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ATLANTIC COAST UNIQUE REGIONAL ATMOSPHERIC TRACER EXPERIMENT  
(ACURATE)

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## TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT	
1. INTRODUCTION .....	1
2. SOURCE .....	2
2.1 Source Site .....	2
2.2 Source Emission Determination .....	2
2.3 Emission Rates .....	2
3. SAMPLING .....	4
3.1 Sampling Sites .....	4
3.2 Sampling Collection and Processing .....	4
3.3 Concentrations .....	6
4. METEOROLOGY .....	12
4.1 Local Meteorological Data .....	12
4.2 Surface Meteorological Data .....	12
4.3 Upper-air Meteorological Data .....	14
5. ACKNOWLEDGEMENTS .....	14
6. REFERENCES .....	14
APPENDIX A - SOURCE EMISSION RATES .....	A-1
APPENDIX B - MEASURED SURFACE AIR CONCENTRATIONS .....	B-1
APPENDIX C - ACURATE DATA TAPE .....	C-1

# ATLANTIC COAST UNIQUE REGIONAL ATMOSPHERIC TRACER EXPERIMENT (ACURATE)

## ABSTRACT

The Atlantic Coast Unique Regional Atmospheric Tracer Experiment (ACURATE) was conducted to provide a long-range, long-term data set on the regional scale for air pollution model development and evaluation. ACURATE, which started in March 1982 and ended after 19 months in September 1983, used Kr-85 emitted intermittently from the Savannah River Plant (SRP), SC as a tracer of opportunity. Hourly source emission data are archived on an ACURATE data tape and listed in an appendix. Surface air samples were taken at five sites along the Atlantic Coast, located about 300 to 1100 km from the SRP (twice-daily samples at the four closest sites and daily at the fifth site). A total of 3858 measured concentrations were quality assured and are archived on the data tape. About 750 of the concentrations were attributed directly to the SRP plume. The concentration distributions at the five sampling sites are shown. All measured concentrations are given in an appendix. Upper-air, tower, and surface meteorological data were also collected during ACURATE and are archived on the data tape.

## 1. INTRODUCTION

The Atlantic Coast Unique Regional Atmospheric Tracer Experiment (ACURATE) was conducted by the National Oceanic and Atmospheric Administration/Air Resources Laboratory and the Savannah River Laboratory to provide data on the regional scale for air pollution model development and evaluation. The models are used for many purposes which include assessing the effects of energy usage on man and the environment (e.g., acid rain and other hazards evaluation studies), determining the cost-effectiveness of airborne nuclear waste management, and monitoring gaseous releases to the atmosphere. Past tracer experiments on the regional scale, using known emission rates from a source, have generally been limited to a few individual episodes (e.g., Ferber, et al., 1984) because of the high costs of sample collection and analysis over extended periods of time. ACURATE provides air pollution researchers with a unique, long-term data set of tracer emission rates from a single source, regional-scale measured tracer air concentrations with plumes attributed to the source, and meteorology.

This program is an extension to the regional scale of the 2½-year mesoscale Savannah River Experiment (Telegadas, et al., 1980). ACURATE, which started in March 1982 and ended in September 1983, used Kr-85 emitted intermittently from the Savannah River Plant (SRP), SC as a tracer of opportunity. Because Kr-85 is an inert, non-reactive gas, its use as a tracer enables one to study the effects of atmospheric transport and diffusion free of the complications introduced by wet and dry deposition and chemical transformations. Volunteers at five sampling sites along the Atlantic Coast, located about 300 to 1100 km from the SRP, took twice-daily surface air samples (daily at the 1100 km site) using cryogenic air samplers similar to those used in the Savannah River Experiment. A total of 3858 measured concentrations over the 19-month sampling period were quality assured. The SRP plume was observed on about 750 measurements (20%).

Meteorological observations at surface and upper-air stations over the eastern U.S. were archived during the ACURATE sampling period. In addition, tower winds at the SRP were spatially averaged and archived as source meteorological data.

## 2. SOURCE

### 2.1 Source Site

The Savannah River Plant is a production facility of the U.S. Department of Energy and is located about 35 km southeast of Aiken, SC. Krypton-85 is intermittently released from plant chemical separation operations through one 62 m stack in the 200-F area and one in the 200-H area with mid-location at 33.28°N, 81.66°W (see Fig. 1).

