Foreword

The Air Pollution Control Program of the Jefferson County Department of Health prepares this report annually. It analyzes the results of air monitoring stations located throughout Jefferson County for the purpose of measuring the outdoor concentrations of those pollutants for which the U. S. Environmental Protection Agency has established ambient air quality standards:

- Carbon Monoxide
- Ozone
- Lead
- Particulate Matter
- Sulfur Dioxide
- Nitrogen Dioxide

This report includes general discussions of the background information, possible sources, and health effects of each pollutant along with any occurrences of exceedances of air quality standards. Also included is a summary of field enforcement activities. An effective field enforcement program contributes directly to improved air quality and pollutant level measurements within acceptable limits.

Executive Summary

The uniform air quality index was created for use as a standard measure of overall air quality. It is a national index that was designed to meet the needs of all citizens. The daily index report is based on the uniform pollutants standards index structure which includes the pollutants for which primary National Ambient Air Quality Standards have been established. These pollutants are: Particulate Matter (PM10), sulfur dioxide (SO2), carbon monoxide (CO), and ozone (O3). See table 2.1.

The ambient concentration of each pollutant is scaled on a range from zero (0) to five hundred (500) with one hundred corresponding to the National Ambient Air Quality Standard for the pollutant and five hundred corresponding to the significant harm level. The intermediate range breakpoints of 200, 300 and 400 represent increasing measures towards the significant harm level.

The air quality index is available daily, Monday through Friday by dialing (205) 933-0583. The following table summarizes the measurements of overall air quality in Jefferson County for 1994:

Air Quality Description	Number of Days
Good (1 - 50)	139
Moderate (51 - 100)	102
Unhealthy (101 - 200)	0
Very Unhealthy (201 - 300)	0
Hazardous (301 or above)	0
Total Number of Days	**241**

There were no exceedances of the ambient air quality standards in 1994. The maximum index reported was 86 which occurred December 2. Overall the average index was 48.

1.0 Introduction

The Jefferson County Department of Health operates an air pollution control program to ensure citizens of Jefferson County have access to air that meets the health standards as established by the Environmental Protection Agency (EPA). A significant portion of the air pollution resources is devoted to monitoring pollutant levels in the ambient air (that portion of the atmosphere to which the general public has access). Also, the information received from the monitoring network about pollutant levels is used as the basis for developing any control strategies necessary to ensure health standards are attained and maintained.

2.0 Ambient Air Quality Standards

The Environmental Protection Agency (EPA) has established two national ambient air quality standards: primary and secondary. The primary standards are designed to protect public health with an adequate margin of safety. The secondary standards are designed to protect public welfare related values such as property, materials, plants and animal life. The Air Pollution Control Program of Jefferson County utilizes the standards established by the EPA. Those standards are:

National Ambient Air Quality Standards

Table 2.1

Pollutant and time period*	Standard (mean levels)	
	Primary	**Secondary**
PM-10 (Inhalable particulates)		
(Micrograms per cubic meter)		
Annual mean level	50	50
24-hour average	150	150
Sulfur dioxide		
(Parts per million)		
Annual mean level	0.03	
24-hour average	0.14	
3-hour average		0.5
Nitrogen dioxide		
(Parts per million)		
Annual mean level	0.053	0.053
Carbon monoxide		
(Parts per million)		
8-hour average	9	None
1-hour average	35	None
Ozone		
(Parts per million)		
1-hour average	0.12	0.12
Lead		
(Micrograms per cubic meter)		
3-month mean level	1.5	1.5

*Short-term standards (24- hours and less) are not to be exceeded more than once a year. Long-term standards are maximum permissible mean-level concentrations that are never to be exceeded.

3.0 Monitoring Network Types

Data provided through a complex network of air monitoring stations located throughout the County determines the quality of the ambient air in Jefferson County. In January 1994, this network consisted of 19 monitoring sites and 26 air monitoring devices. There were modifications to the network during the course of the year; two sites closed, two sites opened, three monitors installed and four monitors shut-down. By December 31, the network consisted of 19 sites and 25 monitors. See table 3.1. The air pollutants monitored at these sites were: Ozone (O_3), Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Total Suspended Particulates (TSP), PM_{10} (Particulates less than 10 microns in size), and Lead (Pb). Total Suspended Particulates (TSP) were monitored for reasons of continuity; there is no ambient standard for TSP. Nitrogen Dioxide is not monitored because the county population is less than one million and is therefore not required. Each air monitoring device was classified as one of the following: State and Local Air Monitoring Station (SLAMS), National Air Monitoring Station (NAMS), or Special Purpose Monitoring (SPM) based on the general monitoring objectives.

The objective of the SLAMS network is to collect data that provides an overview of the state's air quality used in the development of statewide control strategies.

The primary objective of the NAMS network is to monitor in areas where the pollutant concentration levels and population exposures are likely to be high. EPA uses the data to develop nationwide control strategies.

The objective of the SPM network is to provide data for the development and refinement of local control strategies. The data also verifies maintenance of air standards in areas not monitored by either the SLAMS or NAMS networks.

Jefferson County 1994 Air Monitoring Network

Table 3.1

January 1, 1994 Network

Site Location	Pollutants	Monitoring Objective SLAMS	NAMS	SPM
Bessemer	PM10	1	0	0
Dolomite	PM10, TSP	0	0	2
Downtown	CO	1	0	0
East Birmingham (Closed 3/31/94)	Pb	0	1	0
East Thomas	CO, Pb	0	2	0
Fairfield (TSP closed 6/24/94)	CO, O3, TSP, SO2	1	2	1
Hoover	O3	1	0	0
Inglenook	PM10	1	0	0
Leeds, Elementary School	PM10	1	0	0
Leeds, Lehigh Cement Plant	SO2	0	0	1
Leeds, Sunset View Apts. (Closed 1/27/94)	SO2	0	0	1
McAdory H.S.	O3	1	0	0
Montgomery Oil	Pb	1	0	0
North Birmingham, So. RR (TSP closed 3/31/94)	PM10, TSP	0	1	1
Northside	PM10	1	0	0
Pinson	O3	0	1	0
Tarrant	PM10, O3	1	1	0
UAB	CO	1	0	0
Wylam	PM10	0	1	0

December 31, 1994 Network

Site Location	Pollutants	Monitoring Objective SLAMS	NAMS	SPM
Bessemer	PM10	1	0	0
Dolomite	PM10, TSP	0	0	2
Downtown	CO	1	0	0
East Thomas	CO, Pb	0	2	0
Fairfield (PM10 opened 7/1/94)	CO, O3, PM10, SO2	1	2	1
Hoover	O3	1	0	0
Inglenook	PM10	1	0	0
Leeds, Elementary School	PM10	1	0	0
Leeds, Lehigh Cement Plant	SO2	0	0	1
McAdory H.S.	O3	1	0	0
Montgomery Oil	Pb	1	0	0
North Birmingham, Sloss (Opened 5/13/94)	PM10	0	0	1
North Birmingham, So. RR	PM10	0	1	0
Northside	PM10	1	0	0
Pinson	O3	0	1	0
Tarrant	PM10, O3	1	1	0
Tarrant ABC Coke (Opened 6/28/94)	PM10	0	0	1
UAB	CO	1	0	0
Wylam	PM10	0	1	0

4.0 Description of Pollutants

4.1 Carbon Monoxide

Carbon Monoxide (CO) is a colorless, odorless and tasteless toxic gas. It's emitted into the atmosphere by both natural and man-made sources. Globally, total emissions of CO are greater than emissions of any other air pollutant due to the widespread extent of low-level emissions from natural sources.

The major natural source of CO is the spontaneous oxidation of naturally occurring methane. Other natural sources include the oceans, plant growth and decay, terpene oxidation, and forest fires. Globally, natural sources account for nearly 90 percent of CO emissions.

The major man-made source of CO is the incomplete combustion of carbon-based fuels. Gasoline motor vehicles--primarily automobiles and light duty trucks are the most common source. Other sources include: industrial process losses, open burning and industrial or utility boilers.

Carbon Monoxide poses a threat to human health because of its ability to react with hemoglobin that carries oxygen to cell tissue. Hemoglobin preferentially absorbs CO; thus, reducing the amount of oxygen transported throughout the body. Most people will experience symptoms including dizziness, and headaches when exposed to high levels of CO. Eliminating exposure, blood returns to normal levels of oxygen.

4.2 Lead

Lead is a toxic metal that has natural and man-made sources and is relatively abundant. Typically, lead ingestion is attributed to four components of the human environment: food, inhaled air, dusts of various types, and drinking water.

