Illinois
Environmental
Protection Agency

Bureau of Air
P.O. Box 19276
Springfield, IL 62794-9276

August 1998

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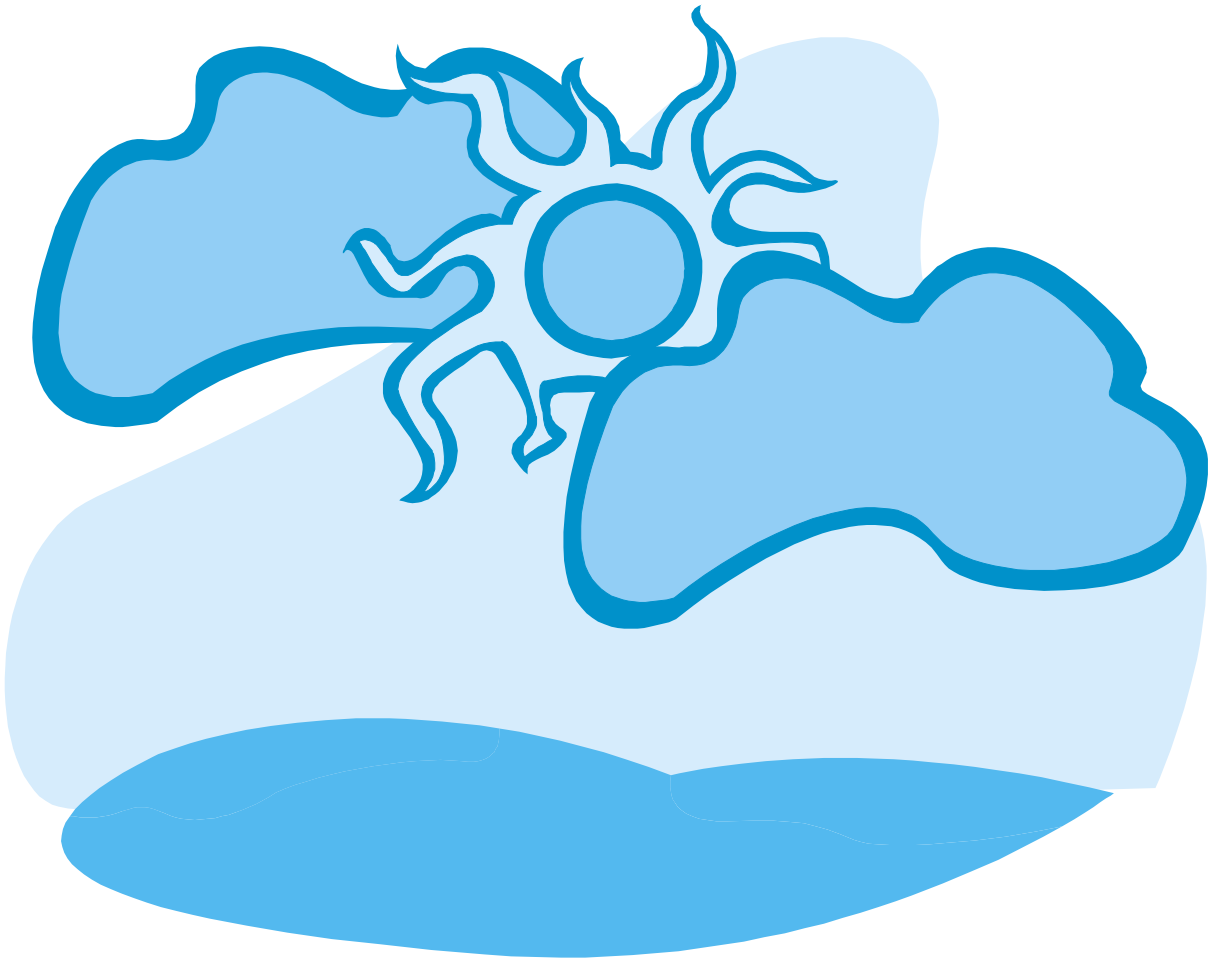

Illinois Annual Air Quality Report 1997

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To Obtain Additional Information

For additional information on air pollution, please call 217-782-7326, or write to:

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Acknowledgements

This document is produced by the Illinois Environmental Protection Agency; Mary A. Gade, director; and published by the Agency's Office of Public Information; Dennis McMurray, manager.

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A MESSAGE FROM THE DIRECTOR

Since 1970, the Clean Air Program at the Illinois Environmental Protection Agency (EPA) has been working to combat air pollution. To comply with the federal Clean Air Act and its amendments, the Agency issues permits to air pollution sources and works to reduce air pollutants. Clean air efforts have progressed to creating partnerships that encourage both voluntary pollution-reducing activities and that promote preventing pollution before it starts.

Our remaining major air pollution problem affects a substantial portion of Illinois' population. Both the Chicago and East St. Louis metropolitan regions still do not meet the federal air quality standard for ozone (smog), which is associated with human respiratory problems as well as ecosystem damage. There were six occurrences of unhealthful air quality in one or more portions of Illinois during 1997 — five due to ozone and one due to particulate matter — compared with 6 in 1996 and 11 in 1995.

Although this document shows that the trend in Illinois air pollution has been a steady decrease in emissions, there is still much to do to ensure that our residents enjoy the best air quality possible. Recent efforts to combat ozone include asking residents and businesses in the Chicago ozone non-attainment areas for help by voluntarily altering their activities that contribute to ozone formation on Ozone Action Days. Surveys show that about more than 70 percent of Chicago-area citizens heard about Ozone Action Days and of those, about 65 percent took actions to reduce ozone.

This 27th Annual Air Quality Report highlights information obtained in 1997 from the Bureau of Air's statewide air monitoring network, which incorporates more than 300 monitors that track the measurements of a variety of pollutants and air toxic compounds, has a 90 percent efficiency in collecting data.

We hope you find this report helpful. We welcome any comments or questions you may have so that we can better address your information needs.

Mary A. Gade
Director

Illinois Annual Air Quality Report 1997

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EXECUTIVE SUMMARY

This report presents a summary of air quality data collected throughout the state of Illinois during calendar year 1997. Data is presented for the six criteria pollutants (those for which air quality standards have been developed — particulate matter, ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead) along with some heavy metals, nitrates, sulfates, volatile organic compounds, and $PM_{2.5}$. Monitoring was conducted at more than 100 different site locations collecting data from more than 200 instruments.

In terms of the Pollutant Standards Index, air quality during 1997 was either good or moderate more than 98 percent of the time throughout Illinois. There were six days statewide that exceeded an air quality standard for any pollutant — one for particulate matter and five for ozone. These exceedances occurred in Cook, Lake, Jersey and Madison counties (ozone) and Madison County (particulate matter). Air quality trends for the criteria pollutants are continuing to show downward trends or stable trends well below the level of the standards.

In 1997 monitoring was conducted at nine locations in Cook and Madison counties for $PM_{2.5}$ (fine particulate matter of size less than 2.5 microns). In July 1997 the U.S. EPA finalized new ambient air quality standards for particulate matter that included the fine particulates as measured by $PM_{2.5}$. The monitoring network to fully assess these standards will be phased in during 1998 and 1999. Data is also included for the first time for mercury sampling at two locations in Cook County.

Stationary point source emission data has again been included. The data in the report reflects information contained in the Emission Inventory System as of Dec. 31, 1997. Emission estimates are for the calendar year 1997 and are for the pollutants: particulate matter, volatile organic material, sulfur dioxide, nitrogen oxides and carbon monoxide. Emission trends of these pollutants has been given for the years 1981 to the present. Emissions reported with the Annual Emissions Report have been provided starting with 1992. In general there has been a trend toward decreasing emissions over this time period.

SECTION 1: AIR POLLUTANTS: SOURCES, HEALTH AND WELFARE EFFECTS

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 reform nitrogen dioxide, completing the cycle. A buildup of ozone above the equilibrium concentration defined by the reaction cycle given above 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; but 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 ($ug/m^{3)}$ or 0.05 parts per million (ppm) for four 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 those persons exercising, at short-term ozone concentrations between 0.15 and 0.25 ppm.

Ozone exposure increases lung sensitivity to bronchoconstrictive agents such as histamine, acetylcholine and allergens, as well as increasing an individual's susceptibility to bacterial infection. Simultaneous exposure to ozone and SO_2 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 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 interaction 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 visi-

bility 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 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, 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 levels can be achieved through the use of low sulfur content fuels or chemical sulfur removal.

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 long distances and come back to earth as a major constituent of acid precipitation. Many health problems attributed to SO_2 may be a result of the oxidation of SO_2 to other compounds.

The health effects of SO_2 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 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 (N_2) 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 nitrogen oxides 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 nitrogen oxide 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 more than 90 percent. Currently, stationary sources such as lead smelters, battery manufacturers and iron and steel producers 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. Clinical, epidemiological and toxicological studies have demonstrated exposure to lead adversely affects human health.

Low-level lead exposure has been found to interfere with specific enzyme systems and blood production. 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. Children are the population segment most sensitive to many of lead's adverse effects.

Other serious potential effects from lead exposure are behavioral. Brain damage has been well documented in cases of severe lead poisoning in children. Restlessness, headaches, tremors and general symptoms of mental retardation have been noted. The brain seems to be particularly sensitive to lead poisoning, yet it is unclear whether low level exposure will result in brain dysfunction. Although evidence exists which indicates that children with above-normal blood lead levels are more likely to demonstrate poor academic performance, the studies remain inconclusive.

Table 1: Summary of National and Illinois Ambient Air Quality Standards

Pollutant	Averaging Time	Standard at 25°C and 760 mm Hg Primary	Secondary
Standard units are micrograms per cubic meter (ug/m^3), parts per million (ppb) and milligrams per cubic meter (mg/m^3)			
Particulate Matter	Annual Arithmetic Mean	**50 ug/m^3**	Same as Primary
10 micrometers (PM_{10})	24-hour	**150 ug/m^3**	Same as Primary
***Particulate Matter**	Annual Arithmetic Mean	**15.0 ug/m^3**	Same as Primary
2.5 micrometers ($PM_{2.5}$)	24-hour	**65 ug/m^3**	Same as Primary
Sulfur Dioxide	Annual Arithmetic Mean	**0.03 ppm (80 ug/m3)**	None
	24-hour	**0.14 ppm (365 ug/m3)**	None
	3-hour	**None**	0.5 ppm (1300 ug/m3)
Carbon Monoxide	8-hour	**9 ppm (10 mg/m^3)**	Same as Primary
	1-hour	**35 ppm (40 mg/m^3)**	Same as Primary
Ozone	1-hour/day	**0.12 ppm**	Same as Primary
***Ozone**	8-hour/day	**0.08 ppm**	Same as Primary
Nitrogen Dioxide	Annual Arithmetic Mean	**0.053 ppm (100 ug/m^3)**	Same as Primary
Lead	Quarterly Arithmetic Mean	**1.5 ug/m^3**	Same as Primary

All PM_{10} and $PM_{2.5}$ standards are referenced at local conditions of temperature and pressure rather than standard conditions.
Note: The State of Illinois has not adopted the $PM_{2.5}$ and ozone 8-hour standards at this time.

Table 2: Illinois Air Pollution Episode Levels

Pollutant	Advisory	Yellow Alert	Red Alert	Emergency
Particulate Matter				
measured in micrograms per cubic meter (ug/m^3)	2-hour 420 (ug/m^3)	24-hour 350 (ug/m^3)	24-hour 420 (ug/m^3)	24-hour 500 (ug/m^3)
Sulfur Dioxide				
measured in parts per million (ppm)	2-hour 0.30 ppm	4-hour 0.30 ppm	4-hour 0.35 ppm	4-hour 0.40 ppm
Carbon Monoxide				
measured in parts per million (ppm)	2-hour 30 ppm	8-hour 15 ppm	8-hour 30 ppm	8-hour 40 ppm
Nitrogen Dioxide				
measured in parts per million (ppm)	2-hour 0.40 ppm	1-hour 0.60 ppm **or** 24-hour 0.15 ppm	1-hour 1.20 ppm **or** 24-hour 0.30 ppm	1-hour 1.60 ppm **or** 24-hour 0.40 ppm
Ozone				
measured in parts per million (ppm)	1-hour 0.12 ppm	1-hour 0.20 ppm	1-hour 0.30 ppm	1-hour 0.50 ppm

Illinois Ambient Air Quality Standards and Episode Levels

Consistent with the intent of the Environmental Protection Act of Illinois, the state of 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 criteria 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.

SECTION 2: STATEWIDE SUMMARY OF AIR QUALITY FOR 1997

Ozone

Monitoring was conducted at 41 locations during at least part of the April-October ozone season and at least 75 percent data capture was obtained at all 41 sites. The only monitoring network change in 1997 was a new background site added in Dale (Hamilton County) in southeastern Illinois.

A total of five sites recorded hourly concentrations above the 0.12 parts per million (ppm) standard. All five sites (Chicago-SWFP, Edwardsville, Jerseyville, Wood River, and Zion) recorded only one day with ozone above 0.12 ppm.

There were two exceedance days recorded in the Chicago area, two exceedance days recorded in the Metro-East, and one exceedance day in Jersey County (downwind of the St. Louis area). The highest 1-hour concentration was 0.157 ppm in Chicago-SWFP compared with a statewide high 1-hour value of 0.135 ppm in 1996. The highest value recorded in the Metro-east area was 0.134 ppm in Wood River.

Data is also presented to compare with the new 8-hour standard of 0.08 ppm. The appropriate statistic for comparison with the 8-hour standard is the fourth highest value which is averaged over a three-year period. A total of eight sites (five in the Chicago area and three in the Metro-east area) had fourth highest values above 0.08 ppm in 1997. The highest fourth high value was 0.091 ppm at Alton and Chicago-Jardine.

Figure 1

Average 1-hour Ozone Maximum (ppm)

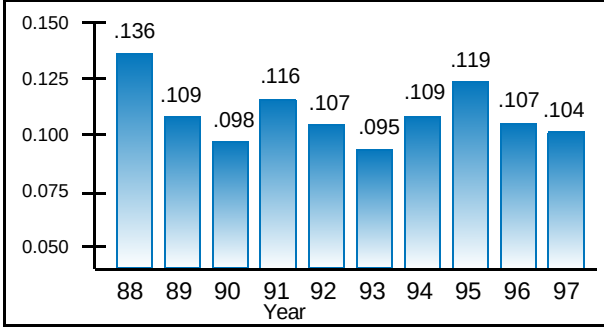


Figure 2

Statewide Ozone Exceedance Day Trend

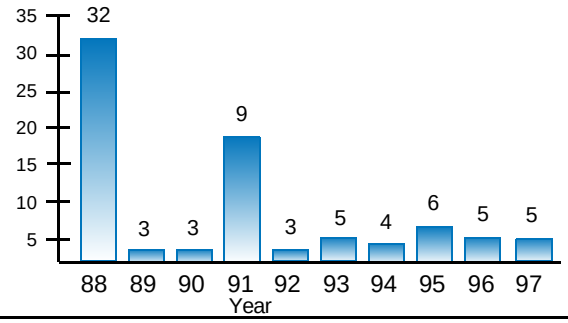


Figure 1 shows each year's statewide average of each site's highest hourly ozone value during 1988-1997. The graph shows a great deal of year-to-year fluctuation; however the overall direction is downward. The statewide average for 1997 was 0.104 ppm compared with 0.107 ppm in 1996 and 0.119 ppm in 1995.

Statewide, the total number of excursion days in 1997 was five, compared with five in 1996 and six in 1995.

Figure 2 shows the trend of the total number of days on which one or more sites exceeded the ozone standard in Illinois for the same period 1988-1997. This trend is generally flat after the abnormally adverse meteorological year of 1988.

Overall, Illinois's weather was fairly normal in terms of meteorological conditions favorable to ozone formation and transport in the Chicago area in 1997 and somewhat above normal in the Metro-east.

July was the most conducive month in terms of meteorological conditions statewide. In terms of conducive days, the Chicago area had the normal number and the Metro-East area had 15 percent above normal in number.

Particulate Matter

In 1997 there were 44 sites monitoring PM_{10}. **Figure 3** shows the trend of the statewide annual averages for PM_{10} from 1988-1997. The statewide average in 1997 was 28 ug/m^3

Figure 3

Particulate Matter Annual Trends (ug/m³)

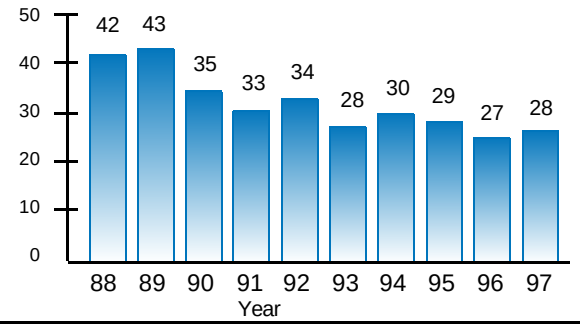
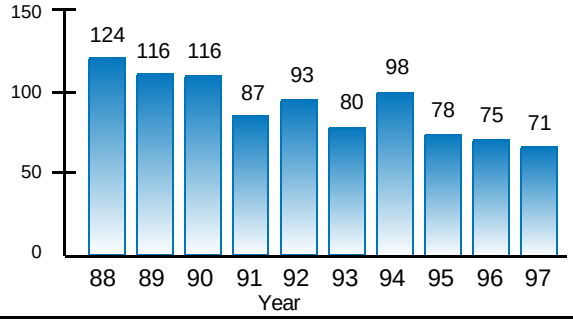


Figure 4

Particulate Matter 24-hour Trends (ug/m³)



compared with 27 ug/m^3 in 1996 and 29 ug/m^3 in 1995.

The statewide average of the maximum 24-hour averages in 1996 was 71 ug/m^3 compared with 75 ug/m^3 in 1996 and 78 ug/m^3 in 1995. **Figure 4** depicts this trend for the period 1988-1997.

No sites exceeded the primary annual standard of 50 ug/m^3. The highest annual average was 47 ug/m^3 in Granite City - 15th and Madison. The lowest annual was 19 ug/m^3 in Nilwood. Only one site recorded exceedances of the 24-hour standard of 150 ug/m^3: Granite City - 15th and Madison. The highest 24-hour average recorded in Granite City - 15th and Madison was a value of 157 ug/m^3 compared with a high 24-hour value of 226 ug/m^3 in 1996.

In addition to PM_{10}, monitoring was conducted at nine sites for $PM_{2.5}$. All sites used dichotomous samplers to measure $PM_{2.5,}$ which are not Federal Reference Method (FRM) samplers and the results are not appropriate to compare with the new $PM_{2.5}$ Standards. Annual averages ranged from 12.0 ug/m^3 to 16.5 ug/m^3.

Maximum 24-hour averages were 37.5 ug/m^3 and 36.5 ug/m^3. The $PM_{2.5}$ monitoring network using FRM samplers will start being phased in late in 1998 with completion by the end of 1999.

Carbon Monoxide

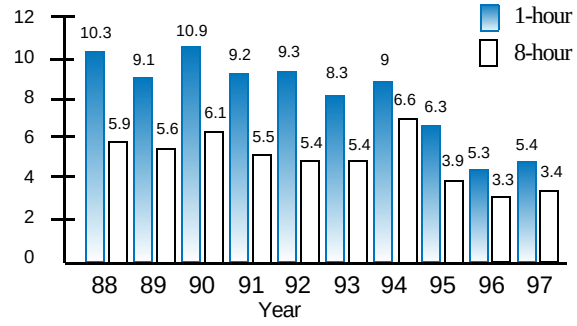
There were no exceedances of either the 1-hour primary standard of 35 ppm or the 8-hour primary standard of 9 ppm in 1997.

The highest 1-hour average was 7.7 ppm recorded in Peoria. The highest 8-hour average was 5.9 ppm also recorded in Peoria.

Figure 5 shows the trend for 1988-1997 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 5.4 ppm in 1997 compared with 5.3 ppm in 1996. The statewide average for the 8-hour high was 3.4 ppm in 1997 compared with 3.3 ppm in 1996.

Figure 5

Carbon Monoxide Trends (ppm)



Sulfur Dioxide

There were no exceedances of the 3-hour secondary standard of 0.5 ppm, the annual primary standard of 0.03 ppm or the 24-hour primary standard recorded in Illinois in 1997.

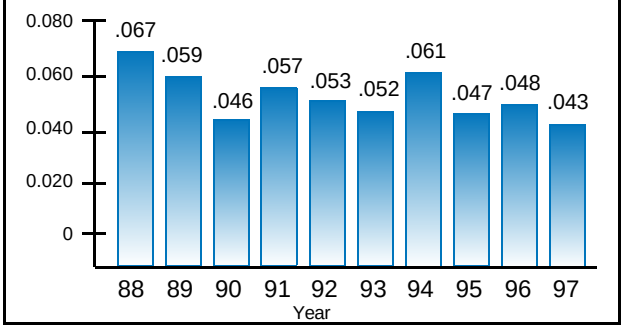
The maximum 24-hour average was a value of 0.089 ppm recorded in South Roxana. This compares with a high 24-hour average in 1996 of 0.120 ppm. The highest 3-hour average of 0.463 ppm was recorded in South Roxana. The statewide annual average for 1997 was 0.006 ppm, the same as in 1996 and 1995.

Since 1984 the trend of annual averages has been flat, ranging from 0.009 ppm to 0.006 ppm. **Figure 6** shows the statewide trend for the maximum 24-hour averages for the period 1988-1997.

The 24-hour average trend has been overall downward; however, a greater degree of year-to-year fluctuations have occurred. The statewide average for 1997 was 0.043 ppm compared with the 1996 average of 0.048 ppm.

Figure 6

Sulfur Dioxide 24-hour Trend

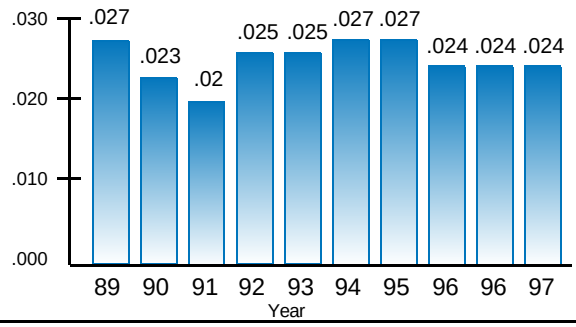


Nitrogen Dioxide

There were no violations of the annual primary standard of 0.053 ppm recorded in Illinois during 1997.

Figure 7

Nitrogen Dioxide Annual Trend (ppm)



The highest annual average was recorded at Chicago CTA with a value of 0.034 ppm. The statewide average for 1997 was 0.024 ppm, compared with 0.024 ppm in 1996 and 0.027 ppm in 1995.

Two sites operated during part of the ozone season as a photochemical assessment monitoring sites (PAMS). **Figure 7** depicts the trend of statewide averages from 1988-1997. The trend has been stable and there have been no violations of the annual standard since 1980.

Lead

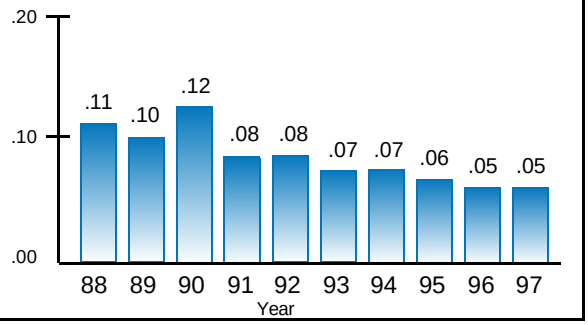
Perhaps the greatest success story in controlling criteria pollutants is lead.

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.

The source-oriented sites at Chemetco and Horsehead continue to record the highest quarterly lead averages in the state in 1997.

Figure 8

Lead Maximum Quarterly Trend (ug/m3)



Because lead averages have been well below the quarterly standard, the Horsehead sites were discontinued in July 1997.

One site in the Chemetco network (Site 1-N) recorded a total of one violation of the quarterly primary standard of 1.5 ug/m^3 in 1997.

The highest quarterly lead average was measured at Chemetco - Site 1-N with a value of 2.11 ug/m^3.

Figure 8 shows the trend of the statewide maximum quarterly average from 1988-1997. This trend does not include the industrial sites. The trend shows that ambient lead levels have decreased by more than 50 percent over the period.

FIlter Analysis Results

The TSP samples analyzed, in addition to lead, for specific metals, sulfates and nitrates. Several of the metals analyzed (arsenic, beryllium, cadmium, chromium, and nickel) have

known toxic properties. Other metals such as iron and manganese can be used as tracers to help identify sources of high particulate values. Sulfates and nitrates are precursors of acid precipitation/deposition and add to the understanding of this inter-regional problem. They may also be important constituents of $PM_{2.5}$ 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 0.011 ug/m^3 measured in Granite City - 15th & Madison. The highest annual average of 0.003 ug/m^3 was recorded at the same site and Granite City - 2044 Washington. There were no measurable beryllium 24-hour averages recorded statewide.

East St. Louis recorded the highest cadmium concentrations with a maximum 24-hour average of 0.080 ug/m^3 and the highest annual average of 0.008 ug/m^3. The highest 24-hour chromium average was 0.078 ug/m^3 recorded at Granite City - 23rd & Madison. Maywood had the highest annual average at 0.011 ug/m^3.

The highest iron and manganese values were recorded in industrial areas of Granite City and South Chicago and the high traffic areas of Chicago - Cermak and Maywood.