### 2.2 Source Emissions Determination

A model that predicts the hourly rate of Kr-85 vented to the atmosphere when irradiated fuel is dissolved at the SRP has been developed (Pendergast, 1978). This model was used to calculate the hourly emissions of Kr-85 released to the atmosphere for each fuel dissolution cycle.

In order to verify the calculated emissions, Kr-85 stack monitoring systems were installed in both stack areas. A vacuum-pressure pump was used to pump a fraction of the dissolver off-gas into a flow-through sample chamber. The sample chamber, which was mounted on a detector, recorded the gamma spectrum of the gas pumped through the chamber. The off-gas gamma spectrum was then analyzed for the Kr-85 energy peak. The measured and calculated Kr-85 emission values agree well.

### 2.3 Emission Rates

Emission rates for the SRP source are given in Appendix A. A record of hourly emissions is given for each 12-hour period. The appendix contains a total of 1158 records starting March 1, 1982 and ending September 30, 1983. The start of a 12-hour period is identified by an 8-digit date-time number, 2 digits each for year (YR), month (MO), day (DY) and hour (HR-GMT). Thus 82032512 (record #50) denotes the 12-hour period starting March 25, 1982 at 12 GMT. Following the start date-time group are 12 emission rates, in Ci/hr, for the 12-hour period after start. The remaining columns on the right (the 12-hour emission rate totals and the histogram) have been added for ease of visual comprehension and simplicity of comparison with the twice daily (12-hour) measured concentrations (Appendix B).

FILE 1 on the ACURATE data tape is the source emission file (see Appendix C). The file contains 1158 records where each record includes a record #, start date-time identification, and emission rates in Ci/hr for the 12-hour period after start. A FILE 1 tape dump should exactly match the left-hand portion of Appendix A below the column headings.