Calculations of natural contributions using geochemical information indicate that natural sources contribute a relatively small amount of lead to the atmosphere. Natural sources include soil erosion by wind, volcanic dust, forest fires, sea salt, and the decay of radon gas.

The major sources of man-made lead emissions to the ambient air include smelting operations and lead mining. Other sources include coal-fired power plants, lead battery manufacturing, and municipal solid waste incineration. Leaded gasoline has been phased-out and is not a major source.

Lead absorption poses a threat to human health because of its accumulative properties. High concentration of lead in the bloodstream of children causes severe and permanent neurological damage or death. Some lead-containing chemicals cause cancer in animals

4.3 Ozone

Ozone is a highly reactive oxidant gas with a pungent odor and a faint bluish color. Ozone is photochemically produced in the atmosphere when volatile organic compounds (VOCs) combine with oxides of nitrogen (NOx) and carbon monoxide (CO) in the presence of sunlight. In the lower atmosphere, ozone is the predominant component of photochemical smog and is most likely to reach high concentration levels on hot, dry, summer days when sunlight is intense and wind movement is low.

In urban areas, man-made emissions of nitrogen oxides and VOCs lead to the formation of ozone in the lower atmosphere. Nitrogen oxides are primarily emitted from combustion sources such as and including, motor vehicles and boilers. VOC's primary sources include motor vehicle exhaust, gasoline evaporation from storage facilities or tanker trucks, paint, and industrial use of solvents or coatings.

Ozone is a pulmonary irritant. Symptoms include irritation of the eyes, nose, throat and lungs as well as reduced lung function, asthma, stuffy nose, reduced resistance to colds and other infections. Ozone also damages plants, trees, rubber and fabrics.

4.4 Particulates

Particulate matter is airborne solid particles ranging from about 0.001 to 500 micrometers in diameter. Particulate matter includes: dust, soot and other tiny bits of solid materials released into and moving around in the air. PM_{10} is particles less than or equal to 10 micrometers in diameter and is the basis for the ambient air quality standard. Dustfall is particles larger than 10 micrometers. Total suspended particulate (TSP) is a measure of the total airborne particles in the air. PM_{10} is a subset of the total airborne particles in the air.

Particulate matter has many sources including: burning of diesel fuels by trucks, buses and other diesel engines; incineration of garbage, mixing and application of fertilizers and pesticides, road construction, vehicular tire wear and exhaust; operation of fireplaces, and wood stoves and industrial processes (such as steel making, and mining operations).

Exposure to high concentrations of particulate pollution (PM_{10}) causes eye, nose and throat irritation, aggravation of chronic lung disease, and symptoms of heart and respiratory problems. Particulates are the main source of haze that reduces visibility.

4.5 Sulfur Dioxide

Sulfur dioxide is a colorless, nonflammable gas formed during combustion of sulfur-containing fuels such as coal and oil. Partly converted by photochemical and catalytic reactions in the atmosphere, sulfur dioxide becomes sulfur trioxide, sulfuric acid, and various sulfate particles that can also have adverse health and welfare effects.

Globally, man-made emissions account for one-third of the total emissions of sulfur compounds in the atmosphere. Of the natural emissions, most are hydrogen sulfide released from the decay of organic matter or sulfate particles released in the sea spray. The combustion of sulfur-containing coal and oil in utility and industrial boilers is the major man-made source of sulfur dioxide emissions.

Sulfur dioxide is an irritant to the pulmonary system, primarily affecting the upper respiratory system. Damage to lungs occurs with deep inhalation of particles absorbing sulfur dioxide. Sulfur dioxide plays an important role in the production of acid rain (acid aerosols), which damages trees and lakes. Acid aerosols also erode stone used in buildings, statutes, and monuments.

5.0 Monitoring Results

5.1 Carbon Monoxide (CO)

In January of 1994, the carbon monoxide monitoring network consisted of 4 monitors (2 SLAMS and 2 NAMS) strategically located throughout Jefferson County. See table 3.1. Carbon monoxide was the responsible pollutant 50 times in the daily air quality index. Of those 50 days, 29 days were in the good category, and 21 days were in the moderate category. Maximum CO concentration at monitoring sites during the year generally measured less than 35 percent of the 35 ppm one hour ambient standard and less than 86 percent of the 9 ppm eight hour standard. See table 5.6.1 and graphs 5.6.1 and 5.6.2. No exceedances of the CO ambient standards were recorded during the year.

5.2 Lead

In January of 1994, the lead monitoring network consisted of 3 monitors (1 SPM, 2 NAMS) strategically located throughout Jefferson County. See table 3.1. On March 31, 1994, the East Birmingham site closed at the request of the Army Corps of Engineers which obtained the site property leaving 1 NAMS and 1 SPM monitors. Lead concentration during the year measured less than 8 percent of the 1.5 $\mu g/m^3$ quarterly average ambient standard. See table 5.6.2 and graphs 5.6.3 and 5.6.4. Graph 5.6.3 shows a dramatic drop in lead mean values from 1990 to 1994. This decrease is a result of a combination of the removal of lead from gasoline and the closure of the ILCO lead smelting plant in Leeds. No exceedance of the Lead ambient standard was recorded during the year.

5.3 Ozone

In January of 1994, the ozone monitoring network consisted of 5 monitors (3 SLAMS and 2 NAMS) strategically located throughout Jefferson County. No changes to the network occurred during the year. Ozone was the responsible pollutant 104 times in the daily air quality index. Of those 104 days, 56 days were in the good category, and 48 days were in the moderate category No exceedance of the 0.12 ppm ambient standard was recorded. See table 5.6.3 and graph 5.6.5. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to one. An area is classified as attainment when the average number of days over a three year period, with an hourly concentration above the standard, is one or less at each monitoring site.

5.4 Particulate Matter (PM_{10})

In January of 1994, the particulate matter (PM_{10}) monitoring network consisted of 8 monitors (5 SLAMS, 2 NAMS and 1 SPM) strategically located throughout Jefferson County. On May 13, 1994, the North Birmingham Sloss site opened and on June 28, 1994, the Tarrant ABC Coke site opened. On July 1, 1994, the Fairfield site received a PM_{10} monitor. This brought the network total 5 SLAMS, 2 NAMS and 4 SPM See table 3.1. PM_{10} was the responsible pollutant 87 times in the daily air quality index. Of those 87 days, 54 days were in the good category, and 33 days were in the moderate category. The maximum PM_{10} concentration at monitoring sites during the year generally, measured less than 78 percent of the 150 $\mu g/m^3$ 24 hour ambient standard and less than 68 percent of the 50 $\mu g/m^3$ annual mean standard. See table 5.6.4 and graphs 5.6.6 and 5.6.7. No exceedances of the PM_{10} ambient standards were recorded during the year.

5.5 Sulfur Dioxide (SO_2)

In January of 1994, the sulfur dioxide (SO_2) monitoring network consisted of 3 monitors (1 NAMS and 2 SPM) strategically located throughout Jefferson County. On January 27, 1994, the Leeds Sunset View Apartment site closed. This brought the network total to 1 NAMS and 1 SPM. See table 3.1. Maximum SO_2 concentration at monitoring sites during the year generally measured less than 37 percent of the 0.14 parts per million 24 hour ambient standard, less than 30 percent of the 0.03 parts per million annual mean standard, and less than 16 percent of the 3 hour ambient standard. See table 5.6.5 and graphs 5.6.8, 5.6.9 and 5.6.10. No exceedances of the SO_2 ambient standards were recorded during the year.

