MERCURY DEPOSITION IN PENNSYLVANIA: 2005 STATUS REPORT

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Table of Contents

List of Tables

Page

List of Figures

Figure Page

Introduction

Mercury (Hg) is a naturally occurring element in our environment. It enters the atmosphere as a result of natural events, such as volcanic eruptions, or anthropogenic activities, such as the combustion of fossil fuels, especially coal. Mercury is persistent, bio-accumulative, and toxic. Because of these properties, it poses potential human health risks, especially for pregnant women, developing fetuses, and young children. Mercury is also toxic to wildlife, especially fish, birds, and fur-bearing mammals that consume organisms contaminated with mercury. Human exposure to mercury occurs almost exclusively through fish consumption (U.S. EPA, 1997). Because of potential health risks, 48 states in the United States currently have some form of fish advisory for their water bodies, most of which are based on high levels of mercury (U.S. EPA, 2004). Pennsylvania currently has a statewide advisory for all rivers and lakes that was initiated in 2001 (U.S. EPA, 2004).

Concerned over the toxicity of mercury and its potential impact on humans and the environment, The Environmental Protection Agency (EPA) conducted a detailed assessment of the magnitude of U.S. mercury emissions by source, the health and environmental implications of these emissions and depositions, and the availability and cost of control technologies. This assessment, entitled *Mercury Study Report to Congress* (U.S. EPA, 1997) was required under section 112(n)(1)(B) of the Clean Air Act Amendments of 1990, Public Law No. 101-549, 42 U.S.C. 7412 (U.S. Congress 1990). Information presented in the following paragraphs was obtained from the *Mercury Study Report to Congress* (U.S. EPA, 1997) http://www.epa.gov/oar/mercury.html) and EPA's *Mercury Research Strategy* (U.S. EPA, 2000a) http://www.epa.gov/ord/nrmrl/mercury). Information was also obtained from a report on the *Deposition of Air Pollutants to the Great Waters: Third Report to Congress* (EPA, 2000b (http://www.epa.gov/ttn/oarpg/t3/reports/head_2kf/pdf.)), an Environmental Protection Agency web site on mercury (http://www.epa.gov/mercury/information.htm), from the National Research Council's report on *Toxicological Effects of Methylmercury* (National Research Council, 2000), and from the proceedings of the 8th Annual Conference on Air Quality, Global Climate Change, and Renewable Energy (www.EUEC.com) as well as a selection of scientific journal publications. As the state-of-the-science for mercury is continuously changing, these reports and the information presented in them, as well as in this report, represent the current state-of-knowledge on the topic.

Forms of Mercury

Mercury's toxicity levels in the environment depend on its chemical form. Mercury exists in the atmosphere in primarily four forms: gaseous elemental mercury vapor (Hg^0) or metallic or zero valent mercury; gaseous divalent mercury Hg_2^{2+} (mercurous) or Hg^{2+} (mercuric-Hg (II)); particulate-bound mercury (Hg_p), both Hg^0 and Hg^{2+}; and organic mercury (mainly methylmercury (MeHg). Elemental mercury is a heavy, silvery-white liquid metal at typical ambient temperatures and pressures. The vapor pressure of mercury is strongly dependent on temperature, and it vaporizes readily under ambient conditions. Consequently, elemental mercury (Hg^0) is not found in nature as a pure, confined liquid, but instead exists as a vapor in

the atmosphere. It is insoluble in water and is less chemically active than other forms of mercury. As a result, its removal rate is slow and thus can be transported in the atmosphere thousand of miles from emission sources. Consequently, gaseous elemental mercury vapor (Hg^0) is the major component of the global circulation of atmospheric mercury (Schroeder and Munthe, 1998).

Gaseous divalent mercury (Hg_2^{2+} and Hg^{2+}), also called reactive gaseous mercury (RGM), can form many inorganic and organic chemical compounds; however, mercurous mercury (Hg_2^{2+}) is very unstable under ordinary environmental conditions and therefore is generally not found in the atmosphere. Mercuric mercury (Hg^{2+}) is less volatile than Hg_2^{2+} and more water-soluble than Hg^0. Mercuric mercury may be found in the gas phase or bound to airborne particles. Both gas-phase and particulate Hg^{2+} are readily removed from the atmosphere by precipitation. Oxidation processes in the atmosphere and in-cloud water can also convert elemental mercury to Hg^{2+}. Because of its high solubility, gas-phase Hg^{2+} may be removed from the atmosphere within a few tens to a few hundred miles of its source. Particular-phase mercury may be deposited at intermediate distances from the source depending on the size of the aerosol (Schroeder and Munthe, 1998).

Methylmercury (MeHg) is the most toxic of the organic mercury species. While some MeHg is found in precipitation, most of the MeHg occurring in lakes and other surface waters as well as in soil, sediments, and biota is generated by microbially mediated transformations of Hg^{2+} (Schroeder and Munthe, 1998). These processes seem to be accelerated under acidic conditions (Driscoll, et al., 1995). Methylmercury is a neurotoxin and teratogen, which bioaccumulates up the food chain by a factor of a million or more in fish (U.S. EPA, 1997). Other organic mercury compounds that may be found under normal environmental conditions are: mercuric salts ($HgCl_2$, $Hg(OH)_2$, and HgS); methylmercury compounds, methylmercuric chloride (CH_3HgCl) and methylmercuric hydroxide (CH_3HgOH); and, in small fractions, other organomercurics, such as dimethylmercury and phenylmercury.

Mercury Emissions

Since the 19th Century, the total amount of mercury in the environment has increased by a factor of two to five above pre-industrial levels (Mason et al., 1994). Over the years, some mercury compounds have been specifically developed as pesticides, fungicides, and germicides to be used to preserve grains, in paints, and with vaccines. Because mercury is an excellent conductor of electricity, it has been widely used in products, such as batteries, electric switches, thermostats, thermometers, and barometers. Because mercury and its compounds are persistent, bioaccumulate in the environment, are toxic to humans, and pose ecosystem risks, the use of mercury in many products, such as paint and batteries, has decreased significantly the past several decades (U.S. EPA, 1997b).

Sources of mercury emissions to the atmosphere in the United States can be broadly classified as re-emitted mercury, natural mercury emissions, and anthropogenic mercury emissions. Re-emitted mercury is mercury that was previously deposited on the Earth's surface following either anthropogenic or natural releases and is re-emitted to the atmosphere by natural, biologic or

geologic processes. Natural mercury emissions occur when geologically-bound mercury is released during natural processes, such as volcanic eruptions, geothermal releases, and from naturally enriched substances. Volcanic eruptions are estimated to contribute approximately 700 Mg/yr of mercury to the atmosphere (Pyle and Mather, 2003), while geothermal emissions are estimated to contribute another 60 Mg/yr (Varenkamp and Busek, 1988). Emissions from naturally enriched substances have been estimated at more than 1500 Mg/yr (EUEC, 2005). However, it should be noted that all estimates of natural mercury emissions are highly uncertain as is the relative proportion of emissions from various sources.

The mobilization and release of mercury by human activities is referred to as anthropogenic mercury emissions. Anthropogenic emissions can be classified as point or area sources. Point sources accounted for all but 2.2% of the 158 tons emitted in the United States in 1994-95 (U.S. EPA, 1997b). The largest point sources of mercury emissions in the United States in 1994-95 were combustion sources which accounted for 87.3% (137.9 tons/year) of the total 1994-95 anthropogenic emissions inventory. The largest single combustion source is coal-fired utility boilers which accounted for 32.7% (51.6 tons/year) of the 1994-95 inventory. Other major contributing point combustion sources include municipal waste incinerator (29.6 tons/year, 18.7%), medical waste incinerators (16.0 tons/year, 10.1%), and hazardous waste combustion (7 tons/year, 4.4%). Manufacturing sources accounted for approximately 10% of the 1994-95 mercury emissions with the majority of these point sources resulting from chlor-alkali production (7 tons/year, 4.4%), Portland cement production, excluding hazardous waste-fired (5 tons/year, 3.2%), and pulp and paper manufacturing (2 tons/year, 1.3%).

Seigneur et al., (2004) estimated that total emissions in the United States in 2004 were 151.9 Mg/yr, with electric utilities, waste incineration, and non-utility coal burning contributing 41.5 Mg/yr (27.3%), 28.8 Mg/yr (19.0%), and 12.8 Mg/yr (8.4%), respectively. Mobile sources were estimated at 24.8 Mg/yr (16.3%), with the rest coming from mining (6.4 Mg/yr, 4.2%), chlor-alkali facilities (6.7 Mg/yr, 4.4%), and other sources (30.9 Mg/yr, 20.3%). Seigneur et al. (2004) also estimate that 50% of mercury emissions in the United States are in the form of elemental mercury (Hg^o), 46% are gaseous divalent mercury (Hg II), while only 4% occurs as particulate emissions (Hg_p). Total mercury emissions from southern Canada (14.7 Mg/yr) and Northern Mexico (33.5 Mg/yr) bring the total 2004 anthropogenic mercury emissions in North America to approximately 200 Mg/yr (Seigneur et al., 2004).

On a global scale, the amount of mercury released annually from natural sources has been estimated to be between 2000 tons per year (Nriagu and Pacyna, 1988) and 3000 tons per year (Jackson, 1997). Global anthropogenic emissions have been estimated to be between 3560 tons per year (Nriagu and Pacyna, 1988) and 4000 tons per year (Jackson, 1997). The uncertainties associated with these estimates can be significant and are discussed by Schroeder and Munthe (1998).

More recent global mercury balances estimate new anthropogenic emissions at 2160 Mg/yr (Bergan et al., 1999), 2400 Mg/yr (Mason and Sheu, 2002) and 2143 Mg/yr (Seigneur et al., 2003). Re-emitted anthropogenic emissions are estimated to be 2000 Mg/yr by Bergan et al. (1999), 2090 Mg/yr by Mason and Sheu (2002), 4800 Mg/yr by Lamborg et al. (2002) and 2134

Mg/yr (range 1067 Mg/yr to 2670 Mg/yr) by Seigneur et al. (2003). Natural emissions from land and oceans ranged from 1600 Mg/yr (1000 Mg/yr land, 600 Mg/yr oceans) (Lamborg et al., 2002) to 2134Mg/yr (1180 Mg/yr land, 954 Mg/yr oceans) (Seigneur et al., 2003). Clearly, considerable uncertainty in mercury emission estimates by source exists within the scientific community.

Although the United States is a major source of anthropogenic mercury emissions (151.9 Mg/yr) (Seigneur et al., 2004), its contribution on a global scale is relatively small. Annual (2003) anthropogenic emissions from Asia (1118 Mg), Europe (508 Mg), Africa (246 Mg) and South/Central America (176 Mg) play a much larger role on a global scale. Across the Northern Hemisphere the largest source of emissions occurs in China (EUEC, 2005).

Mercury Deposition

The deposition of mercury from the atmosphere occurs by two mechanisms: wet deposition and dry deposition. Wet deposition occurs when reactive gaseous mercury (primarily Hg^{2+}) dissolved in precipitation is deposited on the surface of the Earth. Particulate-bound mercury is also deposited by this mechanism, but it is a relatively minor component (in most areas) when compared to dissolved Hg^{2+}. Dry deposition occurs when both gaseous and particulate forms of mercury are deposition on the Earth's surface. The amount of mercury at any one location is comprised of mercury from the natural global cycle, the global cycle perturbed by anthropogenic activities, as well as regional and local anthropogenic sources. In addition to air emissions, mercury may also enter an ecosystem through direct water discharge of past uses of mercury, such as in paints or fungicide applications to crops. Research results indicate that natural sources, industrial sources, and recycled anthropogenic mercury each contribute to about one-third of the current mercury burden in the global atmosphere (Pirrone et al., 1996). However, more recent measurements suggest that natural mercury emissions may be larger than past estimates (Lindberg et al., 1998) and that mercury may be constantly recycled between terrestrial ecosystems and the atmosphere

Routine monitoring for mercury deposition in precipitation was not initiated in the United States until January 1996 (Lamb and Bowersox, 2000) when the National Atmospheric Deposition Program (NADP) initiated the Mercury Deposition Network (MDN). Consequently, limited data were available to describe spatial and temporal patterns in mercury deposition in the United States at the time EPA undertook the Mercury Study (U.S. EPA, 1997). As a result, in its initial assessment of the fate and transport of mercury in the environment (U.S. EPA, 1997b), EPA relied on computer simulation modeling to describe the environmental fate of emitted mercury. Two models were used in this analysis: The Regional Lagrangian Model of Air Pollution (RELMAP), for assessing regional scale atmospheric transport and the Industrial Source Code Model (ISC3), for local scale analysis. EPA's ISC3 model was used to predict average annual concentrations as well as wet and dry deposition fluxes that result from emissions within 50 km of a single source. The regional RELMAP (Bullock et al., 1997; Eder et al., 1986) predicts average annual atmospheric mercury concentrations as well as wet and dry deposition fluxes for 40 km^2 grids across the continental United States. Model predictions were based on anthropogenic emissions from sources identified in EPA's 1994-95 inventory (U.S. EPA,

1997b). The predicted results from RELMAP were added to a uniform elemental mercury background concentration of 1.6 nanograms per cubic meter (ng/m^3) which represents natural and re-emitted anthropogenic sources of mercury worldwide (Fitzgerald and Mason, 1996). The results of these simulations indicate that the highest deposition rates from anthropogenic and global sources of mercury were predicted to occur in the southern Great Lakes and Ohio River Valley, the Northeast (including Pennsylvania) and scattered areas of the south, with the highest deposition in central and south Florida (U.S. EPA, 1997c). The computer simulations also suggest that about one-third of the United States anthropogenic emissions (approximately 52 tons) are deposited on the lower 48 states; an additional 35 tons of mercury from the global reservoir is also deposited on the lower 48 states bringing the total mercury burden to approximately 87 tons annually. For a detailed description of the mercury deposition modeling effort by EPA, readers are referred to the *Mercury Study Report to Congress: Volume III, Fate and Transport of Mercury in the Environment* (U.S. EPA, 1997c).

A more recent model simulation was conducted by the Electric Power Research Institute for 2004 (EUEC, 2005). Model output (Figure 1), which includes estimates of both wet and dry mercury deposition for the continental United States and southern Canada, were for the most part similar in spatial patterns to the earlier EPA effort, especially for the Ohio River Valley and the Northeast. Modeled results also indicate relatively high levels of mercury deposition in western and eastern Pennsylvania with less deposition occurring across the center region (Figure 1), especially across the north central counties. This spatial pattern is very similar to the distribution of wet mercury deposition results based on data from Mercury Deposition Network sites located in Pennsylvania and discussed in the results section of this report.

Environmental Concerns

When atmospheric mercury is deposited on aquatic and terrestrial ecosystems, biological transformations can produce methylmercury. The bioaccumulation of methylmercury by aquatic organisms, such as clams, crayfish, plankton, etc., and their consumption by fish and small mammals is the primary mechanism by which methylmercury enters the food web. Because of the bioaccumulation effects of methylmercury, the concentration of methylmercury in fish may be several orders of magnitude higher than the concentrations in the aquatic ecosystem inhabited by the fish. The consumption of contaminated fish by both humans and wildlife (e.g., loons, ducks, eagles, otters, mink, etc.) is the primarily means by which mercury enters organisms at the top of the food chain. For a detailed discussion on the fate and transport of mercury in the environment, readers are referred to the *Mercury Study Report to Congress, Volume III* (U.S. EPA, 1997c); for an assessment of the ecological and human health effects, refer to *Volume V* and *Volume VI* (U.S. EPA, 1997d and 1997e, respectively).

Methylmercury is known to be toxic to humans causing permanent damage to the brain and kidneys. Developing nervous systems in both humans and animals are particularly vulnerable to methyl-mercury exposure. Consequently, pregnant women and young children are particularly sensitive and are at greatest risk to exposure. Chronic, low-dose prenatal methylmercury exposure from maternal consumption of contaminated fish has been associated with subtle neurotoxicity problems, such as poor performance on neurobehavioral tests, particularly tests of

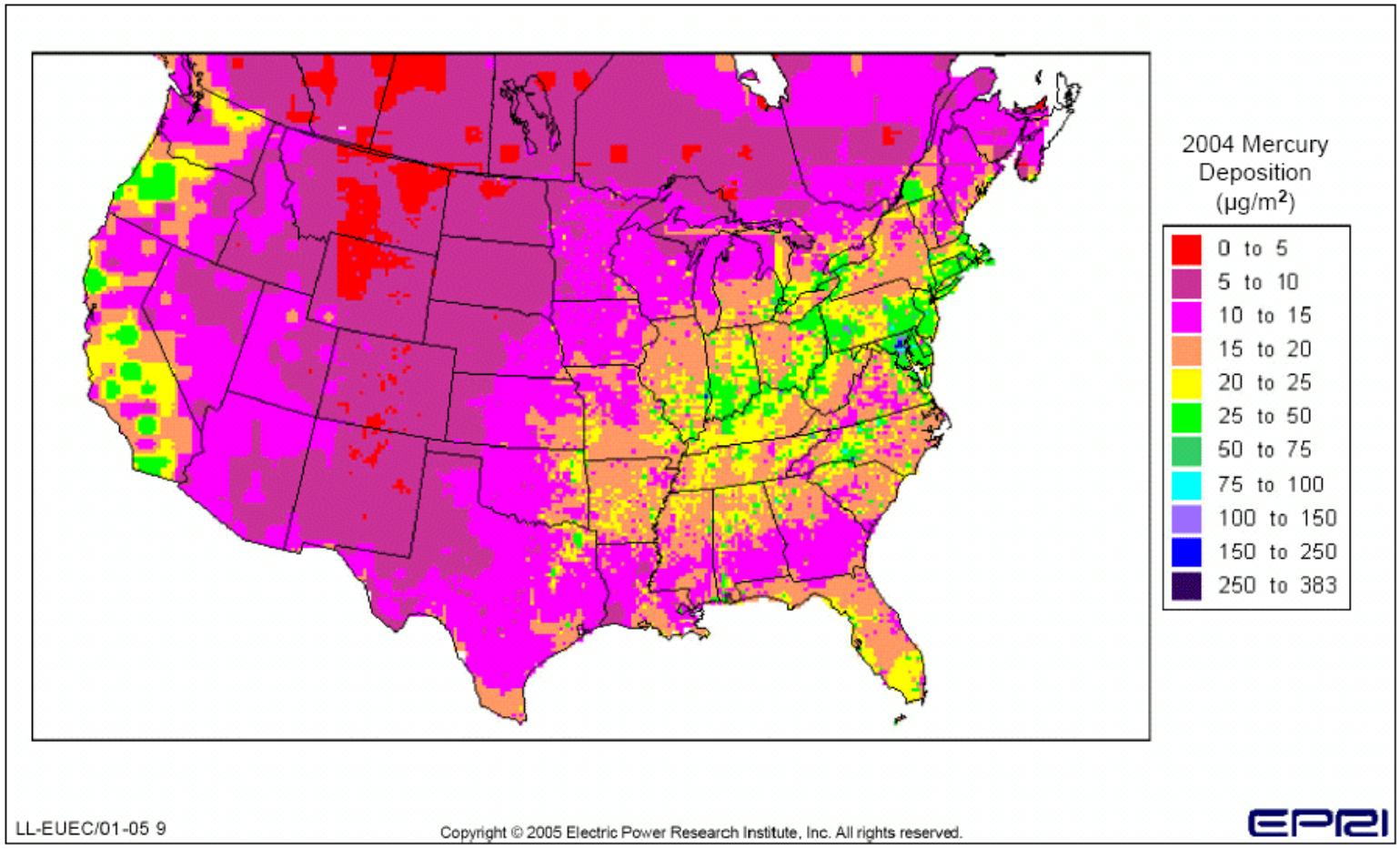


Figure 1. Total mercury deposition simulation for the United States using the Regional Lagrangian Model of Air Pollution (RELMAP).

attention, fine-motor function, language, visual-spatial abilities and verbal memory (National Research Council, 2000). The most severe effects of mercury contamination reported in adults from high dose exposure in Japan and Iraq include mental retardation, cerebral palsy, deafness, blindness, and dysarthria (National Research Council, 2000). Because of the potential risks to humans, particularly pregnant women and young children, forty-eight states in the United States have issued fish advisories for some or all water bodies located in their boundaries including coastal waters in the Gulf of Mexico (U.S. EPA, 2004). Most of these advisories are based on elevated mercury concentrations in fish samples from these waters (Figure 2). A fish advisory for all surface waters in Pennsylvania was issued in 2001 (U.S. EPA, 2004). Despite the number of advisories, an analysis of dietary surveys reported in the *Mercury Study Report to Congress* (U.S. EPA, 1997d), typical fish consumers in the United States. are not in danger of ingesting harmful levels of methylmercury as reflected by the relatively low amounts of fish consumed by the typical citizen.

The impacts on wildlife (fish, birds, and fur-bearing mammals) from exposure to methylmercury are described in detail in the *Mercury Study Report to Congress, Volume IV*: *An Assessment of Exposure to Mercury in the United States* (U.S. EPA, 1997d). Like human impacts, mercury toxicity in wildlife is related to the consumption of bioaccumulated mercury in less complex organisms within their food web. Overall, wildlife (e.g., fish, birds, and fur-bearing mammals) appear to be more susceptible to mercury effects when they are located in ecosystems that experience high levels of deposition, inhabit ecosystems already impacted by acidic deposition or have characteristics other than low pH that result in high levels of mercury bioaccumulation in aquatic biota, and are species that are likely to experience high levels of exposure because of their feeding preferences (U.S. EPA, 2000a). Fish toxicity is highly variable and dependent on species, size, life stage, and age along with a number of environmental factors. The effects of methylmercury may result in death, reduced reproduction, impaired growth and development, behavioral abnormalities, altered blood chemistry, reduced feeding rates and predatory success, and altered oxygen exchange. Some signs of acute mercury poisoning are represented by emaciation, brain lesions, cataracts, and an inability to capture food. Evidence suggests that effects can be detected in water concentrations between 0.1 and 1.0 microgram per liter (µg/L) for some species. Symptoms of mercury poisoning in birds include muscular in-coordination, falling, slowness, fluffed feathers, calmness, hyperactivity, hypoactivity, and drooping eyelids. Liver and kidney damage, neurobehavior effects, reduced food consumption, weight loss, spinal cord damage, reduced cardiovascular function, and impaired growth and development have also been reported. Impacts on fur-bearing mammals, such as mink and otter, are less well known due to the limited number of studies and confounding effects of other stressors, such as habitat fragmentation and inbreeding (U.S. EPA, 2000a).

In the *Mercury Study Report to Congress,* (U.S. EPA, 1997a) EPA found that "a plausible link exists between past and present, human-induced atmospheric emissions of mercury in the United States and increased concentrations of mercury that have been found in the environment and in freshwater fish". However, EPA goes on to say that an apportionment between mercury sources and mercury in environmental media and biota cannot be described in quantitative terms with the current scientific understanding of the environmental fate and transport of the pollutant. Based on modeled mercury deposition estimates (Figure 1) and the number and location of mercury fish

advisories in the United States (Figure 2), the problem appears to be potentially most severe in the Great Lakes and Northeast regions of the United States, in the Gulf States, and in South Florida. Many lakes and streams in these areas contain fish with mercury levels above state (0.5 to 1.0 mg/L) and U.S. Food and Drug Administration action level (1.0 mg/L) for human consumption (U.S. EPA, 1997 and 2004).

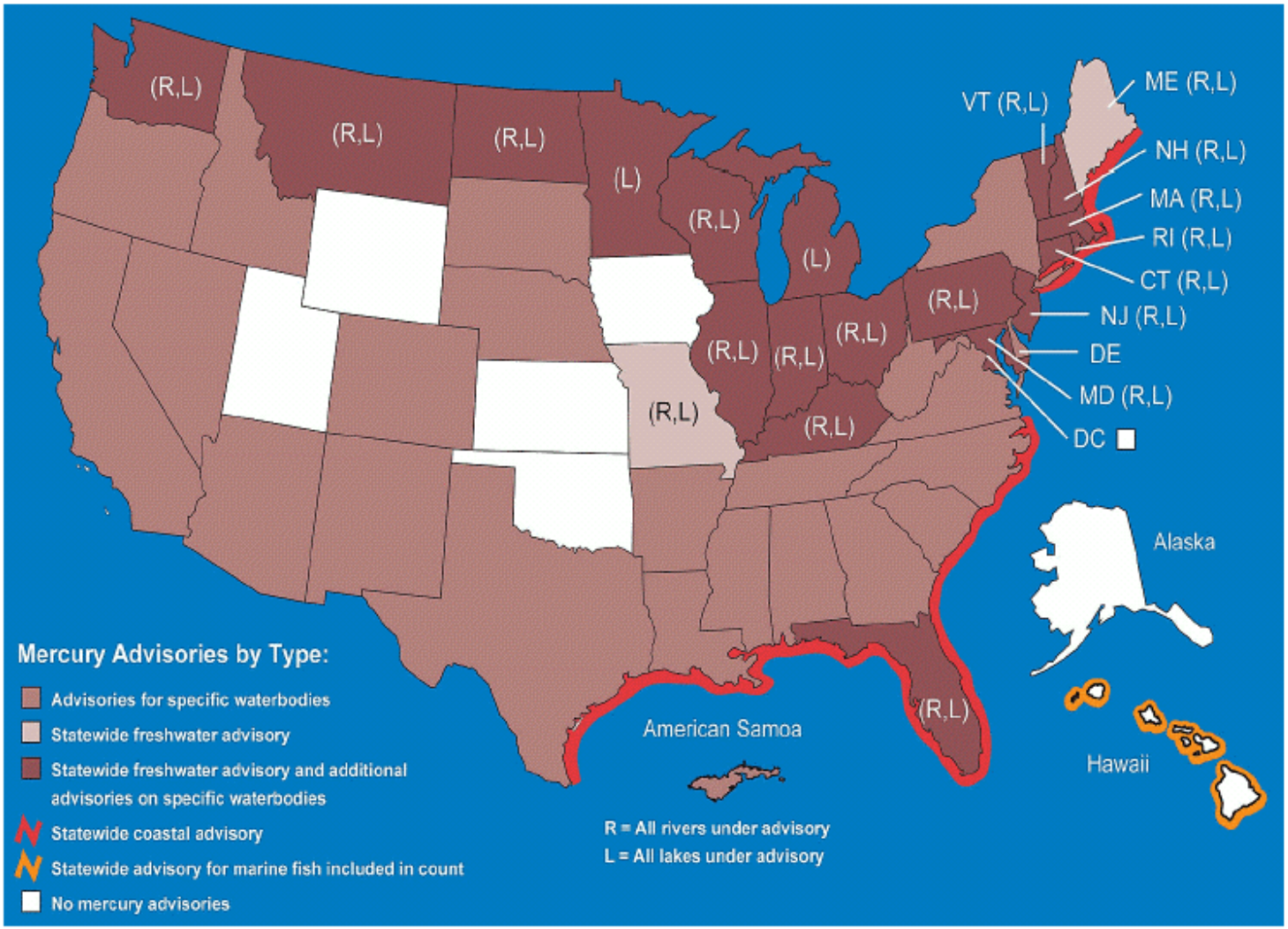
The Mercury Deposition Network

The Mercury Deposition Network (MDN), coordinated through the National Atmospheric Deposition Program (NADP), was designed to study and quantify spatial and temporal trends in the deposition and fate of mercury in the atmosphere. The NADP began monitoring trace chemicals in precipitation at 18 sites in 1978 in order to describe and study "acid rain" related problems. It has since grown to a network of more than 250 sites throughout the United States and Canada. (More information on the NADP is available at http://nadp.sws.uiuc.edu). In 1995, following a year of field testing (Vermette et al., 1995), the NADP began "transition phase" mercury monitoring at 26 sites in preparation for the acceptance of the MDN into NADP which occurred in January 1996. Between 1996 and December 2005 the MDN has grown to more than 90 active sites in the USA and Canada (Figure 3). Mercury deposition data from the MDN will be an important input to atmospheric and multi-media models designed to assess the fate and consequences of mercury emissions and will provide feedback to better assess trends in mercury deposition. Thus, the MDN database will be particularly useful in the evaluation of the effectiveness of EPA and/or state mandated controls on mercury emissions to the atmosphere (U.S. EPA, 2000a). Summarized in this report are the results of mercury monitoring at eight MDN sites located in Pennsylvania through December 2004. The results are discussed in relationship to similar data collected at sites throughout the United States and southern Canada.

Network Design and Operation

Both wet and dry depositions are important processes for the movement of mercury from the atmosphere to land and water surfaces. The Mercury Deposition Network (MDN) is a wet deposition network and does not attempt to measure dry deposition of mercury. The main reason for this is that dry deposition methods are based on indirect measurements that are largely experimental and difficult to implement at isolated sites using personnel with a wide variety of backgrounds. Wet deposition measurements, on the other hand, are based on direct collection techniques that use standardized methods and equipment that are relatively easy to implement and operate at remote sites. Although dry deposition of mercury is very important in terrestrial systems (Lindberg et al., 1992) other studies have estimated that wet deposition is the most important atmospheric process for the movement of mercury to water bodies (Lamborg et al., 1995; Mason et al., 1997; Scherbatskoy et al., 1997). Since the primary environmental problems associated with mercury deposition are fish contamination and human health risks associated with the consumption of contaminated fish (U.S. EPA 1997), wet deposition is probably the most important atmospheric deposition process for assessing mercury's environmental and human health impacts.

Fish Consumption Advisories for Mercury



NOTE: This map depicts the presence and type of fish advisories issued by the states for mercury as of December 2004. Because only selected water bodies are monitored, this map does not reflect the full extent of chemical contamination of fish tissues in each state or province.

Figure 2. Fish consumption advisories due to mercury levels in the surface waters of the United States as of December 2004 (Source: EPA National Fish and Wildlife Contamination Program, 2004 National Listing of Fish Advisories).

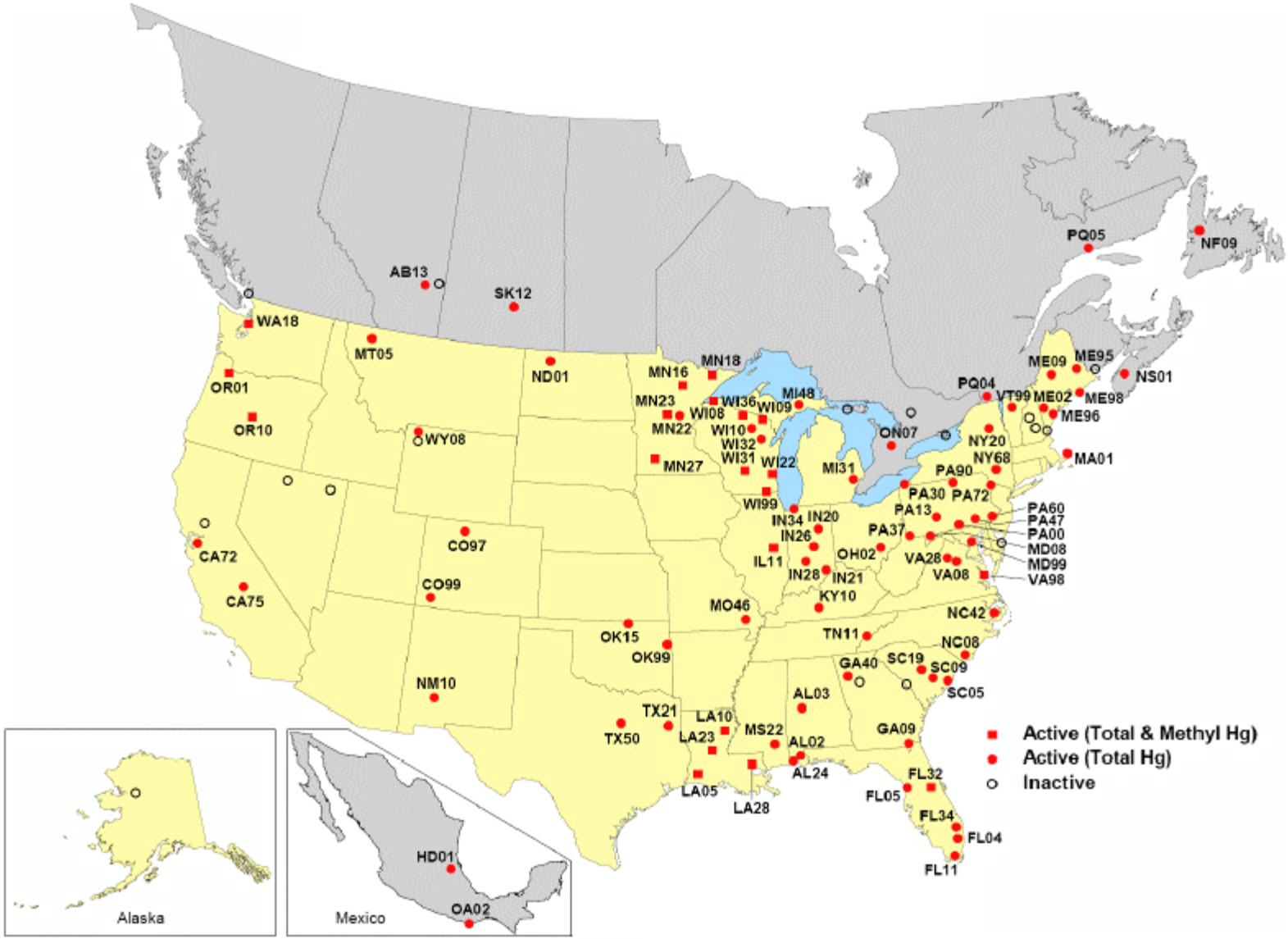


Figure 3. Location of active and proposed National Atmospheric Deposition Program/Mercury Deposition Network (NADP/MDN) sites in the United States and southern Canada as of December 2005.

Sampling Site Locations

The Mercury Deposition Network was designed to evaluate regional concentration and wet deposition patterns of total mercury in precipitation. Sites are selected using an established set of criteria (Bloom and Crecelius, 1983). Most of the sites are in rural areas at least 10 to 20 kilometers from major air pollution sources and at least 100 meters from local sources. Most sites are in open, grass-covered areas well away from overhanging vegetation and buildings. About half of the MDN sites are collocated with NADP/NTN acidic deposition collectors. The location of active (as of December 2005) MDN sites is shown in Figure 3. Site names and descriptions are available on the NADP/MDN web site: (http://nadp.sws.uiuc.edu). Eight sites were in operation in Pennsylvania as of December 2005 (Table 1, Figure 4). These sites are located in Tioga County (PA90) near Wellsboro, in Cambria County (PA13) near Cresson, in Erie County (PA30) near Erie, in Greene County (PA37) near Holbrook, in Adams County (PA00) near Arendtsville, in Montgomery County (PA60) near Valley Forge, in Pike County (PA72) near Milford, and in Lancaster County (PA47) near Millersville. The latitude, longitude, elevation and date sampling was initiated at each of the Pennsylvania NADP/MDN sites are given in Table 1. Seven of the Pennsylvania MDN sites are supported by the Pennsylvania Department of Environmental Protection, Bureau of Air Quality Control in cooperation with The

Table 1. Location of National Atmospheric Deposition Program/Mercury Deposition Network (NADP/MDN) sites in Pennsylvania as of December, 2005.

Site No.	Latitude	Longitude	County	Elevation Meters	Sampling Started
PA00	39.9231	-77.3078	Adams	269	11/16/2000
PA13	40.457	-78.56	Cambria	739	01/07/1997
PA30	42.1558	-80.1134	Erie	177	06/20/2000
PA37	39.8161	-80.285	Greene	347	05/27/1999
PA47	39.99	-76.3862	Lancaster	85	11/26/2002
PA60	40.1166	-75.8833	Montgomery	46	11/23/1999
PA72	41.3275	-74.8203	Pike	212	09/15/2000
PA90	41.8043	-77.1903	Tioga	476	01/07/1997

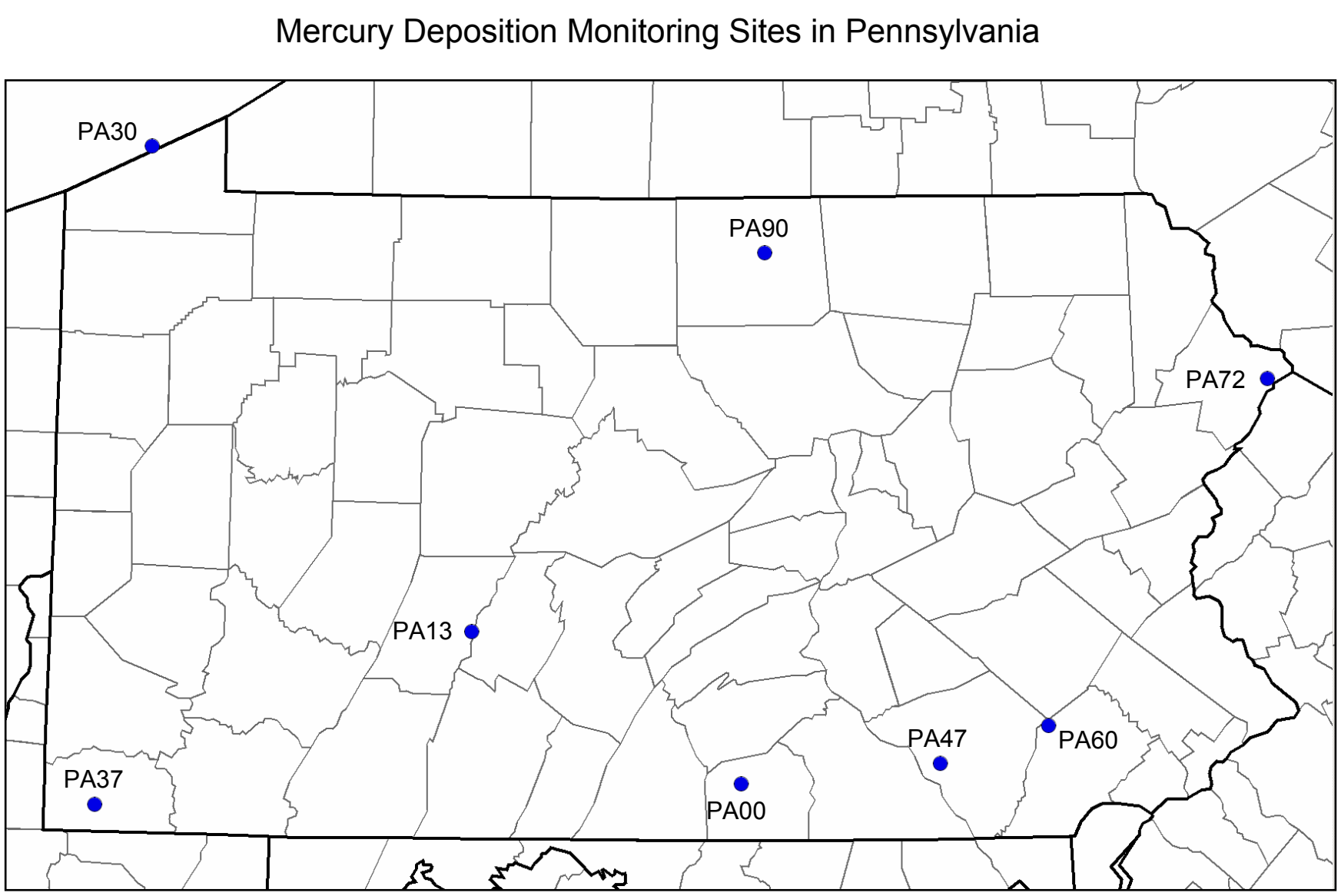


Figure 4. Location of active National Atmospheric Deposition Program/Mercury Deposition Network (NADP/MDN) sites in Pennsylvania as of December 2005.

Pennsylvania Bureau of State Parks (PA30 and PA90), The National Park Service (PA13 and PA60), The U.S. Forest Service, Northeast Forest Experiment Station (PA72), The Pennsylvania State University, Fruit Research and Extension Center (PA00), and Millersville University (PA47). The eighth site in the Pennsylvania Network (PA37) is supported by The U.S. Department of Energy/Federal Energy Technology Center and is operated by Advanced Technology Systems, Inc.

Sampling Protocols

In establishing the MDN, The National Atmospheric Deposition Program (NADP) sought to ensure uniformity in commitment, in sampling protocols, and in analytical techniques and procedures. These are the ingredients essential to a successful network design and operation. To this end the NADP/MDN monitoring program designated specific precipitation collection equipment to be used throughout the network which allows precipitation to be recorded, collected and verified. A strict weekly sampling protocol and a clear definition of sample types further makes comparisons between sites possible.

A modified Aerochem Metrics Model 301 Automatic Sensing Wet/Dry Precipitation Collector used in the NADP/MDN was designed to sample precipitation for mercury and (potentially) other trace metals, simultaneously. Modifications include the downsizing of the original orifice to a 128 mm diameter and the addition of a second wet-side orifice of the same diameter. The two wet-side orifices (a glass sampling train for mercury collection and a Teflon or Polyethylene/Teflon sampling train for the collection of other metals) allows for the simultaneous sampling for total mercury and other metals. *If not needed, the precipitation collected in the second orifice drains out the bottom of the collector.*

The mercury sampling train is designed so that the sample will contact only glass surfaces to minimize contamination. Precipitation is caught in a glass funnel and stored in a two-liter glass bottle, previously charged with 20 mL of dilute hydrochloric acid (0.12 M) used as a preservative. This is sufficient acid to maintain a pH of less than 2 in the sample collection bottle to prevent microbial activity. The two-liter bottle holds a maximum volume equivalent to 12.7 cm (five inches) of precipitation. The sampling train for total mercury consists of a 124 mm (inner diameter) borosilicate glass funnel, a thin (3 mm inner diameter) capillary tube, and a 2-liter borosilicate glass bottle. Even though connections between the funnel and capillary tube and between the capillary tube and sample collection bottle are not air tight, the sampling train effectively inhibits evaporation during the weekly sampling period. Additional modifications include: Teflon-coated lid supports and Teflon-wrapped lid seal foam pads; flexible sleeves at the base of the lid arms; an insulated enclosure around the collector base; and a thermostatically controlled heater and fan to maintain a given temperature range within the enclosure and to melt snow collected in the funnels.

Sample Types

Between precipitation events the mercury wet deposition sampling train is covered by a motor-activated lid. When precipitation occurs, a sensor activates the motor which moves the lid from

the wet deposition side to a dry-side plastic bucket. In the discussion that follows, samples will be referred to as ***Wet-Side*** for the mercury deposition samples or ***Dry-Side*** for the dry-side bucket. Material collected in the dry-side bucket is not analyzed by the MDN. Definitions of sample types are as follows:

Wet-Deposition-Only Sample: A Wet-Side sample that has been exposed only to precipitation and that has been protected from dry-fall during rain-free periods. Dry deposition exposures of less than 6 hours in any sampling period and less than 30 minutes at the end of any single event are considered insignificant. This is the type of sample normally collected in MDN.

Bulk Sample**:** A Wet-Side sample that has been exposed continuously to both wet and dry depositions for the entire sampling period. This can occur when the sampler motor fails and the lid is remains in the open position for the whole sampling period.

Undefined Sample: Any Wet-Side sample that does not meet one of the above definitions *(i.e.,* part-week or unknown duration of exposure to dry deposition).

Field operators receive a pre-cleaned sampling train each week. Every Tuesday, the exposed sampling train is removed and returned to the Mercury Analytical Lab at Frontier Geosciences, Inc., Seattle, WA, along with the sample bottle containing any collected precipitation. All operators wear plastic gloves when handling the sampling train and follow special procedures to avoid contaminating the sample. Any overflow from the bottle is collected and measured but it is not included with the sample sent to the lab. Each site is also equipped with a Belfort weighing-bucket rain gauge (Belfort Instruments, Baltimore, MD) that provides a weekly chart with rainfall amounts and distribution. MND sites in Pennsylvania that are supported by the Bureau of Air Quality Control are also equipped with a standard non-recording funnel-type rain gauge. Rainfall volumes, as small as one mm, can be measured. The recording rain gauge has an "event recorder" that marks the chart each time the lid on the Aerochem Metrics sampler opens and closes. This indicates whether the sampler was open during wet periods and closed during dry periods. The precipitation amount measured by the recording rain gauge is used to calculate wet deposition. If no rain gauge chart is available, the volume from the non-recording gauge is used as a back-up. In the unlikely event that volume measurements from both rain gauges are not available, the "bottle catch" is used to calculate the amount of precipitation.

Glassware Preparation

Precipitation samples are collected and stored in 1-liter borosilicate glass bottles with Teflon-lined, phenolic resin caps. Initial cleaning is by heating to 70 °C for 48 hours in 4 M HCL, followed by a thorough rinsing in low-Hg (< 1 ng/L) distilled deionized water (DDW). The caps are cleaned by soaking for 48 hours in 0.1 M HCL at room temperature. Before use, bottles are filled with DDW containing 5 mL of BrCl in concentrated HCL, capped, and placed in a low-Hg (< 15 ng/m^2), Class-100 clean air station for 24 hours. Bottles are then emptied, thoroughly rinsed with DDW, and allowed to dry for several hours in the clean air station. Each bottle receives 20 ± 0.5 mL of 0.12 M HCL (Hg < 0.5 ng/L), and the lids are tightly fastened. While

still at the clean air station, the bottles are enclosed in new polyethylene bags and packed into polyethylene foam-lined shipping containers.

The funnels and capillary tubes are cleaned by rinsing in nitric acid ($HNO_{3)}$ followed by rinsing in DDW. The openings to the funnel and tube are wrapped in aluminum foil and the glassware placed in a muffle furnace at 500 °C for 4 hours. After cooling, the aluminum foil is sealed around the openings. The funnel and capillary tube are placed in separate new polyethylene bags and packed in a shipping container.

Laboratory Analysis

Every precipitation sample collected by the MDN is analyzed at a single laboratory, the Mercury Analytical Laboratory (HAL), operated by Frontier Geosciences, Inc., Seattle, WA, for total mercury and methylmercury, if desired by a site sponsor. The analytical methods used are those given in U.S. EPA Method 1631 and are described in detail by Liang and Bloom (1993). Briefly, upon arrival at the laboratory, the bottles are unpacked in a clean air low-Hg (< 0.05 ng/mL) station where 0.2 N BrCl in HCL reagent is added to each bottle to give a final concentration of 1%. This reagent oxidizes all of the mercury present in the sample to Hg(ll). The caps are replaced, and the bottles are shaken for at least four hours to remove adsorbed mercury from the bottle walls and to fully oxidize any suspended particles. Weighed sample aliquots (50-100 mL) are poured into 125 mL Teflon bottles prior to analysis. Two-hundred mL of 20% hydroxylamine-hydrochloride is added to each aliquot to eliminate free halogens; the aliquot is then poured into a purge vessel. To reduce the conversion of Hg(ll) back to Hg^0, 300 µL of 25% $SnCl_2$ are added to the sample, and the sample is purged with ultra-pure nitrogen onto a gold-coated, silica trap. The traps are then analyzed for total mercury by thermal desorption, dual gold trap amalgamation, and cold vapor atomic fluorescence. Peaks are quantified by peak height. The method detection limit for a 100 mL sample is about 0.1 ng/L or 3 standard deviations of the reagent blanks.

The Standard Sampling Period

The standard sampling period is the interval between sampling train installation and sampling train removal. Typically, samples accumulate for one week. The sampling train is removed from the collector and replaced at or about 9 AM (0900 local time) each Tuesday. If it is raining or snowing at collection time the sampling train is changed after the precipitation stops, but in no case later than midnight on Tuesday. The wet-side sampling train is replaced weekly and sent to the HAL, even if no precipitation was collected during the sampling period. This standard sampling protocol results in 52 samples (some years 53 samples) submitted for analysis per year.

Quality Assurance Samples

Quality assurance samples include: ***travel blanks, field blanks, and system blanks***. The ***travel blanks*** are bottles, which are shipped with the regular sampling train and stored unopened in the enclosure during the sample period. They are returned to HAL unopened after the specified period. ***Field blanks*** are samples from dry weeks where all equipment has operated perfectly and

there is no indication of precipitation. In other words, the sampler is operating properly on inspection, the enclosure temperature is in the proper range, and the rain gauge and event recorder worked properly and showed no indication of any precipitation. Even a single trace event disqualifies a sample from being a ***field blank***.

About once a year, site operators receive a 500 mL bottle labeled ***system blank*** containing pre-analyzed deionized water. This bottle is stored in the enclosure until a dry week occurs. At the end of the next sampling period with no precipitation, the operator opens the lid by wetting the sensor. The operator then pours half of the deionized water from the 500 mL bottle into the funnel in circular motions, wetting the sides of the funnel. The rinse water goes into the sample bottle. The sampling train and sample bottle are then collected according to the procedures for weekly sampling. The 500 mL bottle with the unused portion of the rinse water is capped and returned to HAL in the sample cooler with the sample bottle and sampling train.

Data Completeness Criteria

NADP/MDN criteria for data completeness include the following: 1) at least 75% of the year (or other summary period) is represented by valid samples; 2) there must be information on precipitation amounts for at least 90% of the year; 3) there must be valid samples representing at least 75% of the precipitation measured for the year; and, 4) total precipitation measured from the sample volume (bottle catch) must be at least 75% of the amount measured by the rain gage for the year. Data completeness criteria are used to assure uniformity in the comparison of data collected at all MDN sites.

Summary Periods

Total mercury concentrations and depositions are summarized into annual and seasonal periods. Annual summaries are presented for each calendar year (January-December) as well as each climatic year (December-November) since mercury monitoring began in Pennsylvania in 1997. Seasonal periods are defined as winter (December-February), spring (March-May), summer (June-August) and fall (September-November). These seasons were selected because they closely match seasonal climatic patterns observed in Pennsylvania. Eight MDN sites were in operation in Pennsylvania as of December 2005 (Figure 3, Table 1). Weekly concentrations and wet deposition estimates for each site for all years of operation are included in this report. However, most of the following analyses have been based on data collected in 2003 and 2004 when all eight sites were in operation simultaneously.

RESULTS AND DISCUSSION

Network Performance

A maximum of 52 samples (some years 53) can be collected at each MDN site during the course of a complete year of operation. An annual summary of weekly sampling periods indicating the number of samples collected at each site and a distinction between sampling periods without precipitation, trace precipitation samples, and a valid versus invalid sample designation at each MDN site in Pennsylvania from 1997 through 2004 is shown in Table 2. In 2003 and 2004 the number of possible samples was 417 and 415, respectively. Twenty-three of the sampling periods in 2003 and 30 in 2004 contained no precipitation, while 26 sampling periods in 2003 and 30 in 2004 were identifies as invalid samples because of low sample volume relative to precipitation volumes measurements or contamination, due primary to sample exposure to atmospheric inputs during rain-free periods. The vast majority of the low volume samples occurred during the winter months when precipitation occurs as snow, which is much more difficult to capture than liquid precipitation. The later category of invalid samples represents samples that were exposed to dry deposition and thus potentially not representative solely of wet deposition inputs. The number of valid sampling periods, which includes sampling periods without precipitation, in 2003 and 2004 were 391 and 385, respectively. These samples provided mercury concentration estimates for 93.8% and 94.6% of the total precipitation collected at the eight MDN sites in 2003 and 2004, respectively (Table 2). Since network operations began in 1997, approximately 93% of all sampling periods provided valid samples for mercury analysis and that these samples on averages captured more than 95% of the total precipitation across the network. These results indicate that the network is well run and that the vast majority of samples are collected correctly with minimal loss of results from missed precipitation or contamination of samples.

Results of all weekly analyses (valid and invalid samples) from all MDN sites in Pennsylvania since the initiation of sampling through December 2004 are summarized in Appendix I. Mean annual volume-weighted total mercury concentrations and annual wet deposition estimates for 1997 through 2002 for all MDN sites in the United State and Canada are summarized in Appendix II. The 2003 and 2004 annual summary MDN maps are presented in the text of the report. These summary maps are based on only valid samples and include only those MDN sites that met MDN data completeness criteria. Weekly concentrations and wet deposition estimates for all MDN sites are available over the internet at http://nadp.sws.uiuc.edu/nadpdata/mdn.