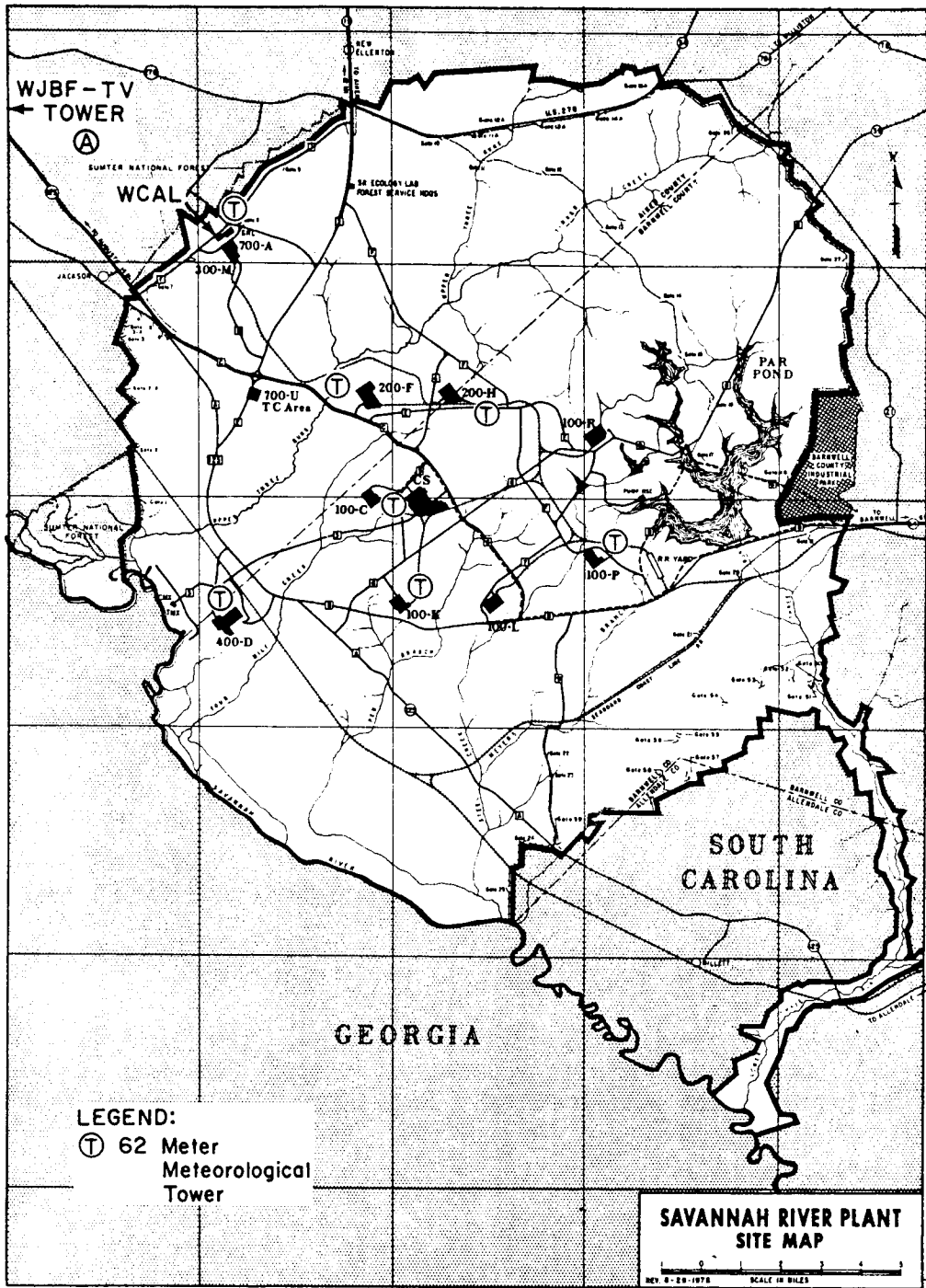


Figure 1. Savannah River Plant Site Map.

### 3. SAMPLING

#### 3.1 Sampling Sites

Five surface air sampling sites along the Atlantic Coast were established for ACURATE. Table 1 gives the sites (and source), with their identification, location and distance from the SRP.

Table 1. ACURATE surface air sampling sites (and source).

<u>Sampling Site</u>	<u>Code</u>	<u>Description</u>	<u>Location</u>		<u>Distance from SRP (km)</u>
			<u>°N</u>	<u>°W</u>	
Fayetteville, NC	FAY	Fire station	35.07	78.89	325
Tarboro, NC	TAR	Water Treatment Plant	35.91	77.55	475
Norfolk, VA	NOR	Water Treatment Plant	36.85	76.27	635
Salisbury, MD	SAL	Water Treatment Plant	38.37	75.59	790
Murray Hill, NJ	MUR	Laboratory	40.68	74.40	1050
<u>Source</u>					
Savannah River Plant	SRP	Production Facility	33.28	81.66	0

The ACURATE source and five sampling site locations are shown in Fig. 2.

#### 3.2 Sample Collection and Processing

A cryogenic air sampler (CAS) was installed at each sampling site. The samplers were operated and monitored on a 24-hour/day schedule by volunteer personnel. Maintenance was performed by a contractor laboratory at regular time intervals and at the request of the site personnel.

The CAS concentrates krypton in the atmosphere from about one part per million to about one part per hundred. Air is supplied to the sampler by a compressor at the rate of about 12 liters/minute. Concentration is brought about by cryogenic fractionation of the incoming airstream. Liquid nitrogen is used as the source of refrigeration.

The final sample, having a volume of about 1.5 liter (STP), contains most of the components of the atmosphere that have boiling points higher than that of oxygen. Atmospheric moisture, carbon dioxide and hydrocarbons heavier than methane are removed by molecular sieve traps from the airstream before it enters the cryogenic section of the collector. These latter materials otherwise would rapidly plug the inside of the fractionating column, since they freeze at much higher temperatures than the boiling point of liquid oxygen.