Table 5.6.1

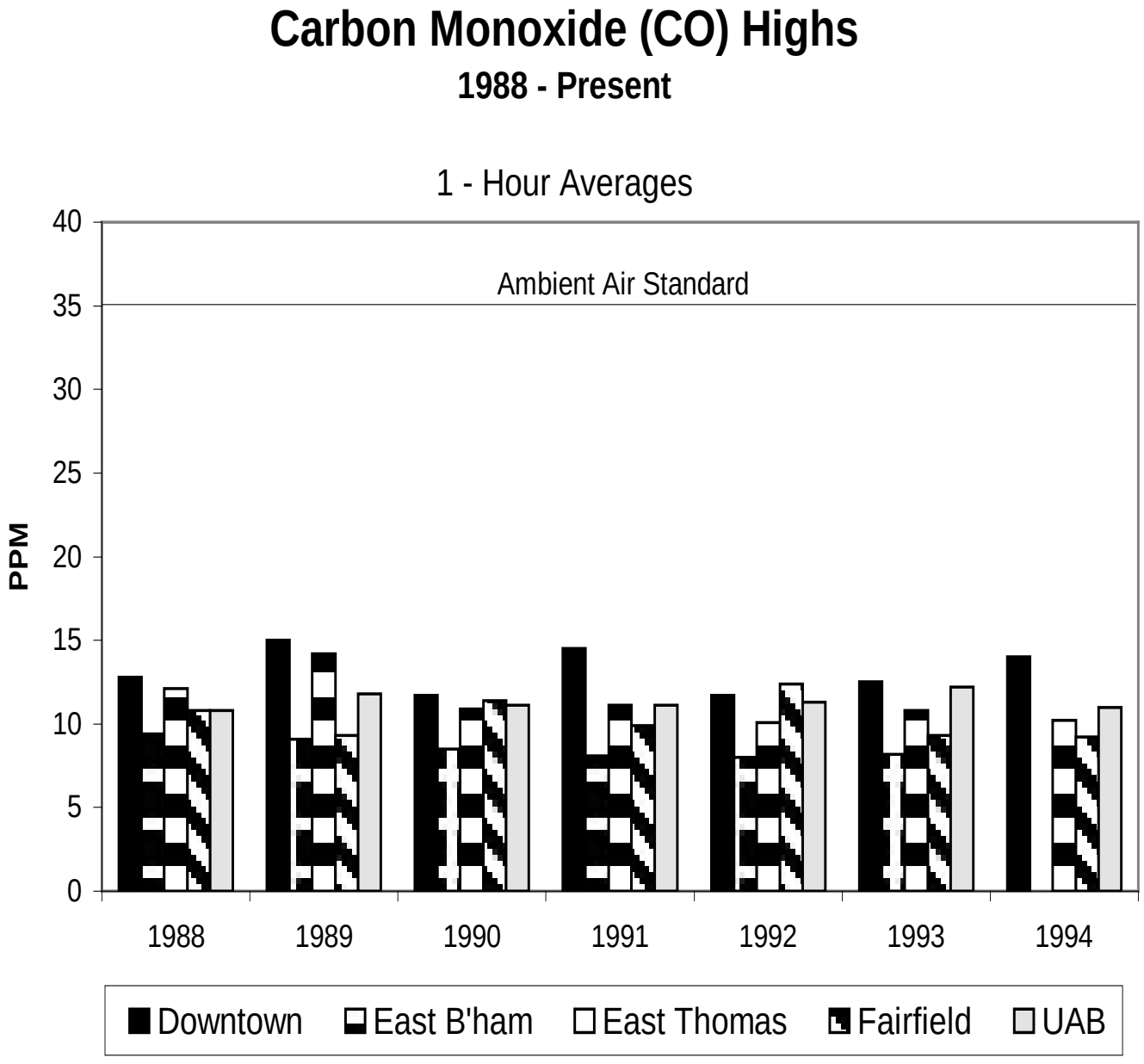
Carbon Monoxide (CO) Highs

1988 - Present

	Year						
Site	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**
Downtown							
1 - hour max.	12.8	15.0	11.7	14.5	11.7	12.5	14.0
8 - hour max.	7.7	7.6	7.0	7.7	5.6	6.2	6.9
East Birmingham							
1 - hour max.	9.4	9.1	8.5	8.1	8.0	8.2	Closed
8 - hour max.	7.3	6.2	6.2	5.5	6.0	5.2	7/8/93
East Thomas							
1 - hour max.	12.1	14.2	10.9	11.1	10.1	10.8	10.2
8 - hour max.	9.4	8.7	7.3	8.0	8.6	7.8	6.7
Fairfield							
1 - hour max.	10.8	9.3	11.4	9.9	12.4	9.3	9.2
8 - hour max.	7.6	6.5	6.5	6.3	7.5	7.3	7.7
UAB							
1 - hour max.	10.8	11.8	11.1	11.1	11.3	12.2	11.0
8 - hour max.	6.6	7.8	7.1	8.1	6.2	6.2	7.2

Values measured in parts per million

Graph 5.6.1


Carbon Monoxide (CO) Highs
1988 - Present
1 - Hour Averages
PPM
40
35
30
25
20
15
10
5
0
Ambient Air Standard
1988
1989
1990
1991
1992
1993
1994
Downtown
East B'ham
East Thomas
Fairfield
UAB

Graph 5.6.2

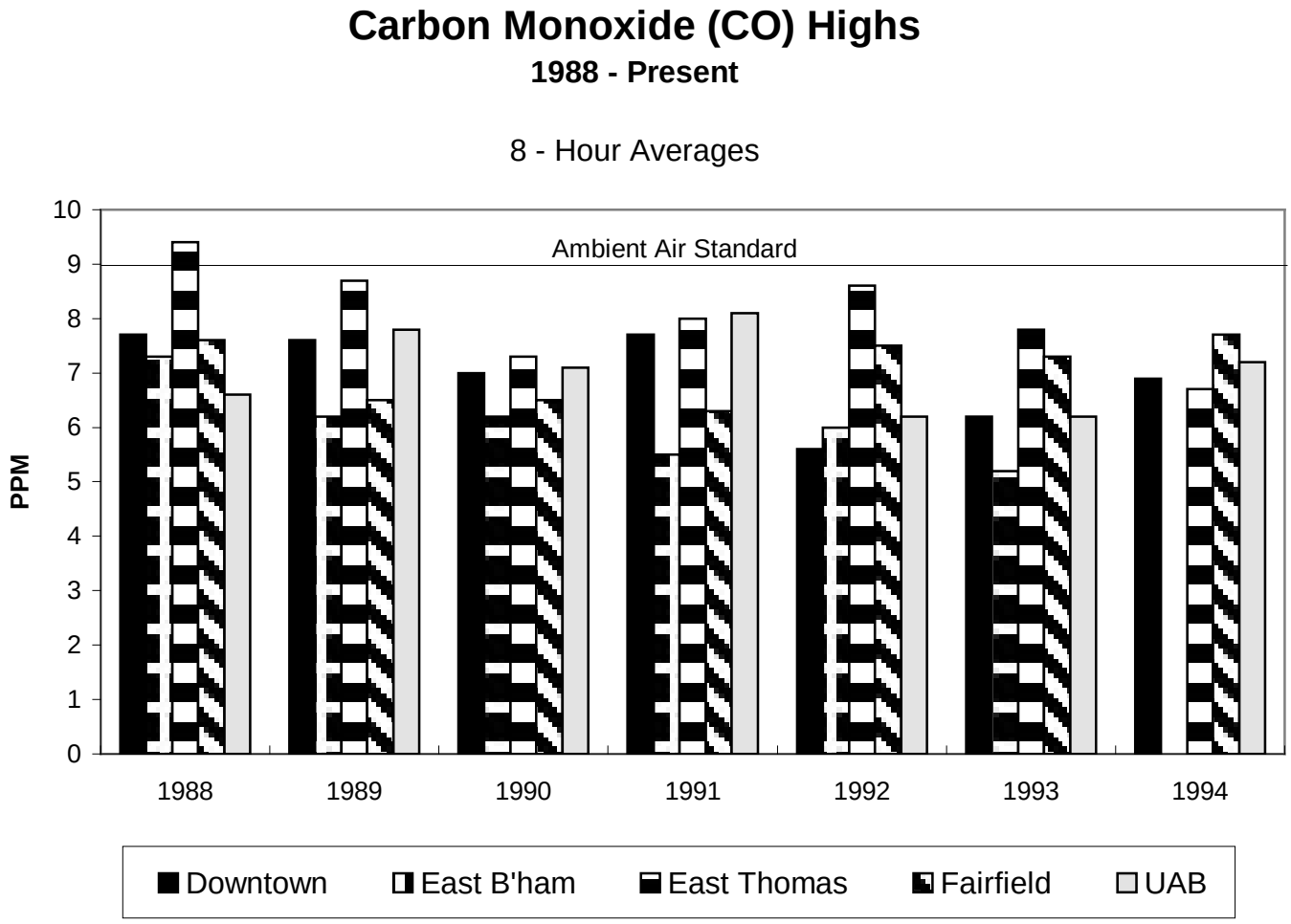

Carbon Monoxide (CO) Highs
1988 - Present
8 - Hour Averages
PPM
10
9
8
7
6
5
4
3
2
1
0
Ambient Air Standard
1988
1989
1990
1991
1992
1993
1994
Downtown
East B'ham
East Thomas
Fairfield
UAB