The highest 24-hour nickel average was recorded at Granite City - 15th & Madison at 0.070 ug/m^3. The highest annual average was in Maywood with an average of 0.010 ug/m^3. All selenium 24-hour averages were less than 0.010 ug/m^3.

The highest 24-hour value for vanadium was 0.120 ug/m^3 recorded at 23rd & Madison in Granite City. The highest annual average was 0.011 ug/m^3 also recorded at 23rd & Madison in Granite City.

For nitrates the highest 24-hour average was 21.5 ug/m^3 recorded in Alsip. The highest annual average was 6.6 ug/m^3 at Chicago - Cermak. For sulfates the highest 24-hour average was 26.9 ug/m^3 recorded at Granite City - 23rd & Madison. The highest annual average was 10.1 ug/m^3 at Granite City 15th & Madison.

Volatile Organic Compounds Data

Sampling began in 1993 for volatile organic compounds as part of the photochemical assessment monitoring site (PAMS) network. These are required in the Chicago area as part of determining future controls for meeting the ozone standard. The network was completed in 1997 with four sites: Braidwood - Type 1 background, Chicago - Jardine - Type 2 source area, Northbrook - Type 3 peak ozone area and Zion - Type 4 domain edge.

Sampling was conducted for the period June - August. Automated Gas Chromatograph (GC) systems providing hourly data were located at three sites: Chicago - Jardine, Northbrook and Zion. Manual cannister samples were taken on the every-six-day particulate schedule and supplemented on days when high ozone was forecast to occur in Braidwood. In addition at all four sites, manual carbonyl samples were taken every six days (every three days at Chicago - Jardine) and supplemented on high ozone days. For manual sampling on each sampling day,

four 3-hour samples were taken. The samples were then analyzed using a gas chromatograph to obtain concentrations of the 55 compounds. The three aldehyde compounds were analyzed separately. The data is presented as parts per billion carbon (ppbc). This process reduces all of the results to a common basis in terms of single carbon atoms. The aldehydes are expressed in regular parts per billion volume.

The highest compounds in terms of 1-hour and 24-hour averages at Chicago - Jardine were Isopentane, Propane, Ethane, 2,2,4-Trimethylpentane, M/P-Xylene,, Ethylene, Toluene, and Formaldehyde. The lowest compounds were Butenes, Methylheptanes, and pentenes. The highest compounds for 1-hour and 24-hour averages at Northbrook were Isopentane, Toluene, 2,2,4 Triethylpentane, Isoprene, M/P Xylene, Ethane, and N-Pentane. The lowest compounds were Butenes, Pentenes, Methylheptanes, Diethylbenzenes, and Ethyltoluenes. The highest compounds for 1-hour and 24-hour averages at Zion were Isopentane, Ethane, Propane, Isoprene, N-Butane, M/P Xylene, Formaldehyde and Toluene. The lowest compounds were Butenes, Pentenes, Methylheptanes, Diethylbenzenes, and Ethyultoluenes. The highest 3-hour compounds at Braidwood were Isoprene, Ethane, Ethylene, Propane, Isopentane, 3-Methylhexane, Isobutane, Formaldehyde and Acetone. There were numerous compounds that had minimal detection at Braidwood.

Mercury Data

Mercury data is being collected at two sites in Cook County as part of the Robbins Incinerator Network. The mercury is being collected in the vapor phase rather than analyzing filters for particulate mercury. the samples are collected for 24 hour. The highest 24-hour sample was 7.8 ng/m^3 at Blue Island. The highest annual average was 1.7 ng/m^3 also at Blue Island. The annual average at Alsip was 1.4 ng/m^3.

SECTION 3: POLLUTANT STANDARDS INDEX

The Pollutant Standards Index (PSI) is the national standard method for reporting air pollution levels to the public. An index such as the PSI 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 PSI uses a single number and a one or two-word term to describe the air quality, taking all the pollutants into account.

The PSI is based on the short-term federal National Ambient Air Quality Standards (NAAQS), the federal episode criteria, and the Federal Significant Harm levels for five of the "criteria pollutants," namely:

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

In each case, the short-term primary NAAQS corresponds to a PSI of 100, the significant harm level corresponds to a PSI of 500, and the episode criteria correspond to intermediate hundreds. NO_2 does not have short-term NAAQS; PSI begins at 200 for it. Various PSI intervals have been given Descriptor Categories, see **Table 3**.

Unhealthful 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 PSI is computed as follows: data from pollution monitors in an area are collected, and the PSI subindex 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 the highest 1-hour average so far that calendar day
- SO_2 the most recent 24-hour average
- CO the highest 8-hour average so far that calendar day
- PM_{10} the most recent 24-hour average
- NO_2 the highest 1-hour average (if above 600 ppb)

Continuous monitors are necessary for all the pollutants except PM_{10}. Continuous PM_{10} monitors may be used, but usually a high volume air sampler is the PM_{10} monitor.

Once all the subindices for the various pollutants have been computed, the highest is chosen by inspection. That is the PSI for the area, and the pollutant giving rise to it is the "critical pollutant."

For Anytown, Ill., we obtained the following subindices:

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

Table 3: PSI Descriptor Categories and Health Effects

PSI Range	Descriptor Category
0-50	Good (G)
51-100	Moderate (M)
101-199	Unhealthful (UH)
200-299	Very Unhealthful (VUH)
300 and above	Hazardous (HAZ)

Index and Category	Health Effects	Cautionary Statements
101-199, Unhealthful	Mild aggravation of symptoms in susceptible persons, with irritation in the general population.	Persons with existing heart or respiratory ailments should reduce physical exertion and outdoor activity.
200-299, Very Unhealthful	Significant aggravation of symptoms and decreased exercise tolerance in persons with heart or lung disease and widespread symptoms in the healthy population.	Elderly persons and persons with existing heart or lung disease should stay indoors and avoid physical exertion and outdoor activity
300-400, Hazardous	Premature onset of certain diseases in addition to significant aggravation of symptoms and decreased exercise tolerance in healthy persons.	Elderly persons and persons with existing diseases should stay indoors and avoid physical exertion. General population should avoid outdoor activity.
401-500, Hazardous	Premature death of ill and elderly. Healthy people will experience adverse symptoms that affect their normal activity.	All persons should remain indoors, keeping windows and doors closed. All persons should minimize physical exertion and avoid traffic.

Anytown's PSI for that day would be 61, which is in the moderate category, and the critical pollutant would be particulates.

The Illinois EPA issues the PSI for 11 areas, or sectors, in Illinois (**see Table 4**). These correspond to metropolitan areas with populations greater than 200,000.

Illinois PSIs are computed from data up to and including the 2 p.m. local time readings every weekday.

A bulletin giving the PSI numbers, descriptors, critical pollutants, and a forecast of the category for the next day's PSI for each of the sectors is issued over the Illinois Weatherwire, a service of the National Weather Service, at about

3 p.m. each weekday.

Most television and radio stations and newspapers receive the Illinois Weatherwire, and are therefore able to inform the audience about the PSI either immediately or on the evening news.

In the Chicago and Cook County area, PSIs are available on phone recordings maintained by the Cook County Department of Environmental Control (708-865-6320) and the Chicago Department of the Environment (312-744-4365).

If the PSI subindex for any pollutant in any sector should reach or exceed the unhealthful (or any higher) category late in the afternoon or on weekends when the PSI is not published, the Illinois EPA puts out a special bulletin on the Illinois Weatherwire. If data for one of the pollutants used in computing PSI is missing, the PSI is computed using the data available, ignoring the missing datum. It occasionally happens that two pollutants have the same subindex; in such cases there are two critical pollutants.

1997 PSI Summary

Air quality was in the “good” category most often in 1997. All sectors had a higher frequency of “good” than “moderate” and “unhealthful.” All sectors except Metro-East had 80 percent or more of the days in the “Good” category.

Statewide there were five occurrences of unhealthful air quality in one or more sectors in 1997 compared with eight in 1996 and 16 in 1995. The pollutant breakdown for unhealthfuls is four due to ozone (two in the Chicago area and two in the Metro-East) and one due to PM_{10} in the Metro-east. **Figure 9** presents the PSI statistics for each sector.

When each pollutant was the critical pollutant, the bar charts show the percent of days each was in a particular category. Also the percent of time each sector was in a particular category is given.

In addition to unhealthful PSI days, there were four occurrences (three days) of the first stage episode conditions (advisory) being triggered for ozone. Advisories were declared for two days in the Metro-East area, one day in the Chicago area, and one day in Jersey County. An advisory is declared when ozone levels reach unhealthy concentrations on a particular day and meteorological conditions are such that these unhealthy levels are expected again the next day. Advisories are issued for the entire Air Quality Control Region affected by the high ozone levels. The days for which advisories were issued in 1997 were July 17 and 25 in the Metro-East, June 29 in the Chicago area, and July 17 in Jersey County.

Table 4: PSI Sectors in Illinois

Chicago Metropolitan Area:	
Lake County Sector	Lake County only
North Side Sector	That part of Chicago and Cook County between Lake Michigan and I-294 (the Tri-State Tollway), and north of I-290 (the Eisenhower Expressway)
Loop Sector	The area traditionally called the Loop (roughly from Navy Pier south to I-55 and east of I-90/94)
South Side Sector	That part of Chicago and Cook County south of the Eisenhower Expressway and east of the Tri-State, north of I-80/294 (Kingery Expressway), and west of Indiana and Lake Michigan
West and South Suburbs Sector	Parts of Cook and DuPage counties west of I-294 and south of the Kingery Expressway
Other northeastern Illinois areas:	
Will County/Joliet Sector	Will County only
Aurora-Elgin Sector	The eastern part of Kane County
Downstate areas:	
Rockford Sector	Approximately 10 mile diameter circle centered on downtown Rockford
Quad Cities Sector	Illinois portion of the Quad Cities area
Peoria Sector	Approximately 10 mile diameter circle centered on downtown Peoria in parts of Peoria, Woodford and Tazewell counties
Metro East Sector	Illinois portion of the St. Louis Metropolitan area approximately 15 miles wide east of the Mississippi River in Madison and St. Clair counties

Figure 9: 1997 Pollutant Standards Index Summaries by Sector

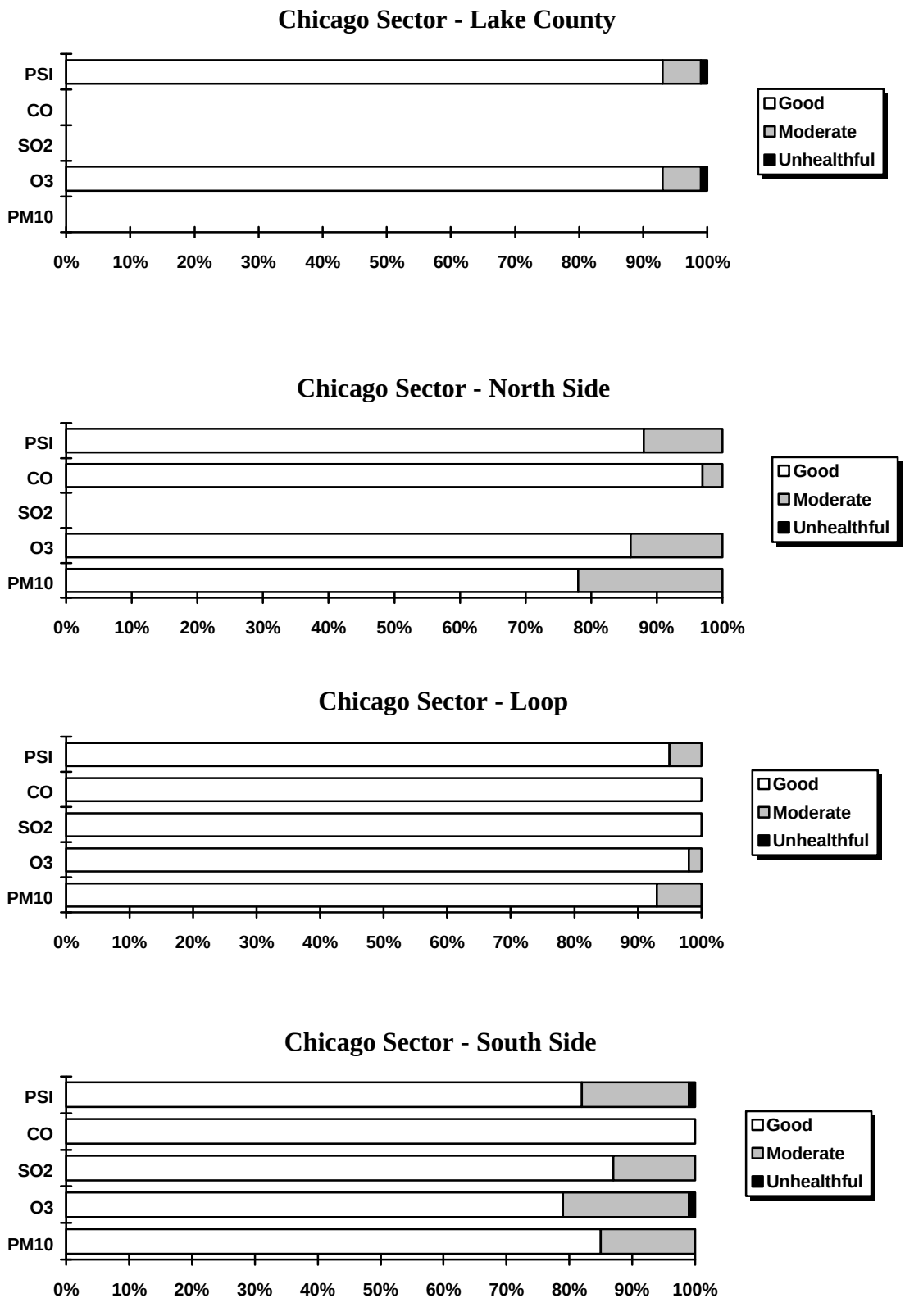


Figure 9: 1997 Pollutant Standards Index Summaries by Sector (continued)

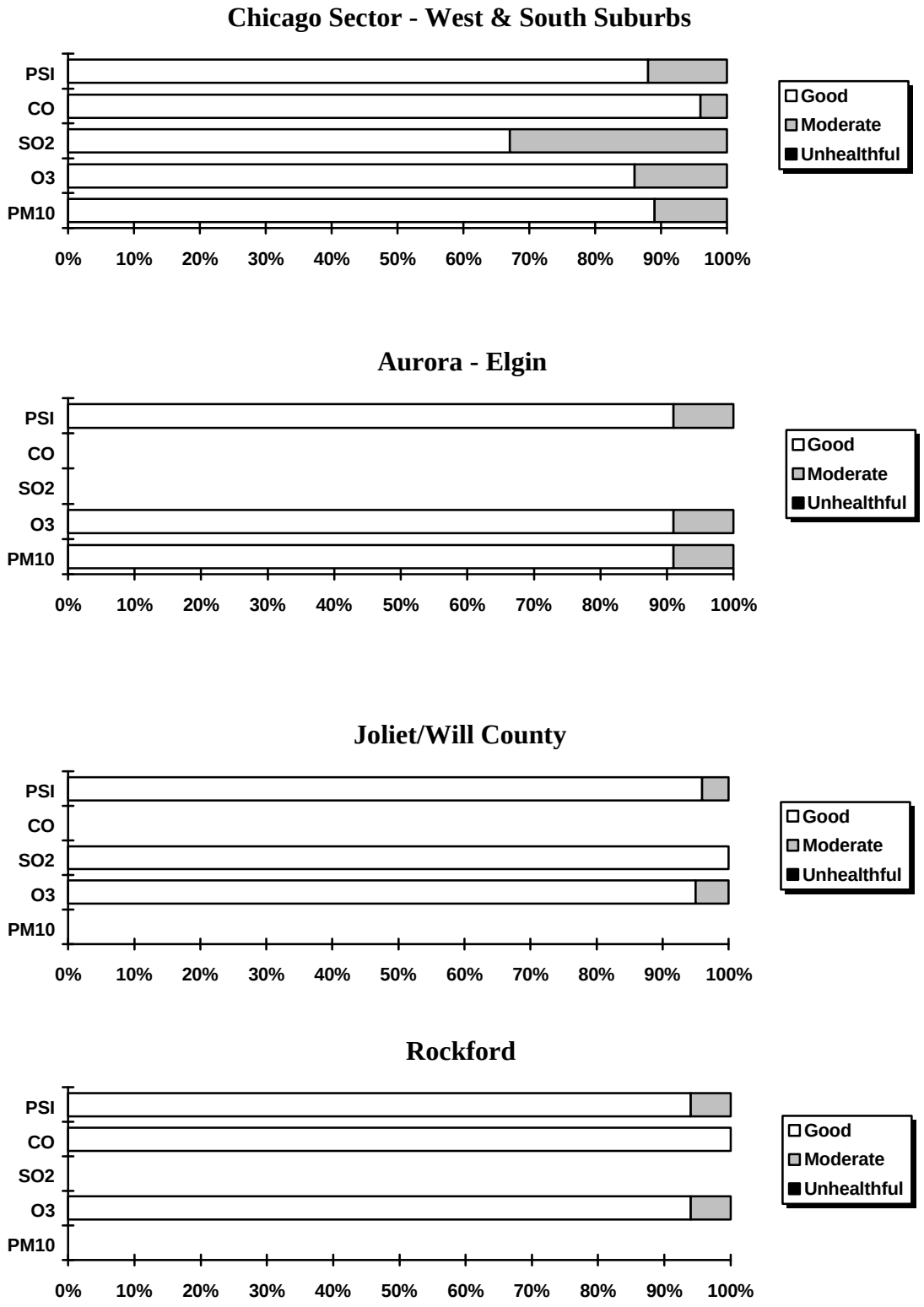
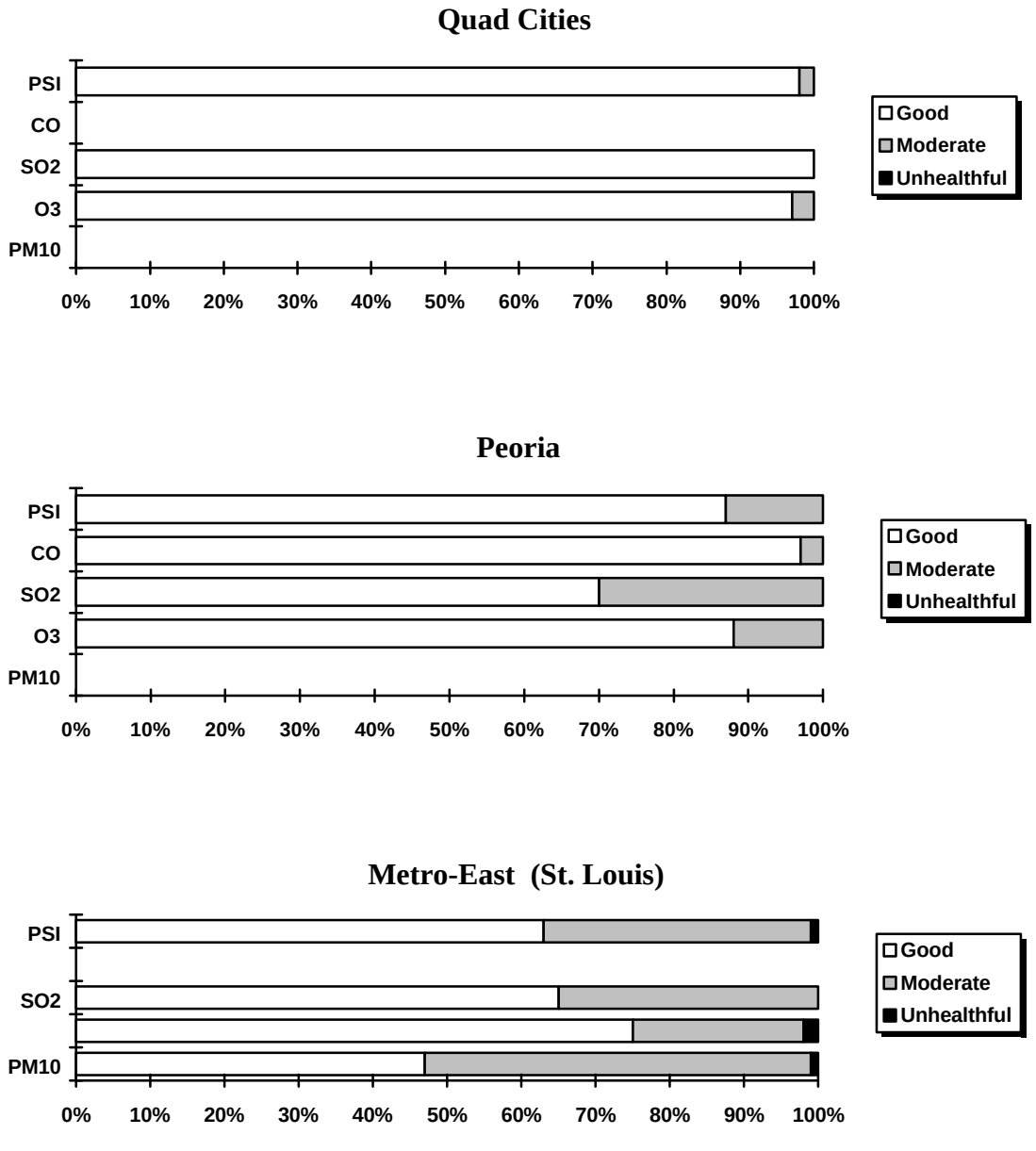


Figure 9: 1997 Pollutant Standards Index Summaries by Sector (continued)



SECTION 4: STATEWIDE SUMMARY OF POINT SOURCE EMISSIONS

Description of the Point Source Inventory

Since the late 1970s, the 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.

The EIS currently includes emission data on approximately 8,000 active sources throughout the state. The EIS 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.

The major source of updates to the EIS is by information contained in air permit application forms received by the Permit Section. A second method of update is from inspection data collected by the Field Operations Section. Information collected via the Annual Emissions Report is stored in a separate system, but the EIS is being updated with that information.

The Emissions Inventory Unit of the Compliance and Systems Management Section is in charge of the EIS and its data. Currently the unit is engaged in increasing the completeness of data in the system. From 1990 to 1996, the completeness of data has risen from approximately 80 percent to 95 percent. The Emissions Inventory Unit is also responsible for establishing procedures for entry of data into the EIS.

The following is an analysis of the emissions data contained in the EIS at the end of 1997. It is important to note emissions contained in the EIS 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 average rate can vary from day to day and even month to month, depending upon production schedule and demand. Also, inspections may reveal an operating rate that is only valid for that day the plant was inspected. The average emission rate can be best thought of as an estimate of emissions to the atmosphere. Through data contained in Annual Emission Reports, a better determination of actual emissions will be more readily available.

To calculate the distribution of emissions for the individual categories, the source classification code (SCC) field was used from the EIS. The SCC is an eight-digit code, provided by the U.S. EPA, that breaks emission units into logical categories. Currently there are approximately 6,000 SCCs.

The first digit of the SCC indicates the class of the emission unit, which is either external fuel combustion, internal fuel combustion, industrial processes, organic solvent emissions or waste disposal. The next two digits indicate the industry (such as fabricated metal products). Digits four, five and six indicate the process to which the emission unit belongs, while digits seven and eight indicate the source. For example, the SCC 1-01-006-01 represents external fuel combustion (1), electric generation (01), natural gas firing (006), heat input greater than 100 million BTU/hr (01).

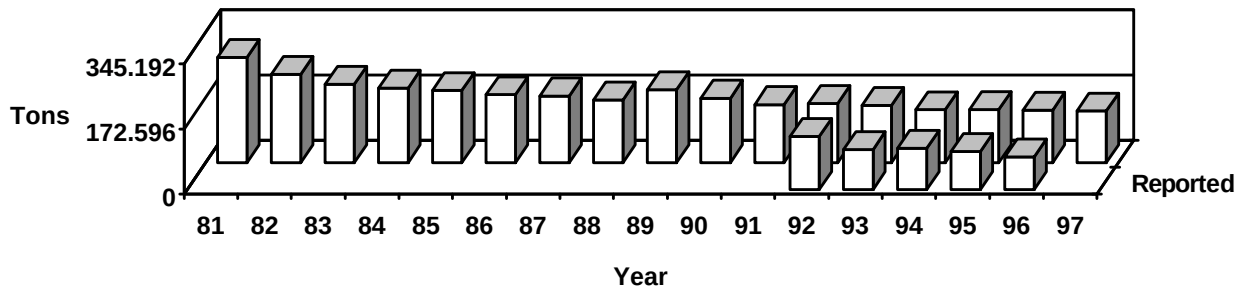
For the following tables, the first three digits of the SCC were used. Only categories that contributed significantly to the overall total are listed. The complete category breakdown can be found in **Appendix D**.

Volatile Organic Material

While air quality standards deal with ozone limits, ozone is not typically emitted from stationary sources. It is formed by the reaction of hydrocarbons, nitrogen oxides and sunlight in the atmosphere. So, emissions of volatile organic material and nitrogen oxides are more commonly regulated from stationary sources.

From **Figure 10**, emissions of volatile organic material have steadily decreased since 1981. The increase in emissions from 1988 to 1989 is due mainly to an expansion of the types of sources regulated and a more detailed inventory

Figure 10: Volatile Organic Material Emission Trend in thousands of tons/year



of those sources. These new emission regulations dealt with paint and ink manufacturing, miscellaneous fabricated product manufacturing processes, miscellaneous formulation manufacturing processes and miscellaneous organic chemical manufacturing processes. These new rules became effective April 8, 1988.