The following discussion of total mercury concentrations and wet deposition estimates in Pennsylvania will, for the most part, be limited to data collected in 2003 and 2004, a period when eight sites were in operation across Pennsylvania for the entire year thus providing the greatest opportunity to assess spatial patterns across the Commonwealth. Seasonal variations at these sites will also be discussed. Discussion of long-term temporal patterns will be limited to the Hills Creek (PA90) and Allegheny-Portage NHS (PA13) sites both of which have been in operation since 1997. A multi-quadric equation spatial interpolation algorithm (Harding, 1974) of 2003 and 2004 annual and seasonal total mercury concentrations and wet depositions are also

Table 2. Annual summary of weekly sampling periods indicating the number and distribution of sample types and quality at each Mercury Deposition Network site in Pennsylvania.

Site	Year	# Samples Collected	# Samples Without Precipitation	# Trace Samples Analyzed	# Trace Samples Not Analyzed	# Invalid Samples	# Samples Missing	# Valid Samples	Total Amount of Precipitation Collected	Total Amount of Precipitation With Analysis
									Inches	
PA00	2000*	5	2	0	0	2	0	3	3.62	3.10
	2001	52	6	0	1	9	1	43	24.62	21.18
	2002	52	3	0	1	7	0	45	40.40	39.20
	2003	52	4	0	1	3	0	49	47.63	45.03
	2004	52	5	0	0	7	0	45	50.40	46.36
PA13	1997	51	4	0	0	1	0	50	46.56	46.26
	1998	52	1	0	0	0	0	52	37.79	37.79
	1999	52	5	0	0	2	0	50	38.23	38.06
	2000	53	3	0	0	9	0	44	36.40	32.06
	2001	52	3	0	0	8	0	44	31.71	28.75
	2002	52	1	0	0	4	0	48	40.83	39.32
	2003	52	0	0	2	5	0	47	53.80	51.56
	2004	53	2	0	1	4	0	49	55.15	51.90
PA30	2000*	28	2	0	0	2	0	26	22.70	22.04
	2001	49	1	0	0	11	1	38	34.28	26.49
	2002	52	4	0	1	4	1	48	41.76	41.67
	2003	52	3	0	1	1	0	51	39.71	39.26
	2004	53	3	0		6	0	47	48.98	46.00
PA37	1999*	31	5	0	0	0	0	31	19.48	19.48
	2000	53	4	0	0	4	0	49	33.37	32.89
	2001	52	1	0	0	4	0	48	37.70	37.33
	2002	52	3	0	0	3	0	49	43.38	42.26
	2003	53	2	0	2	2	0	51	49.19	44.35
	2004	52	3	0	0	2	0	50	50.02	48.46
PA47	2002*	5	0	0	0	1	0	4	4.95	2.65
	2003	53	3	0	0	3	0	50	53.94	53.68
	2004	52	6	0	1	5	0	47	46.78	41.77

Table 2 (continued).

Site	Year	# Samples Collected	# Samples Without Precipitation	# Trace Samples Analyzed	# Trace Samples Not Analyzed	# Invalid Samples	# Samples Missing	# Valid Samples	Total Amount of Precipitation Collected	Total Amount of Precipitation With Analysis
									Inches	
PA60	1999*	5	1	0	0	0	0	5	4.36	4.36
	2000	53	8	0	0	1	0	52	47.52	47.28
	2001	51	9	0	2	6	0	45	30.44	27.52
	2002	48	5	0	0	2	0	46	46.36	41.64
	2003	51	5	0	1	3	0	48	57.71	54.16
	2004	48	4	0	1	5	0	43	55.53	51.07
PA72	2000*	16	1	0	0	3	0	13	11.15	10.11
	2001	52	4	0	0	2	0	50	35.20	35.17
	2002	52	3	0	0	4	0	48	46.72	44.98
	2003	52	4	0	0	5	0	47	60.50	52.23
	2004	52	5	0	0	1	0	51	51.73	51.31
PA90	1997	51	2	0	0	3	0	48	29.91	29.08
	1998	52	1	0	0	1	0	51	32.91	31.08
	1999	52	6	0	0	4	0	48	31.52	30.57
	2000	53	2	0	0	14	1	39	30.89	25.38
	2001	52	0	0	1	17	0	35	29.48	24.74
	2002	52	4	0	0	1	0	51	33.24	33.19
	2003	52	2	0	0	4	0	48	43.28	40.57
	2004	53	2	0	2	0	0	53	46.50	46.49
Total	1997	102	6	0	0	4	0	98	76.48	75.34
	1998	104	2	0	0	1	0	103	70.70	68.88
	1999	140	17	0	0	6	0	134	93.59	92.47
	2000	261	22	0	0	35	1	226	185.64	172.85
	2001	360	24	0	4	57	2	303	223.42	201.16
	2002	365	23	0	2	26	1	339	297.64	284.91
	2003	417	23	0	7	26	0	391	405.76	380.84
	2004	415	30	0	5	30	0	385	405.09	383.37

* Sampling conducted at this site for less than one year.

presented. Where available, these interpolations included MDN sites located around the periphery to Pennsylvania. The resulting concentration and wet deposition spatial interpolations for 2003 are discussed relative to 2003 mercury emissions data from major point sources in Pennsylvania as provided by the Pennsylvania Department of Environmental Protection, Bureau of Air quality Control.

Total Mercury Concentrations

Weekly total mercury concentrations and wet depositions are highly variable both spatially and temporally. Since mercury monitoring began in Pennsylvania in 1997, weekly concentrations have ranged from 0.08 ng/L in Greene County (PA37) to 671.49 ng/L at PA90 in Tioga County (Table 3). In 2003, weekly mercury concentrations ranged from 1.10 ng/L in Tioga County (PA90) to 218.66 ng/L in Erie County (PA30) and in 2004 from 1.15 ng/L in Greene County (PA37) to 84.93 ng/L at the Milord site (PA72) in Pike County (Table 3). Minimum weekly total mercury concentrations across Pennsylvania are generally in the 1 ng/L to 3 ng/L range at all sites for most years of observations. Maximum weekly concentrations are generally in the 20 ng/L to 50 ng/L range with some samples exceeding 100 ng/L (Table 3).

The range between maximum and minimum weekly wet deposition estimates (the product of mercury concentration times precipitation volume) is even greater (Table 3). The lowest weekly wet deposition estimate over the past eight years was 0.22 ng/m^2 that occurred at PA37 in Greene County; the highest weekly wet deposition (3183.38 ng/m^2) was recorded at Allegheny Portage NHS (PA13) in Cambria County. In 2003 and 2004 the lowest weekly wet deposition estimates were 6.25 ng/m^2 (PA72) and 3.00 ng/m^2 (PA30), respectively; the highest weekly depositions were recorded at PA37 (1398.73 ng/m^2) and PA72 (1520.26 ng/m^2), respectively (Table 3).

Mean annual and seasonal volume-weighted total mercury concentrations based on weekly precipitation samples collected at MDN sites in Pennsylvania from 1997 through December 2004 are shown in Table 4. Annual means are presented for each calendar year (January through December) as well as for the December through November climatic year. The calendar year volume-weighted mean annul concentrations for all MDN sites in the United States and southern Canada that met the MDN 75% data completeness criterion for 2003 are shown in Figure 5. The 2003 calendar year mean concentrations in Pennsylvania varied from 7.13 ng/L at the Hills Creek site (PA90) in Tioga County to 10.30 ng/L at the site near Erie (PA30) (Table 4). The mean annual concentration at the Tioga County site was one of only 6 sites in the New England and Mid-Atlantic regions of the United States with annual concentration means near or below 7 ng/L (Figure 5). In contrast, the volume-weighted mean annual concentration at PA30 was the highest annual mean reported in this region in 2003 (Figure 5). The highest mean annual concentration in the United States in 2003 was recorded at a site in New Mexico (NM10). The New Mexico site is a high elevation site in the arid southwest that receives considerably less precipitation when compared to sites located in Pennsylvania and the rest of the eastern United States. The lowest mean annual concentration in the United States was (3.0 ng/L) was recorded at the H.J. Andrews Experimental Forest in Oregon (OR19).

Table 3. Maximum and minimum weekly mercury concentrations (ng/L) and wet deposition (ng/m^2) at seven MDN sites in Pennsylvania. Values are listed for each site that was in operation for each complete calendar year starting in 1997.

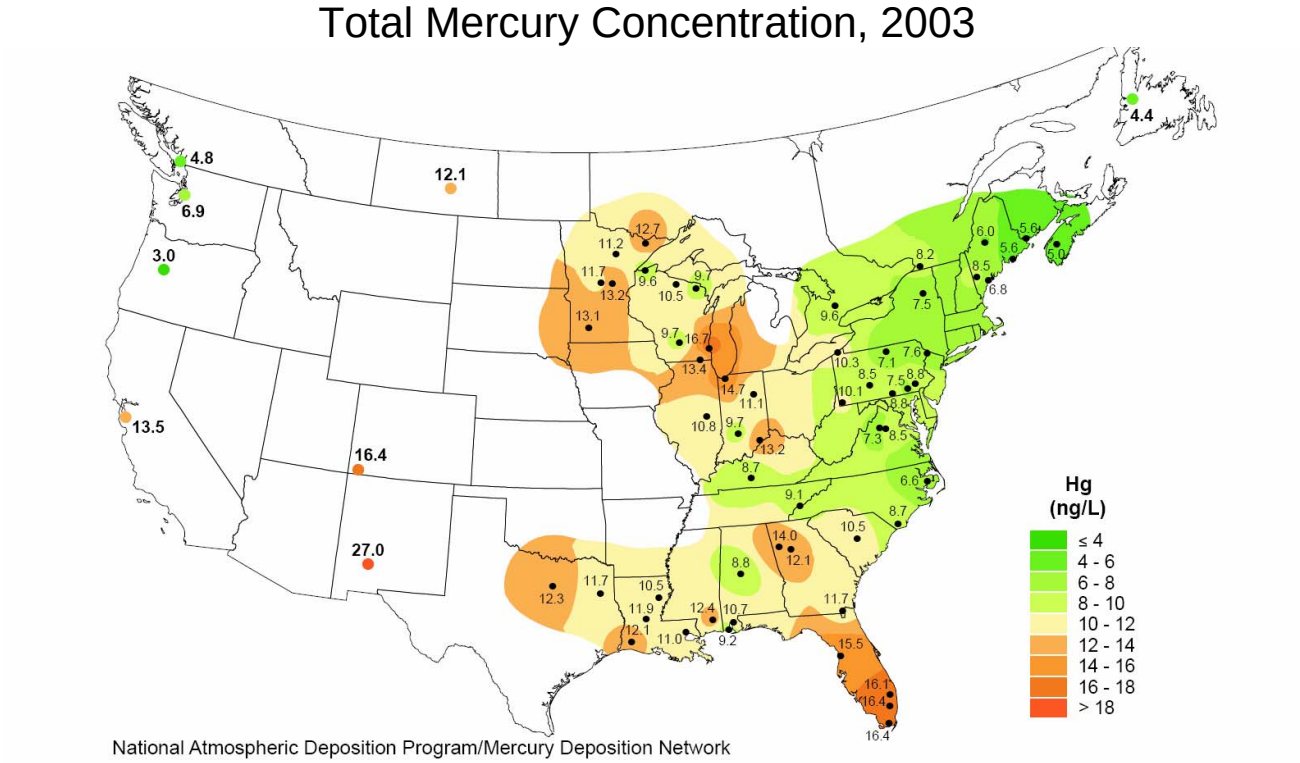
Site	Year	Weekly Mercury Concentrations (ng/L) Maximum	Minimum	Weekly Mercury Deposition (ng/m^2) Maximum	Minimum
PA00	2000*	4.89	4.89	385.04	385.04
	2001	63.77	2.67	503.62	25.97
	2002	29.85	2.06	566.93	17.60
	2003	19.99	1.36	946.88	42.84
	2004	29.23	2.18	966.81	22.27
PA13	1997	48.47	2.15	879.54	8.37
	1998	50.57	2.80	722.88	5.82
	1999	55.41	2.19	762.76	20.80
	2000	23.92	3.07	547.97	24.20
	2001	124.10	3.32	3183.38	17.38
	2002	108.93	1.69	727.85	9.54
	2003	35.20	2.43	851.76	12.38
	2004	45.60	1.65	955.81	13.62
PA30	2000*	30.78	0.83	1251.90	2.07
	2001	158.97	1.38	759.84	7.54
	2002	29.18	1.39	1302.96	14.94
	2003	218.66	2.84	779.27	15.40
	2004	35.04	1.55	929.75	3.00
PA37	1999*	46.20	2.15	830.10	8.40
	2000	62.58	2.13	715.29	9.32
	2001	35.56	1.86	633.42	4.72
	2002	25.67	0.08	1040.37	0.22
	2003	36.45	1.61	1398.73	8.05
	2004	26.74	1.15	1031.98	6.03
PA47	2002*	12.14	1.21	132.04	17.21
	2003	30.39	2.14	913.53	23.48
	2004	44.23	2.77	676.66	9.15
PA60	1999*	9.32	3.82	420.19	37.84
	2000	154.73	2.84	1234.26	16.42
	2001	44.24	2.08	875.20	10.59
	2002	54.32	1.97	919.70	20.65
	2003	71.87	1.48	922.52	22.72
	2004	34.56	1.96	1258.62	17.56
PA72	2000*	25.92	2.60	759.00	14.53
	2001	36.55	2.58	663.37	16.69
	2002	53.04	1.94	2393.82	4.28
	2003	27.93	1.10	1217.17	6.25
	2004	84.93	1.29	1520.26	4.22
PA90	1997	68.60	1.65	629.53	14.69
	1998	40.36	0.78	654.59	1.88
	1999	671.49	1.70	1193.91	7.12
	2000	38.91	1.82	481.93	7.57
	2001	56.42	1.42	474.35	21.40
	2002	38.88	0.59	858.09	3.35
	2003	27.27	1.46	1131.66	11.16
	2004	22.37	1.75	723.03	14.17

* Sampling conducted at this site for less than one year.

Table 4. Mean annual and seasonal volume-weighted mercury concentration (ng/L) in precipitation at the Pennsylvania Mercury Deposition Network sites from 1997 through 2004. Seasonal means were based on weekly samples collected from December-February (Winter), March-May (Spring), June-August (Summer), and September-November (Fall). Annual values are presented for both the climatic year (December-November) and the traditional calendar year (January-December).

		Volume-Weighted Mean Concentration (ng/L)							
Site	Season	1997	1998	1999	2000	2001	2002	2003	2004
PA00	Winter	-----	-----	-----	-----	10.47	10.19	5.24	4.88
	Spring	-----	-----	-----	-----	10.67	11.77	10.36	7.80
	Summer	-----	-----	-----	-----	16.00	9.20	10.99	10.43
	Fall	-----	-----	-----	-----	6.76	4.91	8.03	6.95
	Ann[1]	-----	-----	-----	-----	10.74	8.31	8.76	7.68
	Ann[2]	-----	-----	-----	-----	11.59	7.73	8.78	7.77
PA13	Winter	10.55	7.62	6.19	7.26	7.25	6.95	5.40	6.25
	Spring	12.64	8.65	9.85	8.76	27.95	10.65	9.62	9.05
	Summer	11.41	14.09	14.47	12.03	12.31	12.70	10.54	10.64
	Fall	4.21	13.04	6.80	9.37	7.74	5.68	6.57	5.60
	Ann[1]	9.01	10.32	9.44	9.37	15.26	9.29	8.53	8.12
	Ann[2]	9.18	10.17	9.25	9.58	14.82	9.25	8.51	8.02
PA30	Winter	-----	-----	-----	-----	12.00	8.77	6.18	7.01
	Spring	-----	-----	-----	-----	8.63	10.98	10.89	11.07
	Summer	-----	-----	-----	12.82	11.66	13.30	14.81	11.24
	Fall	-----	-----	-----	11.95	8.61	5.87	7.69	4.87
	Ann[1]	-----	-----	-----	12.44	10.10	9.02	10.27	8.75
	Ann[2]	-----	-----	-----	12.55	9.12	9.22	10.30	8.62
PA37	Winter	-----	-----	-----	6.04	7.50	7.34	4.85	4.79
	Spring	-----	-----	46.20	13.39	9.07	9.27	12.20	9.37
	Summer	-----	-----	15.51	12.63	11.29	11.26	12.18	11.59
	Fall	-----	-----	7.94	10.91	9.89	5.29	7.58	6.39
	Ann[1]	-----	-----	11.18	10.99	9.88	8.68	10.02	8.27
	Ann[2]	-----	-----	10.48	11.28	9.95	8.30	10.09	8.17
PA47	Winter	-----	-----	-----	-----	-----	-----	4.62	5.47
	Spring	-----	-----	-----	-----	-----	-----	8.13	11.44
	Summer	-----	-----	-----	-----	-----	-----	9.67	10.46
	Fall	-----	-----	-----	-----	-----	9.27	6.74	6.28
	Ann[1]	-----	-----	-----	-----	-----	9.27	7.59	8.68
	Ann[2]	-----	-----	-----	-----	-----	4.59	7.61	8.84
PA60	Winter	-----	-----	-----	7.86	11.36	7.06	4.86	6.25
	Spring	-----	-----	-----	11.92	10.99	13.64	11.56	16.09
	Summer	-----	-----	-----	9.53	12.13	11.15	9.97	9.77
	Fall	-----	-----	8.17	10.50	8.04	4.61	7.57	5.43
	Ann[1]	-----	-----	8.17	10.14	11.27	9.34	8.31	8.81
	Ann[2]	-----	-----	7.95	10.45	10.93	8.36	8.72	8.79
PA72	Winter	-----	-----	-----	-----	7.07	8.85	4.77	3.75
	Spring	-----	-----	-----	-----	8.17	15.53	7.37	9.85
	Summer	-----	-----	-----	-----	13.92	10.46	11.13	12.90
	Fall	-----	-----	-----	8.75	7.10	3.00	6.08	8.64
	Ann[1]	-----	-----	-----	8.75	9.11	8.80	7.89	9.29
	Ann[2]	-----	-----	-----	7.81	9.39	8.34	7.63	9.64
PA90	Winter	8.71	5.34	12.45	5.14	7.04	7.73	3.66	3.36
	Spring	10.64	9.14	7.64	7.01	6.80	7.69	8.52	8.66
	Summer	13.36	14.14	10.70	14.99	7.99	10.22	9.53	8.59
	Fall	5.12	7.94	5.39	10.17	5.54	4.18	5.60	5.17
	Ann[1]	9.57	9.07	8.62	9.41	6.79	7.52	7.33	6.88
	Ann[2]	9.50	8.97	8.56	9.69	6.58	7.36	7.13	7.06

[1]Annual Period (December-November).
[2]Annual Period (January-December).



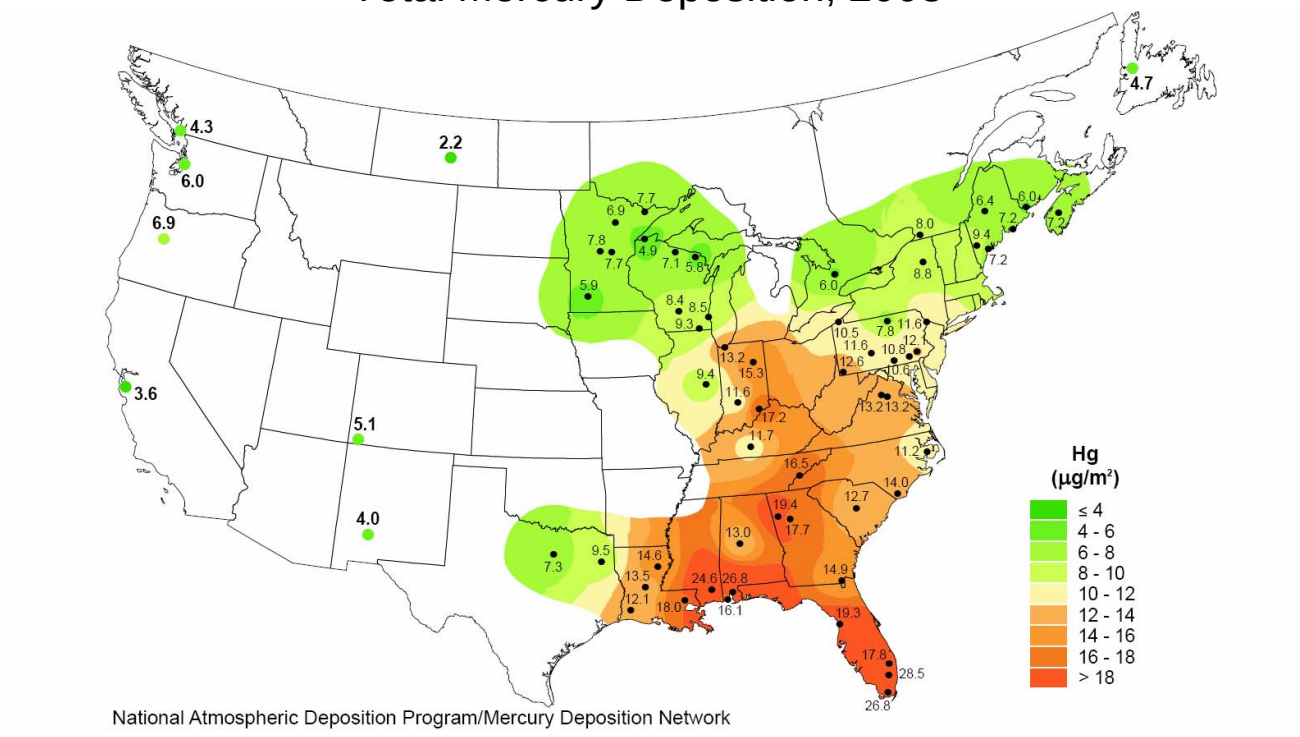


Figure 5. Volume-weighted mean annual total mercury concentrations (ng/L) and estimated wet depositions (µg/m2) at all Mercury Deposition Network sites in the United States and southern Canada that met the 75% data completeness criteria in 2003.

The overall spatial pattern of total mercury concentrations across the Commonwealth in 2003 (Figure 6) is one of relatively high concentrations in the north (PA30) and south (PA37) western regions of the state, with much lower concentrations across the central region, especially north central Pennsylvania (PA90). Mercury concentrations in eastern Pennsylvania were higher than in central Pennsylvania, but lower than those measured in the western portion of the Commonwealth. Overall, total mercury concentrations across Pennsylvania in 2003 were generally lower than sites located around the Great Lakes, the Ohio River Valley and the Southeast. The highest concentrations in non-arid climates were found in Florida and at some sites around the Gulf and Great Lake states (Figure 5). New England had the overall lowest total mercury concentrations in the United States in 2003.

Mean annual and seasonal volume-weighted total mercury concentrations in Pennsylvania for 2004 are shown in Table 4. Annual means are presented for each calendar year as well as each climatic year (December through November). The calendar year volume-weighted mean annual concentrations for all MDN sites in the United States and southern Canada that met the 75% data completeness criterion for 2004 are shown in Figure 7. The 2004 calendar year mean concentrations in Pennsylvania varied from 7.06 ng/L at the Hills Creek site (PA90) to 9.64 ng/L at the Milford site (PA72) in Pike County (Table 4). Like 2003, the mean annual concentration at the Tioga County site was one of only six sites in the New England and Mid-Atlantic regions of the United States with annual concentration means near or below 7 ng/L (Figure 7). In contrast, the volume-weighted mean annual concentration at Milford was the second highest annual mean reported in these regions in 2004 (Figure 7). The highest (17.5 ng/L) and lowest (3.7 ng/L) mean annual total mercury concentrations in the United States in 2004 were recorded at the same sites as in 2003, NW10 (New Mexico) and OR19 (Oregon), respectively. The overall spatial pattern of total mercury concentrations across the state in 2004 (Figure 8) is one of slightly higher concentrations in eastern Pennsylvania (PA60, PA72 and PA47) than the western third of the state, and slightly lower concentrations across the center region, although the regional differences are not large. Total mercury concentrations across Pennsylvania in 2004 where much more uniform than observed in 2003. This appears to be the case for the NADP/MDN as well (Figure 7). Overall, total mercury concentrations across Pennsylvania in 2004 were generally lower than sites located around The Great Lakes, The Ohio River Valley and the Southeast. The highest concentrations in non-arid climates were found in Florida and at some sites around the Gulf and Great Lake states and upper Mid-west (Figure 7). New England had the overall lowest total mercury concentrations in the United States in 2004.

Estimated Wet Total Mercury Depositions

Individual weekly wet depositions in Pennsylvania are highly variable (Table 3). In 2003, the highest weekly mercury deposition (1398.7 ng/m^2) was measured at the Holbrook site (PA37) in Greene County; the lowest weekly deposition (6.25 ng/m^2) was recorded at the Milford site (PA72) in northeastern Pennsylvania (Table 3). The minimum weekly wet deposition in 2004 (3.0 ng/m^2) was recorded at the Erie County site (PA30); the maximum weekly deposition (1520.3 ng/m^2) was recorded at the Milford site in Pike County. These values are consistent and comparable to maximum and minimum wet deposition levels recorded in previous years of network operation. The maximum weekly wet deposition recorded to date occurred at the

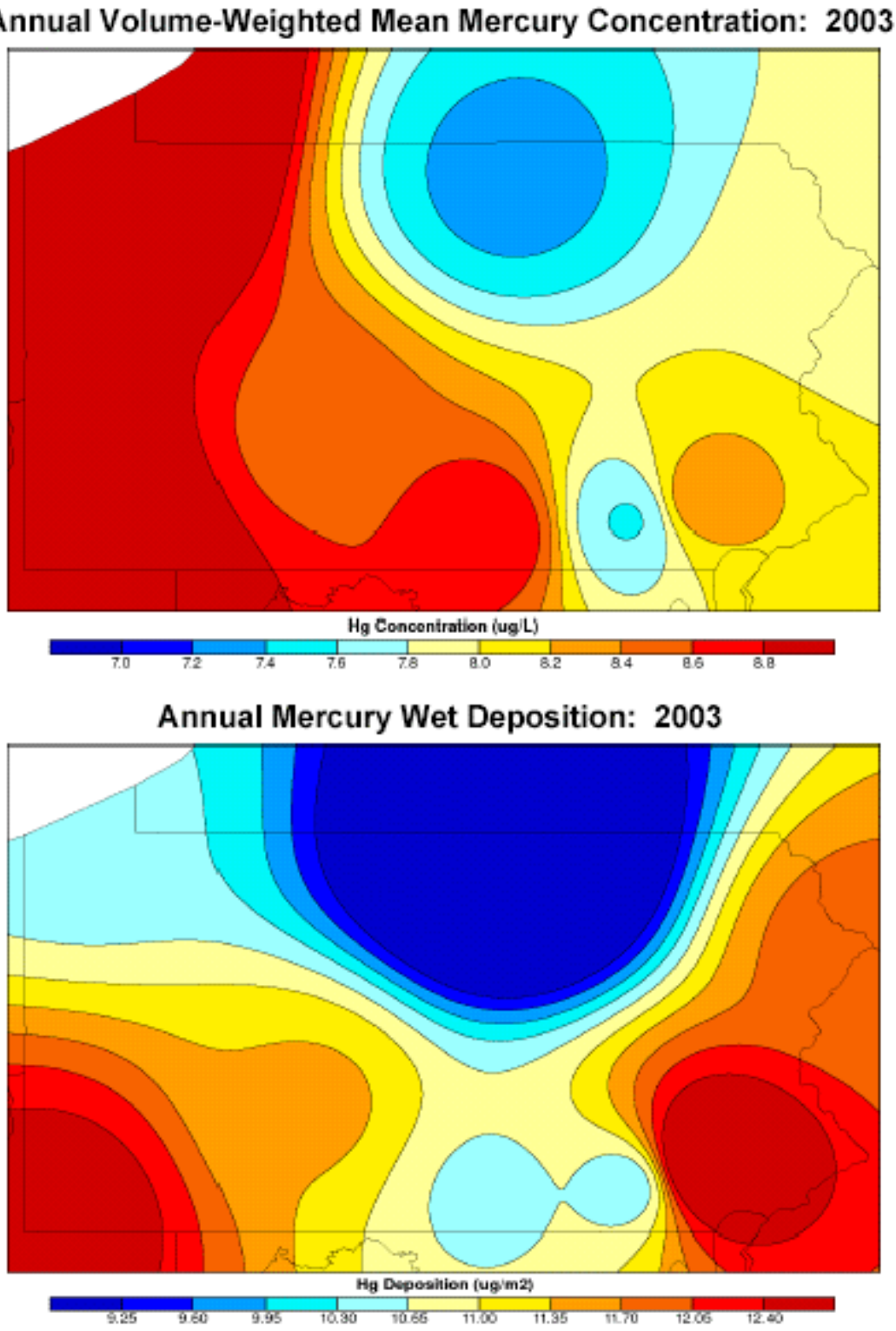
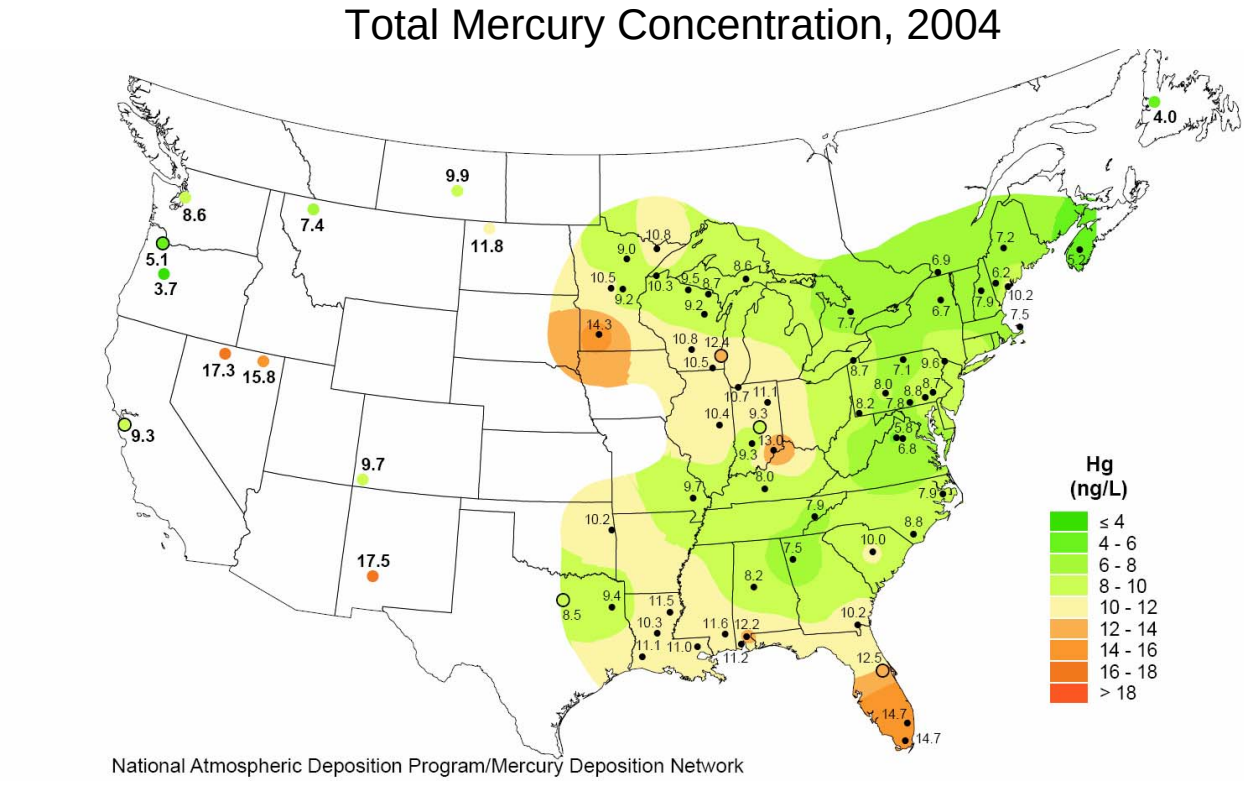


Figure 6. Volume-weighted mean annual total mercury concentrations (ng/L) and estimated wet depositions ($\mu g/m^2$) at all Mercury Deposition Network sites in Pennsylvania that met 75% data completeness criteria in 2003.



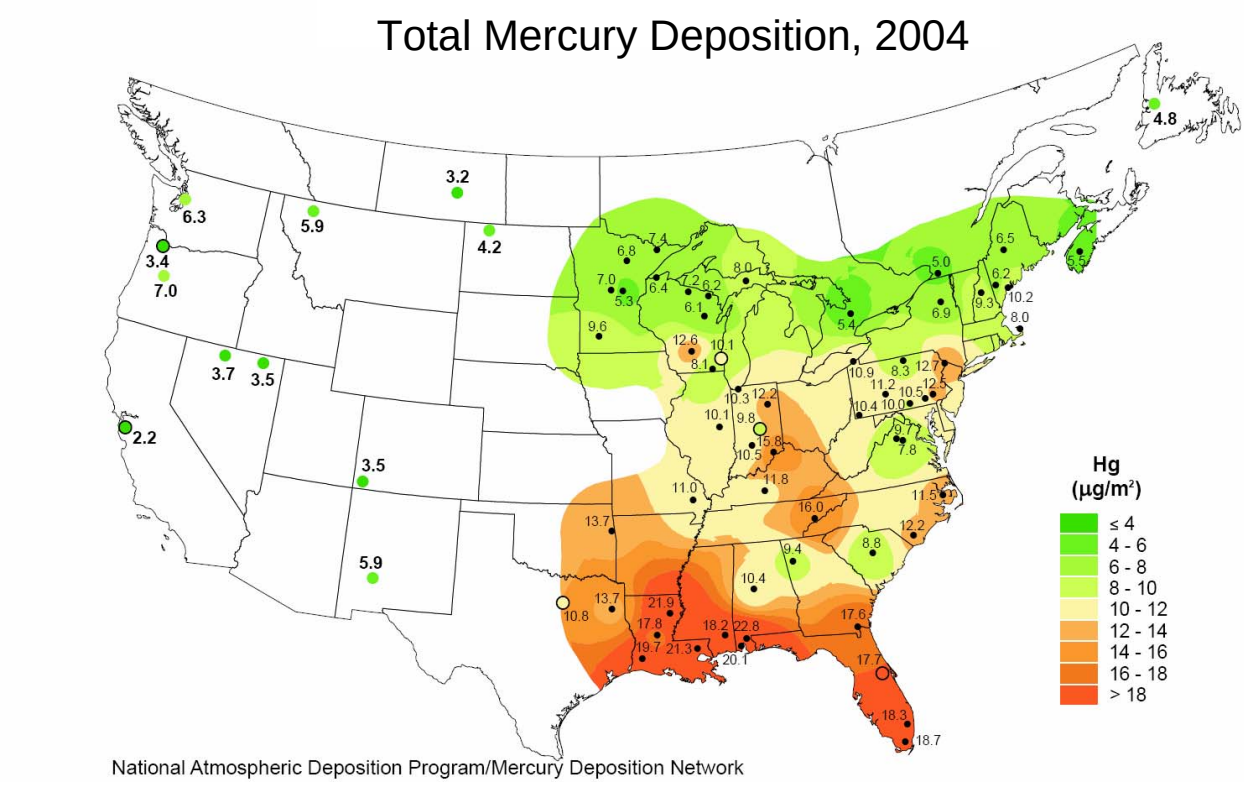


Figure 7. Volume-weighted mean annual total mercury concentrations (ng/L) and estimated wet depositions (µg/m2) at all Mercury Deposition Network sites in the United States and southern Canada met the 75% data completeness criteria in 2004.

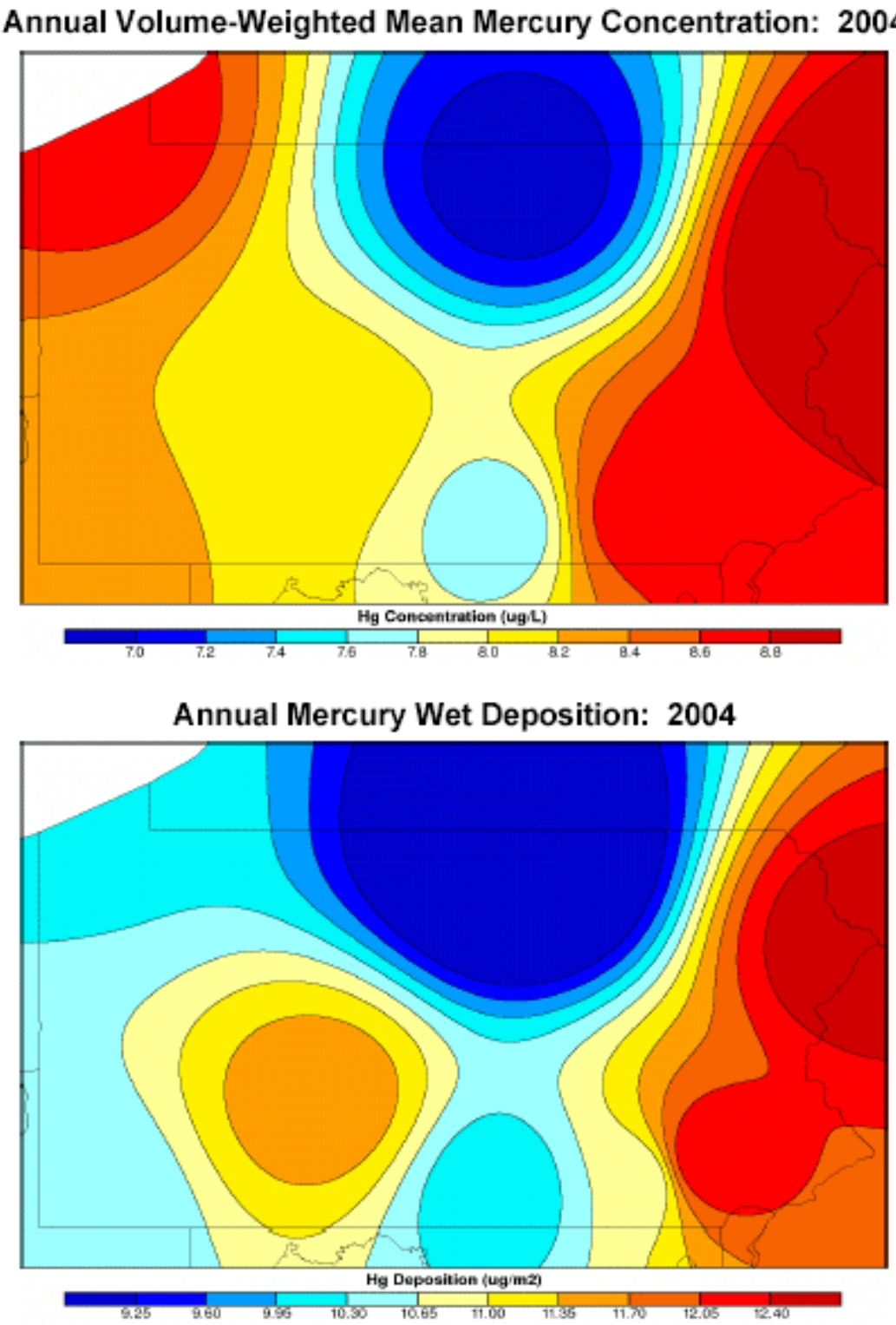


Figure 8. Volume-weighted mean annual total mercury concentrations (ng/L) and estimated wet depositions ($\mu g/m^2$) at all Mercury Deposition Network sites in Pennsylvania that met 75% data completeness criteria in 2004.

Cresson Mountain site (PA13) in Cambria County in 2001 and measured 3183.4 ng/m^2. Maximum weekly deposition measurements at this site have been remarkably consistent for all years except 2001. At the rest of the sites, the maximum weekly deposition estimates vary from year to year by a factor between 1.5 and 2.5. With the exception of the Cresson Mountain site, the greatest variability occurred at the Milford site (PA72) the least variability occurred at the Arendtsville site (PA00) in south central Pennsylvania (Table 3).

Annual and seasonal wet deposition estimates for each of the Pennsylvania MDN sites for all years of operation are listed in Table 5. Over this eight-year period annual wet total mercury deposition has ranged from 4.93 μg/m^2 at the Tioga County site (PA90) in 2001 to 12.78 μg/m^2 at the Valley Forge site (PA60) in 2003. The Tioga County site has consistently received the smallest amount of wet mercury deposition of any region of Pennsylvania (Table 5). However, maximum annual depositions have varied from year to year between western (PA13 and PA37) and eastern (PA60 and PA72) Pennsylvania sites. A comparison of mean annual volume-weighted total mercury concentrations (Table 4) with wet deposition estimates (Table 5) clearly shows that precipitation amounts and other meteorological determinants, as discussed above, exert substantial influence on year-to-year deposition patterns across the state. A comparison of mean annual concentrations and wet deposition measurements in 2003 (Figure 6) and 2004 (Figure 8) when eight sites were in operation across the state helps illustrate this complex inter-action between concentration and precipitation volumes.

Wet mercury deposition across Pennsylvania in 2003 varied from 7.84 μg/m^2 at the Hills Creek site (PA90) to 12.78 μg/m^2 at the Valley Forge site (PA60) in Montgomery County. Mercury deposition at the Hills Creek site was the sixth lowest amount measured in the New England and Mid-Atlantic regions in 2003 (Figure 5) and generally lower than most sites in the eastern half of the Country. Sites in the western United States generally record lower mercury depositions than eastern sites. The highest mercury depositions in 2003 in the Unites States were reported at selected sites in the Mid-west and at most sites around the Gulf States (Figure 5). The highest wet depositions (mid- to upper-twenties μg/m^2) were reported at sites in Florida, Alabama, and Mississippi.

Wet mercury deposition across Pennsylvania in 2003 was well within the range of values reported across North America but generally higher than amounts measured around the Great Lakes and in New England. Precipitation volumes across Pennsylvania in 2003 were, in general, well above long-term averages for each region of the state. As a result, all but the Hills Creek site recorded wet mercury deposition at 10 μg/m^2 or more (Table 5). The importance of precipitation volume is very evident when comparing differences in the spatial patterns of mercury concentrations (Figure 6) and wet depositions (Figure 6) in 2003. The most obvious differences occurred in either end of the state. In 2003, mercury concentrations were much higher in western than eastern Pennsylvania, However, wet mercury deposition in 2003 what highest in both the southwestern and southeastern corners of the state. Above average precipitation at the Valley Forge and Milford sites contributed to the relatively high deposition in the east, In contract, low precipitation in the extreme northwest was responsible for the relatively low deposition in this region in 2003 (Figure 6).

Table 5. Annual and seasonal mercury wet deposition (µg/m²) at the Pennsylvania Mercury Deposition Network sites from 1997 through 2004. Seasonal depositions were based on weekly samples collected from December-February (Winter), March-May (Spring), June-August (Summer), and September-November (Fall). Annual values are presented for both the climatic year (December-November) and the traditional calendar year (January-December).

		Wet Deposition (µg/m²)							
Site	Season	1997	1998	1999	2000	2001	2002	2003	2004
PA00	Winter	-----	-----	-----	-----	1.808	1.139	1.341	1.195
	Spring	-----	-----	-----	-----	2.506	3.317	3.473	2.562
	Summer	-----	-----	-----	-----	1.842	1.881	3.432	3.918
	Fall	-----	-----	-----	-----	0.962	1.855	2.434	2.463
	Ann[1]	-----	-----	-----	-----	7.118	8.192	10.68	10.138
	Ann[2]	-----	-----	-----	-----	7.250	7.932	10.617	9.951
PA13	Winter	0.931	1.922	1.204	1.149	0.936	1.175	1.197	1.714
	Spring	4.511	3.072	2.443	2.865	6.429	3.785	3.007	3.572
	Summer	2.956	3.395	3.553	2.666	3.196	3.244	4.867	3.911
	Fall	1.786	1.755	1.845	1.958	1.256	1.527	2.245	2.190
	Ann[1]	10.184	10.144	9.045	8.638	11.817	9.731	11.316	11.387
	Ann[2]	10.863	9.767	8.985	8.854	11.933	9.596	11.628	11.233
PA30	Winter	-----	-----	-----	-----	1.600	2.588	0.985	1.066
	Spring	-----	-----	-----	-----	2.041	3.588	2.872	3.580
	Summer	-----	-----	-----	3.895	1.988	1.879	4.180	3.858
	Fall	-----	-----	-----	2.756	2.050	2.167	2.337	1.693
	Ann[1]	-----	-----	-----	6.651	7.679	10.222	10.374	10.197
	Ann[2]	-----	-----	-----	7.236	7.939	9.778	10.390	10.727
PA37	Winter	-----	-----	-----	1.271	1.005	1.129	0.779	0.979
	Spring	-----	-----	0.016	3.505	2.464	3.818	3.716	3.193
	Summer	-----	-----	2.817	3.354	4.179	3.258	6.283	3.792
	Fall	-----	-----	1.961	1.405	1.576	1.353	2.116	2.399
	Ann[1]	-----	-----	4.794	9.535	9.224	9.558	12.894	10.363
	Ann[2]	-----	-----	5.185	9.563	9.523	9.151	12.609	10.374
PA47	Winter	-----	-----	-----	-----	-----	-----	1.294	1.330
	Spring	-----	-----	-----	-----	-----	-----	2.154	3.411
	Summer	-----	-----	-----	-----	-----	-----	4.044	4.226
	Fall	-----	-----	-----	-----	-----	0.052	2.780	1.758
	Ann[1]	-----	-----	-----	-----	-----	0.052	10.272	10.725
	Ann[2]	-----	-----	-----	-----	-----	0.577	10.422	10.502
PA60	Winter	-----	-----	-----	1.691	2.951	1.147	1.786	1.446
	Spring	-----	-----	-----	4.023	2.898	3.704	3.402	4.772
	Summer	-----	-----	-----	3.263	2.352	2.562	4.453	4.467
	Fall	-----	-----	0.315	2.865	0.851	1.647	3.519	2.277
	Ann[1]	-----	-----	0.315	11.842	9.052	9.060	13.160	12.962
	Ann[2]	-----	-----	0.879	12.613	8.447	9.843	12.779	12.401
PA72	Winter	-----	-----	-----	-----	1.867	1.213	1.292	0.989
	Spring	-----	-----	-----	-----	2.181	5.184	2.214	2.658
	Summer	-----	-----	-----	-----	3.309	2.667	4.928	5.611
	Fall	-----	-----	-----	1.172	1.422	1.242	2.987	3.416
	Ann[1]	-----	-----	-----	1.172	8.779	10.306	11.421	12.674
	Ann[2]	-----	-----	-----	2.213	8.400	9.892	11.725	12.673
PA90	Winter	0.505	1.179	2.051	0.798	0.560	0.950	0.651	0.624
	Spring	1.985	2.754	1.401	2.023	1.469	1.836	1.808	2.354
	Summer	3.182	2.668	2.120	3.024	1.782	2.599	4.196	3.642
	Fall	1.230	1.085	1.303	1.394	1.153	0.939	1.378	1.666
	Ann[1]	6.902	7.686	6.875	7.239	4.964	6.324	8.033	8.286
	Ann[2]	7.217	7.500	6.853	7.599	4.929	6.214	7.838	8.343

[1]Annual Period (December-November).
[2]Annual Period (January-December).

Wet mercury deposition in Pennsylvania in 2004 ranged from 8.34 $\mu g/m^2$ at the Hills Creek site (PA90) to 12.67 $\mu g/m^2$ at the Milford site (PA72) in Pike County (Table 5). As in 2003, mercury deposition at the Hills Creek site was the sixth lowest amount measured in the New England and Mid-Atlantic regions in 2004 (Figure 7) and generally lower than most sites in the eastern half of the Country. Sites in the western United States generally record lower mercury depositions than eastern sites. The highest mercury depositions in 2004 in the Unites States were reported at selected sites in the Mid-west and at most sites around the Gulf States (Figure 7, lower). The highest wet depositions (upper-teens to low-twenties $\mu g/m^2$) were reported at sites in Florida, Alabama, and Mississippi. Across Pennsylvania, wet mercury deposition in 2004 (Figure 8) was greatest in the eastern portion of the state and much lower in the western third of the state. The 2004 spatial pattern was different than that reported in 2003. Relatively low deposition in the northwest (PA30) resulted from lower precipitation volume, given that mercury concentration at this site were relatively high in 2004.

Mercury Emissions versus Total Mercury Depositions

Annual mercury emissions at major point sources in Pennsylvania are shown in Figure 9. By far the largest mercury emission sources are located in the western portion of the State with few sources located in the central region. Although no large sources are evident in eastern Pennsylvania, there are nearly twice as many mercury emission sources in eastern than in western Pennsylvania. This general distribution of mercury emission sources in Pennsylvania likely accounts for some of the spatial pattern across the state, but not all of it. Emission sources in adjacent states are likely influencing the spatial pattern across the state as well, especially in the eastern and western Pennsylvania. It should also be noted that these observations are based on a visual correlation of total mercury concentrations and wet deposition and annual mercury emissions at major point sources in the state in 2003, and not on a statistical analyses. Patterns of wet deposition of emitted materials are strongly determined by the interaction of lower- and upper-level wind movements, atmospheric lifting, the courses followed by storms, and the timing of precipitation events. These meteorological determinants of deposition can exhibit dramatic year-to-year, seasonal, and event-to-event variability. Therefore, the only satisfactory way to identify and assess source-receptor relationships is to utilize a dynamic atmospheric transport model that incorporates meteorological parameters to define the pathways between emission sources and deposition sites on a per-event basis. However, data presented in Figures 6 and 9 do appear to be consistent, at least from the stand point that where you have large or numerous emission sources you are likely to find your highest concentrations of mercury in precipitation. Nevertheless, one must also bear-in-mind that mercury emissions to the atmosphere in the United States, including Pennsylvania, are broadly classified as re-emitted mercury, natural mercury emissions, and anthropogenic mercury emissions. Re-emitted mercury is mercury that was previously deposited on the Earth's surface following either anthropogenic or natural releases and is re-emitted to the atmosphere by natural, biologic or geologic processes. Natural mercury emissions occur when geologically-bound mercury is released during natural processes, such as volcanic eruptions, geothermal releases, and from naturally enriched substances. The role that natural and re-emitted mercury emissions play relative to mercury wet deposition in the Commonwealth is unknown. Only anthropogenic mercury emissions in Pennsylvania are

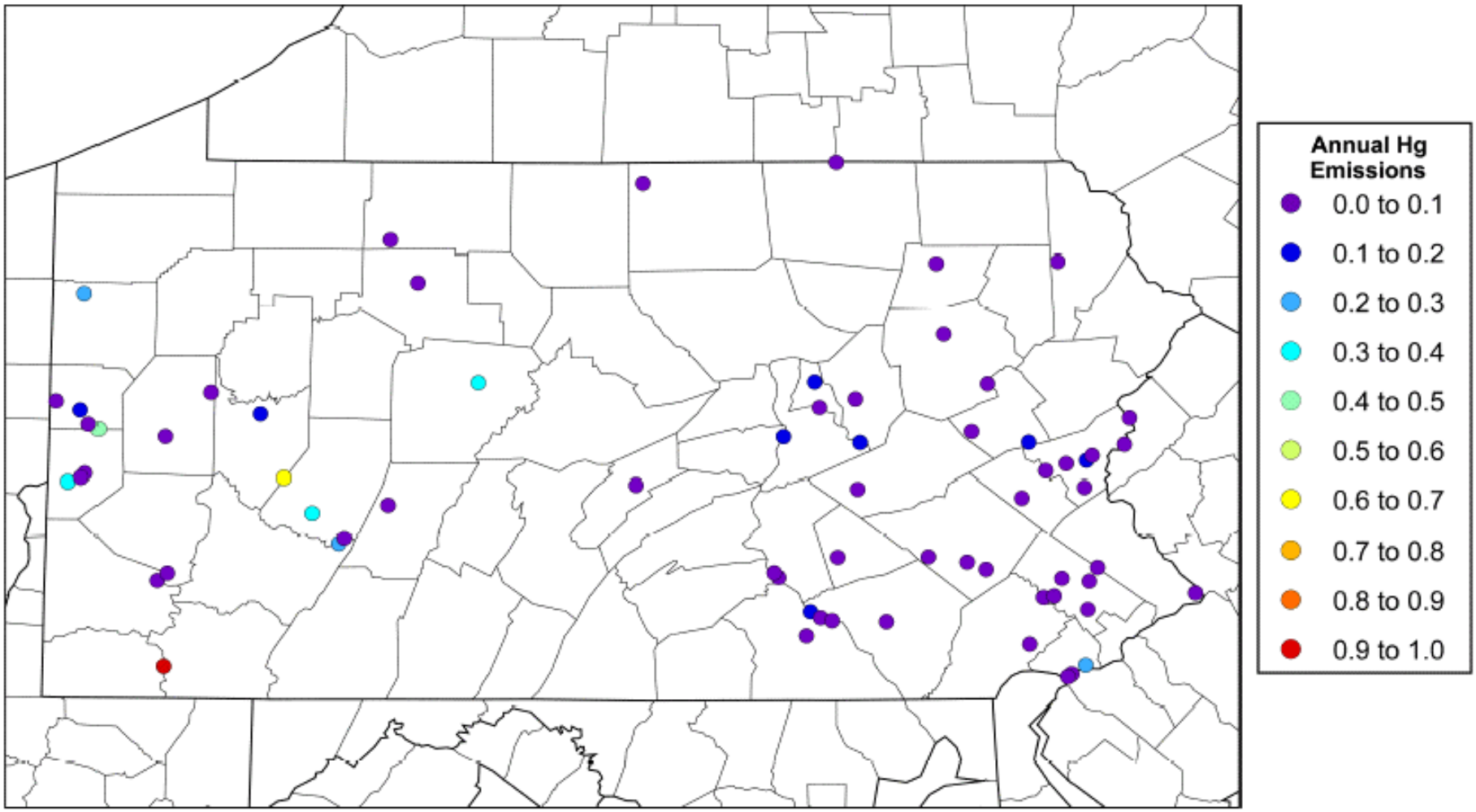


Figure 9. Annual mercury emissions at major point sources in Pennsylvania during 2003.

depicted in Figure 9. However, mercury concentrations and wet depositions shown in Figure 6 represent a composite of all emission sources including contributions from the global cycle.

