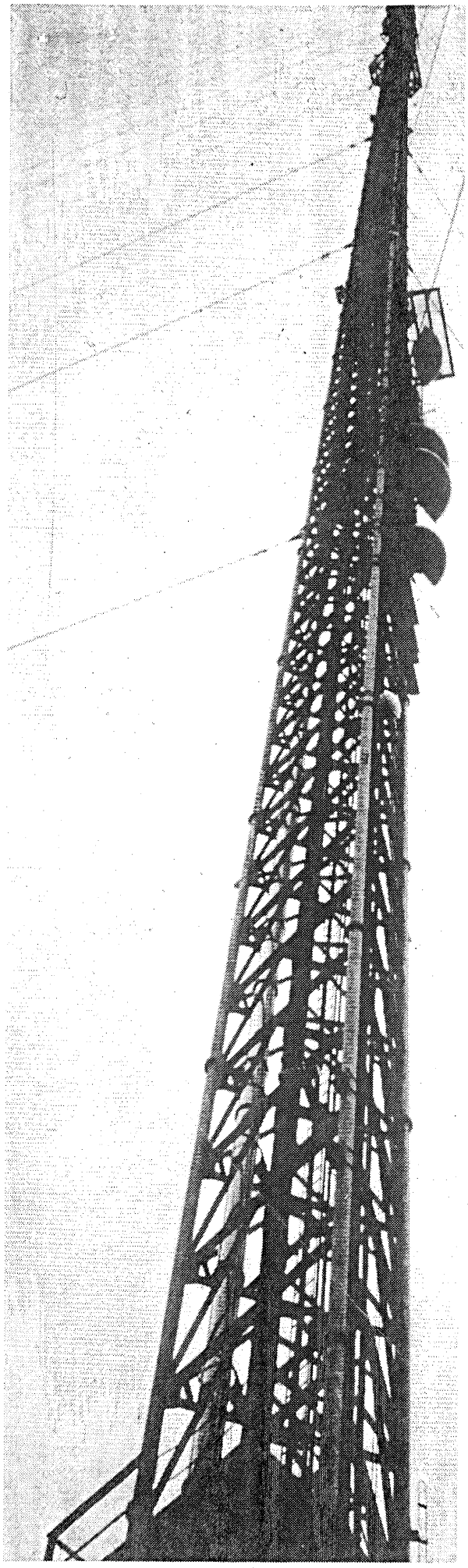

Multi-Elevation Ozone Study Near Raleigh, North Carolina - 1995 -

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Division of Environmental Management
Air Quality Section
Ambient Monitoring Branch
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Multi-Elevation Ozone Study Near Raleigh, North Carolina

1995

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Multi-Elevation Ozone Study Near Raleigh, North Carolina

1995

Abstract

A multi-elevation study of atmospheric ozone and organic compounds began in the 1993 ozone summer season. A 2000 foot television broadcasting tower located about 10 miles southeast of Raleigh provided the opportunity to perform multiple elevation atmospheric sampling. A study was designed to measure the ozone concentrations and organic compounds at three elevations. This study was repeated in 1994. Hydrocarbon compounds and carbonyl compounds were collected by contract laboratories who changed canisters and DNPH reagent cartridges and analyzed the samples. The prior years ozone results and organic sampling results were discussed in other related papers. The Raleigh-Durham area was re-designated as attainment for ozone on June 17, 1994. In 1995, ozone was the only pollutant sampled on the tower. Sampling began on May 16, 1995 at ground level and 820 foot level and continued until October 2, 1995 when all ozone equipment was audited and disconnected. Sampling at the 1420 foot level began on May 25, 1995 after a hole in the sampling line was found and corrected. Ozone was monitored continuously for 23 hours a day with one hour set aside for nightly automatic zero/span checks. For ozone sampling, long sampling lines were attached to the tower from each elevation down to the air conditioned room used for the ozone monitoring equipment. Heated lines and water traps were used inside this air conditioned room. The diurnal ozone patterns measured are presented graphically (Figure 1, 1A, 1B, 1C, and 1D). A diurnal pattern is prominent at ground level, but less noticeable at the 820 foot elevation and almost insignificant at the 1420 foot elevation. The higher elevations exhibit higher daily averages and lower maximum concentrations than at ground level except for September, and the higher elevation daily maximums occur slightly later in the afternoon than the ground level maximums. The average ozone concentration at ground level for May was .042 ppm, at 820 foot level the average was .053 ppm and the average at 1420 foot level was .050 ppm. The average concentration at ground level for June was .035 ppm and at 820 foot level the average was .048 ppm versus the average

concentration for June at 1420 foot level was .047 ppm. The average ozone concentration at ground level for July was .040 ppm and at 820 foot level it was .053 ppm and at 1420 foot level it was .054 ppm. The average ozone concentration at ground level for August was .041 ppm and at 820 foot level it was .050 ppm and at 1420 foot level it was .048 ppm. The September averages for ozone were .030 ppm at ground level and .046 ppm at 820 foot level and .049 ppm at 1420 foot level. Multi level ozone sampling will continue in 1996 with the relocation of the 820 foot probe to lower levels such as 250 foot and 445 foot. Sampling will continue at ground level and 1420 foot level thus providing four (4) sampling levels in 1996.

Introduction

The Air Quality Section of the North Carolina Division of Environmental Management is charged with protecting the ambient air quality within the state. The measurement of air quality in terms of specific air pollutants allows the agency to focus control efforts on the pollutants with the highest concentrations. The pollutant with the highest average concentration is ozone, a respiratory irritant.

The Raleigh-Durham area was designated non-attainment for ozone on January 6, 1992. On June 17, 1994 the area was redesignated attainment for ozone. This report provides a summary of findings for multi-elevation ozone sampling performed in the summer of 1995. Initial sampling was performed in the summer of 1993 and continued in the summer of 1994. This opportunity to continue upper air sampling in this area is of great value in understanding the ozone problem. The multi-elevation television tower located near Garner, North Carolina has provided the opportunity to measure ozone, hydrocarbons and carbonyl compounds at multiple levels for 1993 and 1994. In 1995, only ozone was monitored at the tower. This television tower has three distinct platforms at 820 foot level, 1220 foot level and 1420 foot level. Access to the levels is by a two-man elevator in the center of the tripod configuration of the tower. These platforms are large enough to support several small cabinets to house test equipment. The cabinets were used for hydrocarbon and carbonyl samplers in 1993 and 1994. Ozone monitors and calibrators were located in a temperature controlled building at the base of the tower. Ozone sampling was done using long sample lines of FEP tubing to the ozone analyzers at

ground level (approximately 320 feet above sea level). Sampling was performed at ground level, 820 foot level and the 1420 foot level. Access to the tower levels was limited to Tuesday through Fridays. Due to the construction of another antenna on the tower during the 1995 ozone season, access was very limited.

The sample probe assembly at the 820 foot and 1420 foot levels included a 90mm Teflon® filter holder with a Teflon® particulate filter. Each probe arm, made of stainless steel tubing, extended approximately 2 meters away from the tower platform with approximately a 60 degree downward bend on the arm to minimize precipitation entering the probe line. To further minimize the moisture/precipitation problem, the FEP lines stopped two feet inside the end of the stainless steel probe arm. The probes were located on the southwest part of the tower for best exposure to the predominant southwesterly summer winds. Contractor help was needed to initially install the sample lines on the tower. Prior to the start of the 1995 sampling season, new sample probe lines at each level from the probe arm extending out away from the Tower structure to the 90mm particulate filter holder were installed. The stainless steel probe arms were extended out in position from the tower at the beginning of the season. Each year at the end of the sampling season, the probe arms were brought inward into the structure of the tower because of ice formation in the winter. The FEP sampling lines were conditioned with ozone before re-installation. At the beginning of the season on the tower, the long sample lines were inspected for water and obvious breaks. The line was disconnected at the 90mm filter, capped off and a pressure applied to check for breaks in the long sampling lines. After this step was done, the lines were reattached and ready for sampling. The 90mm particulate filter at each sampling platform was changed periodically. A break in the 1420 foot line at approximately 1300 foot level was found and repaired prior to the initial calibration. Water was also found in the loop at the stainless steel connection. The line was disconnected and dried out prior to the start of the ozone sampling period.

Ozone was measured using the ultraviolet photometric detection principle. Dasibi 1003 AH

Note: The mention of trade names or commercial products does not constitute endorsement or recommendation for use.

analyzers were used for each level. These instruments are designated by EPA as "equivalent methods". A single calibrator was used to minimize variability in calibrations and routine checks. The output of the monitors were connected to a data logger and to a "back-up" data system.

A diurnal pattern is prominent at ground level, but is less noticeable at the 820 foot elevation and almost insignificant at the 1420 foot elevation (Figure 1, 1A, 1B, 1C, and 1D). The higher elevations exhibit higher daily averages, and the higher elevation daily maximums occur slightly later in the afternoon than the ground level maximums.

Period of Ozone Data Collection

The ozone monitors were installed at the tower on May 9, 1995. The original plan was to install and start operation of the analyzers by May 15, 1995, however, due to the break in the 1420 foot sampling line and the water in the connector loop the original calibration of the 1420 foot level started later. The instruments were allowed to warm up and stabilize with adjusted calibrations being done on May 16, 1995 for the ground level and the 820 foot level. The 1420 foot level ozone monitor was calibrated on May 31, 1995. Start-up officially began as follows:

Ground level - May 16, 1995 @ 12:00 hour

820 foot level - May 16, 1995 @ 16:00 hour

1420 foot level - May 31, 1995 @ 16:00 hour

Sampling continued until October 2, 1995 at 13:00 hours when all equipment was audited and shut down. A total of one hundred forty (140) days of data were collected at ground level and 820 foot level and one hundred thirty one (131) days of data were collected at the 1420 foot level. The data completeness was excellent.

Ground level - 88.20% complete

820 foot level - 91.29% complete

1420 foot level - 91.27% complete

Summary of the daily one hour averages are provided graphically in Figure 2, and in various listings in Appendix A.1, A.2, and A.3.

Initial Calibration

The calibration for the beginning of data collection for the ground and medium level instruments was done on May 16, 1995 using a certified 1003 PC Dasibi calibrator.

The high level (1420') was recalibrated on May 31, 1995 using the same calibrator. The following percent differences from the data logger were noted after these calibrations. No data were reported until these calibrations were performed.

	Deviation from True Ozone Concentration		
Calibration Point	Ground	Medium	High
.450 PPM	-0.2%	0.0%	-0.4%
.300 PPM	0.7%	0.0%	-0.7%
.150 PPM	0.7%	1.3%	0.7%
.050 PPM	2.1%	0.0%	-2.0%

These calibrations are within acceptable limits. Calibrations are normally conducted quarterly (ninety-one days maximum). Two accuracy audits were performed on this project. These checks enveloped the collected data.

Routine Visits and Checks

Frequent site visits were made by an Electronic Technician in order to foresee any problems which might occur. Approximately three site visits were made each week (see Appendix B). All instrument checks, calibrations, and precision points followed EPA approved State SOP/QA procedures.

Each ozone analyzer was subjected to a one hour automatic zero and span check performed on a daily basis in the early morning hours (3:00 am until 6:00 am). These check results and the hourly ozone

averages were reviewed frequently via modem hook-up at the main office. The zero and span checks were used to determine whether a site visit was needed for further checking. To perform automatic zero and span checks, an artificial test atmosphere at zero and one span concentration was introduced into each analyzer. The span gas concentrations were about 70-90 percent of the analyzer's nominal operating range (.350 - .450 ppm). During routine sampling and automatic zero and span checks, the monitor's span numbers were based upon the statewide average barometric pressure corrected for vacuum in the sample lines which includes the effect of elevation above ground level. The calibrator span number was based upon the statewide average barometric pressure. The actual measured pressures are shown in Appendix C. The effect of the sample line pressures upon the data is less than an average 1% change in the data values reported.

Frequent manual zero/span checks were used to determine the need for analyzer adjustments. No adjustments were needed during this study. To perform the manual zero/span checks, artificial test atmospheres at zero and one span concentration (.350 through .450 ppm) were introduced into each analyzer. All air samples and the test gases were introduced through a 47 mm particulate filter on the back of the analyzers via a solenoid valve. The test gases did not go through the particulate filter which was on the tower. During these checks, the analyzers operated in their normal sampling mode, except the span number for the two tower monitors were adjusted to reflect average ground barometric pressure for the checks.

Samplers precision/zero/span checks (Appendix D) and other operational checks were performed biweekly by the site operator following the format prescribed in the EPA approved State SOP/QA Plan. The ozone monitor logbook checks were made and documented during each site visit. The purpose of these checks were to ensure that the air monitoring station and all levels were operating properly and within prescribed parameters as indicated in the State SOP/QA Plan.

Precision checks were performed in the same manner as manual span checks, except the precision check concentration was about 16-20 percent of the analyzer's full scale range (.08 - .10 ppm). The gaseous standards for the span and precision concentrations were obtained by an ozone generator with ozone concentrations determined by a currently certified ozone transfer standard. During manual

precision/zero/span checks and calibrations, the monitor's and calibrator's span numbers were reset based upon the actual barometric pressure during the check or calibration. Appendix D lists the precision/ zero/span check results performed at the Auburn Multi-Elevation Tower.

Accuracy Audits

Accuracy audits were performed to document the difference between the analyzer response and the reference value obtained during the multipoint instrument audit. Accuracy audits were performed on June 21, 1995 and at the end of this project on September 27, 1995. The audits were performed by the Electronics and Calibration Unit (ECU) and not the normal site operator. The audit calibrator was certified against a primary standard quarterly. The monitors were operated in their normal sampling mode and the audit gas passed through the 47mm existing particulate filters on the monitor inputs.

After the analyzer and calibrator stabilized, ten analyzer readings, calibrator readings and recorder readings were taken. The average of the ten readings were compared to the average of the corresponding one minute data logger valves. This procedure was used for each audit point (.03 - .08, .15 - .20, .35 - .45 ppm). All results were less than 7.5% difference.

The percent difference d_2 for each point except zero was calculated as follows:

$$d_2 = \frac{C_M - C_A}{C_A} x100$$

Where: C_M = average ozone concentration measured

C_A = average true concentration of audit gas produced by the audit calibrator display.

See Appendix E for audit results.

Ozone Line Loss

The FEP sampling lines to the two tower monitors (1420 feet, 820 feet) were .625" OD with .045" walls. The residence time for each level was calculated including the 130 feet of tubing to get the sample lines into the testing facility. The flow was 10 liters per minute using a helper pump. Both the inlet and outlet of the analyzers were connected to the lines from the tower. The monitor pumps were therefore not pulling against the vacuum created by the long sample lines. The sample residence times

are as follows:

Tubing Size OD inches	Wall inches	Cross Sec. area sq. cm	Length feet	Volume cc	Residence time/min.
0.625	0.045	1.449588	1550	68484.3	6.85
0.625	0.045	1.449588	950	41974.3	4.20

The ground level 1/4" FEP sampling line had a residence time of less than twenty seconds. Since the residence times for the two tower monitors are not within the twenty second time period recommended by EPA, line loss ozone studies were conducted near the beginning of the project, the middle and at the end of the project. To minimize line loss, the .625 inch sample lines were conditioned with 2 ppm of ozone for seven days at a flow rate of five Lpm prior to installation and start-up of the tower in 1993. The long sampling lines were inspected and vacuum checked prior to the start of sampling season. Teflon® inlet filters were used on the lines near the intake on the tower to prevent particulate matter from entering the sampling lines. These filters were also conditioned to minimize the potential ozone scavenging and changed on a regular basis after the line loss studies.

The line loss experiments were done on June 8, 1995 (Figure 3), August 17, 1995 (Figure 4) and October 3, 1995 (Figure 5). The line loss test was conducted by taking a certified calibrator to each level. The calibrator was warmed up for 30 minutes before any readings were taken. During each check a towel was draped over the calibrator to help retain the cell temperature due to windy conditions on the tower.

At each level, thirty (30) readings were taken from the calibrator while sampling ambient air. All values were corrected for zero off-set of the instruments. At the ground level, the thirty readings were recorded after waiting the calculated residence time to the nearest minute. The average results from the up-the-tower measurements from the calibrator were compared to the appropriate monitor average response to approximate the loss of ozone in the long sample lines. The line loss results are found in Appendices F, G, and H.

Data Analysis

Scatterplots (Figure 6, 6A, 6B, 6C, and 6D) comparing ground level to 820 foot level (middle), ground level to 1420 foot level (high), and 820 foot (middle) level to 1420 foot (high) level show each pair of locations and concentrations at these elevations. The 820 foot level points and the 1420 foot level points are closely grouped meaning good correlation between those two levels. When looking at the ground level as compared to the 820 foot level and also to the 1420 foot level, one can see the points are very scattered and not in a straight line. With this in mind, we decided to remove the 820 foot level and relocate it to two (2) lower levels and keep the 1420 foot level to measure transport.

The boxplots (Figure 7) are pictorial representations of the distribution of daily maximums for each month and each elevation or level. The middle line of each box is the median value and the shaded region is a symmetric 95% confidence interval for the true median. When the shaded regions of two boxplots overlap, the two medians are not significantly different. The average (median) daily maximum in July is lower at the ground level than at the elevated levels, but in the other months, the averages are not significantly different at the different levels. The medians in August are slightly higher than June, July, and September, but the significance of these differences is moot.

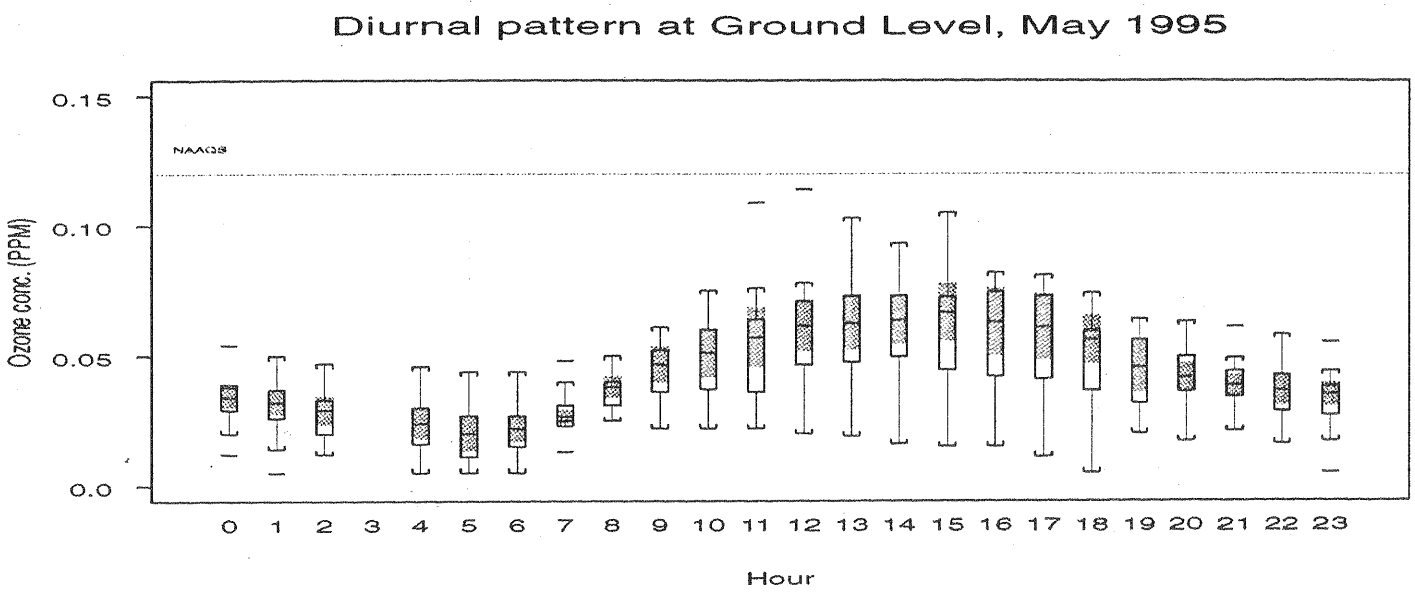
The interquartile range, represented by the width of the boxes, and the full range, represented by the highest and lowest lines, indicate variability in the daily maximums. The greatest variability occurs in July, and the next greatest in August. In June it is difficult to characterize any level as being more or less variable than the other levels. In July, the ground level maximums are more variable than the elevated level maximums. In August and September, the ground level maximums are slightly less variable than the elevated level maximums.

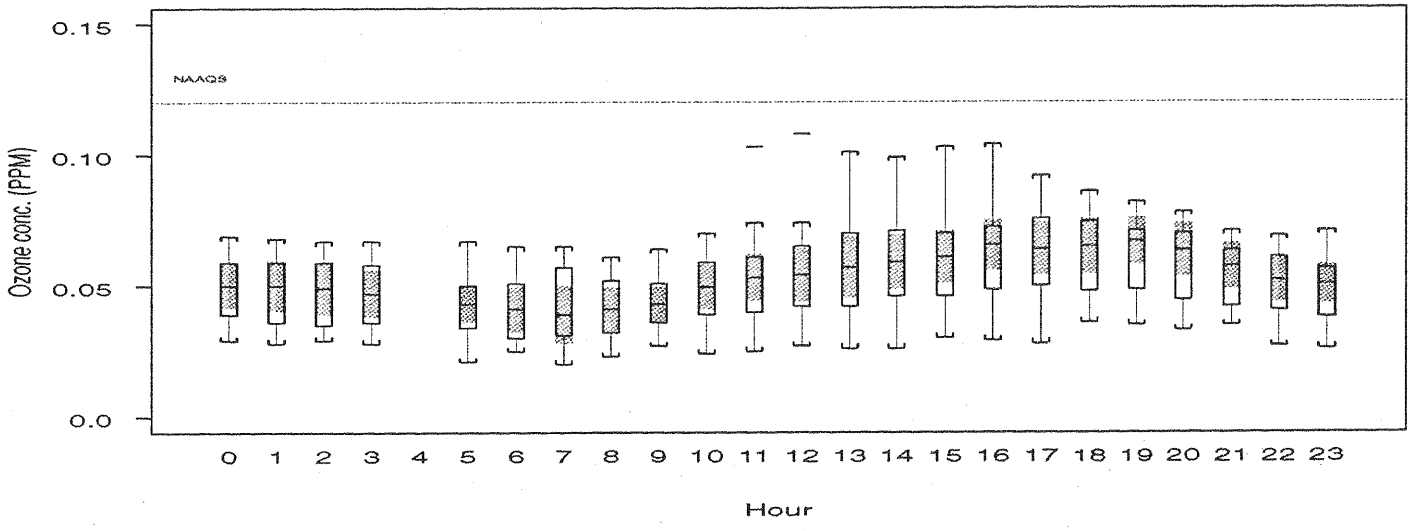
Conclusions

Valid ozone information can be obtained using this technique, though quantifiable line loss occurs. The normal diurnal pattern seen at ground level monitoring was not seen at 820 foot and 1420 foot elevation. The patterns were flatter at the higher elevations. The daily averages were higher at elevated levels and the daily maximums were usually higher at ground level. The ozone data are presented graphically in Figure 1. These data are not corrected for line loss. The ozone study will

continue in 1996 with changes to the middle sampling level.

FIGURE 1


Diurnal pattern at Ground Level, May 1995
NAAQS
Ozone conc. (PPM)
0.0
0.05
0.10
0.15
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour


Diurnal pattern at 820 ft. Level, May 1995
NAAQS
Ozone conc. (PPM)
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0.05
0.10
0.15
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Hour

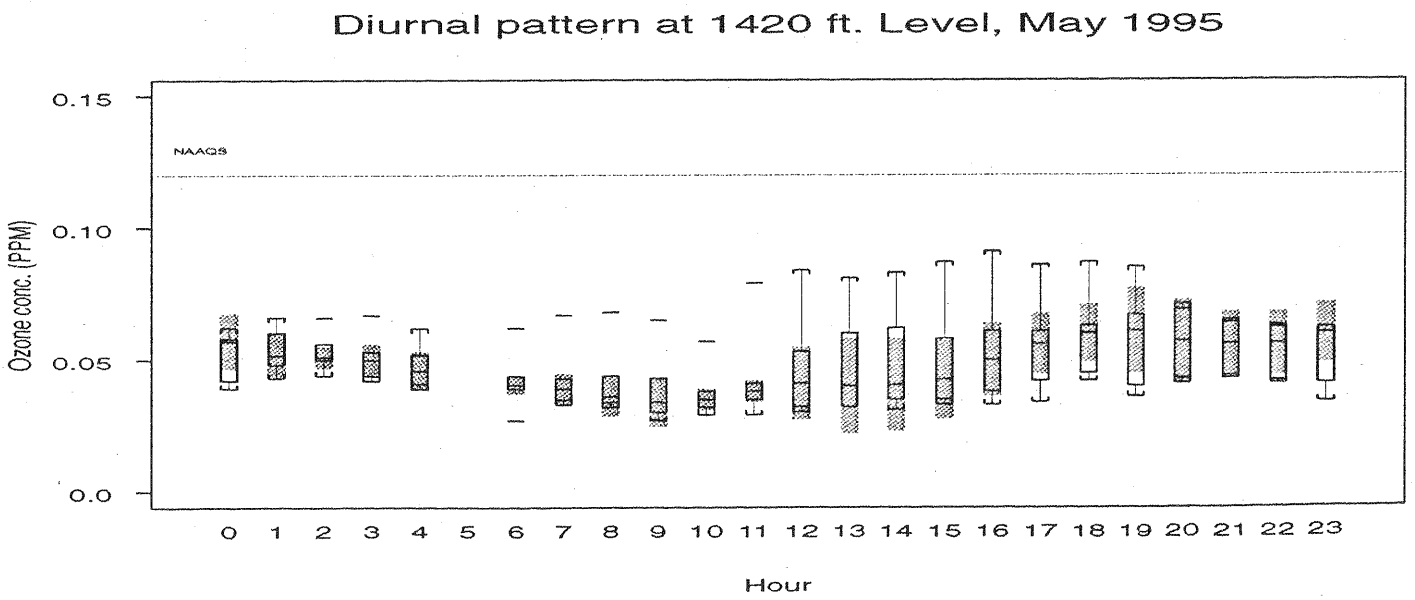
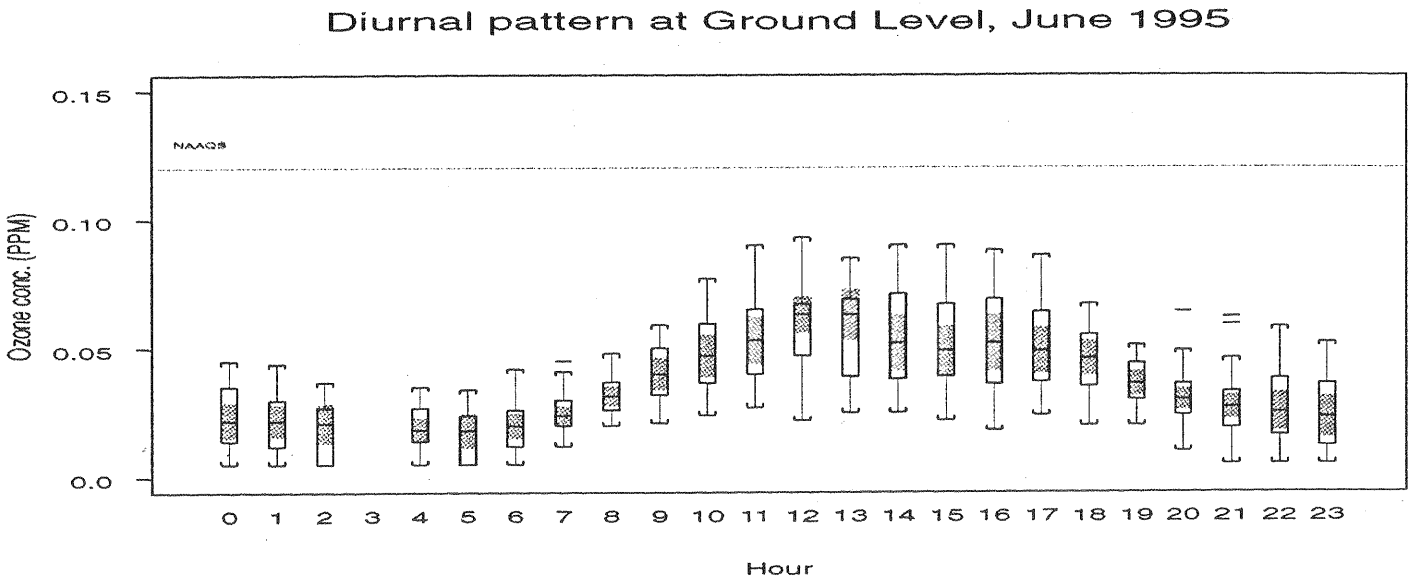
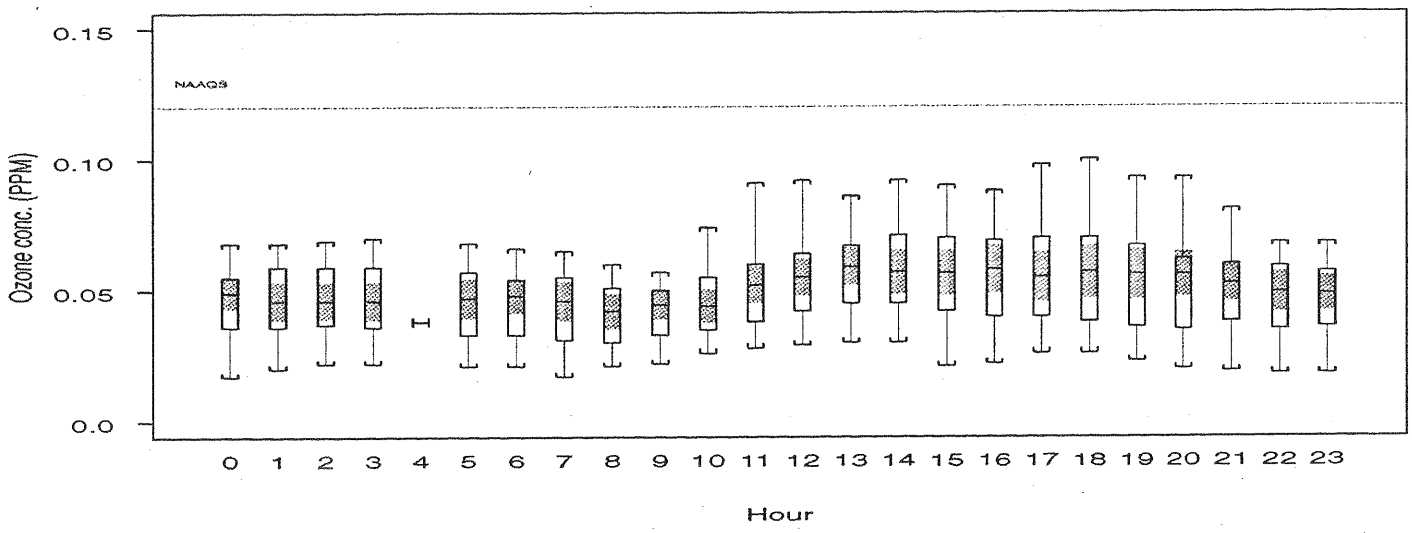

