. Volatile Organic Compounds (VOC) Point Source Historical Trend.

Units: Tons Per Year

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Change Since 1999
Adams	211	210	223	179	175	208	202	197	210	191	-9%
Armstrong	350	309	161	169	167	168	183	188	174	181	-48%
Beaver	924	920	888	826	770	814	648	669	621	599	-35%
Bedford	469	455	324	336	303	259	215	229	207	179	-62%
Berks	1959	1925	1757	1740	1609	1728	1595	1433	1294	1247	-36%
Blair	581	556	532	442	402	439	439	439	395	387	-33%
Bradford	457	520	527	562	626	654	681	690	646	492	8%
Bucks	1961	1858	1320	792	783	759	728	734	664	579	-70%
Butler	884	985	828	908	885	785	782	678	691	673	-24%
Cambria	370	262	163	127	139	146	107	104	105	121	-67%
Cameron	31	28	22	14	8	10	15	9	4	4	-87%
Carbon	275	321	205	242	288	344	347	359	304	368	34%
Centre	85	34	35	45	83	32	38	37	27	22	-74%
Chester	2302	2337	1816	1424	1338	1466	1433	1304	1058	1046	-55%
Clarion	266	250	210	277	247	226	334	309	260	320	20%
Clearfield	109	114	100	109	88	89	78	83	71	54	-50%
Clinton	258	281	253	202	191	181	212	187	199	211	-18%
Columbia	149	150	126	119	142	158	153	132	100	86	-42%
Crawford	234	263	208	173	171	219	207	199	173	121	-48%
Cumberland	479	401	321	351	367	372	349	299	293	286	-40%
Dauphin	379	428	381	343	293	324	358	404	366	291	-23%
Delaware	2332	2298	2017	2074	1894	1712	1766	1658	1704	1395	-40%
Elk	392	316	234	271	189	276	276	281	332	379	-3%
Erie	1764	1463	1271	512	538	619	610	611	614	525	-70%
Fayette	86	90	45	48	43	55	38	37	53	61	-29%
Forest	60	54	46	50	66	65	61	64	66	73	22%
Franklin	374	330	246	271	230	281	281	301	351	293	-22%
Fulton	65	73	40	40	36	63	91	109	88	76	17%
Greene	672	726	781	711	642	708	629	593	622	729	8%
Huntingdon	149	142	129	95	88	95	113	119	121	123	-17%
Indiana	432	420	377	344	361	351	357	341	382	341	-21%
Jefferson	152	211	141	151	161	162	122	107	101	104	-32%
Juniata	207	201	259	251	213	235	233	238	233	196	-5%
Lackawanna	418	410	347	360	334	303	296	267	282	284	-32%
Lancaster	3369	3341	2907	3259	3244	3088	3159	3090	2796	2379	-29%
Lawrence	461	348	292	399	433	347	309	290	219	196	-57%
Lebanon	1127	1025	922	435	208	221	220	227	225	194	-83%
Lehigh	1098	1036	1073	875	786	857	895	858	838	886	-19%
Luzerne	943	1059	1001	1015	933	736	788	771	826	859	-9%
Lycoming	678	636	498	430	356	325	352	345	342	246	-64%
McKean	883	922	842	788	677	776	772	899	833	1056	20%

*** no emissions reported

** percentage change N/A

Table B-29. Volatile Organic Compounds (VOC) Point Source Historical Trend (cont.).