Seasonal Mercury Deposition Patterns

Total Mercury Concentrations - At most MDN sites in North America and Canada, concentrations of total mercury in precipitation exhibit definite seasonal patterns (NADP, 2004). Average summer (June-August) mercury concentrations for the entire network are generally higher than any other seasonal period and about 1.5 times the concentrations observed during the fall (September-November) and winter (December-February) periods. Although seasonal mean concentration patterns in Pennsylvania are similar, they are also highly variable between sites as well as within sites and between years (Table 4). Between year variability in seasonal mean concentrations of total mercury is illustrated nicely in Figures 10 and 11.

Seasonal variability is largely controlled by climatic parameters, such as the form and amount of precipitation, air temperature, atmospheric stability, storm direction, among others and seasonal variations in mercury emissions. As noted above, the highest mean seasonal total mercury concentrations in Pennsylvania generally occurred during the summer months (June-August) and less frequently during the spring (March-May) months. The highest seasonal mean concentrations were measured during the summer at five of the eight MDN sites in the state. At two of the three remaining sites, the difference between the highest and second highest seasonal mean was very small and not statistically significant. In contrast, the lowest seasonal mean concentrations generally occurred during the fall (September-November) or winter (December-February) months, although no consistent pattern is evident. Half of the sites in the state recorded their lowest seasonal mean concentrations during the fall while the remaining four sites reported their lowest concentrations during the winter months. Despite the obvious influence that season has on total mercury concentrations, there is no consistent year to year pattern across the state or at any individual site in Pennsylvania with four or more years of record.

At the two Pennsylvania MDN sites with eight years of observations (PA13 and PA90) and thus the best sites to characterize seasonal patterns, the highest seasonal mean concentrations occurred during the summer at both sites followed by lower concentrations during the spring, fall, and winter seasons at PA13 and spring, winter, and fall seasons at PA90, respectively. However, during some years of operation at PA90, the winter season mean concentration was the highest or second highest seasonal mean recorded for those years. At PA13, the second highest seasonal mean was observed during the fall months for some years. A review of weekly total mercury concentrations collected during the winter months revealed that some of these "unusually high seasonal means" were a result of an unusually high weekly sample. For example, at PA90 (Hills Creek) in 1999 the highest seasonal mean concentration occurred during the winter, not the summer. This three-month period had one weekly sample with a measured total mercury concentration of 671.5 n/L (See Table 3 for a listing of the maximum weekly concentration measured at each site for each year of operation), which had profound influence on the magnitude of the 1999 winter mean concentration. Although these spikes in mercury concentration in Pennsylvania are not common (see Table 3), they do occur periodically but not frequently enough to explain all of the unusual departures in the seasonal distribution of mean

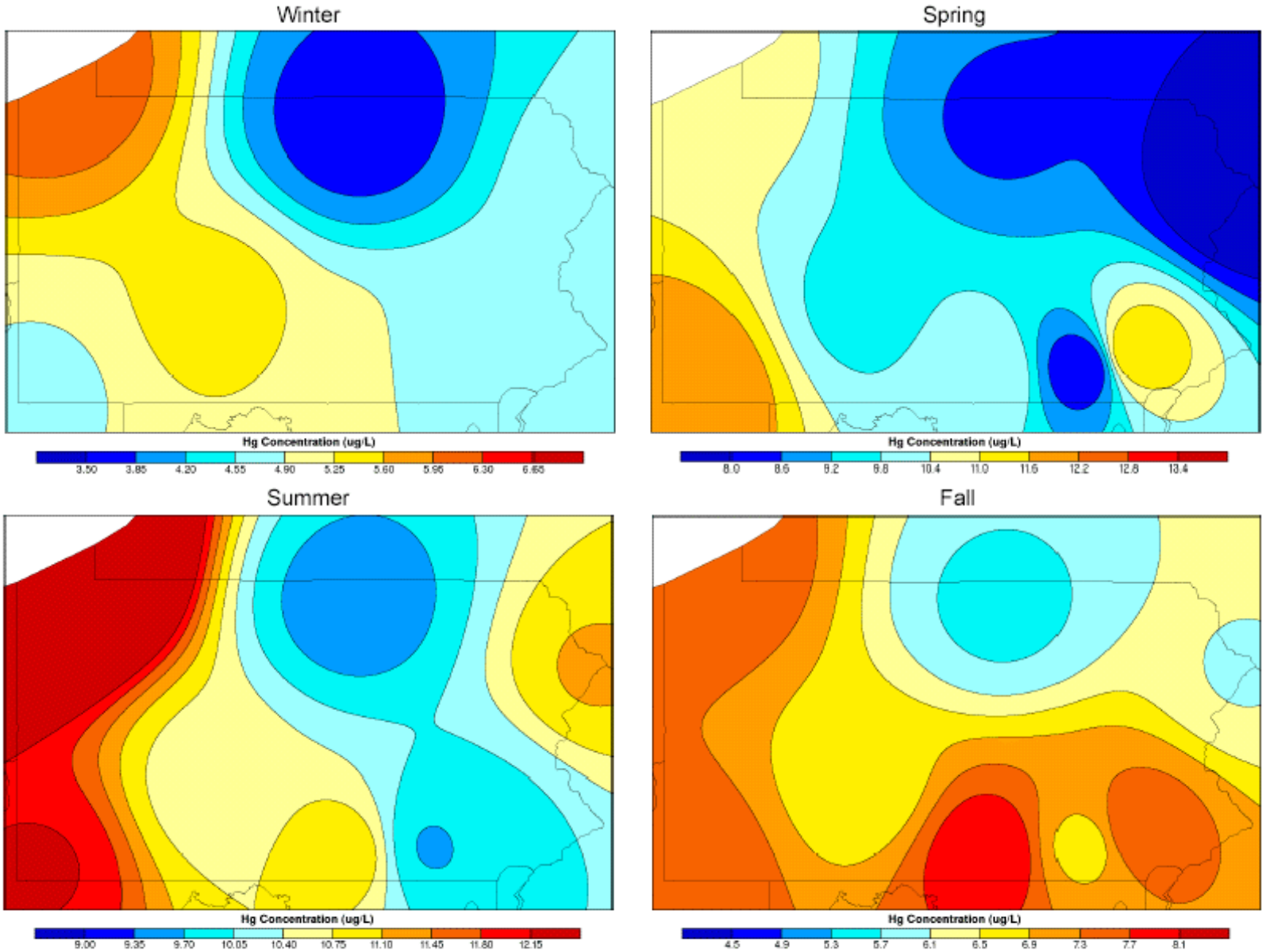


Figure 10. Seasonal variations in volume-weighted mean total mercury concentrations (ng/L) across Pennsylvania in 2003.

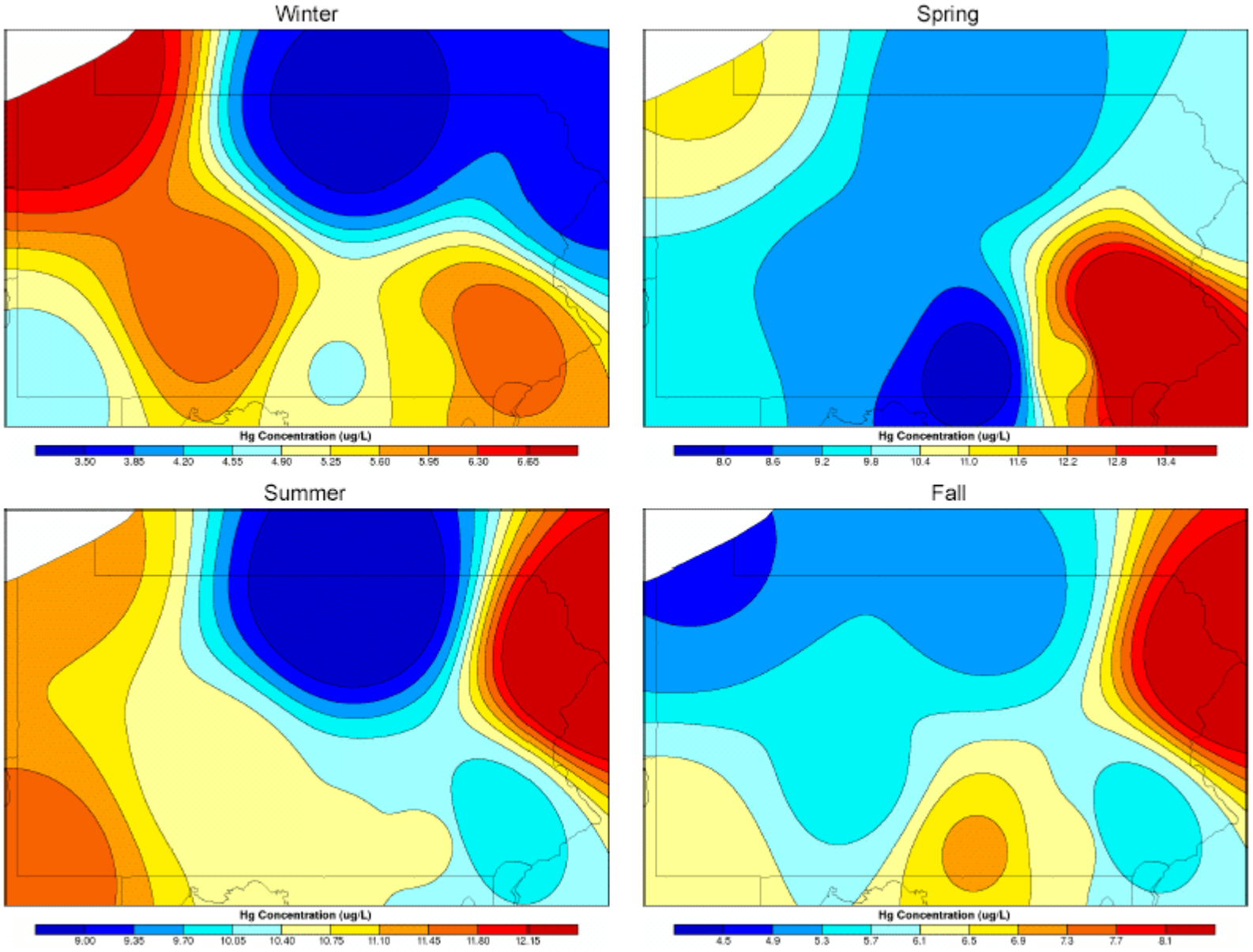


Figure 11. Seasonal variations in volume-weighted mean total mercury concentrations (ng/L) across Pennsylvania in 2004.

total mercury concentrations. Fluctuations in seasonal precipitation at these long-term sites do not appear to be a factor as well. Regression analysis of seasonal mean concentrations and precipitation volume showed extremely low correlation for both the Hills Creek (r^2=0.0004) and Allegheny Portage NHS (r^2=0.024) sites.

Seasonal total mercury concentration means over the past eight years ranged from 3.0 ng/L at Milford (PA72) to 16.0 ng/L at Arendtsville (PA00) in Adams County (Table 4). Summer mean concentrations exhibit the least variability, while the greatest variability occurred during the fall and winter months. At individual sites, the range in seasonal means is much smaller, generally less than a ratio of two. The Millersville site (PA47) exhibits the least variability regardless of season. The greatest variability occurs at Allegheny Portage during the spring and fall months and at Hills Creek during the winter and summer months. With some exceptions (e.g., Allegheny Portage NHS and Arendtsville) sites in the eastern half of the state appear to exhibit more seasonal variability that sites in western Pennsylvania.

Total Mercury Deposition – Total mercury wet deposition is also highly variable across the state reflecting not only the previously discussed differences in total mercury concentrations but also temporal and spatial differences in the volume of precipitation. Individual weekly estimates of wet mercury deposition in the state since monitoring began ranged from 0.22 ng/m^2 (PA37, 2002) to 3183.4 ng/m^2 (PA13, 2001). On average, the minimum weekly wet deposition across the network is 13.41 ng/m^2, while the maximum weekly deposition averages 940.96 ng/m^2. Given such a wide range in weekly deposition measurements, it is not surprising that seasonal wet deposition estimates shown in Table 5 exhibit considerable variability. The lowest seasonal mercury deposition (0.505 μg/m^2) measured over the past eight years was recorded at Hills Creek (PA90) in 1997; the largest amount of mercury deposition for any season (6.429 μg/m^2) was measured at Allegheny Portage (PA13) in 2001 (Table 5). Although these maximum and minimum values represent the most extreme observations, every site in the network exhibit fluctuations in weekly samples and seasonal estimates of one or more orders of magnitude each year.

The greatest seasonal fluctuations in wet deposition occur during the summer and fall months; the smallest fluctuations occur during the spring and winter months. Some of this variability is likely the result of differences in climatic patterns. Winter and spring months tend to be dominated by frontal storm systems that have more uniform precipitation patterns covering large areas of the state. In contrast, summer climatic patterns are dominated by highly variable convectional storms that can result in non-uniform precipitation patterns of very large volumes of rainfall. The fall represents the transition from convectional to frontal storm patterns which can also contribute to observed spatial differences. Fall months are traditionally the driest months of the year in Pennsylvania, but are periodically influenced by tropical storms, particularly along the eastern portion of the state. The sites that exhibit the greatest amount of seasonal variability are PA60, PA90, and PA 30; the sites with the least amount of variability between seasons are PA00, PA13, and PA37.

Despite the variability in weekly and seasonal wet deposition estimates, seasonal patterns do exist across the state as well as at individual sites. In general, wet mercury deposition is higher

during the summer months and lowest during the winter months. Fall deposition amounts more closely mimic winter depositions while spring deposition levels are most similar to summer estimates. On average, for all sites and years of operation, 36% of the annual deposition occurred during the summer months, 31 percent during the spring, 20 percent during the fall, and 13% during the winter. Higher mercury depositions during the spring and summer months are a function of both higher mercury concentrations in rainfall and higher rainfall volumes at most sites. At sites with at least four years of observations, wet deposition is highest during the spring at PA00, PA13, PA30, and PA60. At PA37, PA72 and PA90, the greatest deposition occurred during the summer months. However, none of these sites consistently (year to year) recorded the highest deposition doing the summer or spring months. In contrast, the lowest average seasonal deposition occurs during the winter. With a couple of exceptions, this has been the case at nearly all sites. One of the largest exceptions was recorded at PA60 in 2001 when the highest seasonal mercury deposition occurred during the winter. Very high winter mercury deposition was also measured at Hills Creek (PA90) in 1999 and at Erie (PA30) in 2002. Each of these exceptions is associated with one or more weekly sample of very high mercury deposition. For example, during the winter of 2001, the Valley Forge (PA60) site received two storms of both high concentration and high volume that together deposited 2.10 $\mu g/m^2$ of mercury which accounted for nearly 70% of the total winter deposition at that site. At PA90 in 1999, one sample accounted for nearly 60% (1.19 $\mu g/m^2$) of the winter deposition. This particular event was caused primarily by very high total mercury concentrations. Similar conditions existed at the PA30 site in 2002. Such spikes in deposition are unusual, but do occur frequently enough to distort seasonal and/or spatial wet deposition patterns and may have significant impacts on the environment.

Seasonal wet deposition patterns for 2003 and 2004 are shown in Figures 12 and 13, respectively. About the only consistent seasonal pattern that is evident for both years is the relatively lower mercury deposition across the north central portion of the Commonwealth as represented by deposition at the Hills Creek site in Tioga County (PA90). These maps also illustrate nicely that wet mercury deposition in south western Pennsylvania during the summer of 2003 (Figure 12) was much lower than for the same period in 2004 (Figure 13). Deposition in this region of Pennsylvania is dominated my measurements at the Holbrook site (PA37) in Greene County. Likewise, spring mercury deposition in 2003 (Figure 12) in the southeast and northwest was much lower than it was during the same period in 2004 (Figure 13). Unfortunately, the interpretation and significance of these patterns are limited by the fact that only two years of observations exist in the state with sufficient number of sites to permit such spatial analyses.

Trends in Total Mercury Deposition

Sufficient years of observations exist at the Hills Creek (PA90) site in Tioga County and the Allegheny Portage NHS site (PA13) in Cambria County to permit trend analyses. At the Hills Creek site, total mercury concentrations have decreased from 1997 through 2004 (Figure 14). The decreasing trend is statistically significant ($p<0.0001$). The rate of decline is 5.37% per year. The decline is not driven by trends in precipitation volume. Seasonal mercury concentrations and precipitation volumes at this site are not statistically related ($r^2 = 0.0004$).

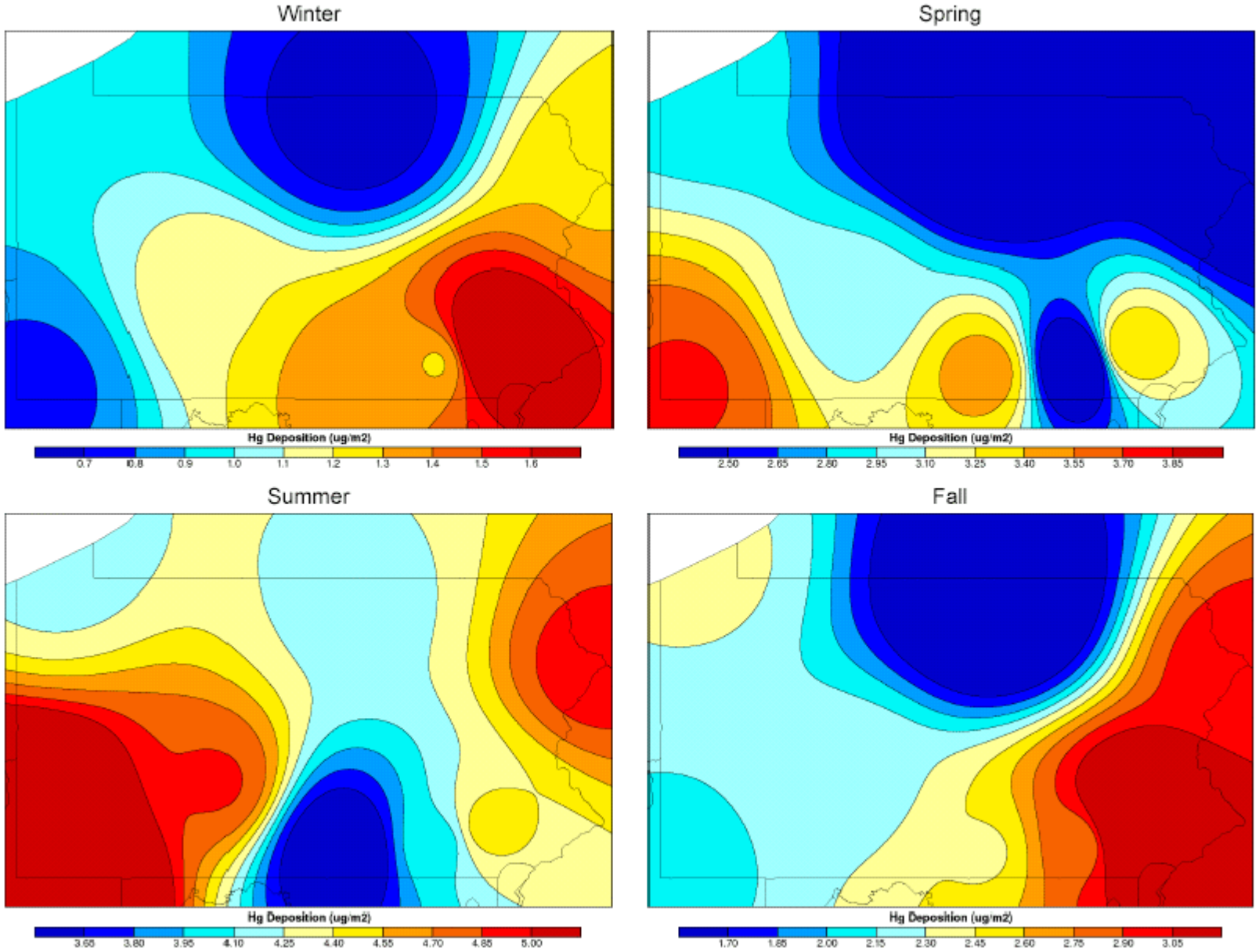


Figure 12. Seasonal variations in total mercury wet deposition (μg/m²) across Pennsylvania in 2003.

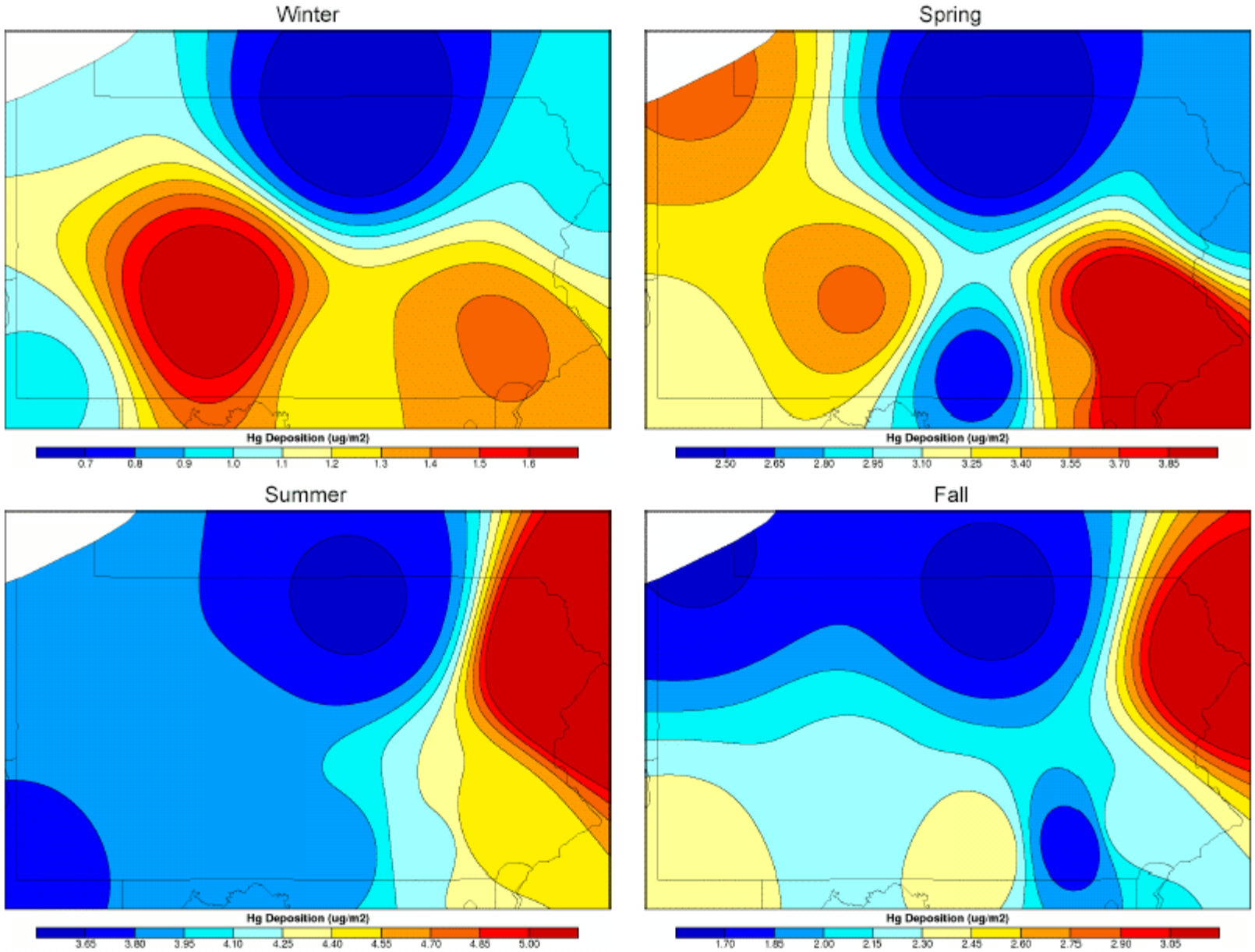


Figure 13. Seasonal variations in total mercury wet deposition (μg/m²) across Pennsylvania in 2004.

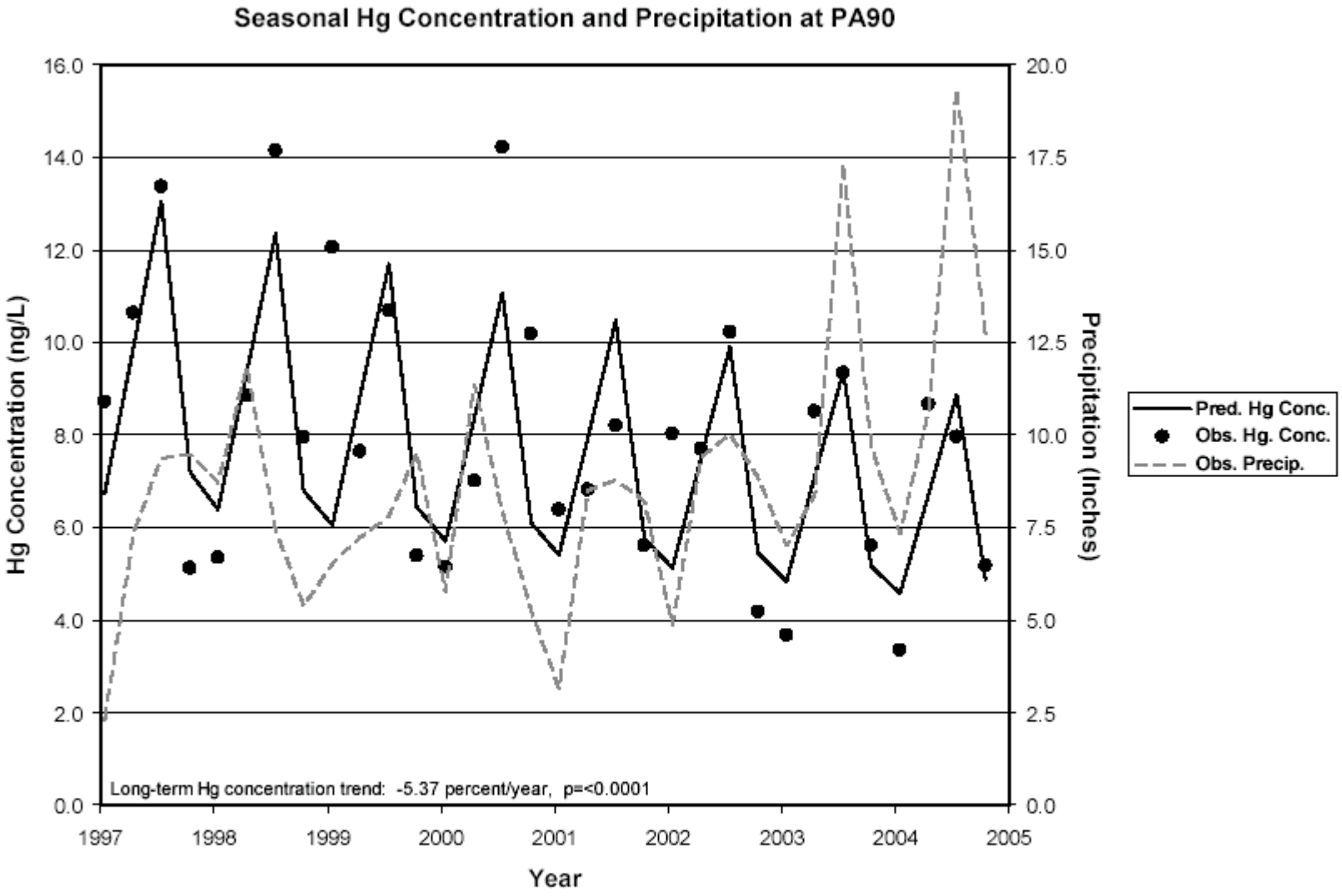


Figure 14. Seasonal total mercury concentration and precipitation trends at the Hills Creek State Park MDN site (PA90) in Tioga County Pennsylvania from 1997 through 2004.

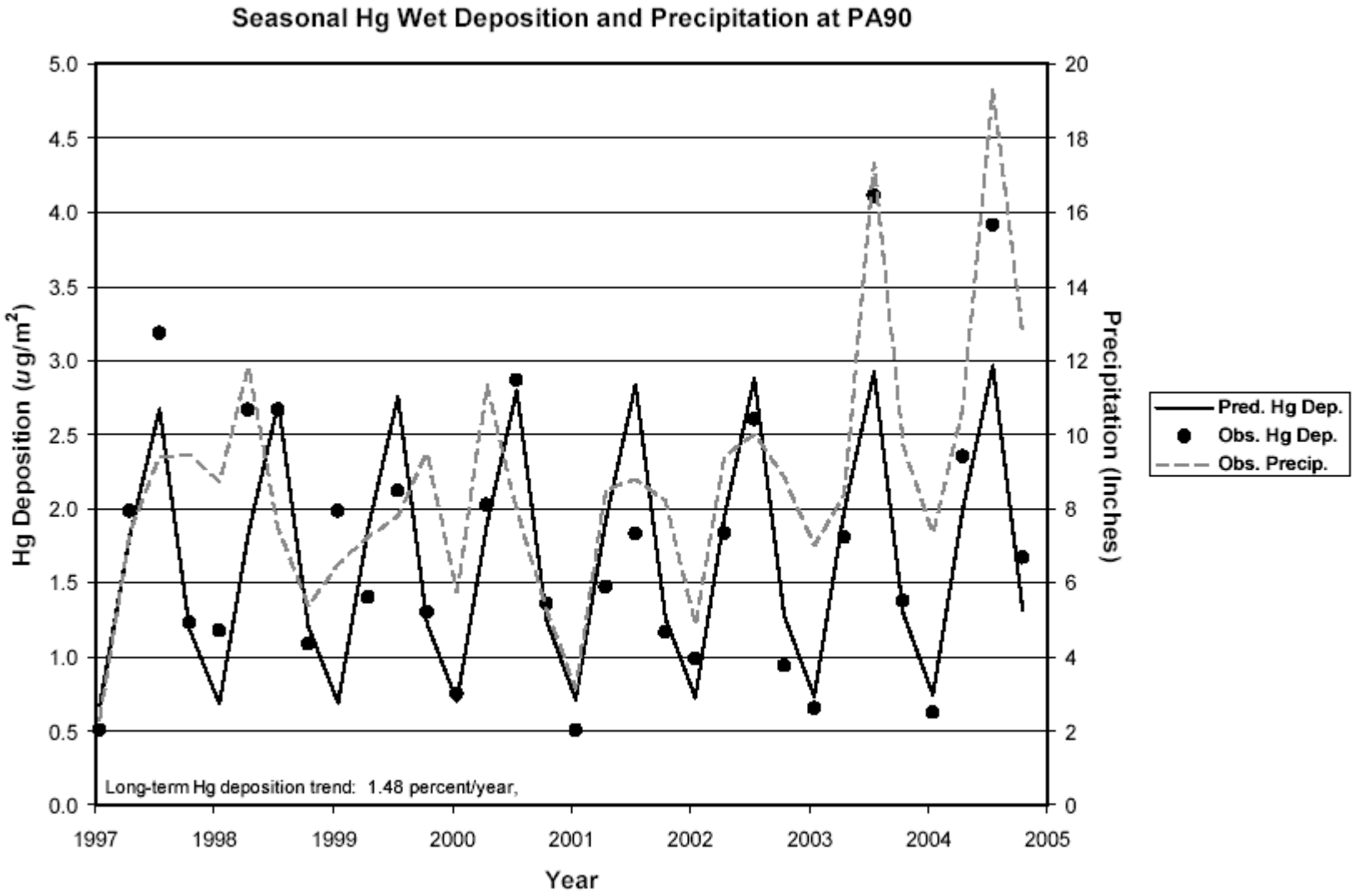


Figure 15. Seasonal total mercury wet deposition and precipitation trends at the Hills Creek State Park MDN site (PA90) in Tioga County Pennsylvania from 1997 through 2004.

Despite the decline in mercury concentrations at this site, wet mercury deposition has actually increased slightly (Figure 15), although the trend is not statistically significant ($p<0.01$). The lack of a significant wet mercury deposition trend at the Hills Creek site is strongly influenced by very high precipitation volumes and wet depositions in 2003 and 2004. Similar mercury concentration (Figure 16) and wet deposition (Figure 17) trends are evident at the Allegheny Portage NHS in Cambria County. However, neither the concentration nor wet deposition tends at this site are statistically significant. Although trends in precipitation volume at the Allegheny Portage site have influenced the wet deposition trend, there is no statistical evidence to indication that precipitation volume influenced the mercury concentration trend.

Although precipitation volumes do not appear to be influencing the decreasing total mercury concentration trend at Hills Creek, a very strong relationship exists between decreasing mercury and sulfate concentrations (Figure 18) at the Hills Creek. Given the close association between sulfate and mercury concentrations at this site, it is reasonable to assume that the declining mercury trend is related to reductions in sulfate concentrations that are in turn directly related to decreasing sulfur dioxide emissions in the eastern half of the United States following implementation in 1995 of Title IV of the Clean Air Act Amendments of 1990. Sulfur emission reductions were achieved through a combination of scrubber technology, fuel switching (e.g., oil or natural gas for coal), and/or the use of lower sulfur coal for mid-western sources and emissions trading. It is possible that this combination of approaches to reduced sulfur emissions has resulted in a concurrent reduction in mercury emissions as well. Given the location of the Hills Creek site and the general lack of nearby mercury and sulfur emission sources, it is reasonable to assume that long range transport of pollutants from western Pennsylvania and Ohio River Valley sources are the major sources that were affected by the CAAA emission reductions and are thus likely the sources also contributing to the reductions in mercury concentrations and deposition at his site. Verification of these reasonable assumptions can be achieved through the use of transport modeling to target source-receptor relationships.

Summary

Annual wet deposition of total mercury at all MDN sites in the United States and Canada that met data completeness criteria for 2003 and 2004 ranged from 2.2 $\mu g/m^2$ in southern Canada to 28.5 $\mu g/m^2$ in southern Florida in 2003 (Figure 5) and from 2.2 $\mu g/m^2$ in southern California to 22.8 $\mu g/m^2$ in southern Alabama (Figure 7) in 2004. Wet mercury deposition in Pennsylvania in 2003 ranged from 7.8 $\mu g/m^2$ in Tioga County to 12.78 $\mu g/m^2$ in Montgomery County. Wet mercury deposition in 2004 was lowest (8.34 $\mu g/m^2$) in Tioga County and highest (12.67 $\mu g/m^2$) in Pike County. Wet deposition at the Hills Creek site in Tioga County was the sixth lowest amount reported in the New England and Mid-Atlantic regions of eastern United States the past two years. Volume-weighted mean annual concentrations of total mercury in precipitation in the United States ranged from 4.4 ng/L to 27.0 ng/L in 2003 and from 4.0 ng/L to 17.5 ng/L in 2004. The volume-weighted mean concentrations of total mercury in Pennsylvania ranged from 7.13 ng/L in Tioga County to 10.30 ng/L in Cambria County in 2003 and from 7.06 at Hills Creek to 9.64 near Milford (PA72) in 2004. Mercury concentrations and wet deposition estimates in the United States in 2003 and 2004 were similar to the values reported since 1997 (Tables 4 and 5). Although some differences are evident, these differences can be attributed to

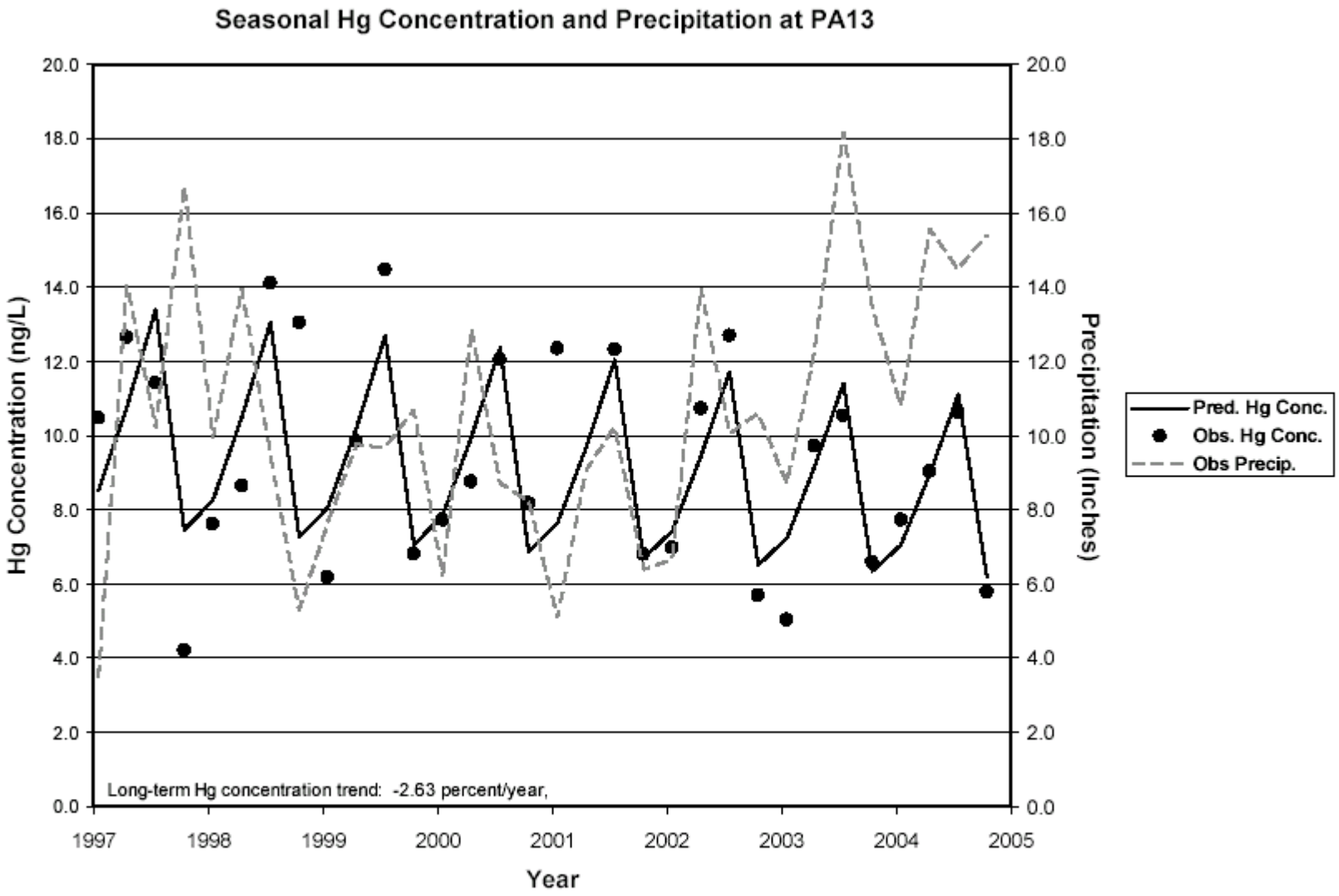


Figure 16 Seasonal total mercury concentration and precipitation trends at the Allegheny Portage NHS MDN site (PA13) in Cambria County Pennsylvania from 1997 through 2004.

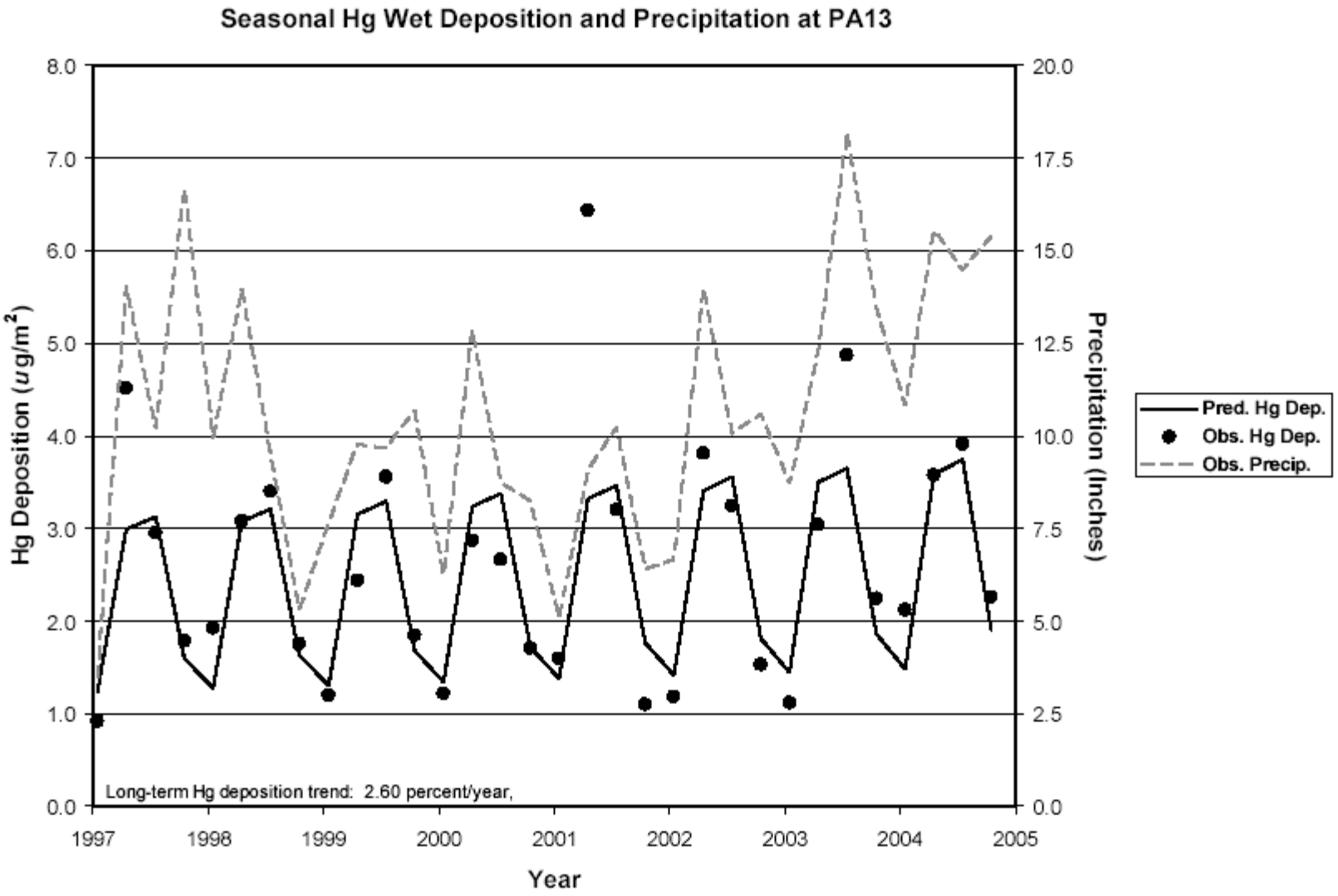


Figure 17. Seasonal total mercury wet deposition and precipitation trends at the Allegheny Portage NHS MDN site (PA13) in Cambria County Pennsylvania from 1997 through 2004.

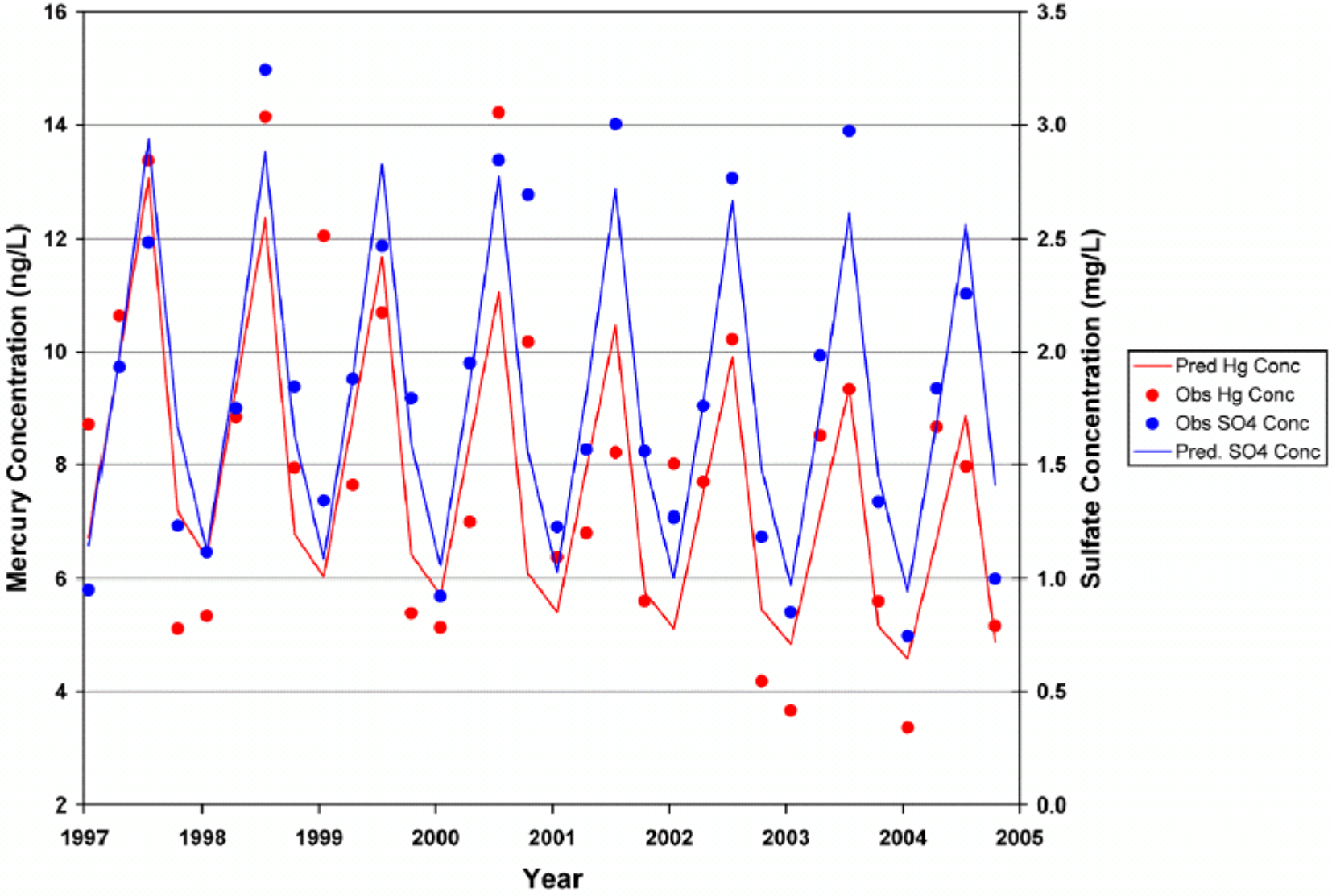


Figure 18. Trends in mercury and sulfate concentrations at the Hills Creek State Park MDN site (PA90) from 1997 through 2004.

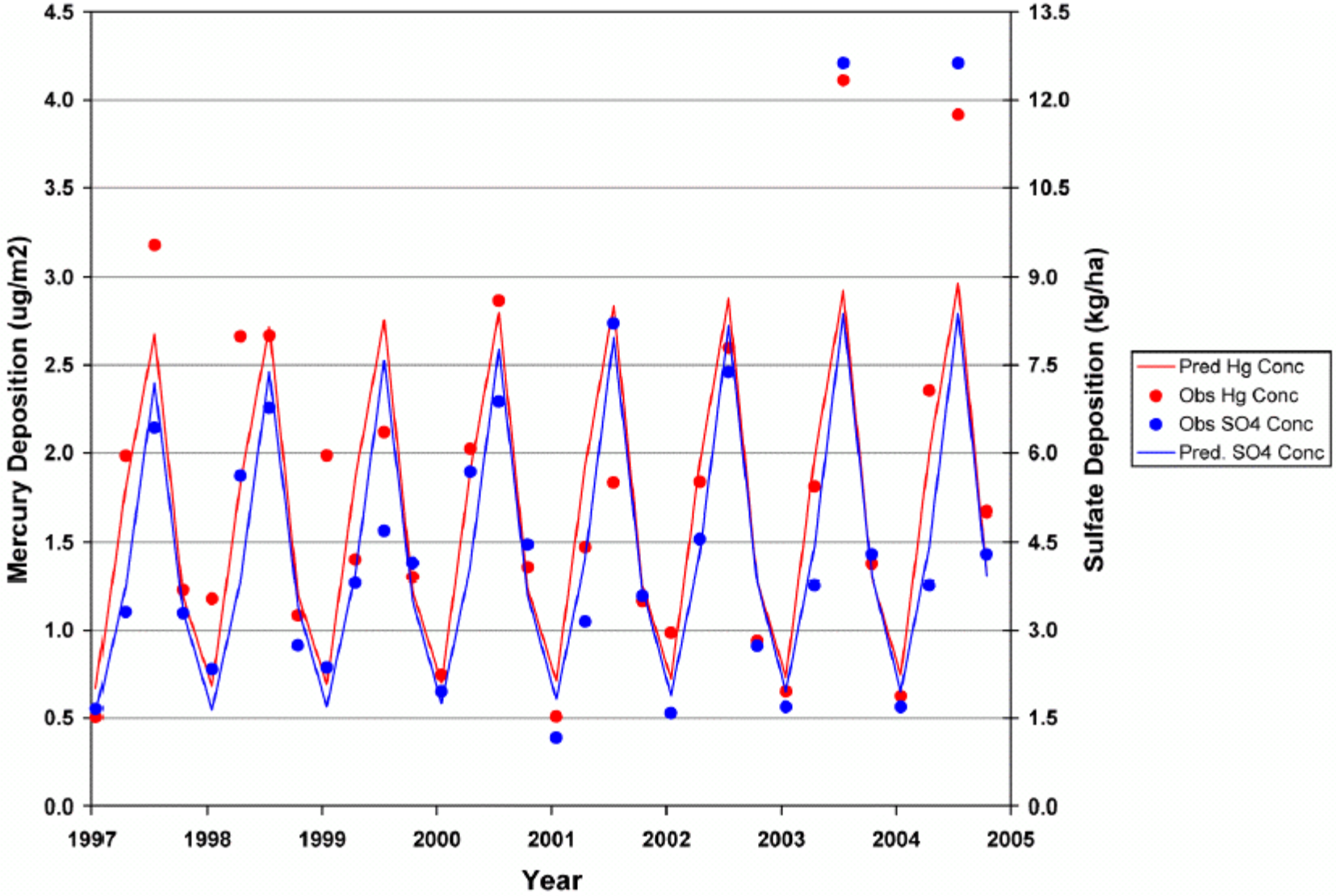


Figure 19. Trends in mercury and sulfate wet deposition at the Hills Creek State Park MDN site (PA90) from 1997 through 2004.

an annual increase in new MDN sites and to fluctuations in precipitation volumes within and between regions.

