Illinois Environmental Protection Agency
Bureau of Air

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Illinois Annual Air Quality Report 1997

Illinois Environmental Protection Agency
Bureau of Air
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Springfield, IL 62794-9276

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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-

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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 niTc

SECTION 1: AIR POLLUTANTS: SOURCES,

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

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 for-

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.

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.

***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
		Same as Primary	
Nitrogen Dioxide	Annual Arithmetic Mean	**10 mug/m** 3)	

m measured in parts per million (ppm)	2-hour			4-h8ur
m				
Particulate Matter				
measured in micrograms per cubic meter (ug/m^3)	2-hour m 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 m	4-hour	4-hour	4-hour

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 abate 0.0P 3o9fg or cone amplepolll2 e

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 shows each year's statewide average of each site's highest hourly ozone value during 1988-1997. The graph shows a great deal e

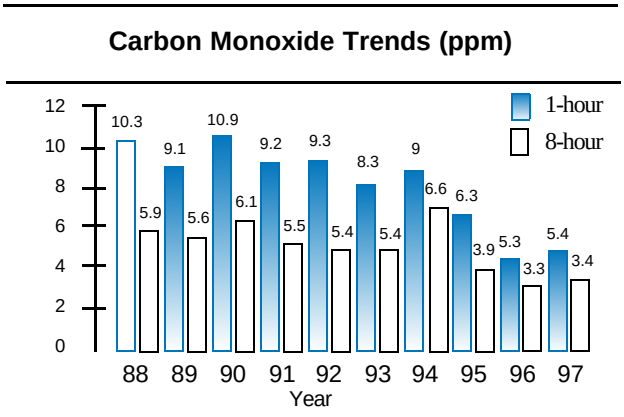
Statewide, the total number of excursion days in 1997 was five, compared with five in 1996 and six in 1995.

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 th

Figure 5


Carbon Monoxide Trends (ppm)
1-hour
8-hour
12
10
8
6
4
2
0
10.3
5.9
9.1
5.6
10.9
6.1
9.2
5.5
9.3
5.4
8.3
5.4
9
6.6
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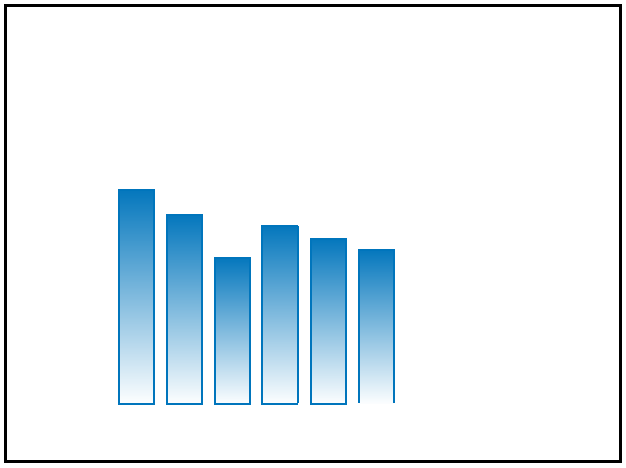
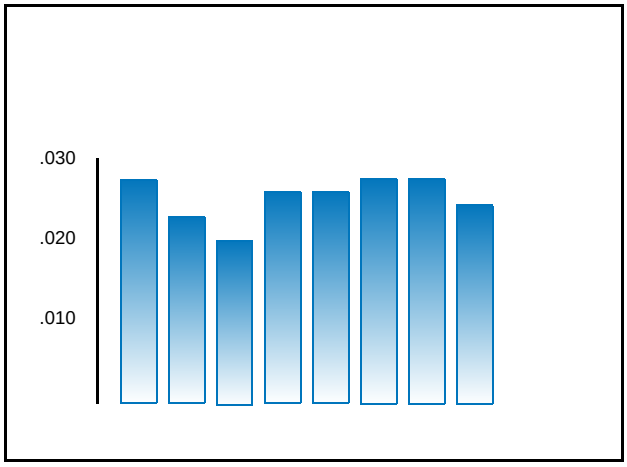
89
90
91
92
93
94
95
96
97
Year