Identifying these types of sources and providing a more accurate inventory of emissions data reflects this apparent increase. In actuality, these sources were operating prior to 1989, so emissions from the period 1982 to 1988 should be increased by 20 percent to account for emissions not in the prior inventories.

Table 5 shows the distribution of volatile organic material emissions for 1997. A primary contributor to volatile organic material emissions is surface coating. Surface coating includes all painting operations (i.e. can coating, miscellaneous metal parts coating, paper coating, etc.). Coatings typically include an organic solvent which evaporates when the coating dries.

Chemical manufacturing is a significant contributor to volatile organic material emissions from the use of the many chemicals used and produced in the manufacturing process. Most of the chemical manufacturing sources are located in the Chicago and St. Louis areas.

The printing and publishing industry is more significant in Illinois than in other states, so this is reflected in its large percentage of volatile organic material emissions. Inks used by the printing and publishing industry

Table 5: Distribution of Volatile Organic Material Emissions for 1997

Category	Estimated Emissions in tons	Category Contribution	Cumulative Percent
Surface Coating Operations	28,188.5	20.6%	20.6%
Chemical Manufacturing	16,152.5	11.8%	32.5%
Printing/Publishing	13,122.2	9.6%	42.1%
Petroleum Product Storage	12,767.0	9.4%	51.4%
Primary Metal Production	10,951.7	8.0%	59.4%
Food/Agriculture	10,717.4	7.8%	67.3%
Fuel Combustion	8,227.1	6.0%	73.3%
Petroleum Industry	7,747.0	5.7%	79.0%
Rubber and Plastic Products	5,532.8	4.0%	83.0%
Organic Solvent Evaporation	4,478.8	3.3%	86.3%
Fabricated Metal Products	3,859.3	2.8%	89.2%
Organic Solvent Use	3,557.1	2.6%	91.8%
Bulk Terminals/Plants	3,252.1	2.4%	94.2%
Mineral Products	1,570.2	1.1%	95.3%
Petroleum Marketing/Transport	1,304.5	1.0%	96.2%
Organic Chemical Storage	923.0	0.7%	96.9%
Secondary Metal Production	858.6	0.6%	97.6%
All Other Categories	3,331.3	2.4%	100.0%

include organic solvents which evaporate when the ink dries. Printing and publishing is almost exclusive to the Chicago area.

Petroleum product storage emissions are from primarily large crude oil and gasoline storage tanks. Displacement of vapors when filling the tank and daily temperature changes are what cause emissions to occur.

Particulate Matter

From **Figure 11**, particulate matter emissions for the years 1982 through 1988 remained fairly constant with a slight decrease.

The large increase in particulate emissions in the years 1989 and 1990 can be attributed to the process of developing rules to regulate PM_{10} emissions. PM_{10} is a subset of particulate matter where the particle diameter is less than or equal to 10 micrometers.

Prior to the development of these new regulations, no data existed in the EIS on PM_{10} emissions. Therefore, a database of PM_{10} emissions was developed. As the PM_{10} inventory was being developed, particulate matter data was also updated in the EIS. To establish a trend, prior year emission rates would need to be increased approximately 60 percent.

PM_{10} emissions were first included in the stationary point source inventory when the EIS began in June 1989. Therefore, no PM_{10} emission data exists prior to 1989. While PM_{10} data exists for the years 1989 to present, limits of the EIS prevent the extraction of the data to obtain prior year's totals. Even if those totals existed, the inventory is by no means complete.

PM_{10} emissions were compiled for the purpose of developing regulations. These regulations were developed for specific areas of the state where the possibility to exceed the standard existed. The areas with the greatest possibly of exceeding the standard included the Granite City area in Madison County, LaSalle in LaSalle County and the McCook and Lake Calumet areas in Cook County.

Figure 11: Particulate Emission Trend in thousands of tons/year

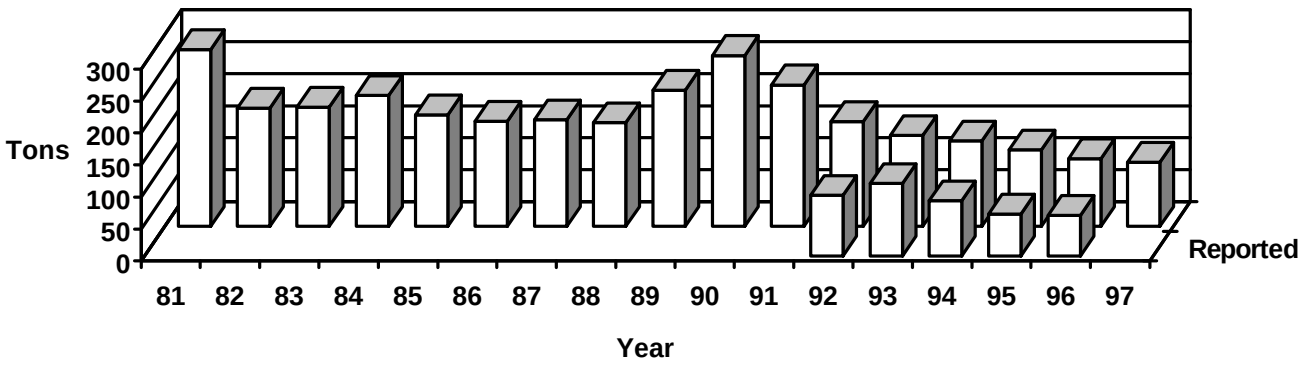


Table 6: Distribution of Particulate Matter Emissions for 1997

Category	Estimated Emissions in tons	Category Contribution	Cumulative Percent
Fuel Combustion	29,355.3	29.3%	29.3%
Food/Agriculture	23,874.3	23.9%	53.2%
Mineral Products	20,726.6	20.7%	73.9%
Primary Metal Production	6,867.0	6.9%	80.8%
Secondary Metal Production	5,603.2	5.6%	86.4%
Chemical Manufacturing	3,869.1	3.9%	90.3%
Petroleum Industry	3,577.9	3.6%	93.8%
All Other Categories	6,164.2	6.2%	100.0%

Other areas of the state did not receive the same level of review as the areas mentioned above. For this reason, PM_{10} emissions as they exist in the EIS do not represent a complete inventory. The new regulations were effective in May 1992 and only dealt with the areas mentioned above. As better estimates of PM_{10} emissions are developed, they will be included in this report.

Table 6 shows the distribution of particulate matter emissions for 1997. The mineral products industry includes sources such as quarries, asphalt plants and concrete batch plants. Emissions are due to handling and/or crushing of minerals such as limestone. The use of control devices such as baghouses (filters) and spray bars greatly reduce the amount of emissions that would reach the atmosphere.

The significant emissions of particulate matter in the food and agriculture industries is due to the large number of grain elevators and terminals in the state (approximately 950). Emissions of particulate matter from these sources are due to the loading, unloading and drying of grain.

Fuel combustion particulate emissions come primarily from the combustion of coal in power plants. Another contributor to particulate emissions in fuel combustion is the combustion of fuel oil. Compared to power plant particulate emissions, this value is small.

Carbon Monoxide

As can be seen from **Figure 12**, carbon monoxide emissions have not varied much in the past. The trend in emissions shown is misleading because of the discontinuation of the TAS for the EIS. The TAS could only accommodate emission rates as low as 0.1 lb/hr. Many of the carbon monoxide emissions calculated were less than this amount and therefore not entered.

When the EIS was developed, the minimum emission rate it could store was 0.0001 lb/hr. Emission rates this low are typically not entered, but emissions slightly less than 0.1 lb/hr could now be entered. Therefore, it would be logical to assume that the emissions prior to 1989 should be raised slightly to account for the fact the data could not be entered.

The distribution of carbon monoxide emissions

shown in **Table 7** is not what one may expect to see, but this can be explained. Carbon monoxide is primarily generated by combustion of some material, be it coal, natural gas or waste in an incinerator. Illinois has several large electric utilities, so fuel combustion carbon monoxide emissions should possibly be the largest contributor.

Why fuel combustion carbon monoxide emissions only account for one-fifth of the total emissions can be explained using the same

Figure 12: Carbon Monoxide Emission Trend in thousands of tons/year

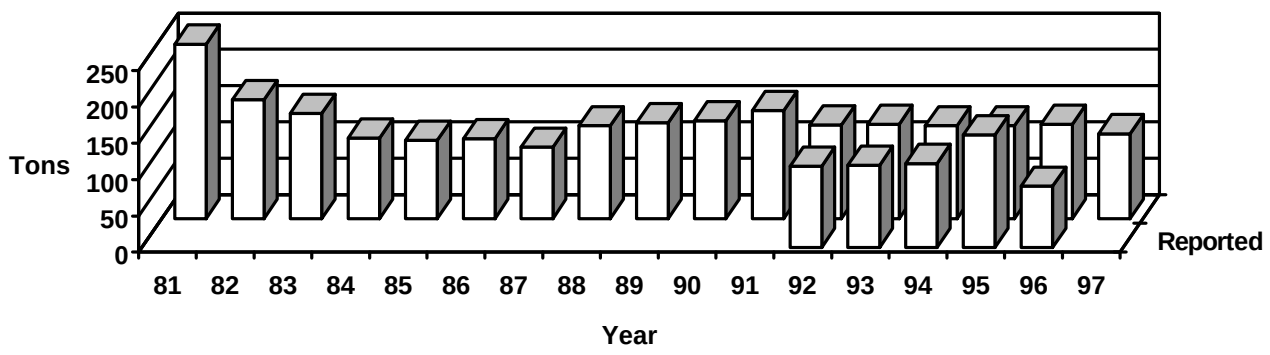


Table 7: Distribution of Carbon Monoxide Emissions for 1997

Category	Estimated Emissions in tons	Category Contribution	Cumulative Percent
Primary Metal Production	53,716.4	45.9%	45.9%
Fuel Combustion	27,781.3	23.7%	69.6%
Chemical Manufacturing	21,884.2	18.7%	88.3%
Solid Waste Disposal	4,253.3	3.6%	92.0%
Mineral Products	2,651.6	2.3%	94.2%
Secondary Metal Production	2,565.7	2.2%	96.4%
Petroleum Industry	1,351.7	1.2%	97.6%
Fabricated Metal Products	1,127.5	1.0%	98.5%
All Other Categories	1,714.4	1.5%	100.0%

logic described above. There are literally thousands of boilers (large and small) in Illinois. When the emission rates for these boilers were entered into the TAS, many emission rates were too low to enter.

When the TAS data was loaded into the EIS, many emission rates were still missing. To enter the missing carbon monoxide emission rates for boilers would be a tremendous burden due to the limitations of the EIS. Fuel combustion carbon monoxide emissions definitely account for more than 24 percent of the total.

Carbon monoxide emissions from primary metal production processes are from fuel combustion necessary to heat the ore to recover the metal. Chemical manufacturing carbon monoxide emissions are also due to fuel combustion emissions used to heat chemical manufacturing equipment such as reactors and other process equipment.

Sulfur Dioxide

Figure 13 shows that sulfur dioxide emissions have remained very constant over the past years and have consistently decreased. Sulfur dioxide emissions are due to sulfur present in the fuel (mainly coal and oil). When the fuel is combusted, the sulfur in the fuel combines with oxygen to form sulfur dioxide (SO_2).

The increase in sulfur dioxide emissions seen in 1995 can be primarily attributed to an increase in hours of operation for some sources. Significant increases in emissions (via increases in hours of operation) occurred at Commonwealth Edison's Kincaid Power Plant and Central Illinois Public Service's Coffeen Power Plant. Additionally, Quantum USI switched to burning coal. These changes account for about 49,000 tons of emissions.

In future years, these emissions should decrease more rapidly than in previous years.

Figure 13: Sulfur Dioxide Trend in thousands of tons/year

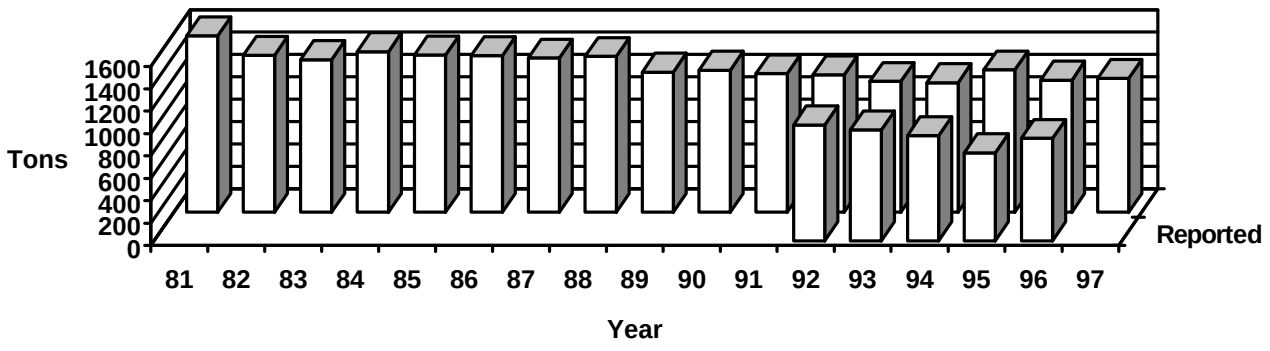


Table 8: Distribution of Sulfur Dioxide Emissions for 1997

Category	Estimated Emissions in tons	Category Contribution	Cumulative Percent
Fuel Combustion	1,049,333.9	87.6%	87.6%
Petroleum Industry	98,148.5	8.2%	95.8%
Mineral Products	22,312.7	1.9%	97.7%
Chemical Manufacturing	15,130.1	1.3%	99.0%
Primary Metal Production	7,786.0	0.6%	99.6%
All Other Categories	4,692.6	0.4%	100.0%

Table 9: Distribution of Fuel Combustion Sulfur Dioxide Emissions for 1997

Category	Estimated Emissions in tons	Category Contribution	Cumulative Percent
Electric Generation	958,968.6	91.4%	91.4%
Industrial	72,082.0	6.9%	98.2%
Commercial/Institutional	18,052.1	1.7%	100.0%
All Other Categories	231.2	negligible	100.0%

The Clean Air Act Amendments of 1990 have included new emission limits for SO_2 that would decrease the amount of acid rain.

Table 8 provides the distribution of SO_2 emissions. Since fuel combustion contributes significantly to sulfur dioxide emissions, that category has been broken further in **Table 9**.

The SO_2 emissions in fuel combustion are related to the sulfur content of the coal being burned. The number of power plants in Illinois makes this category a significant contributor.

The SO_2 emissions in the petroleum industry are due to the processing and combustion of gaseous and liquid materials that contain sulfur. Crude oil, by nature, has some impurities or contaminants included in it. One of these impurities is sulfur. When refined, this sulfur is removed and is emitted to the atmosphere.

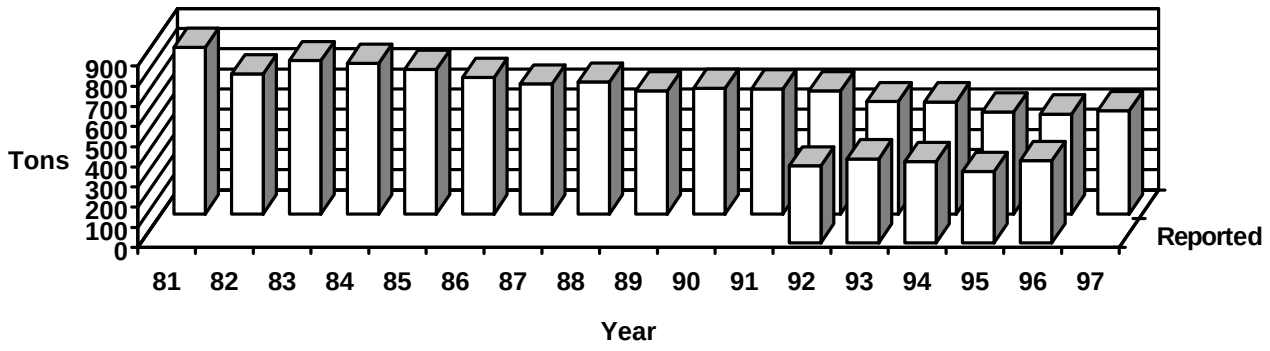
The SO_2 emissions from the remaining categories are due to combustion of fuel oil, which also contains sulfur.

Nitrogen Oxides

Figure 14 shows that the trend of nitrogen oxide emissions mirrors sulfur dioxide emissions very closely. This is to be expected since both sulfur dioxide and nitrogen oxide emissions come from primarily the same source, combustion of coal, oil and natural gas. When the fuel is combusted, the nitrogen in the air, and also the fuel, can combine with oxygen to form nitrogen oxides (NO_x).

Table 10 provides the distribution of nitrogen

Figure 14: Nitrogen Oxide Emission Trend in thousands of tons/year



oxide emissions. Since fuel combustion contributes significantly to nitrogen oxide emissions, that category has been broken further into subcategories in **Table 11**.

The large percentage of nitrogen oxide emissions from fuel combustion sources is due to the high temperatures that occur when the fuel is combusted. At these high temperatures, the nitrogen in the atmosphere and fuel combines with oxygen to form nitrogen oxides (NO_x).

As in the case of sulfur dioxide, the emissions of nitrogen oxides from the remaining categories is due to fuel combustion. But here, generation of nitrogen oxides is not exclusively limited to oil. Combustion of natural gas also generates nitrogen oxides.

Table 11 distinguishes between external and internal fuel combustion. External combustion sources are typically boilers and heaters while internal combustion sources are typically engines and turbines.

Table 10: Distribution of Nitrogen Oxide Emissions for 1996

Category	Estimated Emissions in tons	Category Contribution	Cumulative Percent
Fuel Combustion	459,236.0	89.9%	89.9%
Petroleum Industry	20,560.5	4.0%	93.9%
Mineral Products	11,578.2	2.3%	96.2%
Primary Metal Production	7,694.4	1.5%	97.7%
Secondary Metal Production	3,581.9	0.7%	98.4%
In-process Fuel Use	2,010.0	0.4%	98.8%
Chemical Manufacturing	1,722.3	0.3%	99.1%
Solid Waste Disposal	1,481.2	0.3%	99.4%
All Other Categories	2,864.6	0.6%	100.0%

Table 11: Distribution of Fuel Combustion Nitrogen Oxide Emissions for 1997

Category	Estimated Emissions in tons	Category Contribution	Cumulative Percent
*Electric Generation	379,438.5	82.6%	82.6%
*Industrial	52,107.8	11.3%	94.0%
**Industrial	14,778.7	3.2%	97.2%
*Commercial/Institutional	6,897.4	1.5%	98.7%
**Electric Generation	3,394.3	0.7%	99.4%
All Other Categories	2,619.3	0.6%	100.0%

* = External Fuel Combustion
** = Internal Fuel Combustion

APPENDIX A
AIR SAMPLING NETWORK

DESCRIPTION OF THE AIR SAMPLING NETWORK

The Illinois air monitoring network is composed of instrumentation owned and operated by both the Illinois Environmental Protection Agency and by cooperating local agencies. A directory of cooperating local agencies within Illinois and the environmental agencies of adjacent states can be found in Table 13. This network has been designed to measure ambient air quality levels in the 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 (see Directory of Cooperating Agencies). The network contains both continuous and intermittent instruments. The continuous instruments operate throughout the year, while noncontinuous instruments operate intermittently based on the schedule shown in Table 14. This is the official noncontinuous sampling schedule used by the Illinois EPA during 1997.

The Illinois network is deployed along the lines described in the Illinois State Implementation Plan. An updated air monitoring plan is submitted to USEPA each year for review. In accordance with USEPA air quality monitoring requirements as set forth in Title 40 of the Code of Federal Regulations, Part 58 (40 CFR 58), four types of monitoring stations are used to collect ambient air data. 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 designations for the sites operated within the State of Illinois are provided by site in the Site Directory (Appendix A.2). All of the industrial sites are considered to be SPMS. Table 15 is a summary of the distribution of SLAMS/NAMS/PAMS/SPMS by pollutant.

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.

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.

TABLE A1

ILLINOIS AMBIENT AIR MONITORING NETWORK
DIRECTORY OF COOPERATING AGENCIES IN ILLINOIS

Village of Bedford Park
P.O. Box 128
Argo, Illinois 60501
708/458-2067
Fax 708/458-2079

Bensenville Public Works Department
700 W. Irving Park Road
Bensenville, Illinois 60106
708/766-8200
Fax 708/350-0260

Chicago Department of the Environment
30 N. LaSalle Street, 25th Floor
Chicago, Illinois 60602
312/744-7606
Fax 312/744-6451

Cook County Department of Environmental Control
1500 Maybrook Drive, Room 202
Maywood, Illinois 60153
708/865-6165
Fax 708/865-6361

DuPage County Health Department
111 N. County Farm Road
Wheaton, Illinois 60187
708/682-7400
Fax 708/462-9249

Eastern Illinois University
Department of Geography
600 Lincoln Avenue
Charleston, Illinois 61920-3099
217/581-2626
Fax 217/581-6613

Lake County Health Department
Environmental Health Division
3010 Grand Avenue
Waukegan, Illinois 60085
847/360-6700
Fax 847/249-4972

Quincy Department of Public Works
730 Main Street
Quincy, Illinois 62301
217/228-4527
Fax 217/228-4585

Southern Illinois University
Center for Environmental Health & Safety
1400 Poultry Center Drive
Carbondale, Illinois 62901-6898
618/453-7180
Fax 618/453-7192

Will County Environmental Health Department
501 Ella Avenue
Joliet, Illinois 60433
815/727-8490
Fax 815/727-8484

Winnebago County Department of Public Health
401 Division
Rockford, Illinois 61104
815/962-5092
Fax 815/962-4203

TABLE A1

DIRECTORY OF AIR POLLUTION AGENCIES IN ADJACENT STATES

Indiana Dept. of Environmental Management
100 N. Senate
Indianapolis, Indiana 46204
317/232-8611
Fax 317/233-6647

Iowa Dept. of Natural Resources
Wallace State Office Building
900 E. Grand Ave.
Des Moines, Iowa 50319-0034
515/281-5145
Fax 515/281-8895

Kentucky Dept. for Environmental Protection
Air Quality Division
803 Schenkel Lane
Frankfort, Kentucky 40601
502/573-3382
Fax 502/573-3787

Michigan Dept. of Natural Resources
Air Quality Division
P.O. Box 30260
Lansing, Michigan 48909
517/373-7023
Fax 517/373-1265

Missouri Dept. of Natural Resources
Division of Environmental Quality
P.O. Box 176
205 Jefferson Street
Jefferson City, Missouri 65102
573/751-4817
Fax 573/751-2706

Wisconsin Dept. of Natural Resources
Bureau of Air Management
P.O. Box 7921
101 S. Webster
Madison, Wisconsin 53707
608/266-7718
Fax 608/267-0560

Table A2
1997 - Noncontinous Sampling Schedule

January

S	M	T	W	T	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	T	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	T	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	T	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	T	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	T	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	T	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	T	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	T	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	T	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	T	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	T	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	**31**				

15 Every 6 Day Sampling Schedule

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 noncriteria pollutants.