In general, mercury concentrations and wet depositions were lowest in New England and Eastern Canada and higher in Florida and other Gulf states and around the Great Lakes. Mercury depositions in Pennsylvania are, for the most part, in the middle of this range, except for observations in Tioga County which are consistently lower than most eastern sites in North America. Mercury concentrations and wet deposition estimates in the United States are generally highest during the summer months and lowest during the winter period. This seasonal pattern was also evident at most, but not all, Pennsylvania sites in 2003 and 2004. Wet deposition of mercury is the product of both mercury concentration in precipitation and the amount of precipitation. Both of these factors are higher during the summer months at many of the MDN sites, including the Pennsylvania sites, and thus influence the amount of mercury deposited during this period. Trend analyses at two sites (Allegheny Portage and Hills Creek) indicate decreasing mercury concentration trends at both sites. However, the decreasing pattern was significant at $p<0.0001$ at only the Hills Creek site. The concentration trend does not appear to be influenced by precipitation at either site. However, precipitation volume did have significant influence over the wet mercury deposition trends. It is interesting to note that the decreasing total mercury concentration pattern at Hills Creek mimicked nicely a decreasing pattern in sulfate concentrations at this site. Given the location of the Hills Creek site and the general lack of mercury and sulfur emission sources, it is reasonable to assume that long range transport of pollutants from Ohio and western Pennsylvania sources are the major sources that were affected by the CAAA emission reductions and are thus likely the sources also contributing to the reductions in mercury concentrations and deposition at his site. Verification of this reasonable assumption can be achieved through the use of transport modeling that can identify source-receptor relationships.

Mercury deposition monitoring will continue in Pennsylvania in 2006. The number of sites in the state will increase to nine with the establishment of a MDN site in Centralia beginning the spring of 2006.

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Appendix I

Weekly Total Mercury Concentrations and Wet Depositions at NADP/MDN Monitoring Sites in Pennsylvania through December 2004

Mercury Deposition Network Data Fields

SITE CODE: 2-letter state or province designator followed by a two-digit number.

START DATE: mm/dd/yyyy

END DATE: mm/dd/yyyy

RGPPT: Precipitation amount as measured by the recording rain gage in millimeters (mm). Trace amounts are indicated by -7 and missing amounts by -9.

SVOL: Sample volume in mL. Missing amounts are indicated by -9.

SUBPPT: Recording rain gage precipitation amount, if available, in millimeters (mm). If rain gage value (RGPTT) is missing, the precipitation amount in mm is calculated from the net sample volume caught in the sample bottle. A value of 0.13 mm is inserted for trace (less than 0.25 mm) sample types. Missing amounts are indicated by -9.

HGCONC: Total mercury concentration reported by the lab in ng/L. Missing values are indicated by -9.

HGDEP: Total mercury deposition, ng/m^2. The product of SUBPPT and HGCONC. Missing amounts are indicated by a -9.

QUALITY RATING (QR) CODE:

A Fully qualified sample with not problems.

B Valid data with minor problems, included in summary statistics.

C Incomplete or invalid data, laboratory results not included in summary statistics.

- No sample available for sampling interval.

SAMPLE TYPE:

W Wet sample, measurable precipitation (≥ 0.25 mm, 0.01 inch) in the recording rain gage (RGPPT) or net sample volume (SVOL) ≥ 1.5 mL, if rain gage data are missing. Concentration and deposition data are reported unless the QR Code is C.

D Dry sample. The recording rain gage (RGPPT) measured zero precipitation or if the RGPPT is missing, the SVOL was < 1.5 mL. No concentration data are reported and are indicated by a -9. RGPPT, SUBPPT, and HGDEP are set at zero.

- Unknown sample type. Precipitation amount is unknown.

NOTE CODES:

Code	Description	Quality Rating QR Code	Valid for Summary Statistics (Y/N)
e	Extended sampling interval (>8 days)	B	Y
d	Debris present in sample	B	Y
m	Missing information	B	Y
z	Site operations problems	B	Y
h	Sample handling problems	B	Y
i	Low volume sample (< 10 mL). HGCONC are reported but with less certainty than for samples volumes > 10 mL	B	Y
b	Bulk sample (sample exposed to atmosphere the whole sampling interval	C	N
v	Rain gage indicates that precipitation occurred but the sample volume was less than 10% of the measured RGPPT.		
u	Undefined sample. Sample exposed to atmosphere at least 6 hours without precipitation	C	N
f	Serious problems with field operations that compromise sample integrity	C	N
l	Laboratory error	C	N
c	Sample contaminated	C	N
p	No precipitation estimate from either the rain gage or the sample volume	C	N
n	No sample submitted or received at lab	C	N

YRMONTH (YYYYMM): Indicates the year and month at the midpoint of the sampling interval. Used to determine which samples to use to complete annual and seasonal aggregates.

NATIONAL ATMOSPHERIC DEPOSITION PROGRAM
MERCURY DEPOSITION NETWORK
ARENDTSVILLE PENNSYLVANIA (PA00)

Site ID	Date On	Date Off	RG Ppt mm	Sample Volume mL	Sub Ppt mm	Hg Conc ng/L	Hg Dep ng/m^2	Sample Type	Quality Rating	Notes
PA00	00/11/14	00/11/21	-7	0	0.13	-9	-9	T	B	mz
PA00	00/11/21	00/11/28	36.32	-9	-9	-9	-9	M	C	m
PA00	00/11/28	00/12/05	7.62	536.6	7.62	4.18	31.9	W	C	muf
PA00	00/12/05	00/12/12	0	0	0	-9	0	D	B	m
PA00	00/12/12	00/12/19	78.74	910.2	78.74	4.89	385.43	W	B	dm
PA00	00/12/19	00/12/26	5.59	6.4	5.59	13.82	77.24	W	C	mvf
PA00	00/12/26	01/01/02	0	0	0	-9	0	D	B	mz
PA00	01/01/02	01/01/09	4.32	13.9	4.32	32.6	140.77	W	B	m
PA00	01/01/09	01/01/16	0	0	0	-9	0	D	B	m
PA00	01/01/16	01/01/23	33.53	265.3	33.53	6.41	215.08	W	C	dmzf
PA00	01/01/23	01/01/30	18.92	243.8	18.92	7.25	137.22	W	B	m
PA00	01/01/30	01/02/06	4.83	52.4	4.83	6.23	30.07	W	B	dm
PA00	01/02/06	01/02/13	0.51	0	0.51	-9	-9	W	C	mv
PA00	01/02/13	01/02/20	8.13	112.9	8.13	16.12	131.08	W	B	m
PA00	01/02/20	01/02/27	10.41	44.9	10.41	46.93	488.74	W	B	dm
PA00	01/02/27	01/03/06	24.13	25.9	24.13	27.12	654.55	W	C	dmvf
PA00	01/03/06	01/03/13	16.00	-9	0.00	-9	0	D	B	dm
PA00	01/03/13	01/03/20	10.92	-9	-9	-9	-9	M	C	m
PA00	01/03/20	01/03/27	21.72	241.8	21.72	5.99	130.15	W	B	dm
PA00	01/03/27	01/04/03	43.18	535.8	43.18	2.67	115.33	W	B	dmh
PA00	01/04/03	01/04/10	19.56	209.8	19.56	25.75	503.67	W	B	dm
PA00	01/04/10	01/04/17	29.21	337	29.21	14.81	432.68	W	B	m
PA00	01/04/17	01/04/24	1.27	5.8	1.27	48.46	61.55	W	B	dmzi
PA00	01/04/24	01/05/01	0	0	0.00	-9	0	D	B	dm
PA00	01/05/01	01/05/08	-7	0	0.13	-9	-9	T	B	dm
PA00	01/05/08	01/05/15	4.32	21.4	4.32	36.24	156.48	W	B	dm
PA00	01/05/15	01/05/22	31.62	326.3	31.62	7.95	251.4	W	B	dmzh
PA00	01/05/22	01/05/29	32.77	370.9	32.77	9.43	308.98	W	B	dmh
PA00	01/05/29	01/06/05	9.65	108.3	9.65	10.24	98.9	W	B	m
PA00	01/06/05	01/06/12	1.27	3.9	1.27	63.77	80.99	W	B	mi
PA00	01/06/12	01/06/19	17.27	205	17.27	9.83	169.8	W	B	dmh
PA00	01/06/19	01/06/26	18.54	223.6	18.54	22.99	426.35	W	B	dmh
PA00	01/06/26	01/07/03	5.08	43.4	5.08	46.39	235.7	W	B	dm
PA00	01/07/03	01/07/10	11.94	128.9	11.94	12.69	151.5	W	B	dmh
PA00	01/07/10	01/07/17	-9	68.6	5.73	34.58	198.01	W	B	dm
PA00	01/07/17	01/07/24	0.51	0	0.51	-9	-9	W	C	mv
PA00	01/07/24	01/07/31	11.43	118.8	11.43	4.69	53.68	W	B	dm
PA00	01/07/31	01/08/07	5.72	69.4	5.72	21.78	124.47	W	B	dm
PA00	01/08/07	01/08/14	14.73	164.3	14.73	8.67	127.81	W	B	dm
PA00	01/08/14	01/08/21	11.94	137.4	11.94	11.37	135.81	W	B	dm
PA00	01/08/21	01/08/28	1.27	4	1.27	24.03	30.51	W	B	dmi
PA00	01/08/28	01/09/04	-9	155.1	12.95	10.21	132.2	W	B	dm
PA00	01/09/04	01/09/11	0.69	0	0.69	-9	-9	W	C	mv
PA00	01/09/11	01/09/18	3.81	39.3	3.81	12.87	49.06	W	B	dm
PA00	01/09/18	01/09/25	77.47	926.5	77.47	4.92	381.15	W	B	dm
PA00	01/09/25	01/10/02	0.51	0	0.51	-9	-9	W	C	dmhv
PA00	01/10/02	01/10/09	0	0.6	0.00	-9	0	D	B	m
PA00	01/10/09	01/10/16	10.29	108.7	10.29	5.49	56.49	W	B	dm

PA00	01/10/16	01/10/23	6.35	56.9	6.35	15.78	100.21	W	B	dm
PA00	01/10/23	01/10/30	0	0	0.00	-9	0	D	B	m
PA00	01/10/30	01/11/06	0.51	0	0.51	-9	-9	W	C	mv
PA00	01/11/06	01/11/13	0	0	0.00	-9	0	D	B	m
PA00	01/11/13	01/11/20	1.27	4.1	1.27	31.65	40.2	W	B	mhi
PA00	01/11/20	01/11/27	28.45	303.8	28.45	6.72	191.22	W	B	dm
PA00	01/11/27	01/12/04	10.67	87.9	10.67	12.96	138.33	W	B	d
PA00	01/12/04	01/12/11	15.88	163.2	15.88	6.86	108.9	W	B	dm
PA00	01/12/11	01/12/18	21.34	278.5	21.34	13.66	291.53	W	B	dm
PA00	01/12/18	01/12/25	4.57	53.3	4.57	5.68	25.97	W	B	dmh
PA00	01/12/25	02/01/01	0	0	0.00	-9	0	D	B	m
PA00	02/01/01	02/01/08	11.43	13.2	11.43	18.13	207.22	W	C	dmhv
PA00	02/01/08	02/01/15	3.81	39.4	3.81	4.62	17.62	W	B	dmh
PA00	02/01/15	02/01/22	10.22	72.4	10.22	5.11	52.32	W	B	dm
PA00	02/01/22	02/01/29	18.8	188.4	18.80	8.93	167.97	W	B	dm
PA00	02/01/29	02/02/05	9.91	120.3	9.91	9.51	94.21	W	B	dm
PA00	02/02/05	02/02/12	4.57	45.6	4.57	26.23	119.95	W	B	dm
PA00	02/02/12	02/02/19	-7	0	0.13	-9	-9	T	B	dm
PA00	02/02/19	02/02/26	0.51	0	0.51	-9	-9	W	C	mv
PA00	02/02/26	02/03/05	30.48	361.2	30.48	2.97	90.67	W	B	dm
PA00	02/03/05	02/03/12	0.76	0	0.76	-9	-9	W	C	dmv
PA00	02/03/12	02/03/19	25.4	294	25.40	22.32	566.92	W	B	dmh
PA00	02/03/19	02/03/26	27.18	301.7	27.18	6.63	180.19	W	B	dm
PA00	02/03/26	02/04/02	32.77	372.9	32.77	8.28	271.49	W	B	dmh
PA00	02/04/02	02/04/09	1.80	0	1.80	-9	-9	W	C	dmv
PA00	02/04/09	02/04/16	29.21	316.2	29.21	8.54	249.45	W	B	dm
PA00	02/04/16	02/04/23	12.95	0	12.95	-9	-9	W	C	mv
PA00	02/04/23	02/04/30	30.23	352.1	30.23	14.4	435.46	W	B	dm
PA00	02/04/30	02/05/07	9.4	102.8	9.40	29.85	280.55	W	B	dm
PA00	02/05/07	02/05/14	26.16	339.8	26.16	18.85	493.38	W	B	dm
PA00	02/05/14	02/05/21	28.96	353.1	28.96	8.79	254.63	W	B	dm
PA00	02/05/21	02/05/28	26.42	305.7	26.42	11.83	312.52	W	B	dmh
PA00	02/05/28	02/06/04	23.37	272.5	23.37	9.05	211.69	W	B	dmh
PA00	02/06/04	02/06/11	16.76	201.4	16.76	9.69	162.51	W	B	dm
PA00	02/06/11	02/06/18	29.46	357.8	29.46	6.78	199.88	W	B	dm
PA00	02/06/18	02/06/25	1.52	0	1.52	-9	-9	W	C	dmvl
PA00	02/06/25	02/07/02	19.81	224	19.81	10.68	211.69	W	B	dm
PA00	02/07/02	02/07/09	0	0	0.00	-9	0	D	B	m
PA00	02/07/09	02/07/16	17.27	202.2	17.27	8.07	139.5	W	B	m
PA00	02/07/16	02/07/23	2.29	10.7	2.29	19.59	44.79	W	B	m
PA00	02/07/23	02/07/30	10.92	130.3	10.92	18.04	197.06	W	B	dm
PA00	02/07/30	02/08/06	6.1	48.7	6.10	6.75	27.45	W	B	m
PA00	02/08/06	02/08/13	0	0	0.00	-9	0	D	B	mh
PA00	02/08/13	02/08/20	1.27	0	1.27	-9	-9	W	C	mhv
PA00	02/08/20	02/08/27	50.29	594.8	50.29	9.48	476.91	W	B	dmh
PA00	02/08/27	02/09/03	25.4	319	25.40	6.73	170.99	W	B	m
PA00	02/09/03	02/09/10	0	0	0.00	-9	0	D	B	m
PA00	02/09/10	02/09/17	1.52	15.8	1.52	13.83	21.08	W	B	m
PA00	02/09/17	02/09/24	62.23	741.5	62.23	4.35	271.01	W	B	dmh
PA00	02/09/24	02/10/01	57.91	731.1	57.91	3.12	181.03	W	B	h
PA00	02/10/01	02/10/08	12.7	131.5	12.70	13.56	172.22	W	B	h
PA00	02/10/08	02/10/15	62.23	738	62.23	5.17	322.28	W	B	d
PA00	02/10/15	02/10/22	39.62	502	39.62	3.35	133.01	W	B	h
PA00	02/10/22	02/10/29	26.67	323.3	26.67	7.67	204.79	W	A	
PA00	02/10/29	02/11/05	28.45	308.3	28.45	5.91	168.12	W	A	
PA00	02/11/05	02/11/12	33.53	390.8	33.53	5.78	193.99	W	B	h
PA00	02/11/12	02/11/19	34.04	384.5	34.04	2.06	70.31	W	B	h

PA00	02/11/19	02/11/26	12.45	127.3	12.45	3.01	32	W	B	m
PA00	02/11/26	02/12/03	6.6	66.5	6.60	12.35	68.55	W	B	m
PA00	02/12/03	02/12/10	13.46	118.6	13.46	3.2	43.18	W	A	
PA00	02/12/10	02/12/17	-9	658.4	54.95	2.37	130.45	W	B	mhh
PA00	02/12/17	02/12/24	18.29	193.3	18.29	10.06	162.38	W	B	m
PA00	02/12/24	02/12/31	16	172.4	16.00	2.71	43.38	W	A	
PA00	02/12/31	03/01/07	50.29	485.3	50.29	4.63	233	W	A	
PA00	03/01/07	03/01/14	0	0	0.00	-9	0	D	A	
PA00	03/01/14	03/01/21	-9	0	0.00	-9	0	D	B	m
PA00	03/01/21	03/01/28	-7	0	0.13	-9	-9	T	A	
PA00	03/01/28	03/02/04	-9	138	11.52	10.43	120.22	W	B	m
PA00	03/02/04	03/02/11	6.86	8.9	6.86	16.94	116.2	W	B	hi
PA00	03/02/11	03/02/19	53.09	85.1	53.09	8.06	428.13	W	A	
PA00	03/02/19	03/02/25	31.5	364.1	31.50	1.36	43.02	W	A	
PA00	03/02/25	03/03/04	9.65	82.8	9.65	6.36	61.4	W	A	
PA00	03/03/04	03/03/11	15.75	136.5	15.75	19.04	299.92	W	A	
PA00	03/03/11	03/03/18	2.54	0	2.54	-9	-9	W	C	v
PA00	03/03/18	03/03/25	43.18	482.4	43.18	3.69	159.5	W	B	d
PA00	03/03/25	03/04/01	17.53	161.1	17.53	13.44	-9	-	C	mp
PA00	03/04/01	03/04/08	20.07	213.6	20.07	10.67	-9	-	C	mp
PA00	03/04/08	03/04/15	17.53	165.6	7.00	16.25	284.83	W	A	
PA00	03/04/15	03/04/22	-9	220	18.36	16.81	308.81	W	B	m
PA00	03/04/22	03/04/29	8.89	64	8.89	8.79	78.17	W	A	
PA00	03/04/29	03/05/06	17.02	141.4	17.02	19.99	340.32	W	A	
PA00	03/05/06	03/05/13	24.13	283.3	24.13	18.09	436.6	W	B	d
PA00	03/05/13	03/05/20	75.82	978.5	75.82	9.14	693.06	W	B	dh
PA00	03/05/20	03/05/27	42.29	510.1	42.29	3.98	168.61	W	B	zh
PA00	03/05/27	03/06/03	33.02	392.4	33.02	10.24	338.32	W	B	h
PA00	03/06/03	03/06/10	108.71	1359.7	108.71	8.71	947.86	W	A	
PA00	03/06/10	03/06/17	11.94	126.3	11.94	12.32	147.16	W	A	
PA00	03/06/17	03/06/24	52.58	639.2	52.58	9.63	506.79	W	C	dhb
PA00	03/06/24	03/07/01	0	0	0.00	-9	0	D	A	
PA00	03/07/01	03/07/08	15.24	193.9	15.24	8.5	129.6	W	B	h
PA00	03/07/08	03/07/15	10.16	128.9	10.16	10.48	106.5	W	B	dh
PA00	03/07/15	03/07/22	8.89	41.9	8.89	16.92	150.49	W	A	
PA00	03/07/22	03/07/29	6.35	78.1	6.35	16.47	104.61	W	B	dm
PA00	03/07/29	03/08/05	12.45	149.7	12.45	6.79	84.55	W	A	
PA00	03/08/05	03/08/12	25.4	313.7	25.40	15.09	383.43	W	B	d
PA00	03/08/12	03/08/19	17.78	182.2	17.78	19.47	296.09	W	B	mh
PA00	03/08/19	03/08/26	4.57	44.8	4.57	17.23	78.81	W	B	h
PA00	03/08/26	03/09/02	38.1	423.3	38.10	9.87	376.23	W	A	
PA00	03/09/02	03/09/09	15.49	190.7	15.49	11.68	181	W	B	h
PA00	03/09/09	03/09/16	26.16	319.4	26.16	7.9	206.88	W	B	d
PA00	03/09/16	03/09/23	77.22	909.8	77.22	6.48	500.66	W	B	d
PA00	03/09/23	03/09/30	19.3	223	19.30	16.27	314.21	W	B	d
PA00	03/09/30	03/10/07	10.67	0	10.67	-9	-9	W	C	zv
PA00	03/10/07	03/10/14	0	0	0.00	-9	0	D	A	
PA00	03/10/14	03/10/21	37.59	455.6	37.59	8.52	320.43	W	B	d
PA00	03/10/21	03/10/28	27.18	331.7	27.18	7.1	193.12	W	B	h
PA00	03/10/28	03/11/04	12.19	155.3	12.19	7.63	93.03	W	B	h
PA00	03/11/04	03/11/11	11.43	143.1	11.43	9.46	108.15	W	B	d
PA00	03/11/11	03/11/18	13.97	181	13.97	3.17	44.28	W	A	
PA00	03/11/18	03/11/25	38.1	469.9	38.10	8.08	308.19	W	A	
PA00	03/11/25	03/12/02	13.97	144.7	13.97	5.74	80.31	W	A	
PA00	03/12/02	03/12/09	20.83	145.3	20.83	5.03	104.95	W	A	
PA00	03/12/09	03/12/16	72.39	787.8	72.39	2.57	186.18	W	A	
PA00	03/12/16	03/12/23	3.56	9.1	3.56	15.25	54.26	W	B	i

PA00	03/12/23	03/12/30	8.89	88.7	8.89	11.71	104.11	W	A	
PA00	03/12/30	04/01/06	21.34	227.4	21.34	12.39	264.37	W	A	
PA00	04/01/06	04/01/13	0	0	0.00	-9	0	D	A	
PA00	04/01/13	04/01/20	21.84	222.9	21.84	2.18	47.79	W	A	
PA00	04/01/20	04/01/27	15.24	88.9	15.24	4.52	69.02	W	A	
PA00	04/01/27	04/02/04	29.46	302.3	29.46	2.22	65.49	W	A	
PA00	04/02/04	04/02/11	-9	531.2	44.34	5.04	223.76	W	B	m
PA00	04/02/11	04/02/17	0	0	0.00	-9	0	D	A	
PA00	04/02/17	04/02/24	3.81	31.6	3.81	11.65	44.4	W	B	h
PA00	04/02/24	04/03/02	3.3	21.6	3.30	9.7	32.04	W	A	
PA00	04/03/02	04/03/09	23.37	261.9	23.37	6.72	157.24	W	A	
PA00	04/03/09	04/03/15	0	0	0.00	-9	0	D	A	
PA00	04/03/15	04/03/23	20.32	210.7	20.32	5.95	121.08	W	B	h
PA00	04/03/23	04/03/30	1.27	0	1.27	-9	-9	W	C	dv
PA00	04/03/30	04/04/06	42.67	502.2	42.67	5.53	236.36	W	A	
PA00	04/04/06	04/04/13	55.12	693.1	55.12	5.62	309.98	W	A	
PA00	04/04/13	04/04/20	12.7	125.1	12.70	3.36	42.78	W	A	
PA00	04/04/20	04/04/27	38.35	457.8	38.35	7.02	269.55	W	A	
PA00	04/04/27	04/05/04	25.65	277.4	25.65	5.59	143.43	W	A	
PA00	04/05/04	04/05/11	4.57	0	4.57	-9	-9	W	C	v
PA00	04/05/11	04/05/18	26.42	302.1	26.42	17.18	453.88	W	B	d
PA00	04/05/18	04/05/25	29.97	389.6	29.97	14.3	428.71	W	C	u
PA00	04/05/25	04/06/01	48.01	295.5	48.01	11.46	550.34	W	B	h
PA00	04/06/01	04/06/08	71.12	744.4	71.12	8.75	622.58	W	A	
PA00	04/06/08	04/06/15	99.57	1194.2	99.57	9.71	967.2	W	B	d
PA00	04/06/15	04/06/22	0.76	1.5	0.76	29.23	22.27	W	B	i
PA00	04/06/22	04/06/29	14.48	170.3	14.48	12.27	177.66	W	A	
PA00	04/06/29	04/07/06	11.18	130.1	11.18	11.97	133.82	W	B	d
PA00	04/07/06	04/07/13	10.67	116.5	10.67	14.22	151.71	W	A	
PA00	04/07/13	04/07/20	9.91	73.1	9.91	13.96	138.31	W	A	
PA00	04/07/20	04/07/27	24.13	359	24.13	12.46	300.7	W	A	
PA00	04/07/27	04/08/03	47.75	570.9	47.75	12.92	617	W	A	
PA00	04/08/03	04/08/10	1.27	5.7	1.27	79.29	100.7	W	C	dic
PA00	04/08/10	04/08/17	30.23	376.7	30.23	6.15	185.95	W	A	
PA00	04/08/17	04/08/24	48.51	20.9	48.51	12.66	614.47	W	C	dv
PA00	04/08/24	04/08/31	6.1	61.3	6.10	13.51	82.36	W	B	h
PA00	04/08/31	04/09/07	0.51	0	0.51	-9	-9	W	C	v
PA00	04/09/07	04/09/14	21.34	237.6	21.34	10.49	223.94	W	A	
PA00	04/09/14	04/09/21	87.12	1068.2	87.12	5.81	506.52	W	B	d
PA00	04/09/21	04/09/29	111.25	1351.5	111.25	4.46	497.18	W	A	
PA00	04/09/29	04/10/05	1.02	5.2	1.02	23.25	23.62	W	B	i
PA00	04/10/05	04/10/12	0	-9	0.00	-9	0	D	B	d
PA00	04/10/12	04/10/19	-9	354.6	29.60	17.36	513.93	W	B	m
PA00	04/10/19	04/10/26	-9	84.8	7.08	12.26	86.78	W	B	m
PA00	04/10/26	04/11/02	-9	58.9	4.92	4.77	23.49	W	B	m
PA00	04/11/02	04/11/09	16.51	0	16.51	-9	-9	W	C	mhv
PA00	04/11/09	04/11/16	17.27	402.8	17.27	6.85	118.43	W	A	
PA00	04/11/16	04/11/23	9.4	121.5	9.40	12.24	115.03	W	A	
PA00	04/11/23	04/11/30	48.51	577.9	48.51	4.89	237.23	W	A	
PA00	04/11/30	04/12/07	21.34	179.3	21.34	6.76	144.27	W	B	h
PA00	04/12/07	04/12/14	41.15	497.5	41.15	2.19	90.23	W	A	
PA00	04/12/14	04/12/21	0	0	0.00	-9	0	D	A	
PA00	04/12/21	04/12/28	19.81	189.6	19.81	7.43	147.24	W	A	

THE NATIONAL ATMOSPHERIC DEPOSITION PROGRAM
MERCURY DEPOSITION NETWORK
ALLEGHENY PORTAGE NHS (PA13)

Site ID	Date On	Date Off	RG Ppt mm	Sample Volume mL	Sub Ppt mm	Hg Conc ng/L	Hg Dep ng/m^2	Sample Type	Quality Rating	Notes
PA13	97/01/07	97/01/14	7.75	7.8	7.75	9.48	73.44	W	C	mv
PA13	97/01/14	97/01/21	5.08	32.9	5.08	7.2	36.57	W	B	m
PA13	97/01/21	97/01/28	25.35	156.7	25.35	7.78	197.39	W	B	m
PA13	97/01/28	97/02/04	2.54	27.4	2.54	13.62	34.61	W	B	m
PA13	97/02/04	97/02/11	23.62	166.2	23.62	6.4	151.22	W	B	mz
PA13	97/02/11	97/02/18	18.8	75.6	18.8	18.67	350.94	W	B	m
PA13	97/02/18	97/02/25	5.08	33.8	5.08	15.47	78.61	W	B	m
PA13	97/02/25	97/03/04	37.59	318.1	37.59	11.77	442.49	W	B	m
PA13	97/03/04	97/03/11	24.76	225.4	24.77	18.79	465.43	W	B	m
PA13	97/03/11	97/03/18	18.03	180.6	18.03	12.39	223.44	W	B	m
PA13	97/03/18	97/03/25	4.45	27.1	4.45	22.6	100.47	W	B	m
PA13	97/03/25	97/04/01	30.48	407.5	30.48	6.1	186.14	W	B	m
PA13	97/04/01	97/04/08	0	0	0	-9	0	D	B	m
PA13	97/04/08	97/04/15	13.59	127.1	13.59	13.92	189.17	W	B	m
PA13	97/04/15	97/04/22	0	28.5	0	-9	0	D	B	mh
PA13	97/04/22	97/04/29	15.88	183.8	15.88	9.6	152.43	W	B	m
PA13	97/04/29	97/05/06	16.51	246.5	16.51	19.16	316.48	W	B	m
PA13	97/05/06	97/05/13	8.89	114.6	8.89	17.54	155.93	W	B	m
PA13	97/05/13	97/05/20	57.15	775.7	57.15	15.39	879.65	W	B	mh
PA13	97/05/20	97/05/27	77.47	974.4	77.47	9.35	725.04	W	B	m
PA13	97/05/27	97/06/03	52.07	642.3	52.07	12.97	675.76	W	B	m
PA13	97/06/03	97/06/10	9.65	124.2	9.65	20.95	202.22	W	B	m
PA13	97/06/10	97/06/17	32.51	428.7	32.51	19.82	644.51	W	B	m
PA13	97/06/17	97/06/24	9.65	128.5	9.65	19.03	183.71	W	B	m
PA13	97/06/24	97/07/01	1.65	24.9	1.65	10.22	16.88	W	B	m
PA13	97/07/01	97/07/07	-9	190.7	15.92	7	111.53	W	B	m
PA13	97/07/07	97/07/15	12.7	177.6	12.7	13.06	165.86	W	B	m
PA13	97/07/15	97/07/22	6.86	90.3	6.86	38.95	267.13	W	B	m
PA13	97/07/22	97/07/29	25.4	317.4	25.4	8.83	224.4	W	B	m
PA13	97/07/29	97/08/06	1.27	17.6	1.27	35.88	45.57	W	B	m
PA13	97/08/06	97/08/12	0	0.7	0	-9	0	D	B	m
PA13	97/08/12	97/08/19	115.32	1438.7	115.32	7.47	861.41	W	B	h
PA13	97/08/19	97/08/26	25.69	369.8	25.69	6.64	170.74	W	B	m
PA13	97/08/26	97/09/02	2.54	37.7	2.54	24.8	62.99	W	B	m
PA13	97/09/02	97/09/09	5.08	62.8	5.08	5.86	29.77	W	B	m
PA13	97/09/09	97/09/16	38.35	458.9	38.35	4.47	171.71	W	B	m
PA13	97/09/16	97/09/23	8.38	96.8	8.38	20.84	174.71	W	B	m
PA13	97/09/23	97/09/30	65.53	870.1	65.53	2.15	141.48	W	B	dm
PA13	97/09/30	97/10/07	8.89	112.2	8.89	6.79	60.39	W	B	m
PA13	97/10/07	97/10/15	2.29	27.4	2.29	3.66	8.37	W	A	
PA13	97/10/15	97/10/21	0	0	0	-9	0	D	B	m
PA13	97/10/22	97/10/29	24.64	259.2	24.64	6.84	168.62	W	B	m
PA13	97/10/29	97/11/04	51.82	690.8	51.82	2.79	144.61	W	B	mh
PA13	97/11/04	97/11/12	162.05	2054.9	162.05	2.58	419.06	W	B	m
PA13	97/11/12	97/11/18	18.29	227	18.29	5.34	97.76	W	B	m
PA13	97/11/18	97/11/25	8.89	106.2	8.89	4.99	44.42	W	B	m
PA13	97/11/25	97/12/02	30.35	328.6	30.35	10.77	327.08	W	B	m
PA13	97/12/02	97/12/09	10.03	38.6	10.03	7.02	70.49	W	B	m

PA13	97/12/09	97/12/16	14.73	191.8	14.73	5.15	75.97	W	B	m
PA13	97/12/16	97/12/23	7.94	56.6	7.94	48.47	384.79	W	B	m
PA13	97/12/23	97/12/30	21.21	120.9	21.21	7.46	158.28	W	B	m
PA13	97/12/30	98/01/06	12.19	172.6	12.19	12.05	147.01	W	B	m
PA13	98/01/06	98/01/13	32.51	395.5	32.51	9.56	311.04	W	B	m
PA13	98/01/13	98/01/20	13.97	70.9	13.97	4.13	57.76	W	B	mh
PA13	98/01/20	98/01/27	25.65	204.9	25.65	2.94	75.49	W	B	m
PA13	98/01/27	98/02/03	10.16	94.6	10.16	6.84	69.52	W	B	m
PA13	98/02/03	98/02/10	21.59	226.2	21.59	6.33	136.83	W	B	m
PA13	98/02/10	98/02/17	8.26	155.5	8.26	9.01	74.37	W	B	m
PA13	98/02/17	98/02/25	60.71	567	60.71	3.34	203.3	W	B	m
PA13	98/02/25	98/03/03	13.46	205.4	13.46	11.77	158.47	W	B	m
PA13	98/03/03	98/03/10	21.59	219.2	21.59	6.94	150.02	W	B	m
PA13	98/03/10	98/03/17	2.54	13.3	2.54	20.56	52.22	W	B	m
PA13	98/03/17	98/03/24	38.1	434	38.1	8.38	319.5	W	B	dm
PA13	98/03/24	98/03/31	0	1.3	0	-9	0	D	B	m
PA13	98/03/31	98/04/07	29.84	367.2	29.85	3.64	108.87	W	B	m
PA13	98/04/07	98/04/14	36.58	453.7	36.58	6.96	254.86	W	B	dm
PA13	98/04/14	98/04/21	54.61	715.3	54.61	9.07	495.74	W	B	dm
PA13	98/04/21	98/04/28	50.8	649	50.8	14.23	723.34	W	B	dm
PA13	98/04/28	98/05/04	24.64	323.3	24.64	5.56	136.98	W	B	dm
PA13	98/05/04	98/05/12	77.72	1021.5	77.72	5.01	390.01	W	B	dm
PA13	98/05/12	98/05/19	5.84	86.4	5.84	30.99	181.07	W	B	dm
PA13	98/05/19	98/05/26	4.06	59.8	4.06	7.76	31.56	W	B	m
PA13	98/05/26	98/06/02	8.89	116.4	8.89	25.92	230.48	W	B	dm
PA13	98/06/02	98/06/09	3.68	59.1	3.68	18.61	68.54	W	B	m
PA13	98/06/09	98/06/16	61.47	810.5	61.47	11.61	713.76	W	B	dm
PA13	98/06/16	98/06/23	18.8	274.1	18.8	16.74	314.77	W	B	dm
PA13	98/06/23	98/06/30	12.7	169	12.7	19.21	244.01	W	B	m
PA13	98/06/30	98/07/07	13.97	192.1	13.97	12.06	168.6	W	B	m
PA13	98/07/07	98/07/14	33.22	448.9	33.22	10.1	335.85	W	B	dm
PA13	98/07/14	98/07/21	15.24	206.6	15.24	18.82	286.83	W	B	m
PA13	98/07/21	98/07/28	9.52	141.3	9.53	23.25	221.54	W	B	mh
PA13	98/07/28	98/08/04	7.62	96.5	7.62	17.34	132.13	W	B	m
PA13	98/08/04	98/08/11	13.84	175.6	13.84	14.85	205.61	W	B	dm
PA13	98/08/11	98/08/18	33.02	417.1	33.02	9.6	317.02	W	B	m
PA13	98/08/18	98/08/25	3.43	59.1	3.43	26.92	92.33	W	B	m
PA13	98/08/25	98/09/01	14.48	181.4	14.48	20.39	295.23	W	B	m
PA13	98/09/01	98/09/08	22.61	298.2	22.61	16.83	380.59	W	B	m
PA13	98/09/08	98/09/16	4.83	57	4.83	11.97	57.77	W	B	m
PA13	98/09/16	98/09/22	6.35	79.5	6.35	25.12	159.51	W	B	m
PA13	98/09/22	98/09/29	7.24	98	7.24	28.24	204.43	W	B	m
PA13	98/09/29	98/10/06	17.65	199.9	17.65	6.64	117.32	W	B	m
PA13	98/10/06	98/10/13	48.26	586.4	48.26	9.19	443.6	W	B	m
PA13	98/10/13	98/10/20	4.83	59.1	4.83	6.82	32.91	W	B	m
PA13	98/10/20	98/10/27	0.63	6.4	0.64	9.17	5.82	W	B	mi
PA13	98/10/27	98/11/03	1.27	11	1.27	50.57	64.22	W	B	m
PA13	98/11/03	98/11/10	8.89	113.4	8.89	13.09	116.37	W	B	m
PA13	98/11/10	98/11/17	6.35	78.1	6.35	8.43	53.55	W	B	m
PA13	98/11/17	98/11/24	1.9	21.2	1.91	38.25	72.88	W	B	m
PA13	98/11/24	98/12/01	3.81	41	3.81	12.25	46.67	W	B	m
PA13	98/12/01	98/12/08	2.29	30.1	2.29	13.7	31.33	W	A	
PA13	98/12/08	98/12/15	4.83	52.1	4.83	2.8	13.51	W	B	m
PA13	98/12/15	98/12/22	22.23	205.7	22.23	11.44	254.27	W	B	m
PA13	98/12/22	98/12/29	1.27	6.8	1.27	10.19	12.94	W	B	mi
PA13	98/12/29	99/01/06	22.86	192.8	22.86	2.19	50.06	W	B	edm
PA13	99/01/06	99/01/12	30.48	227.6	30.48	3.05	93.2	W	B	m

PA13	99/01/12	99/01/19	34.04	280	34.04	5.69	193.9	W	B	dm
PA13	99/01/19	99/01/26	34.29	386.7	34.29	7.39	253.47	W	B	dmz
PA13	99/01/26	99/02/02	6.41	115.7	6.41	3.25	20.85	W	B	mz
PA13	99/02/02	99/02/09	15.62	129.3	15.62	11.18	174.65	W	B	h
PA13	99/02/09	99/02/17	3.81	0	3.81	-9	-9	W	C	mvf
PA13	99/02/17	99/02/23	0	0	0	-9	0	D	B	m
PA13	99/02/23	99/03/02	16.32	107.2	16.32	5.06	82.67	W	B	dm
PA13	99/03/02	99/03/09	-9	375.2	31.32	7.17	224.56	W	B	dm
PA13	99/03/09	99/03/16	13.34	125.2	13.34	2.4	32.05	W	B	dm
PA13	99/03/16	99/03/23	19.68	209.5	19.69	2.24	44.19	W	B	dm
PA13	99/03/23	99/03/30	0	0	0	-9	0	D	B	m
PA13	99/03/30	99/04/06	34.29	418.5	34.29	10.45	358.46	W	B	dm
PA13	99/04/06	99/04/13	49.53	618.9	49.53	15.4	762.81	W	B	dm
PA13	99/04/13	99/04/20	21.84	256.1	21.84	7.4	161.75	W	B	dm
PA13	99/04/20	99/04/27	24.64	318.6	24.64	11.76	289.91	W	B	dm
PA13	99/04/27	99/05/04	0	0	0	-9	0	D	B	dm
PA13	99/05/04	99/05/11	6.35	89.2	6.35	10.94	69.49	W	B	dm
PA13	99/05/11	99/05/18	13.97	185.6	13.97	22.22	310.41	W	B	dm
PA13	99/05/18	99/05/25	-9	396.8	33.12	5.73	190	W	B	dm
PA13	99/05/25	99/06/01	0	0	0	-9	0	D	B	m
PA13	99/06/01	99/06/08	9.02	130.5	9.02	9.78	88.18	W	B	dmh
PA13	99/06/08	99/06/15	2.03	22.3	2.03	18.29	37.17	W	B	m
PA13	99/06/15	99/06/22	21.08	252.1	21.08	7.78	164.16	W	B	dm
PA13	99/06/22	99/06/29	39.5	508.4	39.5	12.17	480.83	W	B	dmh
PA13	99/06/29	99/07/06	4.45	64.1	4.45	25.9	115.12	W	B	m
PA13	99/07/06	99/07/13	25.46	323.7	25.46	21.92	558.24	W	B	dm
PA13	99/07/13	99/07/20	0.51	7.4	0.51	55.41	28.14	W	B	mi
PA13	99/07/20	99/07/27	21.78	292.2	21.78	19.6	427.1	W	B	dm
PA13	99/07/27	99/08/03	18.67	243.7	18.67	23.1	431.29	W	B	dm
PA13	99/08/03	99/08/10	4.06	52	4.06	17.76	72.19	W	B	dm
PA13	99/08/10	99/08/17	57.02	725.4	57.02	13.11	747.85	W	B	dm
PA13	99/08/17	99/08/24	6.41	76	6.41	19.82	127.11	W	B	dm
PA13	99/08/24	99/08/31	35.56	460.5	35.56	7.77	276.47	W	B	dm
PA13	99/08/31	99/09/07	39.27	480	39.27	4.87	191.31	W	B	dm
PA13	99/09/07	99/09/14	3.68	40.3	3.68	19.67	72.46	W	B	dm
PA13	99/09/14	99/09/21	33.78	381.5	33.78	8.95	302.48	W	B	dm
PA13	99/09/21	99/09/28	2.54	20.6	2.54	34.58	87.85	W	B	dm
PA13	99/09/28	99/10/05	38.42	463.1	38.42	4.39	168.73	W	B	m
PA13	99/10/05	99/10/12	19.62	219.8	19.62	6.34	124.54	W	B	m
PA13	99/10/12	99/10/19	10.99	136.3	10.99	14.65	161.01	W	B	dm
PA13	99/10/19	99/10/26	6.35	48.1	6.35	12.39	78.73	W	B	dm
PA13	99/10/26	99/11/02	0.89	5.1	0.89	27.34	24.3	W	B	dmhi
PA13	99/11/02	99/11/09	53.59	646.2	53.59	3.87	207.56	W	B	dmh
PA13	99/11/09	99/11/16	0	2.3	0	-9	0	D	B	dm
PA13	99/11/16	99/11/23	5.59	61.9	5.59	9.36	52.3	W	B	dm
PA13	99/11/23	99/11/30	56.39	669.3	56.39	6.63	374.13	W	B	dmz
PA13	99/11/30	99/12/07	5.33	45.3	5.33	11.5	61.36	W	B	dmz
PA13	99/12/07	99/12/14	22.99	243.9	22.99	5.92	136.22	W	B	dmzh
PA13	99/12/14	99/12/21	13.72	97	13.72	2.89	39.74	W	B	dz
PA13	99/12/21	99/12/28	0.51	0	0.51	-9	-9	W	C	dmv
PA13	99/12/28	00/01/04	9.33	90.8	9.34	16.24	151.6	W	B	dmz
PA13	00/01/04	00/01/11	7.11	84.1	7.11	6.45	45.92	W	B	dmz
PA13	00/01/11	00/01/18	3.56	24.9	3.56	8.55	30.4	W	B	dmz
PA13	00/01/18	00/01/25	6.73	2.5	6.73	2.01	13.54	W	C	dmvf
PA13	00/01/25	00/02/01	6.86	0	6.86	-9	-9	W	C	mzhvf
PA13	00/02/01	00/02/08	5.84	7.7	5.84	25.39	148.36	W	C	dmzif
PA13	00/02/08	00/02/15	36.07	396.4	36.07	5.4	194.94	W	B	dmz

PA13	00/02/15	00/02/22	20.95	112.9	20.96	7.14	149.8	W	B	dmz
PA13	00/02/22	00/02/29	19.3	256	19.3	10.13	195.72	W	B	dm
PA13	00/02/29	00/03/07	6.99	92.1	6.99	8.34	58.29	W	B	dm
PA13	00/03/07	00/03/14	15.24	173.3	15.24	12.53	191.07	W	B	dm
PA13	00/03/14	00/03/21	38.86	359	38.86	4.7	182.65	W	B	dm
PA13	00/03/21	00/03/28	4.06	42.7	4.06	12.08	49.1	W	B	dm
PA13	00/03/28	00/04/04	26.03	263.6	26.04	8.36	217.78	W	B	dm
PA13	00/04/04	00/04/11	15.11	185.9	15.11	7.75	117.15	W	B	dm
PA13	00/04/11	00/04/18	44.96	551.3	44.96	6.99	314.52	W	B	dmh
PA13	00/04/18	00/04/25	61.79	757.1	61.79	8.27	511.27	W	B	dm
PA13	00/04/25	00/05/02	6.16	62.7	6.16	21.98	135.43	W	B	dm
PA13	00/05/02	00/05/09	0	0	0	-9	0	D	B	mh
PA13	00/05/09	00/05/16	4.76	59.2	4.76	12.62	60.11	W	B	m
PA13	00/05/16	00/05/23	51.31	518.5	51.31	10.68	547.96	W	B	m
PA13	00/05/23	00/05/30	51.82	671	51.82	9.28	481.26	W	B	dmh
PA13	00/05/30	00/06/06	26.29	330.6	26.29	9.94	261.52	W	B	mz
PA13	00/06/06	00/06/13	7.56	103.5	7.56	13.85	104.67	W	B	mz
PA13	00/06/13	00/06/20	22.1	314.1	22.1	10.47	231.47	W	B	dm
PA13	00/06/20	00/06/27	30.99	-9	30.99	-9	-9	W	B	mh
PA13	00/06/27	00/07/03	2.67	31.6	2.67	16.74	44.65	W	B	mz
PA13	00/07/03	00/07/11	30.48	397.2	30.48	9.81	299.28	W	B	dm
PA13	00/07/11	00/07/18	12.95	149.8	12.95	23.92	309.95	W	B	m
PA13	00/07/18	00/07/25	1.9	24.7	1.91	22.27	42.43	W	B	m
PA13	00/07/25	00/08/01	25.27	336.9	25.27	14	353.82	W	B	dm
PA13	00/08/01	00/08/08	33.4	419.4	33.4	9.58	319.98	W	B	dm
PA13	00/08/08	00/08/15	1.52	17.8	1.52	15.88	24.21	W	B	dm
PA13	00/08/15	00/08/22	5.33	55	5.33	-9	-9	W	C	dml
PA13	00/08/22	00/08/29	21.08	273.5	21.08	11.26	237.38	W	B	dm
PA13	00/08/29	00/09/05	8.13	106	8.13	13.56	110.27	W	B	dmh
PA13	00/09/05	00/09/12	13.08	162.5	13.08	7.08	92.71	W	B	dm
PA13	00/09/12	00/09/19	27.5	354.1	27.5	7.01	192.9	W	B	m
PA13	00/09/19	00/09/26	22.54	255.9	22.54	13.33	300.5	W	B	dmh
PA13	00/09/26	00/10/03	0	0	0	-9	0	D	B	dm
PA13	00/10/03	00/10/10	36.07	444	36.07	12.64	456.15	W	B	dm
PA13	00/10/10	00/10/17	-9	44	3.67	18.36	67.42	W	B	m
PA13	00/10/17	00/10/24	40.64	104.4	40.64	3.31	134.8	W	C	dmuf
PA13	00/10/24	00/10/31	6.35	81.6	6.35	16.3	103.51	W	B	dm
PA13	00/10/31	00/11/07	0	0	0	-9	0	D	B	m
PA13	00/11/07	00/11/14	24.13	258.6	24.13	6.75	162.87	W	B	dm
PA13	00/11/14	00/11/21	1.52	0	1.52	-9	-9	W	C	mvf
PA13	00/11/21	00/11/28	25.4	254.7	25.4	3.07	78	W	B	dmh
PA13	00/11/28	00/12/05	7.43	60	7.43	4.37	32.51	W	B	dm
PA13	00/12/05	00/12/11	5.59	4	5.59	33.67	188.16	W	C	mvf
PA13	00/12/11	00/12/19	31.31	252.6	31.31	10.88	340.59	W	B	dm
PA13	00/12/20	00/12/27	4.64	0	4.64	-9	-9	W	C	dmvf
PA13	00/12/27	01/01/02	2.03	0	2.03	-9	-9	W	C	mvf
PA13	01/01/02	01/01/09	7.68	4.3	7.68	68	522.56	W	C	mv
PA13	01/01/09	01/01/16	1.52	0	1.52	-9	-9	W	C	mv
PA13	01/01/16	01/01/23	16	132	16	3.32	53.14	W	B	dm
PA13	01/01/23	01/01/30	9.02	116.3	9.02	7.67	69.22	W	B	m
PA13	01/01/30	01/02/06	17.78	104.3	17.78	3.87	68.89	W	B	dm
PA13	01/02/06	01/02/13	3.05	22.9	3.05	13.81	42.1	W	B	dm
PA13	01/02/13	01/02/20	20.45	189.4	20.45	4.77	97.61	W	B	dm
PA13	01/02/20	01/02/27	2.54	16.4	2.54	30.08	76.41	W	B	m
PA13	01/02/27	01/03/06	20.19	0	20.19	-9	-9	W	C	mvf
PA13	01/03/06	01/03/13	13.84	128	13.84	6.12	84.84	W	B	dm
PA13	01/03/13	01/03/20	18.54	169.1	18.54	7.55	140.08	W	B	dmh