Nitrogen Dioxide

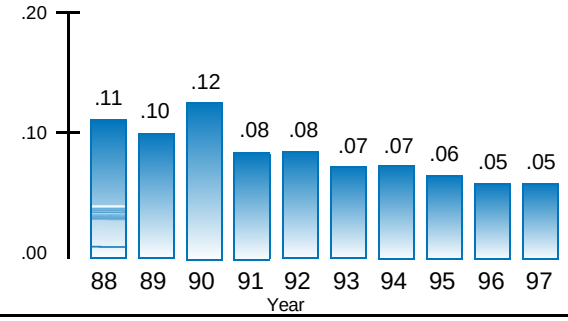
There were no violations of the annual primary standard of 0.053 ppm recorded in Illinois dur-



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,

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} t

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 ozone.

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 r

Figure 9: 1997 Pollutant Standards Index Summaries by Sector

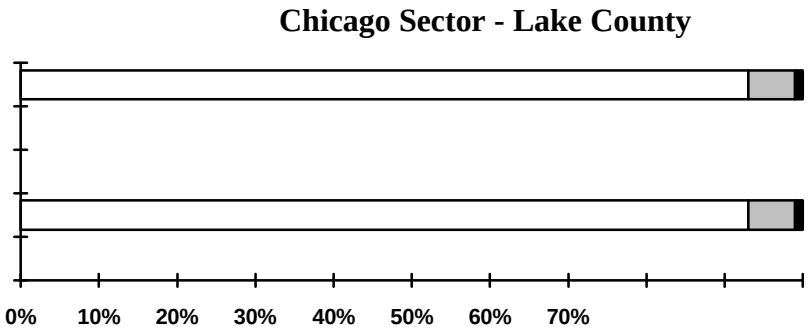


Figure 9: 1997 Pollutant Standards Index Summaries by Sector (continued)