Units: Tons Per Year

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Change Since 1999
Mercer	1039	967	679	688	545	533	480	515	485	473	-54%
Mifflin	137	156	138	131	152	142	152	170	163	87	-36%
Monroe	102	95	45	46	80	75	72	74	65	65	-36%
Montgomery	1850	1692	1469	1333	1233	1141	1002	935	883	746	-60%
Montour	58	114	37	35	38	35	42	43	34	22	-62%
Northampton	512	511	551	845	838	1108	1184	487	374	312	-39%
Northumberland	1155	1096	910	847	719	716	664	741	682	574	-50%
Perry	0	33	0	0	1	2	3	5	2	7	**
Pike	0	0	0	0	0	1	0	0	0	0	0%
Potter	147	141	146	135	136	170	202	221	240	232	58%
Schuylkill	557	551	407	438	317	407	427	324	498	296	-47%
Snyder	538	511	534	530	467	415	395	439	376	300	-44%
Somerset	116	98	86	75	77	58	89	80	75	68	-41%
Sullivan	***	***	***	***	***	***	***	***	***	***	***
Susquehanna	1	1	0	1	0	0	0	0	0	0	-100%
Tioga	274	277	230	192	215	152	146	124	143	775	183%
Union	1026	768	672	579	557	562	397	325	196	138	-87%
Venango	1034	686	483	247	273	155	88	89	104	140	-86%
Warren	1820	1180	693	580	602	590	542	557	584	576	-68%
Washington	236	235	175	201	184	158	172	162	152	147	-38%
Wayne	8	1	0	1	0	0	0	0	1	0	-100%
Westmoreland	1011	986	1313	844	795	828	888	776	736	686	-32%
Wyoming	175	299	290	354	351	318	340	351	348	321	83%
York	3612	3509	3316	2994	1953	1564	1422	1321	1353	1374	-62%
Statewide	**43803**	**41615**	**36042**	**32855**	**30040**	**29786**	**29179**	**27628**	**26384**	**25192**	**-42%**