Diurnal pattern at 1420 ft. Level, May 1995
NAAQS
Ozone conc. (PPM)
0.0
0.05
0.10
0.15
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour

FIGURE 1A


Diurnal pattern at Ground Level, June 1995
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
NAAQS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour


Diurnal pattern at 820 ft. Level, June 1995
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
NAAQS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour

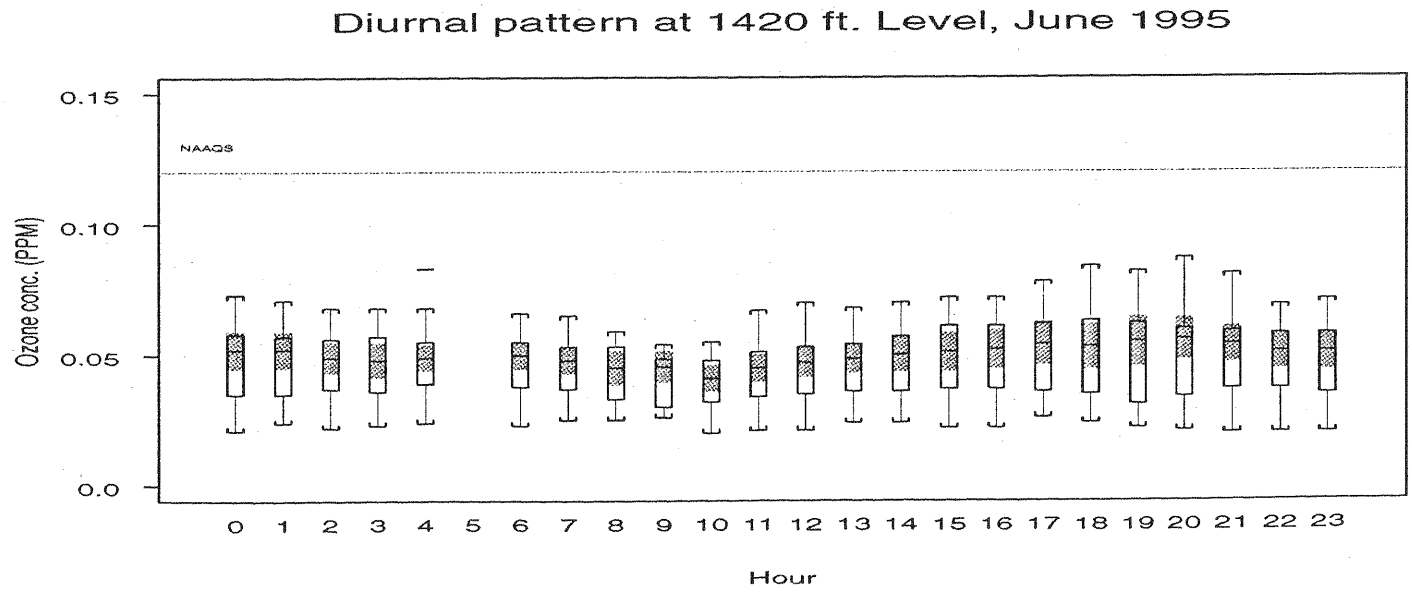
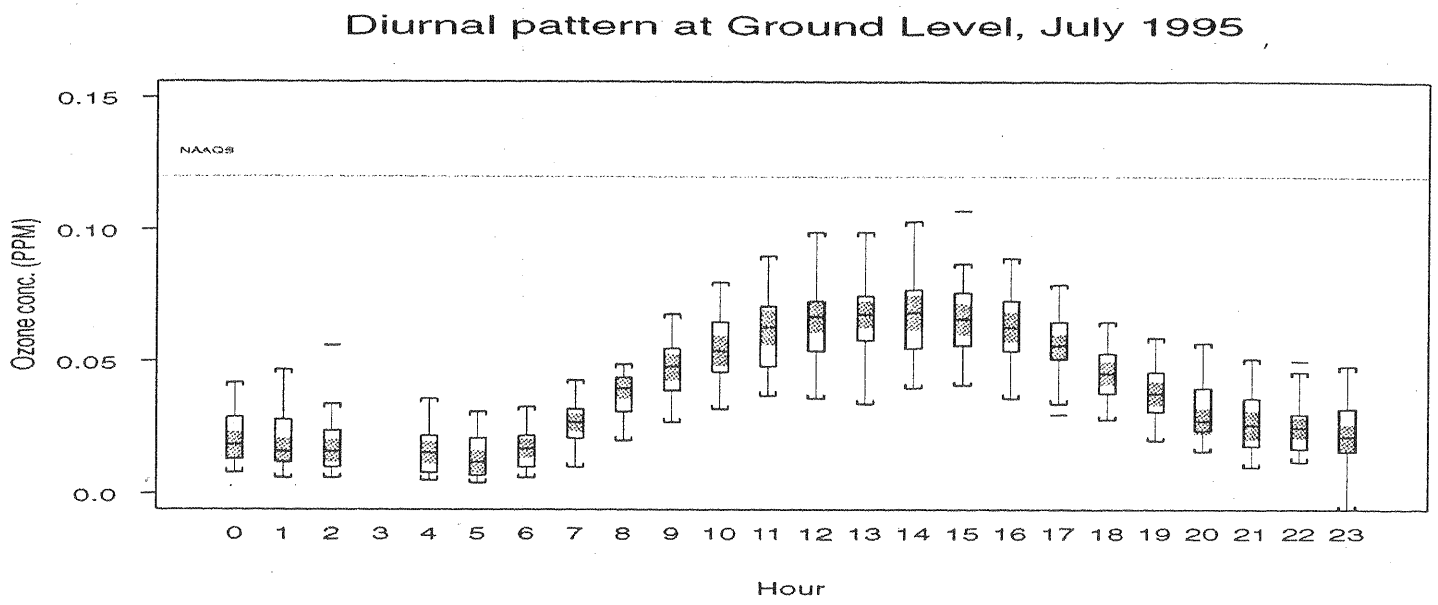
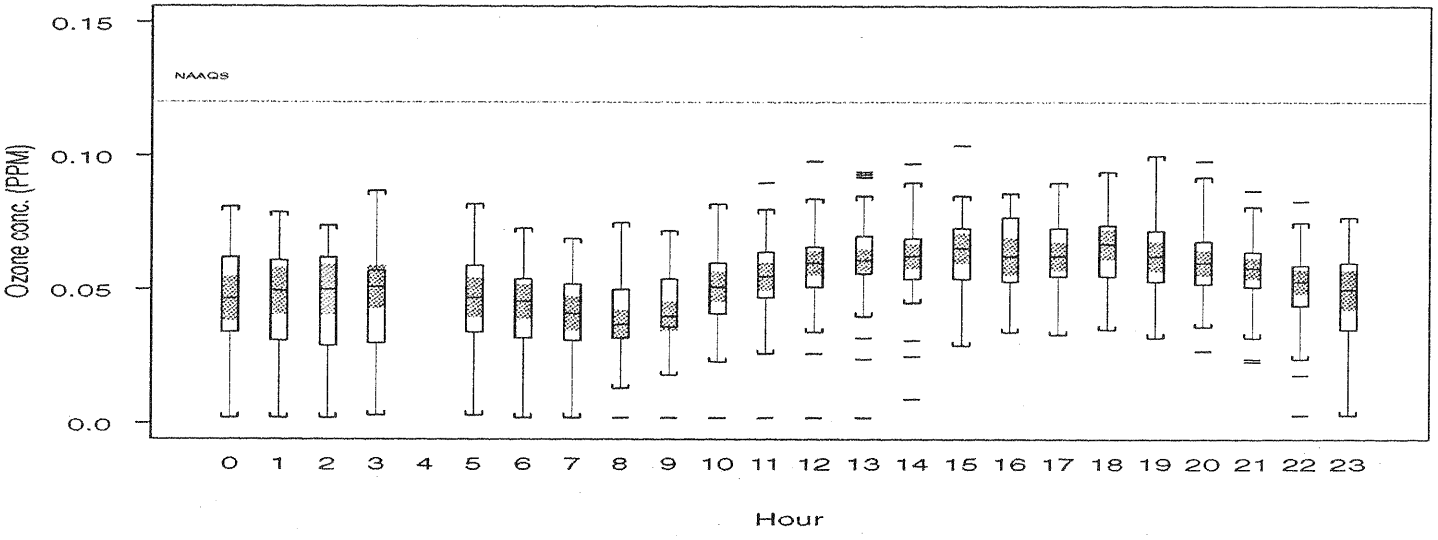

Diurnal pattern at 1420 ft. Level, June 1995
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
NAAQS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour

FIGURE 1B


Diurnal pattern at Ground Level, July 1995
NAAQS
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour


Diurnal pattern at 820 ft. Level, July 1995
NAAQS
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour

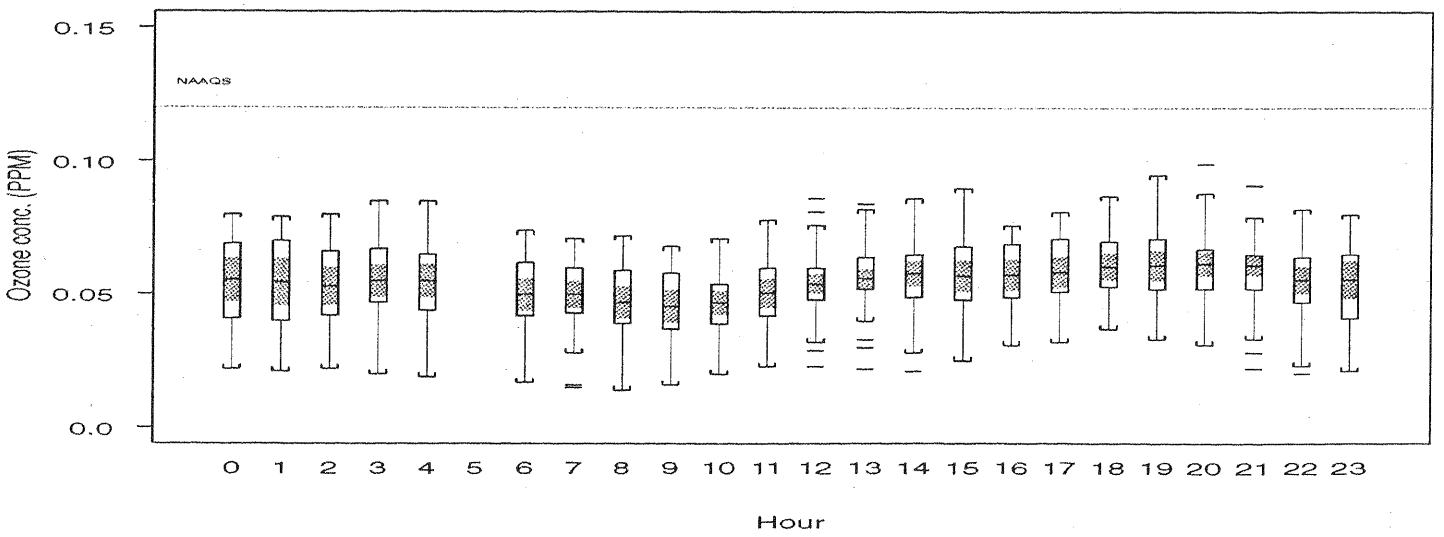
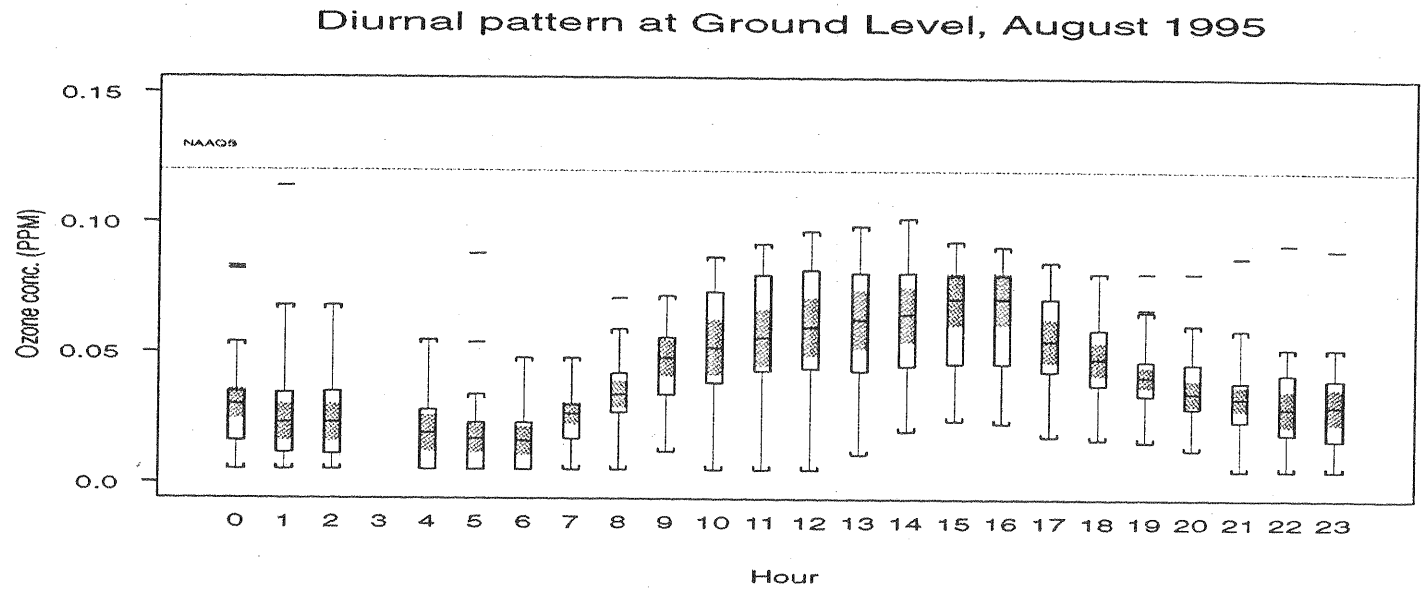

Diurnal pattern at 1420 ft. Level, July 1995
NAAQS
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour

FIGURE 1C


Diurnal pattern at Ground Level, August 1995
Ozone conc. (PPM)
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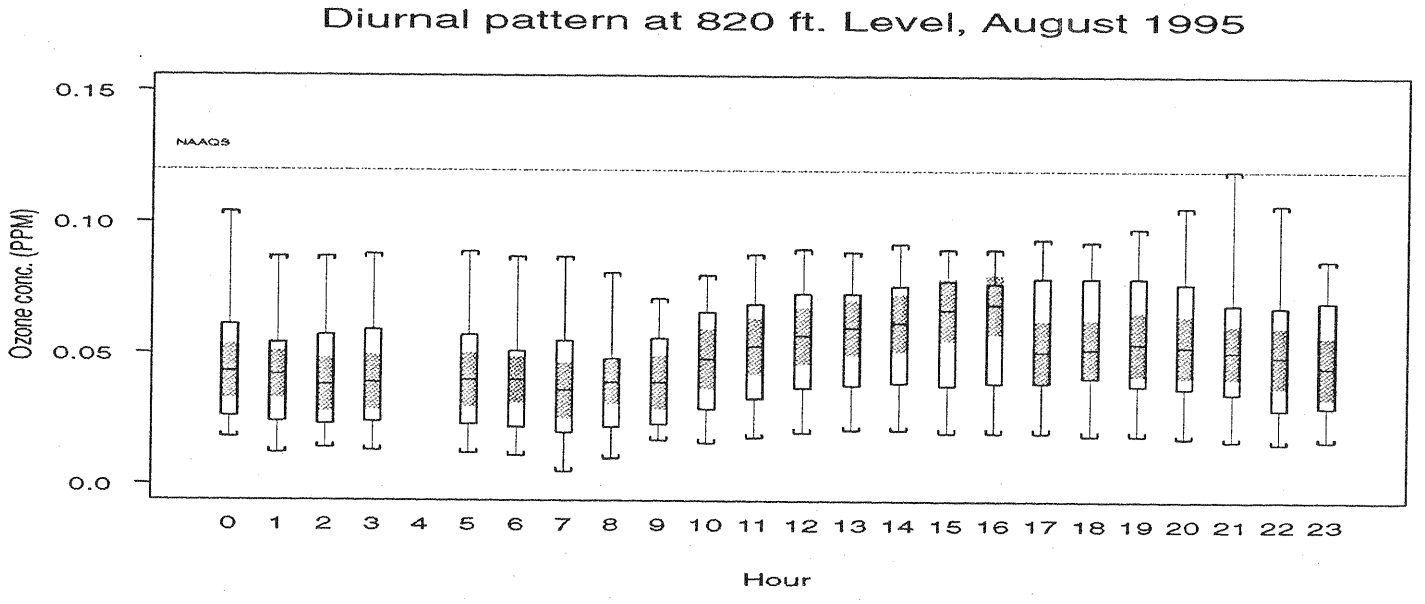
0.10
0.05
0.0
NAAQS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour


Diurnal pattern at 820 ft. Level, August 1995
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
NAAQS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour

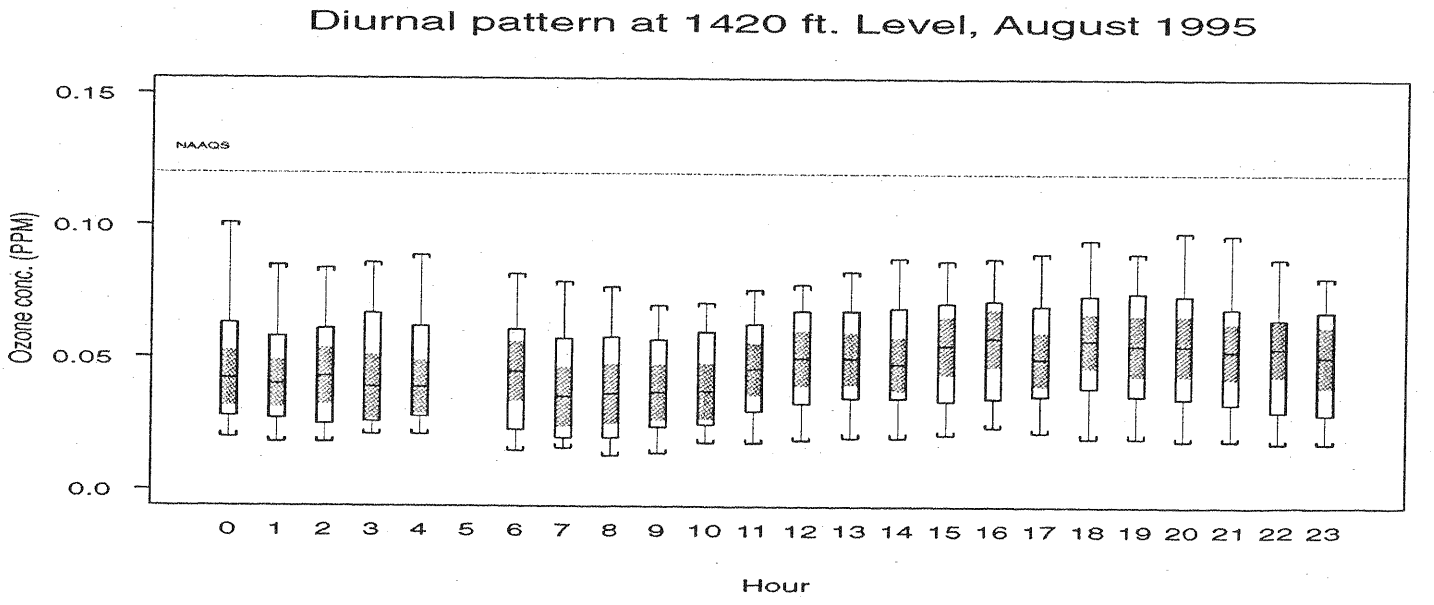
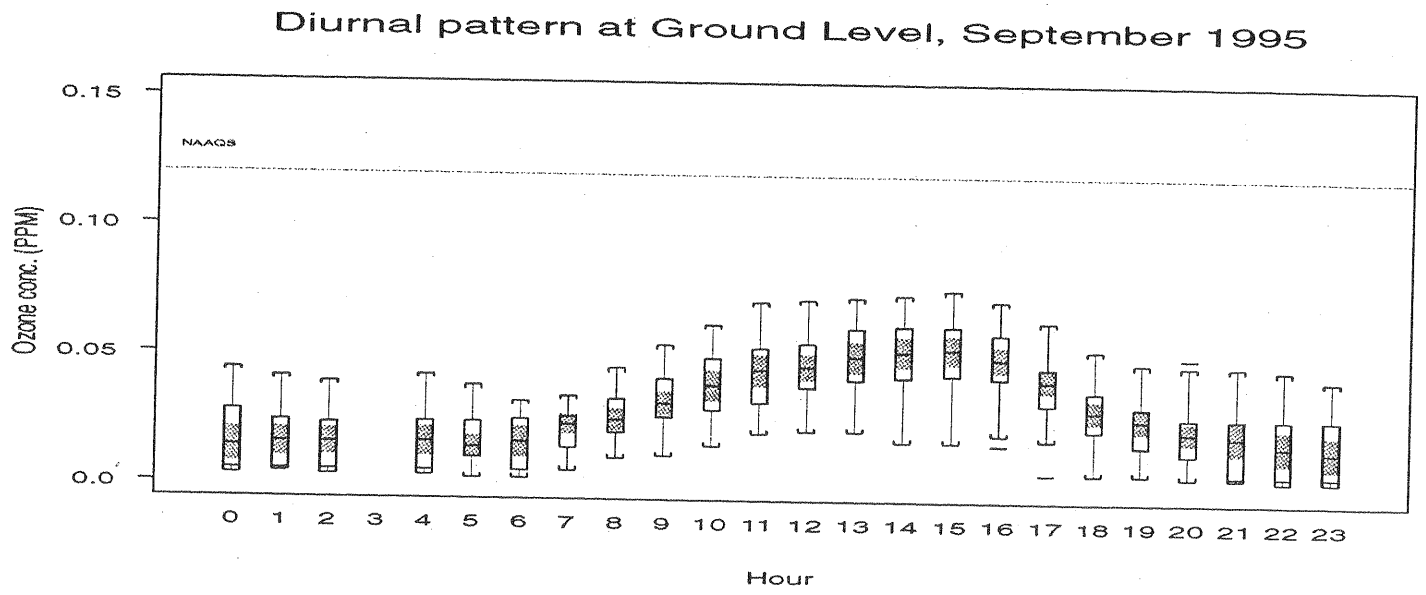
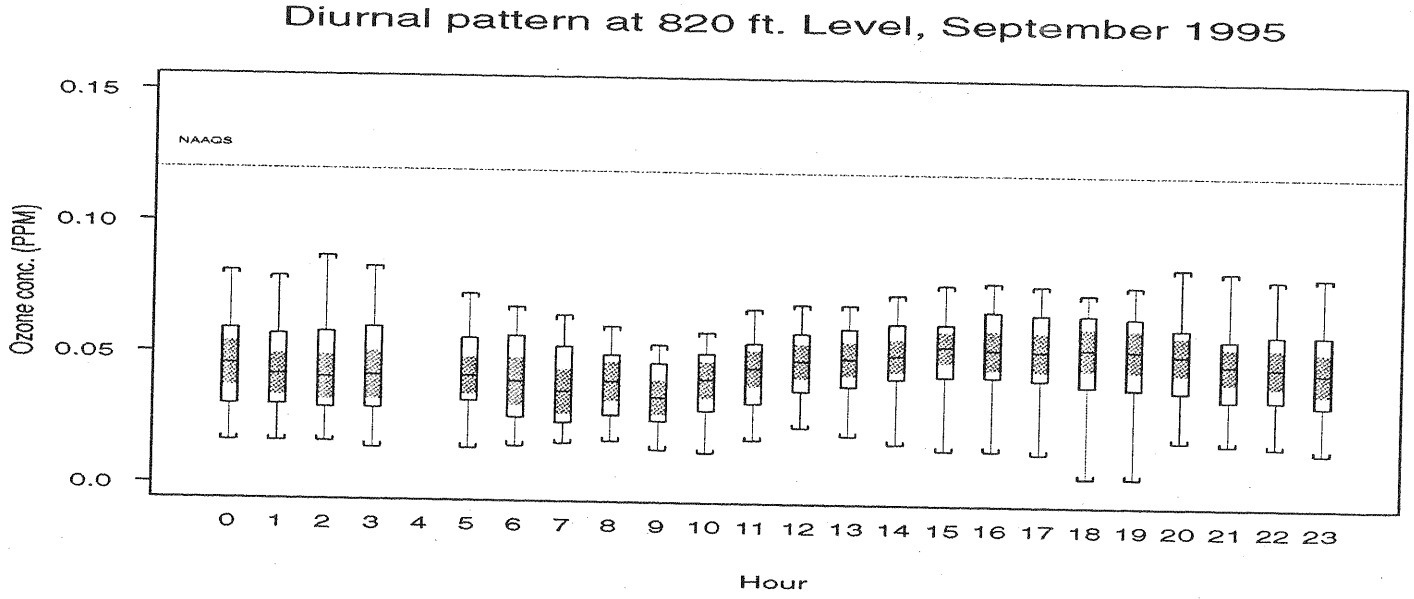
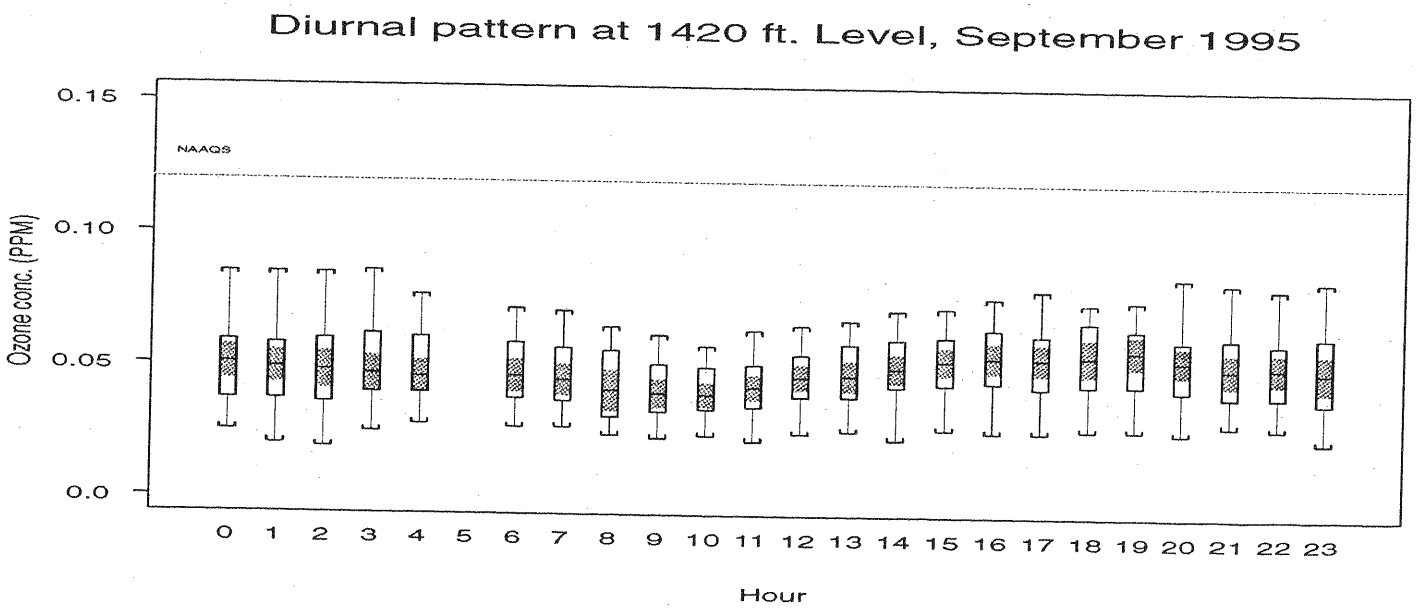