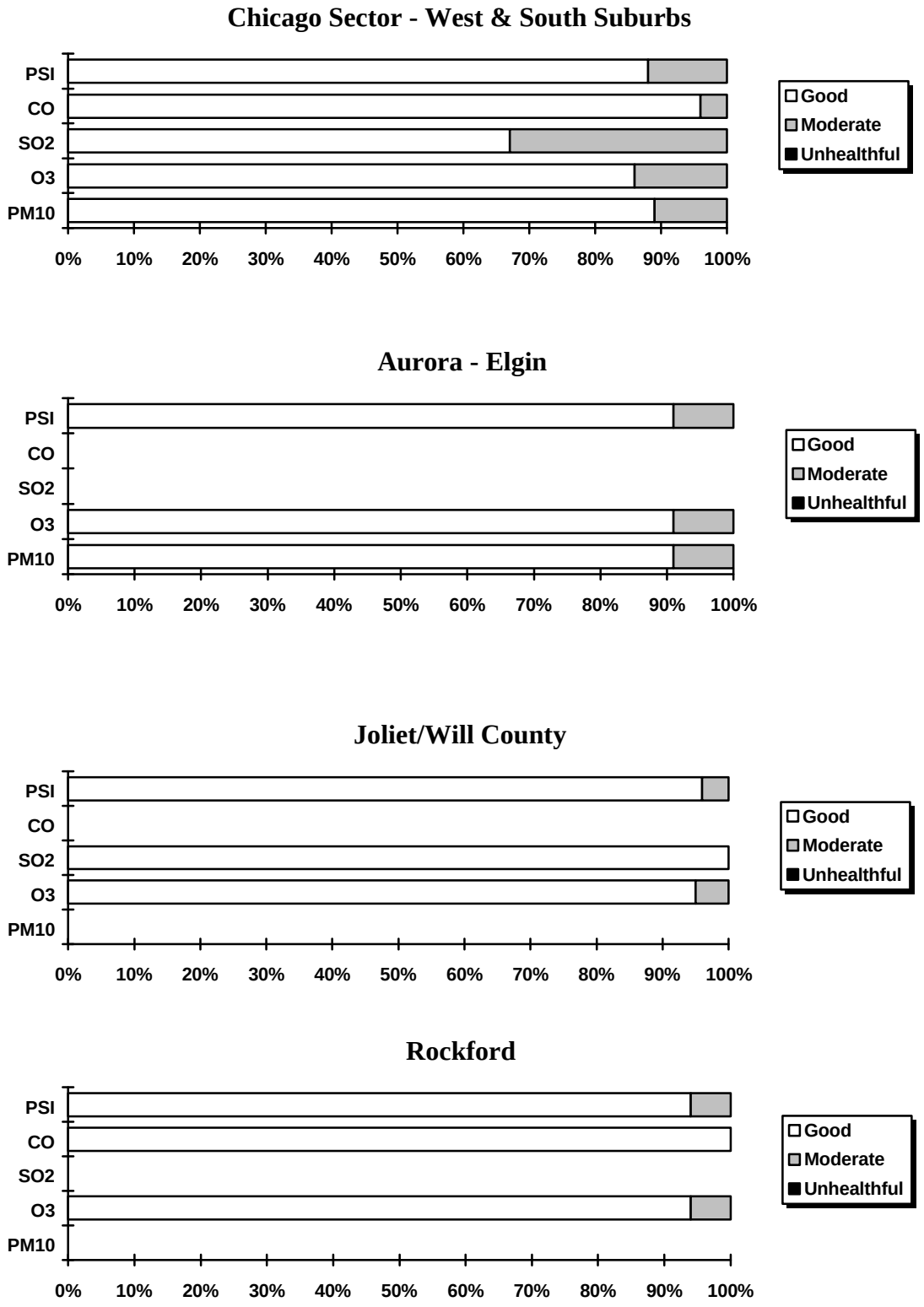
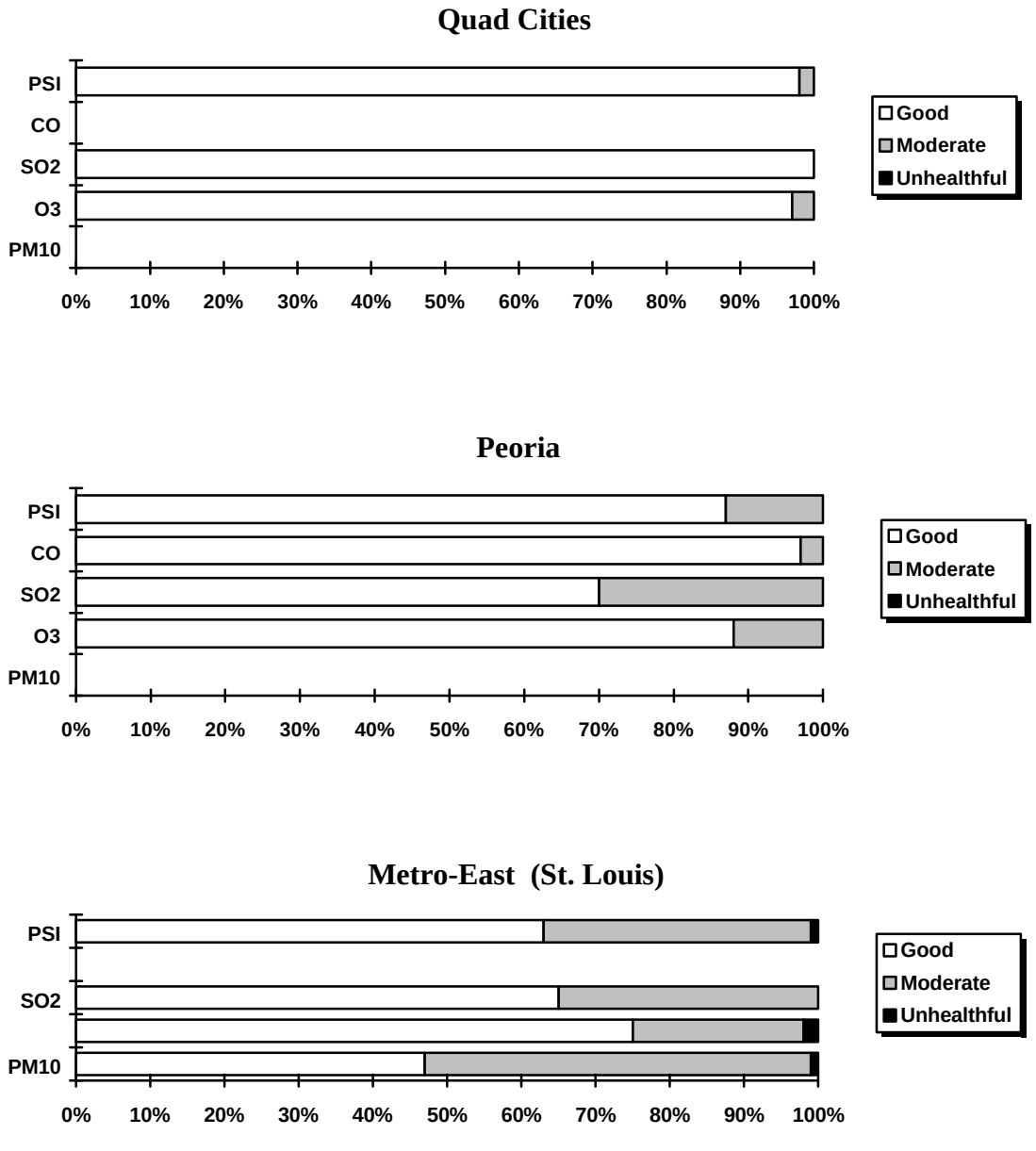