PA13	01/03/20	01/03/27	23.11	233.6	23.11	4.84	112.01	W	B	dm
PA13	01/03/27	01/04/04	9.4	112.7	9.4	5.65	53.17	W	B	edmh
PA13	01/04/04	01/04/10	25.4	339.2	25.4	21.04	534.51	W	B	m
PA13	01/04/10	01/04/17	52.71	672.3	52.71	60.4	3183.69	W	B	dm
PA13	01/04/17	01/04/24	4.95	58.6	4.95	16.65	82.46	W	B	dm
PA13	01/04/24	01/05/01	0	0	0	-9	0	D	B	dm
PA13	01/05/01	01/05/08	0	0	0	-9	0	D	B	dm
PA13	01/05/08	01/05/15	6.35	0	6.35	-9	-9	W	C	mvn
PA13	01/05/15	01/05/22	9.52	84.4	9.53	124.1	1182.11	W	B	dm
PA13	01/05/22	01/05/29	45.97	597.2	45.97	6.86	315.47	W	B	dm
PA13	01/05/29	01/06/05	37.59	497.9	37.59	7.44	279.94	W	B	dm
PA13	01/06/05	01/06/12	2.79	36.8	2.79	47.96	134.01	W	B	dmh
PA13	01/06/12	01/06/19	18.16	227.6	18.16	12.65	229.82	W	B	dm
PA13	01/06/19	01/06/26	53.59	671	53.59	16.78	899.52	W	B	dm
PA13	01/06/26	01/07/03	46.15	558.8	46.15	9.32	430.55	W	B	m
PA13	01/07/03	01/07/10	11.18	146.8	11.18	12.33	137.82	W	B	dm
PA13	01/07/10	01/07/17	0.51	5.7	0.51	34.22	17.38	W	B	dmi
PA13	01/07/17	01/07/24	1.52	20.1	1.52	26.3	40.08	W	B	dm
PA13	01/07/24	01/07/31	1.27	15.6	1.27	20.72	26.32	W	B	dm
PA13	01/07/31	01/08/07	21.28	257.4	21.29	20.47	435.76	W	B	mh
PA13	01/08/07	01/08/14	18.8	233.1	18.8	8.05	151.32	W	B	dm
PA13	01/08/14	01/08/21	37.34	464.2	37.34	8.89	332.23	W	B	dm
PA13	01/08/21	01/08/28	9.4	118.2	9.4	8.77	82.49	W	B	m
PA13	01/08/28	01/09/04	15.24	196.8	15.24	10.15	154.7	W	B	dm
PA13	01/09/04	01/09/12	1.52	18.4	1.52	12.17	18.55	W	B	dm
PA13	01/09/12	01/09/19	4.32	53.8	4.32	8.03	34.69	W	B	dm
PA13	01/09/19	01/09/25	46.99	576.3	46.99	5.2	244.53	W	B	dm
PA13	01/09/25	01/10/02	0	3.4	0	-9	0	D	B	m
PA13	01/10/02	01/10/09	1.27	0	1.27	-9	-9	W	C	mv
PA13	01/10/09	01/10/16	24.89	291.1	24.89	3.72	92.59	W	B	dm
PA13	01/10/16	01/10/23	9.91	102.5	9.91	4.94	49.01	W	B	dm
PA13	01/10/23	01/10/30	12.45	106.5	12.45	20.62	256.72	W	B	dmh
PA13	01/10/30	01/11/05	8.89	111.4	8.89	12.26	109.06	W	B	dm
PA13	01/11/05	01/11/13	0.76	1.9	0.76	-9	-9	W	C	mil
PA13	01/11/13	01/11/20	2.79	17.1	2.79	8.46	23.65	W	B	dm
PA13	01/11/20	01/11/27	33.27	121.8	33.27	3.12	103.84	W	C	dmzf
PA13	01/11/27	01/12/04	20.07	254.1	20.07	9.04	181.51	W	B	dm
PA13	01/12/04	01/12/11	14.73	140.4	14.73	3.81	56.15	W	B	dm
PA13	01/12/11	01/12/18	32	366.7	32	8.98	287.46	W	B	dm
PA13	01/12/18	01/12/26	4.57	41.9	4.57	4.48	20.48	W	B	dm
PA13	01/12/26	02/01/02	4.19	0	4.19	-9	-9	W	C	mv
PA13	02/01/02	02/01/08	20.19	154	20.19	3.32	67.2	W	B	dm
PA13	02/01/08	02/01/15	5.59	31.9	5.59	7.92	44.29	W	C	ml
PA13	02/01/15	02/01/22	5.72	21.7	5.72	9.88	56.46	W	B	dm
PA13	02/01/22	02/01/29	9.4	104	9.4	7.25	68.2	W	B	dmh
PA13	02/01/29	02/02/05	16	130.1	16	8.1	129.71	W	B	dm
PA13	02/02/05	02/02/12	28.7	314.8	28.7	4.46	128.09	W	B	dm
PA13	02/02/12	02/02/19	3.17	9.2	3.18	23.4	74.31	W	B	dmi
PA13	02/02/19	02/02/26	4.83	79	4.83	7.95	38.4	W	B	dm
PA13	02/02/26	02/03/05	17.91	167.8	17.91	3.87	69.33	W	B	dmh
PA13	02/03/05	02/03/12	2.39	23.3	2.39	20.5	48.96	W	C	mzl
PA13	02/03/12	02/03/19	25.15	245	25.15	20.76	522.08	W	B	dm
PA13	02/03/19	02/03/26	56.9	593.4	56.9	8.03	456.93	W	B	dm
PA13	02/03/26	02/04/02	18.8	196.5	18.8	7.05	132.56	W	B	m
PA13	02/04/02	02/04/09	2.29	13	2.29	108.93	249.01	W	B	dmh
PA13	02/04/09	02/04/16	47.75	587.8	47.75	7.69	367.4	W	B	dm
PA13	02/04/16	02/04/23	23.5	248.7	23.5	12.09	284.26	W	B	dm

PA13	02/04/23	02/04/30	31.88	347.8	31.88	8.16	260.24	W	B	dm
PA13	02/04/30	02/05/07	18.54	218.3	18.54	18.66	346.06	W	B	dmh
PA13	02/05/07	02/05/14	56.64	721	56.64	12.85	727.96	W	B	dm
PA13	02/05/14	02/05/21	52.83	675.8	52.83	5.69	300.61	W	B	dmh
PA13	02/05/21	02/05/28	0.76	4.1	0.76	57.78	44.03	W	B	mi
PA13	02/05/28	02/06/04	32.51	404.5	32.51	12.9	419.59	W	B	dm
PA13	02/06/04	02/06/11	46.74	589.3	46.74	8.32	389.26	W	B	dm
PA13	02/06/11	02/06/18	53.59	653.4	53.59	6.2	332.65	W	B	dm
PA13	02/06/18	02/06/25	1.27	11.6	1.27	50.06	63.58	W	B	dm
PA13	02/06/25	02/07/02	14.48	179.7	14.48	11.23	162.61	W	B	dmh
PA13	02/07/02	02/07/09	1.02	13.4	1.02	22.79	23.15	W	B	m
PA13	02/07/09	02/07/16	14.73	181.5	14.73	10.69	157.48	W	B	dmh
PA13	02/07/16	02/07/23	4.57	54.9	4.57	15.13	69.18	W	B	m
PA13	02/07/23	02/07/30	16.13	199.4	16.13	23.21	374.48	W	B	m
PA13	02/07/30	02/08/06	16.76	226.5	16.76	20.8	348.75	W	B	dmh
PA13	02/08/06	02/08/13	1.02	1.4	1.02	-9	-9	W	C	mv
PA13	02/08/13	02/08/20	5.84	84.5	5.84	12.18	71.19	W	B	mh
PA13	02/08/20	02/08/27	39.88	496.5	39.88	13.25	528.54	W	B	dm
PA13	02/08/27	02/09/03	6.86	62.3	6.86	42.55	291.84	W	B	m
PA13	02/09/03	02/09/10	0	0	0	-9	0	D	B	m
PA13	02/09/10	02/09/17	11.18	134.7	11.18	9.79	109.41	W	B	m
PA13	02/09/17	02/09/24	30.23	391	30.23	8.34	252.11	W	B	m
PA13	02/09/24	02/10/01	50.8	573.7	50.8	4.85	246.38	W	B	h
PA13	02/10/01	02/10/08	6.35	73.6	6.35	13.91	88.38	W	B	h
PA13	02/10/08	02/10/15	30.99	287.7	30.99	3.78	117.25	W	B	hh
PA13	02/10/15	02/10/22	29.21	338.2	29.21	4.31	126.07	W	A	
PA13	02/10/22	02/10/29	19.56	249.2	19.56	5.3	103.75	W	A	
PA13	02/10/29	02/11/05	19.18	162.4	19.18	8.06	154.59	W	B	mz
PA13	02/11/05	02/11/12	27.69	306.8	27.69	5.92	164.12	W	B	d
PA13	02/11/12	02/11/19	25.15	205	25.15	3.55	89.49	W	B	h
PA13	02/11/19	02/11/26	4.32	21.8	4.32	2.21	9.54	W	A	
PA13	02/11/26	02/12/03	14.22	87.7	14.22	4.73	67.3	W	A	
PA13	02/12/03	02/12/10	8.64	27.4	8.64	1.69	14.66	W	B	h
PA13	02/12/10	02/12/17	-9	351.9	29.37	2.81	82.62	W	C	mzu
PA13	02/12/17	02/12/24	11.68	119	11.68	9.22	107.77	W	A	
PA13	02/12/24	02/12/31	14.22	127.6	14.22	2.71	38.61	W	A	
PA13	02/12/31	03/01/07	57.15	664.8	57.15	2.9	166.02	W	B	zh
PA13	03/01/07	03/01/14	5.97	7.6	5.97	35.2	210.16	W	B	i
PA13	03/01/14	03/01/21	5.08	7	5.08	13.54	68.81	W	B	i
PA13	03/01/21	03/01/28	1.02	0	1.02	-9	-9	W	C	hv
PA13	03/01/28	03/02/04	19.56	144.6	19.56	5.52	108.11	W	B	z
PA13	03/02/04	03/02/11	9.65	0	9.65	-9	-9	W	C	v
PA13	03/02/11	03/02/18	26.67	35.4	26.67	6.96	185.65	W	A	
PA13	03/02/18	03/02/25	31.75	320.8	31.75	2.43	77.43	W	A	
PA13	03/02/25	03/03/04	4.06	11.9	4.06	25.88	105.18	W	A	
PA13	03/03/04	03/03/12	15.62	144.3	15.62	5.39	84.29	W	A	
PA13	03/03/12	03/03/19	8.89	104	8.89	5.22	46.48	W	A	
PA13	03/03/19	03/03/25	30.35	349.8	30.35	10.51	319.01	W	B	h
PA13	03/03/25	03/04/01	20.45	78.5	20.45	10.81	221.11	W	C	hf
PA13	03/04/01	03/04/08	26.42	312.4	26.42	8.56	226.33	W	A	
PA13	03/04/08	03/04/15	13.72	125	13.72	8.91	122.23	W	B	h
PA13	03/04/15	03/04/22	6.48	78	6.48	16.12	104.42	W	B	h
PA13	03/04/22	03/04/29	5.33	49.9	5.33	10.69	57.05	W	C	dmzuf
PA13	03/04/29	03/05/06	11.43	125.2	11.43	11.31	129.29	W	A	
PA13	03/05/06	03/05/13	49.02	622.5	49.02	17.08	837.54	W	B	d
PA13	03/05/13	03/05/20	41.66	458.4	41.66	6.51	271.18	W	A	
PA13	03/05/20	03/05/27	37.59	449.2	37.59	6.17	232.01	W	B	h

PA13	03/05/27	03/06/03	41.66	513.7	41.66	6.76	281.72	W	A	
PA13	03/06/03	03/06/10	64.01	780.6	64.01	8.25	528.06	W	B	h
PA13	03/06/10	03/06/17	8.38	123.2	8.38	13.96	117.05	W	A	
PA13	03/06/17	03/06/24	51.44	576.9	51.44	6.86	352.99	W	B	h
PA13	03/06/24	03/07/01	-7	0	0.13	-9	-9	T	B	dh
PA13	03/07/01	03/07/08	27.43	337.4	27.43	14.03	385.03	W	B	h
PA13	03/07/08	03/07/15	35.43	463.8	35.43	8.49	301.03	W	A	
PA13	03/07/15	03/07/22	46.99	583.4	46.99	9.86	463.41	W	A	
PA13	03/07/22	03/07/29	-9	77.5	6.47	24.09	155.87	W	B	mh
PA13	03/07/29	03/08/05	67.82	839.2	67.82	11.81	801.2	W	A	
PA13	03/08/05	03/08/12	18.16	227.5	18.16	12.69	230.59	W	B	d
PA13	03/08/12	03/08/19	2.79	19.9	2.79	18.51	51.73	W	B	h
PA13	03/08/19	03/08/26	58.42	716.2	58.42	14.58	852.05	W	B	dh
PA13	03/08/26	03/09/02	74.42	908	74.42	8.44	628.27	W	B	h
PA13	03/09/02	03/09/09	9.65	128	9.65	9.26	89.37	W	A	
PA13	03/09/09	03/09/16	12.83	146.9	12.83	6.31	80.97	W	B	d
PA13	03/09/16	03/09/22	65.53	790.1	65.53	3.06	200.98	W	B	d
PA13	03/09/22	03/09/30	60.71	779.9	60.71	6.24	378.8	W	B	dh
PA13	03/09/30	03/10/08	13.46	141.4	13.46	10.26	138.17	W	A	
PA13	03/10/08	03/10/14	-7	0	0.13	-9	-9	T	A	
PA13	03/10/14	03/10/22	34.04	407.2	34.04	5.92	201.56	W	B	d
PA13	03/10/22	03/10/28	23.11	265.2	23.11	5.65	130.68	W	B	d
PA13	03/10/28	03/11/04	2.03	14.8	2.03	6.09	12.38	W	B	h
PA13	03/11/04	03/11/12	27.69	355.2	27.69	17.07	472.79	W	A	
PA13	03/11/12	03/11/18	5.84	61.5	5.84	18.97	110.83	W	B	d
PA13	03/11/18	03/11/25	75.18	904.8	75.18	4.62	347.42	W	B	d
PA13	03/11/25	03/12/02	11.18	69	11.18	7.22	80.72	W	B	d
PA13	03/12/02	03/12/09	19.56	0	19.56	-9	-9	W	C	zv
PA13	03/12/09	03/12/16	52.83	486.5	52.83	3.66	193.52	W	B	z
PA13	03/12/16	03/12/23	6.6	34.6	6.6	8.04	53.15	W	A	
PA13	03/12/23	03/12/30	14.1	97	14.1	15.1	212.96	W	B	zh
PA13	03/12/30	04/01/06	64.77	720.6	64.77	6.86	444.64	W	A	
PA13	04/01/06	04/01/13	-9	0	0	-9	0	D	B	mz
PA13	04/01/13	04/01/20	17.02	61.2	17.02	3.93	66.91	W	A	
PA13	04/01/20	04/01/27	12.45	0	12.45	-9	-9	W	C	zv
PA13	04/01/27	04/02/04	45.21	33.9	45.21	14.21	642.77	W	C	zv
PA13	04/02/04	04/02/10	32.39	86.2	32.39	4.13	134.04	W	B	z
PA13	04/02/10	04/02/17	-7	0	0.13	-9	-9	T	A	
PA13	04/02/17	04/02/24	8.89	33.4	8.89	11.67	103.76	W	B	z
PA13	04/02/24	04/03/03	0.51	2	0.51	45.6	23.16	W	B	i
PA13	04/03/03	04/03/09	28.45	264.1	28.45	6.58	187.24	W	A	
PA13	04/03/09	04/03/17	11.94	29.1	11.94	12.42	148.29	W	A	
PA13	04/03/17	04/03/23	26.42	316.9	26.42	8.21	217.06	W	A	
PA13	04/03/23	04/03/30	3.05	39.2	3.05	15.15	46.2	W	B	h
PA13	04/03/30	04/04/06	54.36	654.8	54.36	5.17	281.02	W	B	h
PA13	04/04/06	04/04/13	52.71	575.7	52.71	4.91	259.25	W	A	
PA13	04/04/13	04/04/20	6.35	77.1	6.35	5.12	32.53	W	B	z
PA13	04/04/20	04/04/28	39.62	506.9	39.62	11.09	439.5	W	B	dz
PA13	04/04/28	04/05/04	10.67	133.7	10.67	7.39	78.85	W	B	z
PA13	04/05/04	04/05/11	12.19	155.5	12.19	10.91	133.1	W	A	
PA13	04/05/11	04/05/18	25.15	369.2	25.15	18.69	470.2	W	B	d
PA13	04/05/18	04/05/25	89.92	1169.3	89.92	10.63	956.52	W	B	d
PA13	04/05/25	04/06/01	34.04	435	34.04	9.52	324.05	W	B	d
PA13	04/06/01	04/06/08	8.64	115.1	8.64	15.67	135.34	W	A	
PA13	04/06/08	04/06/15	48.01	651.3	48.01	13.92	668.38	W	B	d
PA13	04/06/15	04/06/23	25.91	374.1	25.91	11.67	302.52	W	B	d
PA13	04/06/23	04/06/29	5.84	72.7	5.84	17.59	102.79	W	A	

PA13	04/06/29	04/07/06	30.73	367.2	30.73	7.24	222.51	W	A	
PA13	04/07/06	04/07/13	26.67	344.4	26.67	13.63	363.59	W	A	
PA13	04/07/13	04/07/20	32.26	377.6	32.26	14.53	468.83	W	B	h
PA13	04/07/20	04/07/27	38.1	480	38.1	6.3	240.25	W	A	
PA13	04/07/27	04/08/04	34.29	403.9	34.29	6.4	219.62	W	A	
PA13	04/08/04	04/08/10	20.83	263.3	20.83	8.94	186.24	W	A	
PA13	04/08/10	04/08/17	22.86	287	22.86	10.93	249.86	W	B	d
PA13	04/08/17	04/08/24	33.53	438.9	33.53	7.75	260.07	W	B	d
PA13	04/08/24	04/08/31	39.88	515.5	39.88	12.34	492.09	W	A	
PA13	04/08/31	04/09/07	1.78	6	1.78	7.66	13.62	W	B	i
PA13	04/09/07	04/09/14	110.24	1397.7	110.24	4.77	525.82	W	A	
PA13	04/09/14	04/09/21	107.19	1334.1	107.19	6.75	723.84	W	B	d
PA13	04/09/21	04/09/28	15.49	173.3	15.49	7.96	123.41	W	A	
PA13	04/09/28	04/10/05	15.49	171.2	15.49	5.62	87.07	W	A	
PA13	04/10/05	04/10/12	0	0	0	-9	0	D	A	
PA13	04/10/12	04/10/19	39.88	316	39.88	7.04	280.78	W	B	mz
PA13	04/10/19	04/10/22	-9	46.6	3.89	2.95	11.49	W	C	mzb
PA13	04/10/22	04/10/26	2.79	38.9	2.79	16.57	46.29	W	A	
PA13	04/10/26	04/11/02	5.08	81	5.08	3.79	19.27	W	A	
PA13	04/11/02	04/11/09	20.83	144.4	20.83	9.55	199.05	W	C	hf
PA13	04/11/09	04/11/16	19.56	226.4	19.56	1.65	32.32	W	A	
PA13	04/11/16	04/11/23	11.43	106.5	11.43	7.02	80.29	W	B	d
PA13	04/11/23	04/11/30	37.34	400.6	37.34	3.2	119.59	W	A	
PA13	04/11/30	04/12/08	29.21	281.6	29.21	4.16	121.74	W	B	d
PA13	04/12/08	04/12/14	21.34	162.9	21.34	2.49	53.14	W	A	
PA13	04/12/14	04/12/21	-9	7.1	0.59	9.78	5.8	W	B	mi
PA13	04/12/21	04/12/28	11.43	103	11.43	4.45	50.95	W	A	

THE NATIONAL ATMOSPHERIC DEPOSITION PROGRAM
MERCURY DEPOSITION NETWORK
PRESQUE ISLE STATE PARK (PA30)

Site ID	Date On	Date Off	RG Ppt mm	Sample Volume mL	Sub Ppt mm	Hg Conc ng/L	Hg Dep ng/m^2	Sample Type	Quality Rating	Notes
PA30	00/06/20	00/06/27	46.23	556.1	46.23	20.02	925.62	W	B	dmh
PA30	00/06/27	00/07/04	42.29	518.3	42.29	13.05	552.06	W	B	dm
PA30	00/07/04	00/07/11	55.63	660.3	55.63	2.5	139.12	W	B	dm
PA30	00/07/11	00/07/18	22.73	278.9	22.73	13.5	306.89	W	B	dm
PA30	00/07/18	00/07/25	2.16	29.2	2.16	25.12	54.25	W	B	mh
PA30	00/07/25	00/08/01	24.07	299.7	24.07	18.01	433.42	W	B	dmh
PA30	00/08/01	00/08/08	89.22	1119.8	89.22	14.03	1251.98	W	B	dm
PA30	00/08/08	00/08/15	7.37	88.3	7.37	14.08	103.74	W	B	dm
PA30	00/08/15	00/08/22	4.25	42.8	4.25	21.02	89.42	W	B	dm
PA30	00/08/22	00/08/29	9.78	114.8	9.78	3.96	38.74	W	B	m
PA30	00/08/29	00/09/06	0	0	0	-9	0	D	B	m
PA30	00/09/06	00/09/12	13.34	147.2	13.34	23.15	308.7	W	B	mh
PA30	00/09/12	00/09/19	3.05	34	3.05	21.7	66.14	W	B	m
PA30	00/09/19	00/09/26	44.7	544.2	44.7	19.22	859.47	W	B	dmh
PA30	00/09/26	00/10/03	2.1	25.3	2.1	16.16	33.87	W	B	mh
PA30	00/10/03	00/10/10	62.55	709.6	62.55	13.15	822.88	W	B	dmh
PA30	00/10/10	00/10/17	2.16	21.9	2.16	27.23	58.79	W	B	mh
PA30	00/10/17	00/10/24	2.67	34.1	2.67	22.98	61.3	W	B	m
PA30	00/10/24	00/10/31	2.48	32.1	2.48	0.83	2.07	W	B	dm
PA30	00/10/31	00/11/07	3.05	39.8	3.05	4.89	14.92	W	B	m
PA30	00/11/07	00/11/14	-9	255	21.28	5.58	118.8	W	B	mh
PA30	00/11/14	00/11/21	50.29	547.2	50.29	4.41	222.03	W	B	dmh
PA30	00/11/21	00/11/28	22.99	116.8	22.99	8.14	187.18	W	B	m
PA30	00/11/28	00/12/05	14.48	164.3	14.48	4.76	68.92	W	B	dmh
PA30	00/12/05	00/12/12	17.02	0	17.02	-9	-9	W	C	mvn
PA30	00/12/12	00/12/19	-9	0	0	-9	0	D	C	mn
PA30	00/12/19	00/12/26	6.48	9.3	6.48	26.37	170.85	W	B	dmhi
PA30	00/12/26	01/01/02	4.32	20	4.32	30.78	132.92	W	B	m
PA30	01/01/02	01/01/09	9.4	39.1	9.4	9.4	88.38	W	B	mh
PA30	01/01/09	01/01/16	5.33	37.5	5.33	7.51	40.1	W	B	mh
PA30	01/01/16	01/01/23	1.14	0	1.14	-9	-9	W	C	mv
PA30	01/01/23	01/01/30	9.33	65.1	9.34	9.54	89.07	W	B	dmh
PA30	01/01/30	01/02/06	13.08	117.4	13.08	4.54	59.5	W	B	dm
PA30	01/02/06	01/02/13	20.7	226.1	20.7	16.81	348.14	W	B	mh
PA30	01/02/13	01/02/20	22.86	285.9	22.86	3.67	84.03	W	B	dm
PA30	01/02/20	01/02/27	9.14	102.9	9.14	32.83	300.19	W	B	dmh
PA30	01/02/27	01/03/06	5.78	11.2	5.78	18.65	107.78	W	B	m
PA30	01/03/06	01/03/13	16.57	142.1	16.57	5.63	93.46	W	B	mh
PA30	01/03/13	01/03/20	18.48	165.7	18.48	7.02	129.75	W	B	dm
PA30	01/03/20	01/03/26	15.18	133.1	15.18	5.45	82.74	W	B	dm
PA30	01/03/27	01/04/03	4.7	26.7	4.7	15.16	71.23	W	B	dm
PA30	01/04/03	01/04/10	22.35	263.1	22.35	18.74	418.87	W	B	m
PA30	01/04/10	01/04/17	19.05	0	19.05	-9	-9	W	C	mvn
PA30	01/04/17	01/04/24	19.81	250.2	19.81	5.96	118.13	W	B	dm
PA30	01/04/24	01/05/01	1.14	10.4	1.14	41.79	47.77	W	B	dmh
PA30	01/05/01	01/05/08	1.52	0	1.52	-9	-9	W	C	mvn
PA30	01/05/08	01/05/15	49.28	594.4	49.28	5.1	251.35	W	B	dmh
PA30	01/05/15	01/05/22	6.73	72.2	6.73	8.82	59.38	W	B	dm

PA30	01/05/22	01/05/28	56.01	683.2	56.01	6.64	372.11	W	C	dmhuf
PA30	01/05/28	01/06/04	17.91	207.1	17.91	7.95	142.46	W	B	m
PA30	01/06/04	01/06/12	18.54	231.3	18.54	5.5	102.14	W	B	dmh
PA30	01/06/12	01/06/19	6.1	65.6	6.1	78.69	479.71	W	C	dmu
PA30	01/06/19	01/06/26	23.5	287.3	23.5	11.81	277.56	W	B	dm
PA30	01/06/26	01/07/03	0.25	0	0.25	-9	-9	W	C	mhv
PA30	01/07/03	01/07/10	8.13	105.4	8.13	8.85	71.96	W	B	dm
PA30	01/07/10	01/07/17	0	0	0	-9	0	D	B	m
PA30	01/07/17	01/07/24	4.72	58.8	4.72	21.72	102.63	W	B	dm
PA30	01/07/24	01/07/31	0.51	1.7	0.51	158.97	80.75	W	B	mi
PA30	01/07/31	01/08/07	31.75	396.8	31.75	11.88	377.28	W	B	dm
PA30	01/08/07	01/08/28	-9	708.4	59.13	12.85	759.82	W	B	edm
PA30	01/08/28	01/09/04	31.5	0	31.5	-9	-9	W	C	mvn
PA30	01/09/04	01/09/11	12.32	120.9	12.32	23.5	289.6	W	B	dmzh
PA30	01/09/11	01/09/18	7.37	84.6	7.37	10.41	76.7	W	B	dm
PA30	01/09/18	01/09/25	9.3	114.3	9.3	10.41	96.83	W	B	dm
PA30	01/09/25	01/10/02	40.39	471.8	40.39	3.02	122.08	W	B	mh
PA30	01/10/02	01/10/09	28.7	335.8	28.7	9.77	280.61	W	B	dm
PA30	01/10/09	01/10/16	12.45	157.9	12.45	16.24	202.23	W	B	dm
PA30	01/10/16	01/10/23	27.88	326.6	27.88	7.27	202.82	W	B	dm
PA30	01/10/23	01/10/30	41.15	206	41.15	14.17	583.43	W	C	dmhf
PA30	01/10/30	01/11/06	5.21	65.1	5.21	10.32	53.75	W	B	dm
PA30	01/11/06	01/11/13	4.95	55.1	4.95	-9	-9	W	C	mhl
PA30	01/11/13	01/11/20	11.43	133.1	11.43	4.39	50.26	W	B	dm
PA30	01/11/20	01/11/27	5.46	65.1	5.46	1.38	7.56	W	B	dmz
PA30	01/12/04	01/12/11	2.03	0.2	2.03	-9	-9	W	C	mhv
PA30	01/12/11	01/12/18	48.01	531.5	48.01	4.39	211.08	W	B	dmh
PA30	01/12/18	02/01/02	50.14	371.3	50.14	4.74	237.71	W	B	edm
PA30	02/01/02	02/01/08	11.43	100.4	11.43	4.98	57	W	B	dmh
PA30	02/01/08	02/01/15	5.21	30.3	5.21	13.83	72.05	W	B	dm
PA30	02/01/15	02/01/22	11.18	44.6	11.18	8.29	92.72	W	B	dm
PA30	02/01/22	02/01/29	3.68	24.3	3.68	6.71	24.72	W	B	dm
PA30	02/01/29	02/02/05	90.17	1043.8	90.17	14.45	1303.67	W	B	dmh
PA30	02/02/05	02/02/12	10.92	70.5	10.92	6.11	66.76	W	B	dm
PA30	02/02/12	02/02/19	7.62	67.4	7.62	11.75	89.55	W	B	mh
PA30	02/02/19	02/02/26	20.57	187.8	20.57	5.64	116.11	W	B	mh
PA30	02/02/26	02/03/05	16.53	85.9	16.54	8	132.31	W	B	dm
PA30	02/03/05	02/03/12	12.13	80.7	12.13	11.29	136.93	W	B	dmh
PA30	02/03/12	02/03/19	5.33	62	5.33	9.07	48.41	W	B	dmh
PA30	02/03/19	02/03/27	38.35	335.8	38.35	4.63	177.69	W	B	edmh
PA30	02/03/27	02/04/02	20.83	250	20.83	6.06	126.3	W	B	m
PA30	02/04/02	02/04/09	30.73	349.4	30.73	13.91	427.75	W	B	dm
PA30	02/04/09	02/04/15	45.08	528.8	45.09	7.84	353.87	W	B	dmh
PA30	02/04/15	02/04/23	-9	131	10.93	20.24	221.32	W	B	dmh
PA30	02/04/23	02/04/30	23.11	243.1	23.11	12.46	288.11	W	B	dm
PA30	02/04/30	02/05/07	5.59	58.9	5.59	11.13	62.23	W	B	m
PA30	02/05/07	02/05/14	0	831.6	0	-9	0	D	C	mf
PA30	02/05/14	02/05/20	26.03	302.3	26.04	8.87	231.16	W	B	dm
PA30	02/05/20	02/05/28	21.08	274.8	21.08	11.63	245.35	W	B	dm
PA30	02/05/28	02/06/04	12.95	171.8	12.95	29.18	378.02	W	B	dmh
PA30	02/06/04	02/06/11	40.64	519	40.64	10.23	415.86	W	B	dm
PA30	02/06/11	02/06/18	16.26	188.8	16.26	12.15	197.64	W	B	dm
PA30	02/06/18	02/06/25	-9	0.3	0	-9	0	D	B	dm
PA30	02/06/25	02/07/02	2.29	28.4	2.29	14.86	33.98	W	C	mhl
PA30	02/07/02	02/07/09	0	0	0	-9	0	D	B	mh
PA30	02/07/09	02/07/16	-9	73.8	6.16	12.46	76.76	W	B	dmzh
PA30	02/07/16	02/07/23	-9	238.6	19.92	18	358.48	W	B	dmzh

PA30	02/07/23	02/07/30	22.48	263.3	22.48	12.92	290.63	W	B	dm
PA30	02/07/30	02/08/06	0	0	0	-9	0	D	B	mh
PA30	02/08/06	02/08/13	-9	0	0	-9	0	D	B	mz
PA30	02/08/13	02/08/20	3.68	50.4	3.68	15.76	58.05	W	B	dm
PA30	02/08/20	02/08/27	16.76	201.9	16.76	4.28	71.78	W	B	dmh
PA30	02/08/27	02/09/03	0	1.2	0	-9	0	D	B	m
PA30	02/09/03	02/09/10	0	0	0	-9	0	D	B	mh
PA30	02/09/10	02/09/17	73.15	878.6	73.15	7.35	538.1	W	B	dmh
PA30	02/09/17	02/09/24	7.75	100.2	7.75	10.19	79.01	W	B	mh
PA30	02/09/24	02/10/01	56.9	691.7	56.9	5.57	317.08	W	A	
PA30	02/10/01	02/10/08	22.86	267.5	22.86	9.52	217.81	W	B	h
PA30	02/10/08	02/10/15	1.27	7.9	1.27	11.76	14.94	W	B	hi
PA30	02/10/15	02/10/22	57.15	657.7	57.15	5.45	311.46	W	B	m
PA30	02/10/22	02/10/29	22.1	245.8	22.1	1.72	38.01	W	B	m
PA30	02/10/29	02/11/05	9.65	94.3	9.65	8.27	79.8	W	B	h
PA30	02/11/05	02/11/12	-9	224.6	18.75	7.75	145.37	W	B	m
PA30	02/11/12	02/11/19	24.38	199.1	24.38	1.95	47.54	W	B	dh
PA30	02/11/19	02/11/26	-9	471.7	39.37	2.71	106.89	W	B	mh
PA30	02/11/26	02/12/03	36.07	319.6	36.07	7.55	272.38	W	A	
PA30	02/12/03	02/12/10	4.06	16.6	4.06	13.34	54.23	W	A	
PA30	02/12/10	02/12/17	-9	209.1	17.45	1.39	24.27	W	B	mh
PA30	02/12/17	02/12/24	17.27	120.8	17.27	3.85	66.48	W	A	
PA30	02/12/24	02/12/31	23.62	253.7	23.62	7.93	187.44	W	A	
PA30	02/12/31	03/01/07	26.04	265.7	26.04	3.57	92.97	W	A	
PA30	03/01/07	03/01/15	10.41	42	10.41	13.3	138.6	W	B	h
PA30	03/01/15	03/01/21	6.48	27.2	6.48	20.83	134.96	W	A	
PA30	03/01/21	03/01/28	5.08	10.7	5.08	5.64	28.68	W	B	h
PA30	03/01/28	03/02/04	9.91	73.2	9.91	4.74	47	W	A	
PA30	03/02/04	03/02/11	4.83	29.5	4.83	9.23	44.54	W	A	
PA30	03/02/11	03/02/18	10.92	121	10.92	7.14	78.06	W	A	
PA30	03/02/18	03/02/25	23.37	211.8	23.37	3.77	88.16	W	A	
PA30	03/02/25	03/03/04	2.79	19.2	2.79	5.51	15.4	W	A	
PA30	03/03/04	03/03/11	16.51	170	16.51	11.53	190.45	W	B	h
PA30	03/03/11	03/03/18	6.6	59	6.6	8.12	53.65	W	A	
PA30	03/03/18	03/03/25	15.75	180.1	15.75	7.11	112.03	W	B	h
PA30	03/03/25	03/04/01	38.99	470.7	38.99	10.52	410.32	W	B	d
PA30	03/04/01	03/04/08	55.12	335.5	55.12	8.39	462.49	W	A	
PA30	03/04/08	03/04/15	11.3	0	11.3	-9	-9	W	C	mzhvf
PA30	03/04/15	03/04/22	16.51	184.5	16.51	14.02	231.53	W	B	mh
PA30	03/04/22	03/04/29	0	0	0	-9	0	D	B	h
PA30	03/04/29	03/05/06	33.91	366	33.91	13.6	461.33	W	B	h
PA30	03/05/06	03/05/13	18.29	179.3	18.29	15.37	281.08	W	A	
PA30	03/05/13	03/05/20	8.51	89.7	8.51	18.97	161.45	W	A	
PA30	03/05/20	03/05/27	34.67	436.8	34.67	7.7	267.17	W	B	h
PA30	03/05/27	03/06/03	26.42	301.1	26.42	10.76	284.31	W	B	d
PA30	03/06/03	03/06/10	10.92	118.2	10.92	10.31	112.62	W	B	dh
PA30	03/06/10	03/06/17	28.83	346.4	28.83	10.08	290.59	W	B	dh
PA30	03/06/17	03/06/24	15.49	176.2	15.49	5.7	88.33	W	B	d
PA30	03/06/24	03/07/01	2.54	2.7	2.54	218.66	555.39	W	A	
PA30	03/07/01	03/07/08	20.45	254.4	20.45	20.16	412.33	W	A	
PA30	03/07/08	03/07/14	16.13	196.3	16.13	13.06	210.7	W	B	m
PA30	03/07/15	03/07/22	-9	444.97	37.14	14.24	529	W	B	mh
PA30	03/07/22	03/07/29	29.72	368.2	29.72	11.61	345.17	W	A	
PA30	03/07/29	03/08/05	-9	628.8	52.48	14.85	779.67	W	B	m
PA30	03/08/05	03/08/12	18.67	136.1	18.67	12.72	237.5	W	B	dmz
PA30	03/08/12	03/08/19	5.08	58.4	5.08	17.87	90.78	W	A	
PA30	03/08/19	03/08/26	5.08	53.8	5.08	30.17	153.3	W	A	

PA30	03/08/26	03/09/02	-9	475.6	39.7	9.47	376	W	B	mzh
PA30	03/09/02	03/09/09	-7	0	0.13	-9	-9	T	B	d
PA30	03/09/09	03/09/16	17.78	200.8	17.78	6.31	112.24	W	B	d
PA30	03/09/16	03/09/23	42.67	556.6	42.67	6.59	281.55	W	B	dh
PA30	03/09/23	03/09/30	72.9	922.2	72.9	9.8	714.47	W	B	d
PA30	03/09/30	03/10/07	33.91	402.6	33.91	8.63	292.9	W	B	d
PA30	03/10/07	03/10/14	0	0	0	-9	0	D	A	
PA30	03/10/14	03/10/21	37.59	438.8	37.59	2.84	106.79	W	B	d
PA30	03/10/21	03/10/28	28.45	316	28.45	10.59	301.35	W	B	h
PA30	03/10/28	03/11/04	6.86	52.3	6.86	10.14	69.57	W	B	m
PA30	03/11/04	03/11/11	2.41	28.7	2.41	23.89	57.64	W	A	
PA30	03/11/11	03/11/18	9.91	89.2	9.91	7.47	74.03	W	A	
PA30	03/11/18	03/11/24	16.76	190.3	16.76	5.92	99.34	W	A	
PA30	03/11/24	03/12/02	34.29	433.7	34.29	6.61	226.82	W	A	
PA30	03/12/02	03/12/09	0	0	0	-9	0	D	A	
PA30	03/12/09	03/12/16	-9	94.5	7.89	3.67	28.97	W	B	m
PA30	03/12/16	03/12/23	10.16	76.4	10.16	12.55	127.56	W	B	h
PA30	03/12/23	03/12/30	37.85	364.6	37.85	4.65	176.02	W	A	
PA30	03/12/30	04/01/06	17.02	175.1	17.02	9.04	153.87	W	A	
PA30	04/01/06	04/01/13	33.53	82.5	33.53	11.72	393.08	W	A	
PA30	04/01/13	04/01/20	13.97	0.9	13.97	-9	-9	W	C	mhv
PA30	04/01/20	04/01/27	8.13	0.7	8.13	-9	-9	W	C	zhv
PA30	04/01/27	04/02/03	-9	96.9	8.09	6.92	56	W	B	mz
PA30	04/02/03	04/02/10	4.83	26.7	4.83	11.54	55.69	W	C	mzu
PA30	04/02/10	04/02/17	1.27	0	1.27	-9	-9	W	C	hv
PA30	04/02/17	04/02/24	14.22	128	14.22	5.06	72.04	W	A	
PA30	04/02/24	04/03/02	4.95	53.8	4.95	11.86	58.77	W	A	
PA30	04/03/02	04/03/09	8.13	104.8	8.13	14.57	118.42	W	A	
PA30	04/03/09	04/03/16	6.86	35.9	6.86	7.47	51.23	W	A	
PA30	04/03/16	04/03/23	25.65	239	25.65	7.99	204.97	W	A	
PA30	04/03/23	04/03/30	24.64	291.6	24.64	13.42	330.69	W	B	h
PA30	04/03/30	04/04/06	36.07	345.2	36.07	5.35	193.14	W	A	
PA30	04/04/06	04/04/13	11.18	121.8	11.18	4.96	55.48	W	B	zh
PA30	04/04/13	04/04/20	25.4	294.9	25.4	9.74	247.44	W	B	dz
PA30	04/04/20	04/04/27	22.61	273.1	22.61	11.84	267.76	W	B	h
PA30	04/04/27	04/05/04	32.51	390.2	32.51	9.38	305.09	W	A	
PA30	04/05/04	04/05/11	32.26	385.1	32.26	14	451.83	W	B	h
PA30	04/05/11	04/05/18	18.03	197.1	18.03	28.63	516.38	W	A	
PA30	04/05/18	04/05/25	68.07	846	68.07	10.75	732.18	W	A	
PA30	04/05/25	04/06/01	11.94	150.9	11.94	8.92	106.54	W	A	
PA30	04/06/01	04/06/08	0.76	7	0.76	32.33	24.63	W	B	i
PA30	04/06/08	04/06/14	2.79	15.9	2.79	35.04	97.91	W	A	
PA30	04/06/14	04/06/22	24.13	278.3	24.13	13.5	325.82	W	B	d
PA30	04/06/22	04/06/29	10.67	114.1	10.67	13.2	140.85	W	A	
PA30	04/06/29	04/07/06	18.29	193.8	18.29	16.7	305.57	W	C	du
PA30	04/07/06	04/07/13	46.99	595.7	46.99	8.27	388.88	W	A	
PA30	04/07/13	04/07/20	87.63	1069.1	87.63	10.61	930.01	W	B	d
PA30	04/07/20	04/07/27	18.03	202.3	18.03	14.27	257.43	W	A	
PA30	04/07/27	04/08/02	54.1	666.6	54.1	10.14	548.59	W	A	
PA30	04/08/02	04/08/10	14.73	155.9	14.73	16.02	236	W	B	e
PA30	04/08/10	04/08/17	8.89	113.3	8.89	9.11	81.05	W	A	
PA30	04/08/17	04/08/24	16	179.6	16	14.14	226.33	W	B	h
PA30	04/08/24	04/08/31	40.13	510.3	40.13	9.87	396.26	W	B	dh
PA30	04/08/31	04/09/08	0.51	0	0.51	5.9	3	W	A	
PA30	04/09/08	04/09/15	102.11	1293.9	102.11	1.55	159.08	W	B	h
PA30	04/09/15	04/09/21	26.67	330.3	26.67	9.4	250.77	W	A	
PA30	04/09/21	04/09/27	0	0	0	-9	0	D	A	

PA30	04/09/27	04/10/04	5.33	61.6	5.33	10.59	56.5	W	B	m
PA30	04/10/04	04/10/11	0	0	0	-9	0	D	B	m
PA30	04/10/11	04/10/18	84.33	1065.1	84.33	4.22	356.2	W	B	h
PA30	04/10/18	04/10/25	26.16	326.5	26.16	6.43	168.43	W	B	mh
PA30	04/10/25	04/11/01	16	204.5	16	11.69	187.2	W	B	h
PA30	04/11/01	04/11/08	24.13	304.8	24.13	4.71	113.67	W	B	h
PA30	04/11/08	04/11/15	0	0	0	-9	0	D	A	
PA30	04/11/15	04/11/22	8.89	93	8.89	3.65	32.5	W	B	h
PA30	04/11/22	04/12/01	-9	570.4	47.61	6.88	327.97	W	B	emh
PA30	04/12/01	04/12/06	9.4	99.6	9.4	9.66	90.81	W	A	
PA30	04/12/06	04/12/13	35.31	360.1	35.31	5.42	191.5	W	A	
PA30	04/12/13	04/12/20	21.59	146.9	21.59	6.04	130.55	W	A	
PA30	04/12/20	04/12/27	44.45	602.7	44.45	5.01	223	W	B	zh
PA30	04/12/27	05/01/03	29.2	14.3	29.2	8.4	245.3	W	C	mhv

NATIONAL ATMOSPHERIC DEPOSITION PROGRAM
MERCURY DEPOSITION NETWORK
HOLBROOK (PA37)

Site ID	Date On	Date Off	RG Ppt mm	Sample Volume mL	Sub Ppt mm	Hg Conc ng/L	Hg Dep ng/m^2	Sample Type	Quality Rating	Notes
PA37	99/05/27	99/06/01	-9	4.3	0.36	46.2	16.58	W	B	dmi
PA37	99/06/01	99/06/08	-9	205.9	17.19	7.58	130.31	W	B	dm
PA37	99/06/08	99/06/15	-9	80.1	6.69	11.83	79.12	W	B	dm
PA37	99/06/15	99/06/22	0	1	0	-9	0	D	B	dm
PA37	99/06/22	99/06/29	8.89	103	8.89	8.65	76.92	W	B	dm
PA37	99/06/29	99/07/06	34.29	414.7	34.29	7.13	244.62	W	B	dm
PA37	99/07/06	99/07/13	14.92	161.5	14.92	22.54	336.43	W	B	dm
PA37	99/07/13	99/07/20	6.48	71.2	6.48	29.34	190.03	W	B	m
PA37	99/07/20	99/07/27	5.78	68.9	5.78	14.21	82.11	W	B	m
PA37	99/07/27	99/08/03	25.91	287.4	25.91	22.13	573.34	W	B	dm
PA37	99/08/03	99/08/10	9.91	124.4	9.91	13.81	136.89	W	B	dm
PA37	99/08/10	99/08/17	11.62	129.7	11.62	11.87	138.01	W	B	dm
PA37	99/08/17	99/08/24	0	0	0	-9	0	D	B	m
PA37	99/08/24	99/08/31	40.01	459.9	40.01	20.75	830.46	W	B	dm
PA37	99/08/31	99/09/07	20.19	251.8	20.19	7.94	160.35	W	B	dm
PA37	99/09/07	99/09/14	8.26	100.2	8.26	23.88	197.17	W	B	dm
PA37	99/09/14	99/09/21	21.27	240.3	21.27	5.24	111.46	W	B	dm
PA37	99/09/21	99/09/28	4.19	40.8	4.19	16.57	69.46	W	B	m
PA37	99/09/28	99/10/05	57.91	665.5	57.91	9.03	523.29	W	B	mh
PA37	99/10/05	99/10/12	25.4	302.4	25.4	5.9	150.06	W	B	mh
PA37	99/10/12	99/10/19	11.43	107.3	11.43	13.55	154.95	W	B	dm
PA37	99/10/19	99/10/26	2.29	24.9	2.29	10.14	23.19	W	B	dm
PA37	99/10/26	99/11/03	33.15	357.8	33.15	9.48	314.23	W	B	dm
PA37	99/11/03	99/11/09	-9	1.4	0	-9	0	D	B	m
PA37	99/11/09	99/11/16	0	3.3	0	-9	0	D	B	dm
PA37	99/11/16	99/11/23	3.68	53	3.68	2.28	8.4	W	B	dm
PA37	99/11/23	99/11/30	59.31	806.5	59.31	4.21	249.92	W	B	dm
PA37	99/11/30	99/12/07	6.29	72.6	6.29	9.4	59.11	W	B	dm
PA37	99/12/07	99/12/14	52.83	670.2	52.83	5.98	316.09	W	B	m
PA37	99/12/14	99/12/21	6.54	67.3	6.54	2.15	14.08	W	B	dm
PA37	99/12/21	99/12/28	0	0	0	-9	0	D	B	mh
PA37	99/12/28	00/01/04	8.26	96.7	8.26	18.45	152.34	W	B	dmh
PA37	00/01/04	00/01/11	6.35	62.8	6.35	12.49	79.33	W	B	dmh
PA37	00/01/11	00/01/18	0	4.7	0	-9	0	D	B	mh
PA37	00/01/18	00/01/25	-9	62.4	5.21	3.24	16.92	W	B	dm
PA37	00/01/25	00/02/01	4.38	37.8	4.38	4.88	21.38	W	B	dm
PA37	00/02/01	00/02/08	1.9	4.5	1.91	7.36	14.02	W	C	dmhif
PA37	00/02/08	00/02/15	62.48	814.8	62.48	6.1	381.58	W	B	dm
PA37	00/02/15	00/02/22	51.31	610.8	51.31	3.33	171.26	W	B	dmh
PA37	00/02/22	00/02/29	5.08	68.9	5.08	9.63	48.96	W	B	dm
PA37	00/02/29	00/03/07	1.65	23.1	1.65	29.32	48.41	W	B	m
PA37	00/03/07	00/03/14	17.65	217.2	17.65	8.79	155.24	W	B	dm
PA37	00/03/14	00/03/21	45.47	585.1	45.47	7.39	336.35	W	B	dm
PA37	00/03/21	00/03/28	4.51	64.8	4.51	11.85	53.43	W	B	m
PA37	00/03/28	00/04/04	39.81	460.9	39.81	6.32	251.62	W	B	dm
PA37	00/04/04	00/04/11	13.46	168.9	13.46	9.1	122.53	W	B	d
PA37	00/04/11	00/04/18	34.16	487.6	34.16	9.67	330.62	W	B	d
PA37	00/04/18	00/04/25	11.43	123.8	11.43	62.58	715.33	W	B	mh

PA37	00/04/25	00/05/02	18.48	225.8	18.48	15.12	279.38	W	B	dm
PA37	00/05/02	00/05/09	2.03	25.5	2.03	19.98	40.61	W	B	dmh
PA37	00/05/09	00/05/16	11.3	125.9	11.3	27.57	311.62	W	B	m
PA37	00/05/16	00/05/24	46.86	537.5	46.86	13.33	625.1	W	B	dmh
PA37	00/05/24	00/05/30	14.99	211.5	14.99	15.74	236.01	W	B	dm
PA37	00/05/30	00/06/06	8.13	101.9	8.13	18.25	148.4	W	B	mh
PA37	00/06/06	00/06/13	6.35	71.5	6.35	22.65	143.84	W	B	m
PA37	00/06/13	00/06/20	42.42	472.2	42.42	16.25	689.63	W	B	dm
PA37	00/06/21	00/06/27	13.59	169.4	13.59	13.05	177.45	W	B	dm
PA37	00/06/27	00/07/04	-9	443.3	37	5.51	203.87	W	B	dmh
PA37	00/07/04	00/07/11	19.81	240.5	19.81	10.9	215.97	W	B	dmh
PA37	00/07/11	00/07/18	14.99	153.3	14.99	20.77	311.39	W	B	dm
PA37	00/07/18	00/07/25	19.37	258.2	19.37	14.98	290.19	W	B	dm
PA37	00/07/25	00/08/01	21.72	251	21.72	10.11	219.6	W	B	dm
PA37	00/08/01	00/08/08	59.56	664.7	59.56	11.7	696.88	W	B	dm
PA37	00/08/08	00/08/15	0.63	5.6	0.64	18.02	11.44	W	B	mi
PA37	00/08/15	00/08/22	9.14	98.2	9.14	-9	-9	W	C	dml
PA37	00/08/22	00/08/29	12.83	156.6	12.83	10.19	130.79	W	B	m
PA37	00/08/29	00/09/05	0	0.7	0	-9	0	D	B	m
PA37	00/09/05	00/09/12	2.41	23.5	2.41	17.29	41.74	W	B	m
PA37	00/09/12	00/09/19	6.99	75.4	6.99	10.06	70.29	W	B	m
PA37	00/09/19	00/09/25	21.84	242.7	21.84	14.7	321.25	W	B	dm
PA37	00/09/25	00/10/02	30.92	355.5	30.92	7.99	247.11	W	B	dm
PA37	00/10/02	00/10/10	16	166.8	16	14.1	225.64	W	B	dm
PA37	00/10/10	00/10/16	0	0	0	-9	0	D	B	m
PA37	00/10/17	00/10/24	28.32	356.3	28.32	12.1	342.68	W	B	dm
PA37	00/10/24	00/10/31	1.52	15.6	1.52	13.15	20.05	W	B	m
PA37	00/10/31	00/11/06	1.65	19.4	1.65	21.13	34.88	W	B	m
PA37	00/11/06	00/11/13	12.32	105.9	12.32	6.49	79.96	W	B	m
PA37	00/11/13	00/11/21	1.02	16.7	1.02	9.17	9.32	W	B	m
PA37	00/11/21	00/11/28	5.84	63.1	5.84	2.13	12.49	W	B	dm
PA37	00/11/28	00/12/05	9.27	122.1	9.27	7.06	65.47	W	B	dm
PA37	00/12/05	00/12/11	0.76	0.5	0.76	-9	-9	W	C	mv
PA37	00/12/12	00/12/19	36.07	382.5	36.07	9.48	342.24	W	B	dm
PA37	00/12/19	00/12/26	0	0	0	-9	0	D	B	m
PA37	00/12/26	01/01/02	0.25	0	0.25	-9	-9	W	C	mv
PA37	01/01/02	01/01/08	0.51	0	0.51	-9	-9	W	C	mv
PA37	01/01/16	01/01/23	16.38	143.6	16.38	2.03	33.32	W	B	dm
PA37	01/01/23	01/01/29	2.29	8.9	2.29	14.98	34.25	W	B	mi
PA37	01/01/29	01/02/06	22.35	221.5	22.35	7.21	161.35	W	B	dm
PA37	01/02/06	01/02/13	7.24	65.1	7.24	8.48	61.4	W	B	m
PA37	01/02/13	01/02/19	29.08	328.5	29.08	6.39	186.07	W	B	dm
PA37	01/02/19	01/02/26	4.83	45.7	4.83	15.17	73.23	W	A	
PA37	01/02/26	01/03/05	13.97	157.7	13.97	6.55	91.57	W	B	dm
PA37	01/03/05	01/03/12	1.14	20.9	1.14	27.8	31.78	W	B	m
PA37	01/03/12	01/03/19	35.69	369	35.69	7.28	260.05	W	B	dm
PA37	01/03/19	01/03/27	23.93	265.5	23.93	6.78	162.32	W	B	dm
PA37	01/03/27	01/04/03	8.64	82.3	8.64	4.98	43.06	W	B	dm
PA37	01/04/03	01/04/10	23.11	282.2	23.11	16.75	387.36	W	B	mh
PA37	01/04/10	01/04/17	34.04	389.2	34.04	15.45	525.89	W	B	dm
PA37	01/04/17	01/04/24	17.15	191.8	17.15	7.66	131.45	W	B	dm
PA37	01/04/24	01/05/01	0.25	4.6	0.25	35.56	9.03	W	B	dmi
PA37	01/05/01	01/05/08	1.14	13.4	1.14	30.4	34.74	W	B	dm
PA37	01/05/08	01/05/15	10.48	124.8	10.48	10.52	110.29	W	B	dmh
PA37	01/05/15	01/05/22	64.39	831.4	64.39	4.91	316.34	W	B	dm
PA37	01/05/22	01/05/29	37.85	433.2	37.85	9.55	361.58	W	B	mh
PA37	01/05/29	01/06/05	35.18	410.5	35.18	10.04	353.37	W	B	m