Diurnal pattern at 1420 ft. Level, August 1995
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
NAAQS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour

FIGURE 1D


Diurnal pattern at Ground Level, September 1995
0.15
0.10
0.05
0.0
NAAQS
Ozone conc. (PPM)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour


Diurnal pattern at 820 ft. Level, September 1995
0.15
0.10
0.05
0.0
NAAQS
Ozone conc. (PPM)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour


Diurnal pattern at 1420 ft. Level, September 1995
0.15
0.10
0.05
0.0
NAAQS
Ozone conc. (PPM)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour

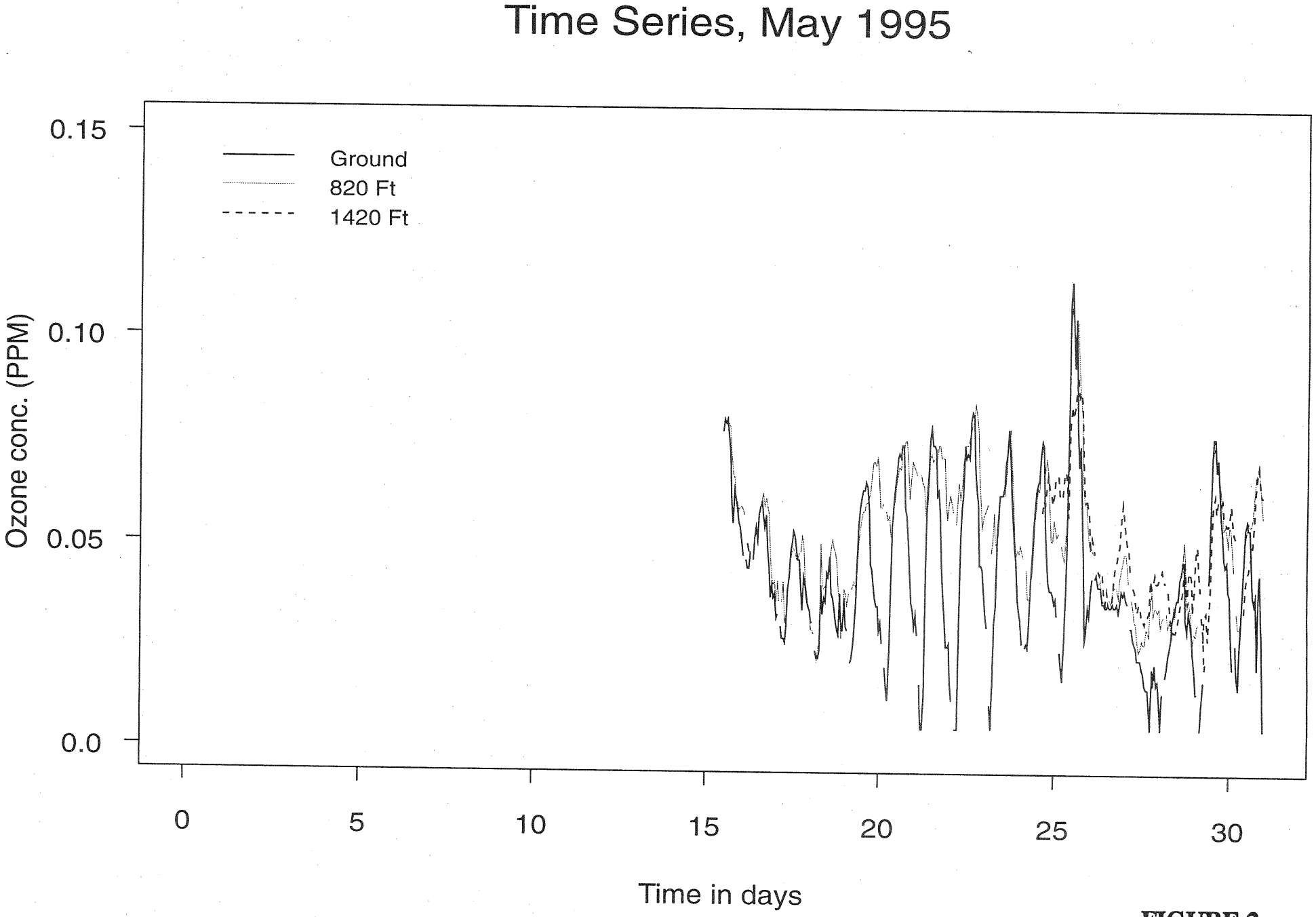

Time Series, May 1995
Ground
820 Ft
1420 Ft
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
0
5
10
15
20
25
30
Time in days

FIGURE 2

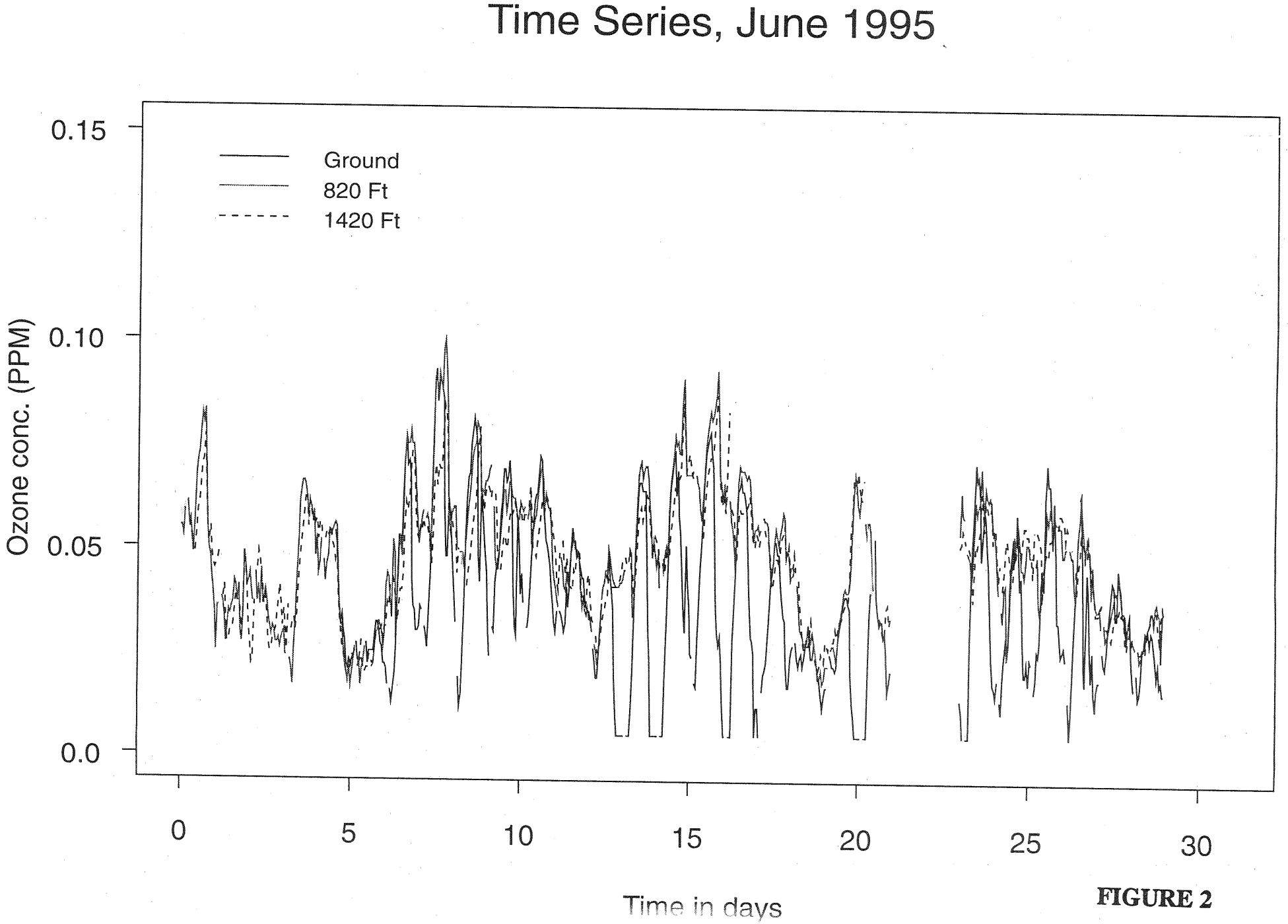

Time Series, June 1995
Ground
820 Ft
1420 Ft
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
0
5
10
15
20
25
30
Time in days

FIGURE 2

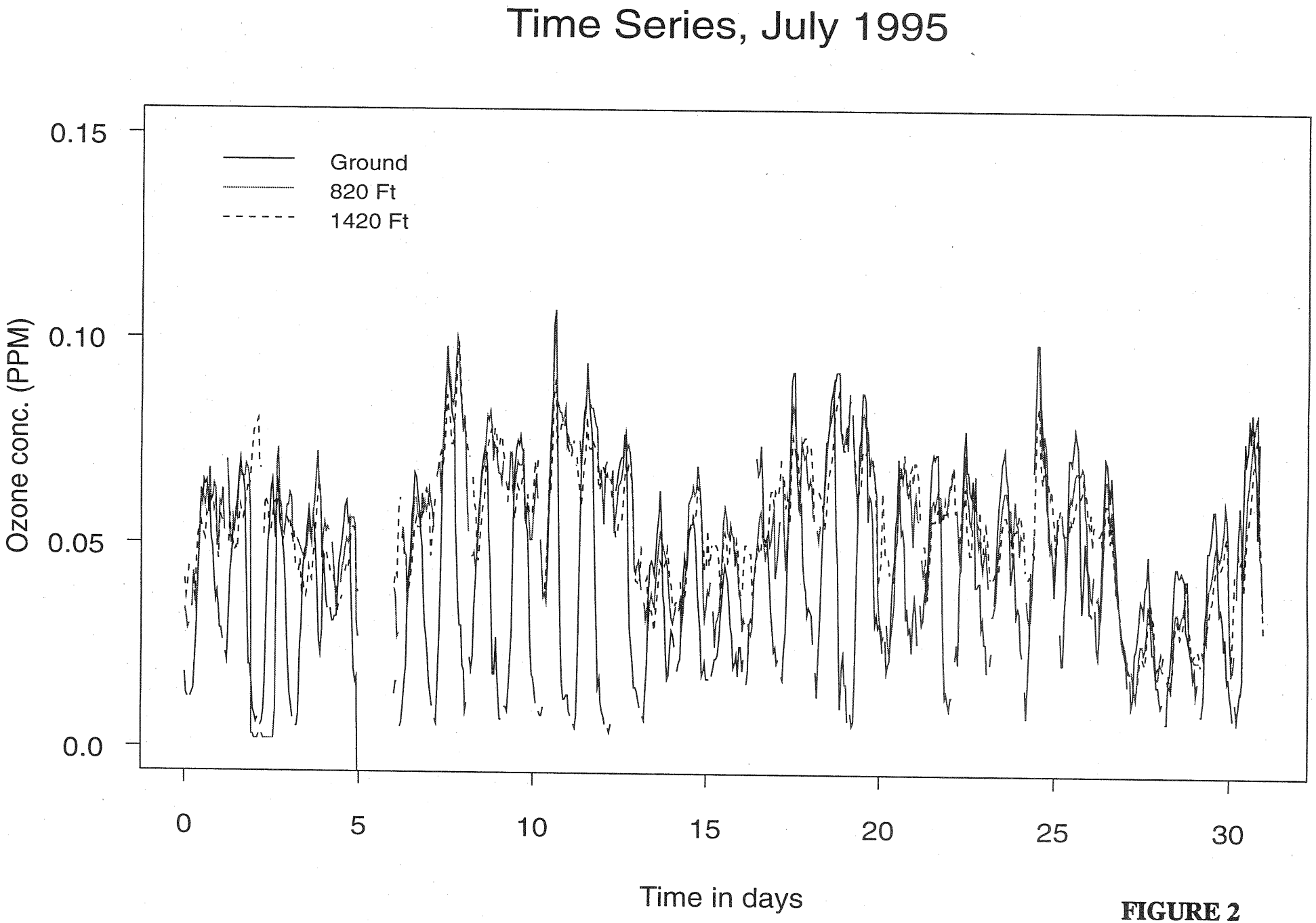

Time Series, July 1995
Ground
820 Ft
1420 Ft
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
0
5
10
15
20
25
30
Time in days

FIGURE 2

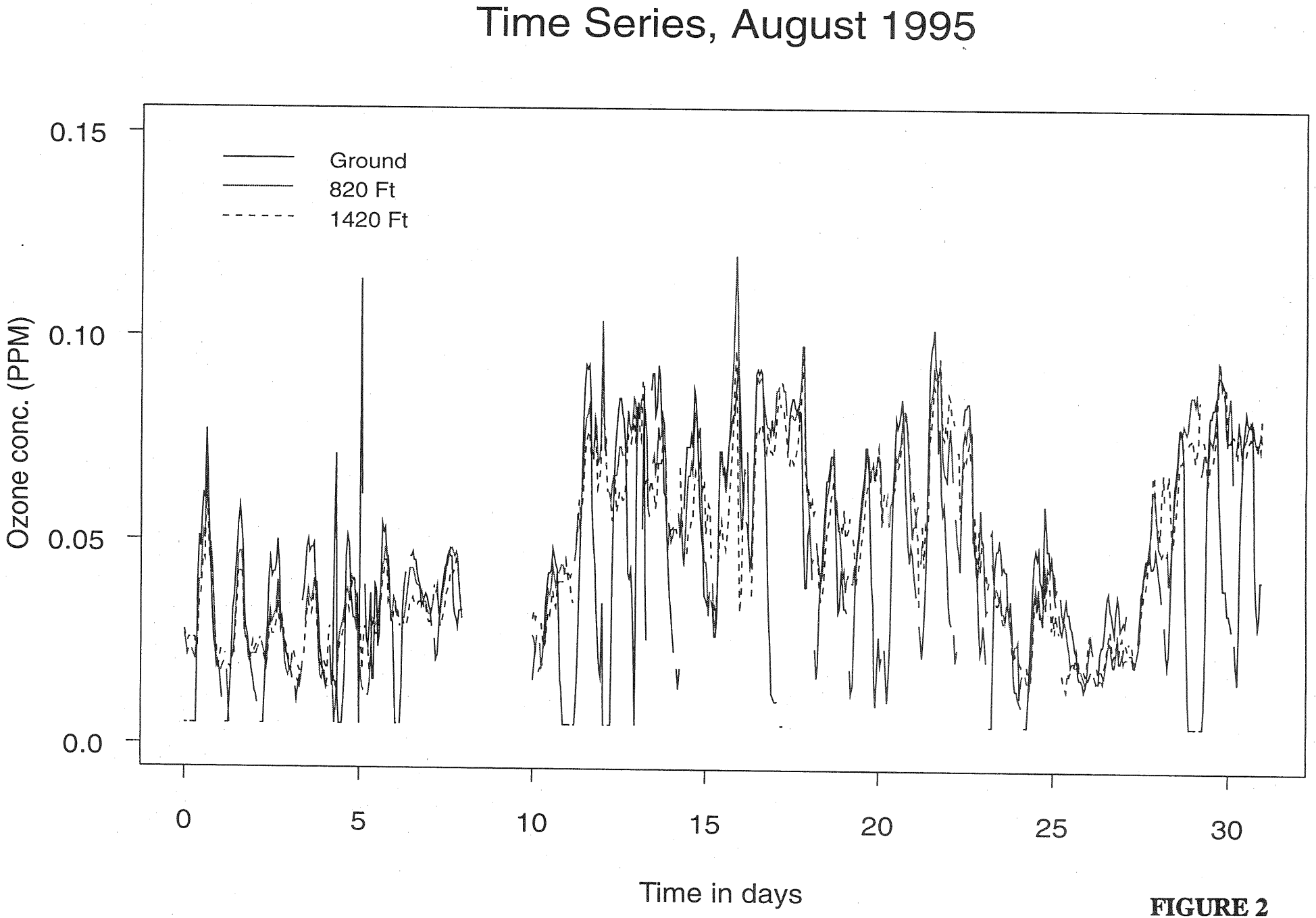

Time Series, August 1995
Ground
820 Ft
1420 Ft
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
0
5
10
15
20
25
30
Time in days

FIGURE 2

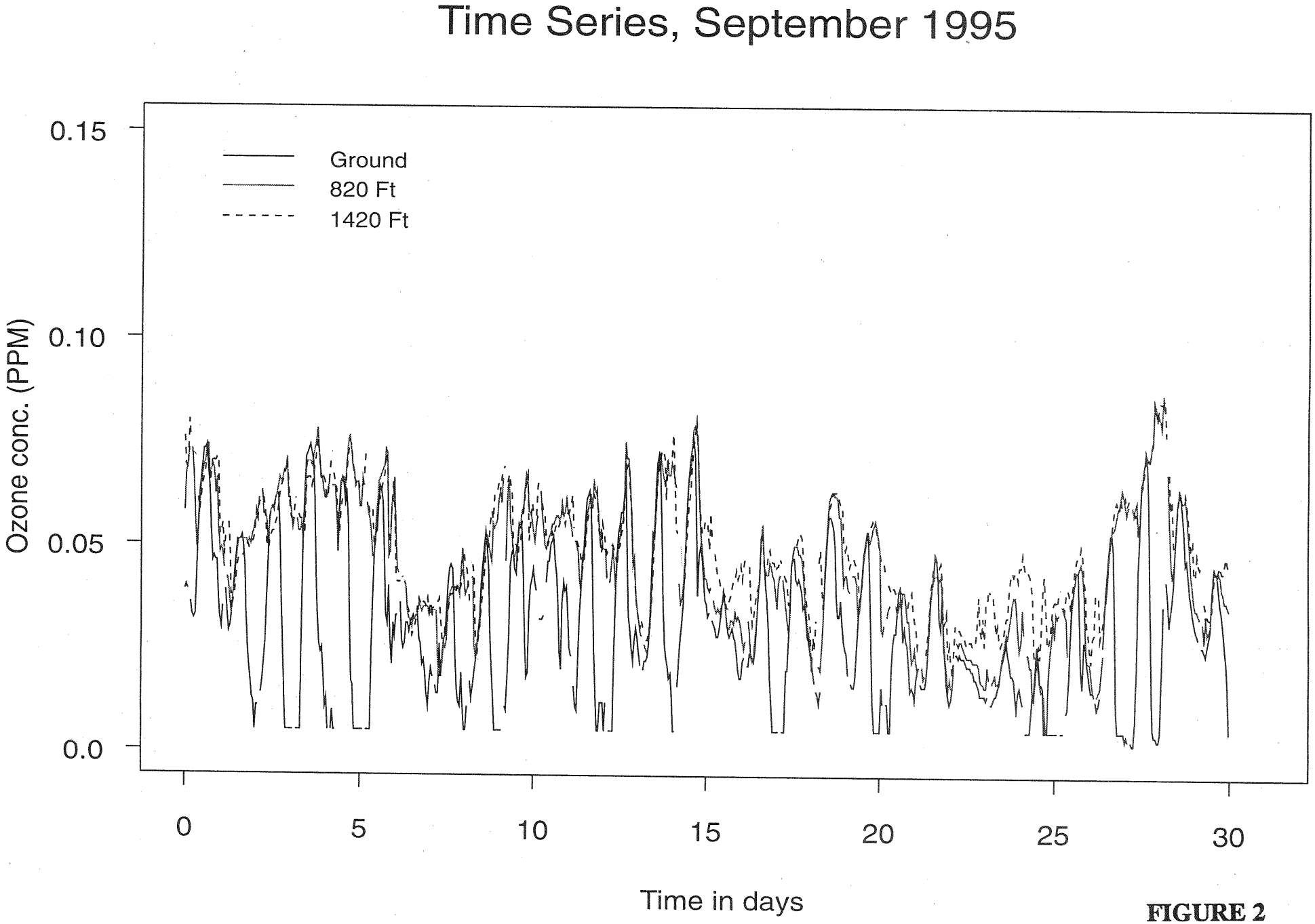

Time Series, September 1995
Ground
820 Ft
1420 Ft
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
0
5
10
15
20
25
30
Time in days

FIGURE 2

FIGURE 3

LINE LOSS AT AUBURN TOWER

DATE: JUNE 8, 1995

TOWER 1400'

AMBIENT TEMP	25	C	PC #	5448
BARO	27.94	IN	SHOP #	17
CORRECTED	709.68	MMHG	CERTIFIED BY KC:	05/25/95
PC TEMP	27.0	C	SAMPLE FREQ. (MHz)	47.240
FLOW	2.0	LPM	CONTROL FREQ	26.390
SPAN#	53.42			
WIND SPEED	20-25	KNOTS		
WIND DIRECTION	SOUTH-SOUTHEAST			
CLOUD COVER	VERY HAZY/VISIB. 3-4 MILES			

ZERO

	I	II	III
1	0.004	0.009	0.001
2	0.009	0.000	0.007
3	0.005	0.014	0.004
4	0.002	0.008	0.009
5	0.001	0.005	0.001
6	0.003	0.001	0.004
7	0.002	0.003	0.000
8	0.004	0.004	0.006
9	0.004	0.005	0.003
10	0.000	0.004	0.003
XBAR	0.003	0.005	0.004
XBAR-AVG	0.004		

SAMPLES (24 SEC. RESPONSES)	I	II	III	TOWER MEASURED (MINUTE AVGS)
1	0.077	0.079	0.073	0.049
2	0.075	0.076	0.081	0.048
3	0.076	0.073	0.079	0.047
4	0.067	0.075	0.078	0.048
5	0.074	0.072	0.079	0.048
6	0.070	0.066	0.080	0.047
7	0.075	0.070	0.081	0.046
8	0.071	0.067	0.084	0.045
9	0.074	0.074	0.079	0.046
10	0.073	0.069	0.080	0.046
				0.048
XBAR	0.073	0.072	0.079	0.049
XBAR-AVG	0.075			0.049
SLOPE	1.0272574			
INTERCEPT	-0.0000474		XBAR	0.047
ACTUAL CONC	0.073			
LINE-LOSS	-34.930%			

NOTE: PC TEMP 8 DEGREES BELOW NORMAL OPERATING RANGE

TOWER 800' 6/8/95

AMBIENT TEMP	25	C	PC #	5448
BARO	28.55	IN	SHOP #	17
CORRECTED	725.17	MMHG	CERTIFIED BY KC:	05/25/95
PC TEMP	32.0	C	SAMPLE FREQ. (MHz)	47.390
FLOW	2.0	LPM	CONTROL FREQ	26.420
SPAN#	52.61			
WIND SPEED	5-8	KNOTS		
WIND DIRECTION	SOUTHEAST			
CLOUD COVER	VERY HAZY/6-7 MI. VIS			

ZERO

	I	II	III
1	0.005	0.009	0.009
2	0.007	0.017	0.010
3	0.009	0.007	0.009
4	0.009	0.018	0.008
5	0.004	0.011	0.009
6	0.004	0.008	0.004
7	0.012	0.008	0.009
8	0.008	0.007	0.010
9	0.010	0.006	0.003
10	0.004	0.007	0.008
XBAR	0.007	0.010	0.008
XBAR-AVG	0.008		

SAMPLES (24 SEC. RESPONSES)	I	II	III	TOWER MEASURED (MINUTE AVGS)
1	0.103	0.103	0.099	0.093
2	0.102	0.100	0.103	0.093
3	0.104	0.097	0.102	0.092
4	0.101	0.102	0.098	0.099
5	0.098	0.105	0.103	0.094
6	0.097	0.101	0.105	0.094
7	0.099	0.095	0.103	0.092
8	0.094	0.104	0.105	0.092
9	0.103	0.101	0.103	0.094
10	0.113	0.100	0.105	0.094
				0.093
XBAR	0.101	0.101	0.103	0.096
XBAR-AVG	0.102			
SLOPE	1.0272574			
INTERCEPT	-0.0000474		XBAR	0.094
ACTUAL CONC	0.096			
LINE-LOSS	-2.049%			

PC TEMP 3 DEGREES BELOW NORMAL OPERATING RANGE

TOWER GROUND 6/8/95

AMBIENT TEMP	38	C	PC #	5448
BARO	29.45	IN	SHOP #	17
CORRECTED	748.03	MMHG	CERTIFIED BY KC	06/08/95
PC TEMP	45.0	C	SAMPLE FREQ. (MHz)	47.900
FLOW	2.0	LPM	CONTROL FREQ	26.550
SPAN#	54.90			
WIND SPEED	0	KNOTS		
WIND DIRECTION				
CLOUD COVER	HAZY AND OVERCAST VERY HOT			

ZERO

	I	II	III
1	0.016	0.010	0.002
2	0.013	0.011	0.018
3	0.010	0.000	0.000
4	0.014	0.002	0.000
5	0.011	0.014	0.035
6	0.011	0.013	0.006
7	0.000	0.008	0.000
8	0.020	0.004	0.009
9	0.000	0.006	0.009
10	0.014	0.013	0.004
XBAR	0.011	0.008	0.008
XBAR-AVG	0.009		

SAMPLES (24 SEC. RESPONSES)	I	II	III	TOWER MEASURED (MINUTE AVGS)
1	0.094	0.101	0.093	0.089
2	0.095	0.100	0.099	0.085
3	0.065	0.084	0.102	0.087
4	0.091	0.097	0.108	0.094
5	0.101	0.080	0.091	0.077
6	0.084	0.107	0.105	0.091
7	0.097	0.054	0.100	0.089
8	0.112	0.097	0.099	0.093
9	0.099	0.072	0.075	0.080
10	0.096	0.100	0.099	0.082
				0.090
XBAR	0.093	0.089	0.097	0.087
XBAR-AVG	0.093			
SLOPE	1.0272574			
INTERCEPT	-0.0000474			XBAR 0.087
ACTUAL CONC	0.0864			
LINE-LOSS	0.371%			

FIGURE 4

LINE LOSS AT AUBURN TOWER

August 17, 1995

TOWER 1400'

AMBIENT TEMP	27	C	PC #	5839
BARO	28.40	IN	SHOP #	34
CORRECTED	721.36	MMHG	CERTIFIED BY KC.	08/04/95
PC TEMP	34.0	C	SAMPLE FREQ. (MHz)	46.145
FLOW	2.0	LPM	CONTROL FREQ	27.373
SPAN#	53.42			
WIND SPEED	10.000	KNOTS		
WIND DIRECTION	SOUTH-SOUTHEAST			
CLOUD COVER	VERY HAZY, VISIBILITY 4-5 MILES			

ZERO

	I	II	III
1	0.011	0.024	0.004
2	0.001	0.018	0.000
3	0.006	0.012	0.007
4	0.006	0.012	0.006
5	0.011	0.015	0.009
6	0.027	0.012	0.011
7	0.013	0.014	0.009
8	0.005	0.006	0.022
9	0.005	0.013	0.013
10	0.016	0.015	0.008
XBAR	0.010	0.014	0.009
XBAR-AVG	0.011		