Figure 9: 1997 Pollutant Standards Index Summaries by Sector (continued)



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 TD 0.0011Rrough ouj -1.344 Tc 0 Tw (V) Tj 0.004 Tc 0./4 Tc 1TD t more aIUiEIS.

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 ave

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

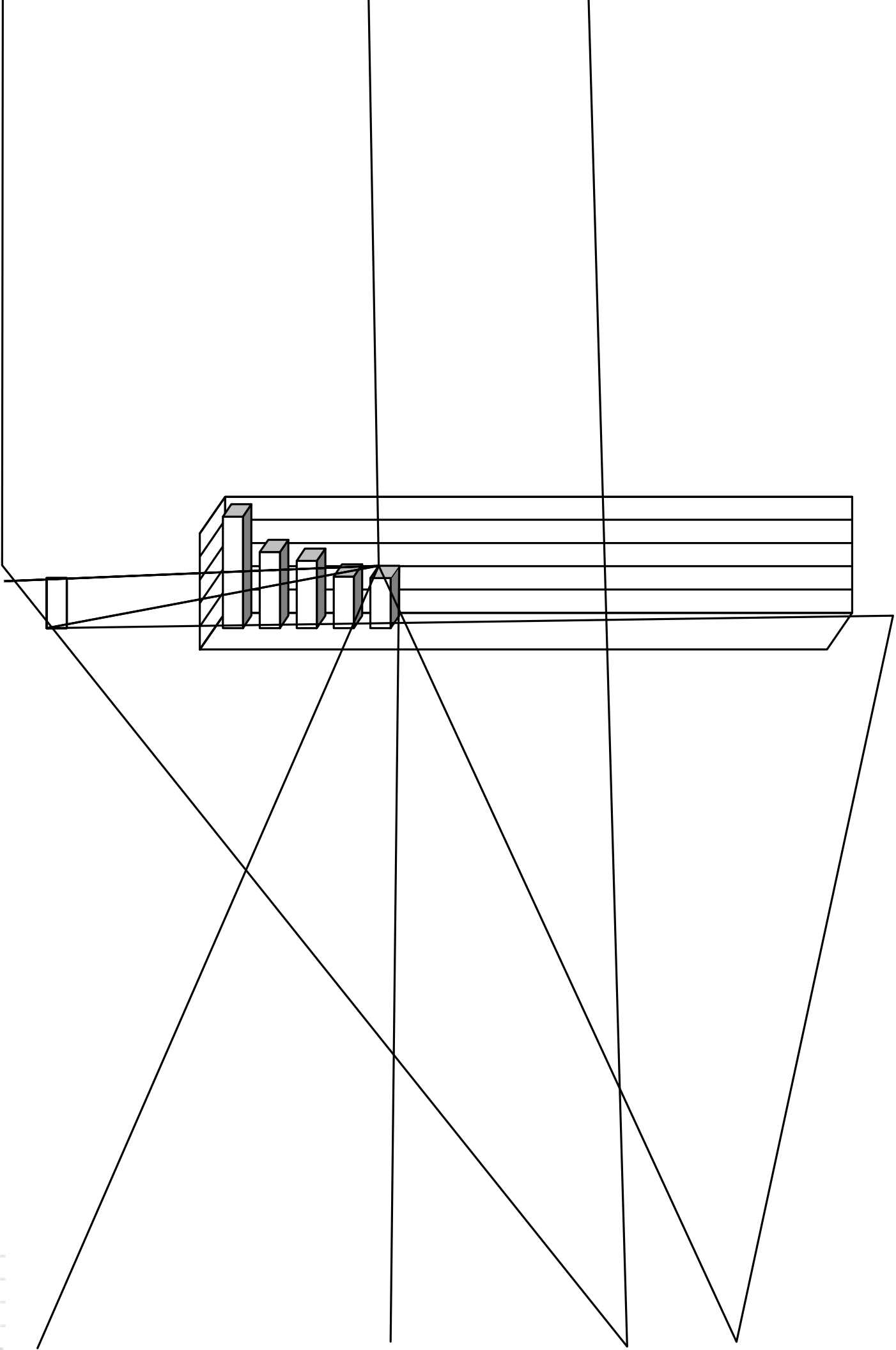
Table 6: Distribution of Particulate Matter Emissions for 1997

