State of Illinois
Illinois Environmental Protection Agency

Air Quality Report 2013

Illinois Air Quality Flag Program

Cover: The Illinois Air Quality Flag Program, was first announced by Illinois EPA Director Lisa Bonnett and Illinois Partners for Clean Air in April 2013, and targeted schools in the Chicago region, where air pollution levels become more elevated. Participants in the program fly a color-coded flag to notify employees and local residents of that day's air quality forecast. The top photo is from the program's first school, the Academy for Global Citizenship in Chicago.

The bottom photo is from 2014, where Director Bonnett announced the expansion of the Illinois Air Quality Flag Program to businesses by raising a color-coded flag at the Agency's headquarters in Springfield. Students from a neighboring school helped highlight the different flag colors flags.

ILLINOIS ANNUAL AIR QUALITY REPORT 2013

Illinois Environmental Protection Agency
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To Obtain Additional Information

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This document is produced by the Illinois Environmental Protection Agency; Lisa Bonnett, Director.

Illinois EPA Bureau of Air personnel contributed their time and expertise to the development of this publication.

A MESSAGE FROM THE DIRECTOR

The mission of the Illinois Environmental Protection Agency is to safeguard environmental quality, consistent with the social and economic needs of the State, so as to protect health, welfare, property and the quality of life. One of our primary program goals to meet this mission is to provide leadership to chart a new course for clean air which is responsive to relevant needs in Illinois and complies with priority aspects of the Clean Air Act Amendments.

The 43rd Annual Air Quality Report is presented to provide data for the 2013 calendar year. Overall, Illinois air quality continues to show improving trends. Illinois air pollution control programs and regulations at both the national and state level have had a significant impact on bringing the State's air quality to the levels we experience today. While some portions of Illinois do fall short of a few of the current National Ambient Air Quality Standards (NAAQS), these areas have achieved compliance with the previous standards and are much closer to achieving compliance with the newly tightened standards than they were twenty, or even ten years ago.

Like the weather, an air quality forecast is provided for each day of the year. Daily air quality is assigned a category with a corresponding color. Those categories are Good (green), Moderate (yellow), Unhealthy for Sensitive Groups (orange), Unhealthy (red), Very Unhealthy (purple), and Hazardous (maroon). The Illinois EPA provides a daily air quality forecast for fourteen sectors throughout the State. Those forecasts require the examination of current air quality levels, as well as meteorological conditions across the state. Air quality can change significantly as a result of several factors that include temperature, atmospheric pressure, precipitation, wind speed and even wind direction. Agency meteorologists review all of these factors along with modeling data to accurately provide the daily air quality forecasts. At times, representatives from multiple states within our region will consult with one another to determine forecasts.

Illinois schools and businesses have a new opportunity to be more informed of the local air quality by joining the Illinois Air Quality Flag Program (highlighted on the cover). The purpose of the program is to create public awareness of outdoor air quality conditions. This program was first launched in schools in 2013 and expanded to businesses in 2014. For more information on the Illinois Air Quality Flag Program, please visit: http://www.cleantheair.org/educational-programs/illinois-air-quality-flag-program.

The 2013 Annual Air Quality Report reflects relatively typical weather conditions compared to the extraordinary weather experienced in 2012. As explained in the executive summary, ozone levels in 2013 never reached the "Unhealthy" (red) category, compared to 11 in 2012. The number of days at the "Unhealthy for Sensitive Groups" (orange) category had a significant drop from 40 in 2012 to just 13 in 2013. As a result, the 10-year air quality trends continue to show progress and improvements in overall air quality.

The Illinois EPA strives to provide residents with accurate and current air quality information. Individuals can view daily air quality data through the Agency's website at www.epa.state.il.us/air/air-quality-menu.html. For additional question and/or comments regarding this report or other air pollution control programs, please contact the Illinois EPA.

Lisa Bonnett

Lisa Bonnett, Director

Illinois Annual Air Quality Report 2013

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Executive Summary

This report presents a summary of air quality data collected throughout the State of Illinois during the calendar year 2013. Data is presented for the six criteria pollutants (those for which air quality standards have been developed - particulate matter (PM_{10} and $PM_{2.5}$), ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead) along with some heavy metals, nitrates, sulfates, volatile organic and toxic compounds. Monitoring was conducted at 73 different site locations collecting data from more than 165 instruments.

In terms of the Air Quality Index (AQI) air quality during 2013 was either good (green) or moderate (yellow) 96 percent of the time throughout Illinois. The most significant change in air quality from 2012 to 2013 was the decrease in unhealthy (red) days according to the Air Quality Index. There were zero days when air quality in some part of Illinois was considered unhealthy. This compares with 11 unhealthy days in 2012. There were 13 days (11 for 8-hour ozone and 2 for $PM_{2.5}$) when air quality in some part of Illinois was considered unhealthy for sensitive groups (orange). This compares with 40 Unhealthy for Sensitive Groups days reported in 2012. Air quality trends for the criteria pollutants are continuing to show downward or stable trends well below the level of the standards. Percentage changes over the ten year period 2004 – 2013 are as follows. 24-hour Particulate Matter (PM_{10}) 5 percent decrease, annual Particulate Matter ($PM_{2.5}$) 22 percent decrease, 1-hour Sulfur Dioxide 55 percent decrease, annual Nitrogen Dioxide 27 percent decrease, 8-hour Carbon Monoxide 59 percent decrease, and 8-hour Ozone 3 percent decrease.

Stationary point source emission data has again been included. The data in the report reflects information contained in the Emission Inventory System (EIS) as of December 31, 2013. Emission estimates are for the calendar year 2013 and are for the pollutants: particulate matter, volatile organic material, sulfur dioxide, nitrogen oxides and carbon monoxide. Emission trends of these pollutants have been given for the years 1998 to the present. Emissions reported with the Annual Emissions Report have been provided starting with 1998 and are currently available through 2012. There has been a trend toward decreasing emissions over this time period.

Ozone (O_3)

Photochemical oxidants result from a complex series of atmospheric reactions initiated by sunlight. When reactive (non-methane) hydrocarbons and nitrogen oxides accumulate in the atmosphere and are exposed to the ultraviolet component of sunlight, the formation of new compounds, including ozone and peroxyacetylnitrate, takes place.

Absorption of ultraviolet light energy by nitrogen dioxide results in its dissociation into nitric oxide and an oxygen atom. The oxygen atoms, for the most part, react with atmospheric molecular oxygen (O_2) to form ozone (O_3). In general, nitric oxide will react with ozone to re-form nitrogen dioxide, completing the cycle. A build-up of ozone above the equilibrium concentration, which defined by the reaction cycle, results when nitrogen oxide reacts with non-methane hydrocarbons. Oxygen atoms from the hydrocarbon radical oxidize nitric oxide to nitrogen dioxide without ozone being used up. Thus ozone concentrations are not depleted and can build up quickly.

Ozone can also be formed naturally in the atmosphere by electrical discharge and in the stratosphere by solar radiation. The former process is not capable of producing significant urban concentrations of this pollutant; however, there is some belief that incursion of ozone from the stratosphere can contribute significantly to elevated ground level concentrations of ozone under certain meteorological conditions.

Injury to vegetation is one of the earliest manifestations of photochemical air pollution, and sensitive plants are useful biological indicators of this type of pollution. The visible symptoms of photochemical oxidant produced injury to plants may be classified as:

- Acute injury, identified by cell collapse with subsequent development of necrotic patterns.
- Chronic injury, identified by necrotic patterns or with other pigmented patterns.
- Physiological effects, identified by growth alterations, reduced yields, and changes in the quality of plant products. The acute symptoms are generally characteristic of a specific photochemical oxidant; though chronic injury patterns are not. Ozone injury to leaves is identified as a stripling or flecking. Adverse effects on sensitive vegetation have been observed from exposure to photochemical oxidant concentrations of about 100 micrograms per cubic meter (0.05 parts per million) for 4 hours.

Adverse effects on materials (rubber products and fabrics) from exposure to photochemical oxidants have not been precisely quantified, but have been observed at the levels presently occurring in many urban atmospheres.

Ozone accelerates the aging of many materials, resulting in rubber cracking, dye fading and paint erosion. These effects are linearly related to the total dose of ozone and can occur at very low levels, given long duration exposures.

Ozone is a pulmonary irritant that affects the respiratory mucous membranes, other lung tissues and respiratory functions. Clinical and epidemiological studies have demonstrated that ozone impairs the normal mechanical function of the lung, causing alterations in respiration; the most characteristic of which are shallow, rapid breathing and a decrease in pulmonary compliance. Exposure to ozone results in clinical symptoms such as chest tightness, coughing, and wheezing.
Alterations in airway resistance can occur, especially to those with respiratory diseases (asthma, bronchitis, emphysema). These effects may occur in sensitive individuals, as well as in healthy exercising persons, at short-term ozone concentrations between 0.15 and 0.25 ppm.

Ozone exposure increases the sensitivity of the lung to bronchoconstrictive agents such as histamine, acetylcholine and allergens, as well as increasing the individual's susceptibility to bacterial infection. Simultaneous exposure to ozone and sulfur dioxide can produce larger

changes in pulmonary function than exposure to either pollutant alone.

Peroxyacetylnitrate (PAN) is an eye irritant, and its effects often occur in conjunction with the effects of ozone.

Two characteristics of ozone and photochemical oxidant exposures should be cited:

- Ozone itself is a primary cause of most of the health effects reported in toxicological and experimental human studies and the evidence for attributing many health effects to this substance alone is very compelling.
- The complex of atmospheric photochemical substances is known to produce health effects, some of which are not attributable to pure ozone but may be caused by other photochemical substances in combination with ozone.

Particulate Matter (PM)

Not all air pollutants are in the gaseous form. Small solid particles and liquid droplets, collectively called particulates or aerosols, are also present in the air in great numbers and may constitute a pollution problem. Particulates entering the atmosphere differ in size and chemical composition. The effects of particulates on health and welfare are directly related to their size and chemical composition.

Particulate matter in the atmosphere consists of solids, liquids, and liquids-solids in combination. Suspended particulates generally refer to particles less than 100 micrometers in diameter (human hair is typically 100 micrometers thick). Particles larger than 100 micrometers will settle out of the air under the influence of gravity in a short period of time.

Typical sources emitting particles into the atmosphere are combustion of fossil fuels (ash and soot), industrial processes (metals, fibers, etc.), fugitive dust (wind and mechanical erosion of local soil) and photochemically produced particles (complex chain reactions between sunlight and gaseous pollutants). Combustion and photochemical products tend to be smaller in size (less than 1 micrometer); fugitive dust and industrial products are typically larger in size (greater than 1 micrometer).

Particles which cause the most health and visibility difficulties are those less than 1.0 micrometer in size. These particles are also the most difficult to reduce in numbers by the various industrial removal techniques. Rainfall accounts for the major removal of these smaller particles from the air.

One of the major problems associated with high concentrations of particulates is that the interaction between the particles, sunlight and atmospheric moisture can potentially result in the climatic effects and diminished visibility (haze). Particles play a key role in the formation of clouds, and emissions of large numbers of particles can, in some instances, result in local increases in cloud formation and, possibly, precipitation. Particles in the size range of 0.1 to 1.0 micrometers are the most efficient in scattering visible light (wave length 0.4 to 0.7 micrometers) thereby reducing visibility. Particles combined with high humidity can result in the formation of haze which can cause hazardous conditions for the operation of motor vehicles and aircraft.

Particulate pollutants enter the human body by way of the respiratory system and their most immediate effects are upon this system. The size of the particle determines its depth of penetration into the respiratory system. Particles over 5 micrometers are generally deposited in the nose and throat. Those that do penetrate deeper in the respiratory system to the air ducts (bronchi) are often removed by ciliary action. Particles ranging in size from 0.5 - 5.0 micrometers in diameter can be deposited in the bronchi, with few reaching the air sacs (alveoli). Most particles deposited in the bronchi are removed by the cilia within hours. Particles less than 0.5 micrometer in diameter reach and may settle in the alveoli. The removal of particles from the alveoli is much less rapid and complete than from the

larger passages. Some of the particles retained in the alveoli are absorbed into the blood.

Besides particulate size, the oxidation state, chemical composition, concentration and length of time in the respiratory system contribute to the health effects of particulates. Particulates have been associated with increased respiratory diseases (asthma, bronchitis, and emphysema), cardiopulmonary disease (heart attack) and cancer.

Plant surfaces and growth rates may be adversely affected by particulate matter. Particulate air pollution also causes a wide range of damage to materials including corrosion of metals and electrical equipment and the soiling of textiles and buildings.

Sulfur Dioxide (SO_2)

Sulfur dioxide is an atmospheric pollutant which results from combustion processes (mainly burning of fossil fuels containing sulfur compounds), refining of petroleum, manufacture of sulfuric acid and smelting of ores containing sulfur. Reduction of sulfur dioxide pollution levels can generally be achieved through the use of low sulfur content fuels or the use of chemical sulfur removal systems.

Once in the atmosphere some sulfur dioxide can be oxidized (either photochemically or in the presence of a catalyst) to SO_3 (sulfur trioxide). In the presence of water vapor, SO_3 is readily converted to sulfuric acid mist. Other basic oxides combine with SO_3 to form sulfate aerosols. Sulfuric acid droplets and other sulfates are thought to account for about 5 to 20 percent of the total suspended particulate matter in urban air. These compounds can be transported large distances and come back to earth as a major constituent of acid precipitation. Many of the resultant health problems attributed to SO_2 may be a result of the oxidation of SO_2 to other compounds.

The effects of SO_2 on health are irritation and inflammation of tissue that it directly contacts. Inhalation of SO_2 causes bronchial constriction resulting in an increased resistance to air flow, reduction of air volume and an increase of respiratory rate and heart rate.

SO_2 can exacerbate pre-existing respiratory diseases (asthma, bronchitis, emphysema). The enhancement (synergism) by particulate matter of the toxic response to sulfur dioxide has been observed under conditions which would promote the conversion of sulfur dioxide to sulfuric acid. The degree of enhancement is related to the concentration of particulate matter. A twofold to threefold increase of the irritant response to sulfur dioxide is observed in the presence of particulate matter capable of oxidizing sulfur dioxide to sulfuric acid.

Sulfuric acid (H_2SO_4) inhalation causes an increase in the respiratory system's mucous secretions, which reduces the system's ability to remove particulates via mucociliary clearance. This can result in an increase incidence of respiratory infection.

Carbon Monoxide (CO)

The major source of carbon monoxide (CO) is motor vehicles. The U.S. EPA has kept under its jurisdiction the regulation of emission control equipment on new motor vehicles while the State's responsibility for reducing excessive ambient carbon monoxide levels is exercised by developing transportation plans for congested urban areas.

The toxic effects of high concentrations of CO on the body are well known. Carbon monoxide is absorbed by the lungs and reacts with hemoglobin (the oxygen carrying molecule in the blood) to form carboxyhemoglobin (COHb). This reaction reduces the oxygen carrying capacity of blood because the affinity of hemoglobin for CO is over 200 times that for oxygen. The higher the percentage of hemoglobin bound up in the form of carboxyhemoglobin, the more serious is the health effect.

The level of COHb in the blood is directly related to the CO concentration of the inhaled air. For a given ambient air CO concentration,

the COHb level in the blood will reach an equilibrium concentration after a sufficient time period. This equilibrium COHb level will be maintained in the blood as long as the ambient air CO level remains unchanged. However, the COHb level will slowly change in the same direction as the CO concentration of the ambient air as a new equilibrium of CO in the blood is established.

The lowest CO concentrations shown to produce adverse health effects result in aggravation of cardiovascular disease. Studies demonstrate that these concentrations have resulted in decreased exercise time before the onset of pain in the chest and extremities of individuals with heart or circulatory disease. Slightly higher CO levels have been associated with decreases in vigilance, the ability to discriminate time intervals and exercise performance.

Evidence also exists indicating a possible relationship between CO and heart attacks, the development of cardiovascular disease and fetal development.

Studies on the existing ambient levels of CO do not indicate any adverse effects on vegetation, materials, or other aspects of human welfare.

Nitrogen Dioxide (NO_2)

Nitrogen gas (N_2) is an abundant and inert gas which makes up almost 80 percent of the earth's atmosphere. In this form, it is harmless to man and essential to plant metabolism. Due to its abundance in the air, it is a frequent reactant in many combustion processes. When combustion temperatures are extremely high, as in the burning of coal, oil, gas and in automobile engines, atmospheric nitrogen gas may combine with molecular oxygen (O_2) to form various oxides of nitrogen (NO_x). Of these, nitric oxide (NO) and nitrogen dioxide (NO_2) are the most important contributors to air pollution; NO_x generally is used to represent these. Nitric oxide (NO) is a colorless and odorless gas. It is the primary form of NO_x resulting from the combustion process. NO_x contributes to haze and visibility reduction. NO_x is also known to cause deterioration and fading of certain fabrics and damage to vegetation. Depending on concentration and extent of exposure, plants may suffer leaf lesions and reduced crop yield.

Sensitivity of plants to NO_x depends on a variety of factors including species, time of day, light, stage of maturity and the presence or absence of other air pollutants such as sulfur dioxide and ozone.

There is a lack of strong evidence associating health effects with most NO_x compounds. NO_2, a secondary derivative of atmospheric nitric oxide, however, has been clearly established as exerting detrimental effects on human health and welfare.

NO_2 can cause an impairment of dark adaptation at concentrations as low as 0.07 ppm. NO_2 can cause an increase in airway resistance, an increase in respiratory rate, an increase in sensitivity to bronchoconstrictors, a decrease in lung compliance and an enhanced susceptibility to respiratory infections. NO_2 is a deep lung irritant capable of producing pulmonary edema if inhaled in sufficient concentrations. When NO_2 is inhaled in concentrations with other pollutants, the effects are additive.
NO_x may also react with water to form corrosive nitric acids, a major component of acid precipitation. Additionally, NO_x and various other pollutants (e.g., hydrocarbons) may react in the presence of sunlight to product photochemical oxidants. These are extremely unstable compounds which damage plants and irritate both the eyes and respiratory system of people. Ozone and a group of chemicals called peroxyacetylnitrates are the major constituents of photochemical oxidants.

Lead (Pb)

Historically atmospheric lead came primarily from combustion of leaded gasoline. However, the use of unleaded gas since 1975 has reduced mobile source lead emissions by over 90%. Currently stationary sources, such as lead smelters, battery manufacturers, iron and steel producers and others can contribute

significant amounts of lead to their immediate vicinity.

Lead is a stable compound which persists and accumulates both in the environment and in the human body. Lead enters the human body through ingestion and inhalation with consequent absorption into the blood stream and distribution to all body tissues. No safe level of lead in the blood has been identified. Clinical, epidemiological and toxicological studies have demonstrated exposure to lead has a broad range of health effects.

Since 1990 over 6,000 new health studies have been conducted. These studies have shown that children are the most susceptible to the damaging effects of lead because they are more likely to ingest lead due to hand-to-mouth activity and early body development. Lead exposure has been found to interfere with the developing nervous system including the brain. This can potentially lead to intelligence quotient loss, poor academic achievement, permanent learning disabilities and behavioral problems. These effects can persist into early adulthood.

Kidney and neurological cell damage has also been associated with lead exposure. Animal studies have demonstrated that lead can contribute to reduced fertility and birth defects.

Other potential effects from lead exposure are weakened immune systems, restlessness, headaches, increased blood pressure and cardiovascular disease.

Illinois Ambient Air Quality Standards and Episode Levels

Consistent with the intent of the Environmental Protection Act of the State of Illinois, Illinois has adopted ambient air quality and episode standards that specify maximum permissible short-term and long-term concentrations of various contaminants in the atmosphere. Ambient air quality and episode standards are limits on atmospheric concentrations of air contaminants established for the purpose of protecting the public health and welfare.

The Illinois and National Ambient Air Quality Standards consist of a primary and secondary standard for each pollutant (contaminant) as presented in **Table 1**. The Illinois Air Pollution Episode Levels are presented in **Table 2**. The primary standard and episode criterion represents the level of air quality which is necessary to protect the public health. Air entering the respiratory tract must not menace health. Therefore, the air quality standards must, as a minimum, provide air which will not adversely affect, through acute or chronic symptoms, the public health. Air contaminants increase the aggravation and the production of respiratory and cardio-pulmonary diseases. The secondary standard defines the level of air quality which is necessary to protect the public welfare. This includes, among other things, effects on crops, vegetation, wildlife, visibility and climate, as well as effects on materials, economic values and on personal comfort and well-being. The standards are legally enforceable limitations, and any person causing or contributing to a violation of the standards is subject to enforcement proceedings under the Environmental Protection Act. The standards have also been designed for use as a basis for the development of implementation plans by State and local agencies for the abatement and control of pollutant emissions from existing sources, and for the determination of air contaminant emission limitations to ensure that population, industry and economic growth trends do not add to the region's air pollution problems.

Table 1: Summary of National and Illinois Ambient Air Quality Standards					
Pollutant		**Primary/ Secondary**	**Averaging Time**	**Level**	**Form**
Carbon Monoxide		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead		primary and secondary	Rolling 3 month average	0.15 µg/m^3	Not to be exceeded
Nitrogen Dioxide		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb	Annual Mean
Ozone		primary and secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution	$PM_{2.5}$	primary	Annual	12.0 µg/m^3	Annual mean, averaged over 3 years
		secondary	Annual	15.0 µg/m^3	Annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide		primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

- $PM_{2.5}$ standards are referenced to local conditions of temperature and pressure rather than standard conditions (760 mmHg and 25 degrees Celsius).

Table 2: Illinois Air Pollution Episode Levels				
Pollutant	**Advisory**	**Yellow Alert**	**Red Alert**	**Emergency**
Particulate Matter (µg/m^3)	2-hour 420	24-hour 350	24-hour 420	24-hour 500
Sulfur Dioxide (ppm)	2-hour 0.30	4-hour 0.30	4-hour 0.35	4-hour 0.40
Carbon Monoxide (ppm)	2-hour 30	8-hour 15	8-hour 30	8-hour 40
Nitrogen Dioxide (ppm)	2-hour 0.40	1-hour 0.60 or 24-hour 0.15	1-hour 1.20 or 24-hour 0.30	1-hour 1.60 or 24-hour 0.40
Ozone (ppm)	1-hour 0.12	1-hour 0.20	1-hour 0.30	1-hour 0.50

OZONE

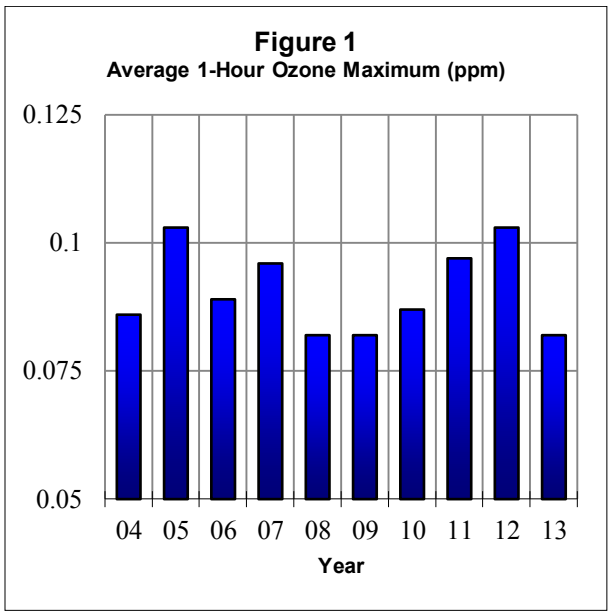
Monitoring was conducted at 38 locations during at least part of the April-October "ozone season" and at least 75 percent data capture was obtained at 38 sites.

There were no sites that recorded hourly concentrations above the former 0.12 parts per million (ppm) 1-hour standard. Wood River recorded the highest 1-hour concentration of 0.103 ppm followed by Jerseyville and Maryville with a concentration of 0.099 ppm. This compares with the highest concentration of 0.125 ppm in 2012 at Maryville. The highest value in the Chicago area was 0.094 ppm recorded at Northbrook compared with a high in 2012 of 0.138 ppm at Zion.

Data is also presented to compare with the 8-hour standard of 0.075 ppm. The appropriate statistic for comparison with the 8-hour standard is the fourth highest value, which is averaged over a three year period. There were zero sites in Illinois that had a fourth high value above 0.075 ppm in 2013 compared with 23 sites in 2012. The highest fourth high value was 0.075 ppm at Maryville. The highest level in the Chicago area was 0.072 ppm at Zion. For the three year period 2011 – 2013, nine sites had a fourth highest average above 0.075 ppm (Table B4).

Figure 1 shows for each year the statewide average of each site's highest hourly ozone value for the ten year period 2004-2013. The graph shows some year-to-year fluctuation with high years in 2005 and 2012 and low years in 2008, 2009, and 2013. The statewide average for 2012 was 0.082 ppm compared with 0.103 ppm in 2012 and 0.097 ppm in 2011.

Statewide, the total number of 1-hour excursion days in 2012 was zero compared with two in 2012 and two in 2011.



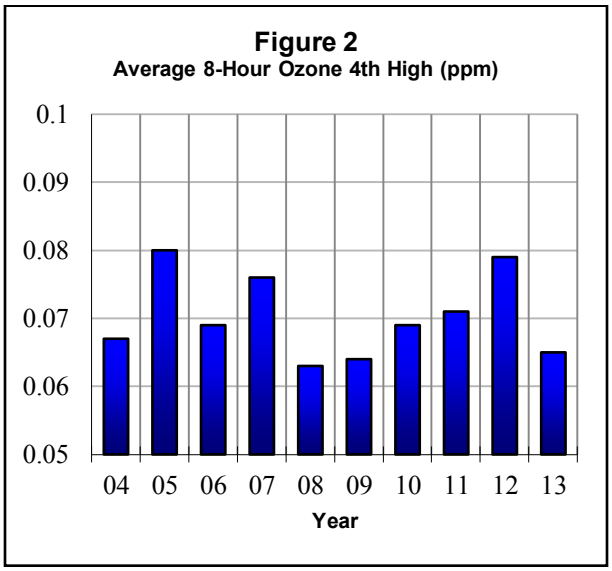


Figure 2 shows for each year the statewide average of the 4th highest 8-hour ozone value for the same period 2004-2013. The statewide average for 2013 was 0.065 ppm compared with 0.079 ppm in 2012 and 0.071 in 2011.

Overall, Illinois' weather was slightly below normal in terms of meteorological conditions favorable to ozone formation and transport statewide. September was the most conducive month in terms of meteorological conditions statewide and also had the most 8-hour exceedance days.

PARTICULATE MATTER

Monitoring was conducted at 33 sites for $PM_{2.5}$. Valid annual averages were obtained for 28 of the 33 sites. One site recorded an average above 12.0 µg/m^3, the level of the annual standard. This compares with four sites in 2012 and seven sites in 2011. The Statewide average of the annual averages was 10.1 µg/m^3 in 2013 compared with 10.4 µg/m^3 in 2012 and 11.2 µg/m^3 in 2011. Note that $PM_{2.5}$ data in this report is for informational purposes only. Weighing lab conditions were found to not meet critical criteria by a U.S. EPA technical system audit. This caused data invalidation for the period of 2011 to July 2014.

Figure 3 shows the trend of the statewide annual averages for $PM_{2.5}$ for the period 2004-2013. There was one exceedance of the 24-hour standard of 35 µg/m^3 in 2013 compared with 17 exceedances in 2012 and six exceedances in 2011. The statewide peak of 39.3 µg/m^3 was recorded at the Lyons Township station. The statewide average of the 98th percentile of 24-hour averages was 23.4 µg/m^3 in 2012 compared with 23.2 µg/m^3 in 2012 and 25.5 µg/m^3 in 2011.

In 2013 there were four sites monitoring PM_{10}. The statewide annual average was 29 µg/m^3 compared with 26 µg/m^3 in 2012 and 23 µg/m^3 in 2011.

For PM_{10}, the statewide average of the maximum 24-hour averages in 2013 was 69 µg/m^3 compared with 68 µg/m^3 in 2012 and 69 µg/m^3 in 2011. **Figure 4** depicts this trend for the period 2003-2012.

No sites exceeded the former primary annual standard of 50 µg/m^3. The highest annual average was 40 µg/m^3 in Lyons Township. The lowest annual was 15 µg/m^3 in Northbrook. There were no exceedances of the 24-hour primary standard of 150 µg/m^3. The highest 24-hour average was recorded at Chicago Washington High School with a value of 110 µg/m^3 compared with a high 24-hour value of 106 µg/m^3 at Chicago Washington High School in 2012.