SAMPLES (24 SEC. RESPONSES)	I	II	III	TOWER MEASURED (MINUTE AVGS)
1	0.108	0.100	0.092	0.077
2	0.103	0.097	0.106	0.079
3	0.102	0.105	0.106	0.079
4	0.101	0.100	0.100	0.079
5	0.102	0.101	0.104	0.079
6	0.090	0.097	0.109	0.075
7	0.096	0.097	0.105	0.076
8	0.091	0.091	0.101	0.079
9	0.095	0.099	0.097	0.080
10	0.097	0.094	0.091	0.080
				0.081
XBAR	0.099	0.098	0.101	0.081
XBAR-AVG	0.099			0.080
SLOPE	1.0177584			
INTERCEPT	-0.0002381		XBAR	0.079
ACTUAL CONC	0.090			
LINE-LOSS	**-11.760%**			
NOTE:	VERY WINDY HARD TO STABILIZE PC TEMP			

TOWER GROUND August 17,1995

AMBIENT TEMP	30	C	PC #	5839
BARO	29.72	IN	SHOP #	34
CORRECTED	754.89	MMHG	CERTIFIED BY KC:	08/04/95
PC TEMP	37.0	C	SAMPLE FREQ. (MHz)	45.958
FLOW	2.0	LPM	CONTROL FREQ	27.374
SPAN#	52.20			
WIND SPEED		KNOTS		
WIND DIRECTION				
CLOUD COVER	CLEAR SKIES, GOOD CONDITIONS			

ZERO

	I	II	III
1	0.013	0.014	0.013
2	0.015	0.017	0.013
3	0.013	0.000	0.013
4	0.013	0.016	0.013
5	0.013	0.003	0.012
6	0.013	0.012	0.012
7	0.012	0.011	0.012
8	0.011	0.011	0.012
9	0.012	0.012	0.012
10	0.012	0.012	0.014
XBAR	0.013	0.011	0.013
XBAR-AVG	0.012		

SAMPLES (24 SEC. RESPONSES)

	I	II	III
1	0.079	0.077	0.082
2	0.078	0.080	0.083
3	0.078	0.077	0.083
4	0.076	0.075	0.081
5	0.081	0.082	0.082
6	0.080	0.080	0.082
7	0.078	0.085	0.082
8	0.081	0.078	0.080
9	0.079	0.081	0.080
10	0.076	0.080	0.079
XBAR	0.079	0.080	0.081
XBAR-AVG	0.080		
SLOPE	1.0177584		
INTERCEPT	-0.0002381		
ACTUAL CONC	0.0688		

LINE-LOSS **6.593%**

TOWER MEASURED (MINUTE AVGS)

	0.074
	0.073
	0.071
	0.070
	0.072
	0.080
	0.082
	0.065
	0.070
	0.076
	0.076
	0.077
	0.078
XBAR	0.073

TOWER 800'

August 17, 1995

AMBIENT TEMP	30	C	PC #	5839
BARO	28.87	IN	SHOP #	34
CORRECTED	733.30	MMHG	CERTIFIED BY KC:	08/04/95
PC TEMP	34.0	C	SAMPLE FREQ. (MHz)	46.067
FLOW	2.0	LPM	CONTROL FREQ	27.307
SPAN#	53.24			
WIND SPEED	5-8	KNOTS		
WIND DIRECTION	SOUTHEAST			
CLOUD COVER	SCATTERED CLOUDS 5-6 MILES VISIBILITY			

ZERO

	I	II	III
1	0.012	0.014	0.012
2	0.014	0.015	0.012
3	0.016	0.016	0.014
4	0.014	0.015	0.016
5	0.014	0.014	0.013
6	0.013	0.013	0.014
7	0.013	0.013	0.015
8	0.015	0.015	0.013
9	0.014	0.013	0.014
10	0.013	0.011	0.016
XBAR	0.014	0.014	0.014
XBAR-AVG	0.014		

SAMPLES (24 SEC. RESPONSES)	I	II	III	TOWER MEASURED (MINUTE AVGS)
1	0.100	0.097	0.098	0.090
2	0.102	0.096	0.097	0.089
3	0.099	0.096	0.102	0.088
4	0.100	0.099	0.104	0.087
5	0.102	0.098	0.106	0.089
6	0.102	0.097	0.104	0.090
7	0.101	0.099	0.104	0.088
8	0.097	0.100	0.106	0.086
9	0.098	0.105	0.104	0.085
10	0.098	0.102	0.102	0.084
				0.086
XBAR	0.100	0.099	0.103	0.088
XBAR-AVG	0.101			0.088
SLOPE	1.0177584			
INTERCEPT	-0.0002381			XBAR 0.088
ACTUAL CONC	0.088			
LINE-LOSS	**-0.449%**			

FIGURE 5

LINE LOSS AT AUBURN TOWER

October 3, 1995

TOWER 1400'

AMBIENT TEMP	21	C
BARO	28.35	IN
CORRECTED	720.09	MMHG
PC TEMP	38.0	C
FLOW	2.0	LPM
SPAN#	54.93	
WIND SPEED	6.000	KNOTS
WIND DIRECTION	SOUTH-SOUTHEAST	
CLOUD COVER	Scattered/Visibility 10 miles	

PC #	5839
SHOP #	34
CERTIFIED BY KC	08/04/95
SAMPLE FREQ. (MHz)	47.179
CONTROL FREQ	26.779

ZERO

	I	II	III
1	0.013	0.014	0.013
2	0.013	0.013	0.012
3	0.012	0.014	0.014
4	0.014	0.013	0.014
5	0.014	0.012	0.015
6	0.011	0.013	0.018
7	0.014	0.015	0.012
8	0.012	0.018	0.011
9	0.013	0.016	0.009
10	0.012	0.016	0.010
XBAR	0.013	0.014	0.013
XBAR-AVG	0.013		

SAMPLES (24 SEC. RESPONSES)

	I	II	III
1	0.056	0.062	0.057
2	0.057	0.063	0.059
3	0.062	0.063	0.060
4	0.055	0.063	0.065
5	0.057	0.062	0.064
6	0.057	0.060	0.061
7	0.060	0.061	0.061
8	0.061	0.060	0.061
9	0.062	0.065	0.062
10	0.060	0.055	0.061
XBAR	0.059	0.061	0.061
XBAR-AVG	0.060		
SLOPE	1.0177584		
INTERCEPT	-0.0002381		
ACTUAL CONC	0.048		
LINE-LOSS	**2.278%**		

NOTE:

TOWER MEASURED (MINUTE AVGS)	
	0.047
	0.047
	0.047
	0.048
	0.049
	0.050
	0.051
	0.051
	0.050
	0.049
	0.048
	0.048
	0.047
XBAR	0.049

TOWER 800'

October 3, 1995

AMBIENT TEMP	25	C	PC #	5839
BARO	28.85	IN	SHOP #	34
CORRECTED	732.79	MMHG	CERTIFIED BY KC:	08/04/95
PC TEMP	38.0	C	SAMPLE FREQ. (MHz)	47.147
FLOW	2.0	LPM	CONTROL FREQ	26.813
SPAN#	53.98			
WIND SPEED	5-8	KNOTS		
WIND DIRECTION	SOUTHEAST			
CLOUD COVER	SLIGHTLY HAZY			

ZERO

	I	II	III
1	0.013	0.013	0.014
2	0.014	0.014	0.013
3	0.012	0.013	0.013
4	0.013	0.014	0.013
5	0.012	0.014	0.012
6	0.013	0.014	0.012
7	0.014	0.012	0.012
8	0.013	0.013	0.014
9	0.014	0.013	0.013
10	0.014	0.013	0.012
XBAR	0.013	0.013	0.013
XBAR-AVG	0.013		

SAMPLES (24 SEC. RESPONSES)

	I	II	III
1	0.067	0.066	0.066
2	0.066	0.065	0.066
3	0.065	0.065	0.066
4	0.065	0.066	0.064
5	0.067	0.066	0.066
6	0.066	0.066	0.067
7	0.065	0.066	0.066
8	0.066	0.066	0.066
9	0.066	0.066	0.067
10	0.067	0.066	0.065
XBAR	0.066	0.066	0.066
XBAR-AVG	0.066		
SLOPE	1.0177584		
INTERCEPT	-0.0002381		
ACTUAL CONC	0.053		

LINE-LOSS **-1.940%**

TOWER MEASURED (MINUTE AVGS)

	0.053
	0.053
	0.053
	0.054
	0.054
	0.054
	0.053
	0.052
	0.051
	0.051
	0.051
	0.052
XBAR	0.052

TOWER GROUND *October 3, 1995*

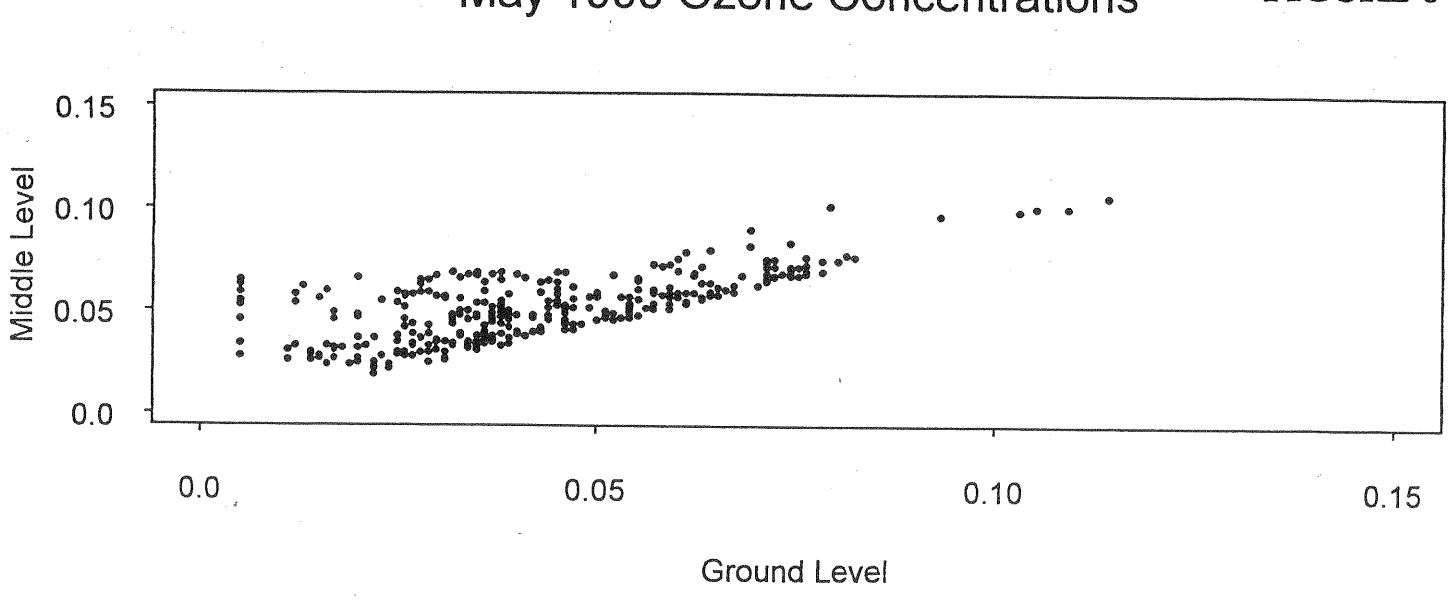
AMBIENT TEMP	27	C	PC #	5839
BARO	29.72	IN	SHOP #	34
CORRECTED	754.89	MMHG	CERTIFIED BY KC	08/04/95
PC TEMP	37.0	C	SAMPLE FREQ. (MHz)	47.270
FLOW	2.0	LPM	CONTROL FREQ	26.750
SPAN#	52.30			
WIND SPEED	0.000	KNOTS		
WIND DIRECTION				
CLOUD COVER	Lightly Scattered			

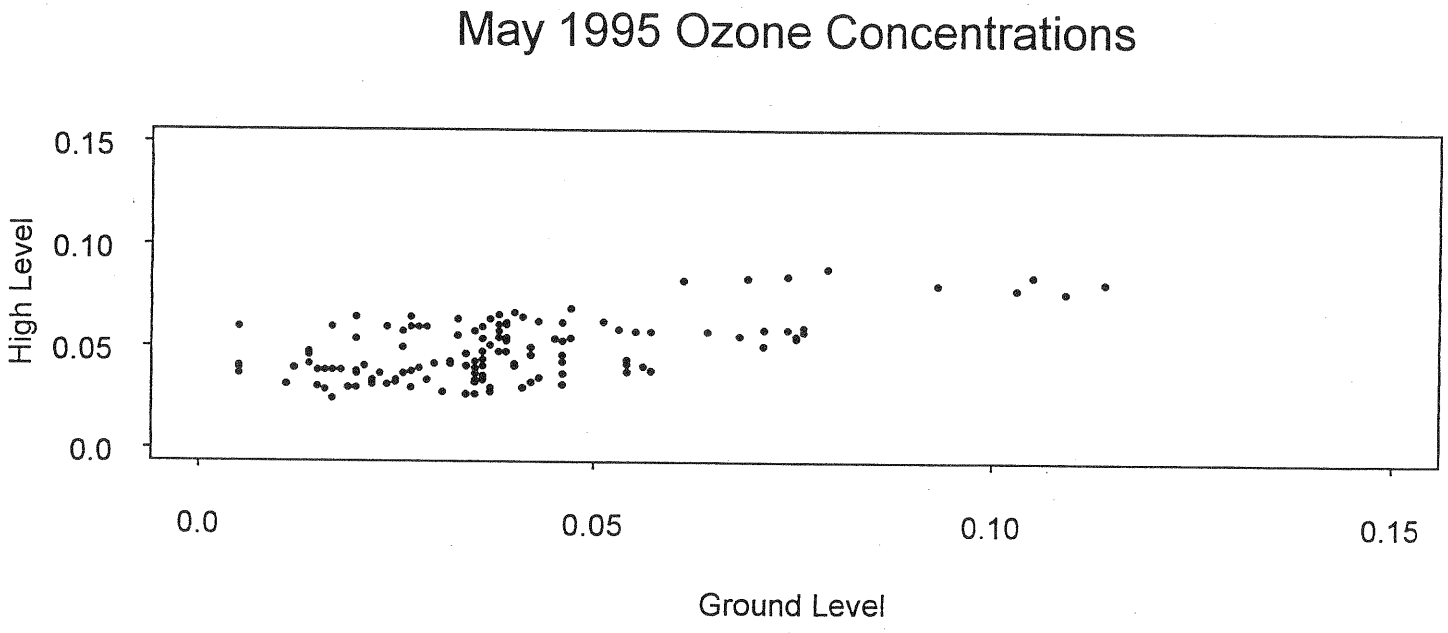
ZERO

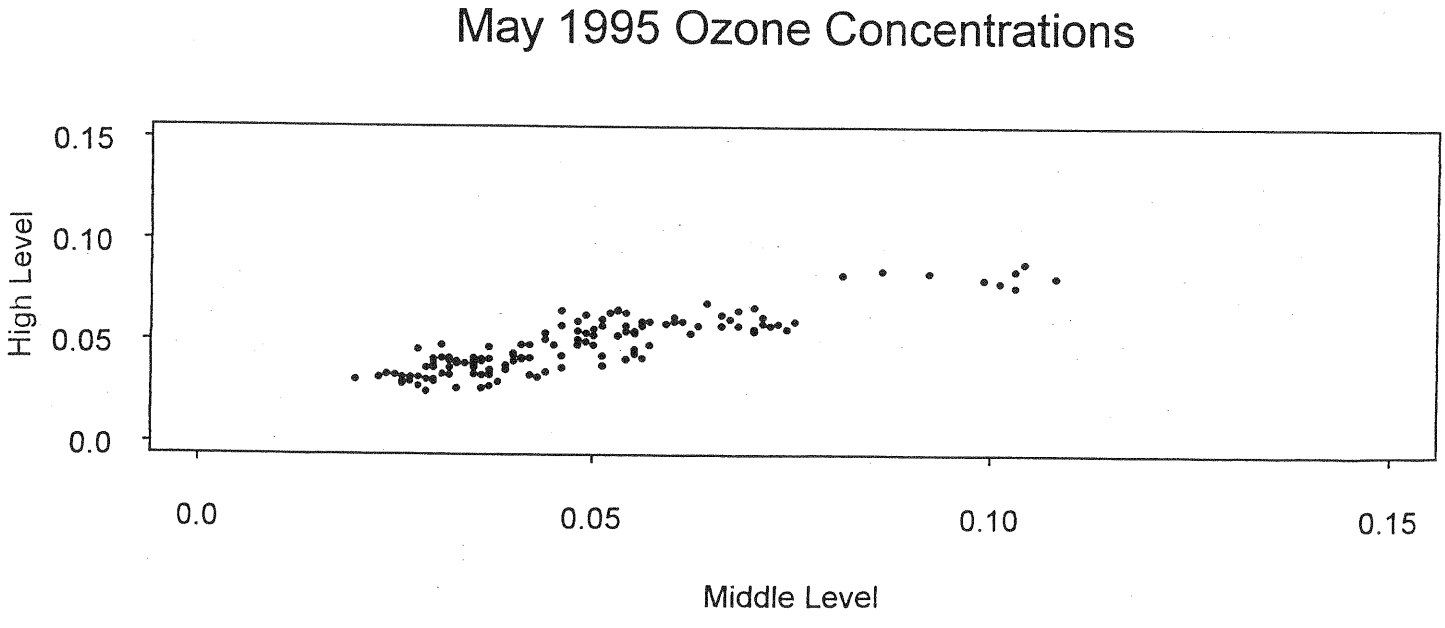
	I	II	III
1	0.013	0.014	0.014
2	0.013	0.014	0.013
3	0.014	0.013	0.013
4	0.014	0.015	0.012
5	0.013	0.013	0.013
6	0.014	0.015	0.014
7	0.014	0.015	0.013
8	0.014	0.014	0.013
9	0.014	0.015	0.013
10	0.014	0.014	0.016
XBAR	0.014	0.014	0.013
XBAR-AVG	0.014		

SAMPLES (24 SEC. RESPONSES)	I	II	III	TOWER MEASURED (MINUTE AVGS)
1	0.036	0.036	0.035	0.024
2	0.035	0.034	0.035	0.022
3	0.037	0.043	0.036	0.022
4	0.039	0.038	0.036	0.024
5	0.039	0.039	0.038	0.028
6	0.044	0.037	0.038	0.024
7	0.037	0.037	0.038	0.022
8	0.036	0.037	0.037	0.029
9	0.036	0.036	0.037	0.028
10	0.035	0.036	0.037	0.029
				0.026
XBAR	0.037	0.037	0.037	0.025
XBAR-AVG	0.037			0.028
SLOPE	1.0177584			
INTERCEPT	-0.0002381			XBAR 0.025
ACTUAL CONC	0.0235			
LINE-LOSS	**7.036%**			

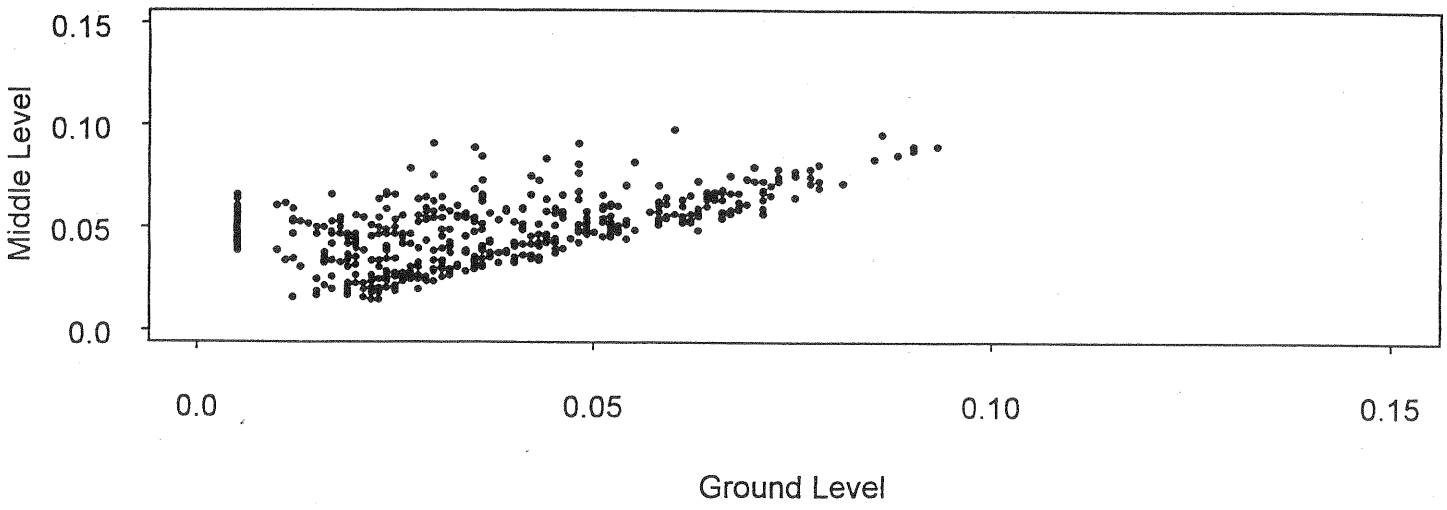
FIGURE 6


May 1995 Ozone Concentrations
Middle Level
0.15
0.10
0.05
0.0
0.0
0.05
0.10
0.15
Ground Level

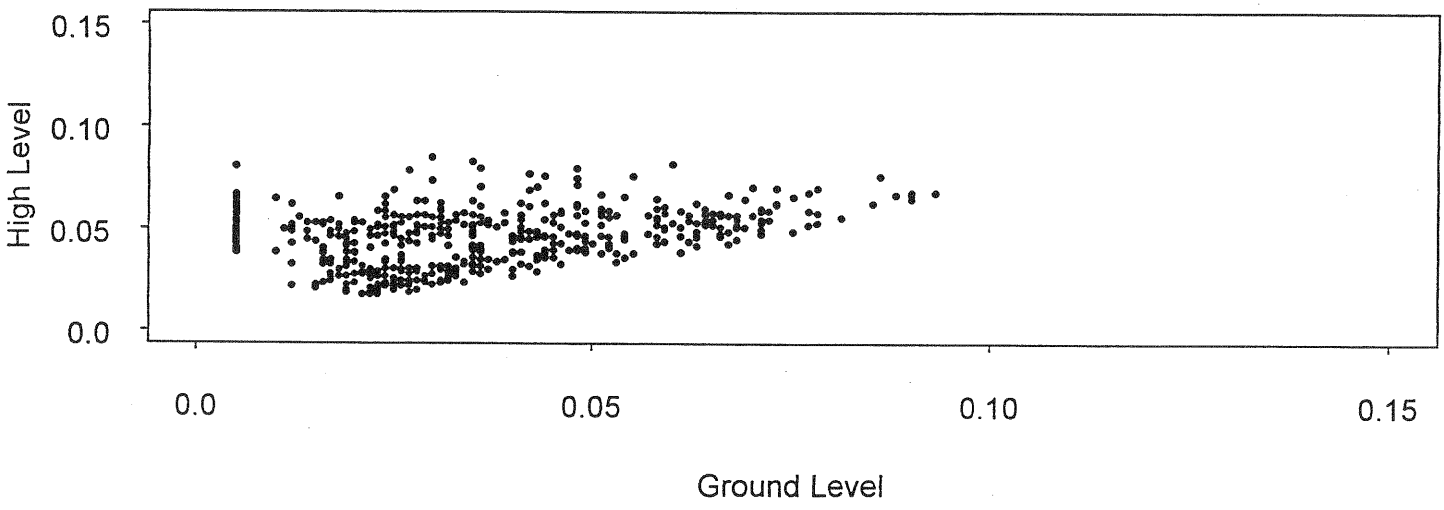

May 1995 Ozone Concentrations
High Level
0.15
0.10
0.05
0.0
0.0
0.05
0.10
0.15
Ground Level


May 1995 Ozone Concentrations
High Level
0.15
0.10
0.05
0.0
0.0
0.05
0.10
0.15
Middle Level