*** no emissions reported

** percentage change N/A

APPENDIX C. MONITORING SITES, PARAMETERS AND ADDRESSES

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

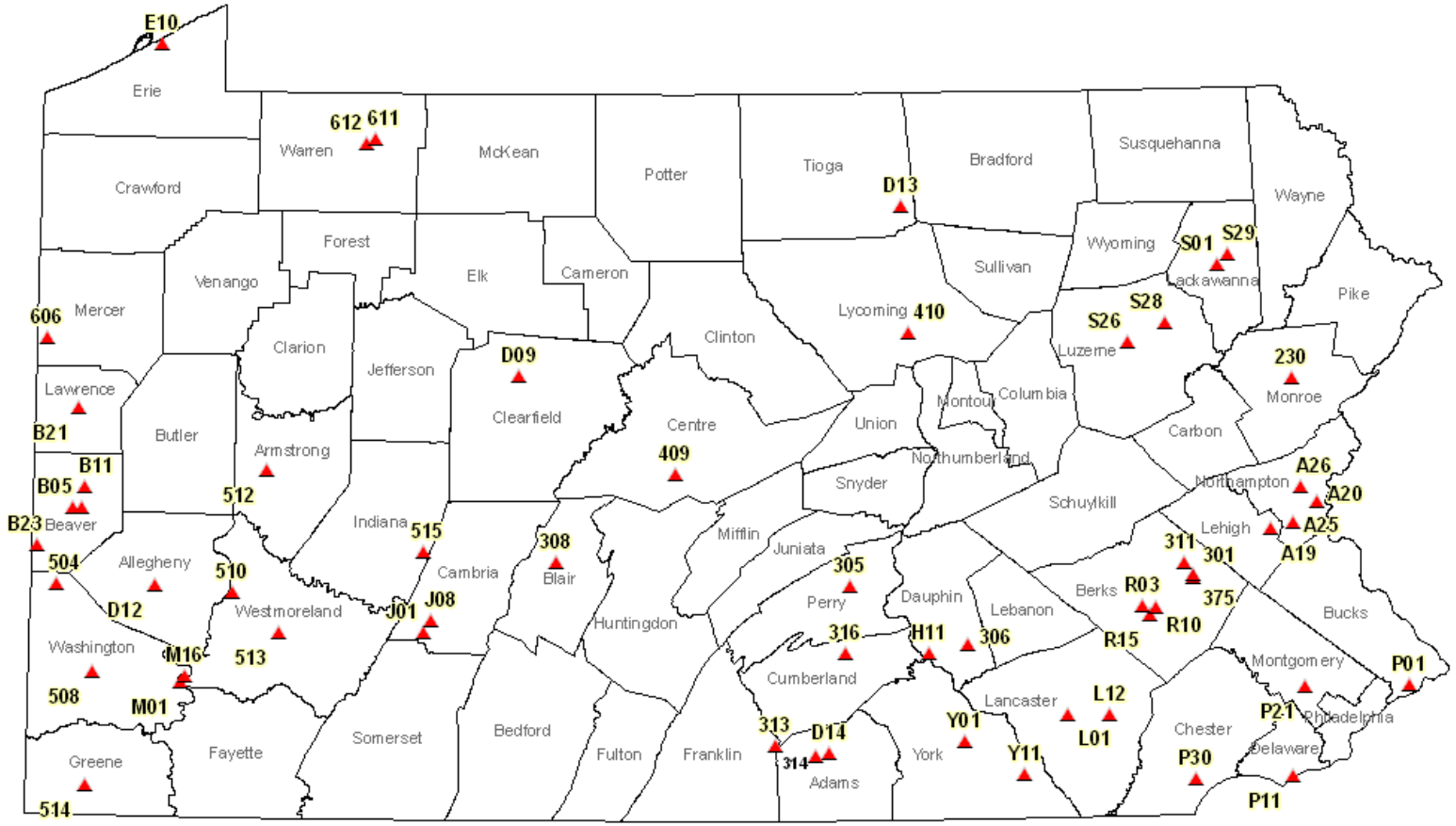


Table C-1. Air Monitoring Site Locations and Parameters Monitored.

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE	OZONE	SULFUR DIOXIDE	NITROGEN DIOXIDE	CARBON MONOXIDE	$PM_{2.5}$	$PM_{2.5}$ SPEC	PM_{10}	TSP	LEAD	SULFATES	NITRATES
Southeast Region. Bucks, Chester, Delaware, Montgomery and Philadelphia Counties																
Southeast Pennsylvania Air Basin																
P01	BRISTOL	42-017-0012	Bucks	Roosevelt Junior High School Rockview Ln	40 06 27 N 74 52 57 W	X	X	X	X	$X_{D2.5}$		X_{C10}				
P11	CHESTER	42-045-0002	Delaware	Front & Norris Sts	39 50 08 N 75 22 22 W	X	X	X		$X_{D2.5}$ $X_{C2.5B}$	X	X_{C10}	X	X		
P21	NORRISTOWN	42-091-0013	Montgomery	State Armory 1046 Belvoir Rd	40 06 45 N 75 18 34 W	X	X	X	X	$X_{D2.5}$ $X_{C2.5T}$		X_{C10}				
P30	NEW GARDEN AIRPORT	42-029-0100	Chester	1235 Newark Rd New Garden Arpt	39 50 04 N 75 46 05 W	X				$X_{D2.5}$	X					
Northeast Region. Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming Counties																
Allentown-Bethlehem-Easton Air Basin																
A19	ALLENTOWN	42-077-0004	Lehigh	Allentown State Hosp, Rear 1600 Hanover Ave	40 36 43 N 75 25 58 W	X	X	X				X_{C10}				
A20	EASTON	42-095-8000	Northampton	Spring Garden	40 41 32 N 75 14 14 W	X	X									
A25	FREEMANSBURG	42-095-0025	Northampton	Washington & Cambria Sts	40 37 41 N 75 20 28 W	X	X	X	X	$X_{D2.5}$ $X_{C2.5T}$	X	X_{C10}				
A26	NAZARETH	42-095-1000	Northampton	S Green & Delaware	40 44 04 N 75 18 46 W							X_{C10}				
Scranton-Wilkes-Barre Air Basin																
S01	SCRANTON	42-069-2006	Lackawanna	Behind Penn State Campus George St	41 26 34 N 75 37 23 W	X	X	X	X	$X_{D2.5}$	X	X_{C10}				
S26	NANTICOKE	42-079-1100	Luzerne	255 Lwr Broadway	41 12 33 N 76 00 13 W	X										
S28	WILKES-BARRE	42-079-1101	Luzerne	Chilwick & Washington Sts	41 15 58 N 75 50 47 W	X	X	X	X			X_{C10}				

X Parameter monitored at the site
$X_{D2.5}$ Discrete $PM2_{2.5}$ Sampler, Federal Reference Method (FRM)
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)

Table C-1. Air Monitoring Site Locations and Parameters Monitored (cont.).