Figure 3
Particulate Matter ($PM_{2.5}$) Annual Trends (µg/m^3)

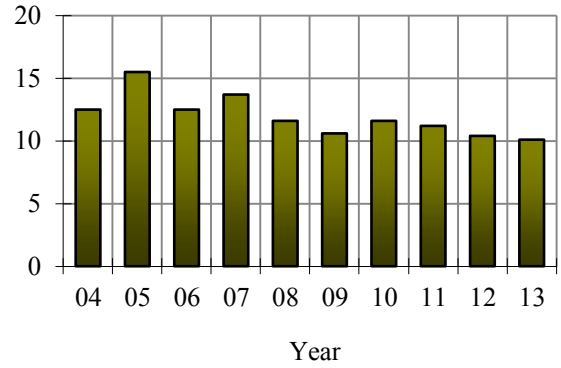
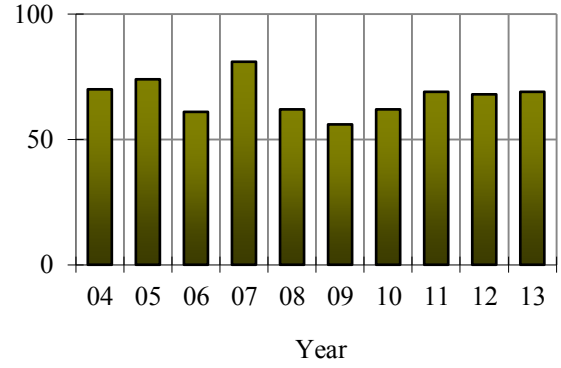


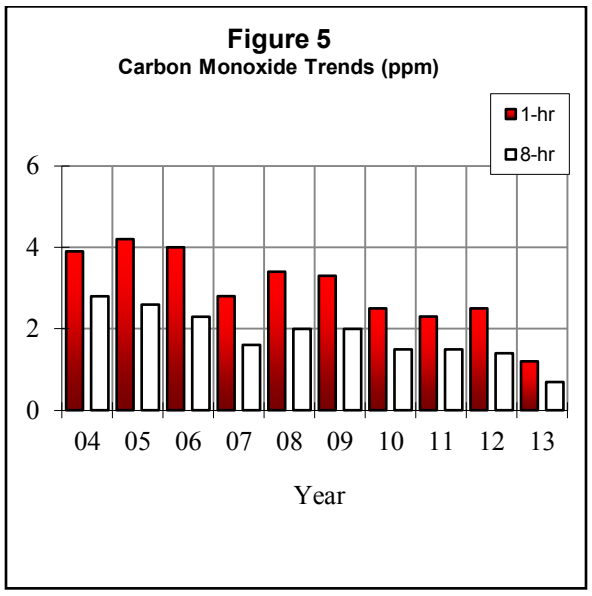
Figure 4
Particulate Matter (PM_{10}) 24-Hour Trends (µg/m^3)



CARBON MONOXIDE

There were no exceedances of either the 1-hour primary standard of 35 ppm or the 8-hour primary standard of 9 ppm in 2013. The highest 1-hour average was 1.7 ppm recorded in East St. Louis. The highest 8-hour average was 1.0 ppm recorded in East St. Louis.

Figure 5 shows the trend for the period 2004-2013 for the statewide average of the 1-hour and 8-hour high CO values. The overall trend for both averages is downward. The statewide average of the 1-hour high was 1.2 ppm in 2013 compared with 2.5 ppm in 2012. The statewide average for the 8-hour high was 0.7 ppm in 2013 compared with 1.4 ppm in 2012.



SULFUR DIOXIDE

There were 31 exceedances of the new 1-hour primary standard of 75 ppb in 2013 compared with 38 exceedances in 2012. There were no exceedances of the 3-hour secondary standard of 500 ppb in 2013. The annual and 24-hour primary standards were revoked by U.S. EPA in 2010. The highest 1-hour average was 262 ppb recorded in Pekin compared with 319 ppb in Pekin in 2012. The statewide average of the 1-hour high in 2013 was 47 ppb. This compares with 69 ppb in 2012 and 63 ppb in 2011. The highest 3-hour average of 203 ppb was recorded in Pekin in 2013 compared with 268 ppb in Pekin in 2012. There were two sites over the primary 1-hour standard of 75 ppb for the 2011-2013 period compared to two sites for the 2010-2012 period (Table B17).

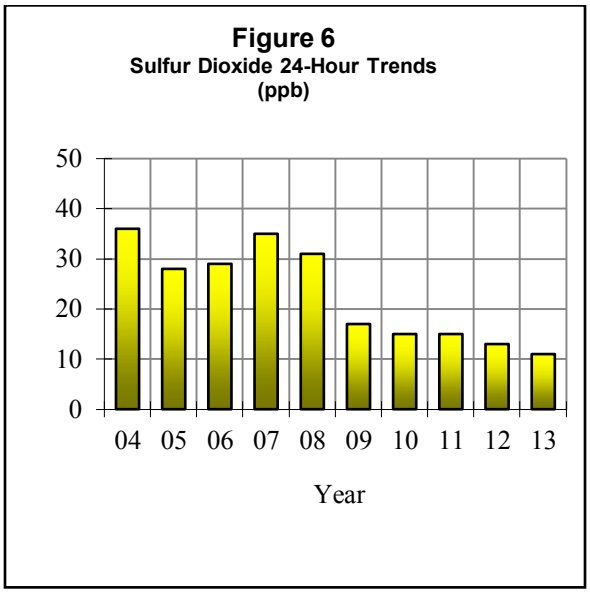
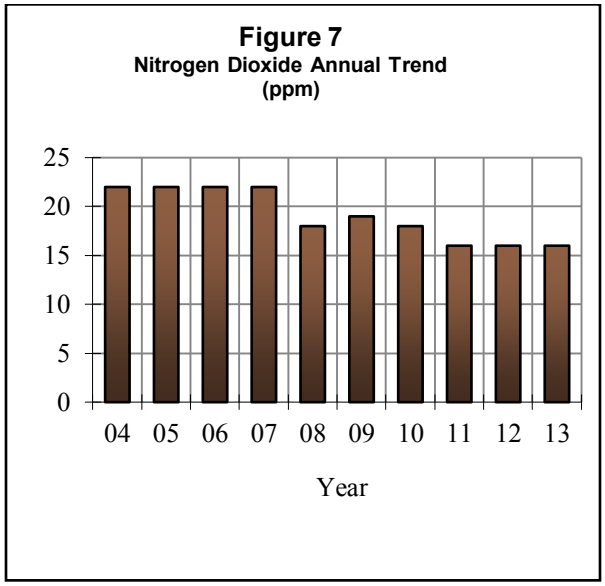


Figure 6 shows the statewide trend for the maximum 24-hour averages for the period 2004-2013. The 24-hour average trend has been overall downward; however a greater degree of year-to-year fluctuations have occurred. The statewide average for 2013 was 11 ppb compared with the 2012 average of 13 ppb. The statewide 1-hour average maximum for 2013 was 47 ppb compared with 69 ppb in 2012 and 63 ppb in 2011.

NITROGEN DIOXIDE

There were no violations of the annual primary standard of 53 ppb recorded in Illinois during 2013. The highest annual average of 21 ppb was recorded at Chicago CTA. The statewide average for 2012 was 16 ppb compared with 16 ppb in 2012 and 2011. There was one violation of the new 1-hour primary standard. This compares to zero violations in 2012. There were no sites over the 1-hour primary standard of 100 ppb for the 2011-2013 period compared to zero sites for the 2010-2012 period (Table B20).

Figure 7 depicts the trend of statewide averages from 2004-2013. The trend has been generally stable for the period ranging from 16 ppb to 24 ppb. There have been no violations of the annual standard since 1980.



LEAD

Perhaps the greatest success story in controlling criteria pollutants is lead. As a direct result of the federal motor vehicle control program which has required the use of unleaded gas in automobiles since 1975, lead levels have decreased by more than 90 percent statewide. Based on new health studies the lead standard was revised in 2008 from a quarterly mean of 1.5 $\mu g/m^3$ to a rolling 3-month maximum mean of 0.15 $\mu g/m^3$.

There were three violations of the new rolling 3-month maximum mean standard for the 2010 to 2012 period. Violations were recorded at Granite City - 15th & Madison with a value of 0.42 $\mu g/m^3$, Chicago Perez with a value of 0.29 $\mu g/m^3$ and Decatur Mueller with a value of 0.20 $\mu g/m^3$. This compares with a statewide high of 0.42 $\mu g/m^3$ for 2009 to 2011 at Granite City 15th & Madison.

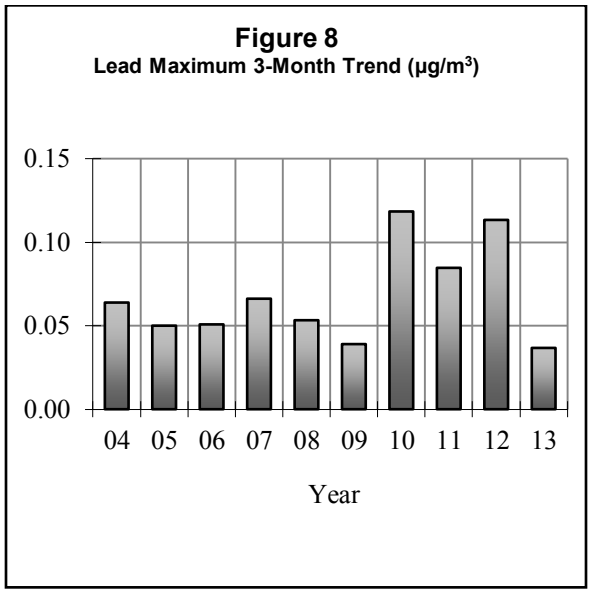


Figure 8 shows the trend of the statewide maximum monthly averages from 2003-2013. The chart shows concentrations fluctuating between 0.04 $\mu g/m^3$ and 0.12 $\mu g/m^3$. The increase in 2010 was directly related to the installation of required source-oriented monitors and the discontinuation of one non-source monitor. Due to various controls having been implemented at several source-oriented locations, the 2013 statewide average has dropped back down to historical concentrations. The statewide average for all sites was 0.04 $\mu g/m^3$ in 2013 compared to 0.11 $\mu g/m^3$ in 2012 and 0.08 $\mu g/m^3$ in 2011.

FILTER ANALYSIS RESULTS

The total suspended particulate samples were analyzed, in addition to lead, for specific metals. Several of the metals analyzed (arsenic, beryllium, cadmium, chromium, manganese, and nickel) have known toxic properties. Other metals such as iron can be used as tracers to help identify sources of high particulate values. There are currently no state or federal ambient air quality standards for these parameters.

The areas with the highest metals concentrations in Illinois are generally the heavy industrialized areas of the Metro-East (Granite City and East St. Louis) and south Chicago, especially for iron and manganese. The highest 24-hour average for arsenic was 0.006 $\mu g/m^3$ measured in Geneva. The highest annual average of 0.001 $\mu g/m^3$ was also recorded in Geneva. There were no measurable beryllium 24-hour averages recorded statewide. Rockford recorded the highest cadmium concentrations with a maximum 24-hour average of 0.007 $\mu g/m^3$. The highest 24-hour chromium average was 0.062 $\mu g/m^3$ recorded at Chicago Washington High School. Maywood had the highest annual average at 0.021 $\mu g/m^3$. The highest iron and manganese values were recorded in south Chicago and the high traffic areas of Maywood. The highest 24-hour average for nickel was recorded at Chicago – Perez Elementary with a value of 0.032 $\mu g/m^3$. The highest annual average was in Maywood with an average of 0.007 $\mu g/m^3$. In general metal concentrations were lower in 2013 than in 2012.

TOXIC COMPOUNDS

Sampling for toxic compounds other than metals (see Filter Analysis Section, **Table B24**) was conducted at Northbrook and Schiller Park. Most compounds were below the method detection limits. The highest compounds were toluene, formaldehyde, benzene, acetaldehyde, and acrolein. **Table B25** has a listing of various toxic compound maximums and annual averages.

$PM_{2.5}$ SPECIATION

$PM_{2.5}$ samples are also analyzed for numerous constituents at 5 sites. The major constituents (inorganic elements, ammonium, nitrate, sulfate, elemental carbon, and organic carbon) are listed in **Table B26**. In general, approximately 53% is ammonium nitrate and ammonium sulfate, 41% is elemental and organic carbon and 5% is inorganic elements.

The Air Quality Index (AQI) is the national standard method for reporting air pollution levels to the general public in 2012. An index such as the AQI is necessary because there are several air pollutants, each with different typical ambient concentrations and each with different levels of harm, and to report actual concentrations for all of them would be confusing. The AQI uses a single number and a short descriptor to define the air quality in an easy-to-remember and easy-to-understand way, taking all the pollutants into account.

The AQI is based on the short-term federal National Ambient Air Quality Standards (NAAQS), for six of the criteria pollutants, namely:

- Ozone (O_3)
- Sulfur dioxide (SO_2)
- Carbon monoxide (CO)
- Particulate matter (PM_{10})
- Particulate matter ($PM_{2.5}$)
- Nitrogen dioxide (NO_2)

In each case the short-term primary NAAQS corresponds to 100 on the AQI scale – the end of the Moderate category. The next concentration above the NAAQS would begin the Unhealthy for Sensitive Groups category at 101 on the AQI scale. **Table 3** lists all of the AQI ranges and their descriptor categories. Each category corresponds to a different level of health concern. **Table 4** lists each AQI category and its corresponding meaning.

Unhealthy for Sensitive Groups occurs on occasion for 8-hour ozone, $PM_{2.5}$, and downwind of certain SO_2 sources. Unhealthy air quality is uncommon in Illinois, and Very Unhealthful air quality is rare. There has never been an occurrence of Hazardous air quality in Illinois.

The AQI is computed as follows: data from pollution monitors in an area are collected, and the AQI sub index for each pollutant is computed using formulas derived from the index/concentration relations noted above. Nomograms and tables are also available for this purpose. The data used are:

- O_3 estimate of the highest 8-hour average for that calendar day
- SO_2 the highest 1-hour or most recent 24-hour average
- CO the highest 8-hour average so far that calendar day
- PM_{10} the most recent 24-hour average
- $PM_{2.5}$ estimate of the 24-hour average for that calendar day
- NO_2 the highest 1-hour average

Continuous monitors are utilized for all the pollutants including PM_{10} and $PM_{2.5}$.

Once all the sub-indices for the various pollutants have been computed, the highest is chosen by inspection. That is the AQI for the area, and the pollutant giving rise to it is the "critical pollutant". Thus if, for Anytown, Illinois, we obtained the following sub-indices:

O_3 = 45
SO_2 = 23
CO = 19
PM_{10} = 41
$PM_{2.5}$ = 61

Anytown's AQI for that day would be 61, which is in the Moderate category, and the critical pollutant would be particulates ($PM_{2.5}$). If data for one of the pollutants used in computing AQI is missing, the AQI is computed using the data available, ignoring the missing datum. It occasionally happens that two pollutants have the same sub index; in such cases there are two critical pollutants.

The Illinois EPA issues the AQI for 14 areas, or sectors, in Illinois (**Table 5**). These correspond to metropolitan areas with populations greater than 100,000.

Table 3: Air Quality Index Categories		
AQI Values	**AQI Descriptor**	**Colors**
When the AQI is in this range:	***..air quality conditions are:***	***...as symbolized by this color:***
0-50	Good	Green
51-100	Moderate	Yellow
101-150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

Table 4: Air Quality Index Health Concerns		
Air Quality Index Levels of Health Concern	**Numerical Value**	**Meaning**
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health warnings of emergency conditions. The entire population is more likely to be affected.
Hazardous	301 to 500	Health alert: everyone may experience more serious health effects

Table 5: Air Quality Index Sectors in Illinois	
Sector	**Coverage Area**
Lake County	Lake County only
Chicago	All areas within the city limits of Chicago
North and West Suburbs	Parts of Cook, Du Page, and McHenry Counties north of I-290 (Eisenhower Expressway) and outside of the Chicago city limits
South and West Suburbs	Parts of Cook and Du Page Counties south of I-290 and outside of Chicago city limits
Will County/Joliet	Will County only
Aurora-Elgin	The eastern part of Kane County
Rockford	Approximately 10 mile diameter circle centered on downtown Rockford
Quad Cities	The Illinois portion of the Quad Cities area
Peoria	Approximately 10 mile diameter circle centered on downtown Peoria in parts of Peoria, Woodford, and Tazewell Counties
Champaign	Champaign-Urbana Metropolitan Area
Normal	Bloomington-Normal Metropolitan Area
Springfield	Springfield Metropolitan Area
Metro East St. Louis	The Illinois portion of the St. Louis Metropolitan Area. Approximately 15 miles wide east of the Mississippi River in Madison and St. Clair Counties

Illinois AQIs are computed from data up to and including the 3 p.m. local time readings (4 PM during the summer portion of the Ozone Season) every weekday. A bulletin giving the AQI numbers, descriptors, critical pollutants, and a forecast of the category for the next day's AQI for each of the sectors is issued to both the National Weather Service and the Illinois EPA website (link below), about 3:30 p.m. each work day (4:30 p.m. during the summer). Almost all TV stations and many radio stations and newspapers are able to receive this information to inform the public about the AQI either immediately or on the evening news. Additional AQI and forecast information can be obtained on Illinois EPA's web site located at http://www.epa.state.il.us/air/aqi/index.html and EPA's AirNow website at http://www.airnow.gov. The AirNow website shows current AQI information for the larger sectors in Illinois as well as other areas around the country. In the Chicago area, AQIs are also available on phone recordings maintained by the Cook County Department of Environmental Control and the Chicago Department of the Environment. Residents in the Chicago area can access the Partners For Clean Air website (http://www.cleantheair.org/) which includes a 3-day forecast along with a link for updates on Twitter. AQI information can further be obtained via e-mail and/or cell phones through the EnviroFlash program located at: http://illinois.enviroflash.info/signup.cfm.

If the AQI sub index for any pollutant in any sector should reach or exceed the Unhealthy (or any higher) category late in the afternoon or on weekends when the AQI is not published, the Illinois EPA sends out special bulletins to the National Weather Service. The AirNow website and residents subscribed to EnviroFlash program can also receive alerts when high pollution levels are occurring or expected to occur.

2013 Illinois AQI Sector Summary

In order to present a more representative AQI, 24-hour calendar day $PM_{2.5}$ and PM_{10} values from the total network were used to determine the percentages in **Figure 9** even though some of these values were not available for issuing the daily AQI. Air quality was still in the "Good" and "Moderate" categories most often in 2013. Most sectors had a higher frequency of "Good" than "Moderate" and "Unhealthy for Sensitive Groups". Lake County, Aurora-Elgin, Rockford, Quad Cities, Peoria, Champaign, Normal, Decatur and Springfield sectors had 70 percent or more of the days in the "Good" category. Within AQI sectors there were 18 occurrences of "Unhealthy for Sensitive Groups" air quality in 2013. The sector breakdown for "Unhealthy for Sensitive Groups" was 2 in Lake County, 3 in Chicago, 3 in North & West Suburbs, 5 in South & West, 1 in Will County, and 4 in Metro-East. There were no occurrences of "Unhealthy" air quality in 2013 within AQI sectors. **Figure 9** presents the AQI statistics for each sector. The pie chart shows the percent of days each sector was in a particular category.

In 2013, there was no ozone advisories issued in the State. An advisory is declared when ozone levels have reached the level of the former 1-hour standard (0.125 ppm) on a particular day. In the Chicago MSA there were 2 Air Pollution Action Days issued in 2013. This compares with 12 in 2012.

Figure 9: 2013 Air Quality Index Summaries by Sector

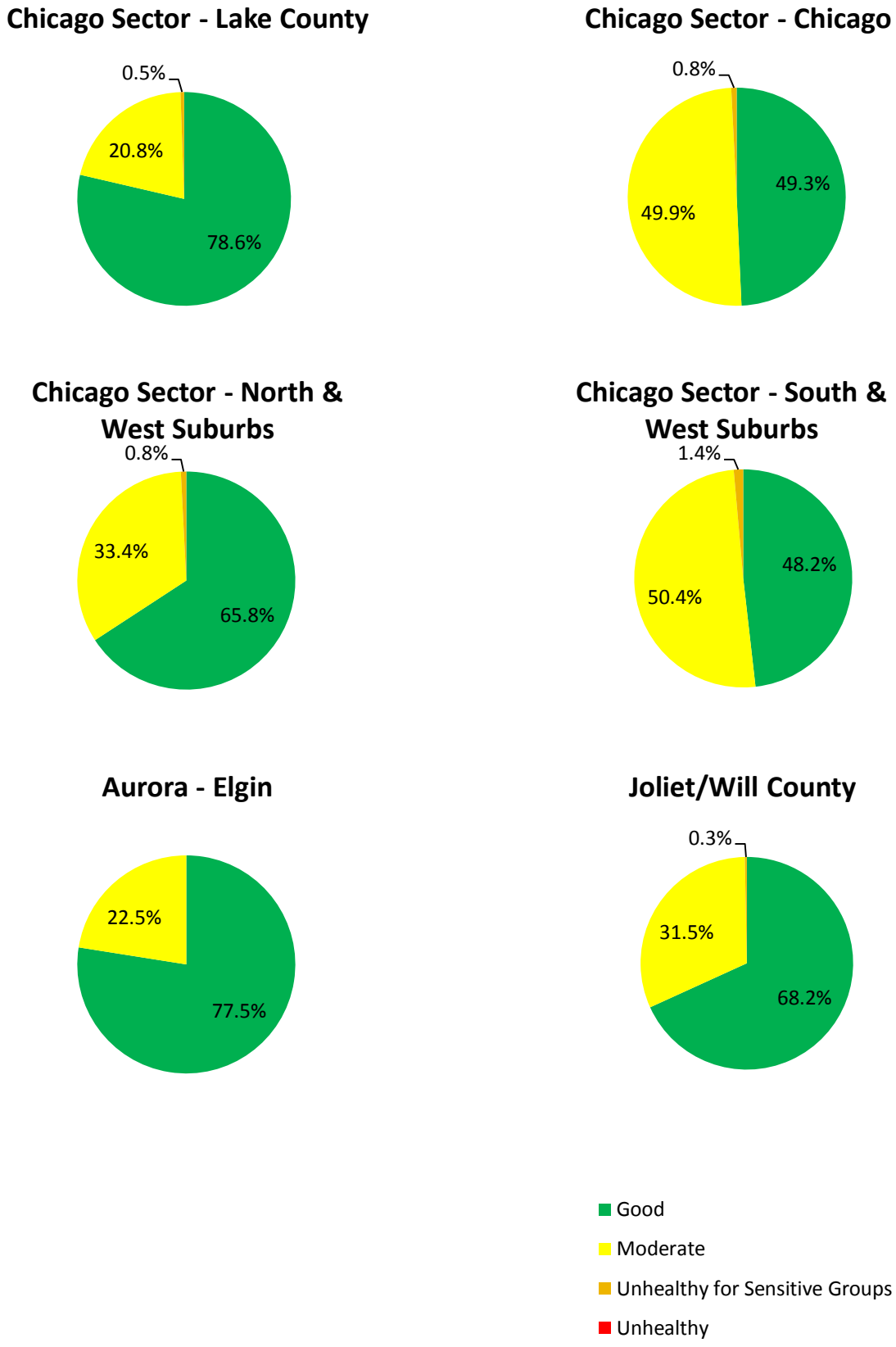


Figure 9: 2013 Air Quality Index Summaries by Sector

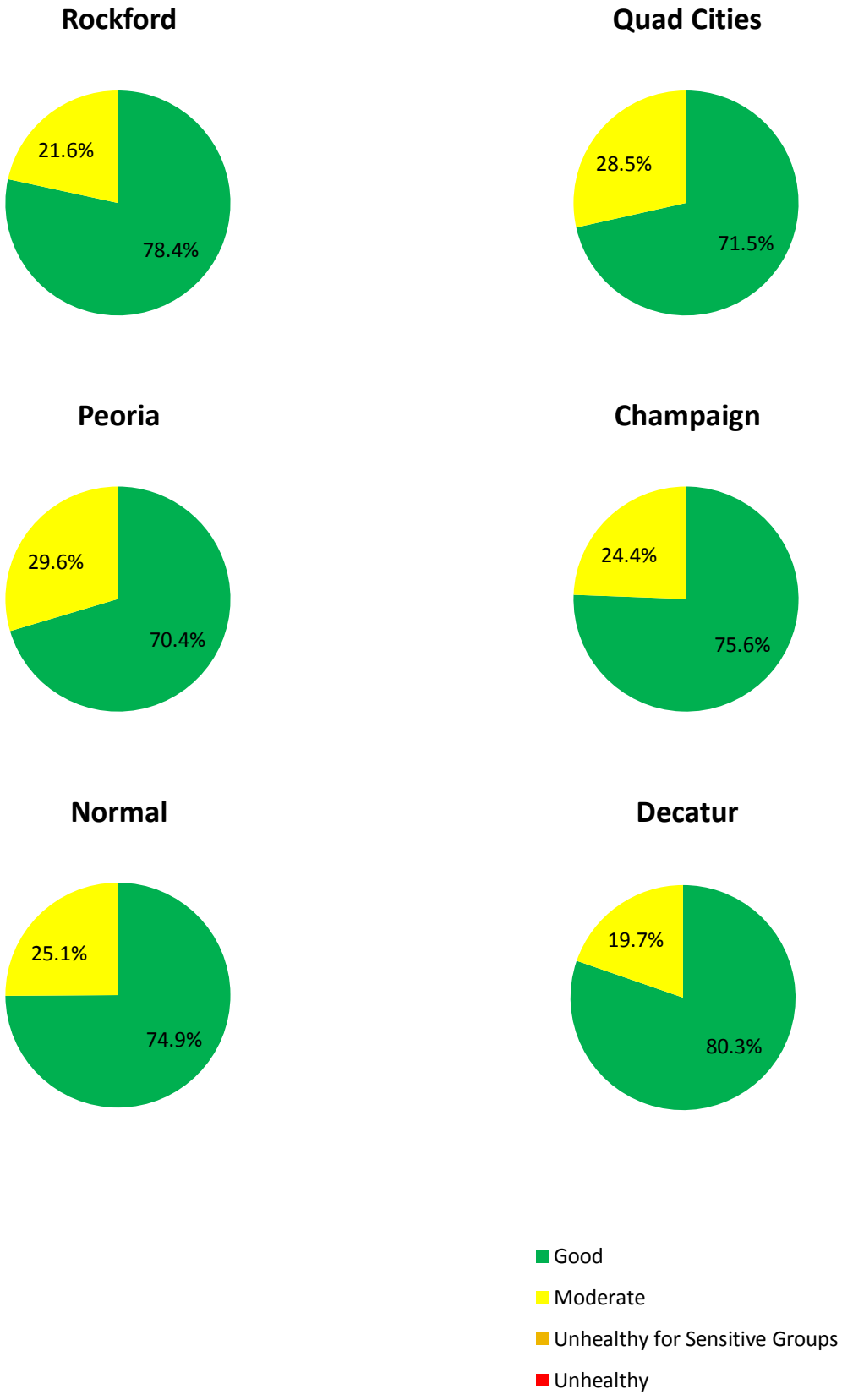
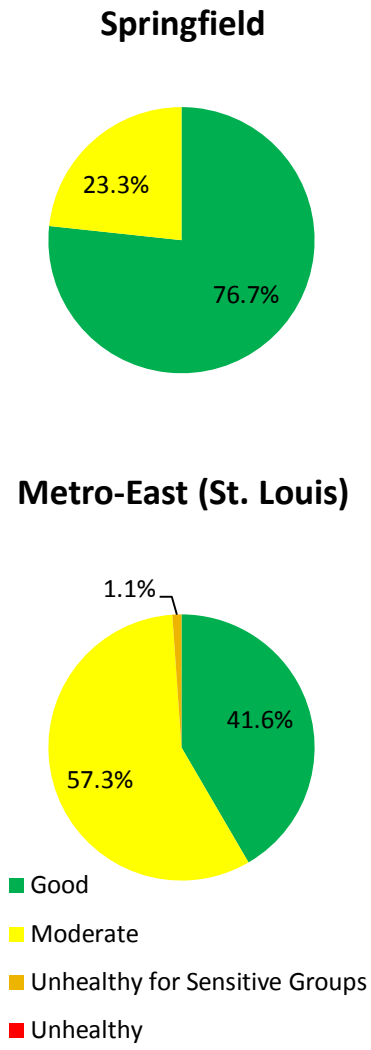


Figure 9: 2013 Air Quality Index Summaries by Sector



Since the late 1970s, the Illinois EPA's Division of Air Pollution Control has maintained a database of stationary point source emissions for the entire State. 40 CFR 51.211 requires Illinois to include in its State Implementation Plan "... procedures for requiring owners or operators of stationary sources to maintain records of... a) Information on the nature and amount of emissions from the stationary source and b) other information as may be necessary..." The emission database maintained by the Division of Air Pollution Control was originally called the Total Air System (TAS). Updates to the database were made through batch transactions every two weeks. In June 1989, the TAS was replaced with an on-line system known as the Emission Inventory System (EIS). Very few new data items to be stored were added when the Division switched to the EIS. The change was mainly to get to an on-line system and to enhance the structure of the database to make it more flexible.

In March 1999, the Division introduced a new emission inventory system known as Illinois Stationary Source Inventory System (ISSIS). This new inventory system, which was developed in Oracle, built upon the structure of the annual emission reporting system (CAERS - Computerized Annual Emission Reporting System) previously developed. Up until then, inventory data resided both in EIS and CAERS. Data from EIS was loaded annually into CAERS. ISSIS did away with this requirement. Now inventory data resides in one database.

ISSIS currently includes emission data on approximately 6,500 active sources (including 2,564 Registration of Smaller Sources, ROSS) throughout the State. The ISSIS data includes source addresses, source emission totals, permit data such as expiration date and status, emission unit data such as name, hours of operation, operating rate, fuel parameters and emissions, control equipment data such as control device name, type and removal efficiencies, and stack parameters. Reported emissions and Agency calculated emissions are stored separately.

Also in March, 1999, the group responsible for the entry of emission inventory data was switched from the Permit Section to the Inventory Unit of the Compliance and Systems Management Section. The Inventory Unit, now in the Air Quality Planning Section, uses permit applications, the issued permit and data reported on annual emission reports to compile the inventory.

The following tables and graphs are an analysis of the emissions data contained in ISSIS at the end of 2013. It is important to note emissions contained in the ISSIS are not necessarily the actual emissions that entered the atmosphere. This is due to the fact that when an air pollution permit is applied for, the applicant provides maximum and average emission rates. The maximum emission rate reflects what the applicant believes the emission rate would be at maximum production. The average emission rate reflects emissions at the applicant's most probable production rate. The Inventory Unit has been updating its estimated emissions to more accurately reflect the reported emissions.

To calculate the distribution of emissions for the individual categories, the source classification code (SCC) field was used from the ISSIS. The SCC is an eight digit code that breaks emission units into logical categories. SCCs are provided by the U.S. EPA.

To produce the following tables, the first three digits of the SCC were used. Only categories that contributed significantly to the overall total are listed in the following sections. The complete category breakdown can be found in **Appendix C**.