June 1995 Ozone Concentrations **FIGURE 6A**



June 1995 Ozone Concentrations



June 1995 Ozone Concentrations

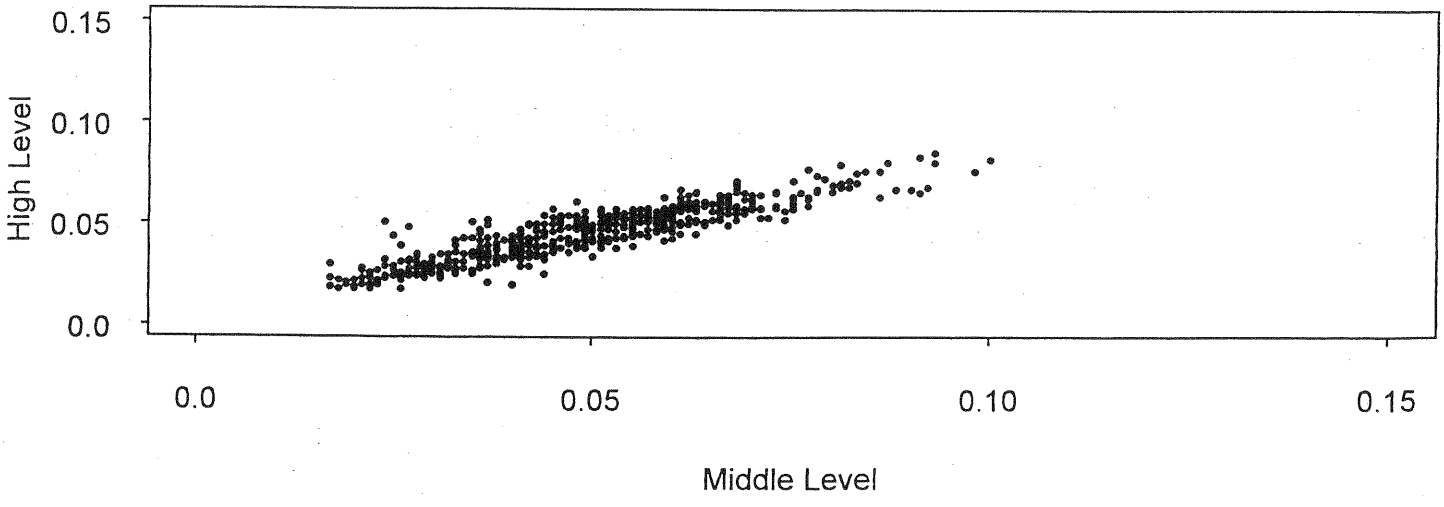
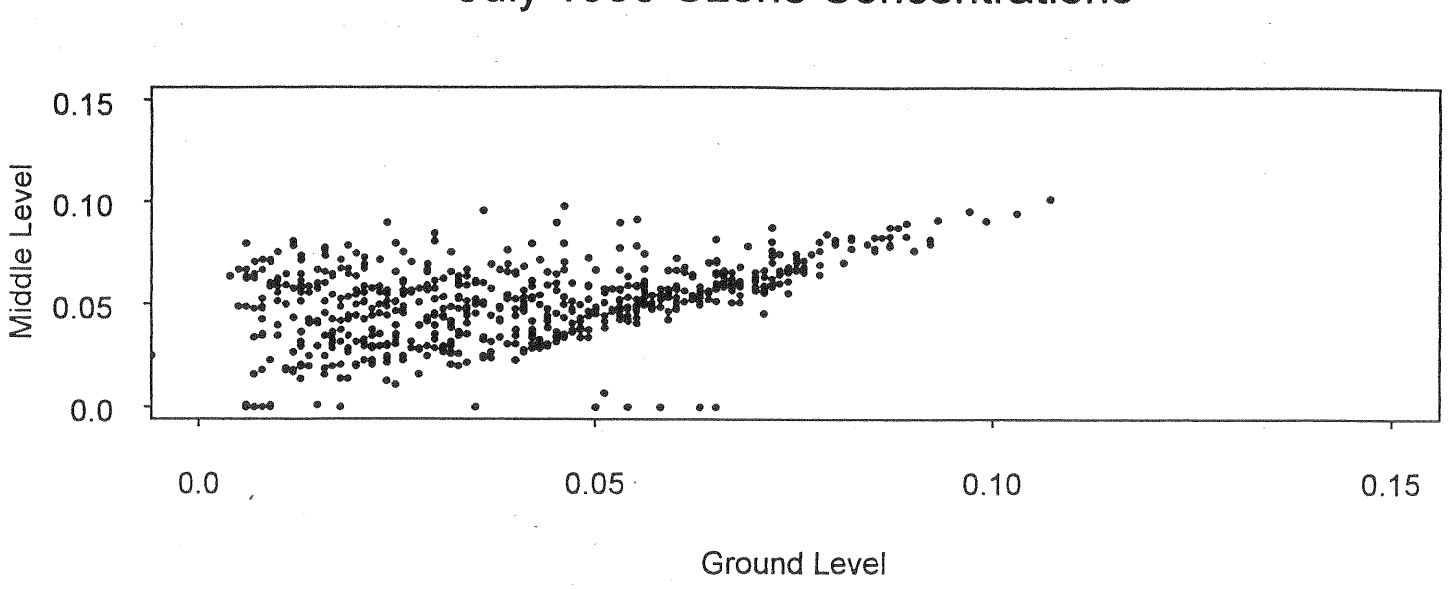
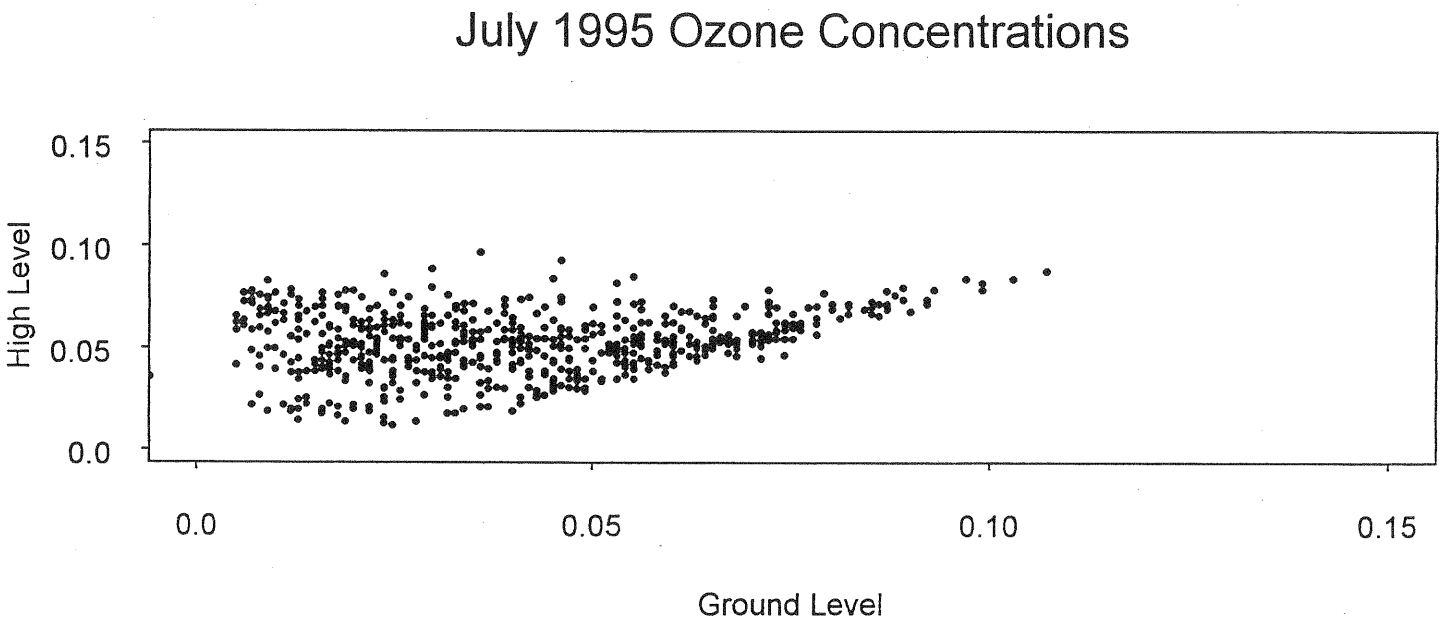
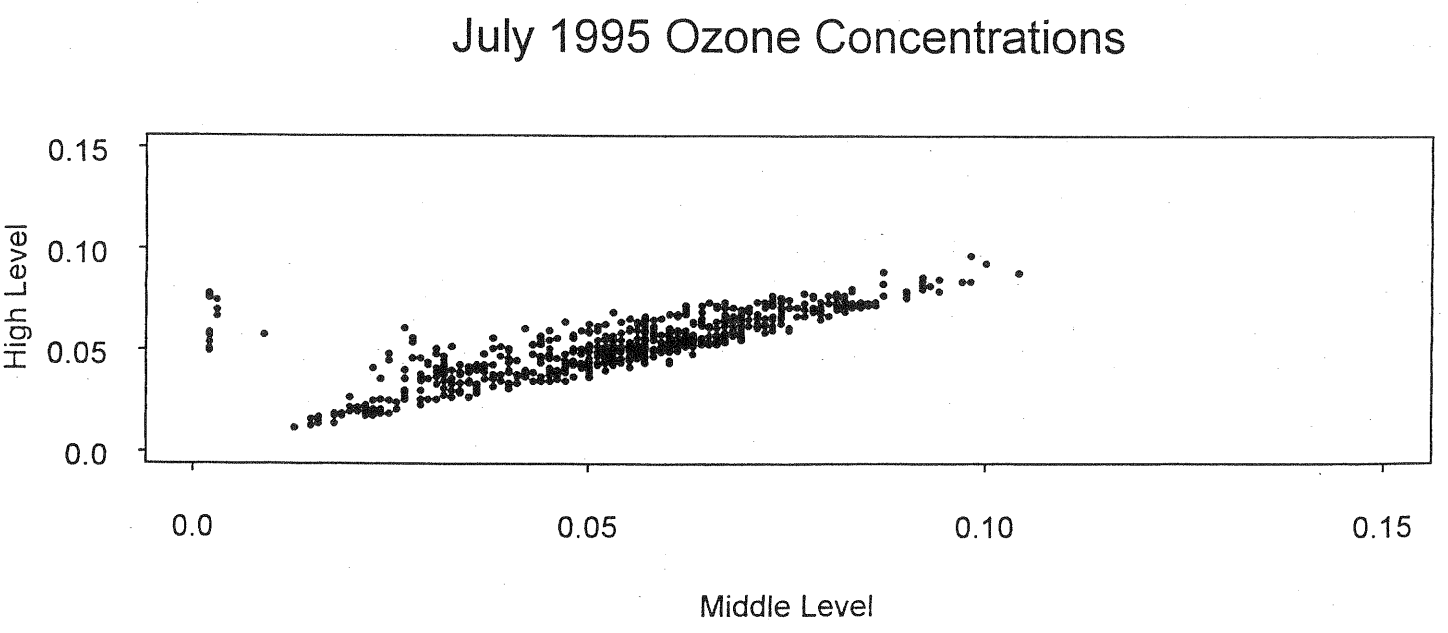


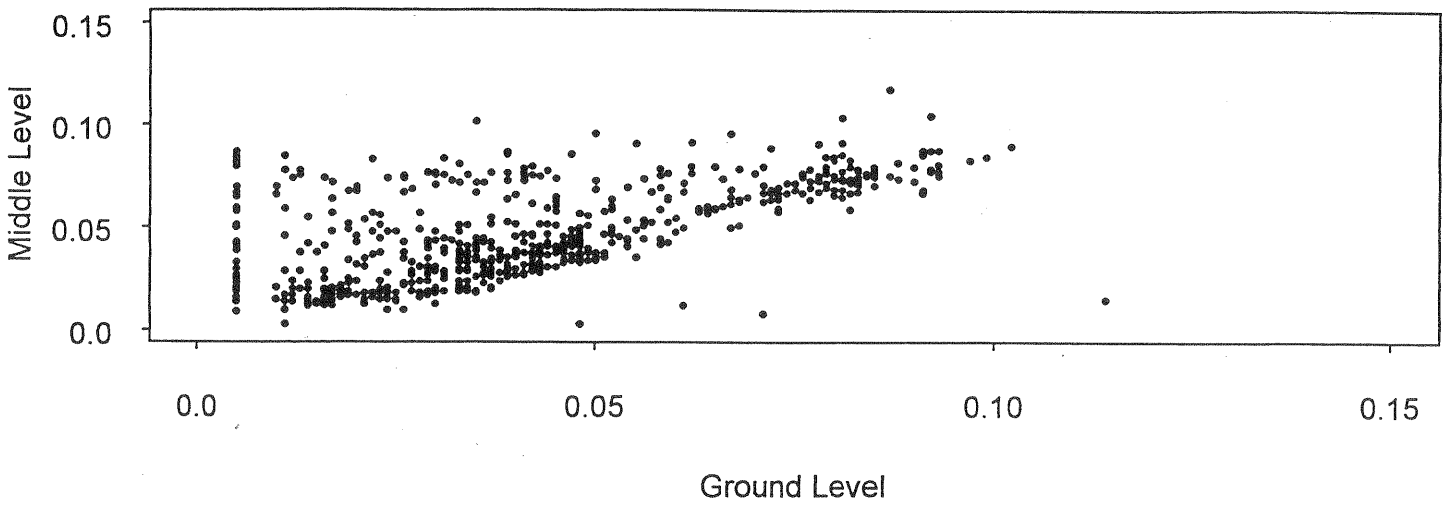
FIGURE 6B


July 1995 Ozone Concentrations
Middle Level
0.15
0.10
0.05
0.0
0.0
0.05
0.10
0.15
Ground Level

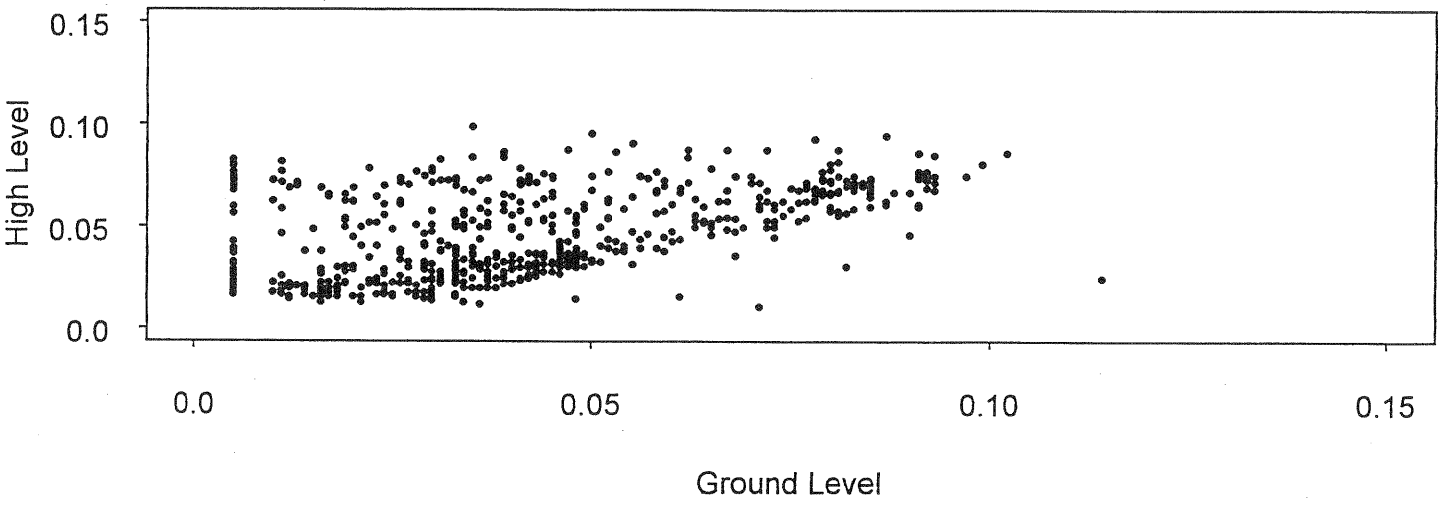

July 1995 Ozone Concentrations
High Level
0.15
0.10
0.05
0.0
0.0
0.05
0.10
0.15
Ground Level


July 1995 Ozone Concentrations
High Level
0.15
0.10
0.05
0.0
0.0
0.05
0.10
0.15
Middle Level

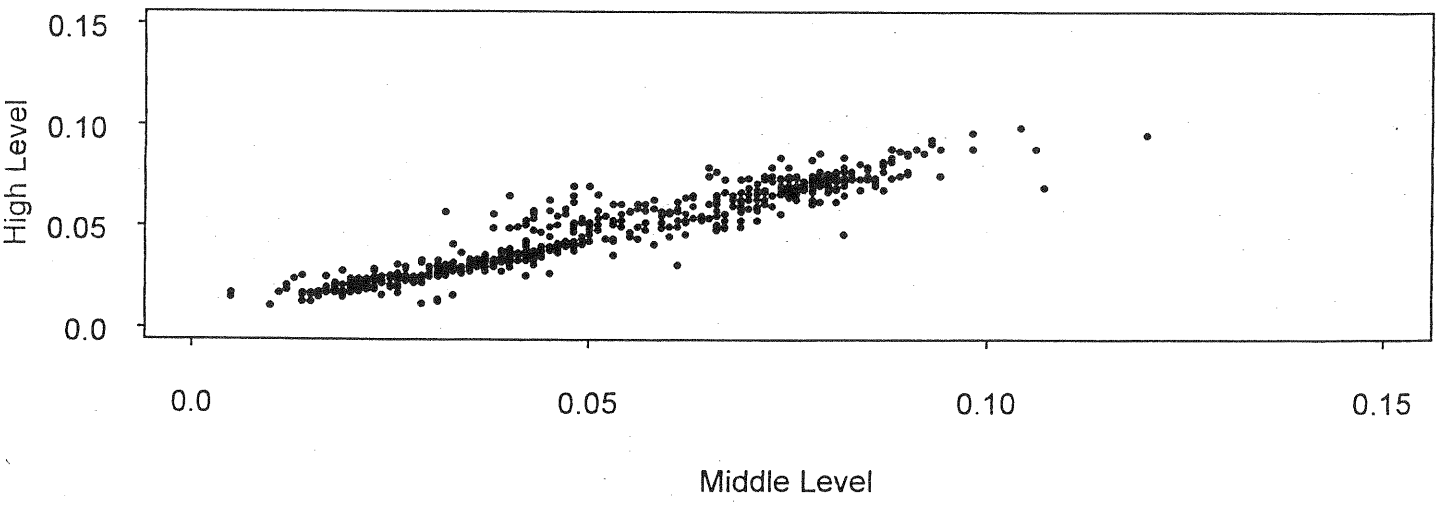
August 1995 Ozone Concentrations **FIGURE 6C**

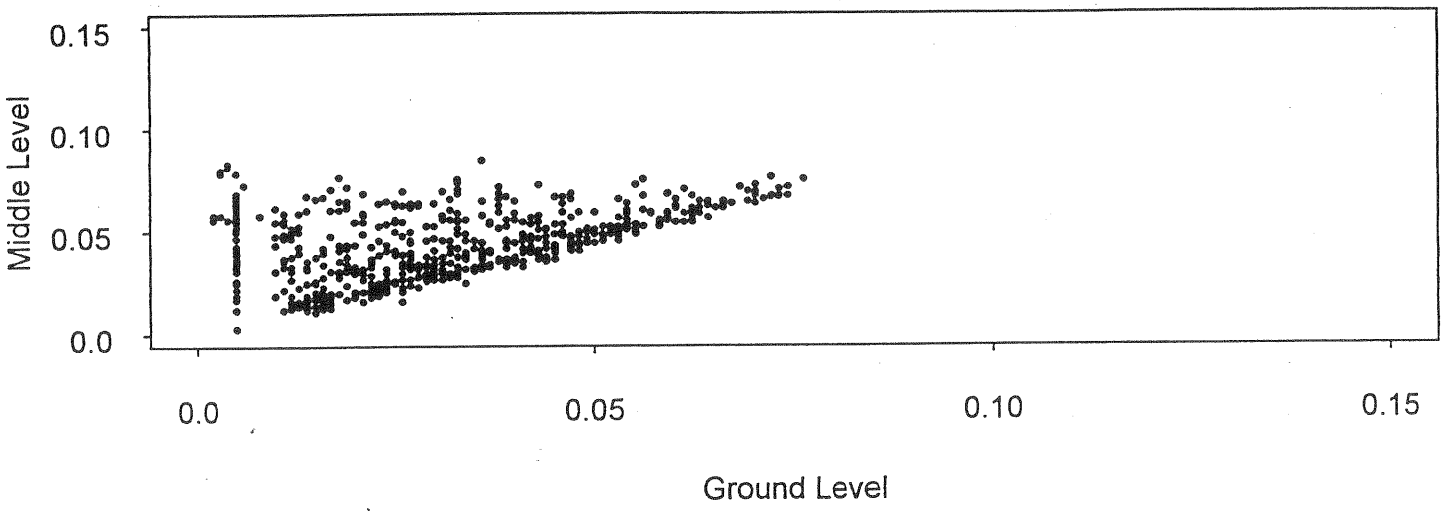


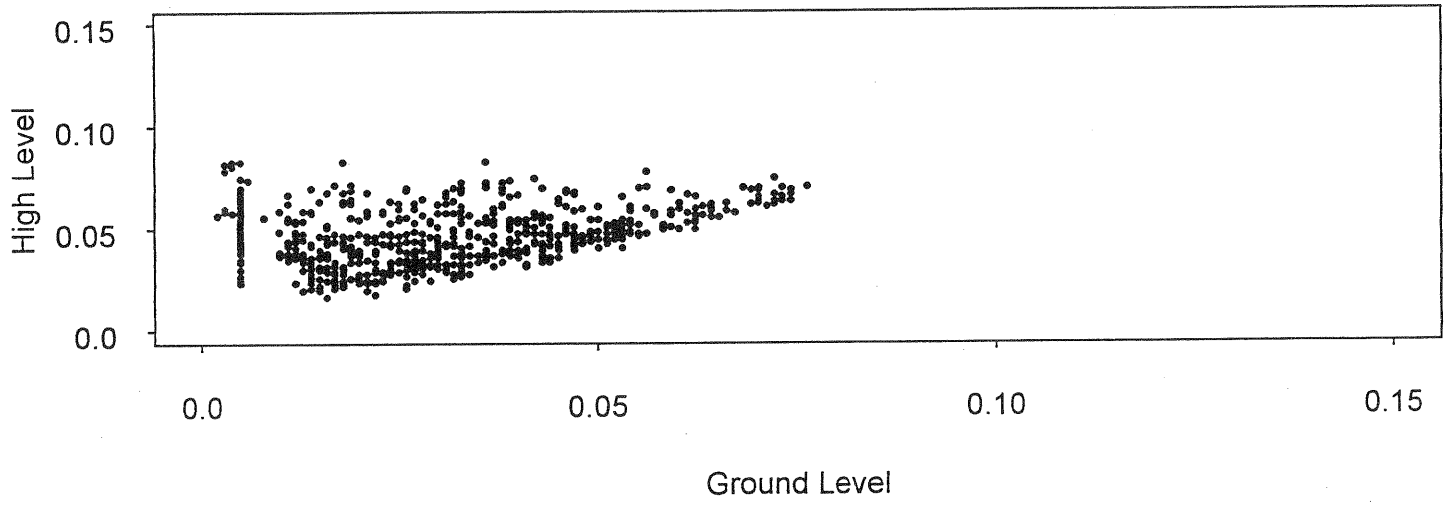
August 1995 Ozone Concentrations



August 1995 Ozone Concentrations




September 1995 Ozone Concentrations
Middle Level
0.15
0.10
0.05
0.0
0.0
0.05
0.10
0.15
Ground Level


September 1995 Ozone Concentrations
High Level
0.15
0.10
0.05
0.0
0.0
0.05
0.10
0.15
Ground Level

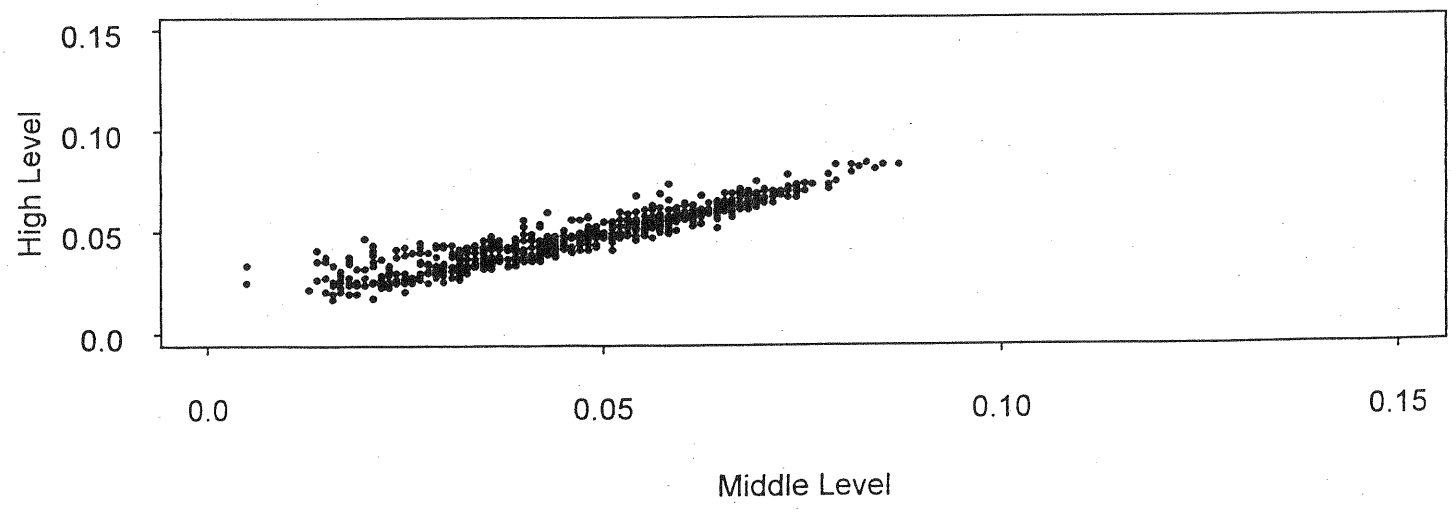
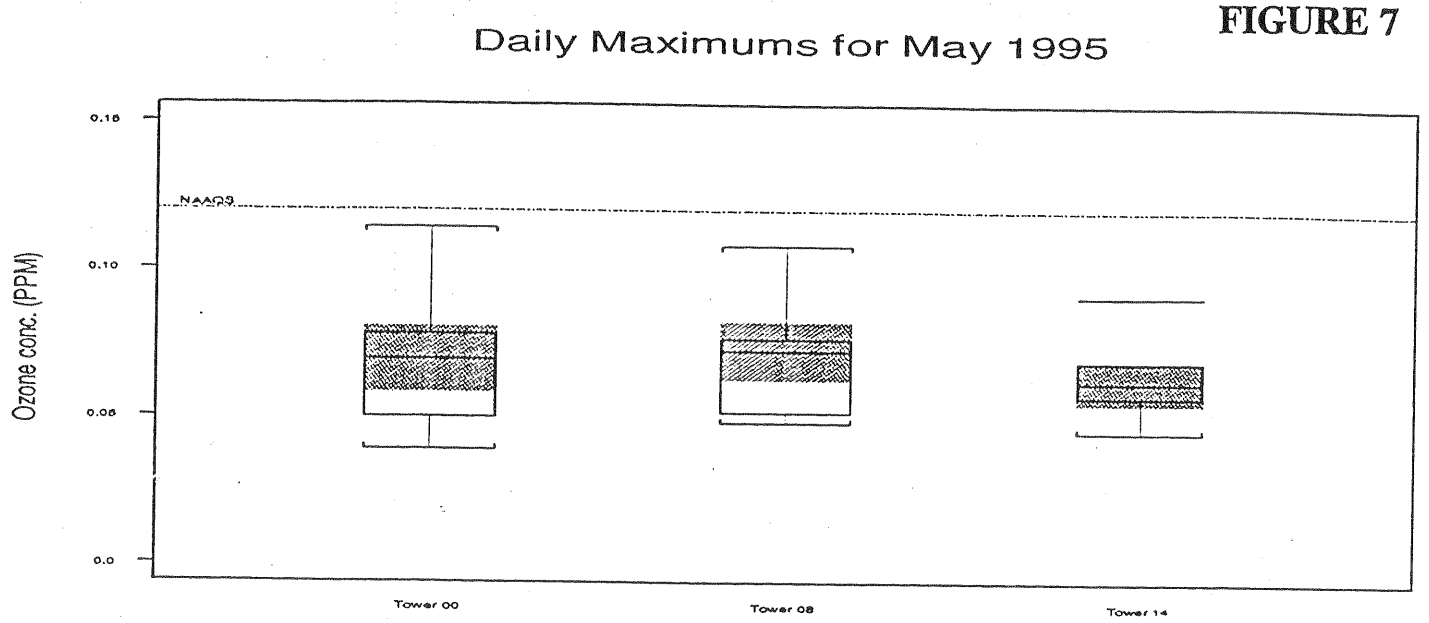
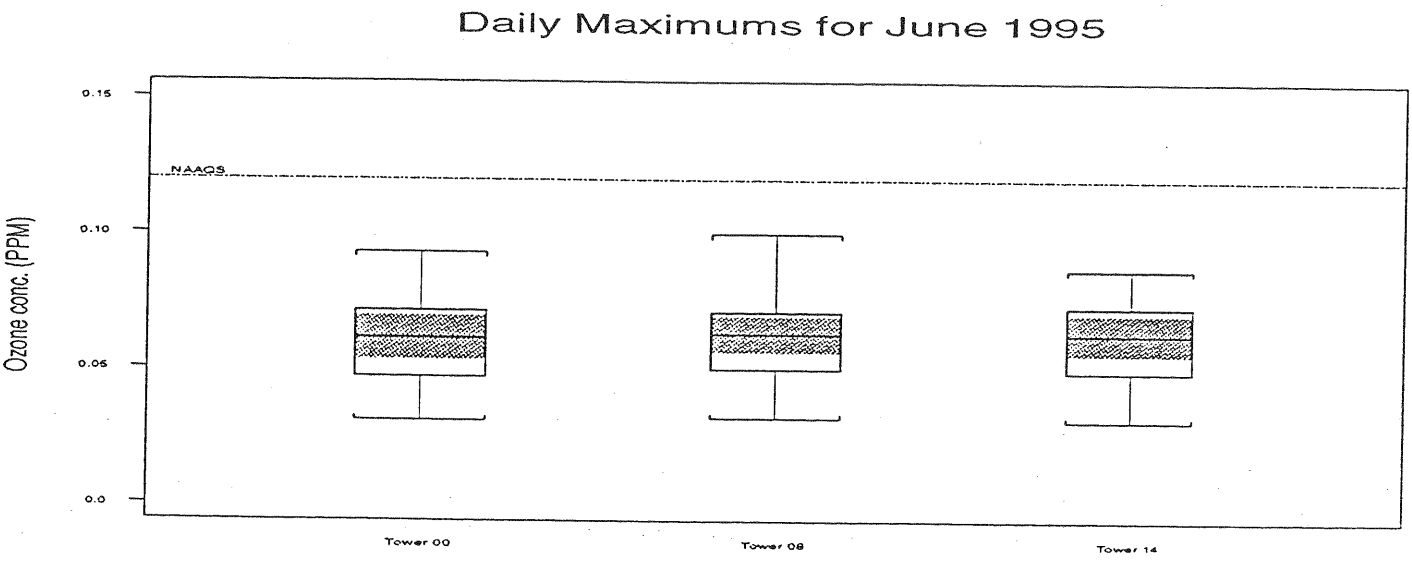

September 1995 Ozone Concentrations
High Level
0.15
0.10
0.05
0.0
0.0
0.05
0.10
0.15
Middle Level

FIGURE 7


Daily Maximums for May 1995
Ozone conc. (PPM)
0.15
NAAQS
0.10
0.05
0.0
Tower 00
Tower 08
Tower 14


Daily Maximums for June 1995
Ozone conc. (PPM)
0.15
NAAQS
0.10
0.05
0.0
Tower 00
Tower 08
Tower 14