Table 5.6.2

Lead Quarterly Mean Values

1990 - Present

Monitor Location	Year 1990	1st	2nd	3rd	4th
Hayes Int'l		0.46	0.46	0.94	0.43
East Birmingham		0.17	0.12	0.11	0.12
East Thomas		0.07	0.06	0.1	0.14
Ilco Pasture		0.19	0.32	0.66	0.56
Leeds Elementary		0.06	0.07	0.11	0.08
Montgomery Oil		1.67	1.42	1.44	1.63
New Jerusalem Church		0.13	0.16	0.24	0.35

Monitor Location	Year 1991	1st	2nd	3rd	4th
Hayes Int'l		0.31	0.27	0.63	0.39
East Birmingham		0.13	0.12	0.12	0.15
East Thomas		0.09	0.06	0.06	0.07
Ilco Pasture		0.35	0.11	0.28	0.37
Leeds Elementary		0.07	0.18	0.07	0.16
Montgomery Oil		1.24	0.86	1.76	2.6
New Jerusalem Church		0.14	0.08	0.54	0.37

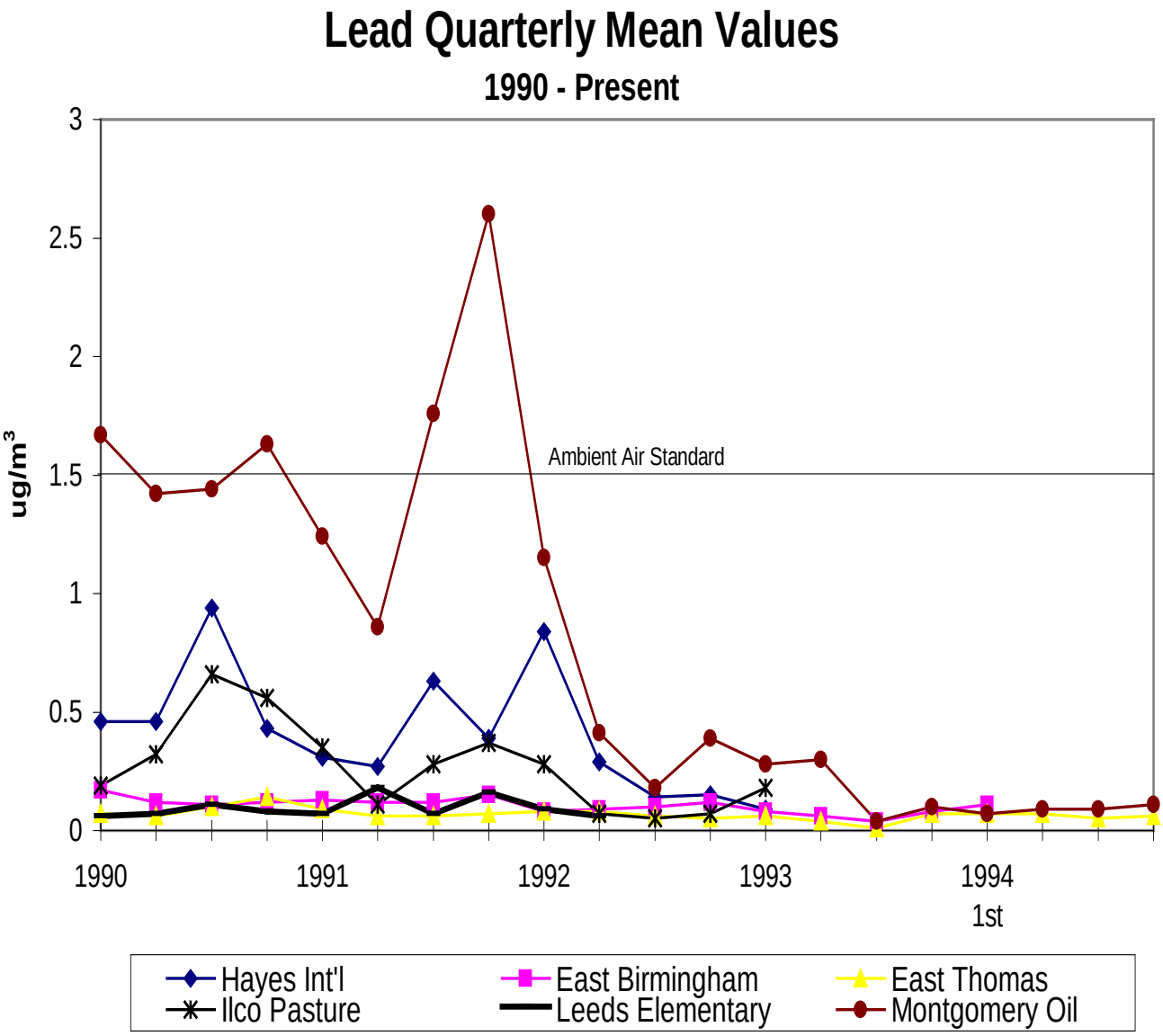
Monitor Location	Year 1992	1st	2nd	3rd	4th
Hayes Int'l		0.84	0.29	0.14	0.15
East Birmingham		0.08	0.09	0.1	0.12
East Thomas		0.08	0.08	0.06	0.05
Ilco Pasture		0.28	0.07	0.05	0.07
Leeds Elementary	(Closed 7/1/92)	0.09	0.06		
Montgomery Oil		1.15	0.41	0.18	0.39
New Jerusalem Church	(Closed 7/1/92)	0.35	0.04		

Monitor Location	Year 1993	1st	2nd	3rd	4th
Hayes Int'l	(Closed 3/31/93)	0.09			
East Birmingham		0.08	0.06	0.04	0.08
East Thomas		0.06	0.04	0.01	0.07
Ilco Pasture	(Closed 3/31/93)	0.18			
Montgomery Oil		0.28	0.3	0.04	0.1

Monitor Location	Year 1994	1st	2nd	3rd	4th
East Birmingham	(Closed 3/31/94)	0.11			
East Thomas		0.07	0.07	0.05	0.06
Montgomery Oil		0.07	0.09	0.09	0.11

**Values measured in micrograms per cubic meters($\mu g/m^3$)

Graph 5.6.3


Lead Quarterly Mean Values
1990 - Present
ug/m3
3
2.5
2
1.5
1
0.5
0
Ambient Air Standard
1990
1991
1992
1993
1994
1st
Hayes Int'l
East Birmingham
East Thomas
Ilco Pasture
Leeds Elementary
Montgomery Oil