Table A3

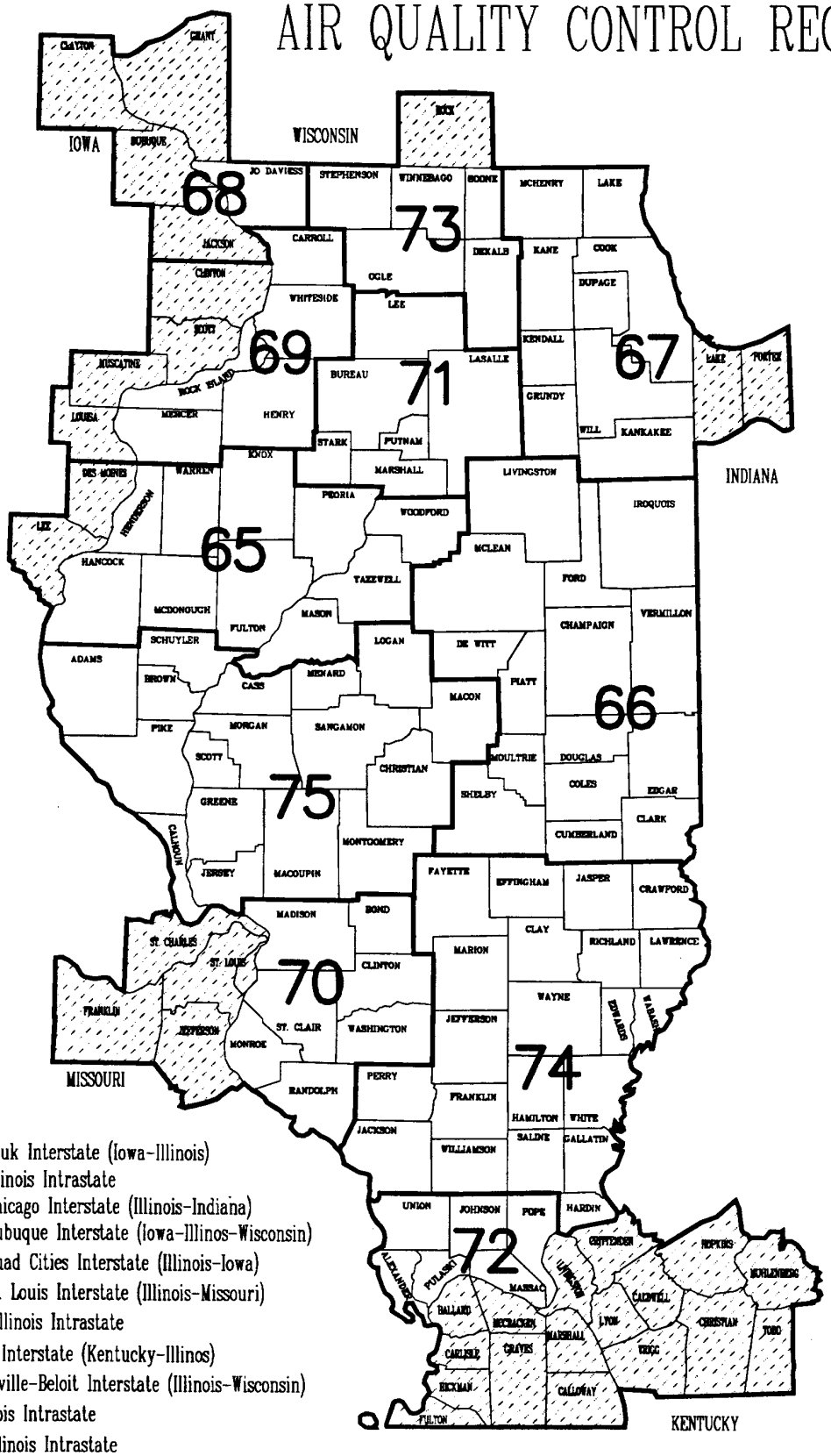
DISTRIBUTION OF AIR MONITORING INSTRUMENTS

	PAMS	NAMS	SLAMS	SPMS	TOTAL
Particulate Matter (PM_{10})	0	15	29	0	44
Total Suspended Particulates (TSP)	0	0	0	20	20
Particulate Matter ($PM_{2.5}$)	0	0	0	9	9
Lead	0	2	19	6	27
Sulfur Dioxide	0	12	16	2	30
Nitrogen Dioxide	4	2	4	0	10
Ozone	4	11	25	2	42
Carbon Monoxide	0	2	11	0	13
Volatile Organic Compounds	4	0	0	0	4
Wind Systems	4	0	0	22	26
Solar Radiation	4	0	0	6	10
Meteorological	4	0	0	0	4
Total	24	44	104	67	239

There were several changes to the monitoring network from 1996 to 1997. Lead sites were discontinued at Bedford Park, Granite City - 23rd & Madison, and at three sites in Chicago around Horsehead Industries. PM_{10} sites were discontinued at Randolph County and Charleston. Carbon Monoxide sites were discontinued at Des Plaines, Hoffman Estates, and Nilwood. A sulfur Dioxide site was discontinued at Chicago - University.

A new (and final) PAMS (Type 3) was begun in Northbrook. New PM_{10} sites were begun in Geneva and Springfield. A new ozone site was begun at Dale in Hamilton County. New $PM_{2.5}$ sites were established at Chicago - Mayfair, Chicago - Washington, Granite City - 2044 Washington, Lyons Township and Wood River.

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-Illinos-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

Table A4

1997
SITE DIRECTORY

CITY NAME SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)	EQUIPMENT
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)				
PEORIA COUNTY				
Peoria	Fire Station #8	Ill. EPA	N. 4507.050	NAMS - SO_2, O_3
(6080024)/(1430024)	MacArthur & Hurlburt		E. 279.679	SPMS - WS/WD
Peoria	Commercial Building	Ill. EPA	N. 4508.585	SLAMS - CO
(6080036)/(1430036)	1005 N. University		E. 279.196	
Peoria	City Office Building	Ill. EPA	N. 4508.197	NAMS - PM_{10}
(6080037)/(1430037)	613 N.E. Jefferson		E. 281.675	SLAMS - Pb
				SPMS - TSP
Peoria Heights	Peoria Heights H.S.	Ill. EPA	N. 4513.476	NAMS - O_3
(6120001)/(1431001)	508 E. Glen Ave.		E. 281.660	
TAZEWELL COUNTY				
East Peoria	East Peoria Medical Center	Ill. EPA	N. 4504.500	SLAMS - PM_{10}
(2100002)/(1790002)	235 E. Washington		E. 282.200	
Pekin	Fire Station #3	Ill. EPA	N. 4492.693	NAMS - SO_2
(6060004)/(1790004)	272 Derby		E. 275.291	
66 EAST CENTRAL ILLINOIS INTRASTATE				
CHAMPAIGN COUNTY				
Champaign	Booker T. Washington Elem. Sch.	Ill. EPA	N. 4442.017	SLAMS - SO_2, O_3
(1140004)/(0190004)	606 E. Grove		E. 395.248	
Champaign	Post Office	Ill. EPA	N. 4441.819	SLAMS - PM_{10}
(1140005)/(0190005)	600 N. Neil		E. 394.066	
COLES COUNTY				
Charleston (DISC)	Coles Co. Center for Human Serv.	Ill. EPA/	N. 4371.659	SLAMS - PM_{10}
(1180001)/(0290001)	825 18th St.	EIU	E. 400.060	
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)				
COOK COUNTY				
Alsip	Village Garage	Cook County DEC	N. 4613.287	SLAMS - O_3, Pb, PM_{10}
(0140001)/(0310001)	4500 W. 123rd St.		E. 439.015	SPMS - TSP, WS/WD,
				$PM_{2.5}$
Bedford Park	APC Laboratory	Cook County DEC	N. 4624.760	SLAMS - SO_2, Pb[d]
(1540018)/(0311018)	7800 W. 65th St.		E. 432.241	SPMS - WS/WD, TSP[d]

Table A4

1997
SITE DIRECTORY

CITY NAME SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)	EQUIPMENT
COOK COUNTY				
Blue Island (0500001)/(0312001)	Eisenhower H.S. 12700 Sacramento	Cook County DEC	N. 4612.286 E. 442.003	NAMS - PM_{10} SLAMS - SO_2 SPMS - $PM_{2.5}$
Calumet City (0780003)/(0318003)	Trailer 1703 State St.	Cook County DEC	N. 4608.775 E. 452.673	SLAMS - SO_2, NO/NO_2, O_3, CO
Chicago (1220041)/(0310041)	Bright Elem. Sch. 10740 S. Calhoun	Cook County DEC	N. 4616.314 E. 453.235	SLAMS - Pb SPMS - TSP
Chicago (1220060)/(0310060)	Carver H.S. 13100 S. Doty	Cook County DEC	N. 4611.597 E. 451.007	NAMS - PM_{10}
Chicago (1220026)/(0310026)	Cermak Pump Sta. 735 W. Harrison	Cook County DEC	N. 4635.707 E. 446.469	SLAMS - Pb SPMS - TSP
Chicago (1220049)/(0310049)	Chicago Ave. Pumping Sta. 805 N. Michigan	Cook County DEC	N. 4638.335 E. 448.269	NAMS - PM_{10}
Chicago (1220063)/(0310063)	CTA Building 320 S. Franklin	Ill. EPA	N. 4636.096 E. 447.365	NAMS - CO, NO/NO_2, SO2 SLAMS - O_3
Chicago (1220014)/(0310014)	Farr Dormitory 3300 S. Michigan Ave.	Cook County DEC	N. 4631.393 E. 448.232	NAMS - PM_{10}
Chicago (1220072)/(0310072)	Jardine Water Plant 1000 E. Ohio	Ill. EPA	N. 4638.169 E. 449.597	PAMS - NO/NO_2, O_3, VOC WS/WD, SOL, MET, UV, RAIN
Chicago (1220070)/(0310070)	Marsh Elem. Sch. 9810 S. Exchange	Cook County DEC	N. 4618.276 E. 454.020	SLAMS - PM_{10}
Chicago (1220052)/(0310052)	Mayfair Pump Sta. 4850 Wilson Ave.	Cook County DEC	N. 4645.900 E. 437.878	NAMS - Pb SLAMS - PM_{10} SPMS - TSP, $PM_{2.5}^{n}$
Chicago (1220042)/(0310042)	Sears Tower Wacker @ Adams	Ill. EPA	N. 4636.320 E. 447.265	SPMS - O_3
Chicago (1220050)/(0310050)	Southeast Police Sta. 103rd & Luella	Cook County DEC	N. 4617.220 E. 452.700	NAMS - SO_2 SLAMS - O_3
Chicago (1220032)/(0310032)	South Water Filtration Plant 3300 E. Cheltenham Pl.	Cook County DEC	N. 4622.596 E. 454.663	SLAMS - O_3

Table A4

1997
SITE DIRECTORY

CITY NAME / SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)	EQUIPMENT
COOK COUNTY				
Chicago	Taft H.S.	Cook County DEC	N. 4648.125	SLAMS - O_3
(1220003)/(0311003)	6545 W. Hurlbut St.		E. 434.392	
Chicago	University of Chicago	Cook County DEC	N. 4626.508	SLAMS - O_3, SO_2[d], NO/NO_2
(1220064)/(0310064)	5720 S. Ellis Ave.		E. 450.010	SPMS - SOL, UV
Chicago	Washington H.S.	Cook County DEC	N. 4615.038	NAMS - PM_{10}
(1220022)/(0310022)	3535 E. 114th St.		E. 455.155	SLAMS - Pb
				SPMS - TSP, $PM_{2.5}$[n]
Chicago	Washington Elem. Sch.	Ill. EPA	N. 4615.013	NAMS - SO_2
(1220059)/(0310059)	3611 E. 114th St.		E. 455.389	SLAMS - PM_{10}
				SPMS - WS/WD
Chicago (DISC)	Horsehead Site 1-N	Horsehead Resource	N. 4615.171	SPMS - Pb
(1220067)/(0310067)	2701 E. 114th St.	Development	E. 453.658	
Chicago (DISC)	Horsehead Site 2-SW	Horsehead Resource	N. 4614.824	SPMS - Pb
(1220068)/(0310068)	2701 E. 114th St.	Development	E. 453.731	
Chicago (DISC)	Horsehead Site 3-SE	Horsehead Resource	N. 4614.806	SPMS - Pb
(1220069)/(0310069)	2701 E. 114th St.	Development	E. 453.981	
Cicero	Roosevelt H.S.	Cook County DEC	N. 4634.246	NAMS - PM_{10}
(1340001)/(0316001)	15th St. & 50th Ave.		E. 437.728	
Cicero	Trailer	Cook County DEC	N. 4633.763	NAMS - SO_2, NO/NO_2
(1340002)/(0314002)	1820 S. 51st Ave.		E. 437.541	SLAMS - O_3, CO
Des Plaines	Forest Elem. Sch.	Cook County DEC	N. 4653.049	SLAMS - O_3
(1840006)/(0314006)	1375 5th St.		E. 425.055	
Des Plaines (DISC)	IEPA Trailer	Ill. EPA	N. 4649.870	SLAMS - CO
(1840004)/(0314004)	Toll Plaza Rd. & Scott St.		E. 427.539	
Evanston	Water Pumping Sta.	Ill. EPA	N. 4656.695	NAMS - O_3
(2360002)/(0317002)	531 E. Lincoln		E. 444.260	SPMS - WS/WD
Hoffman Estates	Hoffman Estates H.S.	Cook County DEC	N. 4656.069	SLAMS - CO[d], PM_{10}
(3460001)/(0314101)	1100 W. Higgins Rd.		E. 408.304	
Lemont	Trailer	Cook County DEC	N. 4613.184	SLAMS - SO_2, O_3
(4220001)/(0311601)	729 Houston		E. 417.532	
Lyons	Fire Station #22	Cook County DEC	N. 4629.580	SLAMS - PM_{10}
(4480001)/(0311701)	4043 Joliet Ave.		E. 431.913	

Table A4

1997
SITE DIRECTORY

CITY NAME / SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)		EQUIPMENT
COOK COUNTY					
Lyons Township	Village Hall	Ill. EPA	N.	4627.820	SLAMS - PM_{10}
(1540016)/(0311016)	50th St. & Glencoe		E.	430.886	SPMS - $PM_{2.5}^{n}$
Maywood	Maybrook Civic Center	Cook County DEC	N.	4635.705	NAMS - Pb
(4960003)/(0316003)	1500 Maybrook Dr.		E.	431.435	
Maywood	Maybrook Civic Center	Cook County DEC	N.	4635.695	NAMS - CO
(4960004)/(0316004)	1505 S. First Ave.		E.	431.200	
Merrionette Park	Meadow Lane Sch.	Cook County DEC	N.	4614.060	SLAMS - PM_{10}
(1540019)/(0311019)	1800 Meadow Lane Dr.		E.	441.949	SPMS - $PM_{2.5}$
Midlothian	Bremen High Sch.	Cook County DEC	N.	4607.103	SLAMS - PM_{10}
(5080001)/(0311901)	15205 Crawford Ave.		E.	440.416	SPMS - $PM_{2.5}$
Northbrook (NEW)	Northbrook Water Plant	Ill. EPA	N.	4665.543	PAMS - O_3, NO/NO_2, VOC
(5600001)/(0314201)	750 Dundee Rd.		E.	434.140	WS/WD, SOL, MET
Schiller Park	IEPA Trailer	Ill. EPA	N.	4645.153	SLAMS - CO, NO/NO_2, Pb
(7040001)/(0313101)	4243 N. Manneheim		E.	426.687	SPMS - TSP, WS/WD
South Holland	Thornwood H.S.	Cook County DEC	N.	4603.512	SLAMS - PM_{10}
(7240001)/(0313701)	170th St. & S. Park Ave.		E.	449.555	
Summit	Graves Elem. Sch.	Cook County DEC	N.	4625.756	SLAMS - PM_{10}, Pb
(7520001)/(0313301)	60th St. & 74th Ave.		E.	433.074	SPMS - TSP
DUPAGE COUNTY					
Bensenville	Treatment Plant	Ill. EPA	N.	4644.118	SLAMS - PM_{10}, Pb
(0380003)/(0431003)	711 E. Jefferson		E.	422.938	SPMS - TSP
Lisle	Morton Arboretum	Ill. EPA	N.	4629.361	SLAMS - SO_2, O_3
(4320001)/(0436001)	Route 53		E.	410.891	SPMS - WS/WD
Naperville	City Hall	Ill. EPA /	N.	4624.841	SLAMS - PM_{10}
(5480002)/(0434002)	400 S. Eagle St.	DuPage Co. Health Dept.	E.	404.230	
KANE COUNTY					
Elgin	Larsen Junior H.S.	Ill. EPA	N.	4655.844	NAMS - O_3
(2260005)/(0890005)	665 Dundee Rd.		E.	394.654	
Geneva (NEW)	Delnor Comm. Hosp.	Ill. EPA/	N.	4636.982	SPMS - PM_{10}
(2820001)/(0892001)	300 Randall Rd.	Kane Co. Health Dept.	E.	388.691	

Table A4

1997
SITE DIRECTORY

CITY NAME SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)	EQUIPMENT
LAKE COUNTY				
Deerfield	Woodland Park Sch.	Ill. EPA	N. 4669.608	NAMS - O_3
(1760001)/(0970001)	1321 Wilmont Rd.		E. 428.584	
Libertyville	Butterfield Elem. Sch.	Ill. EPA	N. 4682.279	SLAMS - O_3
(4260001)/(0973001)	1441 Lake St.		E. 419.062	SPMS - WS/WD
Waukegan	North Fire Station	Ill. EPA	N. 4693.854	NAMS - O_3
(8020002)/(0971002)	Golf & Jackson Sts.		E. 430.744	SPMS - WS/WD
Zion	Camp Logan	Ill. EPA	N. 4701.735	PAMS - O_3, NO/NO_2, VOC
(4000007)/(0971007)	Illinois Beach State Park		E. 433.384	WS/WD, SOL, MET
Mc HENRY COUNTY				
Cary	Cary Grove H.S.	Ill. EPA	N. 4674.862	NAMS - O_3
(1020001)/(1110001)	1st St. & Three Oaks Rd.		E. 397.562	
WILL COUNTY				
Braidwood	Com Ed Training Center	Ill. EPA	N. 4563.890	PAMS - O_3, NO/NO_2, VOC
(8320011)/(1971011)	36400 S. Essex Road		E. 400.178	WS/WD, SOL, MET
				SLAMS - CO
Joliet	Pershing Elem. Sch.	Ill. EPA	N. 4597.636	NAMS - PM_{10}
(3760002)/(1971002)	Midland & Campbell Sts.		E. 406.854	SLAMS - Pb
				SPMS - TSP
Joliet	Water Plant West	Ill. EPA	N. 4590.279	NAMS - SO_2
(3760013)/(1970013)	Rte. 6 & Young Rd.		E. 401.284	SLAMS - PM_{10}
				SPMS - WS/WD
Rockdale	Volunteer Fire Dept.	Ill. EPA	N. 4595.330	SLAMS - PM_{10}
(8320009)/(1971009)	Midland & Otis		E. 406.953	
South Lockport	Fitness Forum	Ill. EPA	N. 4603.045	SLAMS - O_3
(8320008)/(1971008)	2021 Lawrence		E. 412.075	

69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)

ROCK ISLAND COUNTY				
East Moline	City Hall	Ill. EPA	N. 4598.836	NAMS - PM_{10}
(2080001)/(1610001)	915 16th Ave.		E. 713.616	SLAMS - Pb
				SPMS - TSP
Moline	Water Treatment Plant	Ill. EPA	N. 4598.361	NAMS - SO_2, O_3
(5120003)/(1610003)	30 18th St.		E. 707.461	SPMS - WS/WD, SOL
Rock Island	City Hall	Ill. EPA	N. 4597.904	SLAMS - PM_{10}
(6700001)/(1613001)	1528 3rd Ave.		E. 702.190	

Table A4

1997
SITE DIRECTORY

70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)

CITY NAME SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)	EQUIPMENT
MADISON COUNTY				
Alton (0160008)/(1190008)	Clara Barton Elem. Sch. 409 Main St.	Ill. EPA	N. 4308.245 E. 747.375	SLAMS - SO_2, O_3, PM_{10} SPMS - WS/WD
Edwardsville (4680007)/(1192007)	RAPS Trailer Poag Road	Ill. EPA	N. 4297.793 E. 757.118	SLAMS - O_3 SPMS - WS/WD, SOL
Granite City (2960007)/(1191007)	Fire Station #1 23rd & Madison	Ill. EPA	N. 4287.661 E. 748.745	NAMS - PM_{10} SLAMS - Pb^d SPMS - TSP^d
Granite City (2960010)/(1190010)	Air Products 15th & Madison	Ill. EPA	N. 4286.516 E. 747.561	NAMS - PM_{10} SLAMS - Pb SPMS - TSP
Granite City (2960017)/(1190017)	YMCA Building 2001 Edison	Ill. EPA	N. 4287.364 E. 747.923	SLAMS - CO, SO_2
Granite City (2960022)/(1190022)	Plaza Furniture 2420 Nameoki Road	Ill. EPA	N. 4287.673 E. 750.333	SLAMS - PM_{10}
Granite City (2960023)/(1190023)	VFW Building 2040 Washington	Ill.EPA	N. 4287.099 E. 748.427	NAMS - PM_{10} SLAMS - Pb SPMS - TSP, $PM_{2.5}{}^n$
Maryville (4680009)/(1191009)	Southwest Cable TV 200 W. Division	Ill. EPA	N. 4290.389 E. 242.739	SLAMS - O_3 SPMS - WS/WD
South Roxana (4680010)/(1191010)	S. Roxana Grade Sch. Michigan St.	Ill. EPA	N. 4301.635 E. 755.442	SLAMS - SO_2
South Roxana (4680011)/(1191011)	Village Hall 211 Sinclair Ave.	Ill. EPA	N. 4301.923 E. 754.922	SLAMS - PM_{10}
Wood River (8520007)/(1193007)	Water Treatment Plant 54 N. Walcott	Ill. EPA	N. 4305.084 E. 751.138	NAMS - SO_2, O_3, PM_{10} SLAMS - Pb SPMS - TSP, $PM_{2.5}{}^n$
Wood River (8520009)/(1193009)	VIM Test Station 1710 Vaughn Road	Ill. EPA	N. 4305.709 E. 754.190	SLAMS - SO_2
Rural Madison County (4680012)/(1191012)	Cemetco Site 1-N	Chemetco	N. 4298.318 E. 751.915	SPMS - Pb
Rural Madison County (4680013)/(1191013)	Cemetco Site 2-E	Chemetco	N. 4297.892 E. 752.506	SPMS - Pb

Table A4

1997
SITE DIRECTORY

CITY NAME / SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)	EQUIPMENT
MADISON COUNTY				
Rural Madison County	Chemetco	Chemetco	N. 4297.470	SPMS - Pb
(4680015)/(1191015)	Site 4-SE		E. 752.268	
RANDOLPH COUNTY				
Houston	Baldwin Site #2	Ill. EPA	N. 4228.843	SLAMS - SO_2, O_3
(6460001)/(1570001)	County Rds. 25.0 N. & 23.5 E.		E. 255.741	
Randolph Co. Site B (DISC)	Peabody Prep. Plant	Ill. EPA	N. 4233.555	SLAMS - PM_{10}
(6460003)/(1570003)	County Rds. 00.0 N. & 25.0 E.		E. 255.264	
ST. CLAIR COUNTY				
East St. Louis	RAPS Trailer	Ill. EPA	N. 4277.363	NAMS - SO_2, PM_{10}
(2120010)/(1630010)	13th & Tudor		E. 747.251	SLAMS - NO/NO_2, Pb, O_3
				SPMS - TSP, WS/WD
Marissa	Baldwin Site #1	Ill. EPA	N. 4235.505	SLAMS - SO_2
(6900011)/(1631011)	Risdon School Rd.		E. 251.259	SPMS - WS/WD
Sauget	IEPA Trailer	Ill. EPA	N. 4275.123	SLAMS - SO_2
(6900010)/(1631010)	Little Ave.		E. 746.921	
71 NORTH CENTRAL ILLINOIS INTRASTATE				
LA SALLE COUNTY				
Oglesby	308 Portland Ave.	Ill. EPA	N. 4573.105	SLAMS - PM_{10}
(5800007)/(0990007)			E. 328.412	SPMS - WS/WD
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)				
WINNEBAGO COUNTY				
Loves Park	Maple Elem. Sch.	Ill. EPA	N. 4688.756	NAMS - O_3
(8400001)/(2012001)	1405 Maple Ave.		E. 332.098	SPMS - WS/WD, SOL
Rockford	Walker Elem. Sch.	Ill. EPA	N. 4683.537	NAMS - O_3
(6680009)/(2010009)	1500 Post St.		E. 328.760	
Rockford	Fire Dept. Administration Bldg.	Ill. EPA /	N. 4681.324	SLAMS - Pb
(6680010)/(2010010)	204 S. 1st St.	Winn. Co. Hlth. Dept.	E. 327.670	SPMS - TSP
Rockford	City Hall	Ill. EPA	N. 4681.390	SLAMS - CO
(6680011)/(2010011)	425 E. State		E. 327.817	
Rockford	Beyer Elem. Sch.	Ill. EPA /	N. 4679.472	SLAMS - PM_{10}
(6680012)/(2010012)	333 15th St.	Winn. Co. Hlth. Dept.	E. 327.299	

Table A4

1997
SITE DIRECTORY

CITY NAME / SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)	EQUIPMENT
74 SOUTHEAST ILLINOIS INTRASTATE				
EFFINGHAM COUNTY				
Effingham	Central Junior H.S.	Ill. EPA	N. 4325.131	SLAMS - O_3
(2220001)/(0491001)	Route 45 South		E. 366.053	SPMS - WS/WD, SOL
HAMILTON COUNTY				
Dale (NEW)	Dale Elem. School	Ill. EPA	N. 4206.378	SPMS - O_3
(3080001)/(0650001)	SR 142		E. 368.939	
JACKSON COUNTY				
Carbondale	Maintenance Bldg.	Ill. EPA	N. 4177.177	SLAMS - PM_{10}
(0840004)/(0770004)	607 E. College	SIU	E. 305.348	
WABASH COUNTY				
Mount Carmel	Division St.	Public Service	N. 4249.965	SPMS - SO_2
(NA)/(1850001)		of Indiana	E. 432.444	
Rural Wabash County	South of SR-1	Public Service	N. 4246.929	SPMS - SO_2
(NA)/(1851001)		of Indiana	E. 427.104	
75 WEST CENTRAL ILLINOIS INTRASTATE				
ADAMS COUNTY				
Quincy	St. Boniface Elem. Sch.	Ill. EPA /	N. 4421.358	SLAMS - PM_{10}, SO_2, O_3
(6440006)/(0010006)	732 Hampshire	City (PM_{10})	E. 636.388	SPMS - WS/WD
JERSEY COUNTY				
Jerseyville	Illini Jr. H.S.	Ill. EPA	N. 4332.169	SLAMS - O_3
(3680001)/(0831001)	Liberty St. & County Rd.		E. 730.997	
MACON COUNTY				
Decatur	Grant Elem. Sch.	Ill. EPA	N. 4413.735	NAMS - PM_{10}
(1740002)/(1150002)	2300 Geddes		E. 335.358	SLAMS - Pb
				SPMS - TSP
Decatur	IEPA Trailer	Ill. EPA	N. 4414.538	NAMS - SO_2
(1740013)/(1150013)	2200 N. 22nd		E. 335.308	SLAMS - O_3
				SPMS - WS/WD
MACOUPIN COUNTY				
Nilwood	IEPA Trailer	Ill. EPA	N. 4364.287	SLAMS - O_3, SO_2, Pb
(4640002)/(1170002)	Heaton & Dubois		E. 258.053	PM_{10}, CO[d]
				SPMS - TSP, WS/WD, SOL
				CO_2, UV
SANGAMON COUNTY				
Springfield	Sewage Treatment Plant	Ill. EPA	N. 4408.650	NAMS - SO_2
(7280006)/(1670006)	I55 & I72 at Old 36		E. 278.194	SPMS - WS/WD

Table A4

1997
SITE DIRECTORY

CITY NAME / SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)		EQUIPMENT
SANGAMON COUNTY					
Springfield	Federal Building	Ill. EPA	N.	4408.623	SLAMS - CO
(7280008)/(1670008)	6th St. & Monroe		E.	273.327	
Springfield	Public Health Warehouse	Ill. EPA	N.	4413.490	SLAMS - O_3
(7280010)/(1670010)	2875 N. Dirksen Pkwy.		E.	277.134	
Springfield (NEW)	Agriculture Building	Ill. EPA	N.	4412.240	SLAMS - PM_{10}
(7280012)/(1670012)	State Fair Grounds		E.	273.720	

Summary of Equipment Codes for the Site Directory

TSP	- Total Suspended Particulates
PM_{10}	- Particulate Matter (10 microns or smaller)
$PM_{2.5}$	Particulate Matter (2.5 microns or smaller)
SO_2	- Sulfur Dioxide
NO	- Nitric Oxide
NO_2	- Nitrogen Dioxide
CO	- Carbon Monoxide
CO_2	- Carbon Dioxide
O_3	- Ozone
Pb	- Lead
WS/WD	- Wind Speed and Wind Direction
SOL	- Total Solar Radiation
MET	- Temperature, Relative Humidity, Barometric Pressure
UV	- Ultra-violet Radiation
RAIN	- Rainfall
VOC	- Volatile Organic Compounds
(n)	- Instrument installed during 1996
(d)	- Instrument removed during 1996
NEW	- Site started during 1996
DISC	- Site discontinued during or at the end of 1996

SLAMS Designations

NAMS	- National Air Monitoring Site
PAMS	- Photochemical Assessment Monitoring Site
SLAMS	- State and Local Air Monitoring Site
SPMS	- Special Purpose Air Monitoring Site

UTM Coordinates

N.	- Northing Coordinate (in kilometers)
E.	- Easting Coordinate (in kilometers)

APPENDIX B
AIR QUALITY DATA SUMMARY TABLES

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 noncontinuous 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.