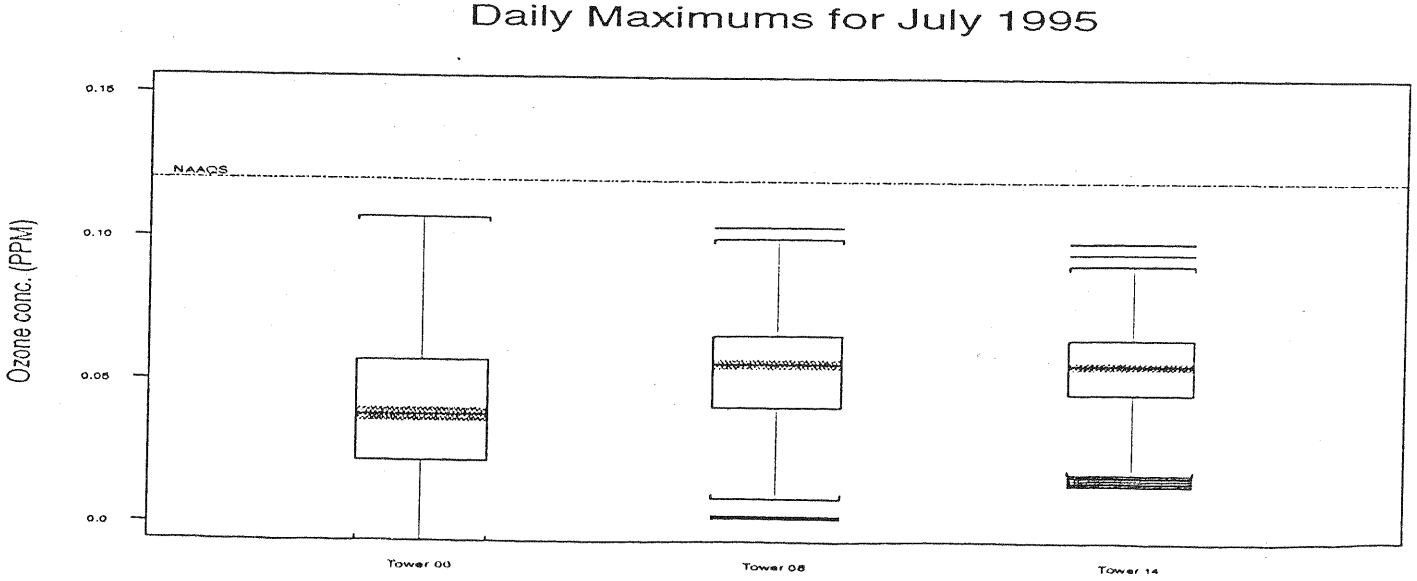
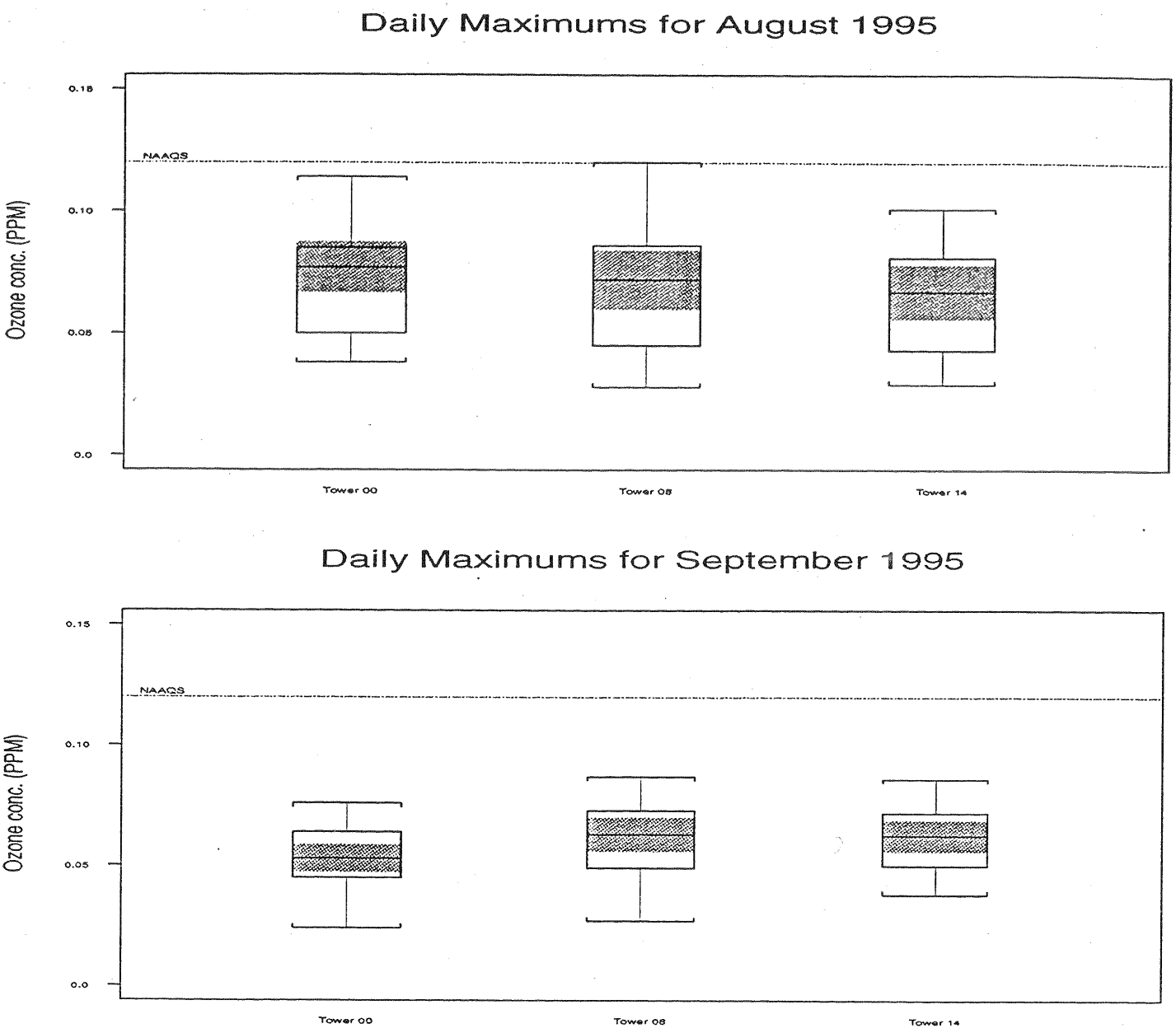

Daily Maximums for July 1995
Ozone conc. (PPM)
0.15
NAAQS
0.10
0.05
0.0
Tower 00
Tower 08
Tower 14

FIGURE 7


Daily Maximums for August 1995
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
NAAQS
Tower 00
Tower 08
Tower 14
Daily Maximums for September 1995
Ozone conc. (PPM)
0.15
0.10
0.05
0.0
NAAQS
Tower 00
Tower 08
Tower 14

APPENDIX A.1

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

AIRS CODES

alidated Database

ITE .....WRALTOWR
ARAMETER 03
ONTH .....May 95
NITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 1
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
2	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
3	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
4	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
5	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
6	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
7	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
8	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
9	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
10	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
11	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
12	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
13	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
14	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
15	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
16	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	77	80	79	80	76	72	60	55	63	61	58	55	%-999.000	0.080	12
17	54	50	47	-999	46	44	44	48	-999	46	51	54	51	57	59	60	57	54	57	49	44	37	40	37	0.049	0.060	22
18	38	32	33	-999	30	27	27	26	30	39	42	48	50	53	52	48	46	46	39	34	42	40	37	35	0.039	0.053	23
19	34	31	31	-999	24	22	22	24	40	33	37	36	43	42	47	38	37	35	32	29	28	38	29	29	0.033	0.047	23
20	37	30	29	-999	21	22	25	29	36	47	55	59	61	63	63	65	64	59	45	44	40	37	35	35	0.044	0.065	23
21	29	31	26	-999	20	15	12	23	39	54	60	64	67	71	72	71	74	74	59	57	52	43	36	34	0.047	0.074	23
22	30	33	28	-999	16	5	5	13	45	61	67	76	78	74	74	73	62	63	58	45	38	32	25	25	0.045	0.078	23
23	26	16	12	-999	5	5	5	28	50	59	62	74	71	72	71	80	82	81	69	64	60	45	45	44	0.049	0.082	23
24	38	33	30	-999	11	5	17	31	35	52	57	62	62	62	64	70	72	78	71	62	55	49	46	37	0.048	0.078	23
25	34	32	26	-999	25	26	25	31	41	47	54	59	63	65	66	72	75	74	55	46	41	39	39	38	0.047	0.075	23
26	36	37	33	-999	24	20	17	27	38	51	75	109	114	103	93	105	79	69	74	61	47	27	29	35	0.057	0.114	23
27	33	39	42	-999	42	43	40	40	40	36	36	35	35	36	35	35	36	35	35	36	34	36	39	38	0.037	0.043	23
28	39	37	36	-999	30	30	27	26	25	22	22	22	20	19	16	15	15	11	5	20	17	21	16	17	0.022	0.039	23
29	12	5	14	-999	18	20	23	25	27	31	34	35	37	37	42	43	46	46	32	29	34	32	28	24	0.029	0.046	23
30	20	14	14	-999	5	11	17	-999	-999	-999	41	57	71	76	76	68	71	64	57	53	47	45	46	39	0.045	0.076	20
31	38	26	20	-999	26	18	15	26	31	39	46	54	56	54	54	46	38	36	38	20	40	43	28	5	0.035	0.056	23
AVG	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0.042		
MAX	54	50	47	-999	46	44	44	48	50	61	75	109	114	103	93	105	82	81	74	64	63	61	58	55		0.114	
DAYS	15	15	15	0	15	15	15	14	13	14	15	15	16	16	16	16	16	16	16	16	16	16	16	16			353

STANDARD DEVIATION 0.01976

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER 03
MONTH .....Jun 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 1
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
2	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
3	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
4	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
5	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	54	51	44	36	32	34	30	28	22	21	23	%-999.000	0.054	11
6	22	23	24	-999	27	23	22	23	23	21	-999	27	22	25	25	25	25	29	32	32	30	27	26	22	0.025	0.032	22
7	22	21	17	-999	16	13	16	20	26	40	53	53	51	63	71	77	70	71	67	43	36	35	30	30	0.041	0.077	23
8	31	36	35	-999	31	29	26	35	43	59	77	90	93	85	90	90	88	86	60	48	48	62	58	52	0.059	0.093	23
9	45	39	32	-999	19	12	15	25	37	53	61	67	68	75	78	81	78	75	48	42	64	59	53	48	0.051	0.081	23
10	44	31	24	-999	31	30	42	45	45	50	58	61	69	69	66	67	71	66	58	41	31	29	58	51	0.049	0.071	23
11	39	44	37	-999	31	31	34	41	48	54	61	63	63	68	72	71	61	57	52	51	49	46	41	37	0.050	0.072	23
12	32	30	35	-999	35	34	32	30	32	41	36	41	49	55	52	52	48	49	47	45	43	43	38	36	0.041	0.055	23
13	35	35	33	-999	26	23	19	19	25	32	37	-999	-999	44	43	48	44	40	36	20	10	5	5	5	0.028	0.048	21
14	5	5	5	-999	5	5	5	12	20	35	49	57	65	66	66	64	64	64	48	31	24	5	5	5	0.031	0.066	23
15	5	5	5	-999	5	5	5	19	32	44	58	65	68	72	73	63	69	58	54	44	35	30	51	42	0.039	0.073	23
16	36	25	24	-999	18	17	28	36	46	51	61	68	73	75	77	78	73	70	55	36	30	27	29	23	0.046	0.078	23
17	12	5	5	-999	5	5	5	28	36	43	54	64	65	67	64	64	62	59	46	36	29	28	25	5	0.035	0.067	23
18	12	12	5	-999	16	20	21	23	29	35	42	44	47	52	52	49	49	43	38	34	33	22	17	17	0.031	0.052	23
19	24	26	27	-999	28	24	22	24	25	22	24	27	28	32	27	24	24	27	26	23	19	19	15	12	0.024	0.032	23
20	15	17	17	-999	25	24	22	22	21	22	28	31	33	36	38	39	39	37	36	20	13	10	5	5	0.024	0.039	23
21	5	5	5	-999	5	5	5	18	34	40	40	-999	53	39	35	32	33	33	29	30	26	16	18	21	0.024	0.053	22
22	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
23	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	5	5	5	5	5	5	5	5	5	5	5	5	%-999.000	0.005	13
24	14	11	5	-999	5	5	5	31	46	54	62	71	67	68	63	48	52	60	58	51	45	33	24	18	0.039	0.071	23
25	17	15	19	-999	14	11	19	24	28	25	28	40	48	52	48	49	59	49	41	44	29	20	20	23	0.031	0.059	23
26	18	24	23	-999	16	19	26	25	28	42	45	41	63	71	66	66	59	51	62	49	33	33	29	25	0.040	0.071	23
27	26	27	24	-999	14	5	12	20	31	40	-999	-999	63	64	46	22	18	45	41	27	19	26	16	12	0.028	0.064	21
28	17	19	19	-999	26	23	22	26	32	36	40	43	42	34	34	46	43	41	35	35	31	29	33	35	0.032	0.046	23
29	25	20	17	-999	21	15	15	20	26	27	31	30	31	28	31	30	27	24	20	23	18	19	15	16	0.023	0.031	23
30	10	5	5	-999	5	5	5	11	24	31	36	41	39	51	52	49	39	29	17	11	10	16	22	21	0.023	0.052	23
AVG	22	21	19	-999	18	17	18	25	32	39	-999	-999	52	54	53	51	49	48	42	34	30	27	26	24	0.035		
MAX	45	44	37	-999	35	34	42	45	48	59	77	90	93	85	90	90	88	86	67	51	64	62	58	52		0.093	
DAYS	23	23	23	0	23	23	23	23	23	23	21	21	23	25	25	25	25	25	25	25	25	25	25	25			547

STANDARD DEVIATION 0.01978

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER 03
MONTH .....Jul 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 1
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	18	13	12	-999	12	13	14	22	31	42	53	63	60	65	64	65	59	61	51	49	42	36	38	34	0.040	0.065	23
2	29	29	26	-999	23	21	33	43	47	54	53	58	60	66	70	66	66	62	46	29	20	20	15	5	0.041	0.070	23
3	5	5	5	-999	5	5	5	18	35	50	54	63	65	58	51	66	64	55	53	51	46	39	27	20	0.037	0.066	23
4	13	10	5	-999	5	5	5	25	30	44	48	49	54	58	55	50	57	53	45	37	26	23	29	48	0.034	0.058	23
5	42	36	34	-999	34	31	31	32	32	38	45	48	51	55	59	60	55	56	41	31	19	16	17	5	0.038	0.060	23
6	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
7	13	16	16	-999	5	5	10	16	20	37	44	47	57	60	67	66	62	59	53	49	39	30	27	22	0.036	0.067	23
8	16	13	10	-999	5	5	16	29	44	68	80	88	97	89	87	82	80	79	55	46	36	30	30	20	0.048	0.097	23
9	19	5	11	-999	22	19	22	34	42	50	57	61	67	70	73	72	69	53	46	32	18	18	27	19	0.039	0.073	23
10	13	5	5	-999	10	10	5	15	21	29	55	68	73	75	74	76	73	72	60	55	53	41	26	18	0.041	0.076	23
11	17	14	11	-999	5	5	5	10	-999	38	46	64	76	86	103	107	85	65	42	25	16	12	12	13	0.039	0.107	22
12	13	5	5	-999	5	5	5	25	49	67	75	82	84	93	87	82	78	72	55	39	26	15	17	11	0.043	0.093	23
13	5	5	5	-999	5	5	5	-999	-999	63	65	68	70	71	71	76	75	65	43	29	25	21	15	15	0.038	0.076	21
14	14	12	10	-999	5	5	15	21	37	45	46	45	43	47	53	57	63	55	38	35	24	17	18	25	0.032	0.063	23
15	29	28	25	-999	19	21	22	32	42	47	44	45	52	55	55	56	54	47	38	34	29	18	19	21	0.036	0.056	23
16	17	17	17	-999	18	20	22	22	23	27	33	37	42	45	43	41	36	30	28	20	21	23	18	25	0.027	0.045	23
17	25	19	22	-999	16	19	31	32	31	40	-999	71	67	68	74	65	52	51	52	47	40	34	30	24	0.041	0.074	22
18	25	21	22	-999	18	17	24	29	41	56	70	90	92	92	77	65	63	59	60	46	41	39	33	35	0.048	0.092	23
19	34	33	26	-999	19	13	24	33	47	56	65	75	75	78	85	87	89	72	53	45	24	10	21	23	0.047	0.089	23
20	16	16	5	-999	5	5	5	19	45	56	74	76	87	87	85	72	56	62	61	56	39	31	33	30	0.044	0.087	23
21	31	28	24	-999	27	19	21	22	33	42	46	55	58	71	60	53	54	50	32	35	29	30	24	33	0.038	0.071	23
22	37	34	26	-999	36	31	32	38	40	45	54	63	70	72	71	72	72	56	60	39	23	13	14	12	0.044	0.072	23
23	10	13	13	-999	22	26	21	40	48	61	72	78	68	68	63	62	66	58	40	40	41	41	30	32	0.044	0.078	23
24	26	26	19	-999	21	24	-999	36	45	54	60	64	70	71	73	67	65	56	41	44	49	42	33	35	0.046	0.073	22
25	34	25	23	-999	15	5	17	27	44	-999	68	86	99	99	87	81	74	73	65	59	57	49	50	46	0.054	0.099	22
26	38	47	56	-999	29	21	21	35	40	53	71	71	70	74	78	76	74	65	44	34	40	51	46	44	0.051	0.078	23
27	34	34	33	-999	35	25	23	30	40	54	64	71	70	66	61	67	60	53	48	42	36	32	29	26	0.045	0.071	23
28	24	22	16	-999	18	11	13	24	25	28	32	37	36	34	40	41	48	39	30	24	24	20	16	16	0.027	0.048	23
29	13	11	12	-999	5	5	18	19	24	33	41	45	45	43	43	44	43	42	30	28	26	24	22	18	0.028	0.045	23
30	20	14	17	-999	5	5	13	32	36	49	49	51	55	59	59	54	41	34	35	32	25	28	17	18	0.033	0.059	23
31	14	12	5	-999	12	5	11	15	5	5	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	0.015	9
AVG	21	19	17	-999	15	14	17	27	36	46	56	63	66	68	68	66	63	57	46	39	32	28	25	24	0.040		
MAX	42	47	56	-999	36	31	33	43	49	68	80	90	99	99	103	107	89	79	65	59	57	51	50	48		0.107	
DAYS	30	30	30	0	30	30	29	29	28	29	28	29	29	29	29	29	29	29	29	29	29	29	29	29			670

STANDARD DEVIATION 0.02271

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER 03
MONTH .....Aug 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 1
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	5	5	5-999	5	5	5	5	5	40	51	48	56	61	60	77	64	52	41	33	26	23	19	20		0.031	0.077	23
2	18	14	11-999	5	5	5	11	21	33	36	42	47	54	58	54	49	35	29	27	24	21	18	16		0.028	0.058	23
3	13	12	10-999	5	5	5	14	24	30	41	45	41	42	42	44	50	43	31	29	26	25	22	21		0.027	0.050	23
4	18	18	16-999	14	11	14	17-999		35	38	43	48	50	47	48	48	49	38	39	33	24	21	18		0.031	0.050	22
5	16	14	16-999	24	15	16	48	71	12	5	5	5	11	20	46	51	49	38	35	31	31	29	37		0.027	0.071	23
6	5	114	61-999	39	26	24	30	37	16	16	39	38	24	27	39	54	52	53	46	46	37	31	30		0.038	0.114	23
7	19	5	5-999	5	13	33	39	42-999-999			46	46	47	45	45	42	40	39	34	35	36	37	36		0.033	0.047	21
8	34	33	29-999	26	21	22	29	34	37	40	43	44	46	47	46	46	35	32	31	29	33	33	33		0.035	0.047	23
9	-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999																								%-999.000	%-999.000	0
10	-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999-999																								%-999.000	%-999.000	0
11	16	20	24-999	18	19	19	22	27	34	39	42	42	43	48	46	44	43	31	16	14	5	5	5		0.027	0.048	23
12	5	5	5-999	5	5	11	21	39	52	63	80	88	93	92	93	85	58	50	44	34	26	19	17		0.043	0.093	23
13	35	5	5-999	5	5	5	42	59	72	77	82	85	85	81	80	75	61	42	41	43	37	22	5		0.046	0.085	23
14	83-999		68-999	53	88	41	26-999-999			87	91	91	81	83	93	90	80	77	62	61	52	44	37		0.069	0.093	20
15	33	28	23-999	19	14	19-999-999			58	67	73	73	73	76	73	87	85	78	66	58	52	49	37		0.054	0.087	21
16	36	35	37-999	36	34	27	27	33	56	72	72	67	68	65	69	74	76	79	81	81	87	92	90		0.061	0.092	23
17	82	68	60-999	55	54	48	44	47	63	78	91	92	91	92	91	82	71	59	42	30	24	13	12		0.060	0.092	23
18	11	11	11-999	5	5	5-999-999			72	81	83	85	85	83	82	83	80	81	67	50	39	39	52		0.053	0.085	21
19	54	48	41-999	24	17	20	35	41	46	53	59	65	65	68	71	71	71	58	45	33	34	42	40		0.048	0.071	23
20	34	34	33-999	19	13	15	29	42	48	51	56	60	63	66	73	73	67	52	40	35	17	10	20		0.041	0.073	23
21	27	20	22-999	24	17	11	19	28	51	64	71	80	78	79	82	85	79	65	58	50	45	49	47		0.050	0.085	23
22	43	40	37-999	30	26	22	29	37	51	73	92	97	99	102	93	91	72	78	62	57	59	52	45		0.060	0.102	23
23	35	31	30-999	28	21	24-999-999-999				79	83	83	84	84	77	77	55	48	45	40	30	23	25		0.050	0.084	20
24	30	26	21-999	5	5	5	29	44	48	48	50	48	43	44	43	43	34	33	36	28	17	14	14		0.031	0.050	23
25	12	11	10-999	5	5	5	12	21	29	39	46	48	46	48	41	40	36	59	55	48	48	43	46		0.033	0.059	23
26	42	37	35-999	33	29	28	30	34	36	33	33	30	29	27	24	23	18	17	17	16	14	15	17		0.027	0.042	23
27	17	18	19-999	18	17	16	16	23	25	25	28	34	37	38	34	33	30	28	34	37	35	29	30		0.027	0.038	23
28	31	30	33-999	23	23	23	21-999-999			26	31	38	39	43	46	46	47	48	44	44	45	48	45		0.037	0.048	21
29	42	40	36-999	30	23	20	23	34	48	57	64	67	71	78	78	76	70	42	26	13	5	5	5		0.041	0.078	23
30	5	5	5-999	5	5	5	10	33	63	74	81	81	83	83	85	80	62	55	47	39	39	39	33		0.044	0.085	23
31	33	31	29-999	26	20	16	30	56	67	75	78	82	80	79	79	80	70	45	36	30	32	41	41		0.050	0.082	23
AVG	29	27	25-999	20	19	18	25	36	45	53	59	61	61	62	64	64	56	49	43	38	34	31	30		0.041		
MAX	83	114	68-999	55	88	48	48	71	72	87	92	97	99	102	93	91	85	81	81	81	87	92	90			0.114	
DAYS	29	28	29	0	29	29	29	26	23	25	28	29	29	29	29	29	29	29	29	29	29	29	29				652

STANDARD DEVIATION 0.02405

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER 03
MONTH .....Sep 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 1
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	39	40	39-999	36	33	32	33	43	54	62	66	69	73	73	74	68	64	53	46	47	46	46	38	0.051	0.074	23
2	32	30	35-999	39	34	29	30	33	38	43	47	51	51	51	52	50	45	34	26	21	17	13	12	0.035	0.052	23
3	5	11	11-999	14	17	21	26	37	46	56	58	59	59	61	62	62	54	38	27	15	5	5	5	0.033	0.062	23
4	5	5	5-999	5	5	5	5	29	52	62	71	72	73	74	72	70	61	43	33	26	24	25	18	0.037	0.074	23
5	11	13	5-999	5	10	5	5-999		51	60	65	66	64	60	62	55	33	17	16	5	5	5	5	0.028	0.066	22
6	5	5	5-999	5	5	5	5	25	36	47	53	53	60	64	63	60	45	33	31	40	27	21	31	0.031	0.064	23
7	28	33	33-999	36	27	25	26	31	31	29	31	32	33	32	33	33	27	26	21	22	19	14	11	0.028	0.036	23
8	17	20	18-999	16	14	14	26	18	23	27	28	34	41	44	45	44	36	22	15	12	11	19	11	0.024	0.045	23
9	5	5	11-999	17	13	16	19	22	26	29	33	41	45	50	53	49	44	29	19	13	5	5	5	0.024	0.053	23
10	5	5	5-999	11	10	19	28	45	48	49	44	43	51	55	54	54	42	27	18	19	34	40	42	0.033	0.055	23
11	44	41	39-999	32	32	32	33-999		41	46	46	50	51	52	46	43	37	24	20	36	41	39	40	0.039	0.052	22
12	33	25	23-999	16	11	10	23	34	40	47	49	55	61	62	63	59	43	25	14	5	5	12	12	0.032	0.063	23
13	12	5	12-999	5	5	5	5	24	39	48	53	55	58	58	62	70	47	33	30	25	22	27	30	0.032	0.070	23
14	28	24	21-999	20	22	22	23	26	33	43	53	52	64	70	72	69	56	36	26	23	21	18	19	0.037	0.072	23
15	14	5	5-999	16	23	28	31	36	45	54	62	67	71	74	76	72	56	38	48	50	47	42	37	0.043	0.076	23
16	36	33	34-999	32	31	30	28	28	30	33	36	39	36	32	29	28	29	30	28	27	24	20	18	0.030	0.039	23
17	18	22	23-999	21	21	24	24	23	22	25	32	38	43	52	54	47	41	37	30	18	13	5	5	0.028	0.054	23
18	5	5	5-999	5	5	5	20	20	27	35	45	47	47	42	41	42	41	39	35	36	33	28	27	0.028	0.047	23
19	24	22	19-999	15	14	12	15-999		32	41	48	54	57	57	56	54	50	38	33	33	37	31	27	0.035	0.057	22
20	25	24	19-999	17	16	16	18	25	31	36	39	43	48	51	53	52	41	27	12	5	5	5	5	0.027	0.053	23
21	5	16	12-999	12	12	5	5	20	26	29	29	34	39	40	35	27	30	27	26	21	15	16	15	0.022	0.040	23
22	13	18	20-999	17	16	16	16	18	23	31	37	40	43	48	47	42	32	30	38	27	22	17	14	0.027	0.048	23
23	12	13	16-999	24	24	23	24	23	23	23	22	21	21	21	20	20	18	18	17	16	14	14	14	0.019	0.024	23
24	14	13	14-999	12	12	13	14	14	16	17	20	22	23	25	27	24	22	19	19	18	14	11	15	0.017	0.027	23
25	16	14	12-999	5	5	5	5	10	14	15	21	26	22	17	17	16	5	5	5	5	5	5	5	0.011	0.026	23
26	5	5	5-999	5	5	5-999		10	11	19	30	37	39	42	44	44	32	20	16	27	27	22	20	0.021	0.044	22
27	17	15	15-999	13	11	12	14-999		26	34	40	45	49	53	53	49	30	10	5	5	5	5	5	0.023	0.053	22
28	3	4	3-999	3	2	2	8	21	44	54	64	66	70	73	70	59	38	19	6	4	4	3	3	0.027	0.073	23
29	5	18	36-999	42	38	31	34	37	41	49	55	61	63	62	59	54	46	47	43	39	37	34	32	0.042	0.063	23
30	30	29	28-999	26	26	25	24	26	28	30	37	43	45	44	43	39	36	34	30	26	22	16	5	0.030	0.045	23
AVG	17	17	18-999	17	17	16	20	26	33	39	44	47	50	51	51	49	39	29	24	22	20	19	18	0.030		
MAX	44	41	39-999	42	38	32	34	45	54	62	71	72	73	74	76	72	64	53	48	50	47	46	42		0.076	
DAYS	30	30	30	0	30	30	30	29	26	30	30	30	30	30	30	30	30	30	30	30	30	30	30			685

STANDARD DEVIATION 0.01798

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER 03
MONTH .....Oct 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 1
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	7	6	8-999	11	12	12	12	19	24	31	36	41	43	45	51	47	32	25	16	11	8	6	4	0.022	0.051	23	
2	3	3	3-999	3	4	3	5	15	29	37	48	59	65	70	71	58	39	36	25	22	18	17	16	0.028	0.071	23	
3	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
4	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
5	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
6	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
7	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
8	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
9	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
10	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
11	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
12	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
13	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
14	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
15	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
16	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
17	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
18	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
19	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
20	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
21	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
22	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
23	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
24	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
25	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
26	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
27	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
28	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
29	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
30	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
31	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
AVG	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0.025		
MAX	7	6	8-999	11	12	12	12	19	29	37	48	59	65	70	71	58	39	36	25	22	18	17	16		0.071		
DAYS	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				46