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE	OZONE	SULFUR DIOXIDE	NITROGEN DIOXIDE	CARBON MONOXIDE	$PM_{2.5}$	$PM_{2.5}$ SPEC	PM_{10}	TSP	LEAD	SULFATES	NITRATES
S29	PECKVILLE	42-069-0101	Lackawanna	Pleasant Ave & Erie St, Wilson Fire Co. No. 1	41 28 45 N 75 34 41 W	X										
Northeast Region Non-AirBasin																
230	SWIFTWATER	42-089-0002	Monroe	DEP/DCNR Pocono District Office	41 04 59 N 75 19 24 W	X										
Southcentral Region. Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York Counties																
Reading Air Basin																
RO3	READING AIRPORT	42-011-0011	Berks	1059 Arnold Rd	40 23 01 N 75 58 07 W	X	X	X	X	$X_{D2.5}$ $X_{C2.5T}$	X	X_{C10}				
R10	LAURELDALE	42-011-1717	Berks	Muhlenberg Twp Authority, Spring Valley Rd Substation	40 22 38 N 75 54 53 W								X	X	X	X
R15	READING CENTRAL	42-011-0015	Berks	Northwest Junior High School, N Front & W Spring Sts	40 21 04 N 75 56 08 W							X_{D10}				
Harrisburg Air Basin																
H11	HARRISBURG	42-043-0401	Dauphin	1833 UPS Dr	40 14 42 N 76 50 41 W	X	X	X	X	$X_{D2.5}$ $X_{C2.5B}$	X	X_{C10}				
Lancaster Air Basin																
L01	LANCASTER	42-071-0007	Lancaster	Lincoln Junior High School	40 02 49 N 76 17 00 W	X	X	X	X	$X_{D2.5}$ $X_{C2.5T}$	X	X_{C10}				
York Air Basin																
Y01	YORK	42-133-0008	York	Davis Junior High School, Hill St	39 57 56 N 76 41 59 W	X	X	X	X	$X_{D2.5}$ $X_{C2.5T}$	X	X_{C10}				
Southcentral Region Non-Air Basin																
301	LYONS EAST	42-011-0717	Berks	Near State & Kemp Sts	40 28 36 N 75 45 33 W								X	X		
305	PERRY COUNTY	42-099-0301	Perry	Little Buffalo State Park	40 27 26 N 77 09 57 W	X	X	X								

X Parameter monitored at the site
$X_{D2.5}$ Discrete $PM2_{2.5}$ Sampler, Federal Reference Method (FRM)
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)

Table C-1. Air Monitoring Site Locations and Parameters Monitored (cont.).

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE	OZONE	SULFUR DIOXIDE	NITROGEN DIOXIDE	CARBON MONOXIDE	$PM_{2.5}$	$PM_{2.5}$ SPEC	PM_{10}	TSP	LEAD	SULFATES	NITRATES
306	HERSHEY	42-043-1100	Dauphin	Hershey Foods Technical Centr Sipe Ave & Mae St	40 16 21 N 76 40 53 W	X										
308	ALTOONA	42-013-0801	Blair	Ward Trucking Corporation Second Ave & 7th St	40 32 07 N 78 22 15 W	X	X	X	X			X_{C10}				
311	KUTZTOWN	42-011-0006	Berks	Kutztown University Campus	40 30 51 N 75 47 23 W	X										
313	METHODIST HILL	42-055-0001	Franklin	Forest Rd (High Elevation Site)	39 57 40 N 77 28 31 W	X										
314	ARENDTSVILLE	42-001-0001	Adams	Penn State Research Orchard	39 55 25 N 77 18 29 W			X	X	$X_{D2.5}$ $X_{C2.5T}$	X					
316	CARLISLE	42-041-0101	Cumberland	Imperial Court	40 14 48 N 77 11 12 W					$X_{D2.5}$						
375	LYONS SOUTH	42-011-0005	Berks	Heffner & Dryville Rds	40 27 59 N 75 45 32 W								X	X		
D14	BIGLERVILLE	42-001-0002	Adams	Penn State Research Orchard, University Drive	39 56 06 N 77 15 10 W	X										
L12	LANCASTER DOWNWIND	42-071-0012	Lancaster	3545 W Newport Rd	40 02 38 N 76 06 45 W	X										
Y11	YORK DOWNWIND	42-133-0011	York	2650 Delta Rd	39 51 40 N 76 27 43 W	X										
Northcentral Region. Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union Counties																
Northcentral Region Non-Air Basin																
409	STATE COLLEGE	42-027-0100	Centre	Pennsylvania State Univ.,West of Big Hollow Rd State College	40 48 40 N 77 52 38 W	X	X	X		$X_{D2.5}$	X					
410	MONTOURSVILLE	42-081-0100	Lycoming	PA State Police Rear Parking Lot, 899 Cherry St	41 15 01 N 76 54 51 W	X	X					X_{D10}				