For lead results which must be compared to a quarterly standard, 75% of the possible samples in each quarter must be obtained. Thus for a valid lead quarterly average, a total of 12 values must be available.

PM_{10} sampling requirements are somewhat different than the requirements for other noncontinuous parameters. PM_{10} sampling requires the use of a stratified sampling plan. This procedure eliminates the bias that may be introduced when sampling is performed on days in addition to the required sampling days. The time period from one sampling day until the day preceding the next scheduled sampling day is defined as a stratum. If more than one sample occurs within a stratum, then the values are averaged and the mean is used to represent the concentration of the stratum. PM_{10} samplers operate on one of three sampling frequencies:

- Every-day sampling (68 samples required each quarter for 75% data capture)
- Every-other-day sampling (34 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} mean, arithmetic means are calculated for each quarter in which valid data is recorded in at least 75% of the possible strata. The annual mean is then the arithmetic average of the four quarterly means. A similar procedure is used for PM2.5 annual averages whereby quarterly means are averaged to obtain the annual average except that the concept of strata is not utilized.

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 1997. 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 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 exceedences are actual exceedences adjusted for the percent of missing days (see Appendix D).

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.

National Ambient Air Quality Standards (NAAQS) for particulate matter (PM_{10}), sulfur dioxide (SO_2) and carbon monoxide (CO) have short-term standards for ambient air concentrations (24 hours or less) not to be exceeded more than once per year. 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 standards are promulgated in this manner in order to protect the public from excessive levels in pollution both in terms of acute and chronic health effects.

The following data tables detail and summarize air quality in Illinois in 1997. The tables of rankings list the sites with valid annual averages from highest to lowest. The tables of short term exceedences 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.

Table B1

1997
OZONE IN EXCESS OF THE PRIMARY STANDARD OF ONE HOUR PER DAY GREATER THAN 0.12 PARTS PER MILLION

STATION	ADDRESS	DATE	MAXIMUM VALUE (PPM)
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)			
COOK COUNTY			
Chicago - SWFP	3300 E. Cheltenham	Jul 26	0.157
LAKE COUNTY			
Zion	Camp Logan	Jun 29	0.128
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)			
MADISON COUNTY			
Edwardsville	Poag Road	Jul 18	0.128
Wood River	54 N. Walcott	Jul 25	0.134
75 WEST CENTRAL ILLINOIS INTRASTATE			
JERSEY COUNTY			
Jerseyville	Liberty St.	Jul 17	0.130

Table B2

1997
OZONE

STATION	ADDRESS	VALID APR-OCT	NUMBER OF DAYS GREATER THAN 0.12 PPM	HIGHEST SAMPLES (parts per million) 1-HOUR 1ST	2ND	3RD	4TH	8-HOUR 1ST	2ND	3RD	4TH
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)											
PEORIA COUNTY											
Peoria	Hurlburt & MacArthur	214	0	0.083	0.083	0.079	0.079	0.080	0.078	0.071	0.070
Peoria Heights	508 E. Glen	213	0	0.089	0.088	0.086	0.083	0.083	0.080	0.075	0.073
66 EAST CENTRAL ILLINOIS INTRASTATE											
CHAMPAIGN COUNTY											
Champaign	606 E. Grove	211	0	0.088	0.088	0.083	0.082	0.082	0.082	0.078	0.076
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)											
COOK COUNTY											
Alsip	4500 W. 123rd St.	213	0	0.102	0.101	0.096	0.095	0.092	0.089	0.088	0.082
Calumet City	1703 State St.	214	0	0.094	0.087	0.085	0.084	0.079	0.076	0.076	0.075
Chicago - CTA	320 S. Franklin	209	0	0.101	0.100	0.092	0.091	0.095	0.080	0.079	0.076
Chicago - Jardine	1000 E. Ohio	210	0	0.119	0.106	0.104	0.103	0.097	0.095	0.092	0.091
Chicago - SWFP	3300 E Cheltenham	214	1	0.157	0.113	0.110	0.104	0.118	0.098	0.088	0.087
Chicago - SE Police	103rd & Luella	214	0	0.102	0.100	0.097	0.092	0.084	0.082	0.078	0.077
Chicago - Taft	6545 W. Hurlbut	214	0	0.098	0.095	0.093	0.089	0.087	0.083	0.078	0.074
Chicago - University	5720 S. Ellis	214	0	0.113	0.104	0.103	0.099	0.101	0.086	0.085	0.083
Cicero	1830 S. 51st Ave.	214	0	0.097	0.093	0.088	0.086	0.084	0.077	0.076	0.074
Des Plaines	1375 5th St.	213	0	0.102	0.097	0.093	0.088	0.091	0.084	0.081	0.077
Evanston	531 Lincoln	214	0	0.113	0.111	0.102	0.102	0.107	0.094	0.094	0.094
Lemont	729 Houston	210	0	0.093	0.088	0.085	0.083	0.081	0.076	0.075	0.075
Northbrook	750 Dundee Rd.	212	0	0.115	0.106	0.100	0.095	0.104	0.094	0.088	0.087
DuPAGE COUNTY											
Lisle	Morton Arboretum	214	0	0.099	0.088	0.084	0.079	0.078	0.076	0.072	0.072
KANE COUNTY											
Elgin	665 Dundee	214	0	0.092	0.092	0.084	0.082	0.084	0.081	0.078	0.076
LAKE COUNTY											
Deerfield	1321 Wilmot Rd.	213	0	0.110	0.101	0.100	0.094	0.101	0.088	0.084	0.084
Libertyville	1441 Lake St.	211	0	0.115	0.107	0.102	0.098	0.101	0.090	0.087	0.082
Waukegan	Golf & Jackson	212	0	0.123	0.110	0.109	0.097	0.111	0.101	0.098	0.088
Zion	Camp Logan	210	1	0.128	0.109	0.105	0.096	0.112	0.100	0.092	0.080
McHENRY COUNTY											
Cary	1st St. & Three Oaks	214	0	0.101	0.098	0.093	0.092	0.091	0.088	0.088	0.080
WILL COUNTY											
Braidwood	36400 S. Essex Rd.	214	0	0.096	0.083	0.083	0.083	0.089	0.080	0.074	0.074
South Lockport	2021 Lawrence	209	0	0.083	0.083	0.078	0.077	0.077	0.074	0.073	0.071

Primary 1-Hour Standard 0.12 ppm; 8-Hour Standard 0.08 ppm

Table B2

1997
OZONE

STATION	ADDRESS	VALID APR-OCT	NUMBER OF DAYS GREATER THAN 0.12 PPM	HIGHEST SAMPLES (parts per million) 1-HOUR 1ST	2ND	3RD	4TH	8-HOUR 1ST	2ND	3RD	4TH
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)											
ROCK ISLAND COUNTY											
Moline	30 18th St.	214	0	0.083	0.079	0.077	0.075	0.071	0.071	0.069	0.066
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)											
MADISON COUNTY											
Alton	409 Main St.	208	0	0.118	0.116	0.112	0.111	0.104	0.097	0.092	0.091
Edwardsville	Poag Road	213	1	0.128	0.113	0.110	0.105	0.100	0.091	0.089	0.082
Maryville	200 W. Division	214	0	0.117	0.112	0.107	0.107	0.104	0.094	0.091	0.088
Wood River	54 N. Walcott	214	1	0.134	0.120	0.110	0.106	0.107	0.092	0.088	0.088
RANDOLPH COUNTY											
Houston	Twp Rds. 150 & 45	214	0	0.091	0.086	0.085	0.084	0.075	0.073	0.073	0.072
ST. CLAIR COUNTY											
East St. Louis	13th & Tudor	214	0	0.105	0.098	0.095	0.095	0.086	0.086	0.081	0.080
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)											
WINNEBAGO COUNTY											
Loves Park	1405 Maple	208	0	0.086	0.084	0.080	0.079	0.081	0.081	0.073	0.073
Rockford	1500 Post	214	0	0.091	0.080	0.078	0.077	0.082	0.078	0.072	0.071
74 SOUTHEAST ILLINOIS INTRASTATE											
EFFINGHAM COUNTY											
Effingham	Route 45 South	214	0	0.103	0.095	0.086	0.086	0.089	0.087	0.080	0.077
HAMILTON COUNTY											
Dale	Route 142	211	0	0.090	0.089	0.084	0.083	0.079	0.078	0.076	0.074
75 WEST CENTRAL ILLINOIS INTRASTATE											
ADAMS COUNTY											
Quincy	732 Hampshire	205	0	0.086	0.082	0.078	0.078	0.077	0.070	0.068	0.068
JERSEY COUNTY											
Jerseyville	Liberty St.	214	1	0.130	0.096	0.095	0.095	0.098	0.089	0.083	0.082
MACON COUNTY											
Decatur	2200 N. 22nd St.	214	0	0.088	0.087	0.086	0.086	0.081	0.078	0.078	0.077
MACOUPIN COUNTY											
Nilwood	Heaton & DuBois	211	0	0.102	0.101	0.099	0.091	0.088	0.083	0.080	0.076
SANGAMON COUNTY											
Springfield	2875 N. Dirksen	214	0	0.092	0.085	0.081	0.079	0.076	0.075	0.072	0.071

Primary 1-Hour Standard 0.12 ppm; 8-Hour Standard 0.08 ppm

Table B3

1997
PARTICULATE MATTER (PM_{10}) VALUES IN EXCESS OF THE 24-HOUR PRIMARY STANDARD OF 150 MICROGRAMS PER CUBIC METER

STATION	ADDRESS	DATE	VALUE (ug/m^3)
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)			
MADISON COUNTY			
Granite City	15th & Madison	December 18	157

Table B4

1997
PARTICULATE MATTER (PM_{10})
(micrograms per cubic meter)

STATION	ADDRESS	SAMPLING FREQUENCY	NUMBER OF SAMPLES TOTAL	>150 ug/m^3	HIGHEST SAMPLES 1st	2nd	3rd	4th	ANNUAL ARITHMETIC MEAN
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)									
PEORIA COUNTY									
Peoria	613 N.E. Jefferson	6-day	58	0	76	56	45	42	26
TAZEWELL COUNTY									
East Peoria	235 E. Washington	6-day	58	0	53	52	41	41	27
66 EAST CENTRAL ILLINOIS INTRASTATE									
CHAMPAIGN COUNTY									
Champaign	600 N. Neil	6-day	57	0	46	44	38	38	22
COLES COUNTY									
Charleston	825 18th St.	6-day	59	0	44	43	38	36	20
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)									
COOK COUNTY									
Alsip	4500 W. 123rd St.	6-day	61	0	55	50	45	43	25
Blue Island	12700 Sacramento	6-day	59	0	59	58	48	47	28
Chicago - Carver	13100 S. Doty	6-day	61	0	79	56	55	51	31
Chicago - CAPS	805 N. Michigan Ave.	6-day	61	0	114	62	61	60	33
Chicago - Farr	3300 S. Michigan Ave.	6-day	61	0	56	54	52	51	27
Chicago - Mayfair	4850 Wilson Ave.	6-day	60	0	81	69	61	59	38
Chicago - Marsh	9810 S. Exchange	6-day	59	0	67	64	58	56	28
Chicago - Washington HS	3535 E. 114th St.	6-day	43	0	96	63	53	46	+
Chicago - Washington ES	3611 E. 114th St.	1-day	364	0	107	99	78	71	28
Cicero	15th St. & 50th Ave.	6-day	60	0	69	56	54	51	32
Hoffman Estates	1100 W. Higgins Rd.	6-day	60	0	40	36	36	34	21
Lyons	4043 Joliet Ave.	6-day	61	0	61	59	52	50	28
Lyons Township	50th St. & Glencoe Ave.	1-day	364	0	128	97	96	89	34
Merrionette Park	1800 Meadow Lane Dr.	6-day	58	0	66	49	44	41	26
Midlothian	15205 Crawford Ave.	6-day	59	0	50	44	43	39	25
South Holland	170th & S. Park Ave.	6-day	60	0	53	45	45	41	26
Summit	60th St. & 74th Ave.	6-day	61	0	78	66	65	63	37
DuPAGE COUNTY									
Bensenville	711 E. Jefferson	6-day	60	0	46	46	45	45	26
Naperville	400 S. Eagle St.	6-day	61	0	59	58	57	48	23
KANE COUNTY									
Geneva	300 Randall Rd.	6-day	56	0	50	41	38	35	21

Primary 24-Hour Standard 150 ug/m^3; Primary Annual Standard 50 ug/m^3

Table B4

1997
PARTICULATE MATTER (PM_{10})
(micrograms per cubic meter)

STATION	ADDRESS	SAMPLING FREQUENCY	NUMBER OF SAMPLES TOTAL	>150 ug/m ^{3}	HIGHEST SAMPLES 1st	2nd	3rd	4th	ANNUAL ARITHMETIC MEAN
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)									
WILL COUNTY									
Joliet	Midland & Campbell Sts.	6-day	59	0	46	42	40	39	23
Joliet	Rte. 6 and Young Rd.	6-day	57	0	66	59	51	42	24
Rockdale	Midland & Otis	6-day	57	0	48	45	44	43	25
ROCK ISLAND COUNTY									
East Moline	915 16th Ave.	6-day	59	0	41	40	40	37	24
Rock Island	1528 3rd Ave.	6-day	57	0	47	43	42	41	24
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)									
MADISON COUNTY									
Alton	409 Main St.	6-day	60	0	82	76	66	64	30
Granite City	23rd & Madison	6-day	60	0	119	83	71	70	36
Granite City	15th & Madison	6-day	59	1	157	108	95	92	47
Granite City	2420 Nameoki	6-day	60	0	96	70	65	62	31
Granite City	2040 Washington	1-day	362	0	153	102	96	94	37
South Roxana	211 Sinclair	6-day	59	0	52	50	50	50	29
Wood River	54 N. Walcott	6-day	60	0	48	48	47	46	25
RANDOLPH COUNTY									
Randolph Co. Site B	0.00 N. & 25.0 E.	1-day	356	0	113	105	95	90	31
ST. CLAIR COUNTY									
East St. Louis	13th St. & Tudor Ave.	6-day	54	0	58	57	53	52	34
71 NORTH CENTRAL ILLINOIS INTRASTATE									
LASALLE COUNTY									
Oglesby	308 Portland Ave.	1-day	364	0	147	138	111	95	28
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)									
WINNEBAGO COUNTY									
Rockford	333 15th Ave.	6-day	61	0	73	62	60	53	26
74 SOUTHEAST ILLINOIS INTRASTATE									
JACKSON COUNTY									
Carbondale	607 E. College	6-day	58	0	49	45	41	39	22

Primary 24-Hour Standard 150 ug/m^3; Primary Annual Standard 50 ug/m^3

Table B4

1997
PARTICULATE MATTER (PM_{10})
(micrograms per cubic meter)

STATION	ADDRESS	SAMPLING FREQUENCY	NUMBER OF SAMPLES TOTAL	NUMBER OF SAMPLES >150 ug/m ^{3}	HIGHEST SAMPLES 1st	2nd	3rd	4th	ANNUAL ARITHMETIC MEAN
75 WEST CENTRAL ILLINOIS INTRASTATE									
ADAMS COUNTY									
Quincy	732 Hampshire	6-day	60	0	43	40	35	34	20
MACON COUNTY									
Decatur	2300 Geddes	6-day	58	0	56	46	43	43	27
MACOUPIN COUNTY									
Nilwood	Heaton & DuBois	6-day	61	0	44	38	36	34	19
SANGAMON COUNTY									
Springfield	State Fair Grounds	6-day	59	0	44	44	41	39	23

+ Did not meet minimum statistical selection criteria (See Appendix B.1).

Primary 24-Hour Standard 150 ug/m^3; Primary Annual Standard 50 ug/m^3

Table B5

1997
SHORT-TERM TRENDS
PARTICULATE MATTER (PM_{10})

STATION	ADDRESS	ANNUAL ARITHMETIC MEANS (ug/m^3) 1992	1993	1994	1995	1996	1997
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)							
PEORIA COUNTY							
Peoria	613 N.E. Jefferson	25	20	21	20	21	26
TAZEWELL COUNTY							
East Peoria	235 E. Washington	31	23	26	23	24	27
66 EAST CENTRAL ILLINOIS INTRASTATE							
CHAMPAIGN COUNTY							
Champaign	600 N. Neil	31	22	25	22	19	22
COLES COUNTY							
Charleston	825 18th St.	30	24	20	17	17	20
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)							
COOK COUNTY							
Alsip	4500 W. 123rd St.	-	-	-	-	25	25
Blue Island	12700 Sacramento	31	30	36	31	30	28
Chicago - Carver	13100 S. Doty	34	31	36	36	31	31
Chicago - CAPS	805 N. Michigan Ave.	33	30	36	33	32	33
Chicago - Farr	3300 S. Michigan Ave.	29	33	37	34	27	27
Chicago - Mayfair	4850 Wilson Ave.	42	47	44	38	40	38
Chicago - Marsh	9810 S. Exchange	-	+	41	35	32	28
Chicago - Washington HS	3535 E. 114th St.	33	34	36	35	31	+
Chicago - Washington ES	3611 E. 114th St.	-	-	-	-	30	28
Cicero	15th St. & 50th Ave.	34	35	39	37	34	32
Hoffman Estates	1100 W. Higgins Rd.	-	-	-	27	22	21
Lyons	4043 Joliet Ave.	32	29	36	31	28	28
Lyons Township	50th St. & Glencoe Ave.	+	+	46	37	36	34
Merrionette Park	1800 Meadow Lane Dr.	-	-	-		29	26
Midlothian	15205 Crawford Ave.	-	-	-	-	28	25
South Holland	170th & S. Park Ave.	30	27	34	31	28	26
Summit	60th St. & 74th Ave.	34	37	42	39	34	37
DuPAGE COUNTY							
Bensenville	711 E Jefferson	27	19	22	25	23	26
Naperville	400 S. Eagle St.	+	21	20	19	20	23
KANE COUNTY							
Geneva	300 Randall Rd.	-	-	-	-	-	21

- Station not in operation during the year.

+ Did not meet minimum statistical selection criteria (See Appendix B.1).

Primary Annual Standard 50 ug/m^3

Table B5

1997
SHORT-TERM TRENDS
PARTICULATE MATTER (PM_{10})

STATION	ADDRESS	ANNUAL ARITHMETIC MEANS (ug/m^3) 1992	1993	1994	1995	1996	1997
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)							
WILL COUNTY							
Joliet	Midland & Campbell Sts.	31	26	25	24	22	23
Joliet	Rte. 6 and Young Rd.	-	-	20	22	21	24
Rockdale	Midland & Otis	33	+	34	26	24	25
ROCK ISLAND COUNTY							
East Moline	915 16th Ave.	25	21	20	20	20	24
Rock Island	1528 3rd Ave.	31	23	27	24	25	24
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)							
MADISON COUNTY							
Alton	409 Main St.	36	29	30	30	29	30
Granite City	23rd & Madison	41	33	35	37	33	36
Granite City	15th & Madison	50	44	+	46	39	47
Granite City	2420 Nameoki	39	29	35	31	29	31
Granite City	2040 Washington	-	40	45	41	40	37
South Roxana	211 Sinclair	41	28	32	30	27	29
Wood River	54 N. Walcott	36	26	32	29	26	25
RANDOLPH COUNTY							
Randolph Co. Site B	0.00 N. & 25.0 E.	49	28	38	33	28	31
ST. CLAIR COUNTY							
East St. Louis	13th St. & Tudor Ave.	42	33	34	34	33	34
71 NORTH CENTRAL ILLINOIS INTRASTATE							
LASALLE COUNTY							
Oglesby	308 Portland Ave.	40	29	35	31	29	28
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)							
WINNEBAGO COUNTY							
Rockford	333 15th Ave.	21	16	19	19	18	26
74 SOUTHEAST ILLINOIS INTRASTATE							
JACKSON COUNTY							
Carbondale	607 E. College	31	+	20	24	19	22

\- Station not in operation during the year.

\+ Did not meet minimum statistical selection criteria (See Appendix B.1).

Primary Annual Standard 50 ug/m^3

Table B5

1997
SHORT-TERM TRENDS
PARTICULATE MATTER (PM_{10})

STATION	ADDRESS	ANNUAL ARITHMETIC MEANS (ug/m^3) 1992	1993	1994	1995	1996	1997
75 WEST CENTRAL ILLINOIS INTRASTATE							
ADAMS COUNTY							
Quincy	732 Hampshire	+	20	25	23	21	20
MACON COUNTY							
Decatur	2300 Geddes	38	28	29	30	28	27
MACOUPIN COUNTY							
Nilwood	Heaton & DuBois	24	19	20	18	17	19
SANGAMON COUNTY							
Springfield	State Fair Grounds	-	-	-	-	-	23

\- Station not in operation during the year.

\+ Did not meet minimum statistical selection criteria (See Appendix B.1).