PA37	01/06/05	01/06/12	29.46	382.5	29.46	10.25	302.24	W	B	dm
PA37	01/06/12	01/06/19	25.4	323.3	25.4	9.41	239.01	W	B	mh
PA37	01/06/19	01/06/26	37.47	446.3	37.47	13.54	507.35	W	B	dm
PA37	01/06/26	01/07/03	30.48	321.9	30.48	8.49	258.86	W	B	dmh
PA37	01/07/03	01/07/10	61.98	709.9	61.98	6.66	413.31	W	B	mh
PA37	01/07/10	01/07/17	8.13	94.5	8.13	11.91	96.84	W	B	dm
PA37	01/07/17	01/07/24	23.37	298.7	23.37	8.77	205.14	W	B	dm
PA37	01/07/24	01/07/31	24.38	323.1	24.38	10.4	253.76	W	B	dm
PA37	01/07/31	01/08/07	15.13	167.2	15.13	24.09	364.49	W	B	m
PA37	01/08/07	01/08/14	45.21	555.4	45.21	14.01	633.51	W	B	dmh
PA37	01/08/14	01/08/21	15.49	176.4	15.49	12.12	187.86	W	B	dm
PA37	01/08/21	01/08/28	18.29	226.8	18.29	19.93	364.64	W	B	dmh
PA37	01/08/28	01/09/04	23.88	296.2	23.88	10.25	244.84	W	B	dm
PA37	01/09/04	01/09/11	5.44	65.5	5.44	11.49	62.47	W	B	dmh
PA37	01/09/11	01/09/18	10.16	122.4	10.16	6.39	65.01	W	B	dm
PA37	01/09/18	01/09/26	29.97	313.9	29.97	10.66	319.62	W	B	edm
PA37	01/09/26	01/10/02	2.54	27.1	2.54	1.86	4.73	W	B	m
PA37	01/10/02	01/10/09	6.35	50.6	6.35	5.06	32.17	W	B	dm
PA37	01/10/09	01/10/16	14.86	151.9	14.86	10.1	150.16	W	B	dm
PA37	01/10/16	01/10/23	4.7	28.9	4.7	3.49	16.44	W	B	dm
PA37	01/10/23	01/10/30	14.22	117	14.22	20.99	298.6	W	B	dm
PA37	01/10/30	01/11/06	7.11	80	7.11	3.35	23.82	W	B	dm
PA37	01/11/06	01/11/13	2.41	22.6	2.41	-9	-9	W	C	dml
PA37	01/11/13	01/11/20	6.48	47.5	6.48	2.77	17.94	W	B	dm
PA37	01/11/20	01/11/27	31.24	360.1	31.24	10.13	316.54	W	B	dmh
PA37	01/11/27	01/12/04	9.4	118.5	9.4	12.26	115.29	W	B	dm
PA37	01/12/04	01/12/11	9.91	116.9	9.91	1.94	19.26	W	B	dm
PA37	01/12/11	01/12/18	38.35	374.2	38.35	13.58	521.15	W	B	dm
PA37	01/12/18	01/12/25	9.65	79.4	9.65	3.21	30.98	W	B	dmh
PA37	01/12/25	02/01/01	1.4	0	1.4	-9	-9	W	C	dmv
PA37	02/01/01	02/01/08	8	67.4	8	3.38	27.07	W	B	dm
PA37	02/01/08	02/01/15	7.62	57.6	7.62	4.77	36.37	W	B	dmh
PA37	02/01/15	02/01/22	3.81	34	3.81	8.63	32.88	W	B	dmh
PA37	02/01/22	02/01/29	17.4	189.3	17.4	9.48	165.04	W	B	dm
PA37	02/01/29	02/02/05	18.16	201.2	18.16	3.03	55.06	W	B	dmh
PA37	02/02/05	02/02/12	17.65	147.3	17.65	0.89	15.72	W	B	dm
PA37	02/02/12	02/02/19	1.27	6.3	1.27	32.28	40.99	W	C	mil
PA37	02/02/19	02/02/26	11.18	112.2	11.18	8.2	91.73	W	B	dmh
PA37	02/02/26	02/03/05	14.73	130.3	14.73	1.72	25.44	W	B	dm
PA37	02/03/05	02/03/12	2.79	0.6	2.79	-9	-9	W	C	dmv
PA37	02/03/12	02/03/19	58.17	687.1	58.17	8.1	471.26	W	B	dmh
PA37	02/03/19	02/03/26	31.75	366.1	31.75	5.13	163.16	W	B	dm
PA37	02/03/26	02/04/02	51.69	601.9	51.69	6.72	347.45	W	B	dm
PA37	02/04/02	02/04/09	4.06	35.2	4.06	3.8	15.47	W	B	m
PA37	02/04/09	02/04/16	28.83	327.5	28.83	7.4	213.33	W	B	m
PA37	02/04/16	02/04/23	13.08	176.5	13.08	14.41	188.57	W	B	dm
PA37	02/04/23	02/04/30	43.18	506.5	43.18	10.46	451.83	W	B	dmh
PA37	02/04/30	02/05/07	-9	292.5	24.41	18.71	456.93	W	B	m
PA37	02/05/07	02/05/14	81.53	928.5	81.53	12.76	1040.86	W	B	dm
PA37	02/05/14	02/05/21	31.88	499.9	31.88	6.97	222.27	W	B	dm
PA37	02/05/21	02/05/28	10.16	138.8	10.16	8.77	89.15	W	B	dm
PA37	02/05/28	02/06/03	15.62	157.6	15.62	6.95	108.56	W	B	dmh
PA37	02/06/03	02/06/11	59.44	756.9	59.44	10.9	648.03	W	B	dm
PA37	02/06/11	02/06/18	52.13	644.3	52.13	9.01	470.19	W	B	dm
PA37	02/06/18	02/06/25	0	0	0	-9	0	D	B	h
PA37	02/06/25	02/07/02	-9	274.6	22.92	7.7	176.52	W	B	dm
PA37	02/07/02	02/07/09	11.43	114	11.43	17.87	204.26	W	B	dmh

PA37	02/07/09	02/07/16	47.5	545	47.5	10.63	505.09	W	B	dmh
PA37	02/07/16	02/07/23	11.68	136.6	11.68	20.08	234.61	W	B	dmh
PA37	02/07/23	02/07/30	29.97	293.3	29.97	11.32	339.46	W	B	dm
PA37	02/07/30	02/08/06	11.43	116.8	11.43	18.73	214.18	W	B	dm
PA37	02/08/06	02/08/13	0	0.8	0	-9	0	D	B	m
PA37	02/08/13	02/08/20	11.05	107.8	11.05	11.07	122.35	W	B	dmh
PA37	02/08/20	02/08/27	31.75	366.4	31.75	10.85	344.61	W	B	dmh
PA37	02/08/27	02/09/03	0	0	0	-9	0	D	B	m
PA37	02/09/03	02/09/10	2.54	14.9	2.54	25.67	65.2	W	B	m
PA37	02/09/10	02/09/17	27.18	307.8	27.18	4.53	123.33	W	B	m
PA37	02/09/17	02/09/24	22.61	255.9	22.61	9.92	224.45	W	B	m
PA37	02/09/24	02/10/01	56.39	689.1	56.39	3.87	218.33	W	A	
PA37	02/10/01	02/10/08	2.54	9.2	2.54	10.51	26.69	W	B	mhi
PA37	02/10/08	02/10/15	16	180.1	16	8.77	140.41	W	B	h
PA37	02/10/15	02/10/22	39.12	400.3	39.12	2.04	79.79	W	A	
PA37	02/10/22	02/10/29	-9	104.2	8.7	5.43	47.24	W	B	m
PA37	02/10/29	02/11/05	19.3	210.4	19.3	2.6	50.18	W	A	
PA37	02/11/05	02/11/11	24.38	196.8	24.38	6.79	165.71	W	C	dzfc
PA37	02/11/11	02/11/19	28.45	325.5	28.45	6.88	195.8	W	A	
PA37	02/11/19	02/11/26	2.79	12.5	2.79	0.08	0.22	W	A	
PA37	02/11/26	02/12/03	5.59	17.4	5.59	9.38	52.46	W	A	
PA37	02/12/03	02/12/10	11.43	81.7	11.43	1.42	16.23	W	B	h
PA37	02/12/10	02/12/17	25.15	293.6	25.15	3.25	81.75	W	A	
PA37	02/12/17	02/12/23	-9	143.7	11.99	7.85	94.17	W	B	m
PA37	02/12/23	02/12/30	11.43	117.5	11.43	2.17	24.81	W	B	mh
PA37	02/12/30	03/01/06	43.31	465.4	43.31	7.04	305.05	W	A	
PA37	03/01/06	03/01/14	-9	0	0	-9	0	D	B	m
PA37	03/01/14	03/01/21	-9	8.8	0.73	10.93	8.02	W	B	mhi
PA37	03/01/21	03/01/27	-9	0	0	-9	0	D	B	m
PA37	03/01/27	03/02/03	-9	56.1	4.68	11.11	52.05	W	B	m
PA37	03/02/03	03/02/11	-9	154.5	12.9	7.44	95.95	W	B	dmh
PA37	03/02/11	03/02/18	-9	89.8	7.5	6.7	50.25	W	B	m
PA37	03/02/18	03/02/25	-9	377.8	31.53	1.61	50.76	W	B	m
PA37	03/02/25	03/03/04	-9	50.1	4.18	14.28	59.74	W	B	m
PA37	03/03/04	03/03/11	8.89	120.9	8.89	9.52	84.67	W	A	
PA37	03/03/11	03/03/18	5.84	67.8	5.84	8.81	51.46	W	B	h
PA37	03/03/18	03/03/25	3.3	31.6	3.3	21.19	69.97	W	A	
PA37	03/03/25	03/03/31	9.65	104.4	9.65	11.14	107.56	W	A	
PA37	03/03/31	03/04/08	30.48	320.3	30.48	12.12	369.69	W	A	
PA37	03/04/08	03/04/15	13.59	130.8	13.59	5.66	76.95	W	A	
PA37	03/04/15	03/04/22	18.16	178.3	18.16	10.47	190.18	W	A	
PA37	03/04/22	03/04/28	0.89	4.7	0.89	15.97	14.2	W	B	i
PA37	03/04/28	03/05/05	41.91	478.4	41.91	16.94	710.29	W	B	z
PA37	03/05/05	03/05/13	99.06	1070.1	99.06	14.12	1398.82	W	B	d
PA37	03/05/13	03/05/19	-9	174.5	14.57	9.57	139.48	W	B	m
PA37	03/05/19	03/05/27	25.4	344.6	25.4	7.65	194.53	W	B	h
PA37	03/05/27	03/06/02	28.7	334.5	28.7	8.7	249.82	W	B	dmzh
PA37	03/06/02	03/06/09	69.47	843.8	69.47	10.34	718.51	W	B	z
PA37	03/06/09	03/06/16	12.95	158.1	12.95	13.71	177.59	W	B	h
PA37	03/06/16	03/06/24	40.01	481.9	40.01	6.6	264.07	W	B	dz
PA37	03/06/24	03/07/01	0.51	0	0.51	-9	-9	W	C	zv
PA37	03/07/01	03/07/08	54.48	583.8	54.48	18.21	992.35	W	B	d
PA37	03/07/08	03/07/15	69.09	788.1	69.09	11.25	777.44	W	A	
PA37	03/07/15	03/07/22	20.32	218.1	20.32	10.03	203.89	W	B	h
PA37	03/07/22	03/07/29	7.87	99	7.87	13.91	109.58	W	B	d
PA37	03/07/29	03/08/05	57.66	693.5	57.66	8.88	512.34	W	B	dmh
PA37	03/08/05	03/08/12	59.18	675.7	59.18	16.2	959.28	W	B	m

PA37	03/08/12	03/08/19	2.03	28.2	2.03	36.45	74.07	W	B	m
PA37	03/08/19	03/08/26	-7	0	0.13	-9	-9	T	B	mh
PA37	03/08/26	03/09/02	122.17	1452.3	122.17	13.56	1657.16	W	C	dhu
PA37	03/09/02	03/09/09	12.07	138.2	12.07	3.62	43.74	W	B	h
PA37	03/09/09	03/09/16	6.86	89.1	6.86	6.88	47.19	W	B	dh
PA37	03/09/16	03/09/20	22.86	257.1	22.86	12.27	280.69	W	B	m
PA37	03/09/20	03/09/23	11.18	128.1	11.18	6.45	72.09	W	A	
PA37	03/09/23	03/09/29	10.41	119.1	10.41	9.67	100.74	W	A	
PA37	03/09/29	03/10/07	13.59	96	13.59	10.36	140.86	W	A	
PA37	03/10/07	03/10/14	-7	0	0.13	-9	-9	T	A	
PA37	03/10/14	03/10/21	36.83	407.3	36.83	9.65	355.41	W	B	d
PA37	03/10/21	03/10/27	24.13	270.6	24.13	7.12	172.02	W	A	
PA37	03/10/27	03/11/04	7.87	67.6	7.87	7.43	58.56	W	A	
PA37	03/11/04	03/11/10	21.08	101.8	21.08	11.38	240.08	W	A	
PA37	03/11/10	03/11/17	44.45	575.6	44.45	5.59	248.83	W	A	
PA37	03/11/17	03/11/25	51.56	964.2	51.56	4.25	219.55	W	B	d
PA37	03/11/25	03/12/02	16.26	156.7	16.26	8.44	137.23	W	B	z
PA37	03/12/02	03/12/09	6.48	83.3	6.48	1.66	10.75	W	B	z
PA37	03/12/09	03/12/16	25.65	186.6	25.65	3.21	82.37	W	B	h
PA37	03/12/16	03/12/23	3.81	12.9	3.81	9.79	37.33	W	A	
PA37	03/12/23	03/12/30	12.95	136.6	12.95	4.4	57.01	W	B	z
PA37	03/12/30	04/01/06	52.32	567.2	52.32	8.35	437.21	W	B	z
PA37	04/01/06	04/01/13	2.54	14.3	2.54	6.42	16.3	W	A	
PA37	04/01/13	04/01/20	20.32	178.1	20.32	1.15	23.49	W	A	
PA37	04/01/20	04/01/27	16.76	142	16.76	7.06	118.38	W	B	z
PA37	04/01/27	04/02/03	25.65	297	25.65	3.88	99.66	W	A	
PA37	04/02/03	04/02/10	27.69	305.7	27.69	2.17	60.13	W	B	h
PA37	04/02/10	04/02/17	0	0	0	-9	0	D	A	
PA37	04/02/17	04/02/23	2.54	11.7	2.54	8.84	22.47	W	A	
PA37	04/02/23	04/03/01	7.62	118.5	7.62	1.97	15.01	W	A	
PA37	04/03/01	04/03/09	51.82	554.4	51.82	7.24	375.4	W	A	
PA37	04/03/09	04/03/15	0.51	5.3	0.51	11.87	6.03	W	B	i
PA37	04/03/15	04/03/24	32.64	377.5	32.64	5.19	169.65	W	B	e
PA37	04/03/24	04/03/30	4.06	20.6	4.06	26.74	108.67	W	A	
PA37	04/03/30	04/04/06	38.61	385.3	38.61	3.7	143	W	C	f
PA37	04/04/06	04/04/13	59.94	755.1	59.94	6.46	387.29	W	A	
PA37	04/04/13	04/04/20	3.05	42.9	3.05	6.2	18.92	W	A	
PA37	04/04/20	04/04/27	25.4	301.4	25.4	9.69	246.17	W	A	
PA37	04/04/27	04/05/04	-9	26.4	2.2	12.98	28.61	W	B	m
PA37	04/05/04	04/05/11	9.65	92.6	9.65	10.41	100.54	W	A	
PA37	04/05/11	04/05/18	35.31	388.1	35.31	15.77	556.77	W	B	d
PA37	04/05/18	04/05/25	59.69	694.3	59.69	11.2	668.52	W	A	
PA37	04/05/25	04/06/01	17.78	185.1	17.78	9.27	164.89	W	A	
PA37	04/06/01	04/06/08	24.38	285.3	24.38	14.24	347.35	W	B	d
PA37	04/06/08	04/06/15	38.48	459.2	38.48	9.26	356.48	W	A	
PA37	04/06/15	04/06/22	7.37	72	7.37	17.57	129.45	W	A	
PA37	04/06/22	04/06/29	19.3	199.3	19.3	8.38	161.78	W	A	
PA37	04/06/29	04/07/06	-9	229.6	19.16	12.73	244	W	B	m
PA37	04/07/06	04/07/13	-9	351.6	96.56	7.32	707.59	W	B	m
PA37	04/07/13	04/07/20	-9	190	15.86	18.43	292.29	W	B	m
PA37	04/07/20	04/07/28	-9	478.3	39.92	8.58	342.56	W	B	m
PA37	04/07/28	04/08/03	-9	143.6	11.99	8.9	106.69	W	B	m
PA37	04/08/03	04/08/10	7.11	60.7	7.11	7.76	55.2	W	A	
PA37	04/08/10	04/08/17	39.12	418.7	39.12	11.49	449.63	W	B	h
PA37	04/08/17	04/08/24	69.09	840.8	69.09	14	967.85	W	A	
PA37	04/08/24	04/08/31	6.1	66.2	6.1	20.59	125.52	W	A	
PA37	04/08/31	04/09/07	0	0	0	-9	0	D	A	

PA37	04/09/07	04/09/14	73.15	895.1	73.15	3.68	269.49	W	A	
PA37	04/09/14	04/09/21	110.49	1207.4	110.49	9.34	1032.75	W	A	
PA37	04/09/21	04/09/28	0.51	4	0.51	13.87	7.04	W	B	i
PA37	04/09/28	04/10/05	1.27	10.9	1.27	10.42	13.24	W	A	
PA37	04/10/05	04/10/12	0	0	0	-9	0	D	A	
PA37	04/10/12	04/10/19	45.97	508	45.97	5.54	254.83	W	A	
PA37	04/10/19	04/10/26	6.86	65.5	6.86	11.51	78.98	W	A	
PA37	04/10/26	04/11/01	47.75	540.1	47.75	6.47	309.09	W	A	
PA37	04/11/01	04/11/08	16.51	149.4	16.51	10.98	181.41	W	B	h
PA37	04/11/08	04/11/16	17.78	184.6	17.78	4.04	71.88	W	A	
PA37	04/11/16	04/11/23	30.48	299.2	30.48	1.99	60.93	W	A	
PA37	04/11/23	04/11/30	24.89	218.8	24.89	4.87	121.37	W	B	h
PA37	04/11/30	04/12/08	29.72	249.2	29.72	5.09	151.53	W	B	z
PA37	04/12/08	04/12/15	22.1	219.7	22.1	2.37	52.5	W	A	
PA37	04/12/15	04/12/21	0.76	0	0.76	-9	-9	W	C	v
PA37	04/12/21	04/12/28	18.8	188.9	18.8	1.84	34.66	W	A	

NATIONAL ATMOSPHERIC DEPOSITION PROGRAM
MERCURY DEPOSITION NETWORK
MILLERSVILLE (PA47)

Site ID	Date On	Date Off	RG Ppt mm	Sample Volume mL	Sub Ppt mm	Hg Conc ng/L	Hg Dep ng/m^2	Sample Type	Quality Rating	Notes
PA47	02/11/26	02/12/03	5.59	75.3	5.59	9.27	51.81	W	B	m
PA47	02/12/03	02/12/10	14.22	162.5	14.22	1.21	17.22	W	B	z
PA47	02/12/10	02/12/17	58.42	0	58.42	-9	-9	W	C	mzv
PA47	02/12/17	02/12/24	8.89	103.2	8.89	12.14	107.94	W	B	zh
PA47	02/12/24	02/12/31	38.61	378.3	38.61	3.42	132.38	W	B	z
PA47	02/12/31	03/01/07	37.34	430.6	37.34	6.37	237.84	W	B	mzh
PA47	03/01/07	03/01/14	0	0	0	-9	0	D	B	z
PA47	03/01/14	03/01/21	0.76	0	0.76	-9	-9	W	C	zhv
PA47	03/01/21	03/01/28	2.54	16.5	2.54	30.39	77.2	W	A	
PA47	03/01/28	03/02/04	10.54	125.5	10.54	9.25	97.59	W	B	zh
PA47	03/02/04	03/02/11	-9	118.6	9.9	2.37	23.55	W	B	mz
PA47	03/02/11	03/02/18	58.67	288.3	58.67	4.11	241.26	W	A	
PA47	03/02/18	03/02/25	40.13	474.2	40.13	2.14	86	W	B	z
PA47	03/02/25	03/03/04	10.41	99.8	10.41	3.88	40.41	W	B	z
PA47	03/03/04	03/03/11	13.97	167.8	13.97	11.84	165.51	W	B	m
PA47	03/03/11	03/03/18	3.18	26.4	3.18	7.93	25.19	W	B	z
PA47	03/03/18	03/03/25	31.24	517.6	31.24	3.97	124.06	W	A	
PA47	03/03/25	03/04/01	27.31	330.7	27.31	10.23	279.43	W	B	zh
PA47	03/04/01	03/04/08	11.81	133.1	11.81	8.12	95.92	W	A	
PA47	03/04/08	03/04/15	27.94	333.3	27.94	6.93	193.84	W	A	
PA47	03/04/15	03/04/22	9.78	116.2	9.78	15.03	147.05	W	B	zh
PA47	03/04/22	03/04/29	20.07	235.8	20.07	3.82	76.67	W	B	h
PA47	03/04/29	03/05/06	2.29	27.7	2.29	37.42	85.56	W	C	dmzu
PA47	03/05/06	03/05/13	25.65	309	25.65	12.92	331.45	W	B	z
PA47	03/05/13	03/05/20	20.45	252.7	20.45	9.35	191.3	W	B	h
PA47	03/05/20	03/05/27	51.18	600.2	51.18	6.48	332.06	W	B	d
PA47	03/05/27	03/06/03	9.65	105.1	9.65	13.87	133.93	W	A	
PA47	03/06/03	03/06/10	73.15	872.7	73.15	8.39	614.4	W	A	
PA47	03/06/10	03/06/17	5.33	77.5	5.33	19.4	103.52	W	B	dz
PA47	03/06/17	03/06/24	59.18	721.9	59.18	4.81	285.19	W	B	d
PA47	03/06/24	03/07/01	0	0	0	-9	0	D	B	zh
PA47	03/07/01	03/07/08	31.62	362.6	31.62	9.73	307.88	W	B	z
PA47	03/07/08	03/07/15	3.43	45.9	3.43	13.99	47.97	W	C	mzu
PA47	03/07/15	03/07/22	2.29	31	2.29	12.45	28.46	W	B	dmz
PA47	03/07/22	03/07/29	52.58	754.1	52.58	9.91	521.46	W	A	
PA47	03/07/29	03/08/05	6.86	107	6.86	9.77	67.06	W	B	z
PA47	03/08/05	03/08/12	29.59	385.5	29.59	13.04	386.04	W	B	dz
PA47	03/08/12	03/08/19	43.94	501.7	43.94	9.53	419.16	W	B	z
PA47	03/08/19	03/08/26	24.89	123.7	24.89	14.74	367.03	W	B	z
PA47	03/08/26	03/09/02	85.22	1044.2	85.22	10.72	914.2	W	B	d
PA47	03/09/02	03/09/09	24.89	326	24.89	8.64	215.21	W	B	d
PA47	03/09/09	03/09/16	26.8	345.4	26.8	10.58	283.59	W	B	d
PA47	03/09/16	03/09/19	32.13	568.5	32.13	4.52	145.52	W	B	d
PA47	03/09/19	03/09/23	84.84	1008	84.84	5.4	458.53	W	A	
PA47	03/09/23	03/09/30	8	96.8	8	13.92	111.41	W	A	
PA47	03/09/30	03/10/07	5.21	65.7	5.21	10.27	53.49	W	A	
PA47	03/10/07	03/10/14	0	0	0	-9	0	D	A	
PA47	03/10/14	03/10/21	42.67	76.6	42.67	5.96	254.66	W	B	h

PA47	03/10/21	03/10/28	32	400.3	32	8.43	269.98	W	A	
PA47	03/10/28	03/11/04	28.45	355.3	28.45	3.84	109.41	W	A	
PA47	03/11/04	03/11/11	38.1	465.8	38.1	6.22	236.98	W	B	d
PA47	03/11/11	03/11/18	12.19	143	12.19	4.18	51.03	W	A	
PA47	03/11/18	03/11/25	50.04	620.1	50.04	8.15	408.16	W	A	
PA47	03/11/25	03/12/02	27.18	321.8	27.18	6.79	184.7	W	B	d
PA47	03/12/02	03/12/09	19.56	33.7	19.56	14.76	288.79	W	B	h
PA47	03/12/09	03/12/16	58.17	629.1	58.17	3.71	216.31	W	B	dh
PA47	03/12/16	03/12/23	16.76	199.6	16.76	2.38	39.93	W	A	
PA47	03/12/23	03/12/30	20.07	221.6	20.07	6.89	138.37	W	A	
PA47	03/12/30	04/01/06	12.95	149.3	12.95	9.84	127.46	W	B	h
PA47	04/01/06	04/01/13	0	0	0	-9	0	D	A	
PA47	04/01/13	04/01/20	25.15	270.3	25.15	2.85	71.76	W	A	
PA47	04/01/20	04/01/27	12.95	0	12.95	-9	-9	W	C	v
PA47	04/01/27	04/02/03	3.3	34.3	3.3	2.77	9.15	W	A	
PA47	04/02/03	04/02/10	68.83	776	68.83	4.17	287.45	W	B	h
PA47	04/02/10	04/02/17	0	0.2	0	-9	0	D	A	
PA47	04/02/17	04/02/24	0	0	0	-9	0	D	A	
PA47	04/02/24	04/03/02	5.33	41.4	5.33	15.19	81.06	W	A	
PA47	04/03/02	04/03/09	24.13	317.8	24.13	13.93	336.17	W	A	
PA47	04/03/09	04/03/16	15.49	15.9	15.49	16.19	250.98	W	C	v
PA47	04/03/16	04/03/23	16.76	191.2	16.76	4.15	69.7	W	A	
PA47	04/03/23	04/03/30	2.54	27.8	2.54	31.03	78.83	W	B	dh
PA47	04/03/30	04/04/06	-9	463.6	38.69	6.72	260.06	W	B	m
PA47	04/04/06	04/04/13	28.7	338.4	28.7	7.67	220.34	W	B	d
PA47	04/04/13	04/04/20	12.45	149.4	12.45	9.09	113.18	W	B	d
PA47	04/04/20	04/04/27	52.32	617.3	52.32	10.27	537.62	W	B	d
PA47	04/04/27	04/05/04	20.57	250.5	20.57	8.44	173.7	W	A	
PA47	04/05/04	04/05/11	42.67	540.6	42.67	15.82	675.32	W	B	d
PA47	04/05/11	04/05/18	19.81	225.2	19.81	19.05	377.49	W	B	d
PA47	04/05/18	04/05/25	15.49	197.7	15.49	12.67	196.35	W	B	d
PA47	04/05/25	04/06/01	11.94	125.4	11.94	18.35	219.14	W	A	
PA47	04/06/01	04/06/08	55.63	655.1	55.63	11.57	643.7	W	B	d
PA47	04/06/08	04/06/15	34.29	392.5	34.29	9.87	338.68	W	B	h
PA47	04/06/15	04/06/22	33.27	385	33.27	11.04	367.51	W	B	d
PA47	04/06/22	04/06/29	23.62	250.3	23.62	16	378.16	W	B	d
PA47	04/06/29	04/07/06	1.27	13.9	1.27	30.4	38.61	W	A	
PA47	04/07/06	04/07/13	36.32	452.1	36.32	6.53	237.43	W	A	
PA47	04/07/13	04/07/20	22.35	259.2	22.35	12.36	276.33	W	B	dh
PA47	04/07/20	04/07/27	33.27	415.3	33.27	9.85	327.74	W	A	
PA47	04/07/27	04/08/03	48.01	551.9	48.01	19.26	924.59	W	C	df
PA47	04/08/03	04/08/10	13.97	155.6	13.97	14.36	200.72	W	A	
PA47	04/08/10	04/08/17	76.2	981.6	76.2	8.88	677.11	W	B	d
PA47	04/08/17	04/08/24	25.65	299.1	25.65	9.31	238.99	W	B	d
PA47	04/08/24	04/08/31	0	0	0	-9	0	D	A	
PA47	04/08/31	04/09/07	0	0	0	-9	0	D	A	
PA47	04/09/07	04/09/14	6.35	81	6.35	9.6	61	W	A	
PA47	04/09/14	04/09/21	54.86	705.4	54.86	3.16	173.8	W	B	d
PA47	04/09/21	04/09/28	0.51	2.3	0.51	44.23	22.47	W	B	di
PA47	04/09/28	04/10/05	65.53	817.4	65.53	5.2	341.02	W	B	d
PA47	04/10/05	04/10/12	0	0	0	-9	0	D	B	z
PA47	04/10/12	04/10/19	37.59	462.2	37.59	10.87	408.96	W	B	z
PA47	04/10/19	04/10/26	8.38	99.7	8.38	9.26	77.62	W	B	z
PA47	04/10/26	04/11/02	7.62	93.7	7.62	17.66	134.61	W	B	h
PA47	04/11/02	04/11/09	24.13	294.1	24.13	4.22	102.04	W	B	dz
PA47	04/11/09	04/11/16	20.32	263.6	20.32	7.93	161.3	W	B	zh
PA47	04/11/16	04/11/23	8.64	99.3	8.64	5.7	49.24	W	B	z

PA47	04/11/23	04/11/30	46.23	80.8	46.23	4.93	228.27	W	B	dz
PA47	04/11/30	04/12/07	15.75	0	15.75	-9	-9	W	C	zhv
PA47	04/12/07	04/12/14	35.05	452.3	35.05	7.27	255.14	W	C	mzu
PA47	04/12/14	04/12/21	-7	0	0.13	-9	-9	T	B	zh
PA47	04/12/21	04/12/28	26.67	324.7	26.67	3.17	84.7	W	B	z

NATIONAL ATMOSPHERIC DEPOSITION PROGRAM
MERCURY DEPOSITION NETWORK
VALLEY FORGE NHP (PA60)

Site ID	Date On	Date Off	RG Ppt mm	Sample Volume mL	Sub Ppt mm	Hg Conc ng/L	Hg Dep ng/m^2	Sample Type	Quality Rating	Notes
PA60	99/11/23	99/11/30	38.61	494.3	38.61	8.17	315.69	W	B	dm
PA60	99/11/30	99/12/07	17.02	214.5	17.02	6.2	105.61	W	B	dmh
PA60	99/12/07	99/12/13	9.91	47.4	9.91	3.82	37.84	W	B	dmh
PA60	99/12/13	99/12/21	-9	540.2	45.09	9.32	420.61	W	B	dm
PA60	99/12/21	99/12/28	0	0.3	0	-9	0	D	B	dm
PA60	99/12/28	00/01/04	0	0	0	-9	0	D	B	dm
PA60	00/01/04	00/01/11	32.38	373.7	32.39	3.82	123.93	W	B	m
PA60	00/01/11	00/01/18	5.27	19.3	5.27	20.64	108.8	W	B	dm
PA60	00/01/19	00/01/26	26.99	92.5	26.99	9.43	254.64	W	B	dm
PA60	00/01/26	00/02/01	24.45	282.7	24.45	12.91	315.65	W	B	dmh
PA60	00/02/01	00/02/08	-9	44.6	3.72	8.69	32.37	W	B	dm
PA60	00/02/08	00/02/15	14.22	169.4	14.22	7.71	109.75	W	B	dm
PA60	00/02/15	00/02/22	30.99	321.5	30.99	5.78	179.32	W	B	dm
PA60	00/02/22	00/02/29	8.76	97.1	8.76	8.68	76.07	W	B	dm
PA60	00/02/29	00/03/07	0	0	0	-9	0	D	B	mz
PA60	00/03/07	00/03/14	23.81	305.7	23.81	14.91	355.08	W	B	dmz
PA60	00/03/14	00/03/21	31.75	328.6	31.75	5.94	188.59	W	B	dmh
PA60	00/03/21	00/03/28	105.16	1411.5	105.16	5.28	555.64	W	B	dmz
PA60	00/03/28	00/04/04	12.57	143.3	12.57	10.71	134.74	W	B	dm
PA60	00/04/04	00/04/11	16.45	158.6	16.45	16.49	271.29	W	B	dm
PA60	00/04/11	00/04/18	34.54	419.2	34.54	16.99	587.14	W	B	dmh
PA60	00/04/18	00/04/25	14.16	190.9	14.16	18.19	257.63	W	B	dmz
PA60	00/04/25	00/05/02	-9	42.8	3.57	34.61	123.65	W	B	dm
PA60	00/05/02	00/05/09	0	0	0	-9	0	D	B	dm
PA60	00/05/09	00/05/16	27.18	336.7	27.18	18.54	503.88	W	B	dm
PA60	00/05/16	00/05/23	44.26	565.2	44.26	15.51	686.5	W	B	dmz
PA60	00/05/23	00/05/30	23.88	305.4	23.88	14.71	351.35	W	B	mz
PA60	00/05/30	00/06/06	12.06	150	12.07	3.7	44.68	W	B	dm
PA60	00/06/06	00/06/14	43.31	481.2	43.31	11.47	497.03	W	B	mz
PA60	00/06/14	00/06/20	29.53	363.3	29.53	9.17	270.97	W	B	dmz
PA60	00/06/20	00/06/27	35.05	411.9	35.05	10.33	362.22	W	B	dmz
PA60	00/06/27	00/07/04	10.6	141.1	10.6	15.69	166.44	W	B	dmzh
PA60	00/07/04	00/07/11	6.22	75.5	6.22	12.39	77.1	W	B	mz
PA60	00/07/11	00/07/18	20.32	257.1	20.32	17	345.52	W	B	mh
PA60	00/07/18	00/07/25	-9	138.4	11.55	32.81	379.09	W	B	dmh
PA60	00/07/25	00/08/01	99.95	1160	99.95	2.84	283.95	W	B	dmz
PA60	00/08/01	00/08/08	37.97	487.7	37.97	11.68	443.82	W	B	dmh
PA60	00/08/08	00/08/15	27.81	344.9	27.81	10.3	286.5	W	B	mz
PA60	00/08/15	00/08/22	2.6	23.7	2.6	19.87	51.72	W	B	dm
PA60	00/08/22	00/08/29	5.33	43.7	5.33	10.34	55.16	W	B	mz
PA60	00/08/29	00/09/05	6.86	107.4	6.86	19.79	135.76	W	B	dmz
PA60	00/09/05	00/09/12	0	0	0	-9	0	D	B	dm
PA60	00/09/12	00/09/20	94.61	1236.1	94.62	8.48	802.9	W	B	dmh
PA60	00/09/20	00/09/26	54.8	560	54.8	8.2	449.86	W	B	dmh
PA60	00/09/26	00/10/03	4.63	48.5	4.63	13.27	61.45	W	B	mz
PA60	00/10/03	00/10/10	-9	248.8	20.77	11.69	242.87	W	B	dm
PA60	00/10/10	00/10/17	0	0	0	-9	0	D	B	m
PA60	00/10/17	00/10/24	19.05	122.6	19.05	14.77	281.5	W	A	

PA60	00/10/24	00/10/31	0	0	0	-9	0	D	B	h
PA60	00/10/31	00/11/07	0	0	0	-9	0	D	B	z
PA60	00/11/07	00/11/14	25.4	303.3	25.4	14.39	365.5	W	B	dz
PA60	00/11/14	00/11/21	-9	47.6	3.97	5.7	22.65	W	B	dmz
PA60	00/11/21	00/11/28	33.02	391.9	33.02	12.75	421	W	B	dz
PA60	00/11/28	00/12/05	3.81	42.4	3.81	4.31	16.43	W	B	zh
PA60	00/12/05	00/12/12	-9	1.5	0.13	154.73	19.34	W	B	dmi
PA60	00/12/12	00/12/19	100.84	1258.9	100.84	12.24	1235.16	W	B	dm
PA60	00/12/19	00/12/26	-9	25.1	2.1	9.68	20.29	W	B	m
PA60	00/12/26	01/01/02	-9	0	0	-9	0	D	C	dmhf
PA60	01/01/02	01/01/09	-9	55.9	4.67	6.56	30.63	W	B	m
PA60	01/01/09	01/01/16	4.45	52	4.45	10.06	44.74	W	B	mzh
PA60	01/01/16	01/01/23	49.53	509.7	49.53	17.67	875.44	W	B	mzh
PA60	01/01/23	01/01/31	16.76	224.8	16.76	7.1	119.07	W	B	mzh
PA60	01/01/31	01/02/06	45.08	499.3	45.09	2.61	117.98	W	B	dmzh
PA60	01/02/06	01/02/13	0.76	8.9	0.76	20.5	15.62	W	B	mhi
PA60	01/02/13	01/02/20	-9	147.5	12.31	3.98	48.99	W	B	m
PA60	01/02/20	01/02/27	16.83	153.7	16.83	21.46	361.25	W	B	dmh
PA60	01/02/27	01/03/06	18.03	241.1	18.03	19.18	345.92	W	B	dm
PA60	01/03/06	01/03/13	24.96	316.5	24.96	4.56	113.79	W	B	dmh
PA60	01/03/13	01/03/20	14.67	244.5	14.67	12.34	181.12	W	B	m
PA60	01/03/20	01/03/27	30.1	374.6	30.1	3.05	91.95	W	B	dmh
PA60	01/03/27	01/04/03	50.29	590.1	50.29	5.66	284.7	W	B	dm
PA60	01/04/03	01/04/10	11.3	164.3	11.3	21.54	243.51	W	B	dm
PA60	01/04/10	01/04/17	25.15	272.5	25.15	20.23	508.9	W	B	dmh
PA60	01/04/17	01/04/24	6.6	74.5	6.6	16.18	106.87	W	B	dm
PA60	01/04/24	01/05/02	0	0	0	-9	0	D	B	dmh
PA60	01/05/02	01/05/08	0	0	0	-9	0	D	B	mh
PA60	01/05/08	01/05/15	0	0	0	-9	0	D	B	dm
PA60	01/05/15	01/05/22	39.37	534.1	39.37	16.23	639.21	W	B	dmh
PA60	01/05/22	01/05/29	43.31	480	43.31	8.84	383.18	W	B	dmh
PA60	01/05/29	01/06/05	18.35	268.9	18.35	10.54	193.54	W	B	mh
PA60	01/06/05	01/06/12	-9	9.2	0.77	37.76	29	W	B	mi
PA60	01/06/12	01/06/19	64.14	881.3	64.14	9.59	615.05	W	B	dmh
PA60	01/06/19	01/06/26	5.08	57.3	5.08	12.2	62	W	B	mh
PA60	01/06/26	01/07/03	34.98	456.5	34.98	13.4	468.74	W	B	dmz
PA60	01/07/03	01/07/10	2.03	0	2.03	-9	-9	W	C	mhv
PA60	01/07/10	01/07/17	0.51	4	0.51	44.24	22.47	W	B	dmhi
PA60	01/07/17	01/07/24	21.59	308.4	21.59	13.48	291.09	W	B	dmz
PA60	01/07/24	01/07/31	1.27	15.7	1.27	32.25	40.95	W	B	mzh
PA60	01/07/31	01/08/07	13.97	184.5	13.97	11.67	163.09	W	B	dmz
PA60	01/08/07	01/08/14	30.43	391.3	30.43	13.79	419.88	W	B	dmzh
PA60	01/08/14	01/08/21	0	0	0	-9	0	D	B	mh
PA60	01/08/21	01/08/28	0	0	0	-9	0	D	B	mh
PA60	01/08/28	01/09/04	0.51	0	0.51	-9	-9	W	C	dmv
PA60	01/09/04	01/09/11	4.57	54.7	4.57	15.84	72.45	W	B	dm
PA60	01/09/11	01/09/18	15.19	174	15.19	7.46	113.3	W	B	dm
PA60	01/09/18	01/09/25	27.81	134.8	27.81	16.42	456.68	W	C	dmhf
PA60	01/09/25	01/10/02	-9	42.6	3.56	10.02	35.65	W	B	dmh
PA60	01/10/02	01/10/09	-9	29.7	2.48	10.86	26.94	W	B	m
PA60	01/10/10	01/10/16	8	85	8	5.05	40.45	W	B	dmh
PA60	01/10/16	01/10/23	0	2.7	0	-9	0	D	B	dm
PA60	01/10/23	01/10/30	-9	0	0	-9	0	D	B	mh
PA60	01/10/30	01/11/06	2.54	30.8	2.54	4.17	10.6	W	B	dmh
PA60	01/11/06	01/11/13	0	0	0	-9	0	D	B	h
PA60	01/11/13	01/11/20	2.29	0	2.29	-9	-9	W	C	mvf
PA60	01/11/20	01/11/27	15.75	217.4	15.75	-9	-9	W	C	mzhvf

PA60	01/11/27	01/12/04	-9	0	0	-9	0	D	C	mf
PA60	01/12/04	01/12/18	49.53	557.3	49.53	10.24	507.58	W	B	edm
PA60	01/12/18	01/12/26	-9	134.3	11.21	2.08	23.35	W	B	dm
PA60	01/12/26	02/01/02	0	0	0	-9	0	D	B	m
PA60	02/01/02	02/01/08	32.51	347.2	32.51	3.55	115.71	W	B	dmh
PA60	02/01/08	02/01/15	10.03	112.4	10.03	2.39	24.01	W	B	dmz
PA60	02/01/15	02/01/22	14.73	172.7	14.73	4.16	61.35	W	B	dm
PA60	02/01/22	02/01/29	21.21	253.8	21.21	6.69	142.03	W	B	dmh
PA60	02/01/29	02/02/05	-9	136.4	11.39	9.84	112.09	W	B	dmzh
PA60	02/02/05	02/02/12	3.81	36.2	3.81	21.14	80.56	W	B	dmh
PA60	02/02/12	02/02/19	0	0	0	-9	0	D	B	m
PA60	02/02/19	02/02/26	5.08	62.9	5.08	10.12	51.44	W	B	m
PA60	02/02/26	02/03/05	28.83	322.1	28.83	2.17	62.73	W	B	dmh
PA60	02/03/05	02/03/12	3.81	36.3	3.81	10.83	41.27	W	B	dm
PA60	02/03/12	02/03/19	26.92	286.7	26.92	31.52	848.83	W	B	dmh
PA60	02/03/19	02/03/26	24.64	281.4	24.64	6.06	149.42	W	B	dm
PA60	02/03/26	02/04/02	-9	296.1	24.71	9.5	234.78	W	B	dmh
PA60	02/04/02	02/04/09	1.9	6.8	1.91	50.51	96.22	W	B	dmhi
PA60	02/04/09	02/04/17	10.41	0	10.41	-9	-9	W	C	edmzhvf
PA60	02/04/17	02/04/23	53.85	242.4	53.85	14.89	802.22	W	B	dmzh
PA60	02/04/23	02/05/08	26.67	590.3	26.67	13.13	350.25	W	B	edm
PA60	02/05/08	02/05/14	-9	570.8	47.64	19.26	917.89	W	B	dmh
PA60	02/05/14	02/05/21	44.83	512.5	44.83	7.14	320.18	W	B	dm
PA60	02/05/21	02/05/28	-9	23.4	1.95	37.07	72.39	W	B	dm
PA60	02/05/28	02/06/04	0	1.3	0	-9	0	D	B	dmh
PA60	02/06/04	02/06/11	51.56	596.7	51.56	9.11	470.03	W	B	mzh
PA60	02/06/11	02/06/18	23.24	254.1	23.24	15.77	366.67	W	B	dmz
PA60	02/06/18	02/06/25	32.89	352.2	32.89	15.23	501.22	W	B	dmzh
PA60	02/06/25	02/07/02	24.26	277.4	24.26	6.94	168.53	W	B	dmzh
PA60	02/07/02	02/07/09	0	0	0	-9	0	D	B	mzh
PA60	02/07/09	02/07/16	7.11	94.6	7.11	16.53	117.61	W	B	dmz
PA60	02/07/16	02/07/23	11.68	115.9	11.68	14.58	170.41	W	B	dmzh
PA60	02/07/23	02/07/30	-9	15.3	1.28	54.32	69.37	W	B	mzh
PA60	02/07/30	02/08/06	2.79	27.3	2.79	31.97	89.32	W	B	dmz
PA60	02/08/06	02/08/13	0	0	0	-9	0	D	B	mzh
PA60	02/08/13	02/08/20	2.79	26.7	2.79	41.18	115.07	W	B	dmz
PA60	02/08/20	02/08/27	14.35	158.5	14.35	17.63	253.03	W	B	dmzh
PA60	02/08/27	02/09/03	56.39	633.1	56.39	2.83	159.63	W	B	dmh
PA60	02/09/03	02/09/10	0	0	0	-9	0	D	B	mh
PA60	02/09/10	02/09/24	11.81	114.1	11.81	14.68	173.44	W	B	emzh
PA60	02/09/24	02/10/01	69.6	770.3	69.6	2.63	183.04	W	B	dh
PA60	02/10/01	02/10/08	6.35	60.1	6.35	30.72	195.11	W	B	h
PA60	02/10/08	02/10/29	-9	1312.5	109.55	10.37	1136.87	W	C	edmhf
PA60	02/10/29	02/10/29	-9	-9	-9	-9	-9	-	C	np
PA60	02/10/29	02/11/05	36.07	417.2	36.07	4.93	178.03	W	A	
PA60	02/11/05	02/11/12	16	183.3	16	6.18	99.03	W	A	
PA60	02/11/12	02/11/19	90.93	991.8	90.93	2.67	242.78	W	A	
PA60	02/11/19	02/11/26	7.62	88.1	7.62	2.71	20.66	W	A	
PA60	02/11/26	02/12/03	8.89	104.3	8.89	5.56	49.49	W	B	mh
PA60	02/12/03	02/12/10	19.3	248.5	19.3	1.97	38.16	W	A	
PA60	02/12/10	02/12/17	64.14	705.7	64.14	5.38	345.49	W	B	zh
PA60	02/12/17	02/12/24	14.73	187.9	14.73	6.16	90.86	W	B	mh
PA60	02/12/24	02/12/31	119.25	461.7	119.25	4.06	484.52	W	B	d
PA60	02/12/31	03/01/07	43.05	461	43.05	7.34	316.05	W	B	h
PA60	03/01/07	03/01/14	0	0	0	-9	0	D	A	
PA60	03/01/14	03/01/21	1.02	9.4	1.02	15.13	15.37	W	C	zil
PA60	03/01/21	03/01/28	0	0	0	-9	0	D	A	

PA60	03/01/28	03/02/04	6.35	45.5	6.35	8.09	51.42	W	B	zh
PA60	03/02/04	03/02/11	5.08	229.5	5.08	5.06	25.73	W	B	z
PA60	03/02/11	03/02/18	-9	280.6	23.42	5.48	128.48	W	B	mzh
PA60	03/02/18	03/02/25	57.4	648.8	57.4	4.02	230.93	W	B	m
PA60	03/02/25	03/03/04	17.65	218.5	17.65	11.92	210.56	W	A	
PA60	03/03/04	03/03/11	25.78	286.1	25.78	7.15	184.46	W	B	h
PA60	03/03/11	03/03/17	-7	0	0.13	-9	-9	T	B	z
PA60	03/03/17	03/03/25	37.47	416.5	37.47	20.15	755.03	W	A	
PA60	03/03/25	03/04/01	28.83	277.3	28.83	10.83	312.21	W	B	h
PA60	03/04/01	03/04/08	13.72	89.6	13.72	12.02	164.96	W	B	h
PA60	03/04/08	03/04/15	26.92	297.6	26.92	8.05	216.87	W	C	hf
PA60	03/04/15	03/04/22	5.08	67.5	5.08	13.06	66.36	W	A	
PA60	03/04/22	03/04/29	8.26	65.6	8.26	8.43	69.65	W	A	
PA60	03/04/29	03/05/06	3.43	15.9	3.43	71.87	246.44	W	B	h
PA60	03/05/06	03/05/13	16.26	194.2	16.26	18.37	298.72	W	B	h
PA60	03/05/13	03/05/20	9.14	107.8	9.14	14.51	132.69	W	A	
PA60	03/05/20	03/05/27	65.66	827.1	65.66	7.36	483.57	W	B	dh
PA60	03/05/27	03/06/03	33.4	388.2	33.4	4.09	136.77	W	B	h
PA60	03/06/03	03/06/10	67.31	786.1	67.31	8.81	593.47	W	B	h
PA60	03/06/10	03/06/17	46.74	546.1	46.74	14.64	684.26	W	B	zh
PA60	03/06/17	03/06/24	83.19	1014.2	83.19	11.09	922.52	W	B	z
PA60	03/06/24	03/07/01	0.51	8.4	0.51	44.73	22.72	W	B	zi
PA60	03/07/01	03/07/08	8.64	98.6	8.64	9.67	83.54	W	B	dz
PA60	03/07/08	03/07/15	5.21	69.3	5.21	13.45	70.06	W	B	zh
PA60	03/07/15	03/07/22	8.38	97.5	8.38	21.63	181.35	W	B	z
PA60	03/07/22	03/07/29	3.81	41.4	3.81	19.17	73.04	W	B	z
PA60	03/07/29	03/08/05	59.69	804.2	59.69	9.94	593.31	W	B	zh
PA60	03/08/05	03/08/12	-9	1454.6	121.41	6.52	791.69	W	B	mz
PA60	03/08/12	03/08/22	3.05	34.6	3.05	31.64	96.45	W	B	ezh
PA60	03/08/22	03/08/26	0	0	0	-9	0	D	A	
PA60	03/08/26	03/09/02	38.23	465.4	38.23	8.88	339.72	W	B	h
PA60	03/09/02	03/09/09	19.56	238.3	19.56	11.27	220.59	W	B	h
PA60	03/09/09	03/09/16	68.71	824.3	68.71	8.16	561.06	W	B	dzh
PA60	03/09/16	03/09/23	65.53	752.8	65.53	8.11	532.05	W	B	dh
PA60	03/09/23	03/10/01	16.26	210.6	16.26	24.22	393.8	W	B	h
PA60	03/10/01	03/10/07	-9	0	0	-9	0	D	B	mzh
PA60	03/10/07	03/10/14	-7	8.6	0.13	-9	-9	T	B	i
PA60	03/10/14	03/10/21	46.99	560.4	46.99	6.93	325.64	W	B	zh
PA60	03/10/21	03/10/28	74.04	872.7	74.04	4.3	318.67	W	B	zh
PA60	03/10/28	03/11/04	44.45	502.5	44.45	2.6	115.61	W	B	zh
PA60	03/11/04	03/11/11	44.45	536.3	44.45	8.85	393.47	W	B	z
PA60	03/11/11	03/11/18	11.18	108.7	11.18	13.47	150.54	W	B	h
PA60	03/11/18	03/11/25	50.67	611.8	50.67	6.95	352.63	W	B	d
PA60	03/11/25	03/12/02	23.11	248.8	23.11	6.76	156.38	W	B	h
PA60	03/12/16	03/12/23	26.16	270.1	26.16	1.48	38.82	W	B	h
PA60	03/12/23	03/12/30	23.62	274	23.62	3.95	93.37	W	B	d
PA60	03/12/30	04/01/06	16.76	154.7	16.76	23.51	394.2	W	A	
PA60	04/01/06	04/01/13	0	0	0	-9	0	D	A	
PA60	04/01/13	04/01/20	19.56	190.2	19.56	4.74	92.76	W	B	zh
PA60	04/01/20	04/01/27	6.73	0	6.73	-9	-9	W	C	zhv
PA60	04/01/27	04/02/03	9.4	68.8	9.4	1.96	18.42	W	B	zh
PA60	04/02/03	04/02/10	65.28	764.8	65.28	5.26	343.42	W	B	z
PA60	04/02/10	04/02/17	0	0	0	-9	0	D	B	z
PA60	04/02/17	04/02/24	-7	0	0.13	-9	-9	T	B	z
PA60	04/02/24	04/03/02	3.81	40.1	3.81	12.51	47.67	W	B	z
PA60	04/03/02	04/03/09	32.26	380.2	32.26	11.83	381.87	W	A	
PA60	04/03/09	04/03/16	3.43	15.1	3.43	12.56	43.09	W	A	