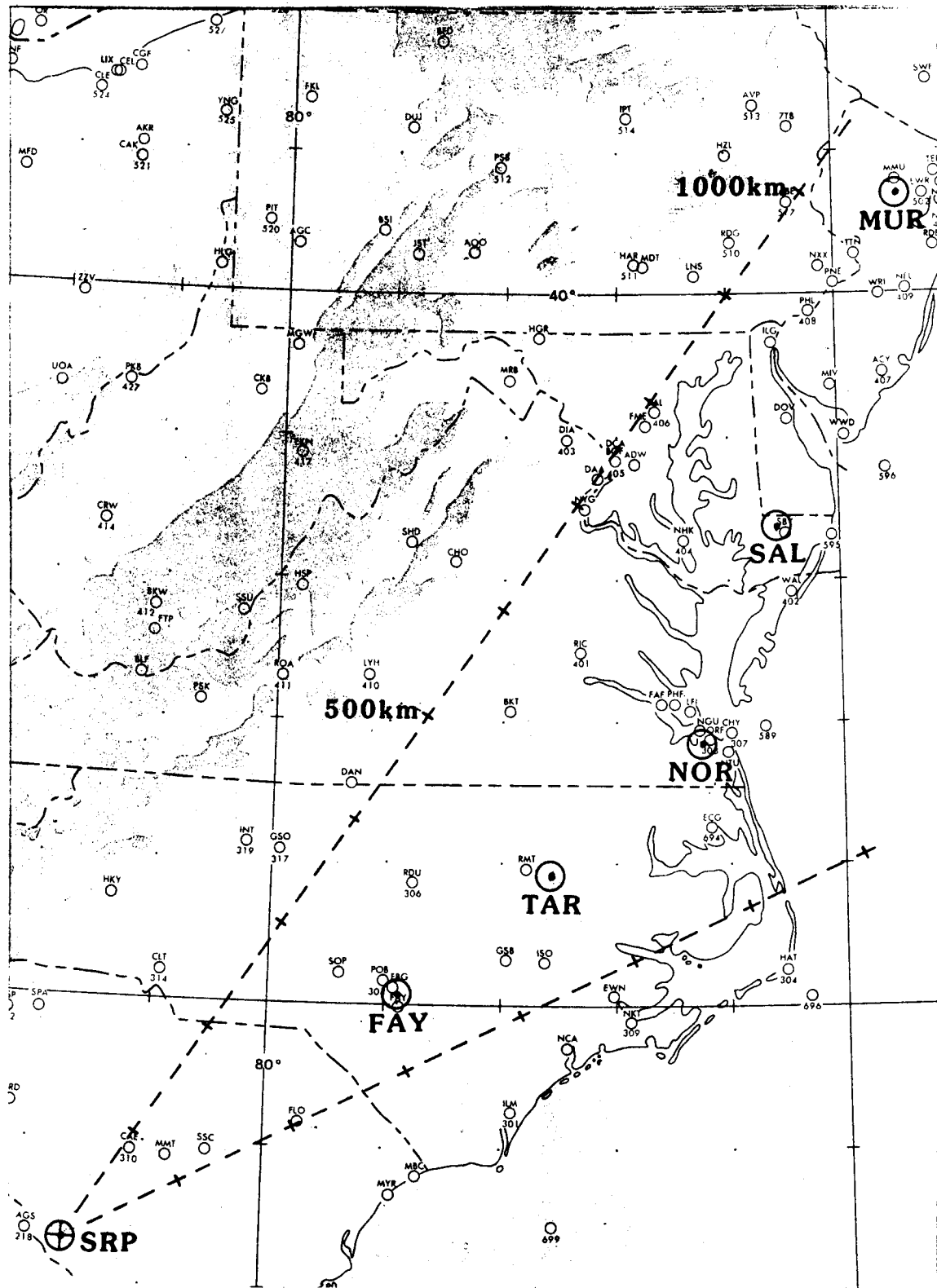


Figure 2. ACURATE source (SRP) and the five sampling site locations.

Four of the CAS units (at FAY, TAR, NOR, SAL) were programmed with a two-sample-per-day cycle, each cycle having an eleven-hour collection period and a one-hour sample recovery period. The other CAS unit (at MUR), was programmed with a one-sample-per-day cycle.

The effective length of the collection period is less than the clock length by about forty-five minutes to an hour and fifteen minutes. This is the time required for the column to cool down and reach steady state operation. At the end of the collection period incoming air flow is cut off. In the sample recovery phase the liquid at the bottom of the fractionating column is warmed, causing it to evaporate. The sample mixture, which consists mostly of oxygen with higher atmospheric boiling components, is collected in a steel bottle that has a volume of approximately one liter.