Primary Annual Standard 50 ug/m^3

Table B6

1997
CARBON MONOXIDE
(parts per million)

STATION	ADDRESS	NUMBER OF SAMPLES TOTAL	1-HR >35 PPM	8-HR >9 PPM	HIGHEST SAMPLES (ppm) 1-HOUR AVERAGE 1ST	2ND	3RD	8-HOUR AVERAGE 1ST	2ND	3RD
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)										
PEORIA COUNTY										
Peoria	1005 N. University	8636	0	0	7.7	7.7	7.4	5.9	4.7	4.7
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)										
COOK COUNTY										
Calumet City	1703 State St.	8707	0	0	5.1	5.1	4.7	3.4	3.2	3.0
Chicago - CTA Building	320 S. Franklin	8702	0	0	7.2	5.0	4.8	3.8	3.0	2.8
Cicero	1830 S. 51st Ave.	8710	0	0	5.3	5.0	4.9	3.7	3.5	2.9
Des Plaines	Scott St & Tollplaza Rd	8379	0	0	5.6	5.5	4.4	3.0	2.9	2.9
Hoffman Estates	1100 W. Higgins Rd	8638	0	0	3.2	2.5	2.4	2.1	1.9	1.9
Maywood	1505 S. First Ave	8684	0	0	6.8	6.8	6.5	5.4	5.3	4.6
Schiller Park	4243 N. Mannheim	8682	0	0	4.2	3.8	3.7	3.2	2.8	2.6
WILL COUNTY										
Braidwood	36400 S. Essex Rd.	8609	0	0	1.4	1.4	1.3	1.0	1.0	1.0
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)										
MADISON COUNTY										
Granite City	2001 Edison	8562	0	0	6.2	6.1	5.5	3.4	3.2	3.1
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)										
WINNEBAGO COUNTY										
Rockford	425 E. State	8704	0	0	8.3	6.1	5.9	4.1	3.7	3.6
75 WEST CENTRAL ILLINOIS INTRASTATE										
Macoupin County										
Nilwood	Heaton & DuBois	8462	0	0	1.3	1.2	1.1	1.1	1.0	0.9
SANGAMON COUNTY										
Springfield	6th & Monroe	8266	0	0	4.4	3.5	3.3	2.1	2.1	2.1

Primary 1-Hour Standard 35 ppm; Primary 8-Hour Standard 9 ppm

Table B7

1997
SULFUR DIOXIDE
(parts per million)

STATION	ADDRESS	NUMBER OF SAMPLES TOTAL	3-HR > 0.5	24-HR > 0.14	HIGHEST SAMPLES 3-HR AVG. 1ST	3-HR AVG. 2ND	24-HR AVG. 1ST	24-HR AVG. 2ND	ANNUAL ARITHMETIC MEAN
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)									
PEORIA COUNTY									
Peoria	Hurlburt & MacArthur	8646	0	0	0.202	0.174	0.057	0.041	0.007
TAZEWELL COUNTY									
Pekin	272 Derby	8291	0	0	0.278	0.272	0.088	0.054	0.007
66 EAST CENTRAL ILLINOIS INTRASTATE									
CHAMPAIGN COUNTY									
Champaign	606 E. Grove	8634	0	0	0.100	0.058	0.024	0.019	0.004
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)									
COOK COUNTY									
Bedford Park	7800 W. 65th St.	8721	0	0	0.106	0.103	0.044	0.042	0.008
Blue Island	12700 Sacramento	8467	0	0	0.103	0.091	0.053	0.047	0.007
Calumet City	1703 State Sr.	8689	0	0	0.043	0.041	0.020	0.017	0.004
Chicago - CTA	320 S. Franklin	8665	0	0	0.110	0.100	0.033	0.030	0.005
Chicago - SE Police	103rd & Luella	8722	0	0	0.052	0.051	0.015	0.015	0.002
Chicago - University	5720 S. Ellis	8709	0	0	0.038	0.035	0.020	0.019	0.004
Chicago - Washington ES	3611 E. 114th St.	8625	0	0	0.071	0.056	0.023	0.021	0.006
Cicero	1830 S. 51st Ave.	8698	0	0	0.083	0.072	0.033	0.031	0.006
Lemont	729 Houston	8599	0	0	0.077	0.065	0.032	0.032	0.005
DuPAGE COUNTY									
Lisle	Morton Arboretum	8639	0	0	0.063	0.049	0.022	0.019	0.004
WILL COUNTY									
Joliet	Rte 6 & Young Rd.	8558	0	0	0.072	0.070	0.028	0.022	0.005
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)									
ROCK ISLAND COUNTY									
Moline	30 18th St.	8695	0	0	0.035	0.034	0.020	0.016	0.002

Primary 24-Hour Standard 0.14 ppm; Primary Annual Standard 0.03 ppm

Table B7

1997
SULFUR DIOXIDE
(parts per million)

STATION	ADDRESS	NUMBER OF SAMPLES TOTAL	3-HR > 0.5	24-HR > 0.14	HIGHEST SAMPLES 3-HR AVG. 1ST	3-HR AVG. 2ND	24-HR AVG. 1ST	24-HR AVG. 2ND	ANNUAL ARITHMETIC MEAN
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)									
MADISON COUNTY									
Alton	409 Main St.	8675	0	0	0.152	0.087	0.050	0.046	0.007
Granite City	2001 Edison	8578	0	0	0.094	0.081	0.037	0.036	0.006
South Roxana	Michigan Ave.	8679	0	0	0.463	0.150	0.089	0.067	0.010
Wood River	54 N. Walcott	8701	0	0	0.137	0.084	0.025	0.022	0.006
Wood River	1710 Vaughn Rd.	8679	0	0	0.161	0.131	0.062	0.058	0.009
RANDOLPH COUNTY									
Houston	Twp Rd 150 & Twp Rd 45	8622	0	0	0.446	0.238	0.076	0.050	0.005
ST. CLAIR COUNTY									
East St. Louis	13th & Tudor	8663	0	0	0.201	0.097	0.057	0.055	0.009
Marissa	Risdon School Rd.	8606	0	0	0.197	0.172	0.039	0.037	0.005
Sauget	Little Ave.	8658	0	0	0.186	0.166	0.076	0.070	0.009
74 SOUTHEAST ILLINOIS INTRASTATE									
WABASH COUNTY									
Mount Carmel	Division St	8346	0	0	0.152	0.148	0.043	0.041	0.007
Rural Wabash County	South of SR-1	8118	0	0	0.121	0.102	0.038	0.034	0.007
75 WEST CENTRAL ILLINOIS INTRASTATE									
ADAMS COUNTY									
Quincy	732 Hampshire	8670	0	0	0.113	0.095	0.057	0.035	0.004
MACON COUNTY									
Decatur	2200 N. 22nd St.	8229	0	0	0.053	0.050	0.031	0.025	0.006
MACOUPIN COUNTY									
Nilwood	Heaton & DuBois	8619	0	0	0.034	0.034	0.019	0.018	0.003
SANGAMON COUNTY									
Springfield	Sewage Plant	8643	0	0	0.199	0.168	0.064	0.050	0.006

Primary 24-Hour Standard 0.14 ppm; Primary Annual Standard 0.03 ppm

Table B8

1997
SHORT-TERM TRENDS
SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEANS (ppm) 1992	1993	1994	1995	1996	1997
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)							
PEORIA COUNTY							
Peoria	Hurlburt & MacArthur	0.006	0.006	0.006	0.007	0.007	0.007
TAZEWELL COUNTY							
Pekin	272 Derby	0.007	0.006	0.007	0.008	0.006	0.007
66 EAST CENTRAL ILLINOIS INTRASTATE							
CHAMPAIGN COUNTY							
Champaign	606 E. Grove	0.003	+	0.004	0.003	0.003	0.004
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)							
COOK COUNTY							
Bedford Park	7800 W. 65th St.	0.009	0.008	0.009	0.009	0.007	0.008
Blue Island	12700 Sacramento	0.008	0.008	0.007	0.005	0.005	0.007
Calumet City	1703 State St.	0.005	0.005	0.005	0.005	0.003	0.004
Chicago -CTA	320 S. Franklin	-	-	-	+	0.005	0.005
Chicago - SE Police	103rd & Luella	0.003	0.003	0.003	0.003	0.002	0.002
Chicago - University	5720 S. Ellis	+	0.004	0.004	0.004	0.003	0.004
Chicago - Washington ES	3611 E. 114th St.	0.005	0.006	0.005	0.006	0.005	0.006
Cicero	1830 S. 51st Ave.	0.006	0.005	0.005	0.004	0.004	0.006
Lemont	729 Houston	0.005	0.007	0.007	0.005	0.006	0.005
DuPAGE COUNTY							
Lisle	Morton Arboretum	0.004	0.004	0.003	0.003	0.003	0.004
WILL COUNTY							
Joliet	Rte 6 & Young Rd.	0.004	0.004	0.004	0.004	0.004	0.005
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)							
ROCK ISLAND COUNTY							
Moline	30 18th St.	0.002	0.003	0.003	0.003	0.002	0.002

- Station not in operation during year shown

+ Did not meet minimum statistical selection criteria (See Section B.1)

Primary Annual Standard 0.03 ppm

Table B8

1997
SHORT-TERM TRENDS
SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEANS (ppm) 1992	1993	1994	1995	1996	1997
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)							
MADISON COUNTY							
Alton	409 Main St.	0.007	0.007	0.008	0.010	0.009	0.007
Granite City	2001 Edison	-	-	-	0.007	0.006	0.006
South Roxanna	Michigan Ave.	0.010	0.011	0.012	0.011	0.010	0.010
Wood River	54 N. Walcott	0.008	0.007	0.006	0.007	0.007	0.006
Wood River	1710 Vaughn Rd.	-	-	0.012	0.012	0.011	0.009
RANDOLPH COUNTY							
Houston	Twp Rd 150 & Twp Rd 45	0.005	0.005	0.006	0.006	0.006	0.005
ST. CLAIR COUNTY							
East St. Louis	13th & Tudor	0.012	0.010	0.010	0.009	0.009	0.009
Marissa	Risdon School Rd.	0.008	0.005	0.007	0.005	0.004	0.005
Sauget	Little Ave.	0.008	0.008	0.008	0.009	0.009	0.009
74 SOUTHEAST ILLINOIS INTRASTATE							
WABASH COUNTY							
Mount Carmel	Division St.	0.007	0.013	0.012	0.011	0.009	0.007
Rural Wabash County	South of SR-1	0.009	0.011	0.011	0.009	0.009	0.007
75 WEST CENTRAL ILLINOIS INTRASTATE							
ADAMS COUNTY							
Quincy	732 Hampshire	0.005	0.003	0.005	0.005	0.004	0.004
MACON COUNTY							
Decatur	2200 N. 22nd St.	0.004	0.005	0.006	0.005	0.005	0.006
MACOUPIN COUNTY							
Nilwood	Heaton & DuBois	0.003	0.003	0.003	0.003	0.002	0.003
SANGAMON COUNTY							
Springfield	Sewage Plant	0.006	0.006	0.006	0.006	0.006	0.006

\- Station not in operation during year shown

\+ Did not meet minimum statistical selection criteria (See Section B.1)

Primary Annual Standard 0.03 ppm

Table B9

1997
NITROGEN DIOXIDE
(parts per million)

STATION	ADDRESS	NUMBER OF SAMPLES	HIGHEST SAMPLES 1-HOUR 1ST	1-HOUR 2ND	24-HOUR 1ST	24-HOUR 2ND	ANNUAL ARITHMETIC MEAN
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)							
COOK COUNTY							
Calumet City	1703 State St.	8677	0.087	0.087	0.055	0.049	0.024
Chicago - CTA	320 S. Franklin	8539	0.113	0.111	0.066	0.065	0.034
Chicago - Jardine [1]	1000 E. Ohio	3950	0.085	0.082	0.045	0.038	+
Chicago - University	5720 S. Ellis	8628	0.085	0.080	0.051	0.049	0.024
Cicero	1830 S. 51st Ave.	8676	0.106	0.099	0.064	0.063	0.027
Northbrook	750 Dundee Rd.	5377	0.081	0.073	0.037	0.035	+
Schiller Park	4243 N. Mannheim	8508	0.096	0.091	0.055	0.054	0.031
LAKE COUNTY							
Zion [1]	Camp Logan	3491	0.067	0.064	0.024	0.021	+
Will County							
Braidwood	36400 S. Essex Rd.	8415	0.052	0.049	0.024	0.023	0.009
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)							
ST. CLAIR COUNTY							
East St. Louis	13th & Tudor	8524	0.062	0.061	0.038	0.031	0.019

[1] PAMS monitor operated only during “ozone season”

\+ Did nor meet minimum statistical selection criteria (See Appendix B.1)

Primary Annual Standard 0.053 ppm

Table B10

1997
SHORT-TERM TRENDS
NITROGEN DIOXIDE

STATION	ADDRESS	ANNUAL MEANS (ppm) 1992	1993	1994	1995	1996	1997
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)							
COOK COUNTY							
Calumet City	1703 State St.	0.022	0.021	0.024	0.024	0.022	0.024
Chicago - CTA	320 S. Franklin	0.029	0.030	0.032	0.032	0.031	0.034
Chicago - University	5720 S. Ellis	+	0.023	0.025	0.027	0.024	0.024
Cicero	1820 S. 51st St.	0.025	0.025	0.026	0.027	0.027	0.027
Northbrook	750 Dundee Rd.	-	-	-	-	-	+
Schiller Park	4243 N. Mannheim	0.029	0.027	0.032	0.030	0.032	0.031
Will County							
Braidwood	36400 S. Essex Rd.	-	-	-	+	0.009	0.009
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)							
ST. CLAIR COUNTY							
East St. Louis	13th & Tudor	0.019	0.019	0.020	0.021	0.020	0.019

- Station not in operation during year shown

+ Did not meet minimum statistical selection criteria (See Section B.1)

Primary Annual Standard 0.053 ppm

Table B11

1997
LEAD
(micrograms per cubic meter)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5	QUARTERLY AVERAGES 1st	2nd	3rd	4th	ANNUAL MEAN
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)							
PEORIA COUNTY							
Peoria	613 N.E. Jefferson	0	0.01	0.01	0.02	0.02	0.02
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)							
COOK COUNTY							
Alsip	4500 W. 123rd St.	0	0.02	0.03	0.02	0.02	0.02
Bedford Park	7800 W. 65th St.	0	0.02	0.02	0.02	0.02	0.02
Chicago - Bright	10740 S. Calhoun	0	0.02	0.05	0.04	0.03	0.03
Chicago - Cermak	735 W. Harrison	0	0.05	0.08	0.07	0.08	0.07
Chicago - Mayfair	4850 Wilson Ave.	0	0.01	0.03	0.03	0.02	0.02
Chicago - Washington	3535 E. 114th St.	0	0.05	0.04	+	0.03	+
Chicago - Horsehead 1	2701 E. 114th St.	0	0.05	0.09	-	-	+
Chicago - Horsehead 2	2701 E. 114th St.	0	0.13	0.33	-	-	+
Chicago - Horsehead 3	2701 E. 114th St.	0	0.23	0.24	-	-	+
Maywood	1500 Maybrook Dr.	0	0.05	0.05	0.05	0.04	0.05
Schiller Park	4243 N. Mannheim Rd.	0	0.01	0.02	0.02	0.02	0.02
Summit	60th St. & 74th Ave.	0	0.02	0.04	0.03	0.03	0.03
DuPAGE COUNTY							
Bensenville	711 E. Jefferson	0	0.03	0.04	0.03	0.03	0.03
WILL COUNTY							
Joliet	Midland & Campbell Sts.	0	0.02	0.02	0.02	0.01	0.02
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)							
ROCK ISLAND COUNTY							
East Moline	915 16th Ave.	0	0.01	0.01	0.02	0.01	0.01

+ Station did not meet minimum statistical selection criteria (See Section B.1).

Primary Quarterly Standard 1.5 ug/m3

Table B11

1997
LEAD
(micrograms per cubic meter)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5	QUARTERLY AVERAGES 1st	2nd	3rd	4th	ANNUAL MEAN
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)							
MADISON COUNTY							
Granite City	23rd & Madison	0	0.02	0.03	0.06	0.07	0.05
Granite City	15th & Madison	0	0.10	0.09	0.17	0.08	0.11
Granite City	2044 Washington	0	0.03	0.04	0.08	0.07	0.05
Wood River	54 N. Walcott	0	0.04	0.07	0.10	0.08	0.07
Chemetco - 1N	Rural County	1	1.08	1.16	1.08	2.11	1.45
Chemetco - 2E	Rural County	0	1.43	1.03	0.85	0.91	1.03
Chemetco - 4SE	Rural County	0	0.88	0.44	0.24	0.27	0.43
ST. CLAIR COUNTY							
East St. Louis	13th St. & Tudor Ave.	0	0.05	0.05	0.18	0.10	0.09
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)							
WINNEBAGO COUNTY							
Rockford	204 S. 1st St.	0	0.01	0.03	0.02	0.03	0.02
75 WEST CENTRAL ILLINOIS INTRASTATE							
MACON COUNTY							
Decatur	2300 Geddes	0	0.02	0.02	0.03	0.02	0.02
MACOUPIN COUNTY							
Nilwood	Heaton & DuBois	0	0.01	0.01	0.01	0.01	0.01

Primary Quarterly Standard 1.5 ug/m3

Table B12

1997
FILTER ANALYSIS DATA
(micrograms per cubic meter)

STATION	ADDRESS	TOTAL SAMPLES	HIGHEST 1st	HIGHEST 2nd	ARITH. MEAN	TOTAL SAMPLES	HIGHEST 1st	HIGHEST 2nd	ARITH. MEAN
			ARSENIC				**BERYLLIUM**		
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)									
PEORIA COUNTY									
Peoria	613 N.E. Jefferson	58	0.003	0.003	0.001	58	0.000	0.000	0.000
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)									
COOK COUNTY									
Alsip	500 W. 123rd. St.	58	0.005	0.004	0.001	NA			
Bedford Park	7800 W. 65th St.	60	0.007	0.004	0.001	NA			
Chicago - Bright	10740 S. Calhoun	59	0.005	0.004	0.001	NA			
Chicago - Cermak	735 W. Harrison	59	0.004	0.004	0.001	NA			
Chicago - Mayfair	4850 Wilson Ave	60	0.007	0.004	0.001	NA			
Chicago - Washington	3535 E. 114th St.	43	0.005	0.004	+	NA			
Maywood	1500 Maybrook Dr.	59	0.006	0.004	0.002	NA			
Schiller Park	4243 N. Mannheim Rd.	59	0.003	0.003	0.001	59	0.000	0.000	0.000
Summit	60th St. & 74th Ave.	60	0.007	0.003	0.001	NA			
DuPAGE COUNTY									
Bensenville	711E. Jefferson	58	0.004	0.002	0.001	58	0.000	0.000	0.000
WILL COUNTY									
Joliet	Midland & Campbell Sts.	60	0.004	0.002	0.000	60	0.000	0.000	0.000
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)									
ROCK ISLAND COUNTY									
East Moline	915 16th Ave.	58	0.003	0.002	0.001	58	0.000	0.000	0.000
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)									
MADISON COUNTY									
Granite City	23rd & Madison `	60	0.007	0.006	0.002	60	0.000	0.000	0.000
Granite City	15th & Madison	55	0.011	0.008	0.003	55	0.000	0.000	0.000
Granite City	2044 Washington	59	0.010	0.009	0.003	59	0.000	0.000	0.000
Wood River	54 N. Walcott	57	0.005	0.005	0.002	57	0.000	0.000	0.000
ST. CLAIR COUNTY									
East St. Louis	13th St. & Tudor Ave.	57	0.009	0.008	0.002	57	0.000	0.000	0.000
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)									
WINNEBAGO COUNTY									
Rockford	204 S. 1st St.	61	0.003	0.003	0.001	61	0.000	0.000	0.000
75 WEST CENTRAL ILLINOIS INTRASTATE									
MACON COUNTY									
Decatur	2300 Geddes	59	0.005	0.003	0.001	59	0.000	0.000	0.000
MACOUPIN COUNTY									
Nilwood	Heaton & DuBois	60	0.002	0.001	0.000	60	0.000	0.000	0.000

Table B12

1997
FILTER ANALYSIS DATA
(micrograms per cubic meter)

STATION	ADDRESS	CADMIUM TOTAL SAMPLES	CADMIUM HIGHEST 1st	CADMIUM HIGHEST 2nd	CADMIUM ARITH. MEAN	CHROMIUM TOTAL SAMPLES	CHROMIUM HIGHEST 1st	CHROMIUM HIGHEST 2nd	CHROMIUM ARITH. MEAN
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)									
PEORIA COUNTY									
Peoria	613 N.E. Jefferson	58	0.000	0.000	0.000	60	0.003	0.000	0.000
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)									
COOK COUNTY									
Alsip	4500 W. 123rd. St.	58	0.004	0.004	0.002	58	0.017	0.012	0.004
Bedford Park	7800 W. 65th St.	60	0.011	0.007	0.002	59	0.009	0.008	0.005
Chicago - Bright	10740 S. Calhoun	59	0.004	0.004	0.002	59	0.015	0.012	0.006
Chicago - Cermak	735 W. Harrison	59	0.046	0.014	0.004	59	0.013	0.012	0.008
Chicago - Mayfair	4850 Wilson Ave	60	0.006	0.005	0.002	60	0.013	0.013	0.007
Chicago - Washington	3535 E. 114th St.	43	0.006	0.005	+	43	0.013	0.013	+
Maywood	1500 Maybrook Dr.	59	0.005	0.005	0.003	59	0.025	0.022	0.011
Schiller Park	4243 N. Mannheim Rd.	59	0.007	0.000	0.000	59	0.003	0.003	0.000
Summit	60th St. & 74th Ave.	60	0.007	0.004	0.002	60	0.031	0.015	0.006
DuPAGE COUNTY									
Bensenville	711 E. Jefferson	58	0.002	0.000	0.000	58	0.003	0.003	0.000
WILL COUNTY									
Joliet	Midland & Campbell Sts.	60	0.002	0.000	0.000	60	0.003	0.003	0.000
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)									
ROCK ISLAND COUNTY									
East Moline	915 16th Ave.	58	0.000	0.000	0.000	58	0.000	0.000	0.000
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)									
MADISON COUNTY									
Granite City	23rd & Madison	60	0.027	0.017	0.002	60	0.078	0.048	0.008
Granite City	15th & Madison	55	0.031	0.012	0.002	55	0.026	0.021	0.006
Granite City	2044 Washington	59	0.035	0.029	0.002	59	0.016	0.013	0.004
Wood River	54 N. Walcott	57	0.017	0.012	0.001	57	0.003	0.003	0.000
ST. CLAIR COUNTY									
East St. Louis	13th St. & Tudor Ave.	57	0.080	0.068	0.008	57	0.006	0.003	0.000
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)									
WINNEBAGO COUNTY									
Rockford	204 S. 1st St.	61	0.007	0.000	0.000	61	0.003	0.003	0.000
75 WEST CENTRAL ILLINOIS INTRASTATE									
MACON COUNTY									
Decatur	2300 Geddes	59	0.011	0.000	0.000	59	0.003	0.003	0.000
MACOUPIN COUNTY									
Nilwood	Heaton & DuBois	60	0.000	0.000	0.000	61	0.000	0.000	0.000

Table B12

1997
FILTER ANALYSIS DATA
(micrograms per cubic meter)

STATION	ADDRESS	TOTAL SAMPLES	HIGHEST 1st	HIGHEST 2nd	ARITH. MEAN	TOTAL SAMPLES	HIGHEST 1st	HIGHEST 2nd	ARITH. MEAN
			IRON				**MANGANESE**		
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)									
PEORIA COUNTY									
Peoria	613 N.E. Jefferson	58	2.07	1.63	0.52	58	0.118	0.093	0.026
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)									
COOK COUNTY									
Alsip	4500 W. 123rd. St.	58	1.76	1.73	0.62	58	0.130	0.097	0.035
Bedford Park	7800 W. 65th St.	60	1.49	1.34	0.72	60	0.123	0.091	0.032
Chicago - Bright	10740 S. Calhoun	59	4.39	3.98	1.17	59	0.663	0.610	0.148
Chicago - Cermak	735 W. Harrison	59	8.67	4.87	1.93	59	0.151	0.144	0.068
Chicago - Mayfair	4850 Wilson Ave	60	5.47	2.69	1.25	61	0.158	0.150	0.061
Chicago - Washington	3535 E. 114th St.	43	4.49	3.09	+	43	0.736	0.603	+
Maywood	1500 Maybrook Dr.	59	9.54	8.72	3.19	59	0.298	0.272	0.123
Schiller Park	4243 N. Mannheim Rd.	60	1.68	1.55	0.94	60	0.054	0.051	0.032
Summit	60th St. & 74th Ave.	60	6.74	2.68	0.91	60	0.158	0.142	0.038
DuPAGE COUNTY									
Bensenville	711 E. Jefferson	58	5.69	1.57	0.76	58	0.056	0.055	0.023
WILL COUNTY									
Joliet	Midland & Campbell Sts.	60	0.92	0.80	0.41	60	0.101	0.060	0.020
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)									
ROCK ISLAND COUNTY									
East Moline	915 16th Ave.	58	2.07	1.63	0.52	58	0.118	0.093	0.026
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)									
MADISON COUNTY									
Granite City	23rd & Madison	60	10.17	6.36	1.97	60	1.663	0.963	0.218
Granite City	15th & Madison	55	16.21	8.11	2.77	55	0.826	0.553	0.175
Granite City	2044 Washington	59	9.31	7.14	2.06	59	0.729	0.617	0.171
Wood River	54 N. Walcott	57	2.46	1.04	0.51	57	0.098	0.063	0.025
ST. CLAIR COUNTY									
East St. Louis	13th St. & Tudor Ave.	57	1.91	1.68	0.81	57	0.097	0.095	0.038
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)									
WINNEBAGO COUNTY									
Rockford	204 S. 1st St.	61	3.17	1.89	0.60	61	0.152	0.147	0.027
75 WEST CENTRAL ILLINOIS INTRASTATE									
MACON COUNTY									
Decatur	2300 Geddes	59	2.21	1.16	0.51	59	0.060	0.055	0.024
MACOUPIN COUNTY									
Nilwood	Heaton & DuBois	60	0.72	0.48	0.20	60	0.026	0.021	0.008

Table B12

1997
FILTER ANALYSIS DATA
(micrograms per cubic meter)

STATION	ADDRESS	TOTAL SAMPLES	HIGHEST 1st	HIGHEST 2nd	ARITH. MEAN	TOTAL SAMPLES	HIGHEST 1st	HIGHEST 2nd	ARITH. MEAN
			NICKEL				**SELENIUM**		
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)									
PEORIA COUNTY									
Peoria	613 N.E. Jefferson	58	0.046	0.000	0.001	58	0.003	0.003	0.001
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)									
COOK COUNTY									
Alsip	4500 W. 123rd. St.	58	0.023	0.011	0.007	NA			
Bedford Park	7800 W. 65th St.	60	0.012	0.011	0.007	NA			
Chicago - Bright	10740 S. Calhoun	59	0.014	0.014	0.008	NA			
Chicago - Cermak	735 W. Harrison	59	0.018	0.014	0.009	NA			
Chicago - Mayfair	4850 Wilson Ave	60	0.015	0.013	0.007	NA			
Chicago - Washington	3535 E. 114th St.	43	0.043	0.013	+	NA			
Maywood	1500 Maybrook Dr.	59	0.019	0.019	0.010	NA			
Schiller Park	4243 N. Mannheim Rd.	59	0.007	0.000	0.000	59	0.003	0.003	0.001
Summit	60th St. & 74th Ave.	60	0.032	0.012	0.007	NA			
DuPAGE COUNTY									
Bensenville	711 E. Jefferson	58	0.010	0.007	0.000	58	0.002	0.002	0.001
WILL COUNTY									
Joliet	Midland & Campbell Sts.	60	0.000	0.000	0.000	60	0.003	0.003	0.001
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)									
ROCK ISLAND COUNTY									
East Moline	915 16th Ave.	58	0.000	0.000	0.000	58	0.013	0.002	0.001
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)									
MADISON COUNTY									
Granite City	23rd & Madison	60	0.000	0.000	0.000	60	0.006	0.004	0.001
Granite City	15th & Madison	55	0.070	0.010	0.002	55	0.006	0.004	0.001
Granite City	2044 Washington	59	0.007	0.006	0.000	59	0.004	0.004	0.001
Wood River	54 N. Walcott	57	0.035	0.006	0.001	57	0.003	0.003	0.001
ST. CLAIR COUNTY									
East St. Louis	13th St. & Tudor Ave.	57	0.010	0.006	0.000	57	0.005	0.004	0.001
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)									
WINNEBAGO COUNTY									
Rockford	204 S. 1st St.	61	0.013	0.000	0.000	61	0.004	0.002	0.001
75 WEST CENTRAL ILLINOIS INTRASTATE									
MACON COUNTY									
Decatur	2300 Geddes	59	0.019	0.006	0.001	59	0.004	0.003	0.001
MACOUPIN COUNTY									
Nilwood	Heaton & DuBois	60	0.000	0.000	0.000	60	0.003	0.002	0.001