Category	Estimated Emissions in tons	Category Contribution s 7 o f 1 1 y 2 h 1 1 1 r g	Cumulative

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.



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 T

many emission rates were still missing. larn.3007 T0.0093 Tc 0.329995 Tc Tj -0.0570.4176 Tould bssi tremendo

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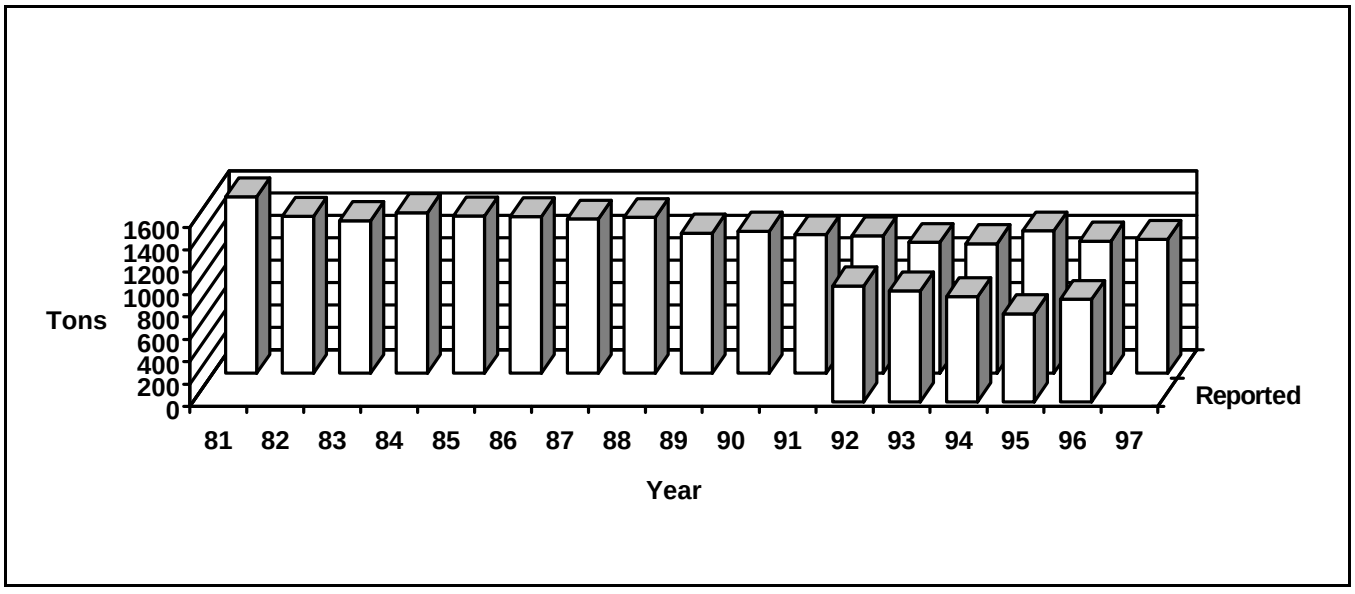