The samples were shipped from the sampling sites to the contractor laboratory for further purification and assay. Krypton was isolated from the sample mixture by preparative gas chromatography to give a highly purified (about 99.98% krypton) final sample. This product was then radio-assayed by Geiger counting to determine the level of Krypton-85 activity in the sample. The estimated standard deviation of this measurement is about 1%.

Quality assurance procedures were performed on the data to assure that they originated from the site and time indicated. Sampling logs kept independently by site personnel were checked against each sample measurement from the contractor laboratory. If differences were not resolved, the measurement was discarded.

### 3.3 Concentrations

The daily and twice-daily measured surface air concentrations during the entire 19-month ACURATE period for the five sampling sites are given in Appendix B. Similar to the format of Appendix A (source), a record is given for each 12-hour period for a total of 1158 records. Also, the start of each period is identified by an 8-digit date-time number. Following in the table are the measured concentrations ( $0.1 \text{ pCi/m}^3$ ) for each of the five sampling sites. (Records 268 and 628 for FAY shown as 999 due to format restrictions should be 1353 and 1664, respectively.) A zero (0) indicates a missing measurement due to one of many causes which could include a malfunctioning sampler, a sample lost in analysis, or an unresolved discrepancy in sample origin or sample time. A plus following a concentration value indicates the 12-hour sample was continued beyond 12 hours, a minus indicates the continuation. For example, records 54 through 57 for NOR indicate the 12-hour sample that began at 82032714 (195+) continues over 36 additional hours (three more 12-hour values shown as 195-) for a total sample duration of 48 hours. Note that MUR has alternate plus and minus notation indicating regular daily (24-hour) sampling. One additional code has been added to the values for completeness. Letters preceding a value indicate a late sample start; those following indicate a late sample end; A is for one hour; B for two hours, etc. Thus, record 78 for NOR indicates the measurement (D190B) started four hours late (April 8, 1982 at 18 GMT) and ended two hours late (April 9, 1982, 04 GMT) for a total measurement time of 10 hours rather than 12 hours. A total of 3858 samples (non-zero) were archived for ACURATE.



In order to identify the SRP plume, a concentration background must be subtracted from the measured concentration values. Since background may vary on a day-to-day basis by as much as 10% with changing meteorological conditions, it is often difficult to distinguish between background and a plume at low concentration. To avoid determining variable background, a Background Upper Limit (BUL) has been estimated for each sampling site above which it seems reasonable to assume that the SRP plume is contributing to the measured concentration. Concentration values at or below the BUL usually indicate no presence of the SRP plume, but occasionally may be linked to the plume with caution (an example is discussed later). The BUL was determined by plotting measured concentration versus cumulative percent on a probability scale and noting that lower concentrations (background) lie along a straight line (see Fig. 3). At some point the plotted values deviate from the line toward higher concentrations. This deviation from the normal distribution is attributed to SRP pluming and the concentration value at the point of deviation is defined as the BUL. In order to test this technique on an independent data set, a plot is included in Fig. 3 for twice-daily measurements at the Augusta, GA (AUG) sampling site of the Savannah River Experiment (Telegadas, et al., 1980). This site was chosen because it had the most complete sampling record during the 1976-1977 twice-daily sampling periods. A BUL value is clearly evident at 16.0 pCi/m<sup>3</sup>.

BUL concentrations suggested for the ACURATE sampling sites are given in Table 2. The increase with increasing latitude is consistent with the known worldwide increase with latitude of Kr-85 background.

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Table 2. Background Upper Limit (BUL) Concentrations at ACURATE Sampling Sites.

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Sampling Site	BUL (pCi/m <sup>3</sup> )
MUR	19.3
SAL	19.2
NOR	19.1
TAR	19.0
FAY	19.0

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As an example of determining plume concentration, record 54 in Appendix B for FAY gives a measured concentration of 19.3 pCi/m<sup>3</sup>. When the BUL value of 19.0 for FAY (from Table 2) is subtracted from the measured concentration, the remaining concentration of 0.3 pCi/m<sup>3</sup> is attributed to the SRP plume. About 750 of the concentrations were above the BUL and, therefore, attributed directly to the SRP plume.