Table B12

1997
FILTER ANALYSIS DATA
(micrograms per cubic meter)

STATION	ADDRESS	TOTAL SAMPLES	HIGHEST 1st	HIGHEST 2nd	ARITH. MEAN	TOTAL SAMPLES	HIGHEST 1st	HIGHEST 2nd	ARITH. MEAN
				VANADIUM					
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)									
PEORIA COUNTY									
Peoria	613 N.E. Jefferson	58	0.005	0.003	0.000				
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)									
COOK COUNTY									
Alsip	4500 W. 123rd. St.	NA							
Bedford Park	7800 W. 65th St.	NA							
Chicago - Bright	10740 S. Calhoun	NA							
Chicago - Cermak	735 W. Harrison	NA							
Chicago - Mayfair	4850 Wilson Ave	NA							
Chicago - Washington	3535 E. 114th St.	NA							
Maywood	1500 Maybrook Dr.	NA							
Schiller Park	4243 N. Mannheim Rd.	59	0.008	0.002	0.000				
Summit	60th St. & 74th Ave.	NA							
DuPAGE COUNTY									
Bensenville	711 E. Jefferson	58	0.007	0.006	0.000				
WILL COUNTY									
Joliet	Midland & Campbell Sts.	60	0.010	0.000	0.000				
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)									
ROCK ISLAND COUNTY									
East Moline	915 16th Ave.	58	0.000	0.000	0.000				
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)									
MADISON COUNTY									
Granite City	23rd & Madison	60	0.120	0.067	0.011				
Granite City	15th & Madison	55	0.021	0.018	0.006				
Granite City	2044 Washington	59	0.015	0.015	0.004				
Wood River	54 N. Walcoot	57	0.010	0.008	0.001				
ST. CLAIR COUNTY									
East St. Louis	13th St. & Tudor Ave.	57	0.023	0.006	0.001				
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)									
WINNEBAGO COUNTY									
Rockford	204 S. 1st St.	61	0.000	0.000	0.000				
75 WEST CENTRAL ILLINOIS INTRASTATE									
MACON COUNTY									
Decatur	2300 Geddes	59	0.000	0.000	0.000				
MACOUPIN COUNTY									
Nilwood	Heaton & DuBois	60	0.002	0.002	0.000				

Table B12

1997
FILTER ANALYSIS DATA
(micrograms per cubic meter)

STATION	ADDRESS	NITRATES TOTAL SAMPLES	NITRATES HIGHEST 1st	NITRATES HIGHEST 2nd	NITRATES ARITH. MEAN	SULFATES TOTAL SAMPLES	SULFATES HIGHEST 1st	SULFATES HIGHEST 2nd	SULFATES ARITH. MEAN
65 BURLINGTON - KEOKUK INTERSTATE (IA - IL)									
PEORIA COUNTY									
Peoria	613 N.E. Jefferson	58	15.1	12.0	5.1	58	13.7	13.5	8.0
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)									
COOK COUNTY									
Alsip	4500 W. 123rd. St.	58	21.5	12.7	6.0	58	24.2	13.7	7.7
Bedford Park	7800 W. 65th St.	60	12.9	11.7	5.3	60	14.8	12.9	7.5
Chicago - Bright	10740 S. Calhoun	59	15.1	12.4	5.9	59	18.4	16.3	8.3
Chicago - Cermak	735 W. Harrison	59	17.6	15.2	6.6	59	16.5	14.6	8.7
Chicago - Mayfair	4850 Wilson Ave	60	19.7	12.2	6.2	60	13.9	12.9	7.3
Chicago - Washington	3535 E. 114th St.	43	10.1	9.4	+	43	19.5	15.6	+
Maywood	1500 Maybrook Dr.	58	17.7	11.4	5.5	58	26.7	25.1	9.7
Schiller Park	4243 N. Mannheim Rd.	59	13.1	12.0	5.9	59	17.3	15.3	9.1
Summit	60th St. & 74th Ave.	60	17.8	13.3	6.4	60	24.1	16.2	8.2
DuPAGE COUNTY									
Bensenville	711 E. Jefferson	58	17.4	15.3	5.9	58	15.7	12.4	7.3
WILL COUNTY									
Joliet	Midland & Campbell Sts.	60	15.1	10.6	5.7	60	15.6	14.1	8.1
69 METROPOLITAN QUAD CITIES INTERSTATE (IA - IL)									
ROCK ISLAND COUNTY									
East Moline	915 16th Ave.	58	11.6	8.9	4.6	58	11.1	11.0	6.8
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)									
MADISON COUNTY									
Granite City	23rd & Madison	60	11.8	10.7	5.3	60	26.9	22.6	10.1
Granite City	15th & Madison	55	11.0	9.5	5.1	55	26.3	16.0	10.1
Granite City	2044 Washington	59	10.4	9.7	4.7	59	23.4	17.9	9.6
Wood River	54 N. Walcott	57	9.3	9.1	5.0	57	19.9	18.4	9.2
ST. CLAIR COUNTY									
East St. Louis	13th St. & Tudor Ave.	57	10.7	10.0	5.0	57	23.2	20.0	9.9
73 ROCKFORD - JANESVILLE - BELOIT INTERSTATE (IL - WI)									
WINNEBAGO COUNTY									
Rockford	204 S. 1st St.	61	14.5	12.2	5.3	61	13.8	13.4	6.7
75 WEST CENTRAL ILLINOIS INTRASTATE									
MACON COUNTY									
Decatur	2300 Geddes	59	11.9	11.8	5.1	59	20.7	16.5	9.0
MACOUPIN COUNTY									
Nilwood	Heaton & DuBois	60	10.4	10.0	4.6	60	16.2	13.9	7.8

Table B13

1997
(JUNE - AUGUST)

VOLATILE ORGANIC COMPOUNDS
(parts per billion carbon)

STATION	ADDRESS	HIGHEST SAMPLES (ppbc) 1-HOUR 1ST	1-HOUR 2ND	3-HOUR 1ST	3-HOUR 2ND	24-HOUR 1ST	24-HOUR 2ND	JUN - AUG AVERAGE
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)								
COOK COUNTY								
Chicago	1000 E. Ohio							
COMPOUNDS								
Ethane		47.7	39.3			11.7	11.6	5.4
Ethylene		41.8	38.4			11.5	8.5	2.7
Propane		40.4	39.9			10.9	9.9	3.8
Propylene	27.6	18.5			6.3	4.1	1.4	
Acetylene		18.9	18.5			5.3	5.3	1.7
N - Butane	37.4	30.1			9.3	7.3	3.2	
Isobutane		24.7	21.9			5.6	5.3	1.6
Trans - 2 - Butene		2.8	2.6			0.5	0.4	0.1
Cis - 2 - Butene		6.0	2.3			0.4	0.3	0.0
N - Pentane		31.4	25.5			8.7	8.6	2.9
Isopentane	73.7	73.0			20.5	17.3	6.7	
1 - Pentene		3.6	3.5			0.5	0.4	0.1
Trans - 2 - Pentene		4.6	4.3			0.8	0.6	0.1
Cis - 2 - Pentene		2.6	2.5			0.4	0.3	0.1
3 - Methylpentane		14.9	14.3			3.4	3.3	1.1
N - Hexane	15.6	14.5			4.2	3.8	1.1	
N - Heptane		8.9	6.4			1.9	1.6	0.5
N - Octane	3.7	3.4			0.8	0.7	0.2	
N - Nonane	15.2	11.2			1.9	1.7	0.3	
Cyclopentane		22.5	12.2			2.4	0.7	0.1
Isoprene		11.4	6.7			1.4	1.2	0.1
2,2 - Dimethylbutane		3.3	2.9			0.7	0.6	0.1
2 - Methyl - 1 - Pentene		3.4	2.5			0.6	0.1	0.0
2,4 - Dimethylpentane		29.6	14.4			2.3	1.9	0.4
Cyclohexane		8.8	5.7			1.1	0.7	0.1
3 - Methylhexane		10.6	9.8			2.5	2.4	0.7
2,2,4 - Trimethylpentane		110.2	60.2			10.3	8.1	2.3
2,3,4 - Trimethylpentane		33.1	21.0			3.5	2.6	0.7
3 - Methylheptane		10.2	3.0			0.6	0.6	0.1
Methylcyclohexane		4.6	4.5			0.9	0.8	0.2
Methylcyclopentane		15.9	10.8			2.8	2.5	0.7
2 - Methylhexane		10.1	8.1			1.9	1.9	0.5
1 - Butene	6.3	6.2			1.4	0.7	0.1	
2,3 - Dimethylbutane		13.1	11.0			2.6	2.4	0.6
2 - Methylpentane		22.7	21.7			5.7	5.1	1.8
2,3 - Dimethylpentane		60.2	25.9			4.3	3.5	0.7
2 - Methylheptane		3.4	3.4			0.5	0.5	0.1

Table B13

1997
(JUNE - AUGUST)

VOLATILE ORGANIC COMPOUNDS
(parts per billion carbon)

		HIGHEST SAMPLES (ppbc)						
		1-HOUR		3-HOUR		24-HOUR		JUN - AUG
STATION	ADDRESS	1ST	2ND	1ST	2ND	1ST	2ND	AVERAGE
COMPOUNDS								
Benzene		32.6	28.1			6.6	5.2	1.6
Toluene		62.5	62.3			16.0	14.0	5.2
Ethylbenzene		9.3	7.0			2.1	1.9	0.6
O - Xylene	21.5	11.3			3.4	2.5	0.7	
M/P Xylene	36.4	28.1			7.6	7.2	2.1	
1,3,5 - Trimethylbenzene		33.9	19.5			2.8	0.8	0.2
1,2,4 - Trimethylbenzene		19.1	15.7			3.1	3.0	1.3
N - Propylbenzene		2.5	2.4			0.4	0.4	0.1
Isopropylbenzene		6.4	5.8			1.1	0.9	0.1
Styrene		7.6	5.8			1.3	0.4	0.1
N-Decane	99.5	18.2			6.0	3.5	0.6	
N-Undecane		19.6	10.5			2.0	2.0	0.4
O-Ethyltolune		19.7	18.4			1.5	0.7	0.1
M-Ethyltolune		14.2	10.2			2.1	1.8	0.4
P-Ethyltolune		4.7	3.9			0.5	0.4	0.0
M-Diethylbenzene		23.4	19.5			2.6	0.7	0.1
P-Diethylbenzene		3.9	3.8			0.7	0.6	0.1
1,2,3 Trimethylbenzen		9.9	8.6			1.7	1.5	0.3
Formaldehyde[1]				8.0	7.5			3.4
Acetaldehyde[1]				3.6	3.6			0.9
Acetone[1]				7.0	6.0			2.4
Northbrook	750 Dundee Rd.							
COMPOUNDS								
Ethane		46.4	42.7			15.6	15.1	6.0
Ethylene		31.7	26.3			7.2	6.6	2.3
Propane		20.4	19.8			7.7	7.3	3.4
Propylene	15.1	13.7			3.9	2.6	1.1	
Acetylene		10.5	8.8			2.6	2.4	1.0
N - Butane	39.1	35.8			6.3	6.3	3.0	
Isobutane		49.8	24.8			3.8	3.7	1.5
Trans - 2 - Butene		2.1	1.3			0.3	0.3	0.1
Cis - 2 - Butene		1.9	1.1			0.2	0.2	0.0
N - Pentane		57.2	34.7			8.0	7.1	3.0
Isopentane	97.6	81.2			17.5	14.6	6.0	
1 - Pentene		4.0	2.4			0.6	0.5	0.2
Trans - 2 - Pentene		9.4	5.1			1.0	0.8	0.2
Cis - 2 - Pentene		5.1	2.8			0.5	0.4	0.1
3 - Methylpentane		11.6	11.0			3.4	2.8	0.9

[1] Values in ppb (volume)

Table B13

1997
(JUNE - AUGUST)

VOLATILE ORGANIC COMPOUNDS
(parts per billion carbon)

		HIGHEST SAMPLES (ppbc)						
		1-HOUR	3-HOUR		24-HOUR	JUN - AUG		
STATION	ADDRESS	1ST	2ND	1ST	2ND	1ST	2ND	AVERAGE
N - Hexane	30.8	15.2			4.2	4.0	1.3	
N - Heptane		14.3	6.4			1.8	1.8	0.5
N - Octane	6.2	3.1			0.7	0.7	0.2	
N - Nonane	15.1	13.6			2.4	2.3	0.4	
Cyclopentane		30.8	5.6			1.7	0.8	0.2
Isoprene		29.0	27.2			8.5	8.3	1.9
2,2 - Dimethylbutane		2.9	2.5			0.6	0.5	0.2
2 - Methyl - 1 - Pentene		13.6	4.7			1.0	0.7	0.1
2,4 - Dimethylpentane		19.4	7.6			2.0	1.7	0.4
Cyclohexane		6.1	3.1			0.8	0.8	0.2
3 - Methylhexane		15.1	8.6			2.4	2.1	0.7
2,2,4 - Trimethylpentane		70.3	25.8			7.7	6.1	1.9
2,3,4 - Trimethylpentane		23.1	8.6			2.5	2.0	0.5
3 - Methylheptane		6.5	2.4			0.6	0.5	0.1
Methylcyclohexane		10.6	5.5			1.2	1.2	0.3
Methylcyclopentane		19.3	9.4			2.6	2.4	0.7
2 - Methylhexane		13.8	7.3			2.0	1.8	0.5
1 - Butene	2.9	2.2			0.6	0.5	0.2	
2,3 - Dimethylbutane		6.3	5.8			1.8	1.4	0.4
2 - Methylpentane		23.6	18.1			5.3	4.4	1.6
2,3 - Dimethylpentane		33.0	12.8			3.5	3.1	0.9
2 - Methylheptane		5.7	2.6			0.6	0.6	0.2
Benzene		17.6	17.5			6.3	4.1	1.8
Toluene		76.6	54.6			16.0	12.9	5.0
Ethylbenzene		14.3	8.4			2.3	1.9	0.7
O - Xylene	23.5	13.0			3.0	2.6	0.8	
M/P Xylene	57.6	31.8			8.0	7.2	2.4	
1,3,5 - Trimethylbenzene		8.2	5.7			1.6	1.0	0.3
1,2,4 - Trimethylbenzene		23.3	13.2			3.4	3.0	1.0
N - Propylbenzene		3.9	2.3			0.6	0.6	0.1
Isopropylbenzene		4.3	3.4			0.5	0.5	0.1
Styrene		3.1	2.8			0.9	0.9	0.2
N-Decane	19.1	13.6			3.3	2.6	0.7	
N-Undecane		19.7	5.2			1.6	1.5	0.6
O-Ethyltolune		6.4	5.0			1.2	0.6	0.2
M-Ethyltolune		14.8	9.3			2.4	1.9	0.6
P-Ethyltolune		7.3	5.1			1.2	0.8	0.3
M-Diethylbenzene		4.9	4.9			1.0	0.6	0.2
P-Diethylbenzene		7.3	5.7			0.8	0.6	0.2
1,2,3 Trimethylbenzen		13.6	8.5			2.5	2.4	0.7
Formaldehyde[1]				13.5	10.2			4.6
Acetaldehyde[1]				7.4	4.9			1.6
Acetone[1]				11.9	8.3			4.2

[1] Values in ppb (volume)

Table B13

1997
(JUNE - AUGUST)

VOLATILE ORGANIC COMPOUNDS
(parts per billion carbon)

		HIGHEST SAMPLES (ppbc)						
		1-HOUR	3-HOUR		24-HOUR	JUN - AUG		
STATION	ADDRESS	1ST	2ND	1ST	2ND	1ST	2ND	AVERAGE
LAKE COUNTY								
Zion	Camp Logan							
COMPOUNDS								
Ethane		37.9	37.9			13.9	11.0	4.5
Ethylene		20.0	15.8			4.5	4.4	1.3
Propane		31.7	30.7			13.0	12.2	3.6
Propylene	12.2	12.1			9.6	9.2	2.0	
Acetylene		5.4	5.0			2.0	1.5	0.6
N - Butane	30.2	21.7			6.9	5.3	2.2	
Isobutane		22.1	13.8			3.9	3.3	1.0
Trans - 2 - Butene		1.3	1.2			0.3	0.2	0.0
Cis - 2 - Butene		0.9	0.9			0.1	0.1	0.0
N - Pentane		49.3	39.6			9.3	8.2	2.1
Isopentane	37.2	36.6			13.9	13.1	3.8	
1 - Pentene		1.9	1.7			0.6	0.3	0.1
Trans - 2 - Pentene		2.7	2.5			0.6	0.4	0.1
Cis - 2 - Pentene		1.5	1.5			0.2	0.2	0.0
3 - Methylpentane		8.4	6.6			3.0	2.4	0.4
N - Hexane	7.2	6.9			2.7	2.6	0.5	
N - Heptane		4.7	4.2			1.4	1.3	0.3
N - Octane	4.4	2.6			0.7	0.6	0.1	
N - Nonane	3.2	3.0			0.8	0.6	0.1	
Cyclopentane		8.6	6.1			1.2	0.8	0.1
Isoprene		50.6	43.4			15.0	12.7	3.3
2,2 - Dimethylbutane		2.3	1.6			0.6	0.5	0.1
2 - Methyl - 1 - Pentene		1.9	1.4			0.2	0.2	0.0
2,4 - Dimethylpentane		5.3	4.5			1.3	1.1	0.2
Cyclohexane		3.6	3.3			2.1	2.0	0.6
3 - Methylhexane		5.4	5.0			1.9	1.6	0.3
2,2,4 - Trimethylpentane		32.1	30.4			5.8	4.8	1.2
2,3,4 - Trimethylpentane		11.6	7.6			1.6	1.6	0.4
3 - Methylheptane		10.5	1.8			0.5	0.4	0.0
Methylcyclohexane		2.7	2.5			0.7	0.7	0.1
Methylcyclopentane		6.0	5.5			2.3	1.8	0.4
2 - Methylhexane		9.8	9.1			2.4	1.5	0.3
1 - Butene	2.1	1.7			0.3	0.3	0.1	
2,3 - Dimethylbutane		6.4	4.3			1.5	1.1	0.2
2 - Methylpentane		13.2	10.4			4.7	3.7	0.9
2,3 - Dimethylpentane		12.1	11.8			9.6	9.5	1.7
2 - Methylheptane		1.3	1.1			0.4	0.3	0.0
Benzene		9.3	9.2			4.1	3.3	1.1
Toluene		77.3	53.3			12.0	11.7	3.3
Ethylbenzene		10.4	8.7			1.9	1.8	0.5

Table B13

1997
(JUNE - AUGUST)

VOLATILE ORGANIC COMPOUNDS
(parts per billion carbon)

		HIGHEST SAMPLES (ppbc)						
		1-HOUR	3-HOUR		24-HOUR	JUN - AUG		
STATION	ADDRESS	1ST	2ND	1ST	2ND	1ST	2ND	AVERAGE
COMPOUNDS								
O - Xylene	8.5	7.5			2.3	1.6	0.5	
M/P Xylene	36.8	30.9			6.8	5.6	1.4	
1,3,5 - Trimethylbenzene		3.1	2.9			0.9	0.8	0.1
1,2,4 - Trimethylbenzene		8.5	7.2			2.6	2.0	0.5
N - Propylbenzene		2.7	1.5			0.4	0.4	0.1
Isopropylbenzene		2.5	1.8			0.5	0.3	0.0
Styrene		2.1	1.8			0.7	0.6	0.1
N-Decane	4.4	3.8			1.1	0.8	0.2	
N-Undecane		4.6	3.0			0.9	0.6	0.1
O-Ethyltolune		2.7	2.0			0.6	0.5	0.1
M-Ethyltolune		9.5	5.9			1.5	1.3	0.4
P-Ethyltolune		6.5	2.6			0.8	0.5	0.1
M-Diethylbenzene		2.3	2.2			0.5	0.3	0.0
P-Diethylbenzene		2.0	1.8			0.7	0.5	0.1
1,2,3 Trimethylbenzen		5.7	3.2			0.8	0.8	0.2
Formaldehyde[1]				9.2	8.6			3.9
Acetaldehyde[1]				5.3	3.9			1.2
Acetone[1]				6.7	6.3			3.0
WILL COUNTY								
Braidwood	36400 S. Essex Road							
COMPOUNDS								
Ethane				14.6	14.6			5.3
Ethylene				6.2	6.0			1.6
Propane				17.5	12.2			4.8
Propylene			5.6	5.6			1.1	
Acetylene				7.5	3.9			1.0
N - Butane			8.6	7.7			2.0	
Isobutane				12.3	12.3			1.3
Trans - 2 - Butene				0.9	0.7			0.0
Cis - 2 - Butene				0.4	0.0			0.0
N - Pentane				5.7	4.9			1.5
Isopentane			13.0	11.9			2.5	
1 - Pentene				1.1	0.9			0.1
Trans - 2 - Pentene				0.8	0.4			0.0
Cis - 2 - Pentene				0.0	0.0			0.0
3 - Methylpentane				5.2	3.2			0.9
N - Hexane			6.4	3.7			1.0	
N - Heptane				2.3	1.1			0.3

[1] Values in ppb (volume)

Table B13

1997
(JUNE - AUGUST)

VOLATILE ORGANIC COMPOUNDS
(parts per billion carbon)

		HIGHEST SAMPLES (ppbc)						
		1-HOUR		3-HOUR		24-HOUR		JUN - AUG
STATION	ADDRESS	1ST	2ND	1ST	2ND	1ST	2ND	AVERAGE
COMPOUNDS								
N - Octane			1.8	0.6			0.2	
N - Nonane			4.0	4.0			1.5	
Cyclopentane				0.4	0.0			0.0
Isoprene				20.2	18.6			3.4
2,2 - Dimethylbutane				0.0	0.0			0.0
2 - Methyl - 1 - Pentene				0.8	0.0			0.0
2,4 - Dimethylpentane				1.0	0.6			0.1
Cyclohexane				1.2	1.1			0.1
3 - Methylhexane				13.0	9.1			2.4
2,2,4 - Trimethylpentane				6.5	5.4			1.8
2,3,4 - Trimethylpentane				1.0	1.0			0.1
3 - Methylheptane				0.6	0.0			0.0
Methylcyclohexane				2.7	1.8			0.6
Methylcyclopentane				2.2	1.5			0.3
2 - Methylhexane				1.6	0.8			0.1
1 - Butene			7.1	5.9			2.5	
2,3 - Dimethylbutane				1.1	0.9			0.1
2 - Methylpentane				4.9	4.4			1.5
2,3 - Dimethylpentane				3.9	3.1			1.5
2 - Methylheptane				3.5	1.5			0.4
Benzene				3.3	3.3			0.9
Toluene				7.7	6.4			1.7
Ethylbenzene				1.2	1.2			0.2
O - Xylene			2.5	1.8			0.5	
M/P Xylene			4.4	3.9			1.1	
1,3,5 - Trimethylbenzene				1.4	1.0			0.1
1,2,4 - Trimethylbenzene				9.1	6.0			2.7
N - Propylbenzene				1.1	1.0			0.1
Isopropylbenzene				0.6	0.6			0.0
Styrene				9.5	6.3			2.3
N-Decane			1.6	1.4			0.3	
N-Undecane				4.4	4.1			0.6
O-Ethyltolune				7.5	6.5			1.1
M-Ethyltolune				2.0	1.4			0.2
P-Ethyltolune				10.6	4.0			0.5
M-Diethylbenzene				0.0	0.0			0.0
P-Diethylbenzene				1.0	1.0			0.3
1,2,3 Trimethylbenzen				14.0	4.0			1.0
Formaldehyde[1]				52.5	50.2			10.2
Acetaldehyde[1]				6.3	6.3			1.8
Acetone[1]				11.4	10.4			3.8

[1] Values in ppb (volume)

Table B14

1997

PARTICULATE MATTER FINE ($PM_{2.5}$)

(micrograms per cubic meter)

STATION	ADDRESS	SAMPLING FREQUENCY	NUMBER OF SAMPLES TOTAL	>50 ug/m^3	HIGHEST SAMPLES 1st	2nd	3rd	4th	ANNUAL ARITHMETIC MEAN
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)									
COOK COUNTY									
Alsip	4500 W. 123rd St.	6-day	60	0	27.0	23.5	22.2	22.0	12.5
Blue Island	12700 Sacramento	6-day	59	0	23.9	22.8	22.1	21.9	13.1
Chicago-Mayfair	4850 Wilson Ave.	6-day	61	0	32.2	27.2	26.3	26.0	14.3
Chicago-Washington HS	3535 E. 114th St.	6-day	36	0	29.5	24.2	22.6	21.0	+
Lyons Township	50th St. & Glencoe Ave.	6-day	60	0	37.5	34.6	30.4	28.9	15.4
Merrionette Park	1800 Meadow Lane	6-day	57	0	28.2	23.3	23.2	23.0	13.1
Midlothian	15205 Crawford	6-day	60	0	23.0	20.8	20.7	20.2	12.0
70 METROPOLITAN ST. LOUIS INTERSTATE (IL - MO)									
MADISON COUNTY									
Granite City	2040 Washington	6-day	58	0	36.5	32.8	32.0	29.6	16.5
Wood River	54 N. Walcott	6-day	59	0	27.9	25.5	25.2	24.0	14.4

Note: These samples were taken with dichotomous samplers and as such are not directly comparable to the $PM_{2.5}$ standards.