Volatile Organic Material

Figure 10
Estimated Volatile Organic Material
Emission Trend (1000s of Tons/Year)

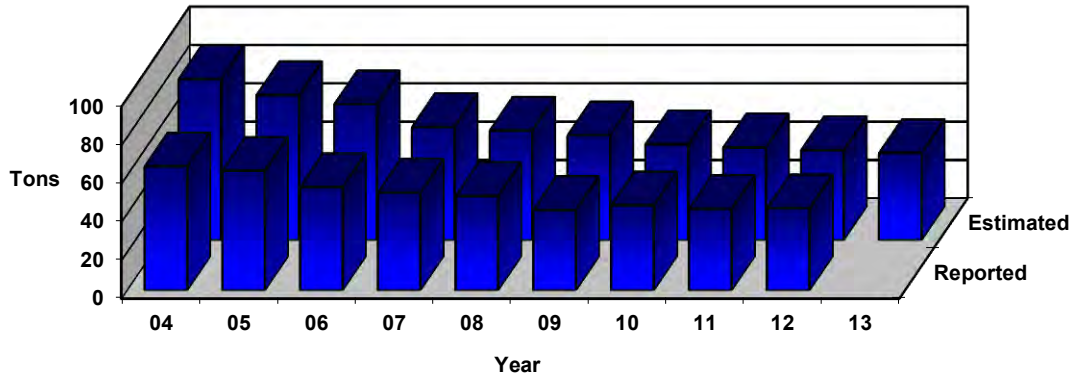


Table 6: Volatile Organic Material Emissions - 2013

Category	Estimated Emissions (tons)	Category Contribution	Cumulative Percent
Food/Agriculture	9,481.7	20.87%	20.87%
Surface Coating Operations	7,060.5	15.54%	36.41%
Chemical Manufacturing	6,130.8	13.50%	49.91%
Fuel Combustion	3,384.6	7.45%	57.36%
Printing/Publishing	3,268.0	7.19%	64.55%
Petroleum Product Storage	2,711.9	5.97%	70.52%
Petroleum Industry	2,409.2	5.30%	75.82%
Rubber and Plastic Products	1,952.3	4.30%	80.12%
Mineral Products	1,342.7	2.96%	83.08%
Bulk Terminal/Plants	1,215.8	2.68%	85.75%
Organic Chemical Storage	773.6	1.70%	87.46%
Secondary Metal Production	683.2	1.50%	88.96%
Fabricated Metal Products	659.5	1.45%	90.41%
Petroleum Marketing/Transport	513.0	1.13%	91.54%
Primary Metal Production	468.7	1.03%	92.57%
Dry Cleaning (petroleum based)	468.3	1.03%	93.60%
Organic Solvent Use	464.9	1.02%	94.63%
All Other Categories	2,441.4	5.37%	100.00%

PM_{10}

Figure 11
Estimated PM_{10} Emission Trend
(1000s of Tons/Year)

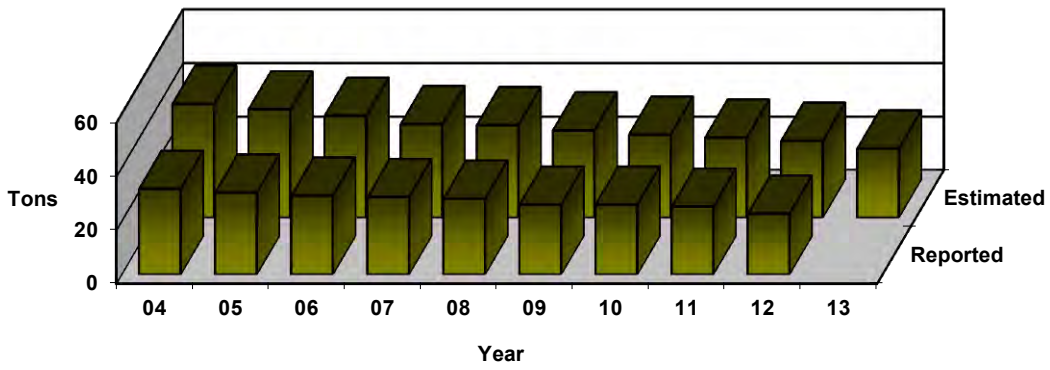


Table 7: Distribution of PM_{10} Emissions – 2013

Category	Estimated Emissions (tons)	Category Contribution	Cumulative Percent
Fuel Combustion	8,284.9	32.18%	32.18%
Food/Agriculture	5,950.5	23.11%	55.30%
Mineral Products	5,071.9	19.70%	74.00%
Petroleum Industry	1,367.4	5.31%	80.31%
Secondary Metal Production	1,240.3	4.82%	85.13%
Primary Metal Production	1,037.5	4.03%	89.16%
Chemical Manufacturing	869.5	3.38%	92.53%
Solid Waste Disposal	481.8	1.87%	94.41%
Process Cooling	313.0	1.22%	95.62%
Fabricated Metal Products	260.0	1.01%	96.63%
All Other Categories	867.2	3.37%	100.00%

Carbon Monoxide

Figure 12
Estimated Carbon Monoxide Emission Trend (1000s of Tons/Year)

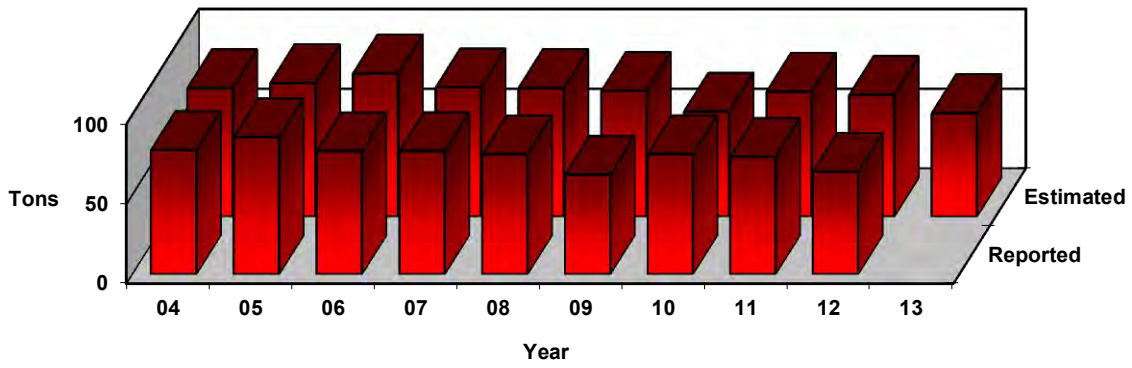


Table 8: Distribution of Carbon Monoxide Emissions - 2013

Category	Estimated Emissions (tons)	Category Contribution	Cumulative Percent
Fuel Combustion	32,185.9	49.58%	49.58%
Primary Metal Production	15,695.1	24.18%	73.76%
Petroleum Industry	3,905.2	6.02%	79.78%
Mineral Products	2,875.3	4.43%	84.20%
Solid Waste Disposal	2,631.1	4.05%	88.26%
Secondary Metal Production	2,501.7	3.85%	92.11%
Chemical Manufacturing	2,055.8	3.17%	95.28%
Food/Agriculture	1,426.2	2.20%	97.48%
In-Process Fuel Use	470.7	0.73%	98.20%
Oil and Gas Production	249.6	0.38%	98.59%
Fabricated Metal Products	226.7	0.35%	98.93%
Health Services	200.8	0.31%	99.24%
All Other Categories	490.9	0.76%	100.00%

Sulfur Dioxide

Figure 13
Estimated Sulfur Dioxide Emission Trend (1000s of Tons/Year)

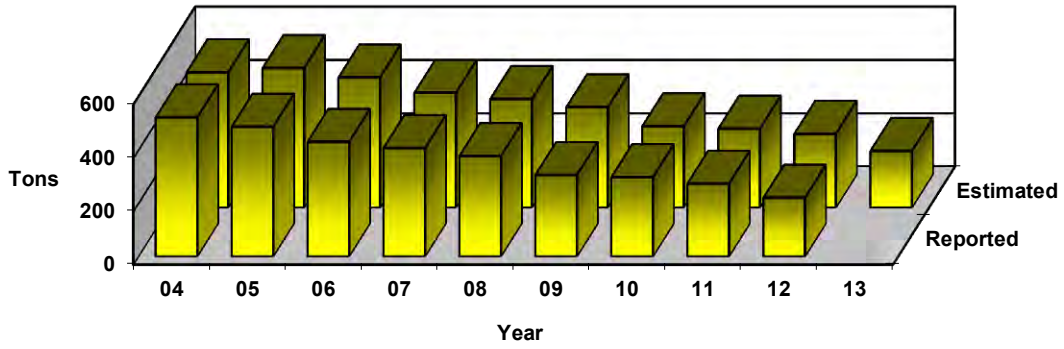


Table 9: Distribution of Sulfur Dioxide Emissions - 2013

Category	Estimated Emissions (tons)	Category Contribution	Cumulative Percent
Fuel Combustion	187,949.7	88.71%	88.71%
Mineral Products	13,079.8	6.17%	94.88%
Petroleum Industry	3,043.6	1.44%	96.32%
Primary Metal Production	2,685.2	1.27%	97.59%
Food/Agriculture	1,718.8	0.81%	98.40%
Chemical Manufacturing	1,381.3	0.65%	99.05%
Solid Waste Disposal	1,026.4	0.48%	99.53%
All Other Categories	988.1	0.47%	100.00%

Nitrogen Oxides

Figure 14
Estimated Nitrogen Oxide Emission Trend (1000s of Tons/Year)

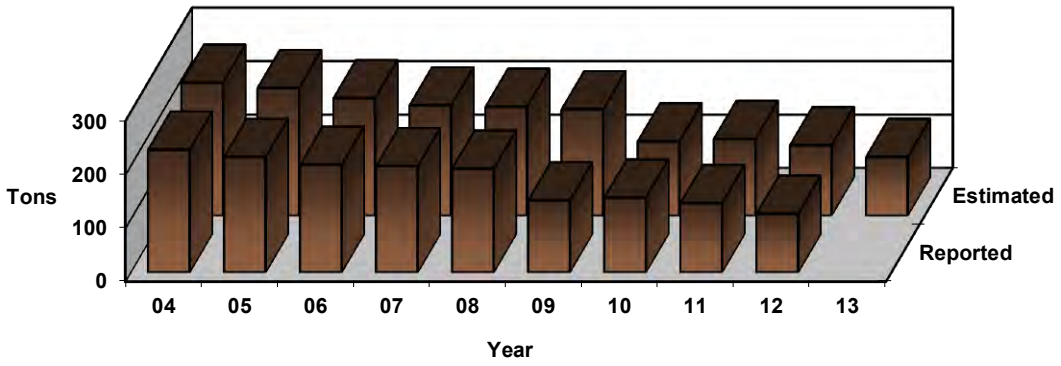


Table 10: Distribution of Nitrogen Oxide Emissions - 2013			
Category	**Estimated Emissions (tons)**	**Category Contribution**	**Cumulative Percent**
Fuel Combustion	88,263.5	80.75%	80.75%
Mineral Products	7,813.4	7.15%	87.90%
Petroleum Industry	5,060.1	4.63%	92.52%
Primary Metal Production	1,580.6	1.45%	93.97%
Food/Agriculture	1,389.9	1.27%	95.24%
Chemical Manufacturing	1,387.7	1.27%	96.51%
Solid Waste Disposal	888.7	0.81%	97.33%
Oil and Gas Production	734.4	0.67%	98.00%
Secondary Metal Production	713.3	0.65%	98.65%
In-Process Fuel Use	672.6	0.62%	99.26%
All Other Categories	803.6	0.74%	100.00%

Description of the Air Sampling Network

The Illinois air monitoring network is composed of instrumentation owned and operated by both the Illinois EPA and by cooperating local agencies. This network has been designed to measure ambient air quality levels in various Illinois Air Quality Control Regions (AQCR). Historically, each AQCR was classified on the basis of known air pollutant concentrations or, where these were not known, estimated air quality. A map of the AQCR's in Illinois and overlapping into surrounding states can be found at the end of this section.

Many local agencies and volunteers cooperate and support the operation of the Illinois air monitoring network. The network contains both continuous and intermittent instruments. The continuous instruments operate throughout the year, while non-continuous instruments operate intermittently based on the schedule shown in **Table A1**. This is the official non-continuous sampling schedule used by the Illinois EPA during 2013.

The Illinois network is deployed along the lines described in the Illinois State Implementation Plan. An updated air monitoring plan is submitted to U.S. EPA each year for review.

In accordance with U.S. EPA air quality monitoring requirements as set forth in Title 40 of the Code of Federal Regulations, Part 58 (40 CFR 58), five types of monitoring stations are used to collect ambient air data. These include State and Local Air Monitoring Stations (SLAMS), National Air Monitoring Stations (NAMS), Photochemical Assessment Monitoring Stations (PAMS), Special Purpose Monitoring Stations (SPMS), and National Core Monitoring Stations (NCore). The types of stations are distinguished from one another on the basis of the general monitoring objectives they are designed to meet.

The SLAMS, NAMS, PAMS, SPMS and NCORE designations for the sites operated within the State of Illinois are provided in the Annual Network Plan (epa.state.il.us/air/monitoring/index.html). All of the industrial sites are considered to be SPMS. **Table A2** is a summary of the distribution of pollutants through the years along with the total number of instruments and the total number of sites. The site directory is listed in **Table A3** and the monitoring directory is listed in **Table A4**.

1. **State/Local Air Monitoring Station (SLAMS) Network -** The SLAMS network is designed to meet a minimum of four basis monitoring objectives:

    a. To determine the highest concentrations expected to occur in the area covered by the network.

    b. To determine representative concentrations in areas of high population density.

    c. To determine the air quality impact of significant sources or source categories.

    d. To determine general background concentration levels.

Table A1
2013 Non-continuous Sampling Schedule

JANUARY						
S	M	T	W	R	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY						
S	M	T	W	R	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

MARCH						
S	M	T	W	R	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL						
S	M	T	W	R	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MAY						
S	M	T	W	R	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE						
S	M	T	W	R	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

JULY						
S	M	T	W	R	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

AUGUST						
S	M	T	W	R	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER						
S	M	T	W	R	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

OCTOBER						
S	M	T	W	R	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

NOVEMBER						
S	M	T	W	R	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

DECEMBER						
S	M	T	W	R	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

13 Every 6 Day Sampling Schedule 22 Every 3 Day Sampling Schedule

2. **National Air Monitoring Station (NAMS) Network -** The NAMS network is a subset of stations selected from the SLAMS network with emphasis given to urban and multisource areas. The primary objectives of the NAMS network are:

   a. To measure expected maximum concentrations.

   b. To measure concentrations in areas where poor air quality is combined with high population exposure.

   c. To provide data useable for the determination of national trends.

   d. To provide data necessary to allow the development of nationwide control strategies.

3. **Photochemical Assessment Monitoring Station (PAMS) Network -** The PAMS network is required in serious, severe, and extreme ozone non-attainment areas to obtain detailed data for ozone, precursors (NOx and VOC), and meteorology. VOC and NOx sampling is required for the period June - August each year. Ozone sampling occurs during the ozone season, April - October. Network design is based on four monitoring types. In Illinois PAMS are required in the Chicago metropolitan area only.

   a. Type 1 sites are located upwind of the non-attainment area and are located to measure background levels of ozone and precursors coming into the area

   b. Type 2 sites are located slightly downwind of the major source areas of ozone precursors.

   c. Type 3 sites are located at the area of maximum ozone concentrations.

   d. Type 4 sites are located at the domain edge of the non-attainment area and measure ozone and precursors leaving the area.

4. **Special Purpose Monitoring Station (SPMS) Network -** Any monitoring site that is not a designated SLAMS or NAMS is considered a special purpose monitoring station. Some of the SPMS network objectives are as follows:

   a. To provide data as a supplement to stations used in developing local control strategies, including enforcement actions.

   b. To verify the maintenance of ambient standards in areas not covered by the SLAMS/NAMS network.

   c. To provide data on non-criteria pollutants.

5. **National Core Station (NCore) Network -** NCore is a multi-pollutant network that integrates several advanced measurement systems. It is anticipated that each state operate at least one NCore site by 2011. In Illinois, Northbrook and Bondville are considered NCore sites. A few of the NCore network objectives are as follows:

   a. Support for development of emission strategies and accountability of emission strategy progress through tracking long-term trends of pollutants and their precursors.

b. Support of long-term health assessments that contribute to review of national standards.

c. Support to scientific studies ranging across technological, health and atmospheric process disciplines.

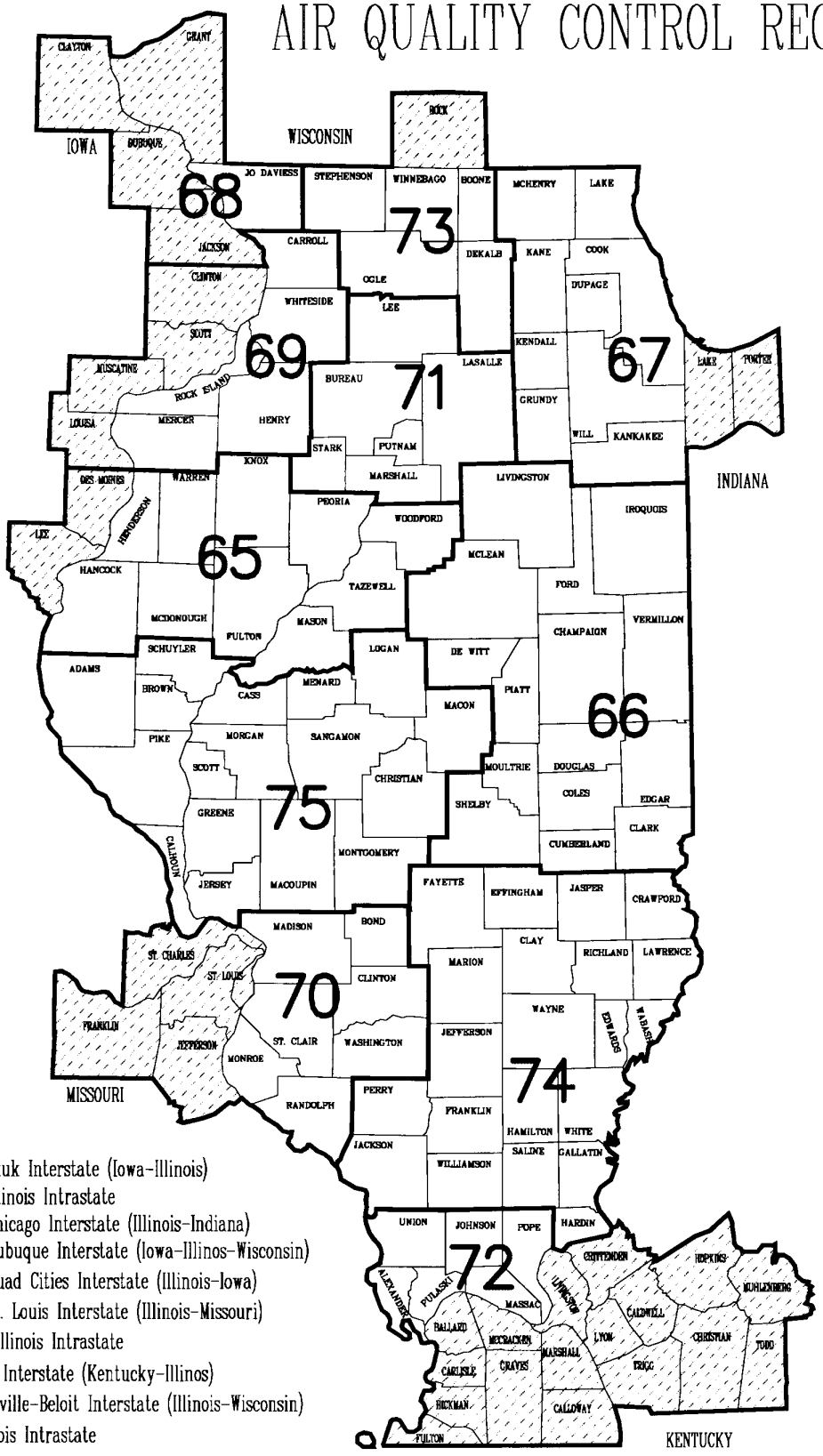
d. Support to ecosystem assessments recognizing that national air quality networks benefit ecosystems assessments.

Table A2
Distribution of Air Monitoring Equipment

Parameter	2013	2012	2011	2010	2009
Particulate Matter ($PM_{2.5}$)	33	34	34	38	38
$PM_{2.5}$ Air Quality Index	11	12	12	13	13
$PM_{2.5}$ Speciation	5	5	5	5	5
Particulate Matter (PM_{10})	5	5	5	17	17
Total Suspended Particulates	13	13	13	18	13
Lead	13	13	13	18	13
Continuous Mercury	0	0	1	1	1
Sulfur Dioxide	16	15	15	19	19
Nitrogen Dioxide	6	7	7	7	7
Ozone	38	38	34	36	36
Carbon Dioxide	1	1	1	1	1
Carbon Monoxide	3	9	9	9	9
Volatile Organic Compounds	2	2	2	2	2
Semi Volatile Organic Compounds	1	1	1	1	1
Semi Non Methane Organic Compounds	1	1	1	1	1
Carbonyls	2	2	2	2	2
Wind Systems	16	17	17	18	18
Solar Radiation	2	2	2	9	9
Meteorology	2	3	3	3	3
Total Instruments	170	180	177	218	208
Total Sites	72	78	75	84	77

There were six sites discontinued in the monitoring network and two sites were consolidated into one in 2013. Cermak and Mayfair lead was discontinued. A new site was established in Geneva measuring lead from Johnson Controls. A second new site was established in Chicago measuring lead from ArcelorMittal Steel. Carbon monoxide monitors were discontinued at Chicago CTA, Schiller Park, Cicero, Maywood, Peoria, Springfield, and Rockford. $PM_{2.5}$ for Air Quality Index was discontinued at Chicago-Washington High School, Maywood, and Naperville. $PM_{2.5}$ for Air Quality Index was added at Cicero and Braidwood. A $PM_{2.5}$ filter based monitor was discontinued at Quincy. PM_{10} was discontinued at Granite City 15th & Madison and moved to Granite City 23rd & Madison. Ozone was discontinued at Chicago Jardine and moved to Schiller Park. Two Bondville sites, one operated by Illinois EPA and the other operated by US EPA, were combined into one site identification.

AIR QUALITY CONTROL REGIONS



65 - Bulington-Keokuk Interstate (Iowa-Illinois)
66 - East Central Illinois Intrastate
67 - Metropolitan Chicago Interstate (Illinois-Indiana)
68 - Metropolitan Dubuque Interstate (Iowa-Illinois-Wisconsin)
69 - Metropolitan Quad Cities Interstate (Illinois-Iowa)
70 - Metropolitan St. Louis Interstate (Illinois-Missouri)
71 - North Central Illinois Intrastate
72 - Paducah-Cairo Interstate (Kentucky-Illinos)
73 - Rockford-Janesville-Beloit Interstate (Illinois-Wisconsin)
74 - Southeast Illinois Intrastate
75 - West Central Illinois Intrastate

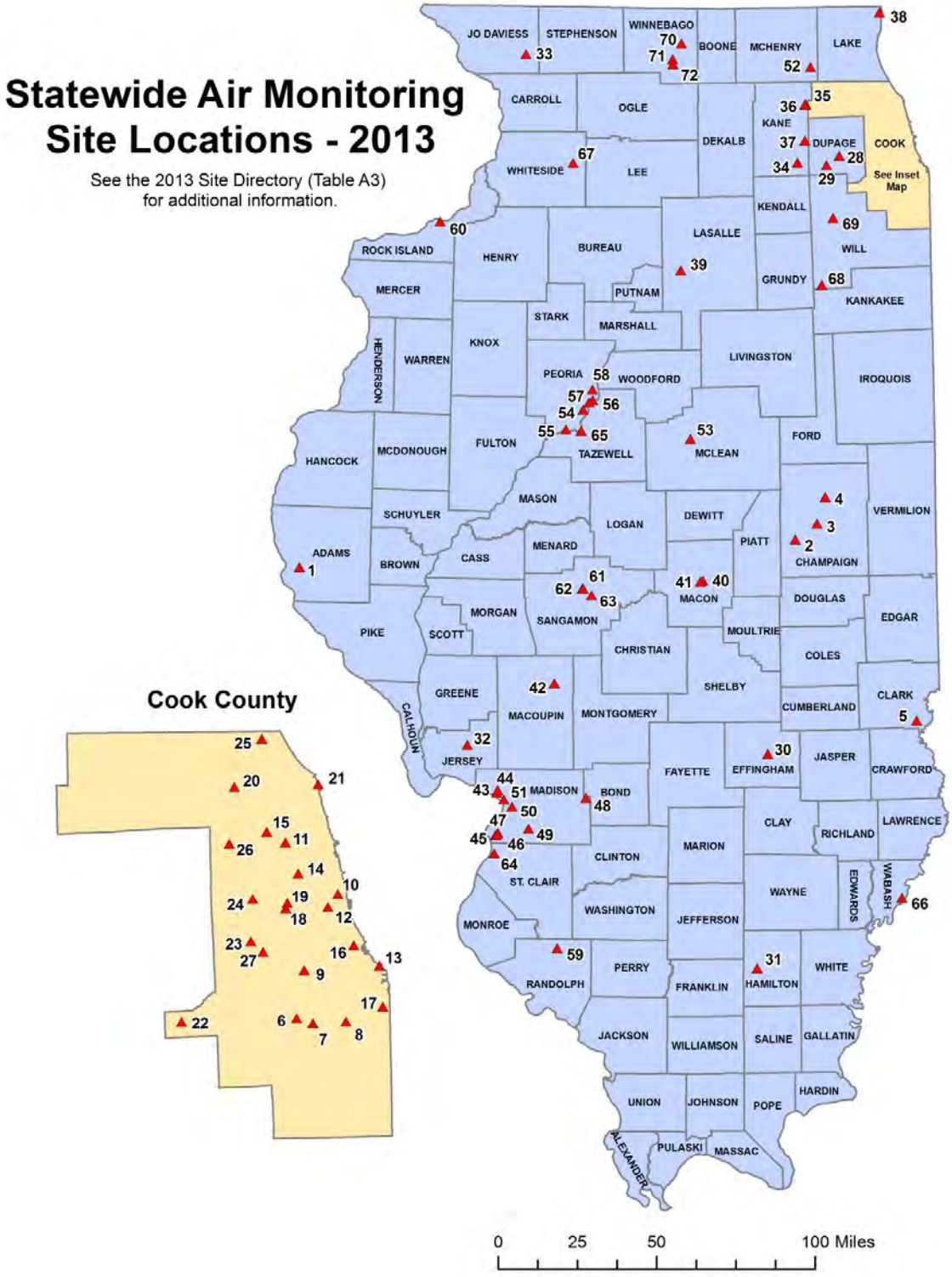

Statewide Air Monitoring Site Locations - 2013
See the 2013 Site Directory (Table A3) for additional information.
Cook County
See Inset Map
JO DAVIESS
STEPHENSON
WINNEBAGO
BOONE
MCHENRY
LAKE
CARROLL
OGLE
DEKALB
KANE
DUPAGE
COOK
WHITESIDE
LEE
KENDALL
WILL
ROCK ISLAND
HENRY
BUREAU
LASALLE
GRUNDY
KANKAKEE
MERCER
PUTNAM
STARK
MARSHALL
HENDERSON
WARREN
KNOX
LIVINGSTON
PEORIA
WOODFORD
IROQUOIS
HANCOCK
MCDONOUGH
FULTON
TAZEWELL
MCLEAN
FORD
SCHUYLER
MASON
LOGAN
DEWITT
VERMILION
ADAMS
BROWN
CASS
MENARD
PIATT
CHAMPAIGN
PIKE
SCOTT
MORGAN
SANGAMON
MACON
DOUGLAS
EDGAR
CHRISTIAN
MOULTRIE
COLES
GREENE
CALHOUN
MACOUPIN
MONTGOMERY
SHELBY
CUMBERLAND
CLARK
JERSEY
FAYETTE
EFFINGHAM
JASPER
CRAWFORD
MADISON
BOND
CLAY
RICHLAND
LAWRENCE
CLINTON
MARION
ST. CLAIR
WAYNE
EDWARDS
WABASH
WASHINGTON
JEFFERSON
MONROE
RANDOLPH
PERRY
FRANKLIN
HAMILTON
WHITE
JACKSON
WILLIAMSON
SALINE
GALLATIN
UNION
JOHNSON
POPE
HARDIN
ALEXANDER
PULASKI
MASSAC
0
25
50
100 Miles