Figure 4 shows concentration distributions for the five ACURATE sampling sites (i.e., measured value minus the BUL value). The distributions include no-plume (zero) and plume ( $\geq 0.1$  pCi/m<sup>3</sup> by interval) concentrations. Researchers can refer directly to Fig. 4 for model evaluation studies.

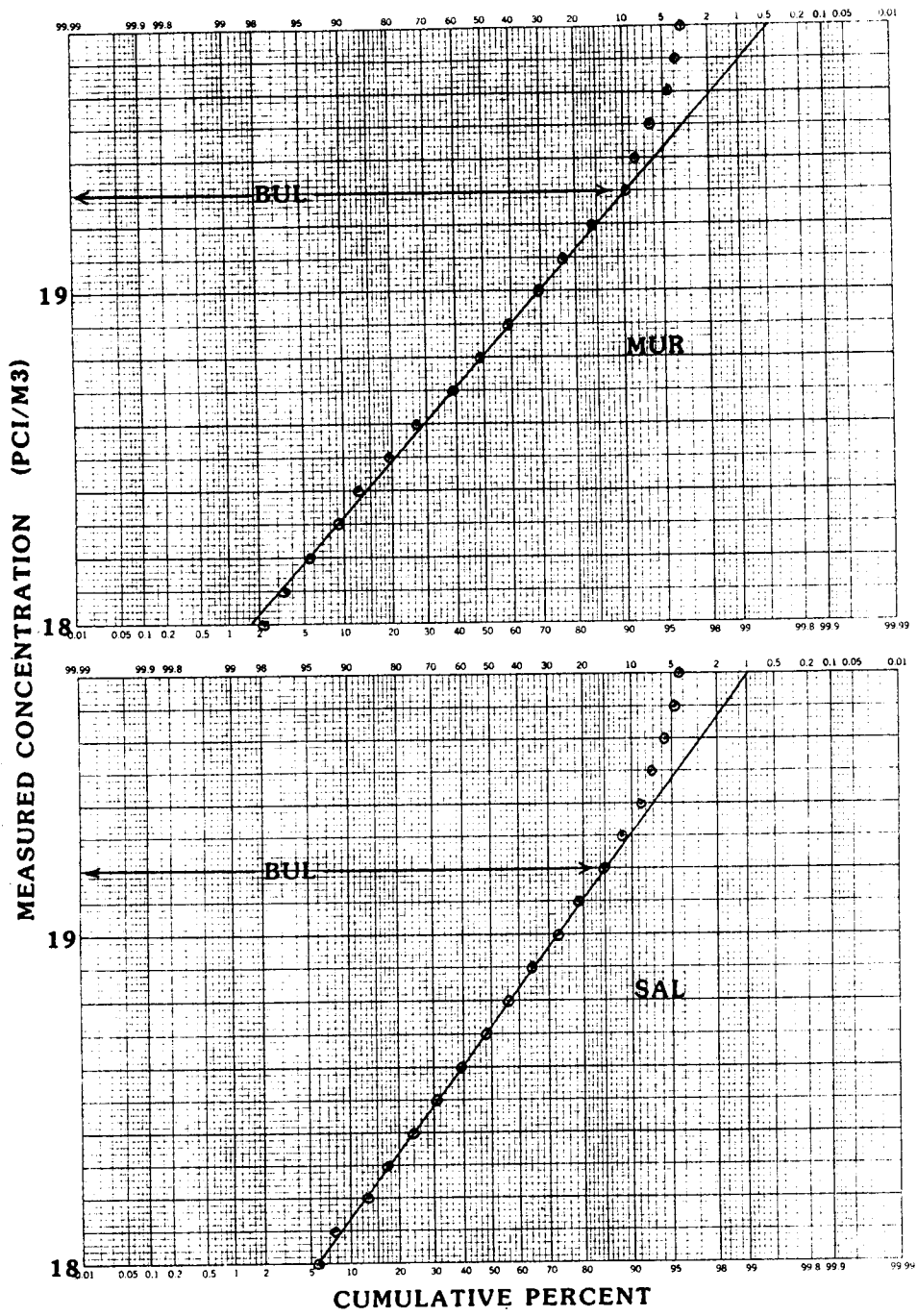


Figure 3. Determination of a Background Upper Limit (BUL) concentration at the five ACURATE sampling sites and at the Augusta, GA site (AUG) of the Savannah River Experiment.