Table B15

1997
MERCURY
(nanograms per cubic meter)

STATION	ADDRESS	TOTAL NUMBER OF SAMPLES	HIGHEST SAMPLES 1st	2nd	3rd	4th	ANNUAL ARITHMETIC MEAN
67 METROPOLITAN CHICAGO INTERSTATE (IL - IN)							
COOK COUNTY							
Alsip	4500 W. 123rd St.	61	2.4	2.2	2.2	2.0	1.4
Blue Island	12700 Sacramento	59	7.8	2.6	2.6	2.5	1.7

APPENDIX C
PRECISION AND ACCURACY DATA SUMMARY AND TABLES

C.1 PRECISION AND ACCURACY DATA SUMMARY

The U.S. Environmental Protection Agency (USEPA) regulations governing the SLAMS/NAMS network were published in 40 CFR, Part 58. These regulations specify, in addition to other criteria, the minimum quality assurance requirements for monitoring of pollutants for which National Ambient Air Quality Standards (NAAQS) have been established. This section summarizes one aspect of the quality assurance program, that being, the assessment of the quality of the monitoring data by the determination of the accuracy and precision of the monitoring equipment. Each agency that is responsible for a portion of the SLAMS network is required to perform this precision and accuracy testing. Illinois EPA and Cook County DEC are responsible for the testing of their respective parts of the Illinois SLAMS network. USEPA has established guidelines for evaluating the upper and lower 95% probability limits. The quarterly probability limits for precision data should fall within a range of -15% to +15% and the quarterly probability limits for accuracy data should fall within a range of -20% to +20%. These ranges are only guidelines, but when they are exceeded, procedures should be reviewed to determine the reason for the wide variation in the data.

Table C1

1997
PRECISION DATA SUMMARY

PARAMETER	SUMMARY PERIOD	NUMBER OF SITES	TOTAL SAMPLES	PROBABILITY LIMITS (percent) UPPER 95%	LOWER 95%
SITES OPERATED BY ILLINOIS EPA					
Sulfur Dioxide	1st Quarter	21	253	3	-4
	2nd Quarter	21	250	5	-3
	3rd Quarter	21	266	7	-3
	4th Quarter	21	250	6	-6
	Year		1019	5	-4
Ozone	1st Quarter	27	301	6	-8
	2nd Quarter	33	403	7	-8
	3rd Quarter	33	417	7	-7
	4th Quarter	32	330	7	-8
	Year		1451	7	-8
Carbon Monoxide	1st Quarter	9	101	7	-4
	2nd Quarter	9	105	5	-3
	3rd Quarter	9	114	5	-3
	4th Quarter	9	94	3	-3
	Year		414	5	-3
Nitrogen Dioxide	1st Quarter	4	43	14	-8
	2nd Quarter	7	67	7	-3
	3rd Quarter	7	85	6	-10
	4th Quarter	5	59	7	-11
	Year		254	9	-8
Inhalable Particulate PM_{10}	1st Quarter	1	15	12	-8
	2nd Quarter	1	13	2	-11
	3rd Quarter	1	14	7	-13
	4th Quarter	1	13	5	-15
	Year		55	4	-12
Lead	1st Quarter	1	13	18	-12
	2nd Quarter	1	10	23	-7
	3rd Quarter	1	14	14	-9
	4th Quarter	1	14	2	-19
	Year		51	14	-12

Table C1

1997
PRECISION DATA SUMMARY

PARAMETER	SUMMARY PERIOD	NUMBER OF SITES	TOTAL SAMPLES	PROBABILITY LIMITS (percent) UPPER 95%	LOWER 95%
SITES OPERATED BY COOK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL					
Sulfur Dioxide	1st Quarter	7	88	5	-5
	2nd Quarter	7	94	5	-4
	3rd Quarter	7	88	4	-4
	4th Quarter	7	88	4	-4
	Year		358	5	-4
Ozone	1st Quarter	3	37	4	-5
	2nd Quarter	9	118	4	-5
	3rd Quarter	9	109	4	-4
	4th Quarter	10	67	3	-5
	Year		331	4	-5
Carbon Monoxide	1st Quarter	4	48	3	-5
	2nd Quarter	4	51	6	-2
	3rd Quarter	4	56	7	-2
	4th Quarter	4	52	8	-1
	Year		207	6	-3
Nitrogen Dioxide	1st Quarter	3	35	5	-3
	2nd Quarter	3	38	7	-3
	3rd Quarter	3	37	7	-2
	4th Quarter	3	49	8	-5
	Year		159	7	-3
Inhalable Particulate PM_{10}	1st Quarter	1	13	5	-9
	2nd Quarter	1	15	16	-14
	3rd Quarter	1	15	6	-14
	4th Quarter	1	15	9	-11
	Year		58	9	-12
Lead	1st Quarter	1	13	*	*
	2nd Quarter	1	14	*	*
	3rd Quarter	1	15	*	*
	4th Quarter	1	16	*	*
	Year		58	*	*

All collected samples were below USEPA established minimums. Probability Limits could not be calculated.

Table C2

1997
ACCURACY DATA SUMMARY

PARAMETER	SUMMARY PERIOD	NUMBER OF AUDITS	PROBABILITY LIMITS LEVEL 1 +95%	LEVEL 1 -95%	LEVEL 2 +95%	LEVEL 2 -95%	LEVEL 3 +95%	LEVEL 3 -95%	LEVEL 4 +95%	LEVEL 4 -95%
SITES OPERATED BY ILLINOIS EPA										
Sulfur Dioxide	1st Quarter	5	-7	-9	6	-6	0	-8		
	2nd Quarter	6	0	-5	4	-6	3	-7		
	3rd Quarter	6	3	-12	2	-9	5	-8		
	4th Quarter	5	6	-1	8	-6	7	-8		
	Year	22	1	-7	5	-7	4	-8		
Ozone	1st Quarter	8	5	-13	0	-8	0	-8		
	2nd Quarter	8	3	-7	1	-7	3	-9		
	3rd Quarter	9	5	-8	3	-8	4	-9		
	4th Quarter	9	4	-7	2	-6	2	-4		
	Year	34	4	-9	2	-7	2	-8		
Carbon Monoxide	1st Quarter	2	12	-1	3	-2	6	-6		
	2nd Quarter	2	14	-10	18	-8	19	-10		
	3rd Quarter	2	12	-6	8	+1	15	-9		
	4th Quarter	4	7	-11	7	-10	13	-15		
	Year	10	11	-7	9	-5	13	-10		
Nitrogen Dioxide	1st Quarter	2	14	-3	12	-5	11	-4		
	2nd Quarter	2	19	-7	1	-1	9	-9		
	3rd Quarter	2	5	+3	6	-2	7	-5		
	4th Quarter	2	15	-17	5	-11	7	-17		
	Year	8	13	-6	6	-5	9	-9		
Inhalable Particulate PM_{10}	1st Quarter	13			12	-10				
	2nd Quarter	26			10	-6				
	3rd Quarter	16			6	-8				
	4th Quarter	22			8	-8				
	Year	77			9	-8				
Lead	1st Quarter	3	3	-8	6	-9				
	2nd Quarter	3	2	0	-1	-3				
	3rd Quarter	3	1	-6	0	-7				
	4th Quarter	3	2	-7	1	-10				
	Year	12	2	-5	2	-7				

Table C2

1997
ACCURACY DATA SUMMARY

PARAMETER	SUMMARY PERIOD	NUMBER OF AUDITS	PROBABILITY LIMITS LEVEL 1 +95%	LEVEL 1 -95%	LEVEL 2 +95%	LEVEL 2 -95%	LEVEL 3 +95%	LEVEL 3 -95%	LEVEL 4 +95%	LEVEL 4 -95%
SITES OPERATED BY COOK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL										
Sulfur Dioxide	1st Quarter	7	6	-5	4	-6	4	-5		
	2nd Quarter	6	7	-4	3	-4	5	-2		
	3rd Quarter	5	8	-5	7	-6	6	-1		
	4th Quarter	2	16	-16	9	-3	0	-2		
	Year	20	9	-8	6	-5	4	-3		
Ozone	1st Quarter	3	5	-6	1	-5	2	-5		
	2nd Quarter	9	6	-8	6	-7	5	-5		
	3rd Quarter	9	4	-4	4	-3	4	-3		
	4th Quarter	10	4	-9	1	-6	1	-4		
	Year	31	5	-7	3	-5	3	-4		
Carbon Monoxide	1st Quarter	4	6	+2	6	-1	7	-2		
	2nd Quarter	3	1	-3	1	-3	2	-2		
	3rd Quarter	2	3	-2	5	-6	4	-7		
	4th Quarter	4	7	-5	4	-3	6	-8		
	Year	13	4	-2	4	-4	5	-5		
Nitrogen Dioxide	1st Quarter	3	-3	-7	-3	-3	-1	-4		
	2nd Quarter	3	4	+1	6	-2	8	0		
	3rd Quarter	1	NA	NA	NA	NA	NA	NA		
	4th Quarter	2	4	0	9	-2	10	-2		
	Year	9	1	-2	3	-2	6	-2		
Inhalable Particulate PM_{10}	1st Quarter	15			0	-9				
	2nd Quarter	15			7	-7				
	3rd Quarter	6			5	-11				
	4th Quarter	15			0	-10				
	Year	51			3	-9				
Lead	1st Quarter	3	21	-8	6	-7				
	2nd Quarter	3	3	-5	-3	-7				
	3rd Quarter	3	3	-5	-3	-7				
	4th Quarter	3	-1	-2	3	-10				
	Year	12	7	-5	1	-8				

1. Only one audit was performed for this parameter during the quarter. Probability Limits could not be calculated.

APPENDIX D
POINT SOURCE EMISSION INVENTORY SUMMARY TABLES

Table D1

1997
Point Source Emission Distribution (Tons/Year)

Category	Particulate Matter	Sulfur Dioxide	Nitrogen Oxides	Volatile Organic Material	Carbon Monoxide
External Fuel Combustion					
Electric Generation	23494.8	958539.5	379438.5	3220.4	11361.6
Industrial	4522.9	71932.6	52107.8	1296.8	8626.0
Commercial/Institutional	996.4	18031.0	6897.4	226.4	2053.4
Space Heating	40.2	137.6	735.6	10.5	136.9
Internal Fuel Combustion					
Electric Generation	159.2	429.1	3394.3	307.2	1734.6
Industrial	60.6	149.4	14778.7	3010.6	3205.8
Commercial/Institutional	23.0	21.1	390.6	40.8	184.1
Engine Testing	57.9	93.0	1483.4	109.7	457.6
Off Highway 2-stroke Gasoline Engines	0.1	0.3	4.3	4.5	20.0
Fugitive Emissions	0.2	0.3	5.4	0.2	1.3
Industrial Processes					
Chemical Manufacturing	3869.1	15130.1	1722.3	16152.5	21884.2
Food/Agriculture	23874.3	391.1	616.0	10717.4	189.8
Primary Metal Production	6867.0	7786.0	7694.4	10951.7	53716.4
Secondary Metal Production	5603.2	126.6	3581.9	858.6	2565.7
Mineral Products	20726.6	22312.7	11578.2	1570.2	2651.6
Petroleum Industry	3577.9	98148.5	20560.5	7747.0	1351.7
Paper and Wood Products	589.2	0.0	43.4	486.6	10.4
Rubber and Plastic Products	1279.4	0.7	65.7	5532.8	33.7
Fabricated Metal Products	1385.0	208.5	525.5	3859.3	1127.5
Oil and Gas Production	13.4	67.0	341.6	280.6	208.7
Building Construction	16.3	0.0	0.0	0.0	0.0
Miscellaneous Machinery	120.9	3.2	23.4	116.0	24.4
Electrical Equipment	42.7	12.3	5.7	221.0	3.7
Transportation Equipment	89.9	0.0	1.9	73.9	1.2
Health Services	2.6	0.0	0.4	69.2	0.0
Leather and Leather Products	35.1	0.0	0.0	61.8	0.0
Textile Products	13.2	0.0	7.8	11.2	1.3
Printing/Publishing (typesetting)	0.3	0.0	0.0	0.0	0.0
Process Cooling	5.4	0.0	0.0	0.0	0.0
In-Process Fuel Use	223.1	3251.1	2010.0	511.4	639.2
Miscellaneous Manufacturing	320.6	89.0	198.7	343.6	177.2
Organic Solvent Emissions					
Organic Solvent Use	53.1	0.0	2.9	3557.1	0.6
Surface Coating Operations	333.8	32.2	655.0	28188.5	82.4
Petroleum Product Storage	48.5	9.3	8.6	12767.0	72.3
Bulk Terminals/Plants	5.2	0.0	64.0	3252.1	39.0
Printing/Publishing	114.6	0.0	204.6	13122.2	25.3
Petroleum Marketing/Transport	0.6	0.0	3.0	1304.5	0.4
Organic Chemical Storage	15.3	0.0	0.1	923.0	0.4
Organic Chemical Transportation	1.6	0.0	0.0	76.8	0.0
Dry Cleaning	0.0	0.0	0.0	318.3	0.0
Organic Chemical Storage	0.0	0.0	0.0	2.6	0.0
Organic Solvent Evaporation	82.2	79.9	96.3	4478.8	204.2

Table D1

1997
Point Source Emission Distribution (Tons/Year)

Category	Particulate Matter	Sulfur Dioxide	Nitrogen Oxides	Volatile Organic Material	Carbon Monoxide
Solid Waste Disposal					
Government	215.8	52.6	659.8	158.6	768.2
Commercial/Institutional	337.3	35.6	136.2	49.2	694.5
Industrial	621.3	311.4	676.6	276.7	2788.1
Site Remediation	11.0	21.6	8.6	114.5	2.5
MACT Processes					
Food and Agriculture Processes	0.0	0.0	0.0	0.1	0.0
Styrene or Methacrylate Based Resins	0.0	0.0	0.0	16.0	0.0
Alkyd Resin Production	0.0	0.0	0.0	28.6	0.0
Vinyl Based Resins	185.5	0.1	0.0	108.5	0.0
Consumer Product Manufacturing Facilities	0.0	0.0	0.0	1.8	0.0
Paint Stripper Use	0.9	0.0	0.0	3.8	0.0
Totals	**100037.6**	**1197403.8**	**510729.1**	**136541.1**	**117046.1**

MACT stands for Maximum Achievable Control Technology. Many new SCC codes have been added to begin to identify emission points to begin to determine MACT requirements. Many of these emission points are still associated with the Chemical Manufacturing SCC codes that begin with 301. As time passes, the emissions in the Chemical Manufacturing category will shift to the MACT Processes category.

Table D2

1997
Estimated County Stationary Point Source Emissions (Tons/Year)

County	Particulate Matter	Sulfur Dioxide	Nitrogen Oxides	Volatile Organic Material	Carbon Monoxide
Adams	812.3	6400.2	1215.0	2376.6	376.2
Alexander	1413.4	460.4	250.4	63.2	34.0
Bond	97.5	4.4	36.1	24.4	119.1
Boone	166.0	626.4	474.2	1249.9	111.1
Brown	13.1	0.0	1.6	1.0	0.2
Bureau	354.7	17.0	78.0	157.0	25.6
Calhoun	24.1	0.0	0.0	0.0	0.0
Carroll	221.5	117.5	141.8	207.4	58.4
Cass	168.5	0.4	25.2	15.1	5.4
Champaign	918.5	4668.5	2593.2	1341.8	517.7
Christian	1216.9	129435.8	39123.4	197.0	790.1
Clark	192.1	1.5	5.2	46.9	2.7
Clay	92.7	6.7	6.9	176.5	15.4
Clinton	104.2	564.8	1497.0	681.7	229.8
Coles	379.4	116.9	343.2	2275.8	138.3
Cook	21339.0	49509.9	40087.9	40407.3	69521.8
Crawford	1590.6	28573.5	8829.1	1066.7	401.7
Cumberland	52.5	2.1	4.5	30.0	6.8
DeKalb	278.1	6.3	256.2	327.1	33.6
DeWitt	378.6	25.5	197.8	129.3	13.7
Douglas	642.6	14509.4	5947.3	714.4	356.4
DuPage	797.7	439.9	1782.1	2250.6	856.9
Edgar	401.7	204.7	188.2	342.2	61.8
Edwards	81.6	0.0	0.1	599.2	0.5
Effingham	186.8	3.3	99.2	1164.7	20.5
Fayette	261.3	30.5	108.0	277.5	46.9
Ford	859.5	7.9	63.6	701.6	22.3
Franklin	121.7	8.1	17.8	313.7	4.5
Fulton	556.0	11683.1	6801.6	811.0	326.4
Gallatin	96.2	1.0	0.7	7.2	0.2
Green	74.6	0.0	2.5	40.0	0.3
Grundy	849.2	4897.0	2993.3	1311.4	1843.1
Hamilton	46.0	0.6	4.3	13.0	1.1
Hancock	280.4	4.7	68.6	23.4	3.8

Table D2

1997
Estimated County Stationary Point Source Emissions (Tons/Year)

County	Particulate Matter	Sulfur Dioxide	Nitrogen Oxides	Volatile Organic Material	Carbon Monoxide
Hardin	229.4	38.3	35.6	8.6	11.0
Henderson	132.4	0.0	0.0	4.3	0.0
Henry	314.0	29.2	3119.7	779.5	1028.3
Iroquois	555.9	12.6	36.9	145.3	141.4
Jackson	646.3	15341.2	3018.7	1300.5	640.5
Jasper	1271.4	12546.0	7043.9	81.0	467.4
Jefferson	549.8	477.1	296.7	1082.1	49.0
Jersey	58.0	0.0	0.0	17.6	0.0
Jo Daviess	276.9	5.4	388.9	1642.8	1948.7
Johnson	117.2	377.5	35.8	9.3	29.4
Kane	728.2	458.2	1146.2	3724.5	438.4
Kankakee	1586.0	66.7	1595.7	1444.1	573.5
Kendall	170.2	137.5	1706.1	259.3	294.9
Knox	250.2	10.9	333.8	449.2	26.0
Lake	1334.9	7010.9	10612.2	1860.0	1233.0
La Salle	2950.9	3401.4	5780.4	2124.7	604.9
Lawrence	241.2	7543.5	2198.2	2708.2	179.8
Lee	542.6	2973.3	769.4	423.3	165.3
Livingston	714.4	36.5	698.5	943.8	381.5
Logan	605.9	1505.6	531.2	93.6	40.9
McDonough	425.8	1760.2	292.9	126.8	42.7
McHenry	666.1	75.9	474.5	913.7	288.6
McLean	784.3	40.2	916.4	3939.6	129.0
Macon	2600.4	11566.7	6115.2	6239.3	2187.0
Macoupin	217.4	6.3	15.0	100.2	2.4
Madison	5555.0	62921.6	30379.0	11048.8	11152.2
Marion	186.5	14.1	153.0	2024.5	23.7
Marshall	466.5	1417.0	296.2	457.7	30.1
Mason	416.7	1634.1	1988.2	42.7	117.8
Massac	7784.9	97860.7	19106.9	386.3	763.8
Menard	97.6	0.0	0.5	6.4	0.0
Mercer	140.5	0.4	3.7	6.5	1.0
Monroe	133.6	2.8	47.0	17.3	13.6
Montgomery	3177.1	181556.9	39115.3	369.4	645.6

Table D2

1997
Estimated County Stationary Point Source Emissions (Tons/Year)

County	Particulate Matter	Sulfur Dioxide	Nitrogen Oxides	Volatile Organic Material	Carbon Monoxide
Morgan	2110.1	27619.3	5714.2	959.4	280.0
Moultrie	202.7	69.2	134.8	309.2	32.4
Ogle	407.7	37.3	606.2	1455.6	243.5
Peoria	2821.9	33037.1	17629.8	2985.1	1299.7
Perry	65.0	9.6	10.0	57.3	2.1
Piatt	287.3	4.2	1982.0	830.5	271.6
Pike	231.4	2765.6	735.6	59.7	72.8
Pope	0.0	0.0	0.0	2.0	0.0
Pulaski	177.6	450.4	53.5	1.0	0.2
Putnam	1022.8	34567.2	6742.5	199.5	402.6
Randolph	3663.1	234236.0	63423.5	1451.5	2158.0
Richland	57.3	0.6	24.4	205.3	12.1
Rock Island	534.6	4111.0	1981.6	4051.3	776.7
St. Clair	1460.2	6112.2	1765.9	3031.1	278.9
Saline	272.6	9.6	2.7	17.7	1.6
Sangamon	891.5	31173.0	17619.1	707.2	853.0
Schuyler	120.5	0.0	2.0	12.3	0.4
Scott	138.9	20.4	23.9	28.4	9.2
Shelby	226.4	0.5	11.5	87.1	3.0
Stark	64.2	4.6	2.7	8.0	0.9
Stephenson	183.0	2.6	214.4	1166.1	126.8
Tazewell	2629.8	47515.5	76423.4	1300.1	1862.0
Union	102.7	882.9	79.6	24.4	58.7
Vermillion	1364.8	21804.3	4881.2	3966.5	744.1
Wabash	296.9	198.4	106.7	29.6	28.9
Warren	263.9	60.8	98.6	48.1	40.6
Washington	236.6	0.0	23.7	280.6	14.6
Wayne	45.6	9.6	503.6	191.1	77.8
White	260.8	1.7	5.4	70.5	1.8
Whiteside	639.4	159.4	416.0	202.4	1242.8
Will	6425.0	76048.6	47893.6	6860.0	5885.0
Williamson	503.2	13207.9	8961.6	262.7	251.8
Winnebago	1037.3	117.2	1132.2	2135.4	406.5
Woodford	295.0	9.9	27.0	149.2	7.1

Table D3

Annual Estimated Emissions Trends (Tons)

Year	Particulate Matter	Sulfur Dioxide	Nitrogen Oxides	Volatile Organic Material	Carbon Monoxide
1981	276529	1577992	826427	270814	240421
1982	184716	1404040	693054	233951	163704
1983	185931	1363292	759453	207405	144622
1984	204490	1435066	746367	197418	110922
1985	174102	1406300	715556	191070	107876
1986	164246	1400761	676181	180148	109777
1987	166292	1379407	644511	176406	98213
1988	162124	1393628	653521	165792	127758
1989	212778	1254474	610214	193499	132214
1990	266888	1272445	623466	170378	134744
1991	220903	1239690	619161	154008	148667
1992	163529	1228949	610214	156867	129054
1993	142123	1170549	556460	152288	130097
1994	133275	1158555	555893	140492	127848
1995	119726	1273786	505966	141381	127661
1996	105842	1183278	495267	139445	130040
1997	100038	1197404	510729	136541	117046

Table D4

Annual Source Reported Emissions Trends (Tons)

Year	Particulate Matter	Sulfur Dioxide	Nitrogen Oxides	Volatile Organic Material	Carbon Monoxide
1992	95000	1036030	380803	141025	111579
1993	112997	990287	416260	106424	113173
1994	86486	939296	402616	109163	115567
1995	65290	785957	352874	100783	154843
1996	63436	914302	407355	86298	84229

APPENDIX E

THE BUREAU OF AIR/ DIVISION OF AIR POLLUTION CONTROL

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 IEPA 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 Systems Management, 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 IEPA 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 IEPA'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 IEPA 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 episodes as required. Special air quality studies are performed which identify pollution trends and evaluate special air quality problems. The Section additionally oversees the source emission monitoring program: continuous emission monitors (cems), stack testing, and excess emissions reporting.

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.

Compliance and Systems Management

The Compliance and Systems Management Section provides Management oversight for all aspects of the compliance program, develops and implements the information management and office automation aspects of the Bureau of Air, and assists in the compilation of the stationary source inventory.

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 USEPA'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.
- Develop a comprehensive plan for integrated information management systems for the Bureau.
- Design, develop, and implement information management solutions to effectively and efficiently utilize the Bureau's data resources.
- Administer the Bureau's hardware and software resources.
- Establish on-going performance measurement criteria to evaluate and approve the quality of the Bureau's Stationary Source Inventory.
- Evaluate the Annual Emission Reports provided by Illinois industry.
- Provide training and technical support to personnel regarding the compilation and maintenance of the stationary source inventory system and the effective use of the Bureau's computer resources.

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 IEPA 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 IEPA. Under the Clean Air Act Permit Program (CAAPP) 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 IEPA's enforcement activities when violations are discovered. Approximately 3,000 investigations and inspections are conducted each year.

A directory of the Division of Air Pollution Control follows.

Table E1

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