X Parameter monitored at the site
$X_{D2.5}$ Discrete $PM2_{2.5}$ Sampler, Federal Reference Method (FRM)
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)

Table C-1. Air Monitoring Site Locations and Parameters Monitored (cont.).

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE	OZONE	SULFUR DIOXIDE	NITROGEN DIOXIDE	CARBON MONOXIDE	$PM_{2.5}$	$PM_{2.5}$ SPEC	PM_{10}	TSP	LEAD	SULFATES	NITRATES
D09	MOSHANNON	42-033-4000	Clearfield	Moshannon State Forest Elliott State Park North of Cessna	41 07 03 N 78 31 34 W	X										
D13	TIOGA COUNTY	42-117-4000	Tioga	North of Gleason	41 38 44 N 76 56 17 W	X										
Southwest Region. Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland Counties																
Johnstown-Air Basin																
J01	JOHNSTOWN	42-021-0011	Cambria	Miller Auto Body Crafts Shop One Messenger St	40 18 35 N 78 54 54 W	X	X	X	X	$X_{D2.5}$ $X_{C2.5B}$		X_{C10}				
J08	EAST CONEMAUGH	42-021-0808	Cambria	Recreation Field Citron Alley & First St	40 20 53 N 78 52 58 W								X	X	X	X
Monongahela Valley-Air Basin																
M01	CHARLEROI	42-125-0005	Washington	Borough Waste Treatment Plant Front St	40 08 48 N 79 54 08 W	X	X	X	X	$X_{D2.5}$ $X_{C2.5B}$		X_{C10}				
M16	MONESSEN	42-129-0007	Westmoreland	Monessen Community Centr, 435 Donner Ave	40 10 00 N 79 52 30 W							X_{D10}	X	X	X	X
Lower Beaver Valley-Air Basin																
B05	VANPORT	42-007-0505	Beaver	Vanport Water Works Tamaqui Dr	40 41 05 N 80 19 30 W								X	X		
B11	BEAVER FALLS	42-007-0014	Beaver	Eighth St & River Alley	40 44 52 N 80 19 00 W	X	X	X	X	$X_{D2.5}$ $X_{C2.5T}$		X_{C10}				
B23	HOOKSTOWN	42-007-0002	Beaver	FAA Microwave Relay Tower	40 33 47 N 80 30 16 W	X	X									
B27	BRIGHTON TOWNSHIP	42-007-0005	Beaver	1015 Sebring Rd	40 41 05 N 80 21 35 W	X	X									
Allegheny County Air Basin																
D12	PITTSBURGH	42-003-0010	Allegheny	Carnegie Science Center	40 26 44 N 80 00 59 W	X	X	X	X							
Southwest Region Non-Air Basin																

X Parameter monitored at the site
$X_{D2.5}$ Discrete $PM2_{2.5}$ Sampler, Federal Reference Method (FRM)
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)

Table C-1. Air Monitoring Site Locations and Parameters Monitored (cont.).