STANDARD DEVIATION 0.01999

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

APPENDIX A.2

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....M
MONTH .....May 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 2
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
2	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
3	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
4	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
5	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
6	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
7	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
8	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
9	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
10	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
11	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
12	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
13	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
14	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
15	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
16	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	79	78	72	67	66	61	60	58	%-999.000	0.079	8
17	59	59	58	57	-999	50	48	-999	-999	47	50	53	52	56	59	61	62	59	61	59	57	47	42	40	0.054	0.062	21
18	41	36	41	36	-999	36	41	31	33	39	42	46	48	49	48	46	46	48	48	52	50	42	39	36	0.042	0.052	23
19	34	29	29	28	-999	21	25	24	50	40	39	40	42	42	46	49	51	49	48	45	39	35	27	32	0.038	0.051	23
20	39	38	35	38	-999	39	40	41	39	43	50	53	56	58	58	60	60	61	63	67	70	70	69	71	0.053	0.071	23
21	67	59	59	60	-999	58	56	57	52	52	59	61	65	67	69	68	71	73	75	75	70	61	66	70	0.064	0.075	23
22	69	68	67	67	-999	67	65	64	57	57	62	71	72	70	71	71	71	74	74	71	71	71	61	56	0.067	0.074	23
23	60	62	60	58	-999	55	61	65	61	64	70	74	74	74	76	77	79	80	84	82	78	66	60	54	0.068	0.084	23
24	57	58	59	60	-999	48	51	58	50	51	53	61	-999	-999	62	65	69	77	78	71	63	54	47	49	0.059	0.078	21
25	48	50	48	47	-999	44	37	37	40	43	49	56	59	64	63	70	74	73	68	71	68	60	51	51	0.055	0.074	23
26	56	54	52	53	-999	50	48	46	53	49	70	103	108	101	99	103	104	92	86	81	64	60	61	56	0.072	0.108	23
27	50	50	49	48	-999	43	41	41	42	36	37	37	35	37	37	36	39	40	40	40	37	42	44	46	0.041	0.050	23
28	48	48	45	41	-999	37	35	32	31	27	24	25	27	26	26	30	29	28	36	39	33	35	35	34	0.034	0.048	23
29	35	30	32	33	-999	34	30	32	30	28	36	33	37	38	42	44	46	51	46	35	37	35	32	26	0.036	0.051	23
30	29	28	31	31	-999	33	29	20	23	-999	-999	-999	-999	72	75	70	71	66	63	59	54	55	53	50	0.048	0.075	19
31	55	54	49	44	-999	34	30	30	32	36	43	51	54	56	55	55	57	62	67	68	70	66	61	57	0.052	0.070	23
AVG	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0.053		
MAX	69	68	67	67	-999	67	65	65	61	64	70	103	108	101	99	103	104	92	86	82	78	71	69	71		0.108	
DAYS	15	15	15	15	0	15	15	14	14	14	14	14	13	14	15	15	16	16	16	16	16	16	16	16			345

STANDARD DEVIATION 0.01617

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....N
MONTH .....Jun 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 2
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	55	55	53	59	-999	61	56	57	52	49	59	68	71	73	77	82	80	83	70	55	50	48	43	40	0.061	0.083	23
2	35	25	36	36	-999	38	37	33	27	30	35	34	36	37	42	41	37	41	30	27	32	49	46	41	0.036	0.049	23
3	42	44	40	37	-999	44	37	41	36	45	37	38	40	38	33	31	29	31	30	27	27	28	26	28	0.035	0.045	23
4	29	30	24	24	-999	23	21	17	26	33	44	51	61	64	66	66	65	62	58	61	60	57	59	48	0.046	0.066	23
5	53	44	46	52	-999	47	42	46	48	54	53	54	55	56	55	45	37	32	31	26	22	20	18	22	0.042	0.056	23
6	17	20	23	26	-999	21	23	17	21	22	26	-999	-999	-999	-999	21	22	26	29	30	32	31	30	26	0.024	0.032	19
7	29	41	44	43	38	33	52	49	28	38	50	53	48	59	71	77	75	75	78	75	75	71	65	57	0.055	0.078	24
8	51	54	57	59	-999	57	58	56	49	57	74	91	92	86	92	90	88	98	100	93	83	56	55	58	0.072	0.100	23
9	59	60	60	50	-999	49	49	49	45	51	55	60	63	67	72	74	75	80	79	77	63	64	63	66	0.062	0.080	23
10	66	67	69	70	-999	60	48	45	47	50	54	58	64	64	59	61	66	66	63	62	62	60	57	57	0.060	0.070	23
11	61	60	59	60	-999	57	59	61	51	54	57	58	61	65	68	70	66	60	63	61	60	59	54	46	0.060	0.070	23
12	43	41	38	36	-999	48	45	41	40	44	42	44	49	51	53	50	50	49	47	40	36	38	35	34	0.043	0.053	23
13	36	33	33	30	-999	27	25	22	-999	-999	38	41	42	45	45	50	48	45	43	42	41	41	41	42	0.039	0.050	21
14	42	43	45	45	-999	47	50	49	34	35	51	60	68	70	71	67	69	70	70	67	61	56	48	52	0.055	0.071	23
15	49	46	49	41	-999	47	45	49	51	49	60	66	69	73	77	75	76	73	73	86	91	78	68	68	0.063	0.091	23
16	68	68	68	69	-999	68	66	65	60	57	63	69	75	78	81	83	81	82	84	87	93	81	67	66	0.073	0.093	23
17	61	66	61	63	-999	62	57	55	51	45	55	66	70	69	69	69	68	67	68	67	62	58	52	55	0.062	0.070	23
18	55	56	54	55	-999	58	57	57	56	50	44	45	47	52	55	53	51	54	56	59	58	48	50	49	0.053	0.059	23
19	43	44	44	46	-999	42	36	31	30	29	27	28	29	30	30	28	30	28	26	23	20	19	21	18	0.031	0.046	23
20	19	22	22	22	-999	26	27	27	25	23	28	33	34	37	40	41	40	40	41	45	55	63	68	66	0.037	0.068	23
21	61	59	63	62	-999	57	54	57	57	55	43	41	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	0.063	11
22	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
23	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	5	5	5	5	5	5	5	5	5	5	5	5	5	%-999.000	0.005	13
24	54	64	59	58	-999	50	49	48	42	47	55	62	59	61	62	70	64	59	65	63	62	63	61	55	0.058	0.070	23
25	55	52	44	40	-999	36	33	41	42	24	27	36	45	48	54	50	58	55	52	46	46	44	47	52	0.045	0.058	23
26	52	49	49	49	-999	47	49	37	35	37	42	44	51	59	57	60	58	55	59	57	57	57	56	56	0.051	0.060	23
27	49	49	51	51	-999	51	49	49	42	38	46	54	58	63	57	53	49	53	51	49	39	47	40	37	0.049	0.063	23
28	36	36	37	32	-999	33	29	30	31	33	35	37	39	41	40	42	43	39	36	36	35	28	33	32	0.035	0.043	23
29	28	29	28	27	-999	27	24	25	26	27	28	31	32	33	36	36	33	37	38	36	35	24	35	36	0.031	0.038	23
30	33	32	31	32	-999	32	30	30	-999	-999	33	36	41	43	44	47	45	47	47	46	44	41	49	47	0.040	0.049	21
AVG	46	46	46	45	-999	45	43	42	40	41	45	49	52	54	56	55	54	54	53	52	50	48	46	45	0.048		
MAX	68	68	69	70	38	68	66	65	60	57	74	91	92	86	92	90	88	98	100	93	93	81	68	68		0.100	
DAYS	28	28	28	28	1	28	28	28	26	26	28	28	27	27	27	28	28	28	28	28	28	28	28	28			638

STANDARD DEVIATION 0.01707

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....M
MONTH .....Jul 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 2
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	34	32	29	30	-999	34	43	40	32	40	51	61	60	61	59	63	60	68	60	61	64	63	51	50	0.050	0.068	23
2	60	59	63	53	-999	70	63	52	50	56	54	57	56	64	68	67	66	66	69	68	66	57	5	5	0.056	0.070	23
3	5	5	5	5	-999	5	5	5	5	5	5	5	5	5	5	69	73	61	59	53	52	55	59	59	0.027	0.073	23
4	62	61	50	50	-999	51	50	49	48	47	46	47	50	55	52	50	57	60	67	72	64	61	46	52	0.054	0.072	23
5	55	53	54	53	-999	50	46	41	34	-999	-999	40	44	46	49	51	50	52	56	56	56	54	31	27	0.048	0.056	21
6	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
7	39	37	27	28	-999	51	54	48	47	34	41	43	51	56	61	61	57	56	55	62	57	60	58	60	0.050	0.062	23
8	63	60	58	54	-999	66	68	69	62	71	82	90	98	92	90	85	84	87	94	100	98	87	83	77	0.079	0.100	23
9	81	73	62	53	-999	47	47	48	44	48	53	59	65	68	69	76	81	80	82	78	70	74	73	70	0.065	0.082	23
10	67	67	65	70	-999	65	63	63	72	72	62	63	67	70	69	69	69	73	56	55	60	56	51	51	0.064	0.073	23
11	57	61	67	61	-999	51	45	37	38	36	56	58	71	85	97	104	85	84	82	82	80	81	83	74	0.068	0.104	23
12	76	74	74	72	-999	69	69	-999	75	68	73	80	82	94	86	84	83	83	81	79	78	69	66	67	0.076	0.094	22
13	61	55	69	70	-999	66	65	68	53	57	60	64	65	66	69	74	77	73	74	72	68	61	44	43	0.064	0.077	23
14	45	46	42	39	-999	36	32	35	29	36	38	36	35	40	45	50	53	51	50	48	47	45	40	35	0.041	0.053	23
15	32	31	33	35	-999	34	37	29	33	39	44	48	60	61	62	64	62	63	69	66	62	55	37	32	0.047	0.069	23
16	35	39	38	41	-999	34	25	31	32	34	39	47	56	59	57	53	52	55	53	52	45	48	44	38	0.044	0.059	23
17	37	29	32	31	-999	31	29	28	30	40	45	48	53	57	58	54	50	47	49	54	50	51	55	59	0.044	0.059	23
18	42	45	50	56	-999	67	54	44	51	53	64	79	84	82	77	68	59	58	75	73	71	72	66	64	0.063	0.084	23
19	66	64	57	57	-999	54	51	55	-999	57	63	69	75	79	80	82	86	90	92	92	92	78	75	74	0.072	0.092	22
20	76	79	73	87	-999	82	73	67	63	56	69	71	81	82	79	79	77	67	71	70	68	65	62	38	0.071	0.087	23
21	32	30	27	28	-999	31	25	23	28	31	36	49	51	59	69	69	66	69	68	63	62	64	57	50	0.047	0.069	23
22	60	62	57	56	-999	47	43	45	37	39	47	52	60	61	59	61	63	62	62	57	58	58	58	60	0.055	0.063	23
23	64	64	67	69	-999	59	53	47	44	54	65	72	63	61	56	55	62	60	67	55	50	52	47	44	0.058	0.072	23
24	48	50	45	40	-999	33	33	35	37	45	50	55	59	61	63	63	61	59	59	50	55	61	56	55	0.051	0.063	23
25	48	53	52	52	-999	37	33	31	32	39	53	-999	-999	93	81	73	71	77	74	69	52	49	51	46	0.056	0.093	21
26	44	49	57	57	-999	53	54	52	40	49	58	62	61	64	67	68	68	67	68	69	68	58	56	45	0.058	0.069	23
27	43	38	37	43	-999	37	38	31	33	44	58	66	66	61	54	59	53	47	41	38	36	32	27	25	0.044	0.066	23
28	26	24	21	19	-999	20	16	15	13	18	23	26	26	24	25	29	36	33	35	32	27	23	18	18	0.024	0.036	23
29	22	21	20	20	-999	18	16	16	15	22	30	34	34	32	31	33	34	36	42	42	27	24	24	23	0.027	0.042	23
30	22	22	22	22	-999	25	23	29	27	36	40	41	43	45	49	51	49	47	48	51	54	60	57	51	0.040	0.060	23
31	27	19	20	24	-999	38	52	60	55	40	44	52	62	65	69	73	77	78	81	82	60	48	47	35	0.053	0.082	23
AVG	48	47	46	46	-999	46	44	41	40	44	50	54	58	62	62	65	64	64	65	63	60	57	51	48	0.053		
MAX	81	79	74	87	-999	82	73	69	75	72	82	90	98	94	97	104	86	90	94	100	98	87	83	77		0.104	
DAYS	30	30	30	30	0	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30			684

STANDARD DEVIATION 0.01869

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....M
MONTH .....Aug 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 2
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	27	25	22	23	-999	23	22	21	23	29	40	40	47	52	50	72	59	49	49	44	37	26	21	19	0.036	0.072	23
2	18	18	19	20	-999	18	11	5	-999	21	25	32	39	46	47	47	42	28	26	25	21	20	22	22	0.026	0.047	22
3	22	22	23	24	-999	25	23	22	18	23	29	33	30	31	32	33	40	33	29	30	25	20	18	17	0.026	0.040	23
4	18	19	21	21	-999	16	15	14	16	20	-999	30	35	38	36	35	37	40	41	33	24	17	16	18	0.025	0.041	22
5	18	14	14	14	-999	15	14	5	10	19	25	28	29	31	34	37	38	36	39	41	40	40	29	30	0.026	0.041	23
6	23	17	14	13	-999	12	12	15	22	31	31	29	30	30	35	38	43	45	48	48	40	37	31	33	0.029	0.048	23
7	36	35	32	33	-999	31	31	31	34	37	40	43	43	43	42	40	39	39	38	38	36	35	35	33	0.037	0.043	23
8	32	32	33	35	-999	37	39	32	32	35	38	40	43	44	46	48	48	47	46	47	46	39	35	31	0.039	0.048	23
9	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
10	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
11	27	26	23	27	-999	25	19	20	-999	26	34	38	37	39	44	41	39	42	42	43	44	44	42	42	0.035	0.044	22
12	42	42	41	42	-999	45	48	56	55	52	62	68	76	80	81	83	77	72	71	80	78	69	70	74	0.064	0.083	23
13	104	83	72	75	-999	62	60	64	66	66	66	69	73	73	71	71	71	74	82	79	77	79	85	84	0.074	0.104	23
14	73	84	81	85	-999	84	81	76	58	56	-999	69	71	67	70	78	75	76	81	79	70	51	49	54	0.071	0.085	22
15	50	51	53	53	-999	57	51	57	48	44	52	60	66	66	69	67	78	82	78	76	78	63	53	45	0.061	0.082	23
16	45	42	32	38	-999	40	29	31	37	56	69	71	67	66	62	67	74	79	87	94	106	120	107	82	0.065	0.120	23
17	61	53	57	68	-999	72	49	45	44	61	75	88	90	89	90	90	85	82	79	78	78	76	80	76	0.072	0.090	23
18	80	87	87	88	-999	89	87	87	81	-999	80	81	81	80	80	82	81	85	88	98	98	75	66	61	0.083	0.098	22
19	56	47	45	46	-999	50	45	44	40	42	48	55	61	62	65	69	69	73	61	60	53	53	48	41	0.054	0.073	23
20	43	38	41	42	-999	40	40	44	40	46	49	53	57	60	63	69	72	71	66	68	69	66	68	70	0.055	0.072	23
21	71	70	59	55	-999	59	61	54	59	60	63	65	71	70	72	74	79	82	82	81	75	67	58	51	0.067	0.082	23
22	54	54	57	59	-999	45	50	-999	-999	-999	62	80	85	87	92	90	90	91	93	82	70	67	66	65	0.072	0.093	20
23	74	78	73	65	-999	56	50	48	43	59	74	77	75	78	79	75	75	51	52	43	41	46	58	50	0.062	0.079	23
24	50	40	33	34	-999	52	53	42	39	39	38	36	38	33	33	31	35	35	31	29	26	23	25	25	0.036	0.053	23
25	26	12	17	18	-999	18	16	16	15	19	28	36	39	35	39	34	32	30	45	38	44	43	43	45	0.030	0.045	23
26	43	42	38	39	-999	37	33	31	31	29	26	24	20	21	21	20	20	21	19	19	18	17	16	17	0.026	0.043	23
27	21	24	27	24	-999	16	16	16	17	17	16	18	21	23	26	26	23	20	20	23	28	21	21	23	0.021	0.028	23
28	21	22	22	22	-999	22	22	20	20	22	24	27	36	38	42	43	45	48	50	54	62	63	59	53	0.036	0.063	23
29	49	48	47	48	-999	47	48	40	43	50	55	61	64	69	76	78	77	79	78	77	78	82	86	86	0.064	0.086	23
30	86	84	86	82	-999	67	69	72	-999	62	69	76	75	74	77	80	87	94	93	88	89	88	79	74	0.080	0.094	22
31	83	86	79	65	-999	72	76	79	76	71	74	75	76	78	79	80	78	79	76	74	73	75	77	75	0.076	0.086	23
AVG	47	45	43	43	-999	42	40	39	39	40	48	52	54	55	57	59	59	58	58	58	56	52	50	48	0.050		
MAX	104	87	87	88	-999	89	87	87	81	71	80	88	90	89	92	90	90	94	93	98	106	120	107	86		0.120	
DAYS	29	29	29	29	0	29	29	28	25	27	27	29	29	29	29	29	29	29	29	29	29	29	29	29			658

STANDARD DEVIATION 0.02302

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....M
MONTH .....Sep 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 2
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	58	67	69	73	-999	73	68	57	49	53	59	64	67	69	70	74	74	67	68	69	68	62	66	54	0.065	0.074	23
2	48	49	48	44	-999	42	40	36	33	38	41	46	49	51	51	51	51	51	51	50	51	50	52	53	0.047	0.053	23
3	55	56	58	61	-999	63	57	57	56	50	55	58	59	58	61	62	64	66	65	66	68	68	71	61	0.061	0.071	23
4	61	57	54	56	-999	56	53	53	55	51	57	68	70	70	70	69	71	73	75	78	72	67	66	63	0.064	0.078	23
5	61	61	63	65	-999	64	64	64	58	48	57	64	66	66	64	70	75	76	73	69	68	64	65	65	0.065	0.076	23
6	59	59	66	64	-999	60	57	56	52	47	47	55	59	65	66	67	68	69	73	72	47	48	60	60	0.060	0.073	23
7	66	51	44	43	-999	42	42	41	40	34	32	32	30	32	32	33	33	36	35	34	35	35	35	35	0.038	0.066	23
8	33	34	33	35	-999	34	21	18	-999	21	26	25	27	35	38	39	40	40	39	40	40	38	44	49	0.034	0.049	22
9	41	38	39	41	-999	42	42	26	22	25	28	31	38	42	47	51	52	50	48	46	55	54	55	56	0.042	0.056	23
10	61	63	60	66	-999	46	64	65	56	52	48	47	49	49	54	55	58	59	64	67	65	58	58	56	0.057	0.067	23
11	53	51	55	57	-999	63	58	54	50	49	51	52	53	55	55	56	57	57	56	57	60	57	58	61	0.055	0.063	23
12	58	57	55	52	-999	51	50	48	41	39	45	48	51	57	59	61	62	60	65	63	62	58	51	54	0.054	0.065	23
13	49	49	49	42	-999	41	45	49	46	39	46	50	52	55	56	61	75	71	71	66	58	45	47	39	0.052	0.075	23
14	35	32	29	28	-999	26	25	24	-999	30	39	48	55	59	66	70	72	70	67	65	66	71	67	67	0.050	0.072	22
15	70	69	66	64	-999	41	36	37	40	46	53	61	66	68	74	78	79	78	74	62	53	49	45	42	0.059	0.079	23
16	42	40	39	40	-999	37	35	34	35	34	35	36	37	36	32	30	30	32	32	31	34	32	33	32	0.035	0.042	23
17	30	27	25	27	-999	32	29	23	22	23	28	32	39	42	51	55	46	44	43	43	46	45	43	42	0.036	0.055	23
18	39	35	41	43	-999	42	39	35	32	29	33	45	48	50	50	50	48	48	47	44	39	35	31	29	0.041	0.050	23
19	25	21	19	17	-999	21	21	20	25	32	42	50	56	61	62	63	63	62	62	61	57	57	48	41	0.043	0.063	23
20	43	43	40	39	-999	43	43	43	41	33	34	38	42	47	50	52	53	51	52	54	55	56	54	52	0.046	0.056	23
21	49	30	29	31	-999	33	35	36	-999	-999	-999	36	34	35	37	35	39	39	36	32	32	27	22	23	0.034	0.049	20
22	25	22	20	21	-999	21	18	19	-999	23	29	36	40	42	43	43	43	42	43	39	29	23	20	15	0.030	0.043	22
23	18	16	16	22	-999	27	26	27	27	26	25	24	23	23	23	23	22	22	22	22	21	18	17	17	0.022	0.027	23
24	16	16	21	18	-999	17	18	19	17	17	18	20	23	24	27	29	28	31	33	36	38	38	35	28	0.025	0.038	23
25	25	27	35	29	-999	24	24	21	21	14	13	18	23	20	17	15	15	14	5	5	19	24	27	33	0.020	0.035	23
26	28	34	33	34	-999	36	35	34	33	24	-999	29	35	39	42	44	44	45	46	44	39	29	23	22	0.035	0.046	22
27	22	19	16	14	-999	14	15	16	20	24	-999	37	42	47	51	54	54	55	57	59	60	62	64	62	0.039	0.064	22
28	60	58	60	60	-999	60	58	60	61	54	55	65	67	70	73	72	71	71	74	75	85	84	81	82	0.068	0.085	23
29	81	79	87	83	-999	68	58	48	43	44	49	56	61	64	63	61	61	62	59	53	48	43	40	37	0.059	0.087	23
30	35	35	34	33	-999	32	27	34	29	30	31	36	42	44	44	43	44	43	40	39	37	37	36	35	0.037	0.044	23
AVG	45	43	43	43	-999	42	40	38	39	35	40	44	47	49	51	52	53	53	53	51	50	48	47	45	0.046		
MAX	81	79	87	83	-999	73	68	65	61	54	59	68	70	70	74	78	79	78	75	78	85	84	81	82		0.087	
DAYS	30	30	30	30	0	30	30	30	26	29	27	30	30	30	30	30	30	30	30	30	30	30	30	30			682

STANDARD DEVIATION 0.01646

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....M
MONTH .....Oct 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 2
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	36	38	41	41	-999	41	39	39	37	26	28	34	38	40	44	50	49	46	46	45	43	42	43	43	0.040	0.050	23
2	39	45	46	45	-999	50	50	48	43	33	33	44	55	60	65	68	67	67	66	65	62	58	56	59	0.053	0.068	23
3	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
4	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
5	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
6	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
7	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
8	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
9	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
10	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
11	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
12	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
13	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
14	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
15	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
16	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
17	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
18	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
19	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
20	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
21	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
22	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
23	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
24	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
25	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
26	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
27	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
28	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
29	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
30	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
31	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
AVG	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0.047		
MAX	39	45	46	45	-999	50	50	48	43	33	33	44	55	60	65	68	67	67	66	65	62	58	56	59		0.068	
DAYS	2	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			46

STANDARD DEVIATION 0.01085

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

APPENDIX A.3

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....H
MONTH .....May 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 3
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
2	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
3	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
4	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
5	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
6	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
7	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
8	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
9	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
10	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
11	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
12	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
13	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
14	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
15	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
16	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
17	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
18	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
19	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
20	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
21	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
22	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
23	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
24	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
25	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	58	61	60	64	67	64	63	60	%-999.000	0.067	8
26	62	66	66	67	62	-999	62	67	68	65	57	79	84	81	83	87	91	86	87	85	71	62	62	60	0.072	0.091	23
27	58	50	52	50	48	-999	44	43	44	43	38	36	39	36	35	35	38	42	45	46	49	50	56	60	0.045	0.060	23
28	57	53	50	50	44	-999	40	39	36	34	36	35	32	32	31	33	33	34	42	40	41	43	41	41	0.040	0.057	23
29	42	43	44	42	41	-999	39	35	32	30	29	29	30	32	35	37	39	45	45	36	43	44	42	34	0.038	0.045	23
30	39	48	50	44	39	-999	27	33	34	27	32	41	53	60	62	58	61	60	60	61	57	56	55	55	0.048	0.062	23
31	57	60	56	53	52	-999	41	-999	-999	-999	34	40	43	44	46	48	50	56	63	67	69	65	62	62	0.053	0.069	20
AVG	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0.050		
MAX	62	66	66	67	62	-999	62	67	68	65	57	79	84	81	83	87	91	86	87	85	71	65	63	62		0.091	
DAYS	6	6	6	6	6	0	6	5	5	5	6	6	6	6	6	6	7	7	7	7	7	7	7	7			143

STANDARD DEVIATION 0.01449

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....H
MONTH .....Jun 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 3
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	59	57	59	60	59	-999	56	53	53	48	49	54	59	60	64	70	71	77	66	55	51	55	49	46	0.058	0.077	23
2	45	46	47	49	48	-999	38	41	33	27	27	30	30	31	35	39	37	37	35	30	34	47	45	40	0.038	0.049	23
3	31	27	22	23	37	-999	45	49	47	43	41	36	38	34	27	25	25	28	29	30	34	37	41	36	0.034	0.049	23
4	31	35	31	25	36	-999	30	32	33	30	34	42	47	51	54	58	62	63	55	61	59	56	58	56	0.045	0.063	23
5	57	52	56	56	52	-999	52	54	53	54	55	51	50	47	49	40	34	30	26	25	22	20	20	20	0.042	0.057	23
6	21	24	24	25	24	-999	23	25	29	-999	20	21	21	24	24	22	22	26	29	29	30	30	31	28	0.025	0.031	22
7	31	31	37	36	41	-999	43	40	37	32	36	40	40	44	55	61	59	62	69	73	73	66	58	53	0.049	0.073	23
8	52	55	54	57	55	-999	55	53	51	46	54	67	70	65	70	69	69	78	84	82	77	56	54	58	0.062	0.084	23
9	55	55	55	44	50	-999	46	49	-999	-999	41	45	47	51	55	58	60	68	74	79	60	63	59	63	0.056	0.079	21
10	65	65	64	62	65	-999	63	59	45	45	45	49	53	53	50	51	57	59	58	59	61	59	57	59	0.057	0.065	23
11	60	57	56	59	58	-999	60	65	59	50	49	48	51	54	57	61	61	59	61	62	61	60	57	54	0.057	0.065	23
12	52	49	42	40	49	-999	52	47	44	48	44	41	41	40	45	44	49	49	50	42	38	39	36	37	0.044	0.052	23
13	43	44	38	33	32	-999	29	25	25	28	32	34	35	38	39	43	42	41	41	41	41	41	42	43	0.037	0.044	23
14	45	48	48	48	46	-999	50	45	45	38	43	50	57	59	60	57	59	62	63	62	58	53	51	49	0.052	0.063	23
15	53	52	51	46	47	-999	48	45	49	48	48	54	57	61	65	65	67	67	68	78	85	76	69	71	0.060	0.085	23
16	73	71	68	67	68	-999	66	-999	-999	-999	53	59	64	68	70	72	72	73	78	82	87	81	66	61	0.070	0.087	20
17	64	62	59	68	83	-999	60	59	58	48	48	56	60	59	59	59	59	60	61	63	59	54	51	51	0.059	0.083	23
18	54	53	51	53	54	-999	55	53	53	51	47	41	42	45	48	48	46	50	53	54	56	49	49	51	0.050	0.056	23
19	45	47	46	49	45	-999	43	37	33	28	26	26	27	27	30	33	29	27	24	22	21	22	25	24	0.032	0.049	23
20	23	28	27	26	28	-999	28	28	31	29	31	33	33	34	36	37	37	37	42	55	58	67	68	64	0.038	0.068	23
21	69	65	63	66	67	-999	57	54	54	49	40	39	40	-999	-999	34	33	31	29	30	36	37	32	34	0.046	0.069	21
22	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
23	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
24	51	52	55	54	52	-999	51	50	45	38	46	52	51	53	55	64	61	55	62	61	59	59	61	52	0.054	0.064	23
25	56	55	47	43	47	-999	41	45	51	53	50	47	42	43	50	48	52	55	51	49	53	56	56	54	0.050	0.056	23
26	54	50	49	44	55	-999	55	54	53	51	38	47	49	50	49	53	53	54	56	55	56	56	59	59	0.052	0.059	23
27	58	58	53	56	55	-999	51	51	-999	46	40	46	49	54	53	52	48	48	53	50	44	44	40	35	0.049	0.058	22
28	35	35	37	37	39	-999	32	32	31	30	29	31	34	36	35	35	37	35	35	34	27	27	29	31	0.033	0.039	23
29	27	30	30	30	30	-999	26	26	27	26	26	30	32	33	34	34	33	36	36	31	29	34	37	35	0.031	0.037	23
30	33	33	34	32	32	-999	31	29	27	27	28	30	37	39	38	41	40	44	45	45	43	40	43	47	0.036	0.047	23
AVG	48	48	47	46	48	-999	46	44	43	41	40	43	45	46	48	49	49	50	51	51	50	49	48	47	0.047		
MAX	73	71	68	68	83	-999	66	65	59	54	55	67	70	68	70	72	72	78	84	82	87	81	69	71		0.087	
DAYS	28	28	28	28	28	0	28	27	25	25	28	28	28	27	27	28	28	28	28	28	28	28	28	28			635