Graph 5.6.4

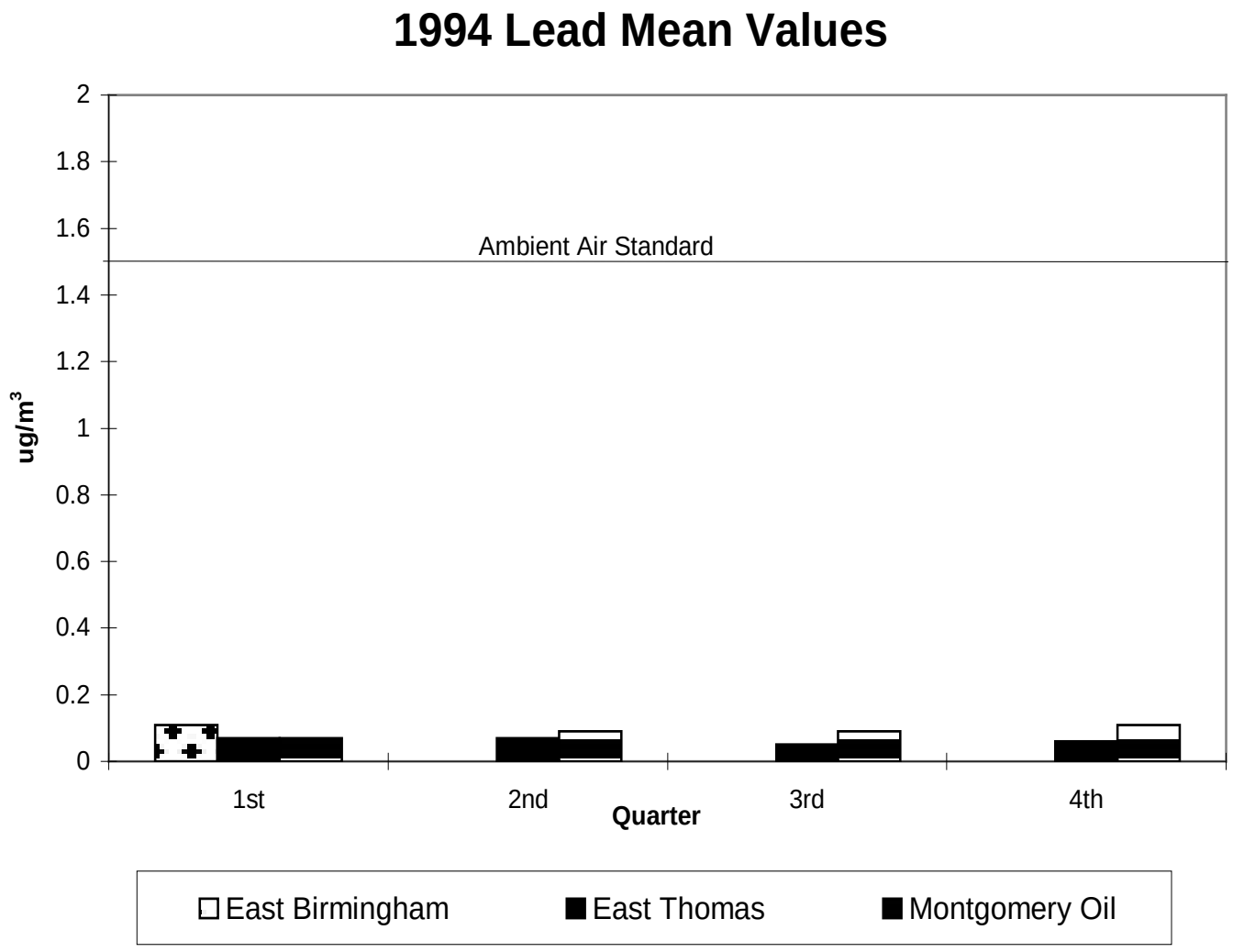

1994 Lead Mean Values
2
1.8
1.6
Ambient Air Standard
1.4
1.2
1
0.8
0.6
0.4
0.2
0
ug/m³
1st
2nd
3rd
4th
Quarter
East Birmingham
East Thomas
Montgomery Oil

Table 5.6.3

OZONE HIGHS

1990 - PRESENT

		1990	1991	1992	1993	1994
Fairfield	1.	0.120	0.115	0.119	0.120	0.109
	2.	0.117	0.109	0.113	0.111	0.098
	3.	0.110	0.108	0.112	0.108	0.093
	4.	0.109	0.105	0.107	0.104	0.090
Tarrant	1.	0.127	0.093	0.129	0.112	0.079
	2.	0.121	0.092	0.115	0.108	0.079
	3.	0.119	0.090	0.096	0.103	0.078
	4.	0.117	0.089	0.095	0.095	0.076
Pinson	1.	0.126	0.109	0.138	0.115	0.099
	2.	0.115	0.106	0.111	0.098	0.090
	3.	0.113	0.095	0.104	0.098	0.090
	4.	0.113	0.095	0.104	0.093	0.090
McAdory	1.	0.117	0.088	0.104	0.106	0.107
	2.	0.111	0.085	0.101	0.104	0.099
	3.	0.111	0.079	0.091	0.102	0.098
	4.	0.107	0.079	0.089	0.101	0.096
Hoover	1.	0.131	0.106	0.106	0.135	0.116
	2.	0.126	0.103	0.091	0.113	0.108
	3.	0.125	0.103	0.088	0.113	0.099
	4.	0.125	0.102	0.087	0.110	0.096

**All values measured in Parts Per Million

Graph 5.6.5

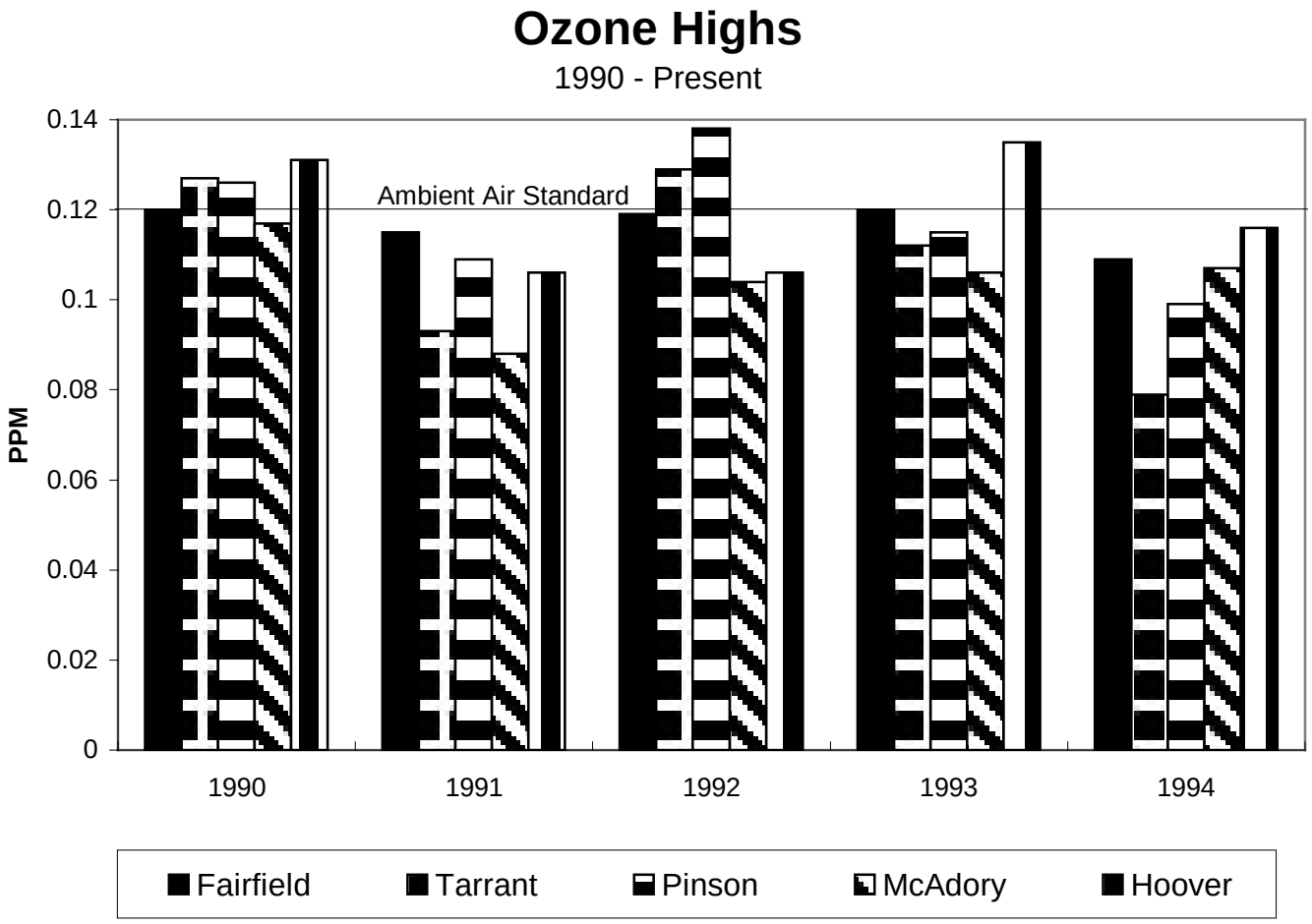
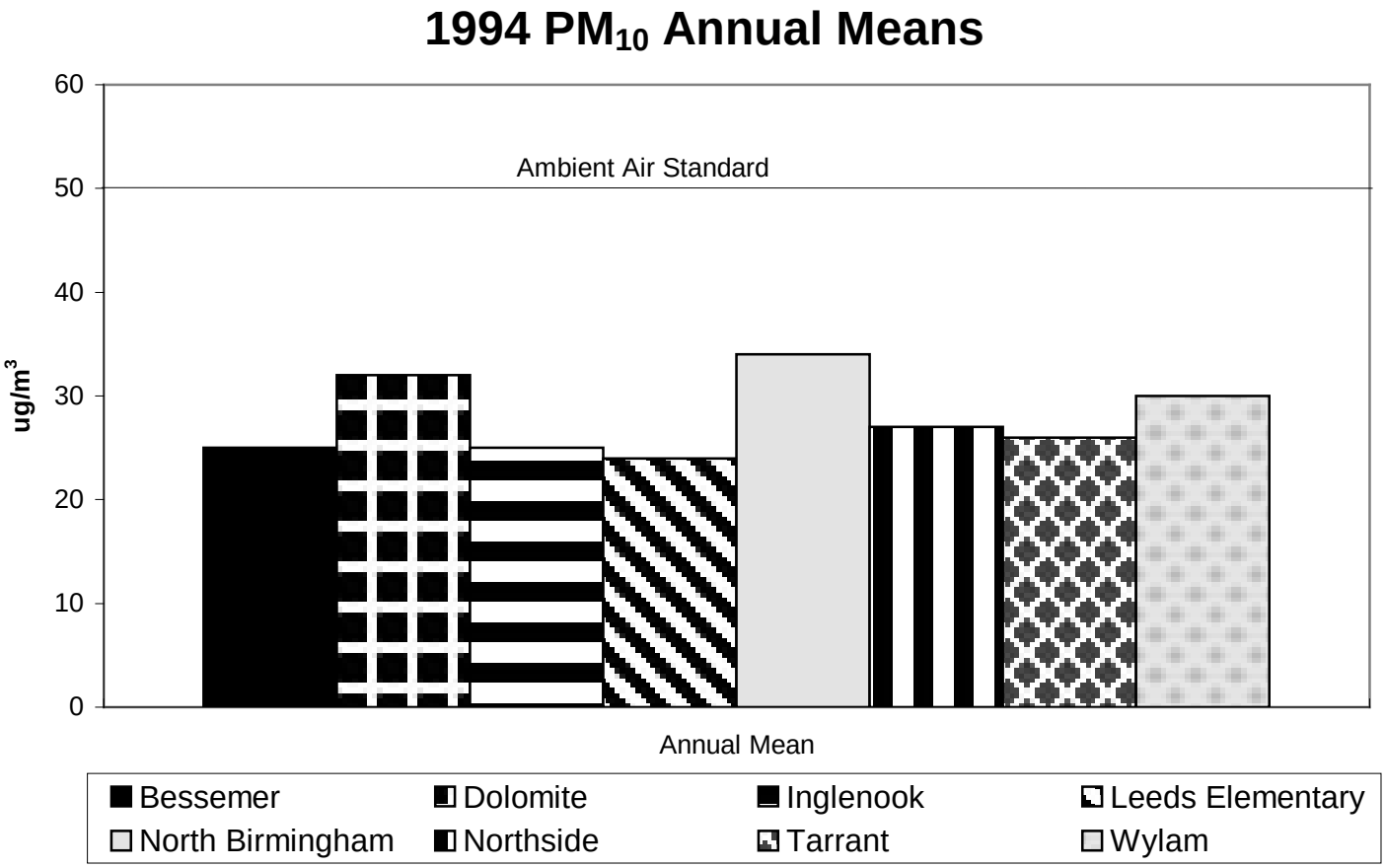