Table A3
2013 Site Directory

Site Map ID	AQS ID	County	City	Address	Latitude Longitude	Owner / Operator
1	17-001-0007	Adams	Quincy	John Wood Comm. College 1301 South 48th St.	+39.91540937 -91.33586832	IL EPA
2	17-019-1001	Champaign	Bondville	State Water Survey Township Rd. 500 E.	+40.05224171 -88.37254916	IL EPA/US EPA
3	17-019-0006	Champaign	Champaign	Ameren Substation 904 N. Walnut	+40.1237962 - 88.229531	IL EPA
4	17-019-0007	Champaign	Thomasboro	North Thomas St.	+40.244913 -88.188519	IL EPA
5	17-023-0001	Clark	West Union	416 S. State Highway 1 & West Union	+39.210883 -87.668416	Indiana DEP
6	17-031-0001	Cook	Alsip	Village Garage 4500 W. 123rd St.	+41.6709919 -87.7324569	CCDEC
7	17-031-2001	Cook	Blue Island	Eisenhower High School 12700 Sacramento	+41.66210943 -87.69646652	CCDEC
8	17-031-0113	Cook	Chicago	ArcelorMittal Steel W. 127th St. and S. State St.	+41.663611 -87.622483	IL EPA
9	17-031-0076	Cook	Chicago	Com Ed Maintenance Bldg. 7801 Lawndale	+41.75139998 -87.71348815	CCDEC
10	17-031-0063	Cook	Chicago	CTA Building 320 S. Franklin	+41.877628 -87.635027	IL EPA
11	17-031-0052	Cook	Chicago	Mayfair Pump Station 4850 Wilson Ave.	+41.96548483 -87.74992806	CCDEC
12	17-031-0110	Cook	Chicago	Perez Elementary School 1241 19th St.	+41.855771 -87.657932	CCDEC
13	17-031-0032	Cook	Chicago	South Water Filtration Plant 3300 E. Cheltenham Pl.	+41.75583241 -87.54534967	CCDEC
14	17-031-0057	Cook	Chicago	Springfield Pump Station 1745 N. Springfield Ave.	+41.912526 -87.722667	CCDEC
15	17-031-1003	Cook	Chicago	Taft High School 6545 W. Hurlbut St	+41.98433233 -87.7920017	CCDEC
16	17-031-0064	Cook	Chicago	University of Chicago 5720 S. Ellis Ave.	+41.79078688 -87.60164649	CCDEC
17	17-031-0022	Cook	Chicago	Washington High School 3535 E. 114th St.	+41.68716544 -87.53931548	CCDEC
18	17-031-4002	Cook	Cicero	Cook County Trailer 1820 S. 51st Ave	+41.85524313 -87.7524697	CCDEC
19	17-031-6005	Cook	Cicero	Liberty School 13th St. & 50th Ave.	+41.86442642 -87.74890238	CCDEC
20	17-031-4007	Cook	Des Plaines	Regional Office Building 9511 W. Harrison St	+42.06028469 -87.86322543	IL EPA
21	17-031-7002	Cook	Evanston	Water Pumping Station 531 E. Lincoln	+42.06185724 -87.67416716	IL EPA
22	17-031-1601	Cook	Lemont	Cook County Trailer 729 Houston	+41.66812034 -87.99056969	CCDEC
23	17-031-1016	Cook	Lyons Township	Village Hall 50th St & Glencoe	+41.80116701 -87.8319447	IL EPA
24	17-031-6003	Cook	Maywood	4th District Court Building 1500 Maybrook Dr.	+41.87220158 -87.8261648	CCDEC

Table A3
2013 Site Directory

Site Map ID	AQS ID	County	City	Address	Latitude Longitude	Owner / Operator
25	17-031-4201	Cook	Northbrook	Northbrook Water Plant 750 Dundee Rd.	+42.13999619 -87.79922692	IL EPA
26	17-031-3103	Cook	Schiller Park	IEPA Trailer 4743 Mannheim Rd.	+41.96519348 -87.87626473	IL EPA
27	17-031-3301	Cook	Summit	Graves Elementary School 60th St. & 74th Ave.	+41.78276601 -87.80537679	CCDEC
28	17-043-6001	DuPage	Lisle	Morton Arboretum Route 53	+41.81304939 -88.0728269	IL EPA
29	17-043-4002	DuPage	Naperville	City Hall 400 S. Eagle St.	+41.77107094 -88.15253365	IL EPA
30	17-049-1001	Effingham	Effingham	Central Junior High School Route 45 South	+39.06715932 -88.54893401	IL EPA
31	17-065-0002	Hamilton	Knight Prairie	Ten Mile Creek DNR Office State Route 14	+38.08215516 -88.6249434	IL EPA
32	17-083-1001	Jerseyville	Jerseyville	Illini Junior High School Liberty St. & County Rd.	+39.11053947 -90.32407986	IL EPA
33	17-085-9991	Jo Daviess	Stockton	10952 E. Parker Rd.	+42.2869 -89.9997	US EPA
34	17-089-0007	Kane	Aurora	Health Department 1240 N. Highland	+41.78471651 -88.32937361	IL EPA
35	17-089-0005	Kane	Elgin	Larsen Junior High School 665 Dundee Rd.	+42.04914776 -88.27302929	IL EPA
36	17-089-0003	Kane	Elgin	McKinley School 258 Lovell St.	+42.050403 -88.28001471	IL EPA
37	17-089-0113	Kane	Geneva	Johnson Controls 300 S. Glengarry Dr.	+41.884417 -88.282692	IL EPA
38	17-097-1007	Lake	Zion	Camp Logan Illinois Beach State Park	+42.4675733 -87.81004705	IL EPA
39	17-099-0007	La Salle	Oglesby	308 Portland Ave.	+41.29301454 -89.04942498	IL EPA
40	17-115-0013	Macon	Decatur	IEPA Trailer 2200 N. 22nd	+39.866933 -88.925452	IL EPA
41	17-115-0110	Macon	Decatur	Mueller 1226 E. Garfield	+39.862576 -88.940748	IL EPA
42	17-117-0002	Macoupin	Nilwood	IEPA Trailer Heaton & Dubois	+39.39607533 -89.80973892	IL EPA
43	17-119-0008	Madison	Alton	Clara Barton School 409 Main St.	+38.89018605 -90.14803114	IL EPA
44	17-119-2009	Madison	Alton	SIU Dental Clinic 1700 Annex St.	+38.90308534 -90.14316803	IL EPA
45	17-119-0010	Madison	Granite City	Air Products 15th & Madison	+38.69443831 -90.15395426	IL EPA
46	17-119-1007	Madison	Granite City	Fire Station #1 23rd & Madison	+38.70453426 -90.13967484	IL EPA
47	17-119-0024	Madison	Granite City	Gateway Medical Center 2100 Madison Ave.	+38.7006315 -90.14476267	IL EPA
48	17-119-9991	Madison	Highland	5403 State Rd. 160	+38.8690 -89.6228	US EPA
49	17-119-1009	Madison	Maryville	Southwest Cable TV 200 W. Division	+38.72657262 -89.95996251	IL EPA

Table A3
2013 Site Directory

Site Map ID	AQS ID	County	City	Address	Latitude Longitude	Owner / Operator
50	17-119-1010	Madison	South Roxana	South Roxana Elementary School Michigan St.	+38.82830334 -90.05843262	IL EPA
51	17-119-3007	Madison	Wood River	Water Treatment Plant 54 N. Walcott	+38.86066947 -90.10585111	IL EPA
52	17-111-0001	McHenry	Cary	Cary Grove High School 1st St. & Three Oaks Rd.	+42.22144166 -88.24220734	IL EPA
53	17-113-2003	McLean	Normal	ISU Physical Plant Main & Gregory	+40.51873537 -88.99689571	IL EPA
54	17-143-0110	Peoria	Bartonville	Pump Station Sanitation Rd.	+40.653703 -89.643375	IL EPA
55	17-143-0210	Peoria	Mapleton	Residential 9725 W. Wheeler Rd.	+40.562633 -89.747114	IL EPA
56	17-143-0037	Peoria	Peoria	City Office Building 613 N.E. Jefferson	+40.697007 -89.58473722	IL EPA
57	17-143-0024	Peoria	Peoria	Fire Station #8 MacArthur & Hurlburt	+40.68742038 -89.60694277	IL EPA
58	17-143-1001	Peoria	Peoria Heights	Peoria Heights High School 508 E. Glen Ave.	+40.74550393 -89.58586902	IL EPA
59	17-157-0001	Randolph	Houston	IEPA Trailer Hickory Grove & Fallview	+38.17627761 -89.78845862	IL EPA
60	17-161-3002	Rock Island	Rock Island	Rock Island Arsenal 32 Rodman Ave.	+41.51472697 -90.51735026	IL EPA
61	17-167-0012	Sangamon	Springfield	Agricultural Building State Fair Grounds	+39.83192087 -89.64416359	IL EPA
62	17-167-0014	Sangamon	Springfield	Illinois Building State Fair Grounds	+39.831522 -89.640926	IL EPA
63	17-167-0006	Sangamon	Springfield	Sewage Treatment Plant 3300 Mechanicsburg Rd.	+39.80061377 -89.59122532	IL EPA
64	17-163-0010	St. Clair	East St. Louis	RAPS Trailer 13th & Tudor	+38.61203448 -90.16047663	IL EPA
65	17-179-0004	Tazewell	Pekin	Fire Station #3 272 Derby	+40.55643203 -89.65402083	IL EPA
66	17-185-0001	Wabash	Mount Carmel	Division St.	+38.397276 -87.773631	Indiana DEP
67	17-195-0110	Whiteside	Sterling	Sauk Medical Clinic 705 West 3rd St.	+41.788383 -89.706728	IL EPA
68	17-197-1011	Will	Braidwood	Com Ed Training Center 36400 S. Essex Rd.	+41.22153707 -88.19096718	IL EPA
69	17-197-1002	Will	Joliet	Pershing Elementary School Midland & Campbell Sts.	+41.52688509 -88.11647381	IL EPA
70	17-201-2001	Winnebago	Loves Park	Maple Elementary School 1405 Maple Ave.	+42.33498222 -89.0377748	IL EPA
71	17-201-0013	Winnebago	Rockford	Health Department 201 Division St.	+42.26308105 -89.09276716	IL EPA
72	17-201-0110	Winnebago	Rockford	J. Rubin & Company 305 Peoples Ave.	+42.240867 -89.091467	IL EPA

Table A4
2013 Monitoring Directory

AQS ID	City	CO	CO_2	NO_2	Ozone	PM_{10}	$PM_{2.5}$ FRM	$PM_{2.5}$ AQI	$PM_{2.5}$ Speciation	SO_2	VOC	Toxics	TSP Pb, Metals	Wind System	Solar	Meteorological
17-001-0007	Quincy															
17-019-0006	Champaign N. Walnut															
17-019-0007	Thomasboro															
17-019-1001	Bondville	T								T						
17-023-0001	West Union															
17-031-0001	Alsip															
17-031-0022	Chicago Washington High School					C										
17-031-0026	Chicago Cermak Pump Station															
17-031-0032	Chicago South Water Filtration															
17-031-0052	Chicago Mayfair Pump Station															
17-031-0057	Chicago Springfield Pump Station															
17-031-0063	Chicago CTA Building															
17-031-0064	Chicago University of Chicago															
17-031-0072	Chicago Jardine Water Plant															
17-031-0076	Chicago Com Ed Maintenance															
17-031-0110	Chicago Perez Elementary															
17-031-0113	Chicago ArcelorMittal Steel															
17-031-1003	Chicago Taft High School															
17-031-1016	Lyons Township															
17-031-1601	Lemont															
17-031-2001	Blue Island															
17-031-3103	Schiller Park															
17-031-3301	Summit															

Active Monitor	Site/Monitor Installed	Site/Monitor Removed	C = Continuous PM_{10}, T = Trace level monitor

Table A4
2013 Monitoring Directory

AQS ID	City	CO	CO_2	NO_2	Ozone	PM_{10}	$PM_{2.5}$ FRM	$PM_{2.5}$ AQI	$PM_{2.5}$ Speciation	SO_2	VOC	Toxics	TSP Pb, Metals	Wind System	Solar	Meteorological
17-031-4002	Cicero Cook County Trailer															
17-031-4007	Des Plaines															
17-031-4201	Northbrook	T								T						
17-031-6003	Maywood 4th District Court															
17-031-6004	Maywood Com Ed Maintenance															
17-031-6005	Cicero Liberty School															
17-031-6006	Maywood 4th District Court															
17-031-7002	Evanston															
17-043-4002	Naperville															
17-043-6001	Lisle															
17-049-1001	Effingham															
17-065-0002	Knight Prairie															
17-083-1001	Jerseyville															
17-085-9991	Stockton															
17-089-0003	Elgin McKinley School															
17-089-0005	Elgin Larsen Jr. High School															
17-089-0007	Aurora															
17-089-0113	Geneva Johnson Controls															
17-097-1007	Zion															
17-099-0007	Oglesby															
17-111-0001	Cary															
17-113-2003	Normal															
17-115-0013	Decatur IEPA Trailer															

Active Monitor	Site/Monitor Installed	Site/Monitor Removed	T = Trace level monitor

Table A4
2013 Monitoring Directory

AQS ID	City	CO	CO_2	NO_2	Ozone	PM_{10}	$PM_{2.5}$ FRM	$PM_{2.5}$ AQI	$PM_{2.5}$ Speciation	SO_2	VOC	Toxics	TSP Pb, Metals	Wind System	Solar	Meteorological
17-115-0110	Decatur Mueller															
17-117-0002	Nilwood															
17-119-0008	Alton Clara Barton Elementary															
17-119-2009	Alton SIU Dental Clinic															
17-119-0010	Granite City Air Products															
17-119-0024	Granite City Gateway Medical Center															
17-119-1007	Granite City Fire Station #1															
17-119-1009	Maryville															
17-119-1010	South Roxana															
17-119-3007	Wood River															
17-119-9991	Highland															
17-143-0024	Peoria Fire Station #8															
17-143-0036	Peoria Commercial Building															
17-143-0037	Peoria City Office Building															
17-143-0110	Bartonville															
17-143-0210	Mapleton															
17-143-1001	Peoria Heights															
17-157-0001	Houston															
17-161-3002	Rock Island															
17-163-0010	East St. Louis															
17-167-0006	Springfield Sewage Treatment Plant															
17-167-0008	Springfield Federal Building															
17-167-0012	Springfield Agricultural Building															
Active Monitor	Site/Monitor Installed	Site/Monitor Removed														

Table A4
2013 Monitoring Directory

AQS ID	City	CO	CO_2	NO_2	Ozone	PM_{10}	$PM_{2.5}$ FRM	$PM_{2.5}$ AQI	$PM_{2.5}$ Speciation	SO_2	VOC	Toxics	TSP Pb, Metals	Wind System	Solar	Meteorological
17-167-0014	Springfield Illinois Building				■											
17-179-0004	Pekin									■						
17-185-0001	Mount Carmel									■						
17-195-0110	Sterling												■			
17-197-1002	Joliet Pershing Elementary						■									
17-197-1011	Braidwood				■		■									
17-201-0011	Rockford City Hall	■														
17-201-0013	Rockford Health Department						■									
17-201-0110	Rockford J. Rubin & Company												■			
17-201-2001	Loves Park				■									■		

Active Monitor	Site/Monitor Installed	Site/Monitor Removed

Air Quality Data Interpretation

In order to provide a uniform procedure for determining whether a sufficient amount of air quality data has been collected by a sensor in a given time period (year, quarter, month, day, etc.) to accurately represent air quality during that time period, a minimum statistical selection criteria was developed.

In order to calculate an annual average for non-continuous parameters, a minimum of 75% of the data that was scheduled to be collected must be available, i.e., 45 samples per year for an every-six-day schedule (total possible of 60 samples). Additionally, in order to have proper quarterly balance, each site on an every sixth day schedule should have at least 10 samples per calendar quarter. This provides for a 20% balance in each quarter if the minimum required annual sampling is achieved.

PM_{10} and $PM_{2.5}$ samplers operate on one of three sampling frequencies:

- Every-day sampling (68 samples required each quarter for 75% data capture)
- Every-third-day sampling (23 samples required each quarter for 75% data capture)
- Every-six-day sampling (12 samples required each quarter for 75% data capture).

To calculate an annual PM_{10} or $PM_{2.5}$ mean, arithmetic means are calculated for each quarter in which valid data is recorded in at least 75% of the possible sampling periods. The annual mean is then the arithmetic average of the four quarterly means.

To determine an annual average for continuous data 75% of the total possible yearly observations are necessary, i.e., a minimum of 6570 hours (75% of the hours available) were needed in 2012. In order to provide a balance between the respective quarters, each quarter should have at least 1300 hours which is 20% of the 75% minimum annual requirement. To calculate quarterly averages at sites which do not meet the annual criteria, 75% of the total possible observations in a quarter are needed, i.e., a minimum of 1647 hours of 2200 hours available. Monthly averages also require 75% of the total possible observations in a month, i.e., 540 hours as a minimum. Additionally, for short-term running averages (24 hour, 8 hour, 3 hour) 75% of the data during the particular time period is needed, i.e., 18 hours for a 24-hour average, 6 hours for an 8-hour average and 3 hours for a 3-hour average.

For ozone, a valid day for 1-hour samples must have 75% of the hours between 9 a.m. and 9 p.m. otherwise it is considered missing. A missing day can be considered valid if the peak ozone concentration on the preceding and succeeding days is less than 0.090 ppm. The expected exceedances are actual exceedances adjusted for the percent of missing days. For 8-hour samples, forward running averages are computed for each hour which includes the next seven hours as well. A valid 8-hour average has at least 6 valid 1-hour averages within the 8-hour period. A valid 8-hour day contains at least 75% (18) of the possible 8-hour running averages. Complete sampling over a three year period requires an average of 90% valid days with each year having at least 75% valid days.

Data listed as not meeting the minimum statistical selection criteria in this report were so noted after evaluation using the criteria above. Although short term averages (3, 8, 24 hours) have been computed for certain sites not meeting the annual criteria, these averages may not be representative of an entire year's air quality. In certain circumstances where even the 75% criteria is met, the number and/or magnitude of short term averages may not be directly comparable from one year to the next because of seasonal distributional differences.

For summary purposes, the data is expressed in the number of figures to which the raw data is validated. Extra figures may be

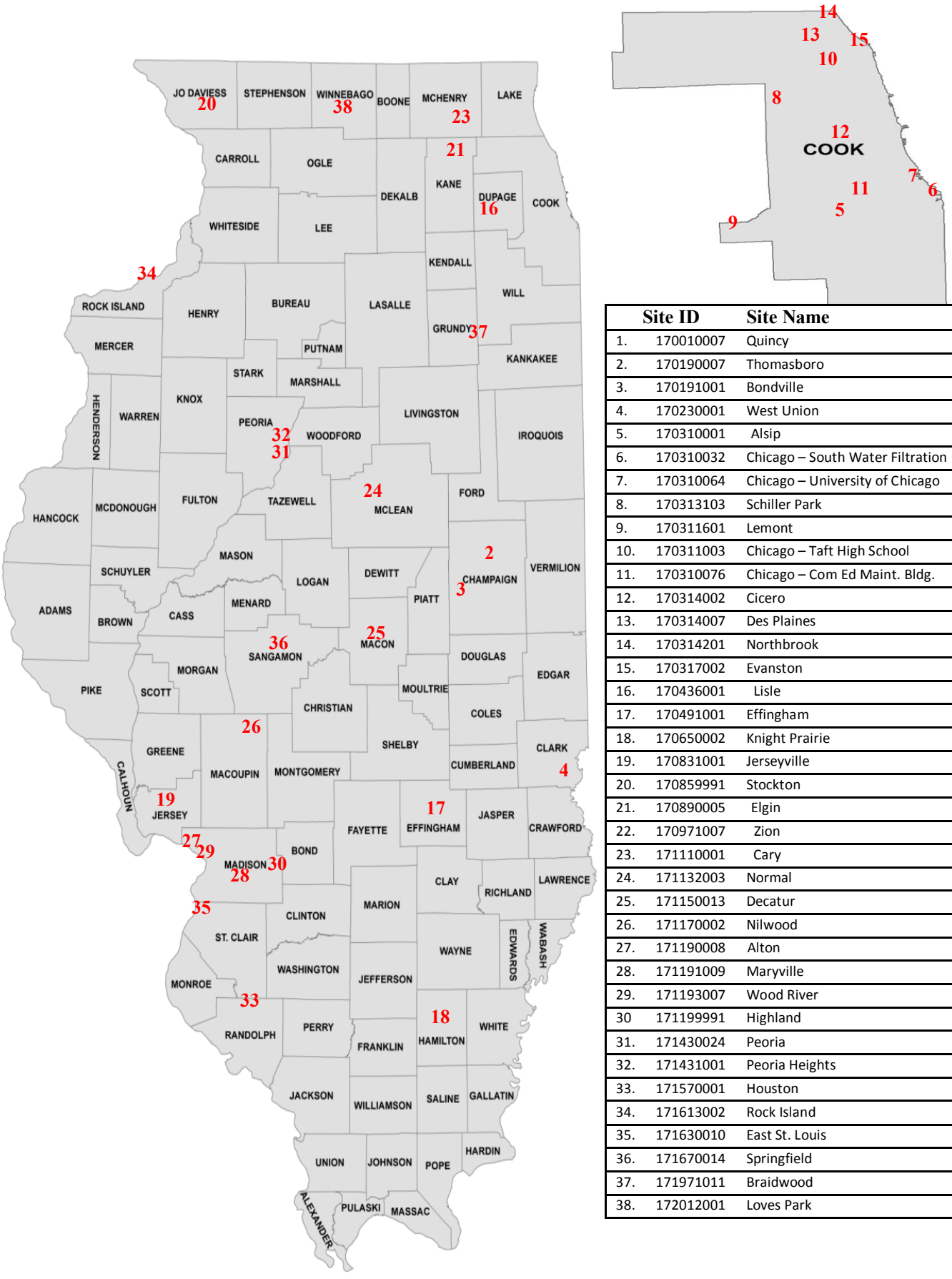
carried in the averaging technique, but the result is rounded to the appropriate number of figures. For example, the values 9, 9, 10 are averaged to give 9; whereas the values 9.0, 9.0, 10.0 are averaged to 9.3. The raw data itself should not be expressed to more significant figures than the sensitivity of the monitoring methodology allows.

In comparing data to the various air quality standards, the data are implicitly rounded to the number of significant figures specified by that standard. For example, to exceed the 0.12 ppm hourly ozone standard, an hourly value must be 0.125 ppm or higher, to exceed the 9 ppm CO 8-hour standard, an 8-hour average must be 9.5 ppm or higher. Peak averages, though, will be expressed to the number of significant figures appropriate to that monitoring methodology.

The National Ambient Air Quality Standard (NAAQS) for carbon monoxide (CO) has a short-term standard for ambient air concentrations not to be exceeded more than once per year. Sulfur dioxide (SO_2) has a 1-hour standard which is the 3-year average of each year's 99^{th} percentile values. Nitrogen dioxide (NO_2) has a 1-hour standard which is the 3-year average of each year's 98^{th} percentile values. Particulate matter (PM_{10}) has a 24-hour standard which cannot average more than 1 over a three year period (total of 3 in three years). Particulate matter ($PM_{2.5}$) has a 24-hour standard which is a 3-year average of each year's 98^{th} percentile values. In the case of ozone, the expected number of exceedances (one hour per day greater than 0.12 ppm) may not average more than one per year in any period of three consecutive years. The 8-hour ozone standard is concentration based and as such is the average of the fourth highest value each year over a three year period. The standards are promulgated in this manner in order to protect the public from excessive levels of pollution both in terms of acute and chronic health effects.

The following data tables detail and summarize air quality in Illinois in 2013. The tables of short term exceedances list those sites which exceeded any of the short term primary standards (24 hours or less). The detailed data tables list averages and peak concentrations for all monitoring sites in Illinois.

2013 Ozone Monitoring Sites



	Site ID	Site Name
1.	170010007	Quincy
2.	170190007	Thomasboro
3.	170191001	Bondville
4.	170230001	West Union
5.	170310001	Alsip
6.	170310032	Chicago – South Water Filtration
7.	170310064	Chicago – University of Chicago
8.	170313103	Schiller Park
9.	170311601	Lemont
10.	170311003	Chicago – Taft High School
11.	170310076	Chicago – Com Ed Maint. Bldg.
12.	170314002	Cicero
13.	170314007	Des Plaines
14.	170314201	Northbrook
15.	170317002	Evanston
16.	170436001	Lisle
17.	170491001	Effingham
18.	170650002	Knight Prairie
19.	170831001	Jerseyville
20.	170859991	Stockton
21.	170890005	Elgin
22.	170971007	Zion
23.	171110001	Cary
24.	171132003	Normal
25.	171150013	Decatur
26.	171170002	Nilwood
27.	171190008	Alton
28.	171191009	Maryville
29.	171193007	Wood River
30	171199991	Highland
31.	171430024	Peoria
32.	171431001	Peoria Heights
33.	171570001	Houston
34.	171613002	Rock Island
35.	171630010	East St. Louis
36.	171670014	Springfield
37.	171971011	Braidwood
38.	172012001	Loves Park

Table B1
2013 1-Hour Ozone Exceedances

EXCEEDANCES OF THE FORMER 1-HOUR PRIMARY STANDARD OF 0.12 PPM		
Date	**City**	**Concentration**
None	None	None
Total Over 0.12 ppm	0	
Total Days Over 0.12 ppm	0	

Table B2
2013 8-Hour Ozone Exceedances

EXCEEDANCES OF THE 8-HOUR PRIMARY STANDARD OF 0.075 PPM						
Date	**City**	**Concentration**		**Date**	**City**	**Concentration**
5/1	Zion	0.077				
5/14	Northbrook	0.081				
	Zion	0.081				
	Evanston	0.080				
6/20	Cary	0.076				
7/18	Jerseyville	0.081				
	Alton	0.079				
	Wood River	0.076				
8/18	Lemont	0.077				
9/6	Jerseyville	0.086				
	Wood River	0.076				
9/9	Wood River	0.081				
	Maryville	0.079				
	Northbrook	0.078				
9/10	Highland	0.080				
9/11	Maryville	0.081				

Total Over 0.075 ppm	16
Total Days Over 0.075 ppm	9

Table B3
2013 Ozone Highs

AQS ID	City	Number Of Days 8hr Greater Than 0.075 ppm			4th Highest Samples 1hr (ppm)				4th Highest Samples 8hr (ppm)			
		2013	2012	2011								
17-001-0007	Quincy	0	2	0	0.075	0.071	0.071	0.070	0.069	0.066	0.063	0.063
17-019-0007	Thomasboro	0	2	4	0.079	0.070	0.070	0.068	0.068	0.065	0.064	0.063
17-019-1001	Bondville	0	4	3	0.077	0.074	0.073	0.072	0.070	0.069	0.068	0.066
17-023-0001	West Union	0	1	0	0.070	0.069	0.067	0.066	0.064	0.063	0.062	0.061
17-031-0001	Alsip	0	8	2	0.079	0.076	0.075	0.071	0.069	0.069	0.066	0.064
17-031-0032	Chicago South Water Filtration	0	13	4	0.092	0.089	0.088	0.082	0.075	0.074	0.073	0.071
17-031-0064	Chicago University of Chicago	0	7	3	0.073	0.070	0.066	0.064	0.064	0.063	0.061	0.058
17-031-0076	Chicago Com Ed Maintenance	0	7	3	0.079	0.072	0.071	0.070	0.066	0.066	0.066	0.062
17-031-1003	Chicago Taft High School	0	4	1	0.082	0.081	0.079	0.079	0.071	0.069	0.068	0.066
17-031-1601	Lemont	1	8	1	0.083	0.076	0.074	0.073	0.077	0.066	0.065	0.064
17-031-3103	Schiller Park	0	-	-	0.080	0.072	0.070	0.068	0.064	0.063	0.063	0.062
17-031-4002	Cicero Cook County Trailer	0	8	1	0.076	0.076	0.074	0.074	0.068	0.068	0.066	0.063
17-031-4007	Des Plaines	0	3	1	0.088	0.083	0.080	0.080	0.074	0.074	0.068	0.067
17-031-4201	Northbrook	2	16	4	0.094	0.093	0.078	0.078	0.081	0.078	0.074	0.069
17-031-7002	Evanston	1	15	4	0.086	0.084	0.078	0.074	0.080	0.072	0.069	0.069
17-043-6001	Lisle	0	2	1	0.083	0.080	0.075	0.074	0.075	0.070	0.063	0.063
17-049-1001	Effingham	0	2	0	0.076	0.074	0.072	0.070	0.069	0.067	0.067	0.064
17-065-0002	Knight Prairie	0	10	3	0.082	0.071	0.071	0.070	0.066	0.066	0.066	0.064
17-083-1001	Jerseyville	2	14	4	0.099	0.097	0.083	0.083	0.086	0.081	0.070	0.068
17-085-9991	Stockton	0	2	0	0.085	0.075	0.072	0.068	0.072	0.069	0.065	0.065
17-089-0005	Elgin Larsen Jr. High School	0	3	1	0.078	0.075	0.074	0.071	0.069	0.067	0.065	0.064
17-097-1007	Zion	2	19	5	0.091	0.089	0.083	0.082	0.081	0.077	0.074	0.072
17-111-0001	Cary	1	4	1	0.087	0.078	0.074	0.072	0.076	0.069	0.066	0.065
17-113-2003	Normal	0	6	1	0.076	0.075	0.074	0.074	0.072	0.069	0.069	0.069
17-115-0013	Decatur IEPA Trailer	0	4	2	0.072	0.071	0.070	0.070	0.066	0.064	0.064	0.064

Table B3
2013 Ozone Highs

AQS ID	City	Number Of Days 8hr Greater Than 0.075 ppm			4th Highest Samples 1hr (ppm)				4th Highest Samples 8hr (ppm)			
		2013	2012	2011								
17-117-0002	Nilwood	0	1	3	0.081	0.077	0.075	0.074	0.066	0.065	0.065	0.065
17-119-0008	Alton Clara Barton School	1	10	4	0.092	0.091	0.085	0.080	0.078	0.075	0.074	0.072
17-119-1009	Maryville	2	14	6	0.099	0.099	0.091	0.087	0.081	0.079	0.075	0.075
17-119-3007	Wood River	3	17	8	0.103	0.088	0.082	0.081	0.081	0.076	0.076	0.069
17-119-9991	Highland	1	17	4	0.090	0.086	0.084	0.083	0.080	0.073	0.072	0.071
17-143-0024	Peoria Fire Station #8	0	0	1	0.069	0.069	0.066	0.063	0.065	0.062	0.058	0.058
17-143-1001	Peoria Heights	0	7	1	0.072	0.072	0.072	0.072	0.069	0.068	0.068	0.066
17-157-0001	Houston	0	13	0	0.078	0.076	0.076	0.075	0.068	0.068	0.066	0.065
17-161-3002	Rock Island	0	0	0	0.069	0.068	0.066	0.065	0.063	0.062	0.061	0.060
17-163-0010	East St. Louis	0	15	4	0.086	0.084	0.078	0.076	0.071	0.071	0.067	0.066
17-167-0014	Springfield	0	6	4	0.085	0.077	0.070	0.070	0.070	0.068	0.064	0.062
17-197-1011	Braidwood	0	1	1	0.070	0.068	0.067	0.066	0.064	0.063	0.061	0.061
17-201-2001	Loves Park	0	0	0	0.073	0.068	0.067	0.067	0.065	0.064	0.064	0.063
Statewide Average					0.082	0.078	0.075	0.073	0.071	0.069	0.067	0.065
Total Over 0.075 ppm		16	254	81								
Total Days Over 0.075 ppm		9	45	27								