STANDARD DEVIATION 0.01367

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....H
MONTH .....Jul 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 3
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	41	37	40	45	45	-999	41	35	47	52	54	55	53	52	51	57	56	62	60	61	58	60	49	46	0.050	0.062	23
2	57	56	55	55	55	-999	50	57	47	50	48	49	48	55	59	57	56	58	61	64	63	66	72	77	0.057	0.077	23
3	78	79	80	69	68	-999	52	61	60	59	52	53	56	59	60	58	64	58	54	50	52	56	56	55	0.060	0.080	23
4	56	52	51	53	44	-999	43	46	39	41	38	37	39	44	42	41	46	51	56	61	65	62	48	42	0.048	0.065	23
5	48	48	46	45	43	-999	42	40	40	33	36	36	37	-999	43	45	44	47	52	54	54	52	39	38	0.044	0.054	22
6	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
7	40	43	42	58	61	-999	52	46	46	36	39	41	45	50	54	56	54	54	54	57	61	62	63	61	0.051	0.063	23
8	59	47	52	57	61	-999	68	71	72	68	71	78	86	82	80	74	74	79	87	95	99	91	82	80	0.074	0.099	23
9	80	76	74	71	71	-999	66	60	58	46	46	51	55	59	61	69	73	75	77	78	73	78	77	72	0.067	0.080	23
10	73	76	76	72	70	-999	60	65	65	65	62	56	60	64	63	63	65	69	55	55	62	58	57	57	0.064	0.076	23
11	62	70	66	70	71	-999	62	-999	39	45	54	67	63	74	86	90	75	76	77	79	79	78	81	76	0.070	0.090	22
12	73	72	71	73	75	-999	71	66	63	59	62	69	71	81	74	73	73	75	74	73	73	65	63	69	0.070	0.081	23
13	69	68	66	67	65	-999	63	60	58	52	52	55	55	55	59	65	69	67	69	68	66	61	46	41	0.061	0.069	23
14	41	40	42	49	48	-999	41	42	32	34	34	32	29	33	37	42	46	45	46	45	46	49	46	41	0.041	0.049	23
15	40	35	35	36	36	-999	41	37	38	37	39	46	54	54	55	57	56	58	64	63	61	52	50	44	0.047	0.064	23
16	44	54	45	47	50	-999	50	50	49	45	37	42	51	53	51	46	47	53	53	53	48	51	49	40	0.048	0.054	23
17	38	38	45	50	50	-999	48	48	38	42	43	47	50	48	49	53	52	50	50	52	61	63	63	60	0.049	0.063	23
18	63	62	62	65	72	-999	66	59	62	59	56	70	76	74	72	73	68	64	73	75	76	76	73	74	0.068	0.076	23
19	74	71	64	55	55	-999	63	62	61	58	54	57	62	67	69	71	76	81	84	86	88	79	77	73	0.069	0.088	23
20	73	76	79	85	85	-999	74	70	66	65	63	64	72	73	72	73	75	70	70	71	69	64	55	40	0.070	0.085	23
21	43	46	63	56	47	-999	47	43	-999	41	42	50	51	60	65	68	66	72	68	66	62	68	69	65	0.057	0.072	22
22	70	70	68	66	56	-999	50	50	44	37	44	48	56	56	56	57	59	59	58	57	57	61	59	58	0.056	0.070	23
23	64	66	68	69	58	-999	52	50	56	61	59	64	54	52	48	48	56	56	64	56	55	59	47	48	0.057	0.069	23
24	53	55	53	48	42	-999	42	43	45	43	44	49	54	56	57	57	55	54	56	48	52	54	54	56	0.051	0.057	23
25	58	57	54	54	44	-999	42	43	-999	49	48	68	81	84	74	67	65	72	68	68	65	62	64	58	0.061	0.084	22
26	55	46	53	57	59	-999	54	53	53	53	53	57	55	57	59	61	61	61	62	63	67	63	62	57	0.057	0.067	23
27	55	58	50	55	55	-999	53	53	54	46	53	60	60	56	51	55	49	45	39	38	35	33	29	27	0.048	0.060	23
28	26	21	22	20	19	-999	17	15	14	16	20	23	23	22	21	25	32	32	37	33	32	22	20	21	0.023	0.037	23
29	22	24	22	24	24	-999	19	16	18	20	28	31	32	30	28	29	31	33	39	41	31	28	23	23	0.027	0.041	23
30	24	25	25	24	21	-999	27	28	29	31	33	36	37	40	43	46	45	44	45	46	47	51	53	46	0.037	0.053	23
31	28	21	29	38	45	-999	49	46	47	41	39	46	54	56	59	64	69	71	75	77	63	53	47	29	0.050	0.077	23
AVG	54	53	53	54	53	-999	50	49	48	46	47	51	54	57	57	58	59	60	61	61	61	59	56	52	0.054		
MAX	80	79	80	85	85	-999	74	71	72	68	71	78	86	84	86	90	76	81	87	95	99	91	82	80		0.099	
DAYS	30	30	30	30	30	0	30	29	28	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30			686

STANDARD DEVIATION 0.01503

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....H
MONTH .....Aug 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 3
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	28	26	25	26	26	-999	26	26	22	24	35	36	42	46	45	65	54	46	47	42	36	27	24	18	0.034	0.065	23
2	21	23	23	23	22	-999	19	19	18	-999	22	29	35	42	42	43	39	27	26	26	23	22	23	25	0.027	0.043	22
3	23	24	25	25	26	-999	22	21	19	21	26	30	27	27	28	30	35	30	28	31	28	25	24	22	0.026	0.035	23
4	20	18	22	23	21	-999	19	18	18	-999	22	28	32	35	33	32	34	37	39	30	24	20	18	21	0.026	0.039	22
5	20	19	18	28	29	-999	15	17	13	18	23	25	26	28	31	34	35	33	37	39	41	40	35	29	0.028	0.041	23
6	30	27	18	26	29	-999	23	18	22	29	30	27	27	29	32	35	40	42	45	45	35	36	30	30	0.031	0.045	23
7	33	34	31	32	29	-999	31	29	29	30	32	35	35	36	35	34	34	35	35	36	35	33	34	31	0.033	0.036	23
8	30	30	34	35	39	-999	37	33	29	30	32	34	37	38	39	42	43	42	43	45	44	40	35	33	0.037	0.045	23
9	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
10	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
11	31	33	31	32	32	-999	30	26	24	25	30	33	32	35	38	35	34	38	40	40	40	40	42	45	0.034	0.045	23
12	42	40	39	36	35	-999	49	52	60	57	58	62	69	74	76	77	72	70	70	78	70	63	65	68	0.060	0.078	23
13	101	79	77	67	62	-999	59	55	60	65	57	59	62	62	60	60	61	69	76	75	74	76	81	75	0.068	0.101	23
14	77	83	77	75	89	-999	64	65	65	63	65	63	62	58	61	70	69	69	74	74	71	56	56	52	0.068	0.089	23
15	53	53	54	54	52	-999	68	60	53	-999	-999	47	52	53	55	55	63	67	65	65	69	66	63	65	0.059	0.069	21
16	52	55	59	58	46	-999	35	32	38	46	52	55	51	50	48	52	58	64	70	77	90	97	71	48	0.057	0.097	23
17	33	38	63	67	67	-999	54	-999	37	55	66	76	78	77	79	79	75	74	72	77	74	72	72	71	0.066	0.079	22
18	74	79	84	86	83	-999	82	79	76	70	69	71	70	69	70	72	74	80	84	90	98	68	63	64	0.076	0.098	23
19	61	58	60	57	58	-999	47	38	36	37	40	47	52	54	56	61	62	67	59	58	55	53	54	52	0.053	0.067	23
20	58	51	52	53	56	-999	51	49	39	41	43	46	50	52	56	61	63	65	65	67	69	67	65	71	0.056	0.071	23
21	73	65	54	59	63	-999	61	55	-999	-999	62	63	68	68	69	72	76	79	81	79	77	69	61	60	0.067	0.081	21
22	63	58	54	51	34	-999	54	44	54	52	55	75	77	83	88	87	88	90	95	86	76	75	79	77	0.069	0.095	23
23	86	85	81	81	79	-999	72	72	56	59	68	71	70	72	74	71	72	50	57	50	38	53	43	51	0.066	0.086	23
24	50	41	43	39	41	-999	45	43	39	35	35	36	36	32	30	31	34	36	35	34	23	22	23	22	0.035	0.050	23
25	22	21	20	21	21	-999	20	17	15	17	24	32	37	33	37	32	31	32	40	34	42	39	39	29	0.028	0.042	23
26	33	28	33	30	28	-999	18	16	15	14	19	18	19	20	20	21	24	22	20	20	19	19	18	19	0.021	0.033	23
27	25	27	25	24	22	-999	20	18	19	19	18	20	22	25	27	29	26	22	23	25	26	22	26	27	0.023	0.029	23
28	24	26	25	24	26	-999	25	22	21	22	24	26	33	35	38	39	41	45	48	55	66	67	57	53	0.037	0.067	23
29	54	51	61	67	60	-999	64	67	60	50	49	55	57	62	68	70	70	74	74	74	74	74	75	75	76	0.065	0.076	23
30	73	70	72	74	85	-999	75	75	72	66	65	69	70	70	72	75	83	90	93	90	89	86	88	76	0.077	0.093	23
31	75	75	77	77	76	-999	71	79	77	70	71	71	72	74	75	76	75	77	76	75	74	75	73	81	0.075	0.081	23
AVG	47	45	46	47	46	-999	43	41	39	41	43	46	48	50	51	53	54	54	56	56	54	52	50	48	0.048		
MAX	101	85	84	86	89	-999	82	79	77	70	71	76	78	83	88	87	88	90	95	90	98	97	88	81		0.101	
DAYS	29	29	29	29	29	0	29	28	28	25	28	29	29	29	29	29	29	29	29	29	29	29	29	29			660

STANDARD DEVIATION 0.02103

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....H
MONTH .....Sep 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 3
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	76	69	68	80	75	-999	72	71	-999	61	58	61	64	66	68	71	72	63	68	71	70	70	71	70	0.069	0.080	22
2	52	53	55	47	53	-999	55	48	34	36	38	42	45	47	47	47	47	49	49	50	49	50	50	51	0.048	0.055	23
3	53	58	56	60	60	-999	61	58	49	52	50	52	53	53	55	56	59	62	64	65	66	68	70	65	0.058	0.070	23
4	58	56	56	58	61	-999	57	56	56	55	52	63	66	66	66	64	66	69	72	75	72	66	65	66	0.063	0.075	23
5	65	61	61	66	70	-999	67	65	63	54	52	58	61	62	62	68	72	75	74	70	66	65	64	65	0.065	0.075	23
6	63	64	64	67	72	-999	59	57	58	58	49	51	57	62	61	63	65	67	72	70	50	51	59	65	0.061	0.072	23
7	59	43	41	41	41	-999	42	41	-999	35	34	31	28	29	30	32	35	37	36	37	36	36	35	37	0.037	0.059	22
8	34	36	34	35	34	-999	36	37	32	27	27	30	30	34	36	38	38	39	40	39	40	39	40	46	0.036	0.046	23
9	48	45	44	40	36	-999	45	42	27	23	27	30	35	38	43	47	49	50	55	58	56	62	63	63	0.045	0.063	23
10	65	63	66	68	69	-999	65	67	65	62	51	50	50	46	50	51	55	58	62	65	67	51	55	60	0.059	0.069	23
11	58	57	57	54	66	-999	60	58	57	51	50	51	51	53	52	54	55	54	55	57	58	57	55	57	0.056	0.066	23
12	58	58	60	62	54	-999	51	50	49	46	44	46	49	55	57	59	59	59	62	61	63	55	51	48	0.055	0.063	23
13	55	53	50	48	49	-999	50	50	49	47	45	49	50	53	54	59	72	69	70	64	57	46	46	38	0.053	0.072	23
14	35	32	30	32	30	-999	27	27	29	31	36	43	53	58	65	69	71	73	73	71	61	70	70	71	0.050	0.073	23
15	72	77	67	54	53	-999	50	45	-999	42	50	55	60	63	69	73	77	80	75	62	57	53	53	56	0.061	0.080	22
16	55	55	49	58	51	-999	48	45	42	42	40	40	39	38	35	35	37	38	40	42	42	44	42	43	0.043	0.058	23
17	45	42	45	47	46	-999	45	36	31	33	36	39	40	42	50	54	45	43	45	48	49	47	46	46	0.043	0.054	23
18	44	45	45	47	46	-999	43	42	41	36	36	45	48	50	50	51	53	53	52	48	42	38	35	34	0.045	0.053	23
19	30	20	28	25	32	-999	46	49	41	35	41	49	55	59	60	62	63	63	63	63	61	60	60	51	0.049	0.063	23
20	49	50	48	45	46	-999	47	46	45	44	37	39	42	47	50	52	54	54	55	56	55	55	53	51	0.049	0.056	23
21	49	46	46	46	43	-999	41	40	39	40	40	39	39	39	40	39	39	39	36	35	37	38	39	34	0.040	0.049	23
22	32	30	26	28	28	-999	27	-999	24	28	33	39	42	45	47	47	46	45	46	42	31	32	34	23	0.035	0.047	22
23	26	22	19	25	31	-999	30	30	29	29	29	27	26	27	27	27	26	26	27	31	38	30	28	33	0.028	0.038	23
24	26	36	36	40	39	-999	38	34	29	31	27	26	27	28	31	33	33	40	43	44	43	44	44	42	0.035	0.044	23
25	45	45	48	46	44	-999	44	43	41	38	24	22	25	26	23	30	40	43	36	27	26	29	32	36	0.035	0.048	23
26	37	37	36	39	40	-999	36	35	39	40	39	35	39	42	45	47	48	48	50	48	42	40	31	29	0.040	0.050	23
27	25	22	28	29	40	-999	38	28	30	32	35	38	43	46	-999	54	57	60	61	60	59	62	60	60	0.044	0.062	22
28	62	60	61	62	61	-999	59	58	59	53	56	64	65	68	72	71	71	72	74	76	85	83	81	84	0.068	0.085	23
29	85	85	85	86	77	-999	68	59	62	50	50	54	60	63	62	61	61	63	61	57	52	49	51	44	0.063	0.086	23
30	43	48	46	45	46	-999	37	35	34	33	33	34	39	43	44	44	45	46	44	44	46	48	46	45	0.042	0.048	23
AVG	50	49	49	50	50	-999	48	47	43	41	41	43	46	48	50	52	54	55	55	55	53	51	51	50	0.049		
MAX	85	85	85	86	77	-999	72	71	65	62	58	64	66	68	72	73	77	80	75	76	85	83	81	84		0.086	
DAYS	30	30	30	30	30	0	30	29	27	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30			685

STANDARD DEVIATION 0.01369

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

ESCSYS AIR QUALITY MONITORING SYSTEM

(1 HOUR RUNNING AVERAGES)

Validated Database

AIRS CODES

SITE .....WRALTOWR
PARAMETER ....H
MONTH .....Oct 95
UNITS .....PPM X (10 ^ 3)

TRANSACTION CODE: 1
STATE CODE: 37
INTERVAL CODE: 1

SITE CODE: 0017
COUNTY CODE: 183
UNITS CODE: 007

PARAMETER CODE: 44201
PARM OCC CODE: 3
METHOD CODE: 019

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG	MAX	RDS
1	45	46	46	45	45	-999	45	43	42	39	32	34	39	41	45	51	50	47	46	45	44	44	46	43	0.044	0.051	23
2	44	50	51	60	50	-999	45	42	39	42	37	44	54	58	64	68	69	69	69	66	66	61	59	59	0.055	0.069	23
3	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
4	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
5	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
6	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
7	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
8	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
9	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
10	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
11	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
12	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
13	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
14	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
15	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
16	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
17	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
18	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
19	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
20	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
21	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
22	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
23	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
24	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
25	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
26	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
27	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
28	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
29	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
30	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
31	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	%-999.000	%-999.000	0
AVG	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0.049		
MAX	45	50	51	60	50	-999	45	43	42	42	37	44	54	58	64	68	69	69	69	66	66	61	59	59		0.069	
DAYS	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			46

STANDARD DEVIATION 0.00993

NOTE: -999 INDICATES INVALID DATA OR LESS THAN 75 PERCENT VALID DATA INCLUDED

APPENDIX B
Site Visit Log

5/9/95	Installed Equipment.
5/16/95	Calibrated ozone monitor at ground and medium level.
5/17/95	Discovered water in high level line.
5/18/95	Replaced monitor at high level - unstable.
5/19/95	All water in high level gone.
5/23/95	Changed silica gel.
5/24/95	Vacuum tested medium and high level. Found leak.
5/25/95	Repaired leak in high level line.
5/26/95	Changed silica gel.
5/30/95	Precision/zero/span check for ground and medium level ozone monitor.
5/31/95	Precision/zero/span check for high level ozone monitor.
6/2/95	Changed silica gel.
6/5/95	Changed silica gel.
6/6/95	Changed silica gel. Changed filters. Replaced monitor at medium level - unstable.
6/8/95	Changed silica gel - line loss study.
6/9/95	Precision/zero/span check for high level ozone monitor.
6/13/95	Precision/zero/span check for ground and medium level ozone monitor.
6/16/95	Precision/zero/span check for high level - changed silica gel ozone monitor.
6/21/95	Audit at ground level and high level.
6/23/95	Calibrated medium level ozone monitor.
6/27/95	Precision/zero/span check for high level and ground level ozone monitor.

6/30/95	Precision/zero/span check for medium level ozone monitor.
7/3/95	Backed up data for June.
7/5/95	Precision/zero/span check for medium and high level ozone monitor.
7/6/95	Precision/zero/span check for ground level ozone monitor.
7/7/95	Reset auto calibration.
7/11/95	Precision/zero/span check for high level ozone monitor.
7/12/95	Precision/zero/span check for medium level ozone monitor.
7/13/95	Precision/zero/span check for ground level ozone monitor.
7/17/95	Precision/zero/span check for ground level ozone monitor.
7/19/95	Precision/zero/span check for medium level ozone monitor.
7/21/95	Precision/zero/span check for high level ozone monitor.
7/24/95	Span check.
7/25/95	Precision/zero/span check for ground, medium and high level ozone monitor.
7/31/95	Precision/zero/span check for ground level ozone monitor - moisture in line.
8/1/95	Loose cable on data logger at ground level ozone monitor.
8/2/95	Precision/zero/span check for medium and high level ozone monitor. Backed up data for July. Recertified PC and zero air pack.
8/3/95	Checked auto calibrations at all 3 levels.
8/4/95	Precision/zero/span check for ground, medium and high level ozone monitors.
8/7/95	Precision/zero/span check for ground level ozone monitor.
8/9/95	Precision/zero/span check for high level ozone monitor.
8/11/95	Precision/zero/span cehck for medium level ozone monitor.
8/14/95	Precision/zero/span check for ground and medium level ozone monitor.

8/15/95	Precision/zero/span check for ground and high level ozone monitor. Moisture in ground level line.
8/16/95	Replaced pump motor on zero air pack.
8/17/95	Precision/zero/span check for high level ozonen monitor. Line Loss study.
8/18/95	Precision/zero/span check for ground and medium level ozone monitors.
8/21/95	Precision/zero/span check for high level ozone monitor.
8/22/95	Precision/zero/span check for medium level ozone monitor.
8/23/95	Precision/zero/span check for ground level ozone monitor.
8/28/95	Precision/zero/span check for ground level ozone monitor.
8/30/95	Precision/zero/span check for medium level ozone monitor.
9/1/95	Precision/zero/span check for high level ozone monitor.
9/5/95	Precision/zero/span check for ground level ozone monitor.
9/7/95	Precision/zero/span check for high level ozone monitor.
9/8/95	Precision/zero/span check for medium level ozone monitor.
9/11/95	Precision/zero/span check for ground level ozone monitor.
9/14/95	Precision/zero/span check for medium level ozone monitor.
9/15/95	Precision/zero/span check for high level ozone monitor.
9/19/95	Precision/zero/span check for ground level ozone monitor.
9/21/95	Precision/zero/span check for medium level ozone monitor. Replaced lamp in AH.
9/22/95	Precision/zero/span check for high and medium level ozone monitor.
9/26/95	Precision/zero/span check for ground and medium level ozone monitor.
9/27/95	Accuracy audit by ECU all levels.
9/29/95	Changed silica gel.

10/3/95 Line loss study-shut down site for season.

APPENDIX C

Auburn Tower Pressure Readings --mmHg

Level	Date	Pressure mmHg
Ground	5/30/95	762.76
	6/5/95	762.25
	6/13/95	754.38
	6/27/95	755.65
	7/6/95	758.19
	7/13/95	759.46
	7/17/95	753.11
	7/25/95	756.92
	7/31/95	764.54
	8/4/95	767.08
	8/7/95	759.46
	8/14/95	755.65
	8/15/95	755.65
	8/18/95	755.65
	8/23/95	764.79
	8/28/95	754.38
	9/5/95	760.73
	9/11/95	762.00
	9/19/95	762.00
	9/26/95	759.46
	Average	759.21
	Range	753.11-767.08
Medium	5/16/95	670.56
	5/25/95	686.31
	5/31/95	693.42
	6/13/95	701.80
	6/16/95	714.76
	6/27/95	688.34
	7/12/95	705.61
	8/11/95	702.56
	8/14/95	703.07
	8/22/95	711.20
	9/8/95	699.26
	9/14/95	702.06
	9/21/95	703.83
	Average	698.68

	Range	670.56-714.76

Level	Date	Pressure mmHg
High	5/25/95	680.72
	5/31/95	685.80
	6/8/95	699.26
	6/13/95	684.53
	6/16/95	700.28
	6/27/95	673.10
	8/4/95	692.66
	8/9/95	690.12
	8/15/95	679.20
	8/21/95	694.44
	9/7/95	687.32
	Average	687.95
	Range	673.10-700.28

APPENDIX D

Auburn Tower Precision Zero Span Results

Location	Date	Precision			Zero		Span		
		Actual	Meas.	% Diff.	Actual	Meas.	Actual	Meas.	% Diff.
Ground	5/30/95	.086	.085	-1.2	0	0.0	.430	.433	0.7
	6/13/95	.101	.098	-3.0	0	0.0	.445	.434	12.5
	6/27/95	.087	.085	-2.3	0	0.0	.443	.423	-2.3
	7/6/95	.083	.083	0.0	0	0.0	.435	.433	-0.5
	7/13/95	.099	.096	-3.0	0	0.0	.428	.426	-0.5
	7/17/95	.097	.097	0.0	0	0.0	.415	.413	-0.5
	7/25/95	.085	.083	-2.4	0	0.0	.433	.430	-0.7
	7/31/95	.097	.097	0.0	0	0.0	.434	.434	0.0
	8/4/95	.089	.089	0.0	0	0.0	.435	.435	0.0
	8/7/95	.099	.092	-7.0	0	0.0	.428	.419	-2.1
	8/14/95	.095	.098	3.2	0	0.0	.443	.438	-1.1
	8/15/95	.098	.090	3.1	0	0.0	.441	.437	-0.9
	8/18/95	.095	.093	-2.1	0	0.0	.437	.429	-1.8
	8/23/95	.084	.087	3.6	0	0.0	.445	.446	0.2
	8/28/95	.085	.084	-1.2	0	0.0	.435	.431	-0.9
	9/5/95	.083	.086	6.0	0	0.0	.437	.438	0.2
	9/11/95	.084	.086	2.4	0	0.0	.429	.432	0.7
	9/19/95	.088	.089	1.1	0	0.0	.442	.428	3.2
	9/26/95	.086	.087	1.2	0	0.0	.431	.430	-0.2
Medium (820')	5/30/95	.085	.091	7.1	0	0.0	.440	.041	0.2
	6/13/95	.100	.094	-6.0	0	0.0	.439	.440	0.2
	6/30/95	.083	.084	-1.2	0	0.0	.441	.444	0.7
	7/5/95	.084	.088	4.8	0	0.0	.428	.440	2.8
	7/12/95	.099	.099	0.0	0	0.0	.436	.441	1.1
	7/19/95	.084	.084	0.0	0	0.0	.428	.431	0.7
	7/25/95	.087	.088	1.1	0	0.0	.431	.430	0.2
	8/2/95	.087	.086	-1.1	0	0.0	.426	.429	0.7
	8/4/95	.085	.087	0	0	0.0	.448	.453	1.1
	8/11/95	.098	.093	-5.1	0	0.0	.447	.439	-1.8
	8/14/95	.096	.098	2.1	0	0.0	.439	.431	-1.8
	8/16/95	.088	.085	-3.4	0	0.0	.438	.403	8.0
	8/22/95	.084	.087	3.6	0	0.0	.440	.450	2.3
	8/30/95	.086	.085	-1.2	0	0.0	.440	.442	0.5

	9/8/95	.083	.085	2.4	0	0.0	.434	.433	-0.2
	9/14/95	.084	.086	2.4	0	0.0	.434	.434	0.0
	9/26/95	.087	.087	0.0	0	0.0	.443	.445	1.1
High (1420')	5/31/95	.097	.098	-1.0	0	0.0	.445	.449	0.9
	6/8/95	.087	.086	-1.1	0	0.0	.445	.449	0.9
	6/16/95	.086	.087	1.2	0	0.0	.451	.457	1.3
	6/27/95	.074	.075	1.4	0	0.0	.432	.432	0.0
	7/5/95	.090	.091	1.1	0	0.0	.438	.443	11
	7/11/95	.098	.096	-2.0	0	0.0	.430	.428	-0.5
	7/21/95	.08	.086	2.4	0	0.0	.432	.434	0.5
	7/25/95	.087	.087	0.0	0	0.0	.443	.439	-0.9
	8/2/95	.085	.086	1.2	0	0.0	.423	.421	-0.5
	8/4/95	.089	.088	-1.1	0	0.0	.451	.445	-1.3
	8/9/95	.096	.096	0.0	0	0.0	.446	.440	-1.1
	8/15/95	.091	.092	1.1	0	0.0	.449	.439	-2.2
	8/17/95	.083	.082	-1.2	0	0.0	.440	.427	-3.0
	8/21/95	.085	.087	2.3	0	0.0	.446	.443	-0.6
	9/1/95	.084	.085	1.2	0	0.0	.425	.427	0.5
	9/7/95	.088	.089	1.1	0	0.0	.437	.423	-1.6
	9/15/95	.086	.087	1.2	0	0.0	.434	.426	-1.8
	9/22/95	.086	.087	1.2	0	0.0	.434	.427	-1.6

APPENDIX E

Auburn Tower Accuracy Audit Results

Location	Date	Audit Conc. ppm	% Difference
Ground	6/21/95	.070	-7.1
		.199	-4.5
		.440	-4.1
Ground	9/27/95	0	0
		.064	3.1
		.189	-0.5
		.444	-1.6
Medium	9/27/95	0	0
		.062	-1.6
		.189	0
		.446	-1.8
High	6/21/95	.068	-1.5
		.183	-2.2
		.441	-2.3
High	9/27/95	0	0
		.060	5.0
		.189	-1.1
		.450	-2.0

APPENDIX F Line Loss Checks - 6-8-95	
Ground level	0.37%
820' level	-2.05%
1420' level	-34.93%*

* Very Windy-PC temperature well below normal operating range.

APPENDIX G Line Loss Checks - 8-17-95	
Ground level	6.59%
820' level	0.45%
1420' level	-11.76%*

*Very Windy-Hard to stabilize PC Temperature.

APPENDIX H Line Loss Checks - 10-3-95	
Ground level	7.04%
820' level	-1.94%
1420' level	2.28%