PA SITE CODE	SITE NAME	EPA-AIRS SITE CODE	COUNTY	STREET ADDRESS	LATITUDE LONGITUDE	OZONE	SULFUR DIOXIDE	NITROGEN DIOXIDE	CARBON MONOXIDE	$PM_{2.5}$	$PM_{2.5}$ SPEC	PM_{10}	TSP	LEAD	SULFATES	NITRATES
504	FLORENCE	42-125-5001	Washington	Hillman State Park	40 26 44 N 80 25 16 W	X	X	X		$X_{D2.5}$	X	X_{D10}				
508	WASHINGTON	42-125-0200	Washington	McCarrell & Fayette Sts	40 10 14 N 80 15 42 W	X	X	X		$X_{D2.5}$						
510	MURRYSVILLE	42-129-0006	Westmoreland	Murrysville Volun. Fire Co. Old William Penn Hwy & Sardis Ave.	40 25 41 N 79 41 35 W	X										
512	KITTANNING	42-005-0001	Armstrong	PA State Police Barracks, Glade Dr & Nolte Rd	40 48 51 N 79 33 54 W	X				$X_{C2.5T}$						
513	GREENSBURG	42-129-0008	Westmoreland	PA Dept. of Transportation Bldg, Donohue Rd	40 18 17 N 79 30 20 W	X	X	X	X	$X_{D2.5}$	X	X_{C10}				
514	HOLBROOK	42-059-0002	Greene	Field 5 km southeast of Holbrook	39 48 58 N 80 17 06 W	X	X		X							
515	STRONGSTOWN	42-063-0004	Indiana	PA Dept. of Transportation Bldg, Rte. 403	40 33 48 N 78 55 12 W	X	X	X								
Northwest Region. Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren Counties																
Upper Beaver Valley-Air Basin																
B21	NEW CASTLE	42-073-0015	Lawrence	Croton Ave & Jefferson St	40 59 45 N 80 20 48 W	X	X	X	X			X_{C10}				
Erie-Air Basin																
E10	ERIE	42-049-0003	Erie	East 10th & Marne Sts	42 08 30 N 80 02 19 W	X	X	X	X	$X_{D2.5}$	X	X_{C10}				
Northwest Region Non-Air Basin																
606	FARRELL	42-085-0100	Mercer	Farrell High School Field, New Castle Rd & Mercer Ave	41 12 52 N 80 28 59 W	X	X			$X_{D2.5}$						
611	WARREN HIGH SCHOOL	42-123-0003	Warren	School District Building, 345 E 5th Ave	41 51 26 N 79 08 15 W		X									
612	WARREN OVERLOOK	42-123-0004	Warren	Overlook Site near Stone Hill Rd	41 50 41 N 79 10 11 W		X									

X Parameter monitored at the site
$X_{D2.5}$ Discrete $PM2_{2.5}$ Sampler, Federal Reference Method (FRM)
$X_{C2.5T}$ Continuous $PM_{2.5}$ Sampler (TEOM)
$X_{C2.5B}$ Continuous $PM_{2.5}$ Sampler (BAM)
X_{D10} Discrete PM_{10} Sampler, Federal Reference Method (FRM)
X_{C10} Continuous PM_{10} Sampler, Federal Equivalent Method (FEM)

APPENDIX D. 2008 ELEMENTAL MERCURY VAPOR SUMMARY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Air Quality

2008 ELEMENTAL MERCURY VAPOR SUMMARY

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

Site Location: Lancaster, Lincoln Junior High School

Monitoring for Mercury Vapor Started June 21, 1999

Valid Hours: 6093 (69.7% Data Availability)

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

Annual Average (Mean)		
1st Maximum Hour Average	6.5	01/10/2008 20:00
2nd Maximum Hour Average	6.0	06/05/2008 03:00
3rd Maximum Hour Average	5.0	03/19/2008 20:00
Maximum 5-minute Sample	8.7	01/10/2008 19:00

Number of 1-Hour Average Values in Ranges

0 to 1	1 to 2	2 to 4	4 to 6	6 or more
02.17%	81.81%	15.96%	0.03%	0.03%

Mercury Vapor Historical Trend										
	1999*	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Annual Mean	1.8	1.8	1.8	1.8	1.8	1.7	1.6	2.1	1.6	1.6
1st Maximum Hour Average	7.9	37.2	7.4	16.7	6.95	26.0	9.09	122.1	21.5	6.5
2nd Maximum Hour Average	7.6	32.3	7.3	14.5	5.78	12.4	7.27	84.5	18.9	6.0
* June 21, 1999 through December 31, 1999										

An episode of higher than normal mercury vapor concentrations started on December 6, 2006, and continued for several weeks with concentrations gradually decreasing. The Department investigated but did not locate the source of mercury emissions. By March 2007, the ambient mercury concentrations had dropped to levels measured historically at this site.