Ozone Highs
1990 - Present
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
PPM
Ambient Air Standard
1990
1991
1992
1993
1994
Fairfield
Tarrant
Pinson
McAdory
Hoover

Table 5.6.4

1994 Particulate Matter (PM_{10}) Maximums

Site Location	24-Hour 1st Max.	24-Hour 2nd Max.	Annual Mean
Bessemer	69	50	25
Dolomite	115	99	32
Inglenook	50	47	25
Leeds Elementary School	56	48	24
North Birmingham	108	104	34
Northside	69	58	27
Tarrant	52	50	26
Wylam	116	83	30

Graph 5.6.6


1994 PM10 Annual Means
60
50
40
30
20
10
0
ug/m3
Ambient Air Standard
Annual Mean
Bessemer
Dolomite
Inglenook
Leeds Elementary
North Birmingham
Northside
Tarrant
Wylam

Graph 5.6.7

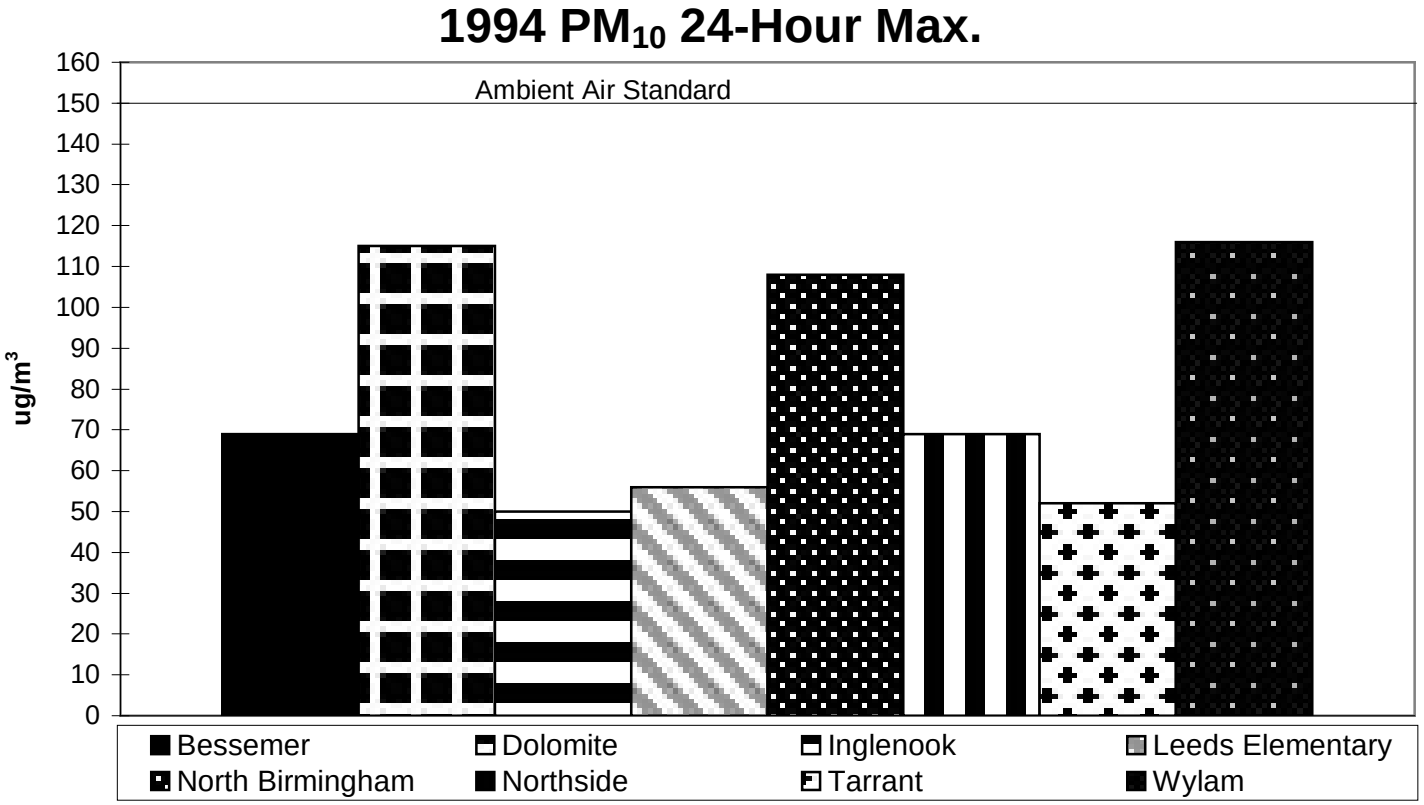

1994 PM10 24-Hour Max.
Ambient Air Standard
ug/m3
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Bessemer
Dolomite
Inglenook
Leeds Elementary
North Birmingham
Northside
Tarrant
Wylam