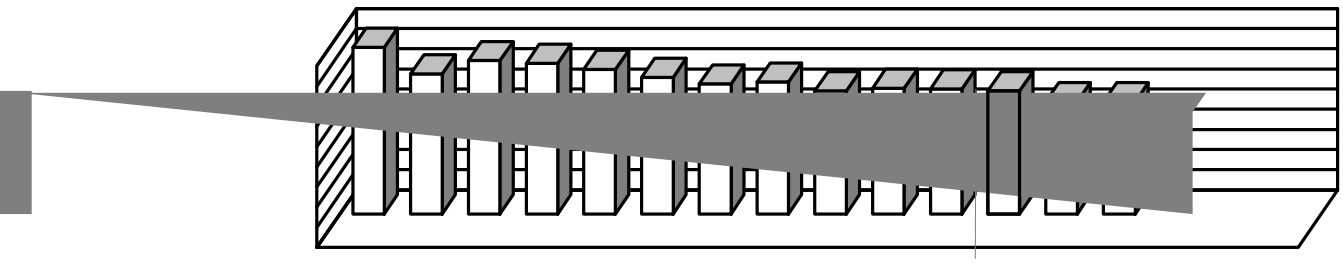


Table 10: Distribution of Nitrogen Oxide Emissions for 1996			
Category	**Estimated Emissions in tons**	**Category Contribution**	**Cumulative Percent**
Fuel Combustion	459,236.0	89.9%	
Petroleum Industry	20,560.5		
Mineral Products	11,578.2		
Primary Metal Production	7,694.4		
Secondary Metal Production	3,581.9		
In-process Fuel Use	2,010.0		
Chemical Manufacturing	1,722.3		
Solid Waste Disposal	1,481.2		
All Other Categories	2,864.6		

Table 11: Distribution of Fuel Combustion Nitrogen Oxide Emissions for 1997			
Category	**Estimated Emissions in tons**	**Category Contribution**	**Cumulative Percent**

APPENDIX A
AIR SAMPLING NETWORK

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

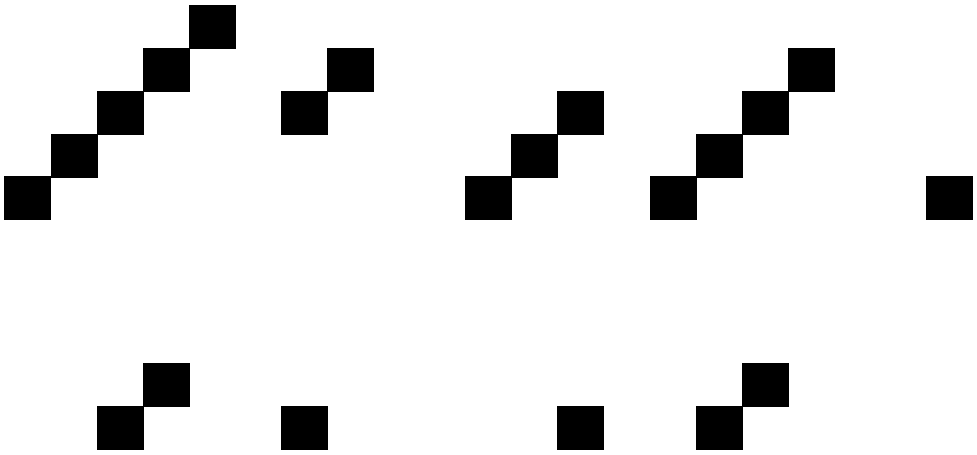
Iowa Dept. of Natural Resources
Wallace State Office Building
900 E. Grand Ave.
Des Moines, Iowa 50319-0034
515/281-5145
Fax 515/281-8895