Table B4
2013 Ozone Design Values

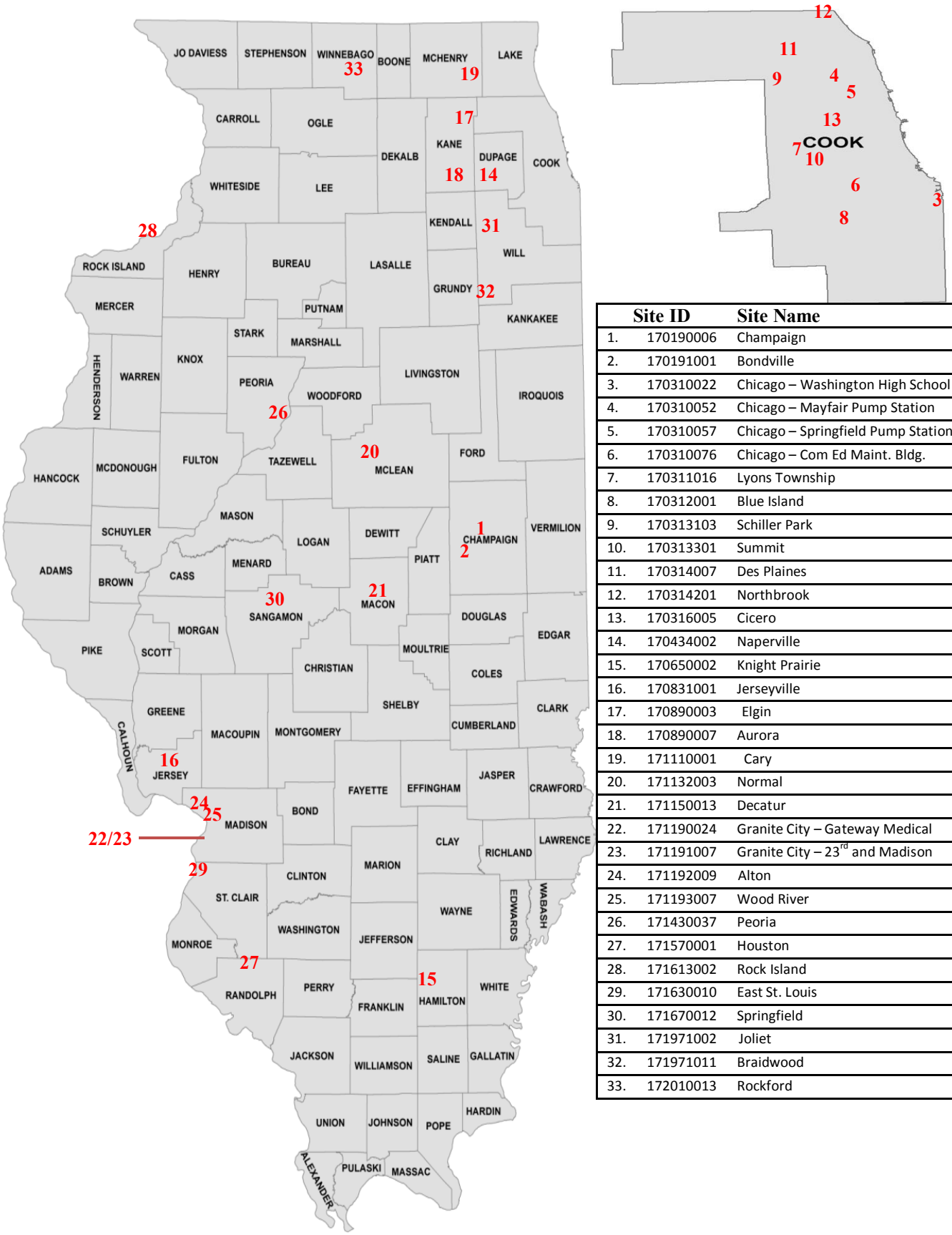
AQS ID	City	4th High 8-hour Concentrations (ppm)					Design Values* (ppm)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-001-0007	Quincy	0.063	0.075	0.066	0.067	0.061	0.068	0.069	0.064
17-019-0004	Champaign	-	-	-	-	0.065	-	-	-
17-019-0007	Thomasboro	0.063	0.075	0.076	-	-	0.071	-	-
17-019-1001	Bondville	0.066	0.077	0.074	-	-	0.072	-	-
17-023-0001	West Union	0.061	0.072	0.068	0.066	0.066	0.067	0.068	0.066
17-031-0001	Alsip	0.064	0.079	0.071	0.073	0.069	0.071	0.074	0.071
17-031-0032	Chicago South Water Filtration	0.071	0.091	0.079	0.074	0.065	**0.080**	**0.081**	0.072
17-031-0064	Chicago University of Chicago	0.058	0.081	0.074	0.071	0.060	0.071	0.075	0.068
17-031-0072	Chicago Jardine Water Plant	-	0.090	0.074	0.071	0.062	-	**0.078**	0.069
17-031-0076	Chicago Com Ed Maintenance	0.062	0.081	0.073	0.068	0.067	0.072	0.074	0.069
17-031-1003	Chicago Taft High School	0.066	0.079	0.067	0.070	0.064	0.070	0.072	0.067
17-031-1601	Lemont	0.064	0.081	0.069	0.073	0.067	0.071	0.074	0.069
17-031-3103	Schiller Park	0.062	-	-	-	-	-	-	-
17-031-4002	Cicero Cook County Trailer	0.063	0.083	0.072	0.068	0.067	0.072	0.074	0.069
17-031-4007	Des Plaines	0.067	0.073	0.065	0.064	0.057	0.068	0.067	0.062
17-031-4201	Northbrook	0.069	0.087	0.076	0.072	0.069	**0.077**	**0.078**	0.072
17-031-7002	Evanston	0.069	0.093	0.078	0.067	0.064	**0.080**	**0.079**	0.069
17-043-6001	Lisle	0.063	0.074	0.068	0.064	0.059	0.068	0.068	0.063
17-049-1001	Effingham	0.064	0.073	0.066	0.072	0.067	0.067	0.070	0.068
17-065-0002	Knight Prairie	0.064	0.085	0.074	0.075	0.064	0.074	**0.078**	0.071
17-083-1001	Jerseyville	0.068	0.089	0.076	0.072	0.068	**0.077**	**0.079**	0.072
17-085-9991	Stockton	0.065	0.075	0.064	-	-	0.068	-	-
17-089-0005	Elgin Larsen Jr. High School	0.064	0.075	0.070	0.069	0.068	0.069	0.071	0.069
17-097-1007	Zion	0.072	0.093	0.076	0.078	0.075	**0.080**	**0.082**	**0.076**
17-111-0001	Cary	0.065	0.077	0.071	0.065	0.066	0.071	0.071	0.067

Table B4
2013 Ozone Design Values

AQS ID	City	4th High 8-hour Concentrations (ppm)					Design Values* (ppm)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-113-2003	Normal	0.069	0.079	0.068	0.066	0.071	0.072	0.071	0.068
17-115-0013	Decatur Illinois EPA Trailer	0.064	0.076	0.075	0.069	0.067	0.071	0.073	0.070
17-117-0002	Nilwood	0.065	0.074	0.075	0.071	0.064	0.071	0.073	0.070
17-119-0008	Alton Clara Barton Elementary	0.072	0.084	0.076	0.080	0.067	**0.077**	**0.080**	0.074
17-119-1009	Maryville	0.075	0.084	0.081	0.074	0.071	**0.080**	**0.079**	**0.076**
17-119-3007	Wood River	0.069	0.087	0.081	0.070	0.066	**0.079**	**0.079**	0.072
17-119-9991	Highland	0.071	0.083	0.076	-	-	**0.076**	-	-
17-143-0024	Peoria Fire Station #8	0.058	0.065	0.066	0.059	0.053	0.063	0.063	0.059
17-143-1001	Peoria Heights	0.066	0.078	0.069	0.069	0.069	0.071	0.072	0.069
17-157-0001	Houston	0.065	0.081	0.066	0.065	0.059	0.070	0.070	0.063
17-161-3002	Rock Island	0.060	0.066	0.055	0.057	0.058	0.060	0.059	0.056
17-163-0010	East St. Louis	0.066	0.083	0.076	0.072	0.069	0.075	**0.077**	0.072
17-167-0010	Springfield Dirksen Parkway	-	-	-	-	0.061	-	-	-
17-167-0013	Springfield Blandco	-	-	-	0.069	-	-	-	-
17-167-0014	Springfield State Fairgrounds	0.062	0.076	0.079	-	-	0.072	-	-
17-197-1011	Braidwood	0.061	0.071	0.061	0.065	0.063	0.064	0.065	0.063
17-201-2001	Loves Park	0.063	0.074	0.068	0.063	0.067	0.068	0.068	0.066
Statewide Average		0.065	0.079	0.069	0.071	0.069	0.071	0.071	0.068

*The design value is the 3-year average of the 4th high concentration. Design value greater than 0.075 ppm is a violation of the National Ambient Air Quality Standard.

2013 $PM_{2.5}$ FRM Monitoring Sites



	Site ID	Site Name
1.	170190006	Champaign
2.	170191001	Bondville
3.	170310022	Chicago – Washington High School
4.	170310052	Chicago – Mayfair Pump Station
5.	170310057	Chicago – Springfield Pump Station
6.	170310076	Chicago – Com Ed Maint. Bldg.
7.	170311016	Lyons Township
8.	170312001	Blue Island
9.	170313103	Schiller Park
10.	170313301	Summit
11.	170314007	Des Plaines
12.	170314201	Northbrook
13.	170316005	Cicero
14.	170434002	Naperville
15.	170650002	Knight Prairie
16.	170831001	Jerseyville
17.	170890003	Elgin
18.	170890007	Aurora
19.	171110001	Cary
20.	171132003	Normal
21.	171150013	Decatur
22.	171190024	Granite City – Gateway Medical
23.	171191007	Granite City – 23rd and Madison
24.	171192009	Alton
25.	171193007	Wood River
26.	171430037	Peoria
27.	171570001	Houston
28.	171613002	Rock Island
29.	171630010	East St. Louis
30.	171670012	Springfield
31.	171971002	Joliet
32.	171971011	Braidwood
33.	172010013	Rockford

Table B5
2013 $PM_{2.5}$ 24-Hour Exceedances

EXCEEDANCES OF THE 24-HOUR PRIMARY STANDARD OF 35 µg/m^3		
Date	**Location**	**Concentration (µg/m^3)**
12/3	Lyons Township	39.3
Total Over 35 µg/m^3	1	
Total Days Over 35 µg/m^3	1	

Table B6
2013 $PM_{2.5}$ Highs

AQS ID	City	Total Samples	Samples Greater Than 35 µg/m^3			Highest Samples							
			2013	2011	2010	1st	2nd	3rd	4th	5th	6th	7th	8th
17-019-0006	Champaign	96	0	0	0	29.2	22.3	22.2	22.1	22.0	20.1	18.1	17.6
17-019-1001	Bondville	118	0	0	0	26.5	26.1	23.8	22.3	21.6	21.4	21.1	19.7
17-031-0001	Alsip	44	0	-	-	20.7	20.1	19.6	19.3	19.3	18.3	16.0	16.0
17-031-0022	Chicago Washington High School	91	0	1	0	27.4	23.1	22.5	22.3	20.8	20.8	20.6	20.4
17-031-0052	Chicago Mayfair Pump Station	180	0	3	3	31.0	27.6	25.3	24.9	24.1	23.3	23.3	23.0
17-031-0057	Chicago Springfield Pump Station	75	0	2	1	27.4	24.8	21.3	20.8	20.7	19.6	19.3	19.0
17-031-0076	Chicago Com Ed Maintenance	72	0	0	0	23.8	20.8	20.0	19.3	19.2	18.4	17.7	15.3
17-031-1016	Lyons Township	178	1	6	0	39.3	34.8	28.4	24.6	23.4	22.9	22.8	22.3
17-031-2001	Blue Island	29	0	0	0	25.5	21.0	19.8	19.2	16.0	15.6	14.5	13.2
17-031-3103	Schiller Park	110	0	2	0	34.8	30.9	24.3	23.1	21.7	19.9	19.6	19.5
17-031-3301	Summit	117	0	0	0	29.2	26.0	22.2	22.0	20.5	20.5	20.3	19.7
17-031-4007	Des Plaines	118	0	0	0	33.6	21.6	21.3	20.5	19.0	18.0	18.0	17.6
17-031-4201	Northbrook	116	0	0	0	29.5	26.3	25.3	23.5	21.1	21.0	20.6	20.3
17-031-6005	Cicero Liberty School	74	0	0	0	28.8	21.1	21.1	21.1	19.7	19.6	19.3	19.3
17-043-4002	Naperville	100	0	0	0	33.5	27.3	26.6	25.5	25.0	21.6	20.3	20.3
17-065-0002	Knight Prairie	92	0	0	0	31.8	24.5	22.8	20.3	19.5	17.7	15.6	15.5
17-083-1001	Jerseyville	96	0	0	0	32.6	22.4	21.4	19.1	19.0	18.2	17.2	16.7
17-089-0003	Elgin McKinley School	99	0	1	0	32.4	22.1	21.9	21.2	19.5	18.2	18.0	17.8
17-089-0007	Aurora	51	0	1	0	24.0	22.7	21.1	18.5	18.5	17.9	15.1	14.9
17-111-0001	Cary	64	0	0	0	34.3	26.6	24.5	24.1	20.3	19.8	17.7	16.9
17-113-2003	Normal	102	0	0	0	25.8	20.5	18.6	18.2	17.1	16.9	16.0	15.5
17-115-0013	Decatur Illinois EPA Trailer	59	0	0	0	23.6	19.9	18.2	17.7	17.1	16.7	16.2	15.6
17-119-0024	Granite City Gateway Medical Center	114	0	0	0	28.9	26.5	25.8	25.4	24.6	24.0	24.0	23.5
17-119-1007	Granite City Fire Station #1	107	0	0	1	27.6	27.5	26.4	25.3	24.7	23.3	22.4	22.2
17-119-2009	Alton SIU Dental Clinic	96	0	0	0	23.0	22.9	22.3	21.1	20.2	18.7	17.6	17.3

Table B6
2013 $PM_{2.5}$ Highs

AQS ID	City	Total Samples	Samples Greater Than 35 µg/m^3			Highest Samples							
			2013	2011	2010	1st	2nd	3rd	4th	5th	6th	7th	8th
17-119-3007	Wood River	117	0	0	0	29.3	28.1	23.4	22.5	22.1	21.9	21.7	20.8
17-143-0037	Peoria City Office Building	68	0	0	0	22.6	21.5	21.3	20.6	18.5	18.3	16.5	15.3
17-157-0001	Houston	102	0	0	0	34.0	24.8	23.3	18.3	17.8	17.1	16.1	15.9
17-161-3002	Rock Island	90	0	0	0	28.5	28.3	23.9	20.7	20.1	19.8	19.2	17.7
17-163-0010	East St. Louis	52	0	0	1	30.3	24.3	19.5	19.4	16.7	15.9	15.7	15.5
17-167-0012	Springfield Agricultural Building	110	0	0	0	25.7	22.7	20.3	20.3	19.4	18.3	18.2	18.1
17-197-1002	Joliet Pershing Elementary	80	0	0	0	29.6	26.2	24.1	21.4	20.2	19.7	16.5	16.4
17-197-1011	Braidwood	83	0	0	0	26.9	23.0	22.2	21.4	19.8	18.6	17.8	16.9
17-201-0013	Rockford Health Department	65	0	1	0	23.6	19.8	18.9	17.7	17.0	16.3	16.1	16.0
Statewide Average						28.7	24.4	22.5	21.3	20.2	19.4	18.5	18.0
Total Samples Over 35 µg/m^3			1	17	6								
Total Sites Over 35 µg/m^3			1	8	4								
Total Days Over 35 µg/m^3			1	6	5								

*$PM_{2.5}$ data is for informational purposes only. Weighing lab conditions were found to not meet critical criteria by U.S.EPA. This caused data invalidation for the period of 2011 to July 2014.

Table B7
2013 $PM_{2.5}$ 24-Hour Design Values

AQS ID	City	98th Percentile Concentrations (µg/m^3)					Design Values* (µg/m^3)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-019-0006	Champaign	22.3	20.1	24.7	29.2	19.3	22.4	24.7	24.4
17-019-1001	Bondville	23.8	19.4	25.3	20.6	20.0	22.8	21.8	22.0
17-031-0001	Alsip	20.7	-	-	-	-	-	-	-
17-031-0022	Chicago Washington High School	23.1	21.2	28.5	30.3	26.8	24.3	26.7	28.5
17-031-0052	Chicago Mayfair Pump Station	24.9	28.6	28.7	33.8	32.4	27.4	30.4	31.6
17-031-0057	Chicago Springfield Pump Station	24.8	27.9	30.5	28.6	32.5	27.7	29.0	30.5
17-031-0076	Chicago Com Ed Maintenance	20.8	30.1	27.1	31.0	26.2	26.0	29.4	28.1
17-031-1016	Lyons Township	24.6	32.1	28.6	35.3	30.8	28.4	32.0	31.6
17-031-2001	Blue Island	25.5	23.4	25.5	25.8	27.2	24.8	24.9	26.2
17-031-3103	Schiller Park	24.3	30.5	27.3	25.9	30.0	27.4	27.9	27.7
17-031-3301	Summit	22.2	27.3	24.5	35.0	31.0	24.7	28.9	30.2
17-031-4007	Des Plaines	21.3	27.1	24.5	28.5	29.4	24.3	26.7	27.5
17-031-4201	Northbrook	25.3	24.0	23.0	30.1	23.7	24.1	25.7	25.6
17-031-6005	Cicero Liberty School	21.1	24.5	29.5	27.1	27.7	25.0	27.0	28.1
17-043-4002	Naperville	27.3	23.7	24.6	28.4	23.4	25.2	25.6	25.5
17-065-0002	Knight Prairie	24.5	15.7	20.6	25.3	22.1	20.3	20.5	22.7
17-083-1001	Jerseyville	22.4	19.9	20.4	21.4	19.2	20.9	20.6	20.3
17-089-0003	Elgin McKinley School	22.1	19.6	24.0	32.3	23.7	21.9	25.3	26.7
17-089-0007	Aurora	22.7	18.1	25.8	32.4	26.4	22.2	25.4	28.2
17-111-0001	Cary	26.6	25.3	23.4	29.4	26.0	25.1	26.0	26.3
17-113-2003	Normal	18.6	21.3	25.8	25.0	22.4	21.9	24.0	24.4
17-115-0013	Decatur Illinois EPA Trailer	19.9	18.1	25.5	22.1	21.6	21.2	21.9	23.1
17-119-0024	Granite City Gateway Medical Center	25.8	23.7	30.6	28.6	23.7	26.7	27.6	27.6
17-119-1007	Granite City Fire Station #1	26.4	25.8	27.3	29.2	24.8	26.5	27.4	27.1
17-119-2009	Alton SIU Dental Clinic	22.9	23.6	23.9	25.0	18.5	23.5	24.2	22.5

Table B7
2013 $PM_{2.5}$ 24-Hour Design Values

AQS ID	City	98th Percentile Concentrations (µg/m^3)					Design Values* (µg/m^3)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-119-3007	Wood River	23.4	23.3	28.6	22.1	21.7	25.1	24.7	24.1
17-143-0037	Peoria City Office Building	21.5	20.7	27.7	26.0	23.9	23.3	24.8	25.9
17-157-0001	Houston	23.3	15.2	20.9	17.2	21.0	19.8	17.8	19.7
17-161-3002	Rock Island	28.3	19.4	23.1	24.5	19.5	23.6	22.3	22.4
17-163-0010	East St. Louis	24.3	28.0	25.3	22.0	22.8	25.9	25.1	23.4
17-167-0012	Springfield Agricultural Building	20.3	20.0	27.8	24.2	21.7	22.7	24.0	24.6
17-197-1002	Joliet Pershing Elementary	26.2	24.7	20.8	28.3	25.5	23.9	24.6	24.9
17-197-1011	Braidwood	23.0	24.3	25.8	24.1	19.2	24.4	24.7	23.0
17-201-0013	Rockford Health Department	19.8	23.0	22.4	23.9	26.2	21.7	23.1	24.2
Statewide Average		23.4	23.2	25.5	26.9	24.3	24.1	25.2	25.6

*The design value is the 3-year average of the 98th percentile concentration. Design value greater than or equal to 35.5 µg/m^3 is a violation of the National Ambient Air Quality Standard.

Shaded cells indicate completeness criteria were not met.

**$PM_{2.5}$ data is for informational purposes only. Weighing lab conditions were found to not meet critical criteria by U.S. EPA. This caused data invalidation for the period of 2011 to July 2014.

Table B8
2013 $PM_{2.5}$ Annual Design Values

AQS ID	City	Annual Arithmetic Mean Concentrations (µg/m³)					Design Values* (µg/m³)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-019-0006	Champaign	9.9	9.7	10.6	-	-	10.1	10.1	-
17-019-1001	Bondville	9.7	8.9	10.2	10.5	10.5	9.6	9.9	10.4
17-031-0001	Alsip	10.2	-	-	-	-	-	-	-
17-031-0022	Chicago Washington High School	11.3	11.5	12.6	14.0	11.6	11.8	**12.7**	**12.7**
17-031-0052	Chicago Mayfair Pump Station	10.8	11.6	11.8	12.6	12.7	11.4	12.0	**12.4**
17-031-0057	Chicago Springfield Pump Station	10.9	11.9	11.5	12.0	11.3	11.4	11.8	11.6
17-031-0076	Chicago Com Ed Maintenance	9.9	11.3	11.3	12.3	11.1	10.8	11.6	11.5
17-031-1016	Lyons Township	11.8	12.6	12.6	12.6	12.6	**12.4**	**12.6**	**12.6**
17-031-2001	Blue Island	11.0	10.9	11.6	11.6	11.7	11.1	11.3	11.6
17-031-3103	Schiller Park	11.2	13.1	13.3	12.6	12.9	**12.5**	**13.0**	**12.9**
17-031-3301	Summit	11.4	11.3	11.0	12.2	11.6	11.2	11.5	11.6
17-031-4007	Des Plaines	9.9	10.9	10.6	10.6	11.0	10.5	10.7	10.7
17-031-4201	Northbrook	9.5	10.2	10.2	9.3	9.3	10.0	9.9	9.6
17-031-6005	Cicero Liberty School	10.3	10.4	11.4	11.9	12.0	10.7	11.2	11.8
17-043-4002	Naperville	10.4	10.1	10.5	11.7	9.8	10.3	10.8	10.7
17-065-0002	Knight Prairie	8.9	8.5	10.1	11.3	10.1	9.2	10.0	10.5
17-083-1001	Jerseyville	9.0	8.4	10.5	11.2	9.9	9.3	10.0	10.5
17-089-0003	Elgin McKinley School	9.2	10.0	9.8	11.3	9.6	9.7	10.4	10.2
17-089-0007	Aurora	9.6	9.9	10.8	11.4	10.0	10.1	10.7	10.8
17-111-0001	Cary	10.1	10.1	10.1	10.2	9.6	10.1	10.2	10.0
17-113-2003	Normal	9.2	9.3	10.7	10.6	10.1	9.7	10.2	10.5
17-115-0013	Decatur IEPA Trailer	9.8	10.0	11.6	12.2	11.0	10.5	11.2	11.6
17-119-0024	Granite City Gateway Medical Center	13.1	13.0	14.4	14.6	11.4	**13.5**	**14.0**	**13.5**
17-119-1007	Granite City Fire Station #1	11.2	12.8	13.3	14.3	11.3	**12.4**	**13.5**	**13.0**
17-119-2009	Alton SIU Dental Clinic	9.9	10.4	11.5	13.3	10.1	10.6	11.8	11.7

Table B8
2013 $PM_{2.5}$ Annual Design Values

AQS ID	City	Annual Arithmetic Mean Concentrations ($\mu g/m^3$)					Design Values* ($\mu g/m^3$)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-119-3007	Wood River	10.9	10.6	12.4	12.0	11.0	11.3	11.6	11.8
17-143-0037	Peoria City Office Building	8.4	9.8	11.7	11.5	10.7	10.0	11.0	11.3
17-157-0001	Houston	8.7	8.3	9.5	10.2	9.7	8.8	9.3	9.8
17-161-3002	Rock Island	9.6	9.7	10.9	9.9	8.5	10.1	10.2	9.8
17-163-0010	East St. Louis	10.3	10.9	12.8	13.0	11.7	11.3	**12.2**	**12.5**
17-167-0012	Springfield Agricultural Building	10.3	9.5	10.7	11.5	10.6	10.2	10.6	10.9
17-197-1002	Joliet Pershing Elementary	10.1	11.1	10.2	11.8	10.5	10.4	11.0	10.8
17-197-1011	Braidwood	9.3	9.3	10.4	10.0	8.7	9.7	9.9	9.7
17-201-0013	Rockford Health Department	9.2	9.3	10.2	10.0	9.5	9.6	9.8	9.9
Statewide Average		10.1	10.4	11.2	11.6	10.6	10.6	11.1	11.2

*The design value is the 3-year average of the annual arithmetic mean concentrations. Design value greater than 12.0 $\mu g/m^3$ is a violation of the National Ambient Air Quality Standard.

Shaded cells indicate completeness criteria were not met.

**$PM_{2.5}$ data is for informational purposes only. Weighing lab conditions were found to not meet critical criteria by U.S. EPA. This caused data invalidation for the period of 2011 to July 2014.

2013 PM_{10} Monitoring Sites

	Site ID	Site Name
1.	170310022	Chicago – Washington High School
2.	170311016	Lyons Township
3.	170314201	Northbrook
4.	171190010	Granite City – 23rd and Madison

Table B9
2013 PM_{10} 24-Hour Exceedances

EXCEEDANCES OF THE 24-HOUR PRIMARY STANDARD OF 150 µg/m^3		
Date	**City**	**Concentration (µg/m^3)**
None	None	None
Total Over 150 µg/m^3	0	
Total Days Over 150 µg/m^3	0	

Table B10
2013 PM_{10} 24-Hour Highs and Design Values

AQS ID	City	Total Samples	Highest 24-hour Samples								Samples Greater Than 150 µg/m^3			3-year Average*
			1st	2nd	3rd	4th	5th	6th	7th	8th	2013	2012	2011	
17-031-0022	Chicago Washington High School	363	109	101	99	96	95	94	92	90	0	0	0	0.0
17-031-1016	Lyons Township	46	71	67	67	62	61	60	56	54	0	0	0	0.0
17-031-4201	Northbrook	58	30	29	28	28	26	26	26	25	0	0	0	0.0
17-119-1007	Granite City Fire Station #1	36	64	59	57	52	51	51	48	47	0	0	0	0.0
Statewide Average			69	64	63	60	58	58	56	54				
Total Over 150 µg/m^3											0	0	0	
Total Days Over 150 µg/m^3											0	0	0	

*The 24-hour PM_{10} standard is an exceedance-based standard set at 150 µg/m^3. The level is not to be exceeded more than once per year on average over three years. Three year averages more than one are a violation of the National Ambient Air Quality Standard.

Table B11
2013 PM_{10} Annual Design Values

AQS ID	City	Annual Arithmetic Mean Concentration (µg/m^3)					Design Values* (µg/m^3)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-031-0022	Chicago Washington High School	30	31	21	22	20	27	25	21
17-031-1016	Lyons Township	39	25	26	27	26	30	26	26
17-031-4201	Northbrook	15	17	13	17	16	15	16	15
17-119-0010	Granite City Air Products	27	32	31	32	25	30	32	29
17-119-1007	Granite City Fire Station #1	32	-	24	-	24	27	24	24
Statewide Average		29	26	23	25	22	26	22	25

*The annual PM_{10} standard was revoked in 2007. Previously the standard was a 3-year average of the annual means. Concentrations above 50 µg/m^3 were a violation of the former National Ambient Air Quality Standard. Currently only the 24-hour PM_{10} standard is in place (see Table B10).