PA60	04/03/16	04/03/23	40.64	455.7	40.64	30.97	1258.7	W	B	z
PA60	04/03/23	04/03/30	4.57	42.2	4.57	15.73	71.92	W	B	h
PA60	04/03/30	04/04/06	45.97	501.4	45.97	8.82	405.62	W	C	hf
PA60	04/04/06	04/04/20	-9	637.7	53.22	6.78	170.69	W	C	de
PA60	04/04/20	04/05/04	74.68	881	74.68	8.46	632.43	W	B	edzh
PA60	04/05/04	04/05/11	6.86	69.1	6.86	17.93	122.96	W	A	
PA60	04/05/11	04/05/18	5.33	0.4	5.33	-9	-9	W	C	v
PA60	04/05/18	04/05/25	11.18	198.3	11.18	14.9	166.52	W	A	
PA60	04/05/25	04/06/01	18.42	220.6	18.42	22.45	413.52	W	B	d
PA60	04/06/01	04/06/15	30.73	339.2	30.73	15.81	486.15	W	B	edzh
PA60	04/06/15	04/06/22	13.97	158.6	13.97	19.12	267.19	W	B	h
PA60	04/06/22	04/06/29	-9	455.2	37.99	8.76	333.04	W	B	m
PA60	04/06/29	04/07/06	0.51	6.1	0.51	34.56	17.56	W	B	zi
PA60	04/07/06	04/07/13	89.92	1041.8	89.92	8.15	732.99	W	A	
PA60	04/07/13	04/07/20	59.94	696.9	59.94	7.7	461.92	W	A	
PA60	04/07/20	04/07/26	27.94	350.1	27.94	7.37	205.91	W	A	
PA60	04/07/26	04/08/03	126.75	1578.3	126.75	9.19	1165.17	W	B	z
PA60	04/08/03	04/08/10	7.62	96.6	7.62	12.51	95.38	W	A	
PA60	04/08/10	04/08/17	9.4	97	9.4	19.26	181.08	W	A	
PA60	04/08/17	04/08/24	14.22	105.6	14.22	12.47	177.4	W	B	zh
PA60	04/08/24	04/08/31	38.1	451.2	38.1	9.05	344.95	W	A	
PA60	04/08/31	04/09/07	0	0	0	-9	0	D	B	h
PA60	04/09/07	04/09/14	11.43	139.4	11.43	9.59	109.62	W	B	mh
PA60	04/09/14	04/09/21	91.95	1062.3	91.95	3.7	340.66	W	A	
PA60	04/09/21	04/09/28	3.05	60.5	3.05	6.61	20.16	W	A	
PA60	04/09/28	04/10/05	117.35	1433.7	117.35	5.15	605.16	W	A	
PA60	04/10/05	04/10/12	0	-9	0	-9	0	D	B	m
PA60	04/10/12	04/10/19	40.13	513.6	40.13	11.42	458.3	W	B	z
PA60	04/10/19	04/10/26	5.59	50.8	5.59	14.49	80.99	W	B	zh
PA60	04/10/26	04/11/02	13.46	163	13.46	7.03	94.69	W	A	
PA60	04/11/02	04/11/09	25.4	307.2	25.4	5.02	127.73	W	A	
PA60	04/11/09	04/11/16	37.59	432.6	37.59	4.14	155.85	W	B	h
PA60	04/11/16	04/11/23	6.35	75.9	6.35	17.09	108.52	W	A	
PA60	04/11/23	04/11/29	67.06	879.7	67.06	2.64	177.09	W	B	d
PA60	04/11/29	04/12/07	-9	410.6	34.27	8.67	297.12	W	B	edm
PA60	04/12/07	04/12/14	-9	982.2	81.98	4.86	398.41	W	B	dm
PA60	04/12/14	04/12/22	0	0	0	-9	0	D	B	dz
PA60	04/12/22	05/01/04	-9	320.8	25.3	4.8	121.4	W	B	em

NATIONAL ATMOSPHERIC DEPOSITION PROGRAM
MERCURY DEPOSITION NETWORK
MILFORD (PA72)

Site ID	Date On	Date Off	RG Ppt mm	Sample Volume mL	Sub Ppt mm	Hg Conc ng/L	Hg Dep ng/m^2	Sample Type	Quality Rating	Notes
PA72	00/09/14	00/09/19	12.95	157.7	12.95	16.43	212.86	W	B	dm
PA72	00/09/19	00/09/26	13.97	178.9	13.97	5.61	78.39	W	B	dm
PA72	00/09/26	00/10/03	9.33	108.1	9.34	4.57	42.72	W	B	dm
PA72	00/10/03	00/10/10	6.35	64	6.35	22.84	145.07	W	B	mh
PA72	00/10/10	00/10/17	2.67	19.1	2.67	25.92	69.14	W	B	m
PA72	00/10/17	00/10/24	26.67	322.8	26.67	5.83	155.59	W	B	dmh
PA72	00/10/24	00/10/31	0	74.8	0	-9	0	D	B	dh
PA72	00/10/31	00/11/07	0.51	1.1	0.51	-9	-9	W	C	mv
PA72	00/11/07	00/11/14	38.35	426.9	38.35	10.41	399.45	W	B	dmzh
PA72	00/11/14	00/11/21	5.59	70.4	5.59	2.6	14.56	W	B	dmz
PA72	00/11/21	00/11/28	17.53	193.8	17.53	2.87	50.38	W	B	dmz
PA72	00/11/28	00/12/05	5.59	68.2	5.59	8.28	46.26	W	B	dmz
PA72	00/12/05	00/12/12	4.45	47.5	4.45	7.45	33.15	W	B	mz
PA72	00/12/12	00/12/19	113.28	1272.4	113.28	6.7	759.34	W	B	dmz
PA72	00/12/19	00/12/26	5.72	3.4	5.72	4.6	26.32	W	C	mzvf
PA72	00/12/26	01/01/02	20.32	40.6	20.32	2.78	56.59	W	C	dmuf
PA72	01/01/02	01/01/09	5.84	47.3	5.84	11.63	67.96	W	B	mz
PA72	01/01/09	01/01/16	1.27	10.4	1.27	36.55	46.42	W	B	mz
PA72	01/01/16	01/01/23	25.78	170.2	25.78	3.67	94.66	W	B	dm
PA72	01/01/23	01/01/30	6.86	63.4	6.86	5.08	34.85	W	B	dmz
PA72	01/01/30	01/02/06	41.15	99.5	41.15	4.17	171.91	W	B	dmz
PA72	01/02/06	01/02/13	3.05	33.2	3.05	36.48	111.19	W	B	m
PA72	01/02/13	01/02/20	10.16	135.5	10.16	5.81	59.02	W	B	dmz
PA72	01/02/20	01/02/27	20.7	215.3	20.7	12.5	258.78	W	B	mz
PA72	01/02/27	01/03/06	29.46	44.3	29.46	4.57	134.85	W	B	dmh
PA72	01/03/06	01/03/13	22.86	294.7	22.86	4.12	94.22	W	B	dmz
PA72	01/03/13	01/03/20	8.89	136.4	8.89	5.62	49.98	W	B	dm
PA72	01/03/20	01/03/27	19.81	215.1	19.81	6.63	131.43	W	B	dm
PA72	01/03/27	01/04/03	-9	452.4	37.76	3.84	145.03	W	B	dmh
PA72	01/04/03	01/04/10	26.42	299.6	26.42	19.37	511.75	W	B	dmh
PA72	01/04/10	01/04/17	4.57	46.7	4.57	22.26	101.81	W	B	dm
PA72	01/04/17	01/04/24	16.38	173.4	16.38	14.85	243.43	W	B	dmh
PA72	01/04/24	01/05/01	1.02	12.5	1.02	25.31	25.72	W	B	dm
PA72	01/05/01	01/05/08	0.25	0	0.25	-9	-9	W	C	dmv
PA72	01/05/08	01/05/15	0.51	0	0.51	-9	-9	W	C	mhv
PA72	01/05/15	01/05/22	34.29	384.5	34.29	5.12	175.66	W	B	dm
PA72	01/05/22	01/05/29	64.77	731.2	64.77	8.67	561.87	W	B	dmh
PA72	01/05/29	01/06/05	44.45	528.2	44.45	7.12	316.83	W	B	dmh
PA72	01/06/05	01/06/12	4.83	54.9	4.83	18.87	91.1	W	B	dm
PA72	01/06/12	01/06/19	32	348.8	32	18.86	603.85	W	B	m
PA72	01/06/19	01/06/26	-9	370.4	30.92	21.46	663.55	W	B	dm
PA72	01/06/26	01/07/03	6.86	80.1	6.86	17.96	123.22	W	B	dm
PA72	01/07/03	01/07/10	23.88	260.9	23.88	16.22	387.41	W	B	dmh
PA72	01/07/10	01/07/17	5.59	63.4	5.59	13.27	74.18	W	B	dm
PA72	01/07/17	01/07/24	0	0.3	0	-9	0	D	B	dm
PA72	01/07/24	01/07/31	24.13	274.3	24.13	6.85	165.48	W	B	dm
PA72	01/07/31	01/08/07	4.32	47.4	4.32	32.35	139.69	W	B	mh
PA72	01/08/07	01/08/14	37.59	452.5	37.59	11.83	445.05	W	B	dm

PA72	01/08/14	01/08/21	14.22	176.8	14.22	11.84	168.42	W	B	dm
PA72	01/08/21	01/08/28	8.89	99.8	8.89	14.8	131.58	W	B	mh
PA72	01/08/28	01/09/04	19.3	227.6	19.3	13.57	261.95	W	B	dmh
PA72	01/09/04	01/09/11	8.64	118.4	8.64	10.22	88.3	W	B	dm
PA72	01/09/11	01/09/18	15.24	162.3	15.24	17.37	264.71	W	B	dm
PA72	01/09/18	01/09/25	102.36	1158.5	102.36	4.11	421.42	W	B	dm
PA72	01/09/25	01/10/02	2.79	31.2	2.79	12.67	35.4	W	B	dm
PA72	01/10/02	01/10/09	8.13	86.9	8.13	5.6	45.55	W	B	dmh
PA72	01/10/09	01/10/16	14.48	174.1	14.48	5.86	84.95	W	B	m
PA72	01/10/16	01/10/23	2.29	35.7	2.29	11.82	27.02	W	B	dm
PA72	01/10/23	01/10/30	0	0	0	-9	0	D	B	m
PA72	01/10/30	01/11/06	2.03	25.1	2.03	20.41	41.47	W	B	dm
PA72	01/11/06	01/11/14	0	3.7	0	-9	0	D	B	m
PA72	01/11/14	01/11/20	4.57	50	4.57	3.65	16.72	W	B	dm
PA72	01/11/20	01/11/27	-9	243.8	20.35	6.65	135.38	W	B	dmh
PA72	01/11/27	01/12/04	15.24	130	15.24	14.04	214.03	W	B	dm
PA72	01/12/04	01/12/11	20.32	240.4	20.32	2.58	52.6	W	B	dmh
PA72	01/12/11	01/12/18	32.77	340.9	32.77	10.79	353.54	W	B	dm
PA72	01/12/18	01/12/26	-9	73.1	6.1	3.71	22.64	W	B	dm
PA72	01/12/26	02/01/02	0	0	0	-9	0	D	B	mz
PA72	02/01/02	02/01/08	16.51	145	16.51	5.7	94.15	W	B	dm
PA72	02/01/08	02/01/15	6.73	86.2	6.73	1.94	13.1	W	B	dmh
PA72	02/01/15	02/01/22	11.43	117	11.43	6.27	71.71	W	B	dm
PA72	02/01/22	02/01/29	1.78	22.5	1.78	15.13	26.91	W	B	m
PA72	02/01/29	02/02/05	11.68	104.8	11.68	12.63	147.6	W	B	dm
PA72	02/02/05	02/02/12	7.24	89.5	7.24	16.02	115.98	W	B	dmh
PA72	02/02/12	02/02/19	1.27	2.7	1.27	53.04	67.36	W	B	dmi
PA72	02/02/19	02/02/26	6.1	74.9	6.1	5.61	34.24	W	B	dmh
PA72	02/02/26	02/03/05	29.21	347.8	29.21	4.42	129.22	W	B	dm
PA72	02/03/05	02/03/12	4.32	55.3	4.32	10.67	46.07	W	B	dmh
PA72	02/03/12	02/03/19	11.3	120.4	11.3	9.41	106.44	W	B	dmh
PA72	02/03/19	02/03/26	19.05	224.9	19.05	6.18	117.72	W	B	dm
PA72	02/03/26	02/04/02	28.19	329.4	28.19	10.62	299.42	W	B	dm
PA72	02/04/02	02/04/09	5.84	67.3	5.84	3.71	21.69	W	B	dmh
PA72	02/04/09	02/04/16	34.16	417.8	34.16	6.71	229.33	W	B	dm
PA72	02/04/16	02/04/23	16.26	136.8	16.26	30.52	496.18	W	B	dmz
PA72	02/04/23	02/04/30	48.77	530	48.77	6.86	334.54	W	B	dmzh
PA72	02/04/30	02/05/07	18.29	186.6	18.29	21.33	390.22	W	B	dmzh
PA72	02/05/07	02/05/14	78.49	847.7	78.49	30.5	2394.37	W	B	dmzh
PA72	02/05/14	02/05/21	36.83	0	36.83	-9	-9	W	C	mvn
PA72	02/05/21	02/05/28	3.05	0	3.05	-9	-9	W	C	mzv
PA72	02/05/28	02/06/04	40.13	483	40.13	11.65	467.73	W	B	dmz
PA72	02/06/04	02/06/11	53.34	639.4	53.34	5.24	279.92	W	B	dm
PA72	02/06/11	02/06/18	33.53	401.8	33.53	7.9	265	W	B	dm
PA72	02/06/18	02/06/25	7.62	93.2	7.62	29.67	226.15	W	B	dm
PA72	02/06/25	02/07/02	30.73	348.9	30.73	15.53	477.45	W	B	dmh
PA72	02/07/02	02/07/09	0	0	0	-9	0	D	A	
PA72	02/07/09	02/07/16	3.05	34.5	3.05	6.23	19	W	C	dmhl
PA72	02/07/16	02/07/23	7.37	82.4	7.37	22.14	163.14	W	B	dh
PA72	02/07/23	02/07/30	16.51	191.8	16.51	17.4	287.3	W	B	dmh
PA72	02/07/30	02/08/06	0.76	0	0.76	-9	-9	W	C	mhv
PA72	02/08/06	02/08/13	0	0	0	-9	0	D	B	m
PA72	02/08/13	02/08/20	11.18	122.7	11.18	13.81	154.34	W	B	mh
PA72	02/08/20	02/08/27	16.26	174.1	16.26	11.59	188.48	W	B	dmh
PA72	02/08/27	02/09/03	34.54	403.8	34.54	3.44	119.07	W	B	m
PA72	02/09/03	02/09/10	0	0	0	-9	0	D	B	m
PA72	02/09/10	02/09/17	66.04	756	66.04	3.82	252.33	W	B	m

PA72	02/09/17	02/09/24	0.51	6.1	0.51	-9	-9	W	B	mi
PA72	02/09/24	02/10/01	43.94	515.5	43.94	4.01	176.47	W	B	m
PA72	02/10/01	02/10/08	13.97	148.2	13.97	5.73	80.17	W	B	m
PA72	02/10/08	02/10/15	111.51	1210.3	111.51	2.02	225.46	W	B	h
PA72	02/10/15	02/10/22	40.39	432.9	40.39	2.34	94.58	W	A	
PA72	02/10/22	02/10/29	24.13	286.2	24.13	2.37	57.4	W	B	d
PA72	02/10/29	02/11/05	1.27	21	1.27	3.37	4.28	W	A	
PA72	02/11/05	02/11/12	20.57	242	20.57	4.2	86.57	W	B	h
PA72	02/11/12	02/11/19	75.18	822.2	75.18	2.63	197.73	W	B	d
PA72	02/11/19	02/11/26	10.16	113.9	10.16	2.53	25.78	W	B	h
PA72	02/11/26	02/12/03	6.6	81.4	6.6	6.21	41.03	W	A	
PA72	02/12/03	02/12/10	10.16	108.2	10.16	2.11	21.46	W	A	
PA72	02/12/10	02/12/17	51.31	589.8	51.31	3.39	174.13	W	B	h
PA72	02/12/17	02/12/24	19.81	235.4	19.81	7.14	141.61	W	A	
PA72	02/12/24	02/12/31	39.62	355.4	39.62	4.64	184.13	W	B	h
PA72	02/12/31	03/01/07	60.45	639.3	60.45	3.4	205.77	W	C	mzhu
PA72	03/01/07	03/01/14	3.3	40.6	3.3	12.25	40.45	W	A	
PA72	03/01/14	03/01/21	1.27	8.6	1.27	4.92	6.24	W	B	mhi
PA72	03/01/21	03/01/28	1.27	7.7	1.27	21.32	27.08	W	B	mzi
PA72	03/01/28	03/02/04	4.83	0	4.83	-9	-9	W	C	zhv
PA72	03/02/04	03/02/11	12.19	178.2	12.19	5.6	68.3	W	B	zh
PA72	03/02/11	03/02/19	34.54	159	34.54	2.78	96.06	W	C	emzu
PA72	03/02/19	03/02/25	32	305.5	32	5.82	186.48	W	C	dfc
PA72	03/02/25	03/03/04	11.43	126.4	11.43	4.32	49.45	W	A	
PA72	03/03/04	03/03/11	14.73	159.9	14.73	2.74	40.39	W	A	
PA72	03/03/11	03/03/18	7.87	86.2	7.87	7.58	59.72	W	A	
PA72	03/03/18	03/03/25	36.83	424.2	36.83	4.56	168.2	W	B	h
PA72	03/03/25	03/04/01	-9	392.4	32.75	6.05	198.14	W	B	m
PA72	03/04/01	03/04/08	-9	258.4	21.57	7.32	158.04	W	B	m
PA72	03/04/08	03/04/15	11.94	116.1	11.94	6.21	74.13	W	B	h
PA72	03/04/15	03/04/22	2.79	29.6	2.79	15.88	44.38	W	A	
PA72	03/04/22	03/04/29	-9	71.5	5.97	8.33	49.76	W	B	m
PA72	03/04/29	03/05/06	3.05	43.4	3.05	25	76.2	W	B	dmh
PA72	03/05/06	03/05/13	-9	107.2	8.95	27.93	249.97	W	B	m
PA72	03/05/13	03/05/20	0	0	0	-9	0	D	B	z
PA72	03/05/20	03/05/27	78.23	873.8	78.23	72.85	5699.67	W	C	dhc
PA72	03/05/27	03/06/03	65.53	730.2	65.53	6.94	455.31	W	B	dh
PA72	03/06/03	03/06/10	48.77	550.4	48.77	15.46	754	W	B	dh
PA72	03/06/10	03/06/17	24.64	293	24.64	13.75	338.84	W	A	
PA72	03/06/17	03/06/24	101.6	1091.2	101.6	11.98	1217.16	W	B	dh
PA72	03/06/24	03/07/01	0	0	0	-9	0	D	B	z
PA72	03/07/01	03/07/08	2.54	27.3	2.54	11.46	29.1	W	A	
PA72	03/07/08	03/07/15	-9	80.4	6.71	10.12	67.95	W	B	dm
PA72	03/07/15	03/07/22	-9	515.6	43.03	14.59	627.86	W	B	mh
PA72	03/07/22	03/07/29	-9	226	18.86	12.67	239.1	W	B	m
PA72	03/07/29	03/08/05	49.28	596	49.28	8.86	436.78	W	A	
PA72	03/08/05	03/08/12	70.1	813.8	70.1	10.72	751.79	W	B	d
PA72	03/08/12	03/08/19	-9	90	7.51	7.55	56.76	W	B	dm
PA72	03/08/19	03/08/26	-9	0	0	-9	0	D	B	mh
PA72	03/08/26	03/09/02	-9	799.9	66.76	5.57	372.13	W	B	m
PA72	03/09/02	03/09/09	-9	128.4	10.72	4.48	48.09	W	B	m
PA72	03/09/09	03/09/16	31.75	366.5	31.75	7.15	227.1	W	A	
PA72	03/09/16	03/09/23	102.11	1171.7	102.11	5.29	540.96	W	B	d
PA72	03/09/23	03/09/30	29.97	324.3	29.97	15.18	455.24	W	A	
PA72	03/09/30	03/10/07	8.64	94.1	8.64	4.23	36.54	W	A	
PA72	03/10/07	03/10/14	0	0	0	-9	0	D	A	
PA72	03/10/14	03/10/21	43.69	509.5	43.69	5.28	230.76	W	B	d

PA72	03/10/21	03/10/28	82.8	934	82.8	5.32	440.93	W	A	
PA72	03/10/28	03/11/04	48.01	561.7	48.01	1.17	56.55	W	A	
PA72	03/11/04	03/11/12	16.26	175.7	16.26	12.54	203.91	W	B	m
PA72	03/11/12	03/11/18	2.29	16.5	2.29	16.32	37.32	W	A	
PA72	03/11/18	03/11/25	68.58	738.3	68.58	6.07	416.62	W	B	dh
PA72	03/11/25	03/12/02	43.18	473.9	43.18	6.51	281.18	W	B	h
PA72	03/12/02	03/12/09	11.43	97.6	11.43	3.23	37.02	W	A	
PA72	03/12/09	03/12/16	74.93	832.6	74.93	3.23	242.69	W	A	
PA72	03/12/16	03/12/23	21.08	222	21.08	1.1	23.35	W	B	h
PA72	03/12/23	03/12/30	44.96	502.2	44.96	2.81	126.64	W	A	
PA72	03/12/30	04/01/06	41.91	427	41.91	4.73	198.4	W	A	
PA72	04/01/06	04/01/13	2.79	20.8	2.79	17.28	48.28	W	B	h
PA72	04/01/13	04/01/20	8.13	75.8	8.13	9.68	78.72	W	A	
PA72	04/01/20	04/01/27	2.54	18.7	2.54	12.22	31.04	W	B	h
PA72	04/01/27	04/02/03	14.22	136.2	14.22	1.29	18.36	W	A	
PA72	04/02/03	04/02/10	36.32	437	36.32	3.9	141.87	W	A	
PA72	04/02/10	04/02/17	0	0	0	-9	0	D	B	h
PA72	04/02/17	04/02/24	0.76	10	0.76	5.54	4.22	W	A	
PA72	04/02/24	04/03/02	4.57	32.9	4.57	8.73	39.95	W	A	
PA72	04/03/02	04/03/09	21.84	280.3	21.84	8.01	175.1	W	A	
PA72	04/03/09	04/03/16	1.27	23	1.27	5.96	7.57	W	A	
PA72	04/03/16	04/03/23	16.76	199	16.76	4.93	82.69	W	A	
PA72	04/03/23	04/03/30	2.54	38	2.54	12.64	32.12	W	A	
PA72	04/03/30	04/04/06	31.24	342.4	31.24	3.75	117.25	W	A	
PA72	04/04/06	04/04/13	26.92	284.8	26.92	4.78	128.91	W	A	
PA72	04/04/13	04/04/20	28.45	322.1	28.45	7.93	225.62	W	A	
PA72	04/04/20	04/04/27	36.58	399.7	36.58	11.44	418.57	W	B	d
PA72	04/04/27	04/05/04	19.05	234.9	19.05	7.36	140.26	W	A	
PA72	04/05/04	04/05/11	32.26	362.8	32.26	18.87	608.93	W	A	
PA72	04/05/11	04/05/18	11.43	131.8	11.43	25.4	290.4	W	A	
PA72	04/05/18	04/05/25	10.67	0	10.67	-9	-9	W	C	v
PA72	04/05/25	04/06/01	30.73	339.2	30.73	10.62	326.64	W	A	
PA72	04/06/01	04/06/08	12.19	158.1	12.19	15.31	186.72	W	A	
PA72	04/06/08	04/06/15	2.79	32.2	2.79	25.58	71.48	W	B	d
PA72	04/06/15	04/06/22	30.48	276.1	30.48	13.05	397.88	W	B	h
PA72	04/06/22	04/06/29	14.99	186.5	14.99	84.93	1272.8	W	B	d
PA72	04/06/29	04/07/06	0	0	0	-9	0	D	A	
PA72	04/07/06	04/07/13	40.89	446	40.89	3.97	162.34	W	B	d
PA72	04/07/13	04/07/20	25.65	314.7	25.65	13.86	355.59	W	A	
PA72	04/07/20	04/07/27	7.62	90.1	7.62	9.75	74.33	W	A	
PA72	04/07/27	04/08/03	57.66	688.9	57.66	12.23	705.21	W	B	d
PA72	04/08/03	04/08/10	19.3	218.1	19.3	7.25	140.1	W	A	
PA72	04/08/10	04/08/17	124.46	1544.1	124.46	9.31	1159.46	W	A	
PA72	04/08/17	04/08/24	81.28	948.2	81.28	10.3	837.26	W	B	d
PA72	04/08/24	04/08/31	17.78	224.3	17.78	14.03	249.47	W	B	h
PA72	04/08/31	04/09/07	0	0	0	-9	0	D	A	
PA72	04/09/07	04/09/14	67.31	743	67.31	10.62	714.83	W	A	
PA72	04/09/14	04/09/21	130.05	1408.8	130.05	11.69	1520.65	W	A	
PA72	04/09/21	04/09/29	55.88	639	55.88	7.9	441.89	W	A	
PA72	04/09/29	04/10/05	5.59	75.8	5.59	8.79	49.13	W	B	h
PA72	04/10/05	04/10/12	0	-9	0	-9	0	D	A	
PA72	04/10/12	04/10/19	41.15	478.4	41.15	7.17	295.23	W	B	dh
PA72	04/10/19	04/10/26	0	1.5	0	-9	0	D	B	hi
PA72	04/10/26	04/11/02	1.02	17.8	1.02	18.52	18.82	W	B	h
PA72	04/11/02	04/11/09	12.95	162.5	12.95	5.99	77.6	W	A	
PA72	04/11/09	04/11/16	6.35	79.5	6.35	5.53	35.14	W	B	z
PA72	04/11/16	04/11/23	6.35	82	6.35	7.39	46.95	W	A	

PA72	04/11/23	04/11/30	68.58	731.8	68.58	3.16	216.71	W	B	mh
PA72	04/11/30	04/12/08	37.59	399.6	37.59	5.72	215.06	W	A	
PA72	04/12/08	04/12/14	24.64	253	24.64	2.92	72.04	W	A	
PA72	04/12/14	04/12/21	0.76	5.7	0.76	20.62	15.71	W	B	i
PA72	04/12/21	04/12/28	39.62	422.1	39.62	3.2	126.83	W	B	h

NATIONAL ATMOSPHERIC DEPOSITION PROGRAM
MERCURY DEPOSITION NETWORK
HILLS CREEK STATE PARK (PA90)

Site ID	Date On	Date Off	RG Ppt mm	Sample Volume mL	Sub Ppt mm	Hg Conc ng/L	Hg Dep ng/m^2	Sample Type	Quality Rating	Notes
PA90	97/01/07	97/01/14	5.59	18.4	5.59	-9	-9	W	C	mzf
PA90	97/01/14	97/01/21	5.84	23.6	5.84	11.02	64.42	W	B	mz
PA90	97/01/21	97/01/28	16.76	107	16.76	7.05	118.3	W	B	mz
PA90	97/01/28	97/02/04	0.63	2.1	0.64	68.6	43.56	W	B	mzi
PA90	97/02/04	97/02/11	13.46	104.9	13.46	4.12	55.51	W	B	zh
PA90	97/02/11	97/02/18	14.48	-9	14.48	-9	-9	W	C	mz
PA90	97/02/19	97/02/26	1.14	3	1.14	42.11	48.13	W	B	mzi
PA90	97/02/26	97/03/04	22.86	189.8	22.86	14.83	339.15	W	B	mz
PA90	97/03/04	97/03/11	21.59	180.6	21.59	1.65	35.7	W	B	mz
PA90	97/03/11	97/03/18	14.22	43.8	14.22	7.61	108.35	W	B	mz
PA90	97/03/18	97/03/25	4.06	27.3	4.06	11.58	47.06	W	B	mz
PA90	97/03/25	97/04/01	19.05	192.6	19.05	4.02	76.71	W	B	m
PA90	97/04/01	97/04/08	1.02	0	1.02	-9	-9	W	C	mv
PA90	97/04/08	97/04/15	6.35	66.9	6.35	6.42	40.77	W	B	m
PA90	97/04/15	97/04/22	5.08	38.2	5.08	6.01	30.56	W	B	m
PA90	97/04/22	97/04/29	10.54	96.3	10.54	10.5	110.76	W	B	m
PA90	97/04/29	97/05/06	16	198.7	16	14.17	226.78	W	B	m
PA90	97/05/06	97/05/13	9.65	103	9.65	7.66	73.94	W	B	mh
PA90	97/05/13	97/05/20	22.1	272.8	22.1	13.58	300.09	W	B	mh
PA90	97/05/20	97/05/27	6.35	65.7	6.35	25.28	160.52	W	B	m
PA90	97/05/27	97/06/03	27.69	281.8	27.69	15.33	424.53	W	B	m
PA90	97/06/03	97/06/10	1.4	17.2	1.4	35.85	50.08	W	B	m
PA90	97/06/10	97/06/17	3.05	30.9	3.05	6.41	19.55	W	B	z
PA90	97/06/17	97/06/24	19.81	260.8	19.81	16.23	321.56	W	B	m
PA90	97/06/24	97/07/01	39.37	470.9	39.37	15.99	629.84	W	B	m
PA90	97/07/01	97/07/08	1.27	15.2	1.27	13.81	17.54	W	B	m
PA90	97/07/08	97/07/15	25.91	337.5	25.91	15.33	397.4	W	B	m
PA90	97/07/15	97/07/22	19.81	258.4	19.81	13.97	276.95	W	B	m
PA90	97/07/22	97/07/29	23.62	305.2	23.62	10.54	249.14	W	B	m
PA90	97/07/29	97/08/05	7.94	100.3	7.94	5.72	45.45	W	B	m
PA90	97/08/05	97/08/12	2.79	34.3	2.79	28.95	80.9	W	B	m
PA90	97/08/12	97/08/19	48.13	541.9	48.13	11.68	562.57	W	B	m
PA90	97/08/19	97/08/26	-9	223.5	18.65	11.79	220	W	B	mh
PA90	97/08/26	97/09/02	-9	315.6	26.34	11.87	312.77	W	B	m
PA90	97/09/02	97/09/09	-9	51.8	4.32	15.93	68.87	W	B	m
PA90	97/09/09	97/09/16	-9	237.7	19.84	5.41	107.5	W	B	m
PA90	97/09/16	97/09/23	-9	148.6	12.4	10.95	135.85	W	B	m
PA90	97/09/23	97/09/30	38.1	465.2	38.1	5.09	194.04	W	B	m
PA90	97/09/30	97/10/07	8.38	80.2	8.38	18.25	153.01	W	B	m
PA90	97/10/07	97/10/14	0	0.4	0	-9	0	D	B	m
PA90	97/10/14	97/10/21	0	0	0	-9	0	D	B	m
PA90	97/10/21	97/10/28	20.83	190.3	20.83	3.5	72.98	W	B	mh
PA90	97/10/28	97/11/04	55.12	683.3	55.12	2.23	123.35	W	B	m
PA90	97/11/04	97/11/10	36.58	383	36.58	5.43	198.9	W	B	m
PA90	97/11/10	97/11/18	28.7	278.7	28.7	3.4	97.7	W	B	m
PA90	97/11/18	97/11/25	5.72	63.1	5.72	6.82	38.98	W	B	m
PA90	97/11/25	97/12/03	10.41	98.2	10.41	3.89	40.58	W	B	m
PA90	97/12/03	97/12/09	4.95	40.8	4.95	9.72	48.16	W	B	m

PA90	97/12/09	97/12/16	20.32	190	20.32	8.37	170.09	W	B	mh
PA90	97/12/16	97/12/22	0.51	5.8	0.51	28.91	14.68	W	B	mi
PA90	97/12/22	97/12/29	11.05	99.9	11.05	6.12	67.7	W	B	m
PA90	97/12/29	98/01/06	33.78	269.8	33.78	3.6	121.91	W	B	mh
PA90	98/01/06	98/01/13	35.81	375.8	35.81	7.01	251.19	W	B	m
PA90	98/01/13	98/01/20	15.62	136.1	15.62	1.74	27.32	W	B	m
PA90	98/01/20	98/01/27	13.46	44.5	13.46	4.74	63.89	W	B	m
PA90	98/01/27	98/02/03	1.52	3	1.52	11.14	16.97	W	B	mhi
PA90	98/02/03	98/02/10	3.3	13.1	3.3	11.84	39.1	W	B	mh
PA90	98/02/10	98/02/17	10.16	118.1	10.16	4.99	50.71	W	B	m
PA90	98/02/17	98/02/24	51.05	536.6	51.05	4.89	249.85	W	B	m
PA90	98/02/24	98/03/03	19.05	219.4	19.05	3.05	58.27	W	B	m
PA90	98/03/03	98/03/10	22.61	206.3	22.61	3.41	77.17	W	B	m
PA90	98/03/10	98/03/17	3.3	25.9	3.3	9.63	31.8	W	B	m
PA90	98/03/17	98/03/24	34.29	298.7	34.29	6.36	218.22	W	B	mh
PA90	98/03/24	98/03/31	1.02	8.7	1.02	25.08	25.48	W	B	mi
PA90	98/03/31	98/04/07	12.19	163.1	12.19	6.01	73.32	W	B	dm
PA90	98/04/07	98/04/14	42.16	539.1	42.16	4.38	185.05	W	B	dm
PA90	98/04/14	98/04/21	46.48	26.4	46.48	7.19	334.2	W	C	mvf
PA90	98/04/21	98/04/28	18.54	227.8	18.54	4.8	89.11	W	B	m
PA90	98/04/28	98/05/05	14.73	168.5	14.73	10.3	151.73	W	B	dm
PA90	98/05/05	98/05/12	67.06	786.3	67.06	5.53	370.81	W	B	dm
PA90	98/05/12	98/05/19	18.29	229.5	18.29	35.27	645.01	W	B	dm
PA90	98/05/19	98/05/26	4.57	56.3	4.57	11.18	51.11	W	B	m
PA90	98/05/26	98/06/01	16	177.8	16	25.69	411.23	W	B	dm
PA90	98/06/01	98/06/09	12.19	153.4	12.19	17.54	213.94	W	B	dm
PA90	98/06/09	98/06/16	36.83	441.6	36.83	9.04	332.94	W	B	m
PA90	98/06/16	98/06/23	3.81	55.3	3.81	14.04	53.52	W	B	mh
PA90	98/06/23	98/06/30	42.67	554.6	42.67	15.34	654.63	W	B	dmh
PA90	98/06/30	98/07/07	16.51	208.7	16.51	13.33	220.17	W	B	dmh
PA90	98/07/07	98/07/14	13.97	183.2	13.97	21.93	306.41	W	B	mh
PA90	98/07/14	98/07/21	11.68	168.7	11.68	11.1	129.78	W	B	m
PA90	98/07/21	98/07/28	26.67	330.1	26.67	4.72	126.09	W	B	mh
PA90	98/07/28	98/08/04	1.02	12.4	1.02	18.83	19.13	W	B	m
PA90	98/08/04	98/08/11	7.62	91.5	7.62	19.66	149.83	W	B	dm
PA90	98/08/11	98/08/18	2.29	36.8	2.29	23.68	54.14	W	B	dm
PA90	98/08/18	98/08/25	4.45	60.3	4.45	28.94	128.63	W	B	m
PA90	98/08/25	98/09/01	8.89	88.8	8.89	31.39	279.11	W	B	dm
PA90	98/09/01	98/09/08	17.53	202.3	17.53	9.39	164.63	W	B	dm
PA90	98/09/08	98/09/15	3.94	56.4	3.94	4.37	17.2	W	B	m
PA90	98/09/15	98/09/22	3.3	46.8	3.3	15.56	51.38	W	B	mh
PA90	98/09/22	98/09/29	9.91	129.8	9.91	15.95	158.05	W	B	m
PA90	98/09/29	98/10/06	4.32	52.3	4.32	8.27	35.74	W	B	m
PA90	98/10/06	98/10/13	67.06	849.3	67.06	6.38	428.01	W	B	dm
PA90	98/10/13	98/10/20	1.78	26.4	1.78	40.36	71.76	W	B	dmzh
PA90	98/10/20	98/10/27	3.81	43.3	3.81	5.1	19.43	W	B	m
PA90	98/10/27	98/11/03	2.41	26.2	2.41	0.78	1.88	W	B	m
PA90	98/11/03	98/11/10	1.27	18	1.27	13.32	16.92	W	B	m
PA90	98/11/10	98/11/17	10.03	103.1	10.03	7.02	70.5	W	B	m
PA90	98/11/17	98/11/24	5.72	62.9	5.72	3.69	21.13	W	B	mh
PA90	98/11/24	98/12/02	5.46	56.5	5.46	5.21	28.5	W	B	dm
PA90	98/12/02	98/12/08	1.78	9.5	1.78	13.24	23.55	W	B	i
PA90	98/12/08	98/12/17	2.03	15.4	2.03	3.93	8	W	B	em
PA90	98/12/17	98/12/22	22.03	217.9	22.03	4.16	91.68	W	B	m
PA90	98/12/22	98/12/29	0	0.1	0	-9	0	D	B	m
PA90	98/12/29	99/01/05	22.35	160.7	22.35	1.81	40.59	W	B	mh
PA90	99/01/05	99/01/12	12.95	7.7	12.95	7.68	99.6	W	C	mzvf

PA90	99/01/12	99/01/19	54.1	266.5	54.1	3.72	201.74	W	B	m
PA90	99/01/19	99/01/26	24.38	185.8	24.38	5.3	129.4	W	B	m
PA90	99/01/26	99/02/02	5.46	57	5.46	4.59	25.1	W	B	m
PA90	99/02/02	99/02/09	8.89	0	8.89	-9	-9	W	C	mzvf
PA90	99/02/09	99/02/16	3.68	25.4	3.68	8.35	30.76	W	B	m
PA90	99/02/16	99/02/23	1.78	22.5	1.78	671.49	1193.91	W	B	mh
PA90	99/02/23	99/03/02	5.33	46.7	5.33	6.68	35.67	W	B	dmh
PA90	99/03/02	99/03/09	67.31	723.2	67.31	4.71	317.56	W	B	dmh
PA90	99/03/09	99/03/16	1.78	0	1.78	-9	-9	W	C	mhvf
PA90	99/03/16	99/03/23	15.24	135.5	15.24	2.37	36.14	W	B	dmh
PA90	99/03/23	99/03/30	0	0	0	-9	0	D	B	dm
PA90	99/03/30	99/04/06	13.97	165.6	13.97	5.98	83.62	W	B	dm
PA90	99/04/06	99/04/13	28.45	327.1	28.45	9.27	263.88	W	B	dm
PA90	99/04/13	99/04/20	12.34	142.6	12.34	7.58	93.57	W	B	m
PA90	99/04/20	99/04/27	18.92	228.1	18.92	9.01	170.6	W	B	dmh
PA90	99/04/27	99/05/04	0	0	0	-9	0	D	B	dm
PA90	99/05/04	99/05/11	10.44	115.2	10.44	10.79	112.68	W	B	dm
PA90	99/05/11	99/05/18	0	0	0	-9	0	D	B	m
PA90	99/05/18	99/05/25	15.04	170.5	15.04	20.64	310.42	W	B	dm
PA90	99/05/25	99/06/01	0	0	0	-9	0	D	B	dmh
PA90	99/06/01	99/06/08	5.08	58.2	5.08	7.71	39.19	W	B	dm
PA90	99/06/08	99/06/15	2.44	36.1	2.44	8.82	21.5	W	B	dmh
PA90	99/06/15	99/06/21	11.81	134	11.81	10.67	126.12	W	B	dm
PA90	99/06/21	99/06/29	62.48	732	62.48	7.24	452.82	W	B	dm
PA90	99/06/29	99/07/06	18.1	215.1	18.1	6.09	110.3	W	B	dmh
PA90	99/07/06	99/07/13	15.88	185.3	15.88	27.76	440.69	W	B	dmh
PA90	99/07/13	99/07/20	3.49	42.8	3.49	5.95	20.8	W	B	m
PA90	99/07/20	99/07/27	13.14	162.4	13.14	6.99	91.94	W	B	dm
PA90	99/07/27	99/08/03	9.14	99.2	9.14	30.41	278.12	W	B	dm
PA90	99/08/03	99/08/10	1.27	9.1	1.27	44.01	55.9	W	B	dmi
PA90	99/08/10	99/08/17	23.94	171.5	23.94	10.08	241.4	W	B	dm
PA90	99/08/17	99/08/24	14.16	139.6	14.16	11.87	168.13	W	B	dmh
PA90	99/08/24	99/08/31	17.15	213.4	17.15	4.28	73.51	W	B	m
PA90	99/08/31	99/09/07	53.97	608.3	53.98	3.84	207.47	W	B	dm
PA90	99/09/07	99/09/14	2.79	35	2.79	20.04	56	W	B	dmh
PA90	99/09/14	99/09/21	57.59	669.2	57.59	5.18	298.33	W	B	dm
PA90	99/09/21	99/09/28	0	0	0	-9	0	D	B	dm
PA90	99/09/28	99/10/05	40.2	513.5	40.2	4.22	169.62	W	B	m
PA90	99/10/05	99/10/12	4.13	43.4	4.13	8.86	36.56	W	B	m
PA90	99/10/12	99/10/19	9.52	114.1	9.53	8.44	80.44	W	B	dmh
PA90	99/10/19	99/10/26	4.19	36.1	4.19	14.51	60.84	W	B	dmh
PA90	99/10/26	99/11/02	0	0	0	-9	0	D	B	m
PA90	99/11/02	99/11/09	9.52	101.6	9.53	5.64	53.75	W	B	dmh
PA90	99/11/09	99/11/16	1.27	9.6	1.27	35.54	45.14	W	B	mi
PA90	99/11/16	99/11/23	1.27	14.4	1.27	8.88	11.28	W	B	dm
PA90	99/11/23	99/11/30	57.15	640.3	57.15	4.96	283.69	W	B	dmh
PA90	99/11/30	99/12/07	3.49	38.2	3.49	5.1	17.81	W	B	dmh
PA90	99/12/07	99/12/15	30.23	341.3	30.23	5.13	155.18	W	B	dmzh
PA90	99/12/15	99/12/21	4.19	46.1	4.19	1.7	7.16	W	B	dm
PA90	99/12/21	99/12/28	0.51	0	0.51	-9	-9	W	C	dmv
PA90	99/12/28	00/01/04	11.68	107.5	11.68	12.34	144.21	W	B	dm
PA90	00/01/04	00/01/11	10.67	119.1	10.67	3.05	32.61	W	B	dm
PA90	00/01/11	00/01/18	10.29	0.5	10.29	-9	-9	W	C	dmvf
PA90	00/01/18	00/01/25	-9	0	0	-9	0	D	C	mhf
PA90	00/01/25	00/02/01	8.06	0	8.06	-9	-9	W	C	mhvf
PA90	00/02/01	00/02/08	1.78	0	1.78	-9	-9	W	C	mvf
PA90	00/02/08	00/02/15	24.13	0	24.13	-9	-9	W	C	mvf

PA90	00/02/15	00/02/22	26.16	0	26.16	-9	-9	W	C	mvf
PA90	00/02/22	00/02/29	14.16	172	14.16	1.82	25.88	W	B	d
PA90	00/02/29	00/03/07	2.86	20.8	2.86	6.66	19.04	W	B	dm
PA90	00/03/07	00/03/14	18.16	64	18.16	19.55	355.12	W	B	dmh
PA90	00/03/14	00/03/21	20.19	206.3	20.19	3.63	73.42	W	B	dmh
PA90	00/03/21	00/03/28	21.59	199.7	21.59	11.12	240.23	W	B	mh
PA90	00/03/28	00/04/04	44.45	523.2	44.45	3.01	133.79	W	B	m
PA90	00/04/04	00/04/11	27.18	265.4	27.18	9.86	268.19	W	B	dmh
PA90	00/04/11	00/04/18	17.15	133.3	17.15	5.21	89.44	W	B	dm
PA90	00/04/18	00/04/25	36.07	292	36.07	4.15	149.97	W	B	dm
PA90	00/04/25	00/05/02	5.97	64.6	5.97	16.45	98.2	W	B	mzh
PA90	00/05/02	00/05/09	2.03	0	2.03	-9	-9	W	C	dmv
PA90	00/05/09	00/05/16	7.37	79.8	7.37	4.24	31.27	W	B	dmh
PA90	00/05/16	00/05/23	58.93	549.8	58.93	7.35	433.17	W	B	mh
PA90	00/05/23	00/05/30	26.67	320.3	26.67	4.42	118.04	W	B	m
PA90	00/05/30	00/06/06	21.27	0	21.27	-9	-9	W	C	mvf
PA90	00/06/06	00/06/13	19.11	37.3	19.11	7.65	146.29	W	C	mzf
PA90	00/06/13	00/06/20	47.88	595.6	47.88	9.41	450.97	W	B	dm
PA90	00/06/20	00/06/27	19.68	123.3	19.69	17.94	353.2	W	B	dmh
PA90	00/06/27	00/07/03	3.11	46.2	3.11	17.61	54.81	W	B	m
PA90	00/07/03	00/07/11	10.6	131.6	10.6	38.91	412.6	W	B	m
PA90	00/07/11	00/07/18	12.57	145.3	12.57	16.71	210.12	W	B	dmh
PA90	00/07/18	00/07/25	3.17	24	3.18	23.16	73.55	W	B	dm
PA90	00/07/25	00/08/01	16.95	190.3	16.96	23.51	398.62	W	B	m
PA90	00/08/01	00/08/08	34.16	197.4	34.16	9.85	336.6	W	B	dm
PA90	00/08/08	00/08/15	4.38	65.1	4.38	12.55	55.01	W	B	m
PA90	00/08/15	00/08/22	0	0	0	-9	0	D	B	m
PA90	00/08/22	00/08/29	8.83	102.6	8.83	8.47	74.76	W	B	mh
PA90	00/08/29	00/09/05	10.29	115.3	10.29	29.01	298.46	W	B	mz
PA90	00/09/05	00/09/12	4.83	116	4.83	7.7	37.18	W	B	mh
PA90	00/09/12	00/09/19	16.83	264.9	16.83	10.28	173.14	W	B	dm
PA90	00/09/19	00/09/26	-9	146.3	12.21	9.8	119.77	W	B	m
PA90	00/09/26	00/10/03	-9	30.8	2.57	2.95	7.58	W	B	m
PA90	00/10/03	00/10/10	34.67	413.2	34.67	13.9	482.1	W	B	dm
PA90	00/10/10	00/10/17	0	0	0	-9	0	D	B	m
PA90	00/10/17	00/10/24	22.86	235.6	22.86	2.93	67.11	W	B	dmh
PA90	00/10/24	00/10/31	1.78	18.4	1.78	20.1	35.74	W	B	mh
PA90	00/10/31	00/11/07	1.46	10.7	1.46	28.89	42.21	W	B	m
PA90	00/11/07	00/11/14	14.54	138.3	14.54	4.15	60.46	W	B	m
PA90	00/11/14	00/11/21	0.25	0	0.25	-9	-9	W	C	mhv
PA90	00/11/21	00/11/28	11.18	61.8	11.18	2.94	32.86	W	B	dmh
PA90	00/11/28	00/12/05	2.16	0	2.16	-9	-9	W	C	mhvf
PA90	00/12/05	00/12/12	10.99	5.3	10.99	5.69	62.52	W	C	mzhvf
PA90	00/12/12	00/12/19	23.43	231.9	23.43	9.52	223.28	W	B	dmh
PA90	00/12/19	00/12/26	3.17	0	3.18	-9	-9	W	C	mhvf
PA90	00/12/26	01/01/02	0.51	0	0.51	-9	-9	W	C	mhv
PA90	01/01/02	01/01/09	1.14	0	1.14	-9	-9	W	C	mhv
PA90	01/01/09	01/01/16	1.27	0	1.27	-9	-9	W	C	mv
PA90	01/01/16	01/01/23	9.52	63.1	9.53	3.48	33.18	W	B	dmh
PA90	01/01/23	01/01/30	1.52	8.2	1.52	21.14	32.22	W	B	dmi
PA90	01/01/30	01/02/06	6.86	89.6	6.86	3.09	21.21	W	C	dmhf
PA90	01/02/06	01/02/13	3.43	0	3.43	-9	-9	W	C	mvf
PA90	01/02/13	01/02/20	11.43	100.7	11.43	3.04	34.8	W	B	dmh
PA90	01/02/20	01/02/27	4.06	0	4.06	-9	-9	W	C	mzhvf
PA90	01/02/27	01/03/06	29.97	268.7	29.97	2.27	68.03	W	B	dm
PA90	01/03/06	01/03/13	20.04	187.2	20.04	6.63	132.87	W	B	dmh
PA90	01/03/13	01/03/20	14.86	106.6	14.86	4.75	70.71	W	B	m