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



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

AIR QUALITY CONTROL REGIONS

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				

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 - $PM_{2.5}$
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	
			431.200	SPMS -114

Mer.72 12 re fh-e. 4635.4 (Mei.44 4635.705 714 SLAMS County PM DEC 10(4 9 6 0 0 0 4) / (

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

CITY NAME OWNER/

SAROAD CODE / AIRS CODE ADDRESS 136.8939407 Tc 0 Tw (ADDRESS 13S(OWNER/) 03IRS Cc1.4PERA0.7ADDRE7804 OWNER/) 0409

Table A4

1997
SITE DIRECTORY

CITY NAME SAROAD CODE / AIRS CODE	ADDRESS	OWNER/ OPERATOR	UTM COORD. (km)	EQUIPMENT
MADISON COUNTYSAROAD CODE / AIRS CODE	**ADDRESS**			

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 (2220001)/(0491001)	Central Junior H.S. Route 45 South 6 Tf 05e2MTj EaS.2 0.72 re f 5e f001)	Ill. EPA	N. 4325.131	SLAMS - O_3

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	

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.

Table B1

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

MAXIMUM

Table B2

1997
OZONE

STATION	ADDRESS	NUMBER OF DAYS VALID APR-OCT	NUMBER OF DAYS GREATER THAN 1-HSTA51ON	HIGHEST SAMPLES (parts per million) 1-HOUR	HIGHEST SAMPLES (parts per million) 8-HOUR

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	NUMBER OF SAMPLES	HIGHEST SAMPLES	ANNUAL ARITHMETIC

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
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

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})

ANNUAL ARITHMETIC MEANS (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	8.38562	0 . 1	3 . 1			

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

0.17>05acArthur PEORIA COUNTY4 Ti ET 47.28 604.56 8646Y4 Ti ET 47.28 604.56 0.72 1234e f BT 50.4 570.96 Ti 121.46.96 Tf 0.007kinc 0 Tw (Peoria) Ti 15156 0 TD -60.7

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

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							

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.	-	-	-	-	-	+

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							

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

Table B12

1997
FILTER ANALYSIS DATA
(micrograms per cubic meter)

STATION	TOTAL	HIGHEST	ARITH.	TOTAL	HIGHEST	ARITH.

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
			CADMIUM				**CHROMIUM**		

Table B12

1997
FILTER ANALYSIS DATA
(micrograms per cubic meter)

TOTAL

Table B12

1997
FILTER ANALYSIS DATA
(micrograms per cubic meter)

STATION	ADDRESS	TOTAL SAMPLES	HIGHEST 1st	ARITH.	TOTAL	HIGHEST	ARITH.

Table B12

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)

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						

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	6				1		

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					

Table C2

1997
ACCURACY DATA SUMMARY

PROBABILITY LIMITS

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									

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	[illegible]	[illegible]	[illegible]	[illegible]	1351.7
Paper and Wood Products	[illegible]	[illegible]	[illegible]	[illegible]	10.4
Rubber and Plastic Products	[illegible]	[illegible]	[illegible]	[illegible]	33.7
Fabricated Metal Products	[illegible]	[illegible]	[illegible]	[illegible]	1127.5
Oil and Gas Production	[illegible]	[illegible]	[illegible]	[illegible]	208.7
Building Construction	[illegible]	[illegible]	[illegible]	[illegible]	0.0
Miscellaneous Machinery	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Electrical Equipment	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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

Table D2

1997

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

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 sampl4y requir0uding parction. The-0.0 gua intehe

- 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

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.

Table E1

BUREAU OF AIR

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