2013 Carbon Monoxide Monitoring Sites

	Site ID	Site Name
1.	170191001	Bondville
2.	170310022	Northbrook
3.	170311016	East St. Louis

Table B12
2013 Carbon Monoxide Exceedances

EXCEEDANCES OF EITHER THE 1-HOUR (35 PPM) OR 8-HOUR (9 PPM) PRIMARY STANDARDS			
Date	**City**	**Concentration**	**Averaging Period**
None	None	None	None

Total 1-hour Over 35 ppm	0	Total 8-hour Over 9 ppm	0
Total Days 1-hour Over 35 ppm	0	Total Days 8-hour Over 9 ppm	0

Table B13
2013 Carbon Monoxide Highs

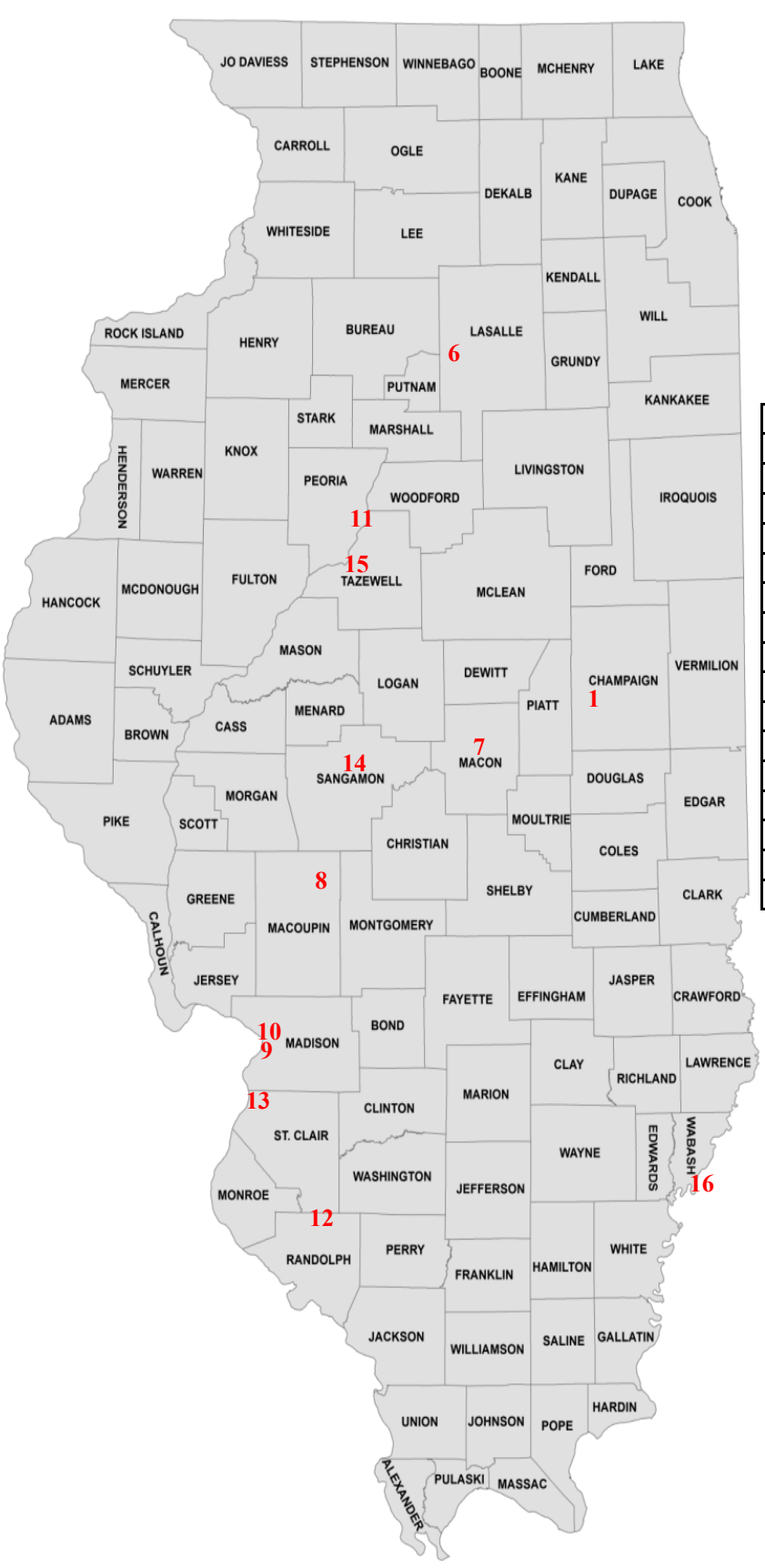
AQS ID	City	Total Hourly Samples	4 Highest Daily Samples 1hr (ppm)				4 Highest Samples 8hr (ppm)			
17-019-1001	Bondville	7144	0.42	0.39	0.35	0.29	0.3	0.3	0.2	0.2
17-031-4201	Northbrook	4424	1.48	1.18	1.04	1.03	0.7	0.6	0.6	0.6
17-163-0010	East St. Louis	8125	1.7	1.5	1.4	1.4	1.0	1.0	0.9	0.9
Statewide Average			1.2	1.0	0.9	0.9	0.7	0.6	0.6	0.6

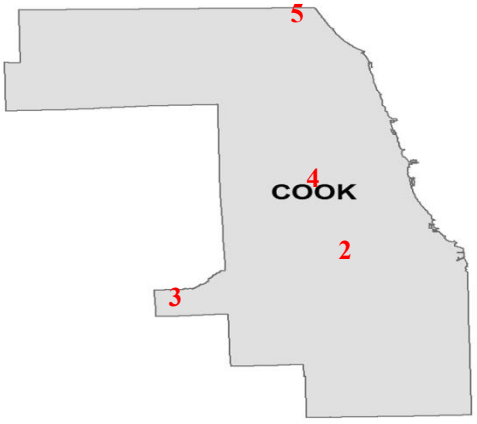
Table B14
2013 Carbon Monoxide 1-Hour and 8-Hour Design Values

AQS ID	City	1-Hour Samples Greater than 35 (ppm)					8-Hour Samples Greater than 9 (ppm)				
		2013	2012	2011	2010	2009	2013	2012	2011	2010	2009
17-031-4201	Northbrook	0	0	0	0	0	0	0	0	0	0
17-163-0010	East St. Louis	0	0	0	0	0	0	0	0	0	0

*The 1-hour and 8-hour carbon monoxide standard is an exceedance-based standard. The 1-hour standard is set at 35 ppm and is not to be exceeded more than once per year. The 8-hour standard is set at 9 ppm and is not to be exceeded more than once per year. More than one exceedance in a year is a violation of the National Ambient Air Quality Standard.

2012 Sulfur Dioxide Monitoring Sites





	Site ID	Site Name
1.	170191001	Bondville
2.	170310076	Chicago – Com Ed Maintenance
3.	170311601	Lemont
4.	170314002	Cicero
5.	170314201	Northbrook
6.	170990007	Oglesby
7.	171150013	Decatur
8.	171170002	Nilwood
9.	171191010	South Roxana
10.	171193007	Wood River
11.	171430024	Peoria
12.	171570001	Houston
13.	171630010	East St. Louis
14.	171670006	Springfield
15.	171790004	Pekin
16.	171850001	Mount Carmel

Table B15
2013 Sulfur Dioxide Exceedances

EXCEEDANCES OF THE 1-HOUR PRIMARY STANDARD OF 75 ppb		
Date	**City**	**Concentration (ppb)**
1/25	Pekin	106
1/30	Pekin	120
2/5	Pekin	105
2/11	Pekin	262
2/18	Mount Carmel	79
2/22	Pekin	181
2/23	Pekin	87
2/24	Lemont	95
3/31	Pekin	89
4/8	Pekin	85
4/11	Pekin	189
4/12	Pekin	195
4/13	Pekin	121
4/18	Pekin	229
	Mount Carmel	84
4/19	Pekin	206
4/25	Pekin	92
5/8	Pekin	85
5/14	Pekin	119
5/15	Pekin	103
5/22	Pekin	140
6/2	Lemont	95
7/19	Pekin	91
7/28	Lemont	83
8/30	Pekin	97
9/19	Pekin	85
10/7	Pekin	97
10/15	Pekin	105
10/16	Pekin	107
10/17	Pekin	125
10/19	Pekin	94
Total Over 75 ppb	29	
Total Days Over 75 ppb	29	

Table B16
2013 Sulfur Dioxide Highs

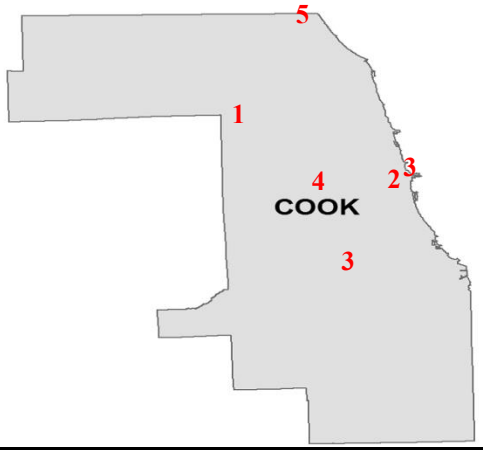
AQS ID	City	Total Valid Sample Days	Samples Greater Than 75 ppb			Highest Daily 1-Hour Samples (ppb)				Highest 3-Hour Block Averages (ppb)	
			2013	2012	2011	1st	2nd	3rd	4th	1st	2nd
17-019-1001	Bondville	330	0	-	-	30	21	19	14	18	17
17-031-0076	Chicago Com Ed Maintenance	339	0	0	0	18	11	10	10	14	8
17-031-1601	Lemont	359	3	9	10	95	95	83	73	77	55
17-031-4002	Cicero Cook County Trailer	357	0	0	0	14	14	12	12	11	10
17-031-4201	Northbrook	317	0	0	0	10	10	10	10	9	7
17-099-0007	Oglesby	346	0	0	0	12	10	10	9	7	7
17-115-0013	Decatur Illinois EPA Trailer	362	0	0	0	39	37	36	33	28	28
17-117-0002	Nilwood	362	0	0	0	16	7	7	7	7	5
17-119-1010	South Roxana	359	0	0	0	26	24	24	23	18	17
17-119-3007	Wood River	364	0	0	0	42	37	32	29	26	23
17-143-0024	Peoria Fire Station #8	365	0	0	0	42	38	33	32	29	26
17-157-0001	Houston	356	0	0	0	12	12	11	11	10	10
17-163-0010	East St. Louis	365	0	0	0	21	21	20	19	14	13
17-167-0006	Springfield Sewage Treatment Plant	352	0	0	0	22	14	14	12	14	8
17-179-0004	Pekin	334	26	25	32	262	229	206	195	203	159
17-185-0001	Mount Carmel	363	2	4	0	84	79	69	55	47	47
Statewide Average						47	41	37	34	33	28
Total Over 75 ppb			31	38	42						
Total Days Over 75 ppb			30	38	41						

Table B17
2013 Sulfur Dioxide 1-Hour Design Values

AQS ID	City	99th Percentile Concentrations (ppb)					Design Values* (ppb)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-019-1001	Bondville	14	14	-	-	-	14	-	-
17-031-0076	Chicago Com Ed Maintenance	10	17	27	20	24	18	21	24
17-031-1601	Lemont	73	108	90	90	114	**90**	**96**	**98**
17-031-4002	Cicero Cook County Trailer	12	16	29	31	29	19	25	30
17-031-4201	Northbrook	10	17	19	15	18	15	17	18
17-099-0007	Oglesby	9	6	8	14	8	8	9	10
17-115-0013	Decatur Illinois EPA Trailer	33	38	33	49	36	35	40	39
17-117-0002	Nilwood	7	8	8	15	16	8	10	13
17-119-1010	South Roxana	23	17	22	57	81	21	32	53
17-119-3007	Wood River	29	30	28	54	46	29	37	43
17-143-0024	Peoria Fire Station #8	32	44	45	43	21	40	44	36
17-157-0001	Houston	11	24	22	31	26	19	26	26
17-163-0010	East St. Louis	19	24	22	31	30	22	26	28
17-167-0006	Springfield Sewage Treatment Plant	12	15	27	24	24	18	24	25
17-179-0004	Pekin	195	245	172	228	233	**204**	**215**	**211**
17-185-0001	Mount Carmel	55	89	47	66	69	64	67	61
Statewide Average		34	45	40	51	47	39	46	48

*The design value is the 3-year average of the 99th percentile concentration. Design value greater than 75 ppb is a violation of the National Ambient Air Quality Standard.

2013 Nitrogen Dioxide Monitoring Sites



	Site ID	Site Name
1.	170190004	Schiller Park
2.	170310042	Chicago – Chicago Transit
3.	170310076	Chicago – Com Ed Maintenance
4.	170314002	Cicero
5.	170314201	Northbrook
6.	171630010	East St. Louis

Table B18
2013 Nitrogen Dioxide 1-Hour Exceedances

EXCEEDANCES OF THE 1-HOUR PRIMARY STANDARD OF 100 PPB		
Date	**City**	**Concentration (ppb)**
5/16/13	Chicago – ComEd	102
Total Over 100 ppb	1	
Total Days Over 100 ppb	1	

Table B19
2013 Nitrogen Dioxide Highs

AQS ID	City	Total Valid Sample Days	Samples Greater Than 100 ppb			Highest Samples							
			2013	2012	2011	1st	2nd	3rd	4th	5th	6th	7th	8th
17-031-0063	Chicago CTA Building	364	0	0	0	82	77	75	73	71	67	66	63
17-031-0076	Chicago Com Ed Maintenance	360	1	0	0	102	86	74	72	65	64	63	62
17-031-3103	Schiller Park	259	0	0	0	76	71	67	65	63	63	59	57
17-031-4002	Cicero Cook County Trailer	355	0	0	0	82	76	73	71	71	66	65	64
17-031-4201	Northbrook	361	0	0	0	54	53	52	52	52	49	49	48
17-163-0010	East St. Louis	344	0	0	0	68	54	51	45	44	43	43	42
Statewide Average						77	70	65	63	61	59	58	56
Total Over 100 ppb			1	0	0								
Total Days Over 100 ppb			1	0	0								

Table B20
2013 Nitrogen Dioxide 1-Hour Design Values

AQS ID	City	98th Percentile Concentrations (ppb)					Design Values* (ppb)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-031-0063	Chicago CTA Building	63	65	65	71	79	64	67	72
17-031-0072	Chicago Jardine Water Plant	-	-	59	52	58	-	56	56
17-031-0076	Chicago Com Ed Maintenance	62	70	57	56	58	63	61	57
17-031-3103	Schiller Park	63	63	64	60	64	63	62	63
17-031-4002	Cicero Cook County Trailer	64	58	62	64	60	61	61	62
17-031-4201	Northbrook	48	44	45	53	54	46	47	51
17-163-0010	East St. Louis	43	49	37	43	49	43	43	43
Statewide Average		57	58	56	57	60	57	57	58

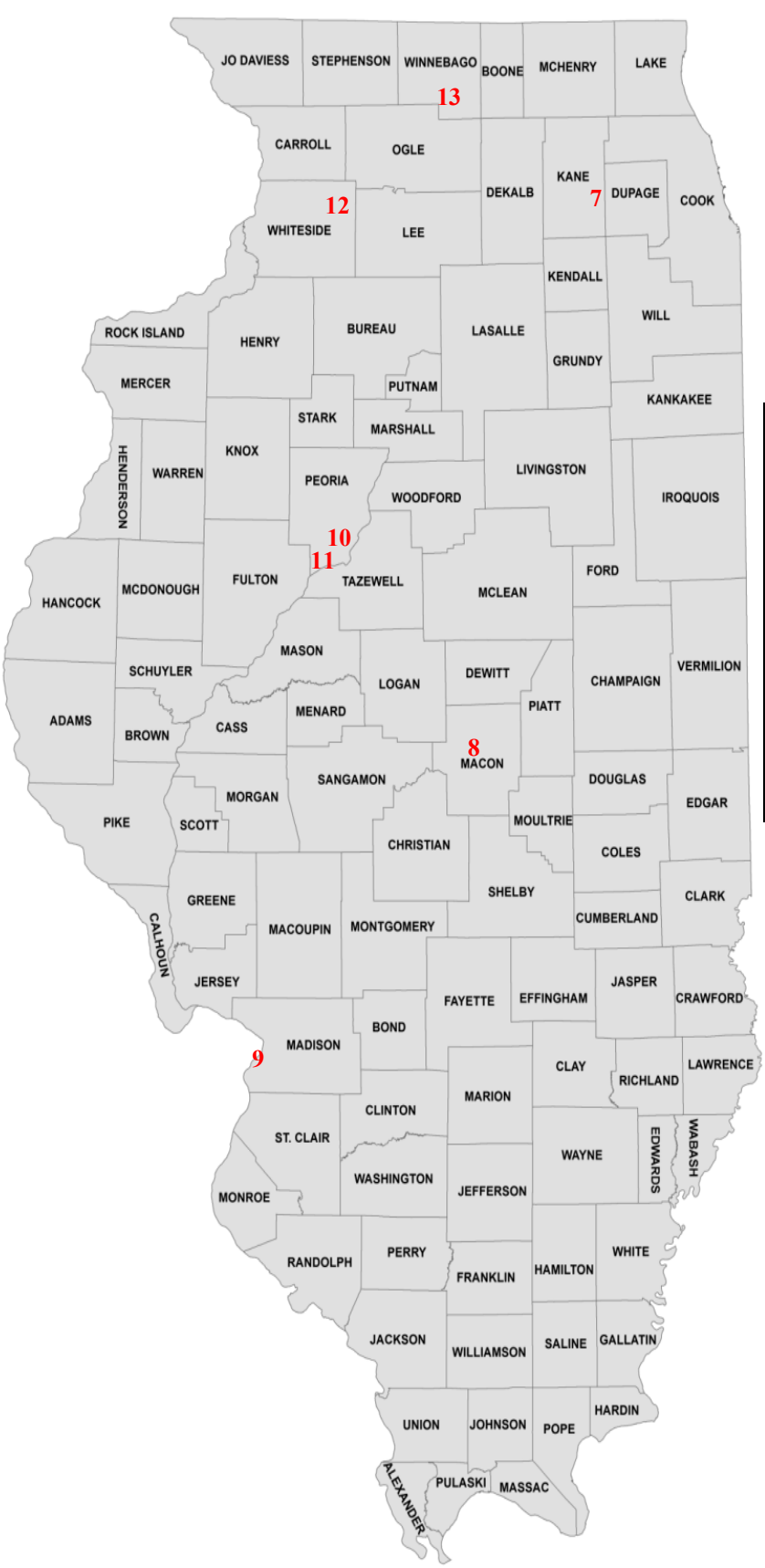
*The design value is the 3-year average of the 98th percentile concentration. Design value greater than 100 ppb is a violation of the National Ambient Air Quality Standard.

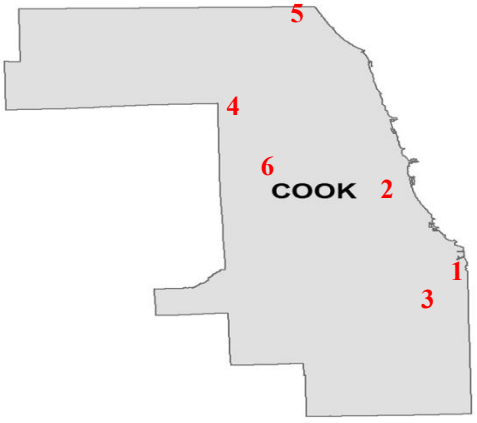
Table B21
2013 Nitrogen Dioxide Annual Design Values

AQS ID	City	Annual Arithmetic Mean Concentrations* (ppb)				
		2013	2012	2011	2010	2009
17-031-0063	Chicago CTA Building	21	22	21	25	25
17-031-0076	Chicago Com Ed Maintenance	16	16	16	17	17
17-031-3103	Schiller Park	19	22	23	23	23
17-031-4002	Cicero Cook County Trailer	18	14	18	20	20
17-031-4201	Northbrook	12	12	11	12	12
17-163-0010	East St. Louis	11	12	9	12	14
Statewide Average		16	16	16	18	19

*The design value is the highest annual average concentration during the most recent two years. Design value greater than 53 ppb is a violation of the National Ambient Air Quality Standard.

2013 Lead Monitoring Sites





	Site ID	Site Name
1.	170310022	Chicago – Washington High School
2.	170310110	Chicago – Perez Elementary
3.	170310113	Chicago – ArcelorMittal Steel
4.	170313103	Schiller Park
5.	170314201	Northbrook
6.	170316003	Maywood
7.	170890113	Geneva
8.	171150110	Decatur – Mueller
9.	171190010	Granite City – 15th and Madison
10.	171430110	Bartonville
11.	171430210	Mapleton
12.	171950110	Sterling
13.	172010110	Rockford – J. Rubin & Company

Table B22
2013 Lead Highs

AQS ID	City	Total Sample Days	Highest Monthly Means					Maximum 3-Month Mean
			1st	2nd	3rd	4th	5th	
17-031-0022	Chicago Washington High School	57	0.066	0.059	0.035	0.029	0.029	0.052
17-031-0110	Chicago Perez Elementary	59	0.041	0.037	0.030	0.023	0.022	0.038
17-031-0113	Chicago ArcelorMittal Steel	15	0.007	0.006	0.005	-	-	0.007
17-031-3103	Schiller Park	58	0.009	0.007	0.006	0.005	0.005	0.010
17-031-4201	Northbrook	60	0.004	0.004	0.003	0.003	0.003	0.008
17-031-6003	Maywood 4th District Court	58	0.020	0.020	0.020	0.019	0.018	0.023
17-089-0113	Geneva Johnson Controls	7	0.029	0.027	-	-	-	0.029
17-115-0110	Decatur Mueller	60	0.104	0.078	0.061	0.036	0.029	0.053
17-119-0010	Granite City Air Products	54	0.038	0.035	0.033	0.032	0.030	0.064
17-143-0110	Bartonville	54	0.008	0.007	0.006	0.006	0.006	0.010
17-143-0210	Mapleton	56	0.007	0.006	0.006	0.004	0.003	0.007
17-195-0110	Sterling	55	0.034	0.031	0.022	0.019	0.016	0.022
17-201-0110	Rockford J. Rubin & Company	55	0.110	0.098	0.053	0.046	0.027	0.054
Statewide Average			0.037	0.032	0.023	0.020	0.017	0.029

Table B23
2013 Lead Design Values

AQS ID	City	Maximum 3-Month Rolling Mean (µg/m^3)					Design Values* (µg/m^3)		
		2013	2012	2011	2010	2009	2011-2013	2010-2012	2009-2011
17-031-0022	Chicago Washington High School	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.05
17-031-0110	Chicago Perez Elementary	0.04	0.05	0.29	0.24	-	**0.29**	**0.29**	**0.29**
17-031-0113	Chicago ArcelorMittal Steel	0.01	-	-	-	-	0.01	-	-
17-031-3103	Schiller Park	0.01	0.04	0.01	0.01	0.01	0.04	0.04	0.01
17-031-4201	Northbrook	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
17-031-6003	Maywood 4th District Court	0.03	0.04	0.03	0.04	0.03	0.04	0.04	0.04
17-089-0113	Geneva Johnson Controls	0.03	-	-	-	-	0.03	-	-
17-115-0110	Decatur Mueller	0.05	0.08	0.20	0.12	-	**0.20**	**0.20**	**0.20**
17-119-0010	Granite City Air Products	0.06	0.36	0.21	0.42	0.12	**0.36**	**0.42**	**0.42**
17-143-0110	Bartonville	0.01	0.01	0.01	0.02	-	0.01	0.02	0.02
17-143-0210	Mapleton	0.01	0.01	0.02	0.02	-	0.02	0.02	0.02
17-195-0110	Sterling	0.02	0.03	0.03	0.02	-	0.03	0.03	0.03
17-201-0110	Rockford J. Rubin & Company	0.05	0.03	0.04	0.06	-	0.05	0.06	0.06
Statewide Average		0.03	0.07	0.06	0.07	0.07	0.09	0.11	0.10

*The design value is the maximum 3-month rolling mean over the latest 3-year period. Design value greater than 0.15 µg/m^3 is a violation of the National Ambient Air Quality Standard.

Table B24
2013 Filter Analysis Data

AQS ID	City	Arsenic				Beryllium				Cadmium			
		Total Samples	Highs 1st	Highs 2nd	Annual Mean	Total Samples	Highs 1st	Highs 2nd	Annual Mean	Total Samples	Highs 1st	Highs 2nd	Annual Mean
17-031-0022	Chicago Washington High School	-	-	-	-	-	-	-	-	57	0.003	0.002	0.001
17-031-0110	Chicago Perez Elementary	-	-	-	-	-	-	-	-	59	0.002	0.002	0.001
17-031-0113	Chicago ArcelorMittal Steel	15	0.000	0.000	0.000	15	0.000	0.000	0.000	15	0.000	0.000	0.000
17-031-3103	Schiller Park	58	0.000	0.000	0.000	58	0.000	0.000	0.000	58	0.000	0.000	0.000
17-031-4201	Northbrook	60	0.000	0.000	0.000	60	0.000	0.000	0.000	60	0.000	0.000	0.000
17-031-6003	Maywood 4th District Court	-	-	-	-	-	-	-	-	58	0.002	0.002	0.001
17-089-0113	Geneva Johnson Controls	7	0.006	0.000	0.001	7	0.000	0.000	0.000	7	0.000	0.000	0.000
17-115-0110	Decatur Mueller	60	0.000	0.000	0.000	60	0.000	0.000	0.000	60	0.002	0.000	0.000
17-119-0010	Granite City Air Products	54	0.004	0.004	0.000	54	0.000	0.000	0.000	54	0.000	0.000	0.000
17-143-0110	Bartonville	54	0.000	0.000	0.000	54	0.000	0.000	0.000	54	0.000	0.000	0.000
17-143-0210	Mapleton	56	0.003	0.000	0.000	56	0.000	0.000	0.000	56	0.000	0.000	0.000
17-195-0110	Sterling	55	0.003	0.003	0.000	55	0.000	0.000	0.000	55	0.006	0.003	0.000
17-201-0110	Rockford J. Rubin & Company	55	0.006	0.004	0.000	55	0.000	0.000	0.000	55	0.007	0.004	0.000

Table B24
2013 Filter Analysis Data

AQS ID	City	Chromium				Iron				Manganese			
		Total Samples	Highs 1st	Highs 2nd	Annual Mean	Total Samples	Highs 1st	Highs 2nd	Annual Mean	Total Samples	Highs 1st	Highs 2nd	Annual Mean
17-031-0022	Chicago Washington High School	57	0.062	0.048	0.014	57	6.850	4.520	1.008	57	0.756	0.258	0.107
17-031-0110	Chicago Perez Elementary	59	0.030	0.024	0.009	59	1.800	1.530	0.459	59	0.072	0.065	0.027
17-031-0113	Chicago ArcelorMittal Steel	15	0.008	0.008	0.003	15	4.103	2.827	1.261	15	0.237	0.170	0.084
17-031-3103	Schiller Park	58	0.008	0.007	0.003	58	2.246	1.792	0.835	58	0.134	0.064	0.027
17-031-4201	Northbrook	60	0.007	0.003	0.000	60	0.851	0.753	0.315	60	0.034	0.034	0.010
17-031-6003	Maywood 4th District Court	58	0.048	0.041	0.021	58	4.520	3.930	1.968	58	0.142	0.110	0.056
17-089-0113	Geneva Johnson Controls	7	0.000	0.000	0.000	7	0.271	0.206	0.142	7	0.010	0.009	0.006
17-115-0110	Decatur Mueller	60	0.006	0.006	0.001	60	1.850	1.678	0.705	60	0.127	0.086	0.029
17-119-0010	Granite City Air Products	54	0.014	0.009	0.002	54	2.541	1.749	0.760	54	0.271	0.186	0.057
17-143-0110	Bartonville	54	0.014	0.009	0.002	54	1.268	1.234	0.462	54	0.127	0.109	0.025
17-143-0210	Mapleton	56	0.003	0.003	0.000	56	1.339	1.219	0.367	56	0.055	0.049	0.016
17-195-0110	Sterling	55	0.019	0.019	0.005	55	3.080	2.753	0.907	55	0.379	0.313	0.079
17-201-0110	Rockford J. Rubin & Company	55	0.025	0.018	0.003	55	11.214	10.600	1.760	55	1.397	1.249	0.143

Table B24
2013 Filter Analysis Data

AQS ID	City	Total Samples	Highs		Annual Mean	Total Samples	Highs		Annual Mean	Total Samples	Highs		Annual Mean
			1st	2nd			1st	2nd			1st	2nd	
		Nickel											
17-031-0022	Chicago Washington High School	57	0.016	0.015	0.006								
17-031-0110	Chicago Perez Elementary	59	0.032	0.019	0.006								
17-031-0113	Chicago ArcelorMittal Steel	15	0.007	0.000	0.000								
17-031-3103	Schiller Park	58	0.012	0.003	0.000								
17-031-4201	Northbrook	60	0.012	0.004	0.000								
17-031-6003	Maywood 4th District Court	58	0.018	0.015	0.007								
17-089-0113	Geneva Johnson Controls	7	0.000	0.000	0.000								
17-115-0110	Decatur Mueller	60	0.018	0.006	0.002								
17-119-0010	Granite City Air Products	54	0.012	0.003	0.000								
17-143-0110	Bartonville	54	0.004	0.000	0.000								
17-143-0210	Mapleton	56	0.000	0.000	0.000								
17-195-0110	Sterling	55	0.008	0.004	0.001								
17-201-0110	Rockford J. Rubin & Company	55	0.018	0.014	0.002								

Table B25
2013 Toxic Compounds

AQS ID	City	Compounds	Highest 24-hour Samples (ppbc)				Annual Average
			1st	2nd	3rd	4th	
17-031-4201	Northbrook	1,3 Butadiene	0.34	0.13	0.13	0.13	0.05
		Dichloromethane	67.30	15.70	1.02	.65	1.54
		Chloroform	19.40	7.37	3.20	1.39	0.60
		Carbon Tetrachloride	0.11	0.11	0.11	0.11	0.10
		Tetrachloroethylene	3.92	0.29	0.25	0.22	0.11
		Trichlorethylene	0.10	0.10	0.05	0.04	0.01
		1,2 Dichloropropane	0.00	0.00	0.00	0.00	0.00x
		Vinyl Chloride	.06	.04	.02	.00	0.00
		Benzene	1.99	1.71	1.50	1.49	0.88
		Toluene	6.95	6.30	6.29	5.05	2.53
		Formaldehyde	4.2	3.4	3.2	3.1	1.6
		Acetaldehyde	6.8	5.7	5.6	5.6	2.6
		Acrolein	2.63	2.59	2.49	2.15	0.82
17-031-3103	Schiller Park	1,3 Butadiene	0.94	0.63	0.45	0.38	0.23
		Dichloromethane	9.58	4.42	2.75	2.33	0.69
		Chloroform	0.08	0.04	0.04	0.04	0.02
		Carbon Tetrachloride	0.13	0.13	0.13	0.12	0.10
		Tetrachloroethylene	0.76	0.67	0.58	0.55	0.12
		Trichlorethylene	1.19	0.75	0.51	0.24	0.10
		1,2 Dichloropropane	0.00	0.00	0.00	0.00	0.00
		Vinyl Chloride	0.01	0.00	0.00	0.00	0.00
		Benzene	4.16	3.11	3.08	2.66	1.39
		Toluene	14.91	7.21	7.14	5.91	2.87
		Formaldehyde	8.6	7.1	7.0	5.8	2.7
		Acetaldehyde	15.7	7.9	6.8	6.8	2.6
		Acrolein	2.69	2.62	2.35	2.26	1.07