PA90	01/03/20	01/03/27	25.02	293.1	25.02	1.42	35.7	W	B	dmh
PA90	01/03/27	01/04/03	24.51	0.7	24.51	-9	-9	W	C	dmvf
PA90	01/04/03	01/04/10	18.92	251.2	18.92	23.92	452.63	W	B	dm
PA90	01/04/10	01/04/17	12.64	134.5	12.64	5.85	73.95	W	B	dm
PA90	01/04/17	01/04/24	20.13	168.2	20.13	6.92	139.44	W	C	dmhuf
PA90	01/04/24	01/05/01	0.38	0	0.38	-9	-9	W	C	mhv
PA90	01/05/01	01/05/08	0.51	0	0.51	-9	-9	W	C	mhv
PA90	01/05/08	01/05/15	5.72	0	5.72	-9	-9	W	C	mhvf
PA90	01/05/15	01/05/22	14.8	163.3	14.8	7.38	109.26	W	B	dmh
PA90	01/05/22	01/05/29	28.45	340.6	28.45	6.24	177.62	W	B	mh
PA90	01/05/29	01/06/05	8.76	30.3	8.76	6.78	59.46	W	C	mhf
PA90	01/06/05	01/06/12	3.05	5.9	3.05	25.95	79.09	W	C	mhif
PA90	01/06/12	01/06/19	21.34	0	21.34	-9	-9	W	C	mvf
PA90	01/06/19	01/06/26	59.82	531.3	59.82	7.93	474.64	W	B	dmh
PA90	01/06/26	01/07/03	21.34	258.6	21.34	6.17	131.64	W	B	dmh
PA90	01/07/03	01/07/10	16.64	162.9	16.64	8.81	146.6	W	B	dmzh
PA90	01/07/10	01/07/17	1.27	15.5	1.27	21.25	26.99	W	B	mh
PA90	01/07/17	01/07/24	0.51	5.9	0.51	56.42	28.66	W	B	dmi
PA90	01/07/24	01/07/31	17.53	210.4	17.53	11.93	209.15	W	B	dm
PA90	01/07/31	01/08/07	1.52	0	1.52	-9	-9	W	C	mhvf
PA90	01/08/07	01/08/14	8.13	105	8.13	9.28	75.43	W	B	dmzh
PA90	01/08/14	01/08/21	46.55	588.4	46.55	7.4	344.43	W	B	dmh
PA90	01/08/21	01/08/28	16.51	182	16.51	4.11	67.98	W	B	dmh
PA90	01/08/28	01/09/04	15.37	190.7	15.37	9.82	151.02	W	B	dmh
PA90	01/09/04	01/09/11	13.46	110.6	13.46	6.61	88.99	W	C	dmzhf
PA90	01/09/11	01/09/18	30.48	373.1	30.48	6.41	195.37	W	B	dm
PA90	01/09/18	01/09/25	74.78	901.1	74.78	3.48	260.52	W	B	dmh
PA90	01/09/25	01/10/02	9.91	99	9.91	5.79	57.41	W	B	dmh
PA90	01/10/02	01/10/09	4.32	26.2	4.32	7.13	30.8	W	B	mh
PA90	01/10/09	01/10/16	15.56	172.1	15.56	6.64	103.41	W	B	dmz
PA90	01/10/16	01/10/23	12.78	136.8	12.78	6.37	81.48	W	B	dm
PA90	01/10/23	01/10/30	6.6	51.8	6.6	8.4	55.51	W	B	dmh
PA90	01/10/30	01/11/06	0.76	17.2	0.76	52.03	39.64	W	B	dm
PA90	01/11/06	01/11/14	0	0	0	-9	0	D	B	mh
PA90	01/11/14	01/11/20	4.57	54.7	4.57	5.51	25.19	W	B	dm
PA90	01/11/20	01/11/27	19.3	242.1	19.3	4.03	77.87	W	B	dm
PA90	01/11/27	01/12/04	17.53	208	17.53	7.03	123.26	W	B	dmzh
PA90	01/12/04	01/12/11	9.91	109.4	9.91	2.16	21.43	W	B	dmh
PA90	01/12/11	01/12/18	30.99	368.6	30.99	6.09	188.96	W	B	dm
PA90	01/12/18	01/12/24	2.54	33.4	2.54	7.17	18.22	W	C	dml
PA90	01/12/24	01/12/31	1.52	1.9	1.52	31.2	47.55	W	C	mifl
PA90	01/12/31	02/01/08	11.49	123.9	11.49	3.05	35.13	W	B	dmh
PA90	02/01/08	02/01/15	1.27	0	1.27	-9	-9	W	C	mhv
PA90	02/01/15	02/01/22	7.62	68.2	7.62	38.88	296.3	W	B	dmh
PA90	02/01/22	02/01/29	3.05	29.2	3.05	8.17	24.9	W	B	dmh
PA90	02/01/29	02/02/05	13.46	120.9	13.46	10.1	135.99	W	B	dmh
PA90	02/02/05	02/02/12	20.32	248.5	20.32	2.42	49.17	W	B	dm
PA90	02/02/12	02/02/19	0	0	0	-9	0	D	B	mh
PA90	02/02/19	02/02/26	3.17	36.2	3.18	10.63	33.76	W	B	dmz
PA90	02/02/26	02/03/05	9.14	108.6	9.14	4.08	37.35	W	B	mh
PA90	02/03/05	02/03/12	3.17	30.6	3.18	8.43	26.79	W	B	dmz
PA90	02/03/12	02/03/19	7.37	87.9	7.37	7.32	53.95	W	B	dm
PA90	02/03/19	02/03/26	14.48	160.9	14.48	5.99	86.81	W	B	dm
PA90	02/03/26	02/04/02	27.94	333.7	27.94	3.41	95.33	W	B	mh
PA90	02/04/02	02/04/09	0.25	4.7	0.25	19.14	4.86	W	B	mi
PA90	02/04/09	02/04/16	18.67	227.9	18.67	5.73	106.97	W	B	dm
PA90	02/04/16	02/04/23	5.08	58	5.08	13.16	66.87	W	B	mh

PA90	02/04/23	02/04/30	40.13	490.9	40.13	6.02	241.83	W	B	dmh
PA90	02/04/30	02/05/07	10.54	124.1	10.54	13.36	140.91	W	B	dmh
PA90	02/05/07	02/05/14	74.42	960.5	74.42	11.53	858.16	W	B	mh
PA90	02/05/14	02/05/21	26.67	342.2	26.67	3.32	88.75	W	B	dm
PA90	02/05/21	02/05/28	0.76	7	0.76	36.83	28.07	W	B	dmhi
PA90	02/05/28	02/06/04	20.32	234.3	20.32	13.86	281.63	W	B	dmh
PA90	02/06/04	02/06/11	72.39	916.7	72.39	11.69	846.45	W	B	dmh
PA90	02/06/11	02/06/18	42.42	519.7	42.42	5.1	216.33	W	B	dm
PA90	02/06/18	02/06/25	0.89	12.4	0.89	15.49	13.77	W	B	dmh
PA90	02/06/25	02/07/02	8	103.1	8	10.8	86.42	W	B	dm
PA90	02/07/02	02/07/09	0	0	0	-9	0	D	B	mh
PA90	02/07/09	02/07/16	11.43	142.5	11.43	7.25	82.92	W	B	mh
PA90	02/07/16	02/07/23	3.56	42.7	3.56	7.7	27.4	W	B	m
PA90	02/07/23	02/07/30	53.97	687.2	53.98	11.18	603.6	W	B	dm
PA90	02/07/30	02/08/06	10.16	128.1	10.16	13.05	132.59	W	B	mh
PA90	02/08/06	02/08/13	0	0	0	-9	0	D	B	dmh
PA90	02/08/13	02/08/20	3.05	38.8	3.05	18.65	56.86	W	B	mh
PA90	02/08/20	02/08/27	26.8	326.9	26.8	9.25	248	W	B	dmh
PA90	02/08/27	02/09/03	1.27	15.8	1.27	2.64	3.36	W	B	mh
PA90	02/09/03	02/09/10	0	0	0	-9	0	D	B	mz
PA90	02/09/10	02/09/17	-9	499.3	41.67	5.29	220.83	W	B	mzh
PA90	02/09/17	02/09/24	20.07	241.8	20.07	7.8	156.67	W	B	mh
PA90	02/09/24	02/10/01	44.2	535.2	44.2	4.2	186.02	W	B	h
PA90	02/10/01	02/10/08	4.95	57	4.95	8.35	41.37	W	B	h
PA90	02/10/08	02/10/15	7.87	87.3	7.87	4.1	32.29	W	A	
PA90	02/10/15	02/10/22	25.91	336.7	25.91	3.3	85.67	W	A	
PA90	02/10/22	02/10/29	12.95	148.7	12.95	0.59	7.69	W	B	h
PA90	02/10/29	02/11/05	4.95	42.8	4.95	4.48	22.21	W	B	z
PA90	02/11/05	02/11/12	8.26	107.2	8.26	5.51	45.51	W	B	dh
PA90	02/11/12	02/11/19	41.91	447.4	41.91	2.22	93.41	W	B	h
PA90	02/11/19	02/11/26	5.08	62.9	5.08	3.22	16.4	W	B	d
PA90	02/11/26	02/12/03	6.6	51.8	6.6	4.88	32.23	W	A	
PA90	02/12/03	02/12/10	7.11	69.4	7.11	2.62	18.66	W	A	
PA90	02/12/10	02/12/17	34.29	401.8	34.29	4.58	157.11	W	B	h
PA90	02/12/17	02/12/24	8.64	97.1	8.64	3.09	26.69	W	B	h
PA90	02/12/24	02/12/31	16.51	180.6	16.51	3.24	53.57	W	B	h
PA90	02/12/31	03/01/07	51.18	489.7	51.18	2.19	112.49	W	B	zh
PA90	03/01/07	03/01/14	0.76	4.7	0.76	27.27	20.78	W	B	zhi
PA90	03/01/14	03/01/21	0.64	0	0.64	-9	-9	W	C	dhv
PA90	03/01/21	03/01/28	3.56	12.1	3.56	20.23	71.95	W	B	zh
PA90	03/01/28	03/02/04	12.07	133.3	12.07	7.41	89.51	W	B	z
PA90	03/02/04	03/02/11	4.57	55.5	4.57	5.48	25.07	W	B	h
PA90	03/02/11	03/02/18	23.62	259.5	23.62	1.78	42.09	W	A	
PA90	03/02/18	03/02/25	14.73	160.7	14.73	2.15	31.73	W	A	
PA90	03/02/25	03/03/04	1.02	9.2	1.02	23.17	23.54	W	B	mhi
PA90	03/03/04	03/03/11	8.51	42	8.51	7.94	67.59	W	B	h
PA90	03/03/11	03/03/18	4.95	47.9	4.95	6.13	30.36	W	B	h
PA90	03/03/18	03/03/25	26.92	321.8	26.92	5.67	152.76	W	A	
PA90	03/03/25	03/04/01	21.59	142.2	21.59	7.93	171.33	W	B	d
PA90	03/04/01	03/04/08	39.24	451.2	39.24	9.55	374.81	W	A	
PA90	03/04/08	03/04/15	1.52	15.5	1.52	7.32	11.16	W	A	
PA90	03/04/15	03/04/22	4.95	58	4.95	14.99	74.27	W	B	z
PA90	03/04/22	03/04/29	3.56	41.7	3.56	7.53	26.79	W	B	h
PA90	03/04/29	03/05/06	4.83	71.5	4.83	16.66	80.44	W	A	
PA90	03/05/06	03/05/13	19.3	245.1	19.3	13.42	259.11	W	B	d
PA90	03/05/13	03/05/20	13.21	155.2	13.21	11.8	155.97	W	A	
PA90	03/05/20	03/05/27	29.21	380.9	29.21	5.83	170.52	W	B	dh

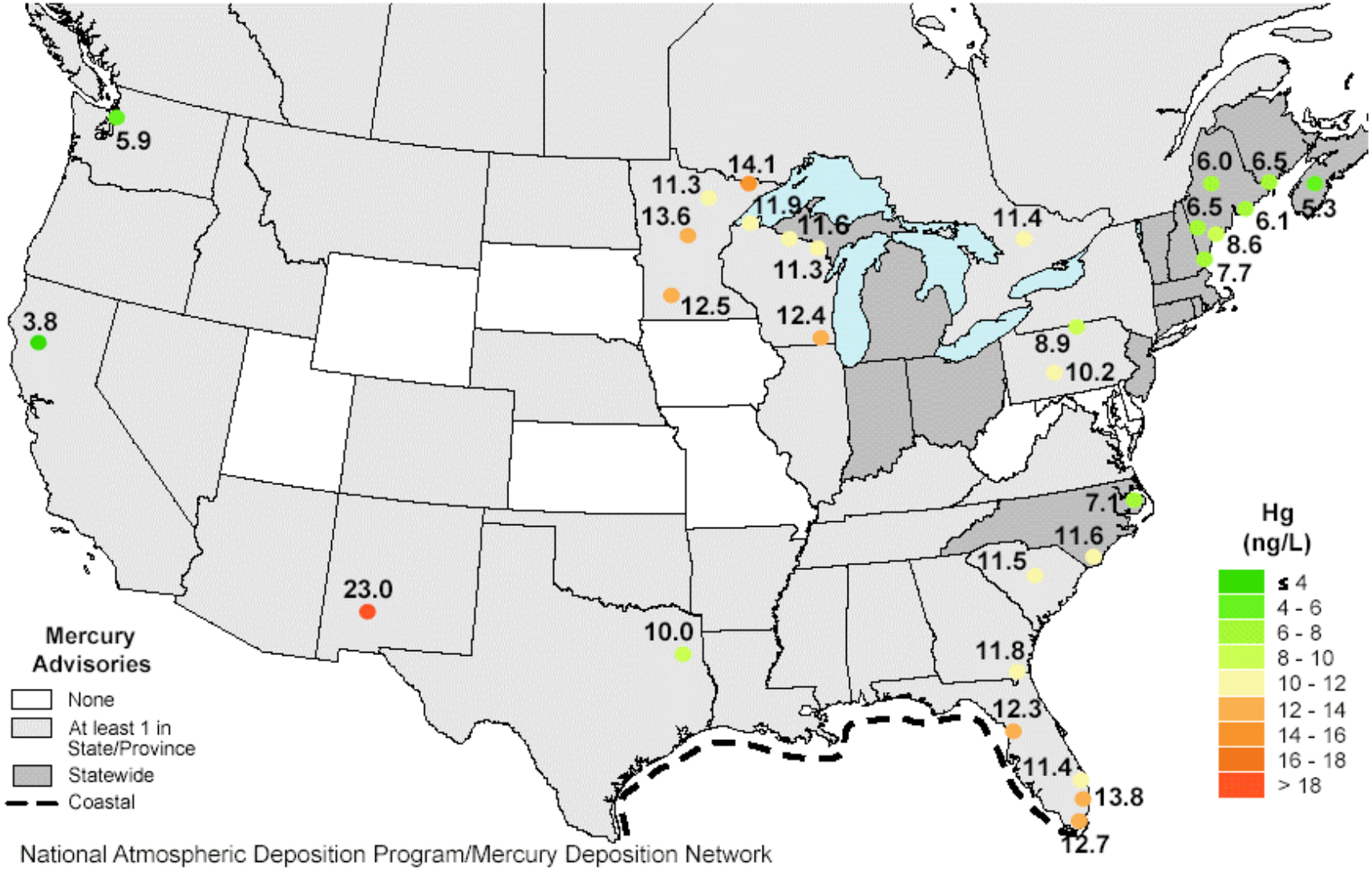
PA90	03/05/27	03/06/03	33.53	410	33.53	6.27	210.42	W	B	h
PA90	03/06/03	03/06/10	22.35	287.8	22.35	9.2	205.72	W	B	h
PA90	03/06/10	03/06/17	17.02	239.1	17.02	10.74	182.92	W	B	h
PA90	03/06/17	03/06/24	55.37	691.7	55.37	4.21	233.17	W	A	
PA90	03/06/24	03/07/01	0.25	0	0.25	-9	-9	W	C	hv
PA90	03/07/01	03/07/08	3.94	52.8	3.94	8.8	34.66	W	A	
PA90	03/07/08	03/07/15	18.8	236.9	18.8	8.1	152.26	W	A	
PA90	03/07/15	03/07/22	72.39	939.2	72.39	13.45	974.08	W	B	d
PA90	03/07/22	03/07/29	24.64	313.2	24.64	10.12	249.53	W	A	
PA90	03/07/29	03/08/05	36.83	458.7	36.83	10.4	383.03	W	A	
PA90	03/08/05	03/08/12	120.9	1537.8	120.9	9.36	1132.75	W	B	d
PA90	03/08/12	03/08/19	0.76	1.1	0.76	-9	-9	W	C	v
PA90	03/08/19	03/08/26	0	0	0	-9	0	D	A	
PA90	03/08/26	03/09/02	67.18	828.1	67.18	8.28	556.67	W	C	hu
PA90	03/09/02	03/09/09	14.22	195.4	14.22	8.81	125.39	W	B	z
PA90	03/09/09	03/09/16	17.02	214.8	17.02	8.39	142.79	W	B	zh
PA90	03/09/16	03/09/22	13.97	184.8	13.97	6.81	95.16	W	B	d
PA90	03/09/22	03/09/30	52.45	658.6	52.45	7.53	395.16	W	B	d
PA90	03/09/30	03/10/07	7.37	85	7.37	4.25	31.32	W	B	d
PA90	03/10/07	03/10/14	0	0	0	-9	0	D	A	
PA90	03/10/14	03/10/21	18.29	215	18.29	4.98	91.09	W	A	
PA90	03/10/21	03/10/28	38.1	450.2	38.1	3.12	119.1	W	B	h
PA90	03/10/28	03/11/04	9.14	114.9	9.14	1.46	13.43	W	B	h
PA90	03/11/04	03/11/10	8.64	110.2	8.64	1.63	14.1	W	A	
PA90	03/11/10	03/11/18	4.83	59.2	4.83	4.76	23.01	W	A	
PA90	03/11/18	03/11/25	48.51	663.7	48.51	6.22	301.8	W	A	
PA90	03/11/25	03/12/02	13.34	161.6	13.34	1.97	26.35	W	B	h
PA90	03/12/02	03/12/09	7.87	63.6	7.87	2.66	20.99	W	A	
PA90	03/12/09	03/12/16	53.34	548	53.34	2.39	127.64	W	A	
PA90	03/12/16	03/12/23	-9	81.2	6.78	2.7	18.34	W	B	m
PA90	03/12/23	03/12/30	21.59	268.1	21.59	2.57	55.5	W	B	m
PA90	03/12/30	04/01/06	32	392.8	32	6.09	194.96	W	A	
PA90	04/01/06	04/01/13	-9	34	2.84	5.16	14.64	W	B	m
PA90	04/01/13	04/01/20	9.4	68.5	9.4	7.99	75.09	W	A	
PA90	04/01/20	04/01/27	-9	127.7	10.66	3.34	35.67	W	B	mh
PA90	04/01/27	04/02/03	11.43	77	11.43	1.75	20.02	W	B	h
PA90	04/02/03	04/02/10	26.67	335.4	26.67	1.76	46.96	W	A	
PA90	04/02/10	04/02/17	-7	5.1	0.13	-9	-9	T	B	i
PA90	04/02/17	04/02/24	3.05	41.6	3.05	4.65	14.2	W	A	
PA90	04/02/24	04/03/02	-7	1.3	0.13	-9	-9	T	A	
PA90	04/03/02	04/03/09	-9	101.3	8.46	6.44	54.45	W	B	m
PA90	04/03/09	04/03/16	2.79	27.3	2.79	7.74	21.63	W	A	
PA90	04/03/16	04/03/23	27.18	309.1	27.18	3.93	107.02	W	A	
PA90	04/03/23	04/03/30	-9	77.1	6.44	13.29	85.56	W	B	m
PA90	04/03/30	04/04/06	-9	200.6	16.74	7.41	124.18	W	B	m
PA90	04/04/06	04/04/13	17.53	182.4	17.53	3.3	57.99	W	A	
PA90	04/04/13	04/04/20	28.83	357.8	28.83	3.68	106.14	W	A	
PA90	04/04/20	04/04/27	33.53	387.9	33.53	11.29	378.69	W	A	
PA90	04/04/27	04/05/04	-9	320.5	26.75	4.35	116.44	W	B	m
PA90	04/05/04	04/05/11	57.66	700.3	57.66	12.54	723.37	W	B	d
PA90	04/05/11	04/05/18	7.62	92.2	7.62	18.1	137.96	W	A	
PA90	04/05/18	04/05/25	17.65	231.1	17.65	11.62	205.14	W	A	
PA90	04/05/25	04/06/01	20.57	257.7	20.57	11.51	236.91	W	A	
PA90	04/06/01	04/06/08	23.62	298.5	23.62	10.28	243.04	W	B	d
PA90	04/06/08	04/06/15	2.79	37	2.79	16.67	46.58	W	A	
PA90	04/06/15	04/06/18	14.48	179.9	14.48	14.76	213.73	W	A	
PA90	04/06/18	04/06/22	-9	292.5	24.41	12.67	309.45	W	B	m

PA90	04/06/22	04/06/29	12.19	143	12.19	4	48.79	W	A	
PA90	04/06/29	04/07/06	17.02	190.5	17.02	6.46	110.07	W	A	
PA90	04/07/06	04/07/13	11.94	127.8	11.94	8.55	102.15	W	A	
PA90	04/07/13	04/07/20	39.37	458.1	39.37	12.61	496.77	W	A	
PA90	04/07/20	04/07/27	85.6	1070.1	85.6	5.04	431.41	W	A	
PA90	04/07/27	04/08/03	29.46	382.9	29.46	8.2	241.63	W	A	
PA90	04/08/03	04/08/10	11.43	105.4	11.43	20.49	234.22	W	B	d
PA90	04/08/10	04/08/17	37.34	480.7	37.34	7.66	286.19	W	B	d
PA90	04/08/17	04/08/24	-9	690.7	124.81	4.07	508.48	W	B	m
PA90	04/08/24	04/08/31	56.9	710.3	56.9	11.33	645.14	W	B	dh
PA90	04/08/31	04/09/07	0	0	0	-9	0	D	A	
PA90	04/09/07	04/09/14	95.25	1200.7	95.25	6.34	603.98	W	A	
PA90	04/09/14	04/09/21	111.25	1433.5	111.25	3.21	357.67	W	A	
PA90	04/09/21	04/09/28	5.33	53.2	5.33	17.85	95.24	W	A	
PA90	04/09/28	04/10/05	2.79	23.6	2.79	16.22	45.34	W	A	
PA90	04/10/05	04/10/12	-9	0	0	-9	0	D	B	m
PA90	04/10/12	04/10/19	35.31	423.1	35.31	6.51	229.91	W	A	
PA90	04/10/19	04/10/26	8.64	81	8.64	7.93	68.51	W	A	
PA90	04/10/26	04/11/02	2.03	20.8	2.03	22.37	45.47	W	A	
PA90	04/11/02	04/11/09	13.97	169.9	13.97	2.16	30.23	W	A	
PA90	04/11/09	04/11/16	6.86	51.5	6.86	4.67	32.02	W	A	
PA90	04/11/16	04/11/23	6.1	57.5	6.1	13.91	84.83	W	A	
PA90	04/11/23	04/11/30	35.05	417.9	35.05	2.11	74.06	W	A	
PA90	04/11/30	04/12/07	20.32	232.3	20.32	5.54	112.61	W	A	
PA90	04/12/07	04/12/14	30.73	351.1	30.73	2.8	86.17	W	A	
PA90	04/12/14	04/12/21	2.29	10	2.29	12.47	28.52	W	A	
PA90	04/12/21	04/12/28	12.95	165.9	12.95	3.86	50.05	W	A	

Appendix II

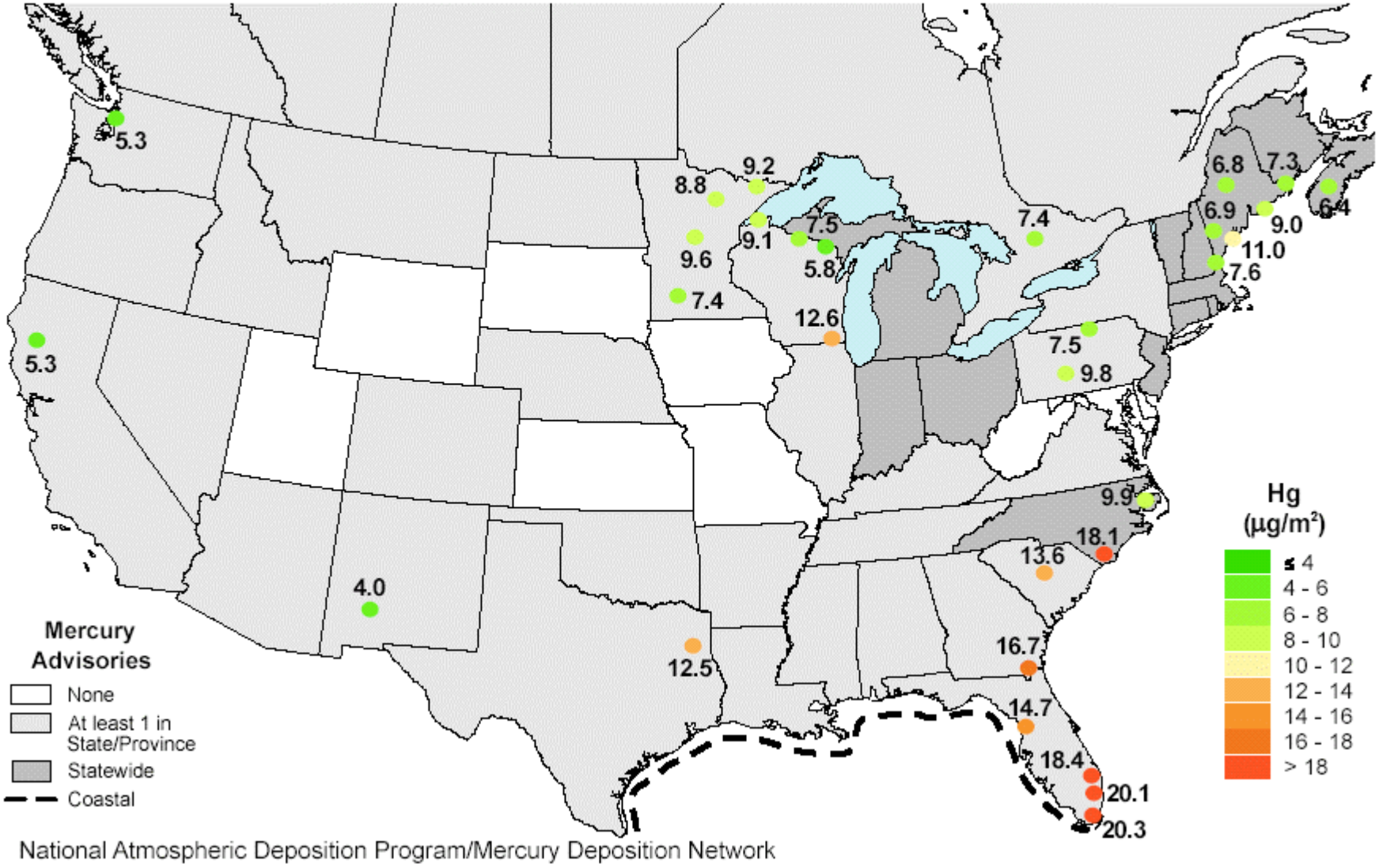
Mean Annual Volume-Weighted Mercury Concentrations and Wet Depositions at all NADP/MDN sites in the United States and Canada for Calendar Years 1998 through 2002

Total Mercury Concentration, 1998



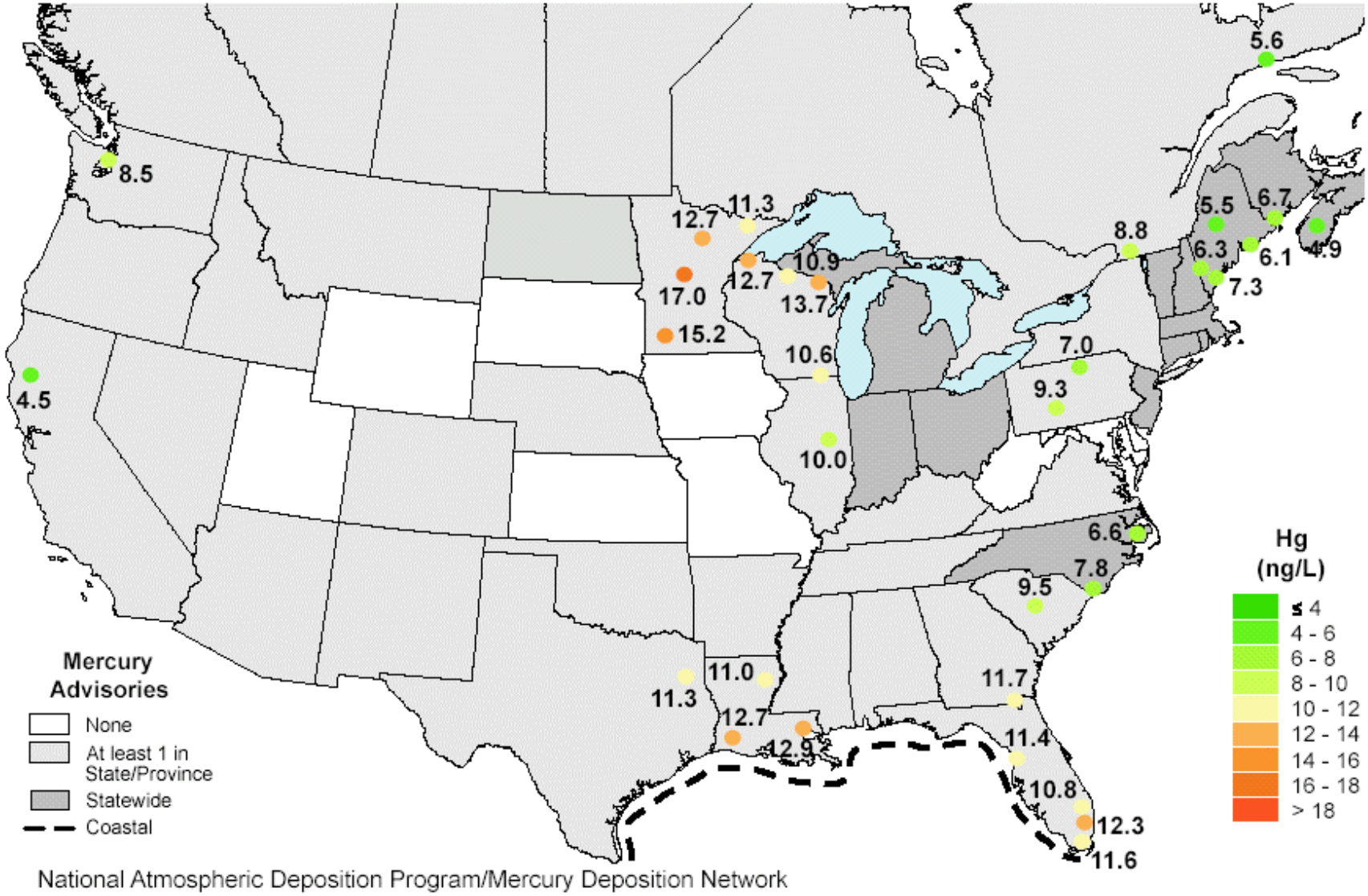
National Atmospheric Deposition Program/Mercury Deposition Network

Total Mercury Wet Deposition, 1998



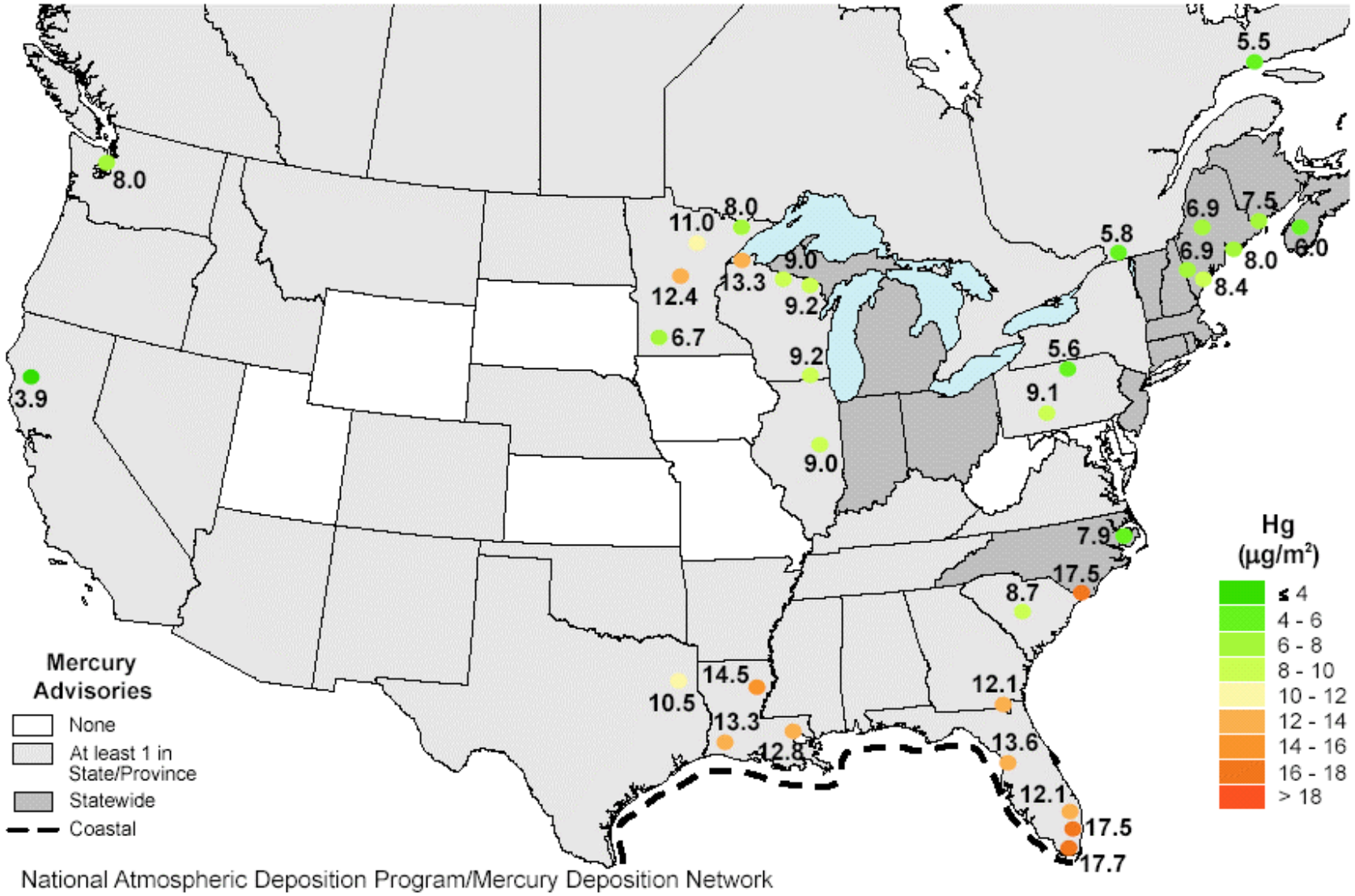
National Atmospheric Deposition Program/Mercury Deposition Network

Total Mercury Concentration, 1999



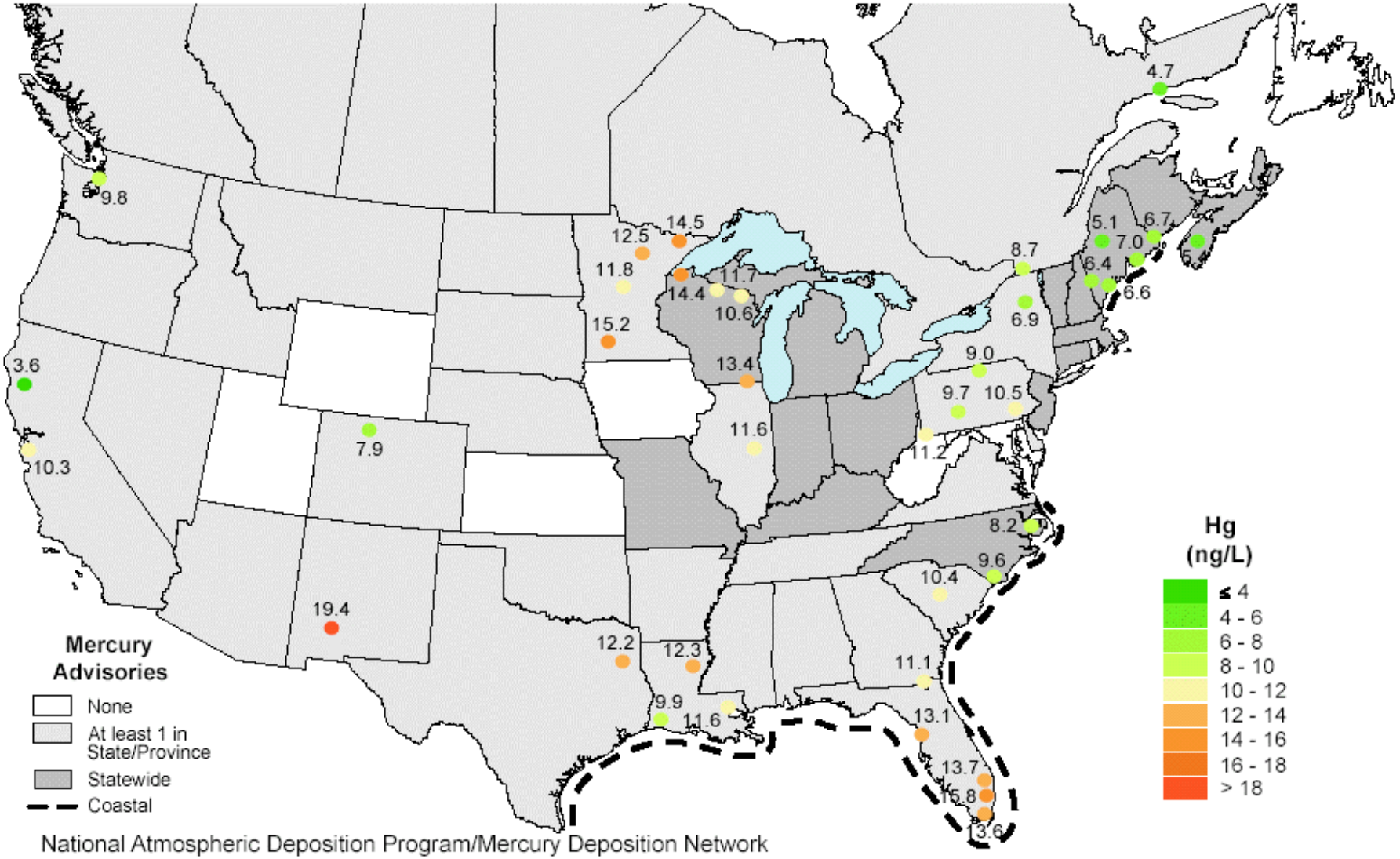
National Atmospheric Deposition Program/Mercury Deposition Network

Total Mercury Wet Deposition, 1999



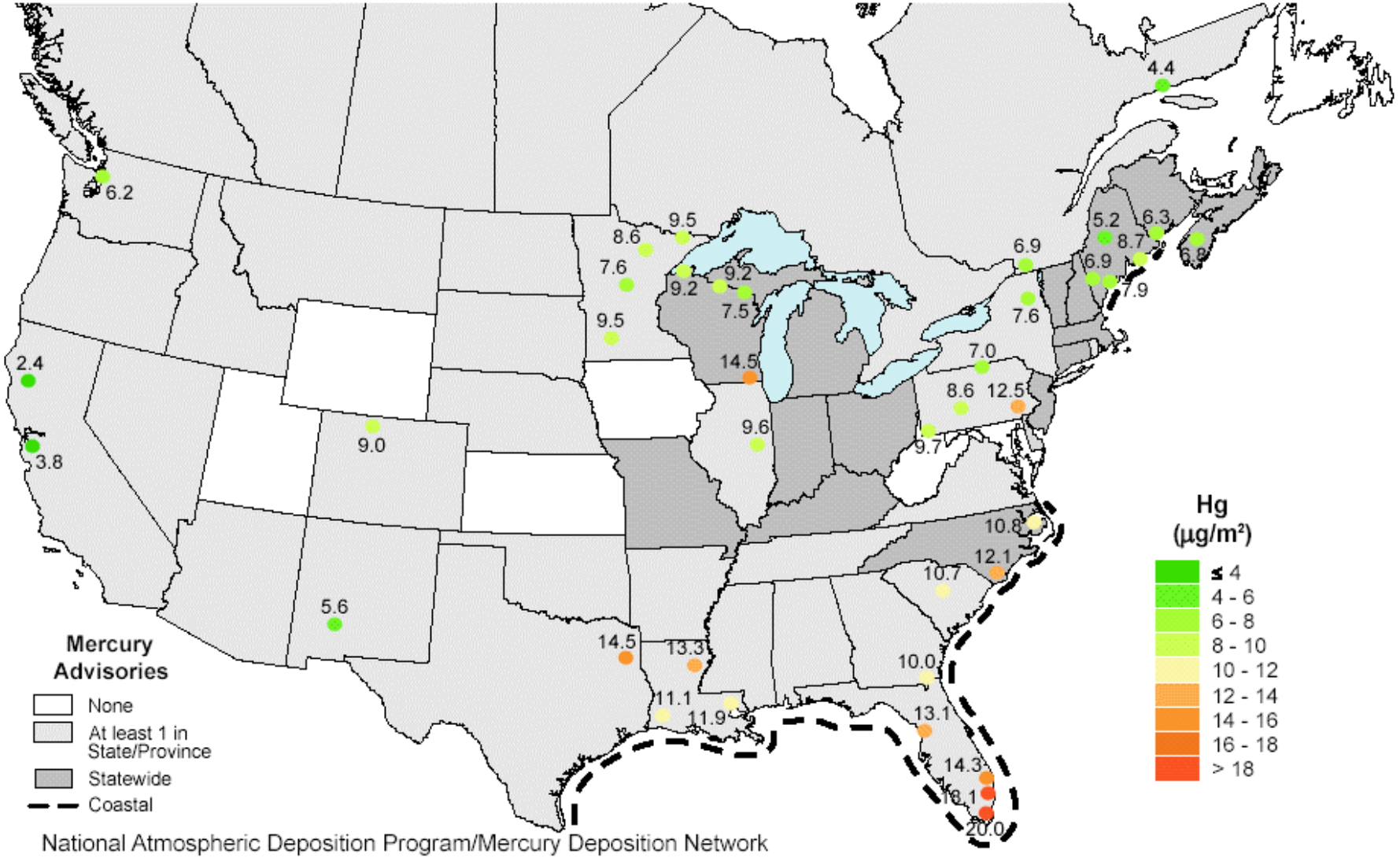
National Atmospheric Deposition Program/Mercury Deposition Network

Total Mercury Concentration, 2000

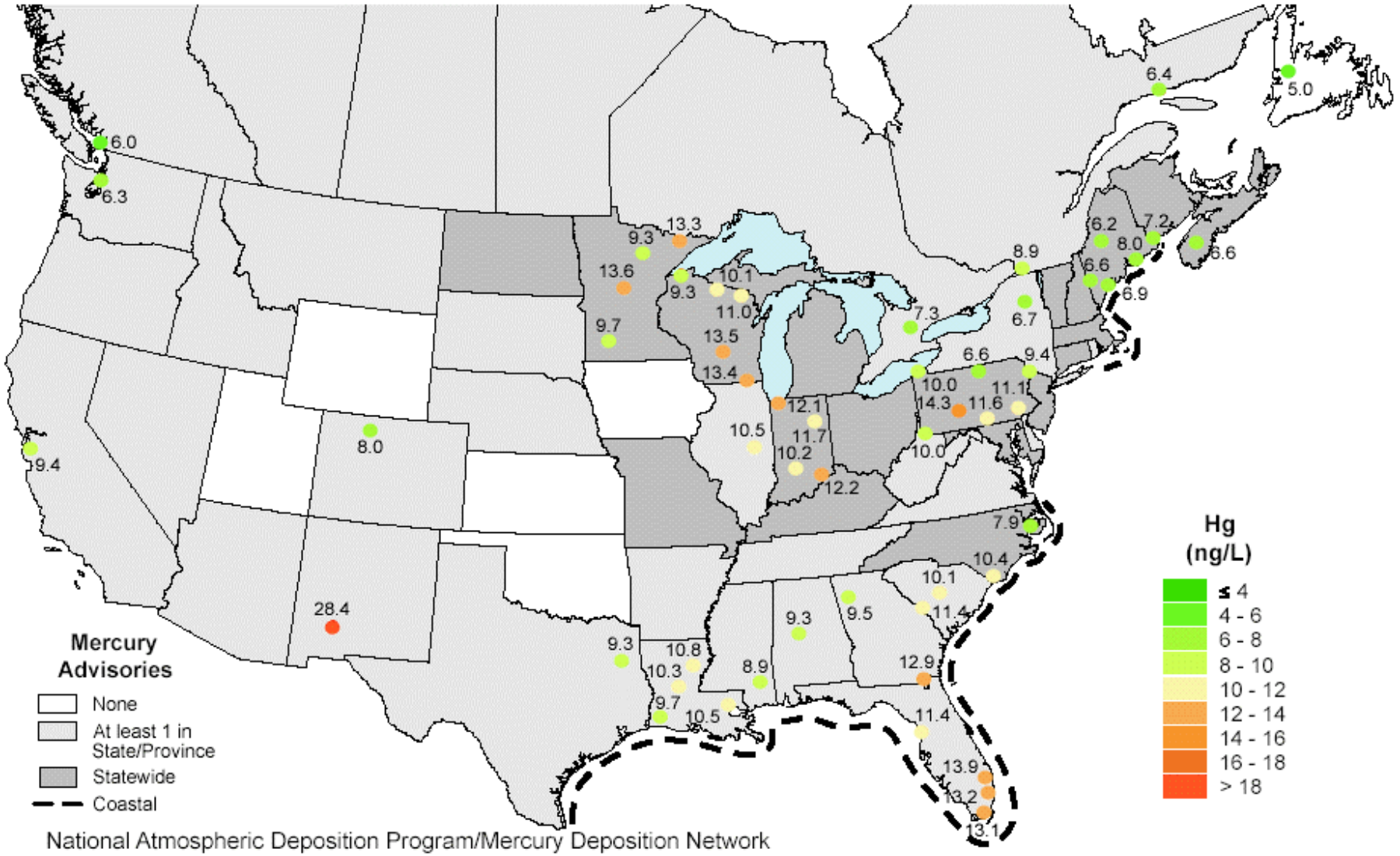


National Atmospheric Deposition Program/Mercury Deposition Network

Total Mercury Wet Deposition, 2000



Total Mercury Concentration, 2001



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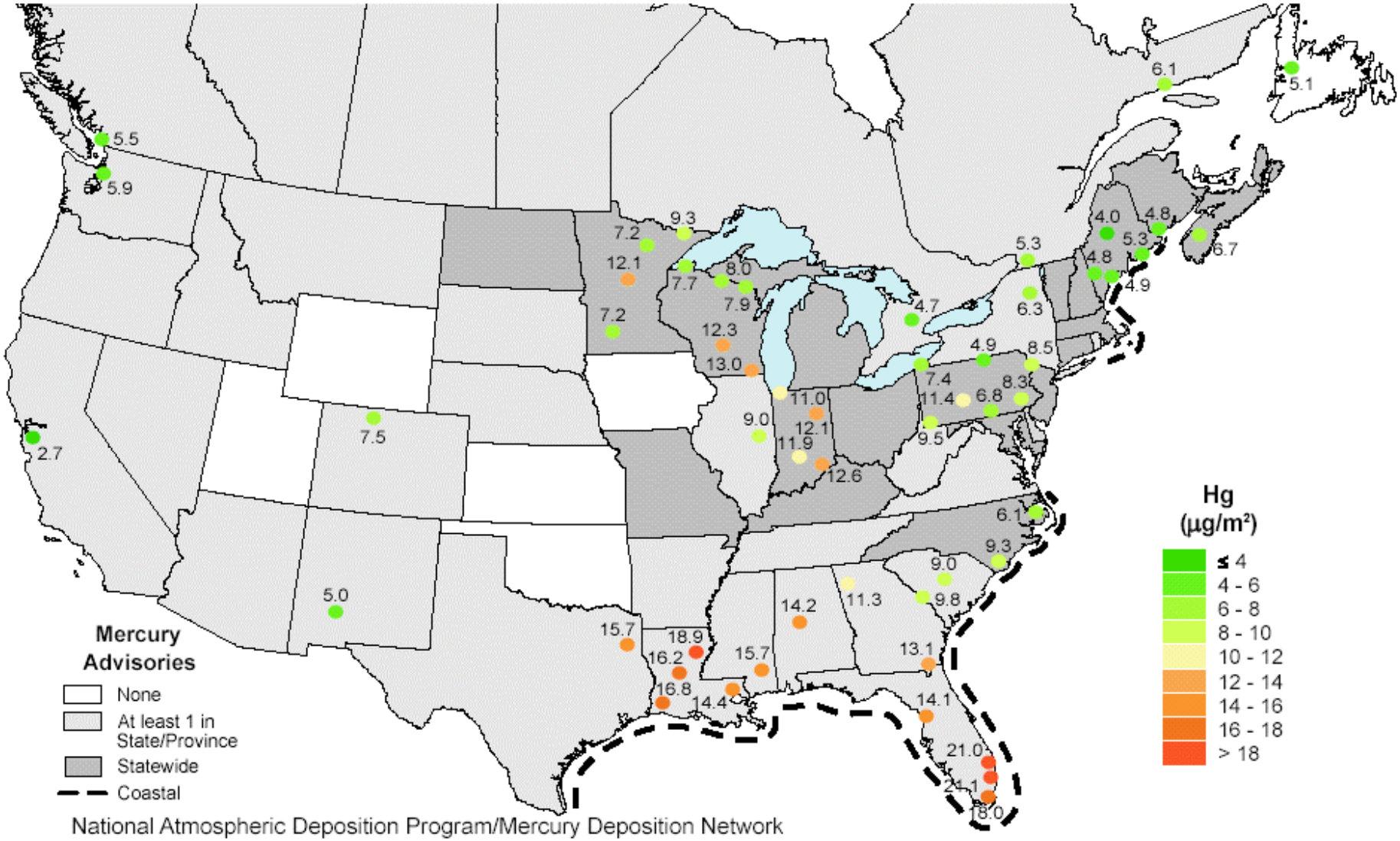

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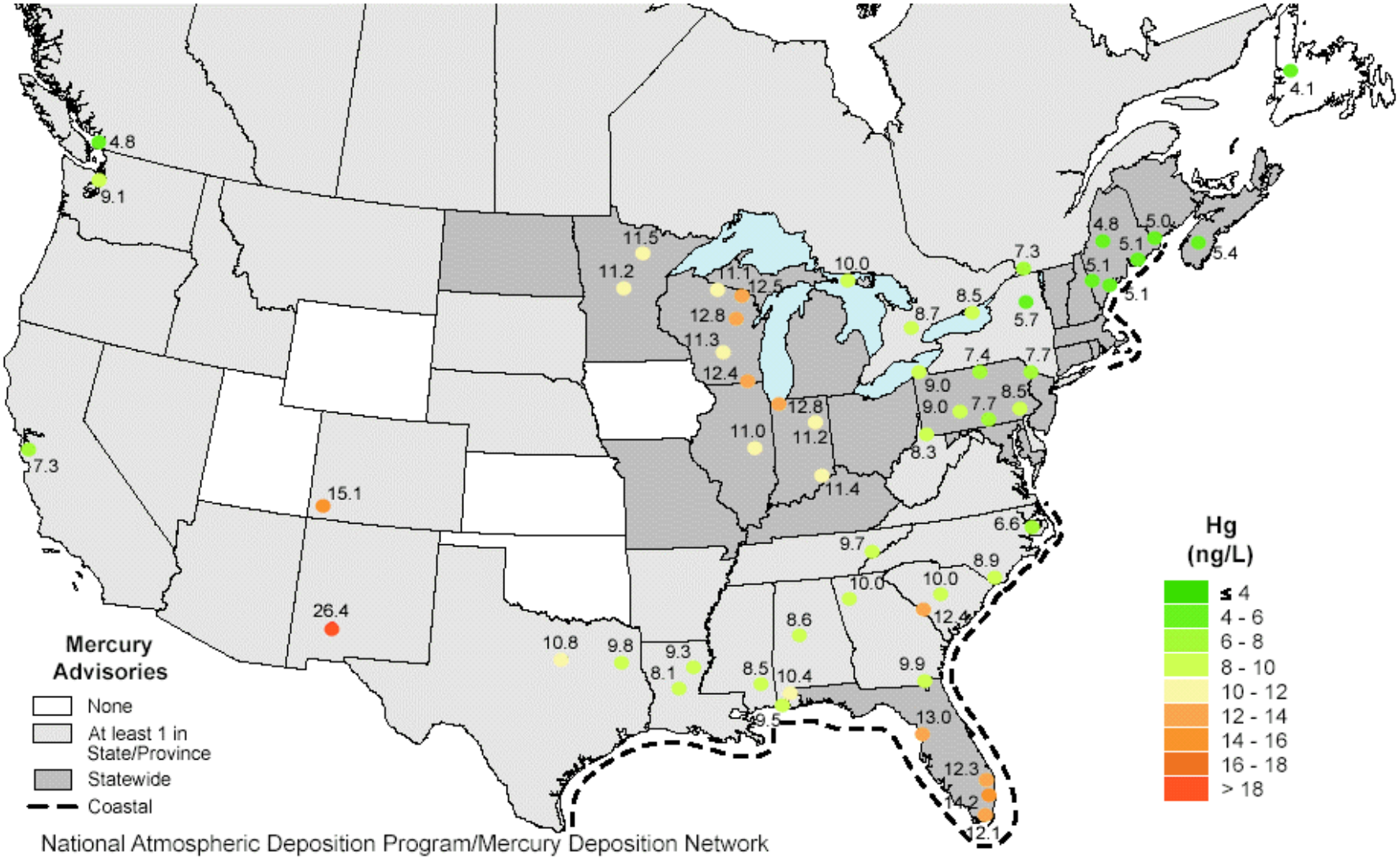

Total Mercury Wet Deposition, 2002