Table 5.6.5

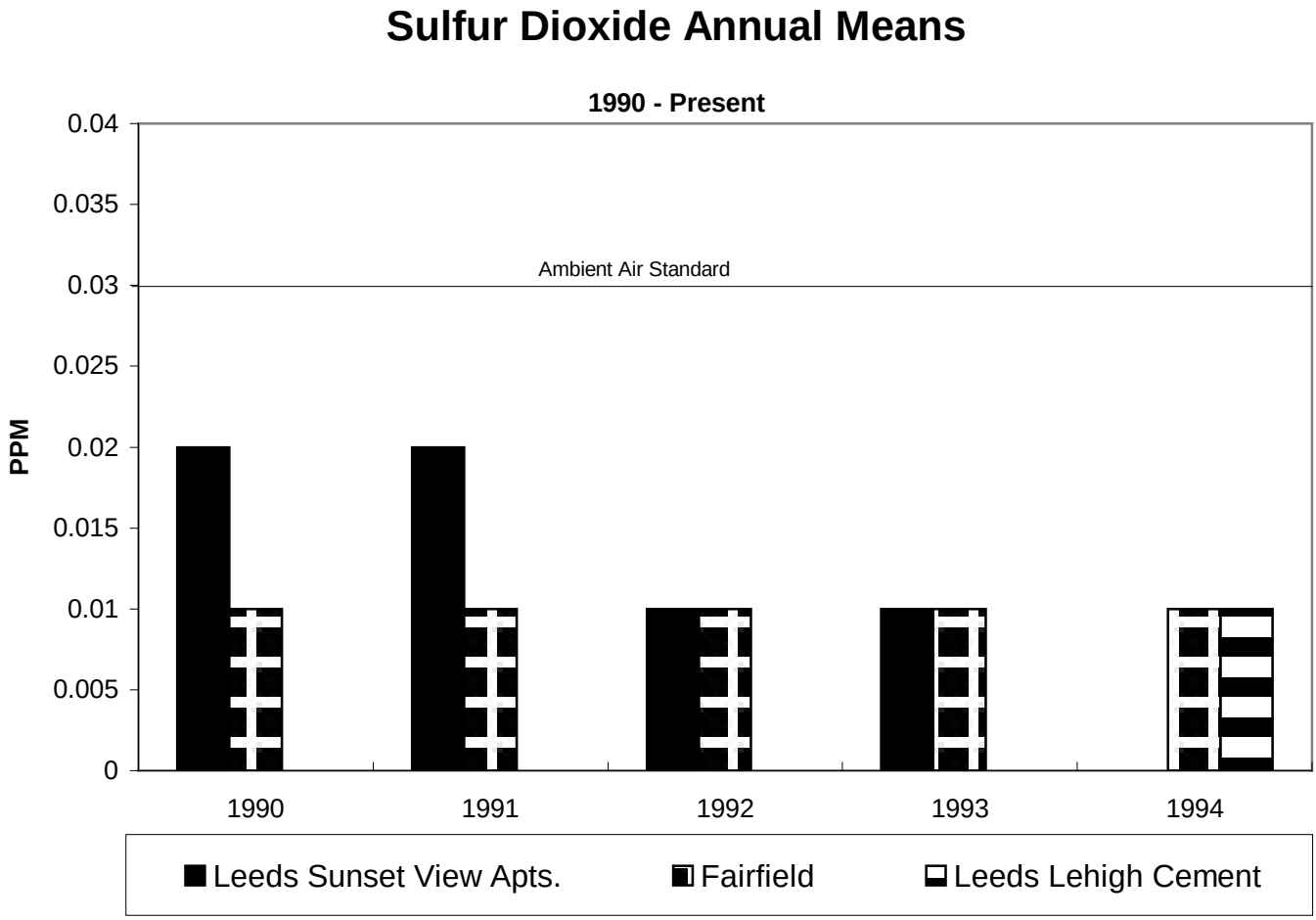
Sulfur Dioxide Max. Averages and Means

Leeds Sunset View Apts.	1990	1991	1992	1993	1994
Annual Mean	0.02	0.02	0.01	0.01	closed 1/27/94
24 Hour Averages					
1st Max	0.26	0.14	0.05	0.02	
2nd Max	0.21	0.12	0.03	0.02	
3 Hour Averages					
1st Max	0.59	0.28	0.16	0.062	
2nd Max	0.57	0.27	0.15	0.061	
Fairfield					
Annual Mean	0.01	0.01	0.01	0.01	0.01
24 Hour Averages					
1st Max	0.03	0.02	0.04	0.05	0.05
2nd Max	0.02	0.02	0.03	0.05	0.04
3 Hour Averages					
1st Max	0.08	0.06	0.10	0.08	0.08
2nd Max	0.07	0.06	0.09	0.08	0.08
Leeds, Lehigh Cement Plant					
Annual Mean				***	0.01
24 Hour Averages					
1st Max				*0.02	0.02
2nd Max				*0.02	0.02
3 Hour Averages					
1st Max				*0.05	0.07
2nd Max				*0.04	0.07

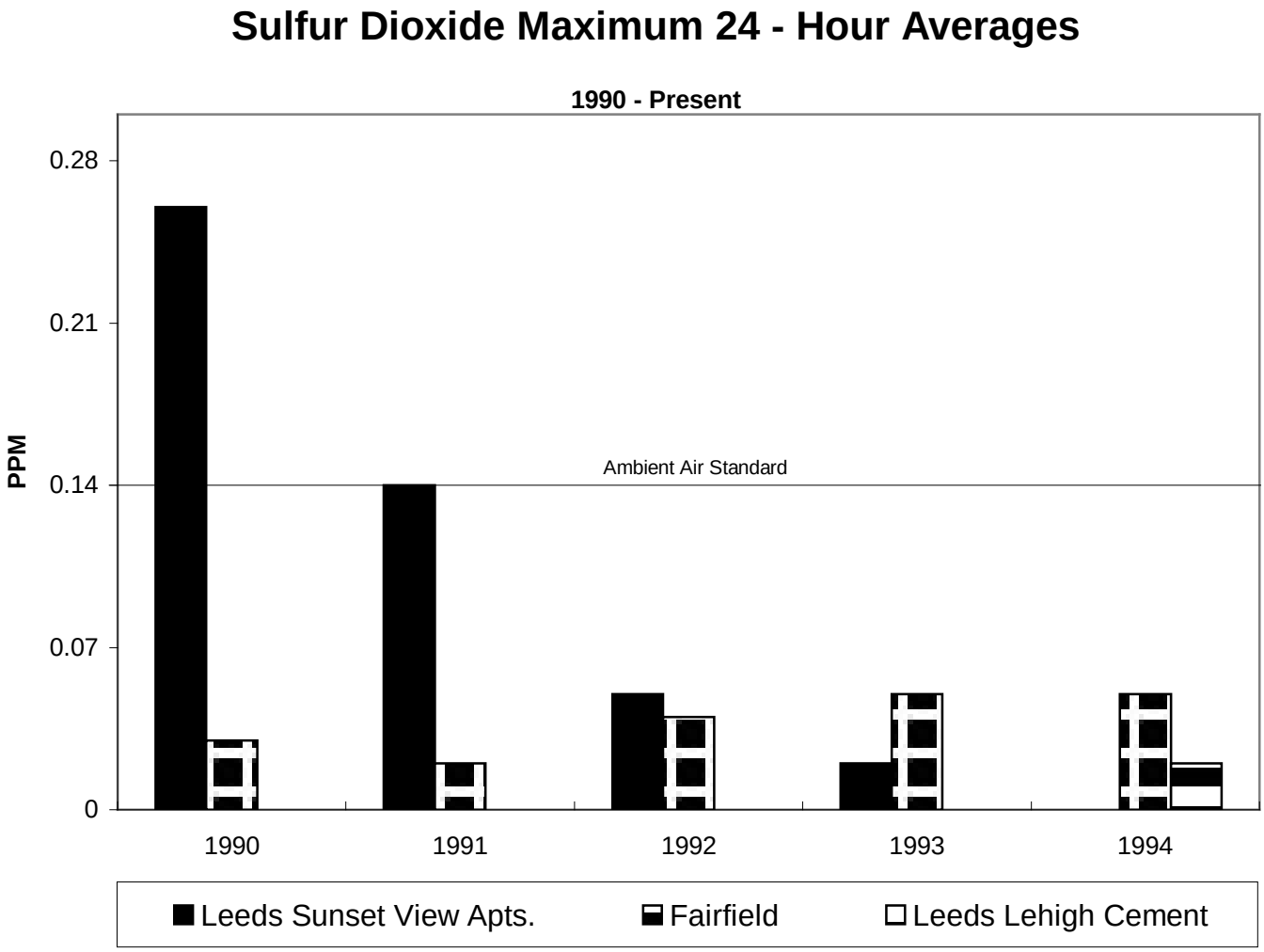
*Based on 7 months of data
*** Insufficient number of samples