[1] – Toxic metals data (As, Be, Cd, Cr, Mn, Ni) summarized in Table B24 - Filter Analysis Data

Table B26
2013 $PM_{2.5}$ Speciation

AQS ID	City	Major Constituents	Highest 24-hour Samples (µg/m^3)				Annual Average
			1st	2nd	3rd	4th	
17-031-0076	Chicago Com Ed Maintenance	Inorganic Elements	1.121	1.073	0.992	0.944	0.440
		Ammonium	4.37	2.86	2.81	2.72	0.893
		Nitrate	8.92	6.75	6.03	5.97	1.782
		Sulfate	6.87	5.98	4.98	4.77	1.750
		Elemental Carbon	1.160	1.140	1.040	0.956	0.400
		Organic Carbon	4.99	4.75	4.44	4.27	2.280
17-031-0057	Chicago Springfield Pump Station	Inorganic Elements	1.613	1.335	1.300	1.136	0.530
		Ammonium	2.70	2.36	2.14	2.06	0.864
		Nitrate	5.73	5.61	4.94	4.88	1.929
		Sulfate	8.07	7.37	4.49	4.29	1.758
		Elemental Carbon	0.974	0.964	0.912	0.911	0.451
		Organic Carbon	6.73	5.07	4.97	4.84	2.572
17-031-4201	Northbrook	Inorganic Elements	0.948	0.811	0.755	0.700	0.385
		Ammonium	5.16	2.82	2.82	2.54	0.950
		Nitrate	11.50	7.22	7.17	6.88	2.394
		Sulfate	6.24	5.72	5.64	4.37	1.483
		Elemental Carbon	0.699	0.683	0.679	0.674	0.276
		Organic Carbon	5.85	4.40	4.23	3.97	2.186
17-043-4002	Naperville	Inorganic Elements	1.022	0.853	0.691	0.623	0.359
		Ammonium	2.56	2.12	2.07	1.97	0.801
		Nitrate	6.20	6.00	4.95	4.66	1.728
		Sulfate	6.56	4.39	3.91	3.31	1.601
		Elemental Carbon	0.888	0.697	0.685	0.579	0.321
		Organic Carbon	5.44	4.29	4.26	4.18	2.472

Table B26
2013 $PM_{2.5}$ Speciation

AQS ID	City	Major Constituents	Highest 24-hour Samples (µg/m^3)				Annual Average
			1st	2nd	3rd	4th	
17-119-0024	Granite City Gateway Medical Center	Inorganic Elements	-	-	-	-	-
		Ammonium	-	-	-	-	-
		Nitrate	-	-	-	-	-
		Sulfate	-	-	-	-	-
		Elemental Carbon	1.250	1.140	1.030	0.992	0.526
		Organic Carbon	6.12	4.42	4.30	3.97	2.400

Table B27
2013 Carbon Dioxide (CO_2)

AQS ID	City	Annual Means (ppm)					
		2013	2012	2011	2010	2009	2008
17-117-0002	Nilwood	399	397	389	394	384	380
Hawaii	Mauna Loa	396	394	392	390	387	386

Table C1

Carbon Monoxide Point Source Emission Distribution (Tons/Year)

Category	2009	2010	2011	2012	2013
External Fuel Combustion					
Electric Generation	15,467.6	18,540.9	19,340.9	18,188.3	16,586.9
Industrial	8,004.3	7,261.6	7,244.6	6,158.6	5,571.9
Commercial/Institutional	2,039.0	1,830.2	1,870.1	1,795.0	1,541.4
Space Heating	22.8	23.8	21.5	17.7	19.5
Internal Fuel Combustion					
Electric Generation	3,129.5	3,196.8	3,404.7	3,266.7	3,133.1
Industrial	5,878.8	5,178.2	5,185.1	5,426.0	4,968.5
Commercial/Institutional	373.3	355.6	300.0	260.5	240.4
Engine Testing	377.5	316.4	218.5	209.4	124.2
Industrial Processes					
Chemical Manufacturing	2,246.2	1,446.1	1,771.4	2,266.9	2,055.8
Food/Agriculture	3,598.5	3,237.1	3,142.9	2,857.8	1,426.2
Primary Metal Production	20,831.4	9,947.8	21,614.7	21,723.5	15,695.1
Secondary Metal Production	3,173.4	2,646.3	2,671.3	2,563.0	2,501.7
Mineral Products	4,793.9	3,640.1	2,760.4	3,195.9	2,875.3
Petroleum Industry	4,736.0	4,018.8	4,127.6	4,095.1	3,905.2
Paper and Wood Products	65.5	38.0	1.5	1.5	1.5
Rubber and Plastic Products	79.5	33.5	32.8	33.2	34.2
Fabricated Metal Products	272.9	235.9	232.1	224.4	226.7
Oil and Gas Production	252.2	211.5	231.2	219.2	249.6
Electrical Equipment	2.2	2.2	2.2	2.2	2.2
Transportation Equipment	5.1	5.1	3.5		
Health Services	317.6	343.1	311.4	261.2	200.8
In-Process Fuel Use	338.3	154.4	327.7	506.2	470.7
Miscellaneous Manufacturing	88.0	143.8	123.5	143.0	153.0
Organic Solvent Emissions					
Organic Solvent Use	0.0				0.3
Surface Coating Operations	150.8	164.8	194.3	167.5	161.3
Petroleum Product Storage	0.0				0.0
Bulk Terminals/Plants	17.4	17.5	17.5	70.6	74.8
Printing/Publishing	5.8	5.6	6.0	6.2	6.0
Petroleum Marketing/Transport	57.4	6.7	10.5	33.4	33.3
Organic Chemical Storage (large)	0.4				
Organic Chemical Transportation	0.0				
Organic Solvent Evaporation	30.2	30.3	40.6	35.8	24.0
Solid Waste Disposal					
Government	1,495.1	1,993.0	2,117.5	1,813.1	1,914.8
Commercial/Institutional	86.9	68.7	47.3	59.7	46.2
Industrial	764.3	689.0	893.6	639.2	667.4
Site Remediation	16.2	14.2	16.2	14.0	2.7
MACT Processes					
Food and Agriculture Processes	0.0				
Vinyl Based Resins	0.0	0.1	0.1	0.1	0.1
Totals	**78,719.6**	**65,797.2**	**78,283.1**	**76,255.0**	**64,915.0**

Table C2

Nitrogen Oxides Point Source Emission Distribution (Tons/Year)

Category	2009	2010	2011	2012	2013
External Fuel Combustion					
Electric Generation	121,547.1	73,871.1	77,280.9	69,919.6	51,512.4
Industrial	14,397.1	11,915.1	13,211.3	11,095.2	11,126.9
Commercial/Institutional	2,783.7	2,527.3	2,550.5	2,337.5	2,113.3
Space Heating	114.3	117.4	106.2	88.5	87.5
Internal Fuel Combustion					
Electric Generation	3,220.6	2,820.0	2,759.3	2,894.1	3,110.4
Industrial	21,769.7	20,921.5	20,450.5	21,002.4	19,219.0
Commercial/Institutional	829.0	773.8	573.2	488.1	414.6
Engine Testing	896.3	573.2	578.8	691.8	679.4
Industrial Processes					
Chemical Manufacturing	1,197.9	1,484.9	1,468.7	1,395.4	1,387.7
Food/Agriculture	1,617.3	1,751.1	1,412.2	1,415.5	1,389.9
Primary Metal Production	2,251.9	1,199.6	2,499.3	1,780.2	1,580.6
Secondary Metal Production	1,182.3	865.9	982.3	721.5	713.3
Mineral Products	13,508.7	8,692.5	8,117.8	8,904.9	7,813.4
Petroleum Industry	8,564.1	7,751.7	7,468.6	5,373.0	5,060.1
Paper and Wood Products	17.0	6.9	1.3	1.3	1.3
Rubber and Plastic Products	84.5	42.4	40.9	40.7	42.0
Fabricated Metal Products	363.5	316.9	304.7	308.0	288.0
Oil and Gas Production	811.3	756.3	600.9	800.4	734.4
Miscellaneous Machinery	9.1	9.2	9.2	0.2	0.2
Electrical Equipment	2.9	3.0	3.0	3.0	2.9
Transportation Equipment	0.1	0.2	0.1		
Health Services	7.0	7.1	7.1	6.6	6.6
Textile Products	0.9	0.9	0.9	0.9	0.9
In-Process Fuel Use	1,596.1	450.1	1,077.8	731.7	672.6
Miscellaneous Manufacturing	46.5	53.8	47.3	30.6	29.4
Organic Solvent Emissions					
Organic Solvent Use	0.0				0.3
Surface Coating Operations	394.0	415.8	459.2	368.6	329.3
Petroleum Product Storage	0.0				
Bulk Terminals/Plants	16.4	16.4	16.5	27.8	39.1
Printing/Publishing	13.2	9.0	8.8	8.6	6.8
Petroleum Marketing/Transport	25.3	4.8	7.0	28.6	28.0
Organic Chemical Storage (large)	0.1				
Organic Chemical Transportation	0.0				
Organic Solvent Evaporation	40.0	40.1	42.6	42.8	28.7
Solid Waste Disposal					
Government	567.7	681.3	643.8	562.0	626.3
Commercial/Institutional	16.8	14.3	14.3	14.5	15.2
Industrial	258.8	226.9	263.2	219.1	242.7
Site Remediation	24.9	22.7	26.6	22.4	4.5
MACT Processes					
Food and Agriculture Processes	0.0				
Vinyl Based Resins	0.4	0.4	0.4	0.4	0.4
Totals	**198,178.1**	**138,343.8**	**143,035.4**	**131,326.0**	**109,307.8**

Table C3

PM_{10} Point Source Emission Distribution (Tons/Year)

Category	2009	2010	2011	2012	2013
External Fuel Combustion					
Electric Generation	8,454.8	8,065.1	8,134.8	8,093.0	6,228.1
Industrial	1,739.4	1,553.5	1,601.1	1,536.3	1,174.9
Commercial/Institutional	282.0	245.6	273.2	273.6	191.4
Space Heating	3.6	3.9	3.5	3.1	4.9
Internal Fuel Combustion					
Electric Generation	229.2	243.0	283.3	525.0	376.1
Industrial	315.7	275.7	260.9	286.9	260.1
Commercial/Institutional	43.7	43.9	36.9	31.5	31.5
Engine Testing	29.6	19.7	14.1	15.1	17.9
Industrial Processes					
Chemical Manufacturing	943.2	927.9	949.1	872.9	869.5
Food/Agriculture	7,083.1	7,141.3	6,737.9	6,355.6	5,950.5
Primary Metal Production	1,213.7	790.9	1,301.2	1,222.5	1,037.5
Secondary Metal Production	1,573.9	1,351.6	1,265.0	1,232.5	1,240.3
Mineral Products	6,565.1	6,486.5	5,651.0	5,052.2	5,071.9
Petroleum Industry	1,708.4	1,593.4	993.7	1,007.8	1,367.4
Paper and Wood Products	227.6	219.4	180.1	167.2	148.9
Rubber and Plastic Products	189.5	192.7	192.2	173.3	178.6
Fabricated Metal Products	282.9	320.8	266.5	227.5	260.0
Oil and Gas Production	7.0	7.5	11.6	13.4	14.7
Building Construction	3.0	2.0	1.6	1.6	1.6
Miscellaneous Machinery	13.4	13.5	13.5	13.2	13.1
Electrical Equipment	2.8	2.5	2.4	1.8	3.4
Transportation Equipment	14.0	7.8	18.7	19.5	7.1
Health Services	83.2	94.2	93.5	8.9	63.4
Leather and Leather Products	3.3	3.3	3.3	17.2	9.7
Textile Products	0.0	0.1	0.1	0.1	0.1
Process Cooling	375.3	384.4	402.7	422.4	313.0
In-Process Fuel Use	143.7	43.3	144.8	82.5	75.3
Miscellaneous Manufacturing	30.0	25.3	22.3	15.0	27.8
Organic Solvent Emissions					
Organic Solvent Use	0.0			1.5	1.8
Surface Coating Operations	224.7	199.7	199.4	197.2	206.0
Petroleum Product Storage	0.0				
Bulk Terminals/Plants	1.3	12.9	1.3	2.6	1.3
Printing/Publishing	3.1	2.9	11.1	11.7	29.7
Petroleum Marketing/Transport	0.4	0.4	0.8	2.3	2.0
Organic Chemical Storage (large)	3.7	4.8	4.8	4.4	4.5
Organic Chemical Transportation	0.0				
Organic Solvent Evaporation	1.7	1.7	6.6	7.0	5.9
Solid Waste Disposal					
Government	349.8	355.9	401.5	406.7	365.1
Commercial/Institutional	14.9	11.0	9.8	15.1	8.2
Industrial	95.9	84.7	102.6	112.2	92.4
Site Remediation	75.9	48.2	50.8	43.0	16.1
MACT Processes					
Food and Agriculture Processes	0.0	0.0	0.0	0.0	0.0
Styrene or Methacrylate Based Resins	0.7	0.8	0.8	0.2	0.1
Alkyd Resin Production	72.0	4.8	3.0	0.6	0.6
Vinyl Based Resins	129.8	129.9	129.9	63.6	60.1
Miscellaneous Polymers	9.8	9.6	9.6	6.9	6.9
Inorganic Chemicals		0.3	0.3	0.3	0.1
Consumer Products Manufacturing	0.3	0.2	0.2	0.2	0.2
Paint Stripper Use	0.2				1.0
Miscellaneous Processes	1.0	1.0	1.0	1.0	3.2
Phthalate Plasticizers Production	3.1	3.2	3.2	3.2	
Totals	**32,551.4**	**30,930.9**	**29,795.9**	**28,623.9**	**25,744.0**

Table C4

Sulfur Dioxide Point Source Emission Distribution (Tons/Year)

Category	2009	2010	2011	2012	2013
External Fuel Combustion					
Electric Generation	271,264.7	242,045.6	230,522.6	216,854.5	157,862.8
Industrial	35,929.6	30,458.6	30,428.2	29,303.3	27,402.6
Commercial/Institutional	4,528.6	4,265.9	4,828.9	4,167.1	2,355.7
Space Heating	0.6	0.8	0.7	0.5	0.5
Internal Fuel Combustion					
Electric Generation	185.8	330.8	497.9	445.2	228.3
Industrial	118.5	108.9	84.8	86.1	67.7
Commercial/Institutional	55.4	64.8	48.6	48.4	21.5
Engine Testing	99.6	66.7	8.8	12.2	10.6
Industrial Processes					
Chemical Manufacturing	8,107.9	1,020.1	1,462.5	1,440.5	1,381.3
Food/Agriculture	1,387.4	1,341.0	1,464.4	1,365.4	1,718.8
Primary Metal Production	2,282.7	1,119.7	2,425.3	2,954.6	2,685.2
Secondary Metal Production	151.3	122.0	124.7	119.9	100.4
Mineral Products	17,905.4	13,347.2	14,814.3	14,409.7	13,079.8
Petroleum Industry	29,034.1	7,875.6	6,138.4	3,119.6	3,043.6
Paper and Wood Products	1.7	0.6	0.0	0.0	0.0
Rubber and Plastic Products	4.8	4.7	4.6	4.6	4.7
Fabricated Metal Products	16.3	16.2	16.1	33.4	32.2
Oil and Gas Production	402.9	378.3	378.4	332.8	373.0
Electrical Equipment	0.0	0.0	0.0	0.0	0.0
Transportation Equipment	0.1	0.1	0.1	0.0	
Health Services	7.6	7.7	7.7	7.5	7.5
Process Cooling	2.0	0.0	0.0	0.0	0.0
In-Process Fuel Use	3,082.3	669.3	416.7	209.9	192.4
Miscellaneous Manufacturing	28.4	63.0	71.5	60.1	57.7
Organic Solvent Emissions					
Organic Solvent Use					0.3
Surface Coating Operations	0.0	3.1	3.3	3.4	2.4
Petroleum Product Storage	2.6	7.7	7.7	7.7	7.7
Printing/Publishing	7.4	0.0	0.4	0.1	0.8
Petroleum Marketing/Transport			0.4	1.3	5.9
Organic Chemical Transportation	0.0			5.9	
Organic Chemical Storage (large)	0.0	0.1	0.1	0.1	0.1
Organic Solvent Evaporation	3.1	3.2	3.2	3.2	3.1
Solid Waste Disposal					
Government	425.9	691.8	886.3	712.1	529.8
Commercial/Institutional	3.2	2.7	2.7	2.8	2.7
Industrial	559.0	487.3	802.7	495.9	493.0
Site Remediation	5.6	5.7	6.5	4.3	0.9
MACT Processes					
Food and Agriculture Processes	200.5	199.7	199.7	199.7	199.7
Totals	**375,806.5**	**304,708.9**	**295,658.3**	**276,412.0**	**211,872.9**

Table C5

Volatile Organic Material Point Source Emission Distribution (Tons/Year)

Category	2009	2010	2011	2012	2013
External Fuel Combustion					
Electric Generation	1,582.7	1,312.9	1,419.0	1,445.1	1,312.0
Industrial	385.3	354.3	351.5	332.1	350.7
Commercial/Institutional	106.9	101.3	103.6	113.5	89.8
Space Heating	5.7	6.2	5.6	3.4	4.3
Internal Fuel Combustion					
Electric Generation	709.6	656.5	793.2	682.4	418.2
Industrial	1,043.1	1,032.3	1,119.9	1,207.2	1,121.6
Commercial/Institutional	68.4	70.7	59.6	46.1	40.0
Engine Testing	125.9	116.7	51.6	47.9	48.0
Fugitive Emissions					
Industrial Processes					
Chemical Manufacturing	6,606.6	6,349.6	6,452.1	6,130.2	6,130.8
Food/Agriculture	11,887.5	10,549.7	10,443.2	10,209.9	9,481.7
Primary Metal Production	681.1	379.9	497.0	527.3	468.7
Secondary Metal Production	1,024.8	812.4	727.1	760.2	683.2
Mineral Products	1,702.0	1,504.6	1,605.9	1,494.1	1,342.7
Petroleum Industry	2,068.4	2,021.2	1,914.2	2,054.5	2,409.2
Paper and Wood Products	150.2	169.3	213.3	207.6	195.1
Rubber and Plastic Products	2,200.9	2,130.5	1,921.4	1,991.6	1,952.3
Fabricated Metal Products	778.1	748.3	653.0	582.8	659.5
Oil and Gas Production	302.7	314.1	305.8	305.3	352.2
Miscellaneous Machinery	90.7	65.9	57.4	56.5	56.5
Electrical Equipment	64.2	50.9	48.3	40.9	34.5
Transportation Equipment	261.3	135.8	107.6	137.8	33.9
Health Services	41.9	47.7	43.7	32.0	30.9
Leather and Leather Products	50.0	42.7	16.9	16.9	16.9
Textile Products	3.0	3.0	3.0	3.0	3.0
Process Cooling	225.0	272.5	275.8	68.0	71.4
In-Process Fuel Use	20.7	18.5	9.7	36.6	36.0
Miscellaneous Manufacturing	255.0	196.7	179.1	179.0	127.8
Organic Solvent Emissions					
Organic Solvent Use	646.4	607.5	527.8	495.0	464.9
Surface Coating Operations	7,707.3	6,644.3	6,367.3	6,892.8	7,060.5
Petroleum Product Storage	2,970.0	3,083.8	2,937.9	2,706.9	2,711.9
Bulk Terminals/Plants	1,350.8	1,338.1	1,188.6	1,087.2	1,215.8
Printing/Publishing	5,061.3	4,675.8	3,908.0	3,522.2	3,268.0
Petroleum Marketing/Transport	464.9	548.9	515.5	601.2	513.0
Organic Chemical Storage (large)	1,207.0	1,100.8	819.4	742.6	773.6
Organic Chemical Transportation	106.9	84.1	94.7	95.3	89.6
Dry Cleaning (petroleum based)	565.3	524.1	503.8	462.1	468.3
Organic Chemical Storage (small)	0.0				
Organic Solvent Evaporation	556.4	525.4	505.6	435.3	420.0

Table C5

Volatile Organic Material Point Source Emission Distribution (Tons/Year)

Category	2009	2010	2011	2012	2013
Solid Waste Disposal					
Government	454.9	420.2	339.0	361.5	338.2
Commercial/Institutional	6.9	5.4	5.4	5.4	5.4
Industrial	94.8	80.0	396.3	100.2	64.9
Site Remediation	464.2	386.7	327.9	227.8	219.5
MACT Processes					
Food and Agriculture Processes	100.3	26.0	26.0	26.0	26.0
Agricultural Chemical Production	1.0	1.1	1.1	0.1	0.1
Styrene or Methacrylate Based Resins	17.6	16.2	16.6	6.5	4.6
Alkyd Resin Production	86.8	87.7	57.5	61.3	54.7
Vinyl Based Resins	100.7	94.1	113.3	89.7	88.1
Miscellaneous Polymers	0.9	1.0	1.0	1.0	1.0
Inorganic Chemicals Manufacturing	16.2	16.3	16.3	16.3	0.0
Consumer Product Mfg Facilities	228.6	228.8	260.1	292.7	158.6
Paint Stripper Use	3.0	3.0	3.1	3.1	3.1
Miscellaneous Processes	12.0	12.0	12.5	12.3	9.1
Phthalate Plasticizers Production	0.0				
Totals	**54,668.4**	**49,975.4**	**48,323.0**	**46,956.6**	**45,430.1**

Table C6

2013 Estimated County Stationary Point Source Emissions (Tons/Year)

County	Carbon Monoxide	Nitrogen Oxides	PM_{10}	Sulfur Dioxide	Volatile Organic Material
Adams	231.1	347.8	264.1	921.0	827.0
Alexander	26.6	33.4	54.2	20.0	281.4
Bond	15.1	10.9	19.9	1.0	44.6
Boone	99.1	117.0	62.8	7.3	554.3
Brown	0.0	0.0	2.8	0.0	0.0
Bureau	21.2	33.5	56.6	0.3	32.1
Calhoun	0.6	0.7	5.9	0.0	0.1
Carroll	25.2	25.0	37.5	1.1	15.0
Cass	38.3	38.2	33.1	48.7	30.2
Champaign	374.6	784.3	197.1	421.7	449.5
Christian	1,071.3	10,879.2	340.4	12,183.5	456.7
Clark	67.6	5.9	87.7	3.7	140.6
Clay	15.8	10.5	31.0	0.1	144.8
Clinton	759.1	2,321.8	85.2	5.9	164.5
Coles	106.2	95.4	84.0	10.7	628.3
Cook	11,402.4	5,832.6	2,768.9	3,138.6	7,370.4
Crawford	1,036.5	1,554.3	508.7	5,147.1	1,293.1
Cumberland	0.0	0.0	19.4	0.0	16.4
DeKalb	115.1	73.0	70.0	89.1	200.3
DeWitt	147.5	66.8	69.7	2.6	69.7
Douglas	1,114.0	4,501.0	191.1	10,729.0	521.4
DuPage	780.7	813.2	274.5	75.5	1,355.4
Edgar	15.0	104.8	77.0	0.1	128.5
Edwards	0.9	0.5	15.7	0.4	14.5
Effingham	26.7	29.9	64.9	1.0	285.8
Fayette	51.3	197.3	29.9	370.1	32.7
Ford	118.4	159.1	156.8	7.2	595.0
Franklin	10.4	8.7	104.7	1.4	48.5
Fulton	502.5	1,350.5	114.0	390.2	200.4
Gallatin	0.3	1.4	26.0	0.5	0.0
Greene	0.1		19.6	0.2	0.4
Grundy	638.1	1,179.9	251.8	83.7	622.2
Hamilton	1.9	4.7	48.1	0.8	1.7
Hancock	2.0	0.5	41.7	0.0	3.3
Hardin	4.6	5.5	38.1	0.0	2.1
Henderson	24.1	10.8	19.7	12.1	8.8
Henry	562.5	1,566.9	142.7	18.1	380.6
Iroquois	29.6	20.8	134.2	4.3	440.1
Jackson	563.5	424.2	61.4	246.1	93.8
Jasper	849.2	3,026.5	376.2	16,550.7	130.3
Jefferson	48.0	52.1	24.3	0.5	276.0
Jersey	0.7		6.5		10.3
Jo Daviess	694.4	536.3	161.4	2.4	77.5
Johnson	24.1	21.0	11.0	172.5	6.7
Kane	510.9	534.3	226.6	52.3	919.8
Kankakee	667.7	1,013.7	273.9	113.6	890.2
Kendall	413.0	990.5	230.2	44.9	398.6
Knox	27.2	28.2	82.0	1.8	43.3
Lake	1,894.0	2,714.7	780.6	7,228.8	550.4
La Salle	1,202.4	2,792.0	886.2	635.9	1,074.0
Lawrence	6.7	5.2	12.8	1.3	21.7
Lee	229.9	164.3	116.3	9.3	232.0

Table C6

2013 Estimated County Stationary Point Source Emissions (Tons/Year)

County	Carbon Monoxide	Nitrogen Oxides	PM_{10}	Sulfur Dioxide	Volatile Organic Material
Livingston	418.8	273.9	126.4	12.5	279.4
Logan	45.6	452.1	124.4	459.7	40.5
McDonough	76.6	112.0	61.8	77.1	167.2
McHenry	210.9	288.8	147.9	4.8	329.1
McLean	234.7	291.0	183.7	9.5	937.0
Macon	1,460.8	4,557.5	1,794.0	14,120.9	4,368.4
Macoupin	6.2	6.7	65.6	0.0	5.0
Madison	10,628.3	7,038.7	1,557.0	11,060.7	3,500.0
Marion	37.5	43.3	43.1	14.1	471.5
Marshall	24.3	148.3	139.6	82.7	367.9
Mason	451.5	1,221.0	67.8	5,810.1	65.1
Massac	1,430.4	8,026.2	818.3	17,666.8	300.3
Menard			17.2		12.5
Mercer	0.4	0.5	24.0	0.0	2.9
Monroe	6.6	12.7	16.4	0.5	14.5
Montgomery	833.3	1,987.8	129.2	110.8	144.9
Morgan	63.3	226.2	118.9	39.4	84.6
Moultrie	11.8	40.3	32.6	0.1	331.4
Ogle	382.6	291.8	322.9	225.9	874.0
Peoria	1,951.3	4,543.8	658.9	11,930.0	1,823.3
Perry	85.3	80.1	126.8	0.8	17.0
Piatt	374.6	3,743.2	63.4	0.5	105.4
Pike	301.6	289.7	75.5	164.4	35.1
Pope					
Pulaski	99.1	39.7	45.1	10.1	10.2
Putnam	429.3	1,727.4	304.3	6,798.7	120.5
Randolph	1,796.9	5,140.5	517.3	10,212.3	353.9
Richland	0.6	2.6	5.1	0.0	12.1
Rock Island	475.4	592.6	181.5	2,045.9	606.8
St. Clair	485.1	376.0	257.0	204.1	635.7
Saline	14.4	5.5	84.1	3.7	6.1
Sangamon	561.6	1,263.7	705.7	1,381.8	161.7
Schuyler	5.2	6.1	8.7	0.0	6.1
Scott	33.7	33.1	35.9	6.4	2.7
Shelby	18.8	92.3	72.8	2.4	55.9
Stark			17.2		4.5
Stephenson	53.2	87.2	91.0	5.3	202.0
Tazewell	843.9	6,319.5	1,624.1	31,539.4	828.8
Union	65.9	58.2	41.3	802.4	5.8
Vermilion	388.5	667.7	185.5	11.5	1,982.0
Wabash	2.9	2.8	43.9	2.4	8.0
Warren	18.9	22.3	68.3	14.8	7.5
Washington	1,419.6	1,827.4	695.9	3,387.5	64.1
Wayne	423.2	1,366.8	18.7	18.1	91.4
White	41.7	208.2	7.1	2.7	49.0
Whiteside	1,565.5	389.1	160.8	237.9	190.1
Will	8,896.2	8,412.5	3,383.5	28,664.3	2,708.9
Williamson	1,097.6	2,174.5	163.8	5,868.2	238.5
Winnebago	568.7	319.5	464.3	104.6	581.6
Woodford	4.4	7.9	46.5	0.0	134.2

Table C7

Annual Estimated Emissions Trends (Tons)

Year	Carbon Monoxide	Nitrogen Oxides	PM_{10}	Sulfur Dioxide	Volatile Organic Material
1981	240,421	826,427		1,577,992	270,814
1982	163,704	693,054		1,404,040	233,951
1983	144,622	759,453		1,363,292	207,405
1984	110,922	746,367		1,435,066	197,418
1985	107,876	715,556		1,406,300	191,070
1986	109,777	676,181		1,400,761	180,148
1987	98,213	644,511		1,379,407	176,406
1988	127,758	653,521		1,393,628	165,792
1989	132,214	610,214		1,254,474	193,499
1990	134,744	623,466		1,272,445	170,378
1991	148,667	619,161		1,239,690	154,008
1992	129,054	610,214	181,775	1,228,949	156,867
1993	130,097	556,460	113,482	1,170,549	152,288
1994	127,848	555,893	50,730	1,158,555	140,492
1995	127,661	505,966	48,839	1,273,786	141,381
1996	130,040	495,267	43,950	1,183,278	139,445
1997	117,046	510,729	41,078	1,197,404	136,541
1998	108,117	509,676	43,392	1,196,461	134,924
1999	120,906	421,993	40,598	1,085,828	99,121
2000	122,702	424,609	36,885	1,070,058	101,147
2001	96,970	358,263	34,233	653,797	95,221
2002	99,173	301,216	30,422	531,343	90,014
2003	88,367	289,921	41,589	512,321	89,579
2004	80,479	248,245	42,402	507,142	84,080
2005	83,671	238,026	40,359	522,677	75,690
2006	89,717	219,200	37,979	487,588	70,858
2007	80,969	205,602	34,847	429,976	59,021
2008	80,628	203,014	34,474	406,905	57,135
2009	78,720	198,178	32,551	375,807	54,668
2010	65,797	138,344	30,931	304,709	49,975
2011	78,283	143,035	29,796	295,658	48,323
2012	76,255	131,326	28,624	276,412	46,957
2013	64,915	109,308	25,744	211,873	45,430

Table C8

Annual Source Reported Emissions Trends (Tons)

Year	Carbon Monoxide	Nitrogen Oxides	PM_{10}	Sulfur Dioxide	Volatile Organic Material
1992	112,403	381,938	49,377	1,045,113	143,853
1993	113,781	418,209	36,737	1,001,123	108,847
1994	116,192	404,486	34,086	967,213	108,897
1995	160,256	366,978	31,491	814,229	103,144
1996	84,258	407,683	30,850	914,295	87,271
1997	71,408	404,289	25,648	974,232	76,350
1998	79,147	377,191	31,828	964,262	77,952
1999	91,153	360,850	27,663	863,759	71,514
2000	90,315	329,141	30,482	620,592	71,063
2001	83,453	291,778	28,929	531,504	62,647
2002	83,795	261,202	26,900	498,754	70,703
2003	75,511	230,068	29,939	507,338	63,495
2004	77,847	229,127	31,896	521,808	64,594
2005	85,892	215,366	30,535	486,534	62,251
2006	77,099	200,832	29,367	429,573	53,791
2007	77,211	198,073	28,784	406,405	50,933
2008	75,183	193,637	28,194	376,627	49,112
2009	62,285	134,274	25,988	305,297	41,839
2010	75,277	139,508	25,993	297,254	44,245
2011	73,586	129,058	25,209	272,747	42,430
2012	64,253	109,298	22,631	220,143	42,735

Organization and Programs

The Bureau of Air consists of two divisions: the Division of Air Pollution Control and the Division of Vehicle Inspection and Maintenance. The focus of this section is on the programs of the Division of Air Pollution Control which is responsible for developing, implementing and enforcing regulations to assure that the air we breathe is clean and healthful. This mission is accomplished by finding, correcting and controlling air pollution hazards. The Division of Air Pollution Control also works to prevent air quality problems from occurring in areas which have clean air.