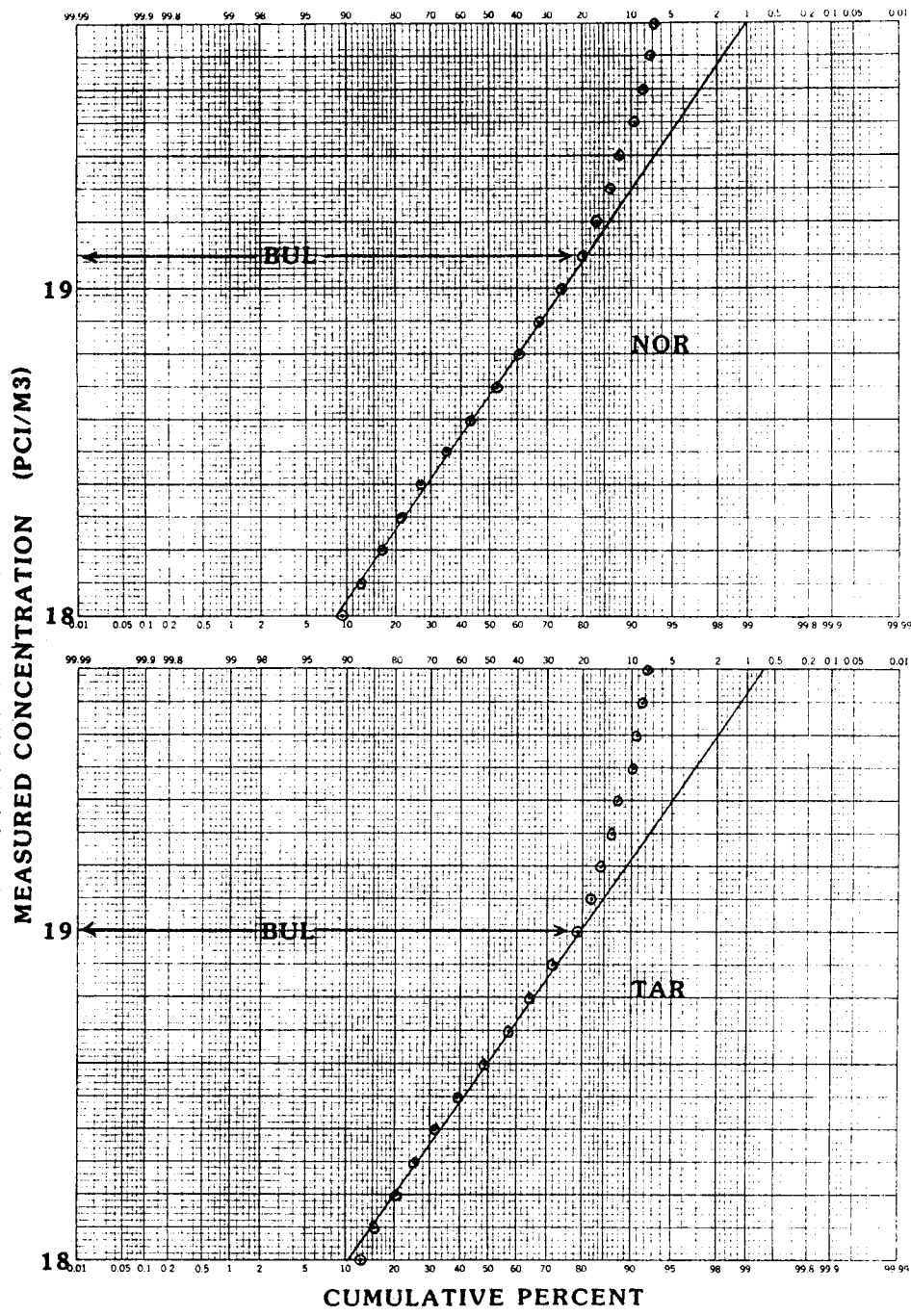


Figure 3. (continued)