Values measured in parts per million

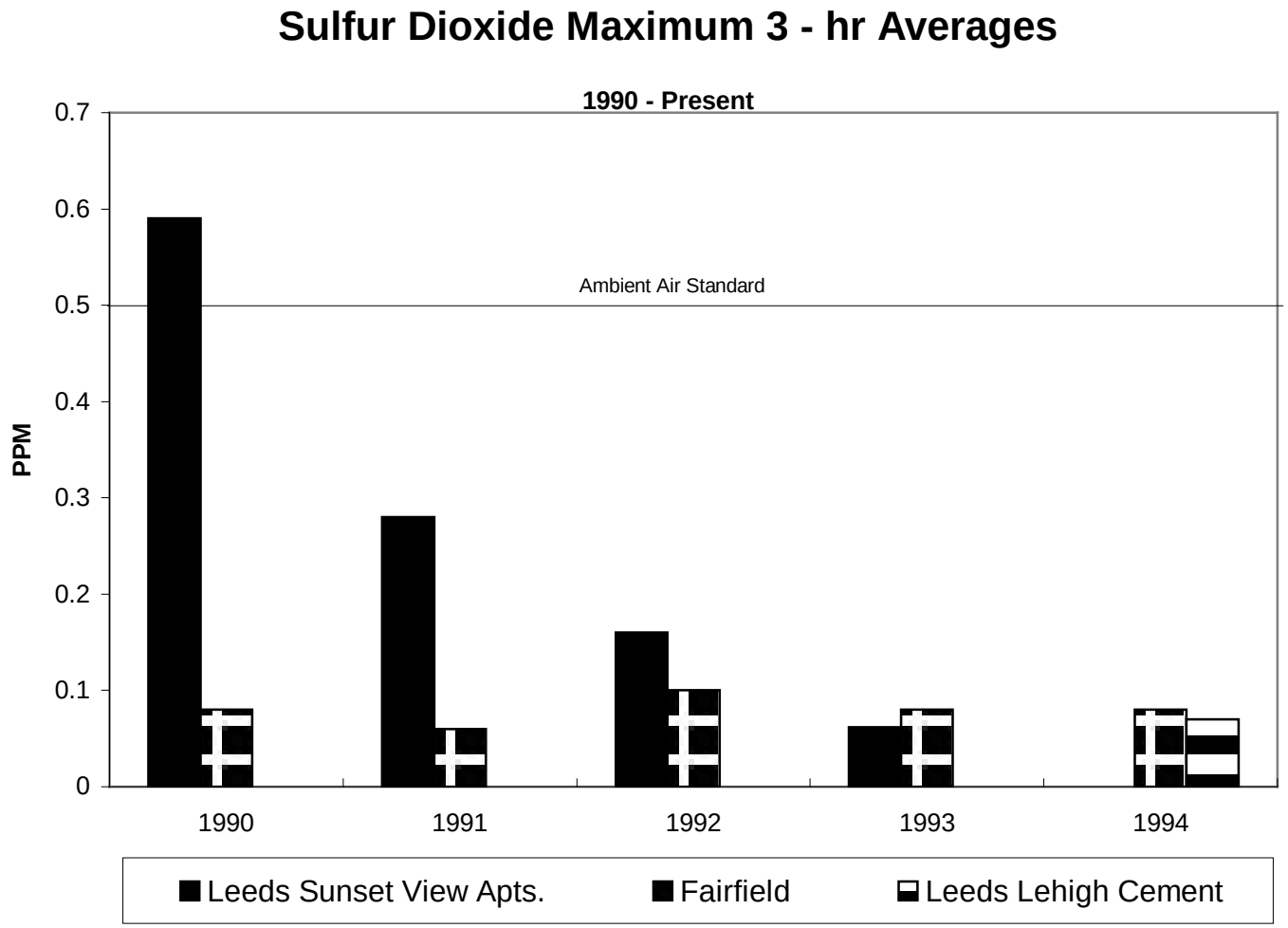
Graph 5.6.8


Sulfur Dioxide Annual Means
1990 - Present
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
PPM
Ambient Air Standard
1990
1991
1992
1993
1994
Leeds Sunset View Apts.
Fairfield
Leeds Lehigh Cement

Graph 5.6.9


Sulfur Dioxide Maximum 24 - Hour Averages
1990 - Present
PPM
0.28
0.21
0.14
0.07
0
Ambient Air Standard
1990
1991
1992
1993
1994
Leeds Sunset View Apts.
Fairfield
Leeds Lehigh Cement

Graph 5.6.10


Sulfur Dioxide Maximum 3 - hr Averages
1990 - Present
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
PPM
Ambient Air Standard
1990
1991
1992
1993
1994
Leeds Sunset View Apts.
Fairfield
Leeds Lehigh Cement

6.0 Exceedances of the Ambient Air Quality Standards

An exceedance of an ambient standard is the occurrence of a pollutant concentration that is greater than the numerical value of the standard for a period of time equal to the averaging time specified by the standard (see table 2.1). A violation of an ambient standard, at a single monitor, is the occurrence of more exceedances of the numerical value of the standard than is allowed within a specified period of time. An excludable exceedance is one that occurred as a result of an unusual natural or man-made event such as a severe drought, wildfire, tornado, structural fire, or temporary construction project near a monitor. The question of whether or not an exceedance will be excluded arises in determining the attainment status of an area and is not a question of whether or not the exceedance occurred but, rather, of what it represents. An exceedance can only be excluded after consultation with the Alabama Department of Environmental Management (ADEM) and EPA.

There were no measurements for any pollutant that exceeded its standard in 1994.

7.0 Field Enforcement Activities

7.1 Industrial and Commercial Facilities

7.1.1 Inspections

All air pollution sources are subject to regular field patrol observations by Field Services sanitarians in the Air Pollution Control Program. Minor air pollution sources receive a comprehensive inspection including emission calculations, on a biennial basis. Major air pollution sources receive annual inspections by the air pollution control engineer or sanitarian assigned to that facility. The inspection includes a review of relevant records and a walk-through of the facility, accompanied by the facility's environmental contact, to check emissions from each source and to ascertain the condition and performance of each control device. A meeting with facility personnel follows the conclusion of the inspection to discuss any problems observed and to establish remedial action if required. The control engineer or sanitarian prepares a comprehensive inspection report that's stored in the facility file maintained by the Air Pollution Control Program.

7.1.2 Incinerators

General waste incinerators receive a comprehensive inspection by Field Services sanitarians biennially. Examination of the unit determines if all burners function properly and if the unit received proper maintenance. Visible emission evaluations during unit operations determine compliance with the visible emission standard. Units identified with complaints, or have recent violations documented, have more frequent inspections. Due to the concern for the potential release of pathogens, the emission limits for medical waste incinerators are more restrictive and the units receive annual inspections. During 1994, there were 285 field patrol observations of incinerators, 31 visible emission evaluations, 42 inspections, and 1 notice of violation issued.

7.2 Open Burning

Due to smoke nuisance and the emission of volatile organic compounds (VOCs), Jefferson County regulates open burning. Generally, open burning is prohibited except under specific circumstances allowed by the regulations and all open burning is prohibited during the months of June, July and August. The issuing of open burning authorizations for land clearing operations requires a site evaluation by a Field Services Sanitarian to determine if the material and the circumstances meet regulation requirements and to set distance restrictions for the burning site. Regulations require a minimum of 500 feet from the nearest occupied dwelling and a minimum of 150 feet from the nearest public road. In 1994, the Air Pollution Program of the Jefferson County Department of Health issued 355 open burning authorizations.

Field service sanitarians also investigate complaints regarding open burning. An Advisory Notice or Official Notice of Violation is issued if the investigation determines a violation of the regulations. In 1994, there were 362 complaints investigated, 148 Advisory Notices written, and 97 Notices of Violation issued.

Table 7.1

Field Enforcement Activities

1994

Industrial Sources:	
Field Patrol Observations	2506
Visible Emission Evaluations	180
Inspections	371
Notices of Violation	2
Incinerators:	
Field Patrol Observations	285
Visible Emissions Evaluation	31
Inspections	42
Notices of Violation	1
Open Burning:	
Field Patrol Observations	146
Authorizations	355
Notices of Advisory	148
Notices of Violation	97
Gasoline Dispensing Facilities & Tanker Trucks:	
Field Patrol Observations	124
Inspections	39
Notices of Violation	4
Complaints Investigated:	
Point Sources	75
Open Burning	362
Asbestos Abatement	28
All Others	184

8.0 Air Permits

Air permit applications must be submitted prior to the construction of new sources that have the potential to emit air pollutants, and before the modification of existing air pollution sources. The type of emission source determines the information required in the application. The Engineering Section evaluates the degree of air pollution control required for all emission points within each source. Using established emission factors to assure allowable air emission standards, calculations are made to determine the estimated emissions for the proposed source. In 1994 air permits were issued for 188 new or modified sources.

Table 8.1

Source	Number of Permits Issued
Industrial	93
Gas Tanker Trucks	57
Gasoline Dispensing	36
Incinerators	1
UST Soil Remediation	1
Total	**188**