The basic strategy to improve air quality is to control the pollutants which are emitted by industry and motor vehicles. This strategy requires the Illinois EPA to monitor the air, identify emission sources, impose limitations on the amount of emissions which can be released to the air and take the necessary enforcement action against violators.

The Division of Air Pollution Control is divided into five sections: Air Monitoring, Air Quality Planning, Compliance and Enforcement, Permits, and Field Operations. Each of these sections is briefly described below.

Air Monitoring

The Division of Air Pollution Control operates a statewide air quality monitoring network which includes more than 200 monitors. The Air Monitoring Section is responsible for the maintenance of this network, which operates year round monitoring the quality of the air that we breathe.

The Illinois EPA monitors the air for a variety of pollutants including particulate matter, sulfur dioxide, ozone, carbon monoxide, lead and nitrogen dioxide. Specialized sampling projects for other hazardous pollutants are also conducted by the Air Monitoring Section.

Illinois residents can be proud of the Illinois EPA's record of efficiency in data collection. The system ranks as one of the best in the nation with over 90 percent efficiency in the collection of high quality data. This high efficiency rate guarantees that the network is operating with a minimum amount of "down-time" thereby providing the Illinois EPA with a complete and accurate description of air quality in Illinois.

The Air Monitoring Section is also responsible for validating and summarizing the data in this report. It provides notification of air quality exceedances and issues any air pollution advisories as required. Special air quality studies are performed which identify pollution trends and evaluate special air quality problems.

Air Quality Planning

The Air Quality Planning Section is responsible for developing Agency programs which are designed to achieve and maintain National Ambient Air Quality Standards and to prevent deterioration of air quality. This is accomplished by:

- Assessment of strategies and technologies for the elimination or reduction of air pollutant emissions.
- Conducting and reviewing detailed air quality studies using computerized air quality models.
- Proposing and supporting regulatory revisions where they are necessary to attain or maintain healthful air quality.
- Coordination with local planning agencies to ensure compatibility of air quality programs between state and local jurisdictions.
- Coordination of the Bureau’s stationary source inventory.

Compliance and Enforcement

The Compliance and Enforcement Section provides management oversight for all aspects of the compliance program.

The work of the section is currently focused on the following areas:

- Formulating and interpreting policy regarding the Bureau's air pollution compliance and enforcement program.
- Coordinating the air pollution compliance and enforcement program with U.S. EPA's compliance and enforcement program.
- Coordinating, through the Bureau's Compliance Decision Group, the work of the Bureau's staff in order to provide an effective and efficient compliance program.
- Evaluate the annual emission reports provided by Illinois industry.
- Oversees the source emissions monitoring program including continuous emission monitors (cems), stack testing, and excess emissions reporting

Permits

Permits are required in Illinois prior to construction and operation of emission sources and control equipment. The permit program provides a consistent and systemic way of ensuring that air emission sources are built and operated in compliance with air pollution control regulations.

In a permit application the Illinois EPA requires: a description of the emission source, a list of types and amounts of the contaminants which will be emitted, and a description of the emission control equipment to be utilized. This information is used to determine if the emissions comply with standards adopted by the Illinois Pollution Control Board. Operating permits are granted for periods up to five years, after which they must be renewed. Operating permits for smaller facilities may run indefinitely. When a facility constructs a new emission source or makes modifications to existing emission sources, it must apply for a new construction permit.

Large sources also need a federal operating permit which is administered by the Illinois EPA. Under the Clean Air Act Permit Program these large sources will be required to consolidate all of their existing State operating permits into one permit which will be available for public review and is subject to Federal oversight.

Field Operations

The Field Operations Section investigates sources of air pollution and works with industry to control air pollution. The major functions of the Field Operations Section include locating and identifying sources of air pollution, determining the amount of pollution emitted and verifying the information which industry submits when applying for a permit. Field Operations also initiates much of the Illinois EPA's enforcement activities when violations are discovered. Approximately 3,000 investigations and inspections are conducted each year.

Bureau of Air Organization

Illinois EPA's Website Information

To access the online version of the Annual Air Quality Report, the evening Air Quality Index numbers, various pollutant averages and exceedances, the monitoring network plan and emission trends:

- http://www.epa.state.il.us/air/air-quality-menu.html

Air Quality Index Information

To view current Air Quality Index numbers and forecasts across the country:

- http://www.airnow.gov

To sign up for air quality information such as forecasts and pollution alerts:

- http://www.illinois.enviroflash.info/signup.cfm

EnviroFlash on Twitter:

- http://www.illinois.enviroflash.info/EnviroFlashTwitter.cfm

Monitoring Data Access Information

To access yearly Air Quality Index summaries, air quality statistics and monitoring concentrations:

- http://www.epa.gov/airdata

To access more detailed monitoring data:

- http://www.epa.gov/ttn/airs/aqsdatamart
- http://www.epa.gov/ttn/airs/airsaqs/detaildata (click "files of detailed data")

To access historical Design Values (statistic to compare to the National Ambient Air Quality Standards):

- http://www.epa.gov/airtrends/values.html

Nonattainment Areas and Designations (regions in violation of the various National Ambient Air Quality Standards):

- http://www.epa.gov/oar/oaqps/greenbook/index.html

Other

- Ambient Monitoring Technology Information Center: http://www.epa.gov/ttnamti1
- Midwest Haze Camera Network: http://www.mwhazecam.net
- Toxic Release Inventory Search: http://iaspub.epa.gov/triexplorer/tri_release.chemical

Greenhouse Gas Emissions Report

Illinois EPA

December 2014

Introduction

This report is required pursuant to Executive Order 2006-11, EXECUTIVE ORDER ON CLIMATE CHANGE AND GREENHOUSE GAS REDUCTION, issued on October 5, 2006. Executive Order 2006-11 states, *"The Illinois Environmental Protection Agency shall produce an annual report to the Governor at the end of each fiscal year tracking statewide greenhouse gas emissions in Illinois and forecasted trends…"*

This is the seventh annual report provided by the Illinois EPA. This report provides information on statewide Greenhouse Gas (GHG) emissions and forecasted GHG emissions and trends. In 2011, Illinois passed Public Act 97-95 which streamlined the permitting process for sources emitting regulated air pollutants. As part of this, greenhouse gases were defined as regulated air pollutants but exempted from permitting fees. As regulated air pollutants, greenhouse gases are required to be reported on a source's Annual Emission Report (AER). The federal government also began regulating GHG pollutants in 2011. As these pollutants were not regulated previously, the Illinois EPA's emission inventory did not historically include emissions of these pollutants.

Greenhouse Gas Inventory

GHG emissions and forecasted trends for all sectors, including those not regulated by the Illinois EPA, are found in Section IV. Illinois Greenhouse Gas Inventory and Projections to 2020 of the *Report of the Illinois Climate Change Advisory Group* (ICCAG report), found at: http://www.epa.state.il.us/air/climatechange/. It is believed that the information contained in the ICCAG report remains the most comprehensive, detailed, and reliable data available on GHG emissions and trends in Illinois.

In the ICCAG report, the most recent year for which GHG data was available was 2003. At that time, Illinois produced an estimated 274.9 million metric tons of GHGs on a CO2 equivalent basis. Table 1 below ranks Illinois GHG emissions in relation to other states in 2003.

Table 1: Top 10 GHG Emitting States (2003)

Top 10 GHG Emitting States		$MtCO_2Eq$	% of US
1	Texas	772.2	11.5%
2	California	449.8	6.7%
3	Ohio	300.4	4.5%
4	Pennsylvania	298.2	4.4%
5	**Illinois**	**274.9**	**4.1%**
6	Indiana	271.7	4.0%
7	Florida	270.0	4.0%
8	New York	240.7	3.6%
9	Michigan	210.9	3.1%
10	Louisiana	202.6	3.0%

On September 22, 2009, the United States Environmental Protection Agency (U.S. EPA) issued a final rule on the Mandatory Reporting of Greenhouse Gas Emissions. Fossil fuel and industrial GHG suppliers, motor vehicle and engine manufacturers, and facilities that emit 25,000 metric tons or more of carbon dioxide (CO_2) equivalent per year are required to report GHG emissions data to U.S. EPA annually. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to U.S. EPA in 2011. Vehicle and engine manufacturers outside of the light-duty sector began phasing in GHG reporting with model year 2011. Some source categories included in the proposed rule are still under review. The Illinois EPA will have access to this database of emissions and as a result will be able to more accurately determine GHG emissions in Illinois in the future. Currently, the Illinois EPA can only restate the GHG figures from previous Greenhouse Gas Emission Reports, Annual Emission Reports, and information from the Greenhouse Gas Inventory for 2011.

In addition, every three years, the Illinois EPA is required to conduct a full state-wide emissions inventory for all source categories (i.e., point, area, mobile) of the criteria pollutants (i.e. lead, ozone, particulate matter, nitrogen dioxide, carbon monoxide and sulfur dioxide). While compiling the required ozone and particulate matter (PM) inventories in 2011, the Illinois EPA also compiled a statewide greenhouse gas inventory. GHG emissions from sectors not regulated by the Illinois EPA, such as the residential, transportation and agriculture sectors, are presented in the attached Illinois Greenhouse Gas Inventory for 2011. The GHG Inventory for 2011 (AQPSTR13-04) and Table 2 below, provides information on GHG emissions data by sector and GHG. The next state-wide emissions inventory is underway in the current year (2014) and is expected to be released in 2016.

Table 2: Greenhouse Gas Emissions (tons/year)

Pollutant	Point	Area	On-Road	Off-Road	Animal Husbandry	Total
CO_2	169,308,248.73	51,120,116.24	63,766,580.64	12,602,405.25		296,797,350.86
Methane	111,610.42	16,813.24	3,883.88		110,193.37	242,500.91
N_2O	8,228.02	999.28	1,867.95			11,095.25
CF_4	1.24					1.24
HFC134a	230.72					230.72
CO_{2e} (10^6 tpy)	174.51	51.78	64.43	12.6	2.31	305.64

A more detailed description of the methods used to calculate emissions is described in the documents "Illinois Ozone Emission Inventory for 2011" (AQPSTR 13-02) and "Illinois PM and Haze Emission Inventory for 2011" (AQPSTR 13-03).

The reporting of GHG emissions is now mandatory in Illinois. Data reported by the sources is used to update the Illinois EPA's estimate of GHG emissions. The primary source of data for point sources in the GHG Inventory for 2011 was the source-reported 2011 Annual Emission Reports. Area source emissions are typically estimated by multiplying an emission factor by a known indicator of activity (e.g., population) for a source category. On-road mobile source emissions were calculated using the MOVES model. Off-road mobile source emissions were

calculated using the NMIM computer model. The off-road calculation does not include aircraft, locomotives, and commercial marine vessels.

The Illinois Greenhouse Gas Inventory for 2011 includes statewide emissions by source category. These are delineated in the bar charts of Figures 2-1 through 2-6 of the inventory. The pie charts of Figures 2-7 through 2-13 present the contribution of each source category's emissions for each pollutant. Figure 2-13 identifies the contribution of carbon dioxide equivalent (CO_{2e}) emissions based upon fuel type. In addition, the GHG Inventory for 2011 provides category summaries by pollutant in Appendix A and a county-by-county summary of point, area, on-road, off-road and animal emissions in Appendix B.

The completeness of Illinois' inventory continues to improve. The requirement of sources to report greenhouse gas emissions on the annual emission report have not only led to better data, but new data from categories of sources for which the Agency had no data previously. Important to note, due to lack of existing emission factors, some categories of emissions have not been included in the inventory. These categories include some forms of point sources such as incineration facilities, area sources such as open burning and residential wood combustion, and off-road sources such as locomotives and aircraft. A more thorough discussion of sources not included in the report can be found at page 3 of the GHG Inventory for 2011.

The Illinois EPA continues to develop its own database for GHG emissions from stationary point sources. Point source emission numbers for the year 2012 can now be added to Table 3 below, expanding upon Table 2-3 in the GHG Inventory for 2011.

Table 3: Reported Point Source Emissions (tons/year)

Year	CO_2	Methane	N_2O	CF_4	HFC134a
2007	146,918,112	4,640.8	7,139.2		
2008	149,842,120	5,501.5	8,159.8		18.7
2009	139,838,799	5,554.9	7,439.9		14.2
2010	155,939,648	24,245.3	7,776.1	0.3	12.7
2011	147,080,159	107,438.6	7,462.5		262.4
2012	**140,812,025**	**171,975.8**	**3,716.9**		**248.5**

Note: These emission rates are only for those sources that are required to report under the Annual Emission Report rule (sources that are required to have a permit with the Bureau of Air) 35 Ill. Adm. Code Part 254. These numbers do not include many area sources (e.g., residential or commercial fuel combustion, dry cleaners, and other sources exempt from permit requirements), and on-road motor vehicles or off-road motor vehicles. However, such sources are included in the Illinois GHG Inventory for 2011(attached).

It is Illinois EPA's intention to continue compiling a statewide greenhouse gas inventory on the same three-year cycle as the ozone and PM inventories. As more sources report and methods to calculate emissions improve, the quality of the inventory should increase.

Projection of Illinois GHG Emissions (2003-2020)

The ICCAG report contains a projection of Illinois GHG emissions through 2020. Illinois EPA believes the information in this report remains the most comprehensive and accurate available. In the report, World Resources Institute (WRI) presented three emissions forecasts through 2020, referred to as "low," "best guess," and "high."

In the low case, emissions increased at an average annual rate of 0.64 percent between 2003 and 2020. Under this scenario, emissions grow to 306.3 $MtCO_{2e}$ by 2020, an increase of 29.1 percent above 1990 levels. In the high case projection, emissions increase at an average annual rate of 1.39 percent between 2003 and 2020. Under this scenario emissions are 347.8 $MtCO_{2e}$ in 2020 or 46.6 percent above 1990 levels.

Under the best guess case, GHG emissions in Illinois are projected to increase at an average annual rate of 1.0 percent between 2003 and 2020. By 2020, Illinois' emissions are projected to grow to 325.5 $MtCO_{2e}$, an increase of 50.5 $MtCO_{2e}$ over 2003 levels, or 18.4 percent. Compared to 1990 emissions, 2020 projected emissions represent an increase of 88.2 $MtCO_{2e}$, or 37.2 percent.

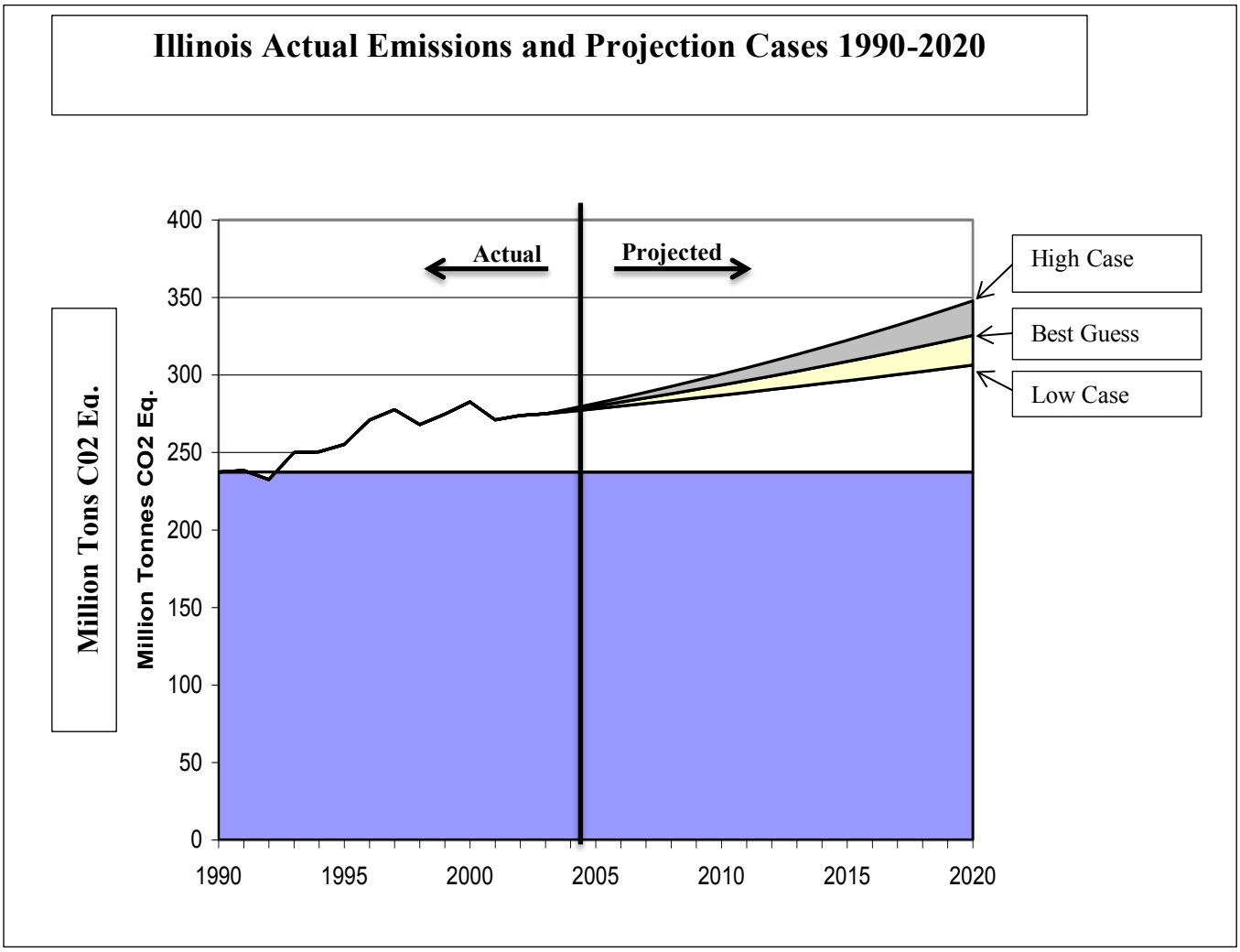
Under the best guess case, projected emissions growth, though substantial, is slower than the projected growth for the nation as a whole. The rate of growth is just slightly lower than historic emissions growth in Illinois between 1990 and 2003 and is therefore seen as the most plausible scenario. Illinois' projected emissions are expected to be driven by a continuing increase in emissions from electric power generation from fossil fuels. Emissions from transportation are also expected to increase substantially.

These projections are based on regional growth rates for energy consumption developed by the Energy Information Administration and published in the Annual Energy Outlook 2006. Projected emissions for electric power, waste agriculture and industrial processes are derived from historic trends and shown

In comparing the projections set in the ICCAG Report to the carbon dioxide equivalent (CO_{2e}) reported in the GHG Inventory Report for 2011, GHG emissions are trending between the "best guess case" and the "high case" projections. The best guess case scenario (1 percent annual increase) projected 2011 emissions at 297.68 (10^6 tpy). The high case scenario (1.39 percent annual increase) projected 2011 emissions at 306.99. While the 2011 inventory of 305.64 CO_{2e}(10^6 tpy), is closer to the high case scenario, GHG emissions do appear to be following the projected trends as determined in the ICCAG Report.

The projections from the ICCAG report are displayed in Figure 1 below.

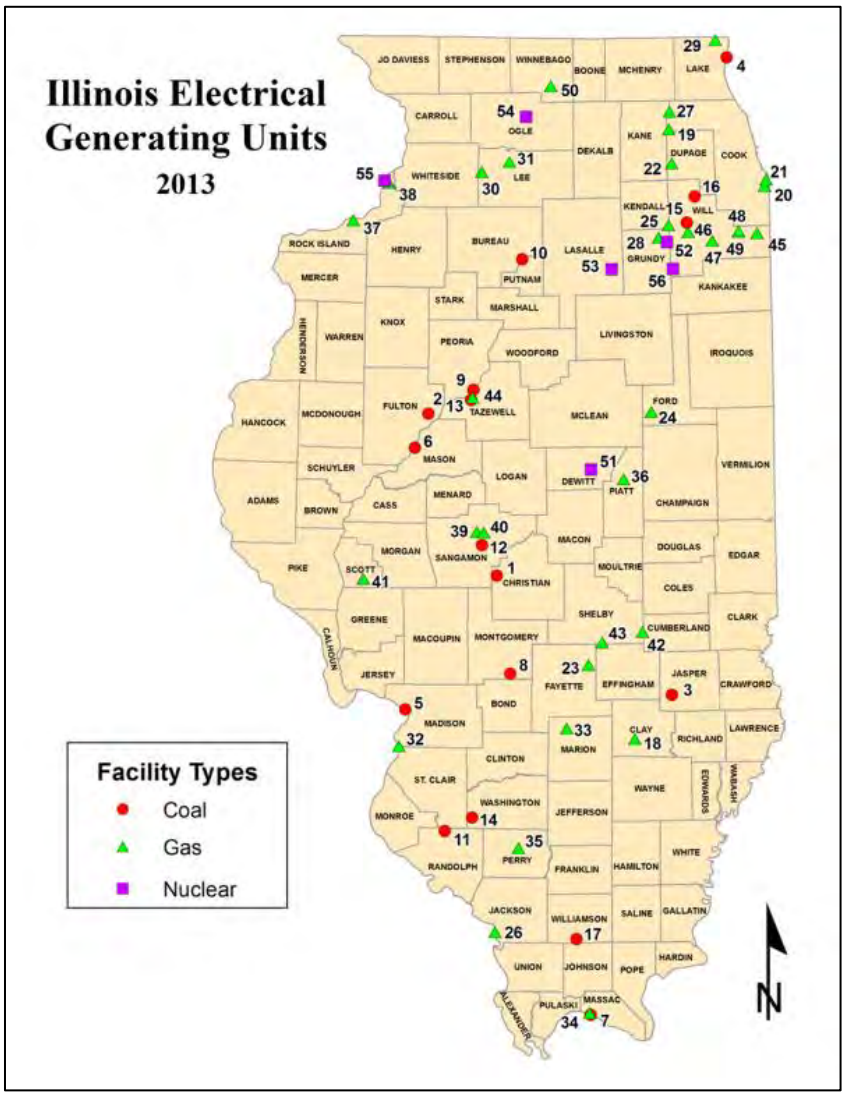
Figure 1: Projected Greenhouse Gas Emissions by Illinois



Looking Forward: U.S. EPA - Clean Power Plan

On June 2, 2014, U.S. EPA released its long-anticipated proposed regulation aimed at reducing carbon dioxide (CO_2) emissions from existing fossil fuel-fired power plants in the electricity-generating sector. U.S. EPA's proposed Clean Power Plan is projected to help cut CO_2 emissions from the power sector by 30 percent below 2005 levels by 2030. With power plants accounting for roughly one-third of U.S. greenhouse gas emissions, this rule would address the country's single-largest source of carbon pollution.

U.S. EPA's CO_2 regulations would impact approximately 1,000 power plants with 3,000 electric generating units in the U.S. These are primarily coal-fired, oil-fired and natural-gas fired power plants that sell a large portion of their electricity to the electric grid. The affected sources in Illinois consist of 17 coal-fired power plants, with 45 electric generating units. The age of these units range from 4 to 60 years old, and their generating capacities range from 74 megawatts to 800 megawatts. Another 30 natural-gas fired plants are also likely to be affected by the proposed rule.



U.S. EPA's proposed rule would establish minimum CO_2 emission goals ("best system of emission reduction") for power plants in each state based on the state's unique mix of energy sources and opportunities to achieve reductions. Additionally, the individual state goals are based on emission reduction possibilities that can be achieved throughout the electric system as a whole, not just at individual power plants.

When setting the CO_2 reduction goals, U.S. EPA established 2012 emissions as the baseline, and then asked for a certain percentage reduction by 2030. The goals were set on a state-by-state, or "customized" basis for each state, which vary widely. The goals were set by taking into account each state's power system as it operated in 2012 to establish the baseline, and then considered the emissions reduction potential for a common set of measures to set the goal. The CO_2 emission rate goal for Illinois is 1,271 lbs. which is a reduction of 33% from the baseline.

U.S. EPA used four categories of potential emission reductions, or "building blocks," to generate the emission rate goal for each state. These include:

- Building Block 1: Increase existing coal plant generation efficiency through equipment upgrades and other operational improvements.
- Building Block 2: Increase the dispatch of natural-gas-combined cycle plants, which have lower CO_2 emissions per megawatt-hour generated, in place of higher emission coal- and oil-fired power.
- Building Block 3: Expand the use of additional low-or no-carbon emission power sources (principally renewable energy such as wind and solar) and avoid the retirement of existing nuclear power plants.
- Building Block 4: Reduce power demand through energy efficiency programs, such as the installation of more efficient lighting products, building energy controls and more efficient equipment.

It should be noted that Building Blocks 2 through 4 are system-wide approaches that a state may use to achieve the state CO_2 emission rate goal indirectly. They are also "outside the fence" reductions because their implementation depends on measures not under the direct control of the affected electric generating facilities.

U.S. EPA's proposed rule would give states broad flexibility in determining the mix of strategies they use to meet the new requirements. In addition to using any combination of the building block reduction measures, states can also meet their individual goals by choosing to include other measures that reduce CO_2 emissions from the affected facilities. This could include co-firing lower carbon fuel like biomass; constructing new natural gas plants; installing carbon capture and storage systems; and establishing a mass-based allowance trading program.

The proposed rule allows states to submit either a plan that only establishes emission limits on the affected facilities, or a plan to achieve the emission rate goal through a "portfolio approach" of measures that would be taken by separate entities, including the power companies, state government, electric distribution utilities, as well as private and non-profit parties.

Illinois EPA intends to take a "no-regrets" approach in which the Agency will evaluate all compliance pathways in search of the most cost-effective approach that will allow the state to achieve compliance with the emission rate target. This includes evaluating a state-driven portfolio approach, in which there would be shared compliance responsibility between the affected facilities and other entities.

The Agency also believes it is important to explore multi-state approaches given the highly integrated and regional nature of the electricity marketplace. Illinois EPA is participating in a mid-continent states initiative led by Illinois Commerce Commission Chair Doug Scott, which is exploring market-based mechanisms like emissions averaging and trading that have the potential to provide lower-cost compliance opportunities.
Overall Illinois EPA believes the state is well-positioned to identify and develop cost-effective strategies to comply with the new CO_2 reduction requirements. Illinois government has a long track record of using various regulatory and other policy tools to encourage energy and environmental investments that provide economic value to the state economy.

One of the biggest keys to identifying cost-effective compliance options for possible implementation will be engagement among the state agencies, including environmental and utility regulators, along with the state energy office and power procurement agency.

Developing an efficient planning process will require these officials to work hand-in-hand, including regular and detailed dialogues in evaluating potential compliance options. It will be equally important for these entities to conduct extensive outreach and involve stakeholders in evaluating and weighing the various compliance options, particularly in light of the technical complexity that will be involved in assessing each option.

At this time, it is difficult to make a determination as to whether compliance with U.S. EPA's proposed rule is readily achievable or will present some challenges. We must wait for the final rule to be adopted - and then analyze multiple compliance pathways, consult economic experts, and perform environmental and economic modeling to fully understand the potential impacts.

Only then can Illinois EPA indicate with some reasonable certainty that we have found the best way forward for Illinois, its environment, and its citizens consistent with our mission to ensure environmental protection and public health while being cognizant of the economy and jobs.