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

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

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

APPENDIX E. MONITORING METHODS

EPA mandates specific methods of sampling and analysis for all pollutants regulated by national ambient air quality standards (NAAQS). These regulations are published in the Code of Federal Regulations (CFR), and are adhered to by DEP. EPA generally approves one analysis method for each pollutant known as the Federal Reference Method (FRM). If a different method can be shown to provide adequate analysis, it may be submitted and approved by the EPA as a Federal Equivalent Method (FEM) or Automated Equivalent Method (AEM) and used in place of the FRM. DEP uses only FRM or FEM methods for all NAAQS-regulated pollutant monitoring.

EPA-approved methods include both continuous and discrete methods.

Continuous methods are automated methods that analyze continuous samples of ambient air for the specified pollutant *in situ*. The output of these specialized air monitoring instruments are hourly pollutant concentrations, which are electronically transmitted to and stored in a data logging device (datalogger). The data is transferred from the datalogger to central operations via DEP's telecommunication network, where real-time measurements can be accessed.

Discrete methods are "manual" methods that require physical removal of a sample (usually a filter through which ambient air as been passed) from its collection site. For this reason, the pollutant concentrations obtained are for a defined or "discrete" period of time; air is not sampled continuously by the instrument.

Table E-1 provides details on the methods and instrumentation utilized by the Bureau of Air Quality, Air Quality Monitoring Division.

Table E-1. Ambient Air Monitoring Equipment and Methods.

PARAMETER	MANUFACTURER/INSTRUMENT/MODEL	EPA METHOD DESIGNATION
Continuous Gaseous Sampling		
O_3	Teledyne Advanced Pollution Instrumentation Model 400 Photometric Ozone Analyzer http://www.teledyne-api.com/products/400e.asp	Automated Equivalent Method: EQOA-0992-087 57 FR 44565, 9/28/92 63 FR 31992, 6/11/98 67 FR 57811, 9/12/02
SO_2	Teledyne Advanced Pollution Instrumentation Model 100A UV Fluorescence SO_2 Analyzer http://www.teledyne-api.com/products/100e.asp	Automated Equivalent Method: EQSA-0990-077 55 FR 38149, 9/17/90
NO/ NO_2 /NO_x	Teledyne Advanced Pollution Instrumentation Model 200A Chemiluminescence Nitrogen Oxides Analyzer for Ambient Concentrations http://www.teledyne-api.com/products/200e.asp	Automated Reference Method: RFNA-0691-082 56 FR 27014, 6/12/91
CO	Teledyne Advanced Pollution Instrumentation Model 300 CO Gas Filter Correlation Analyzer http://www.teledyne-api.com/products/300e.asp	Automated Reference Method: RFCA-1093-093 58 FR 58166, 10/29/93
Particulate Sampling		
$PM_{2.5}$		
Discrete	R&P Partisol-Plus Model 2025 Sequential Air Sampler http://www.rpco.com/products/ambprod/amb2025/index.htm	Manual Reference Method: RFPS-0498-118 63 FR 18911, 4/16/98
Continuous	R&P TEOM Series 8500a Filter Dynamics Measurement System (FDMS) and TEOM Series 1400ab http://www.rpco.com/products/ambprod/amb8500/index.htm	
	Met One Instruments Beta-Attenuation Mass (BAM) Model 1020 http://www.metone.com/documents/BAM1020Particulate.pdf	
$PM_{2.5}$ Speciation	Met One Instruments SASS $PM_{2.5}$ Ambient Chemical Speciation Air Sampler http://www.metone.com/documents/SASS0301Particulate.pdf	

PARAMETER	MANUFACTURER/INSTRUMENT/MODEL	EPA METHOD 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
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

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/
(Choose “Air” from the left-hand menu)

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