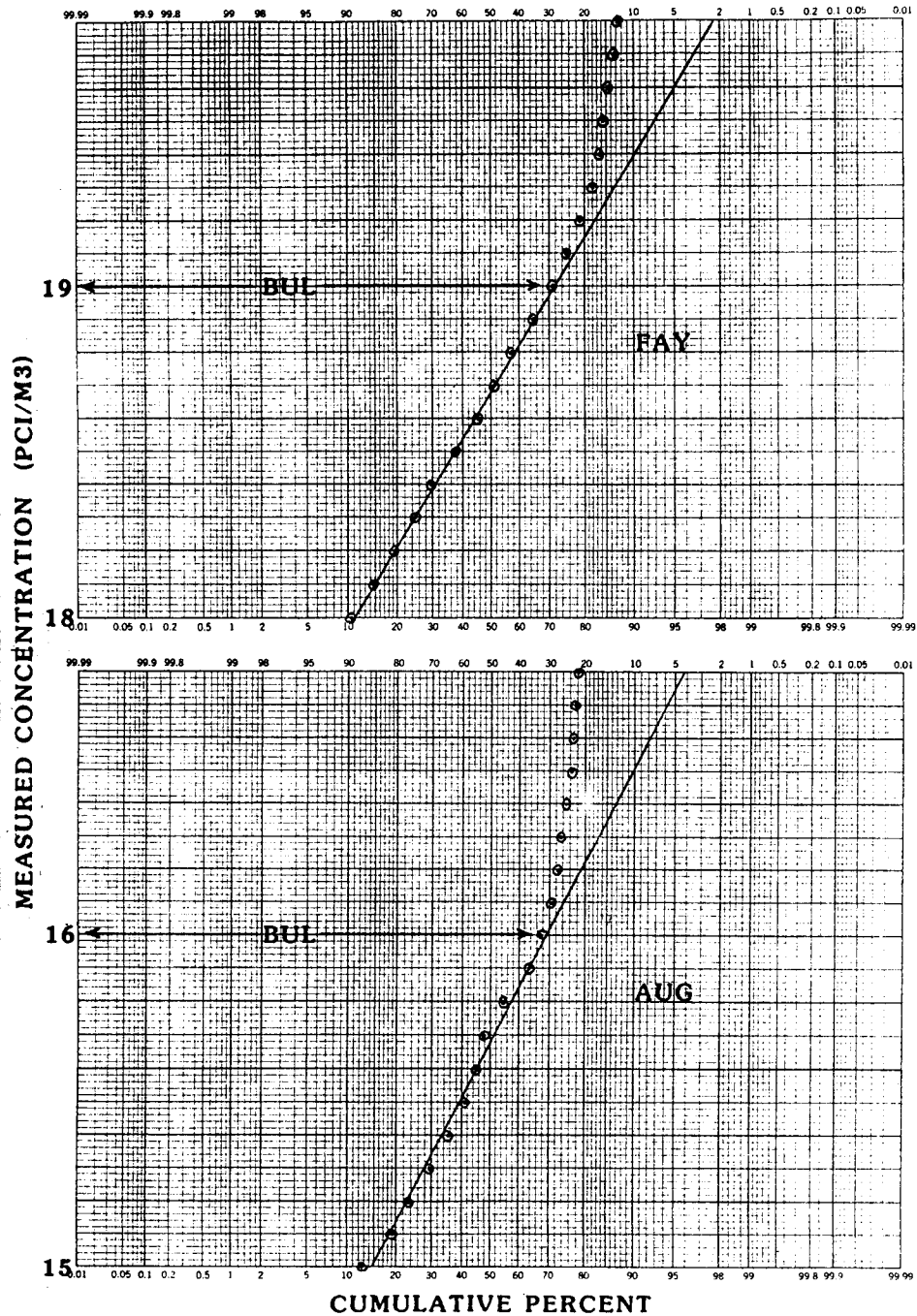


Figure 3. (continued)

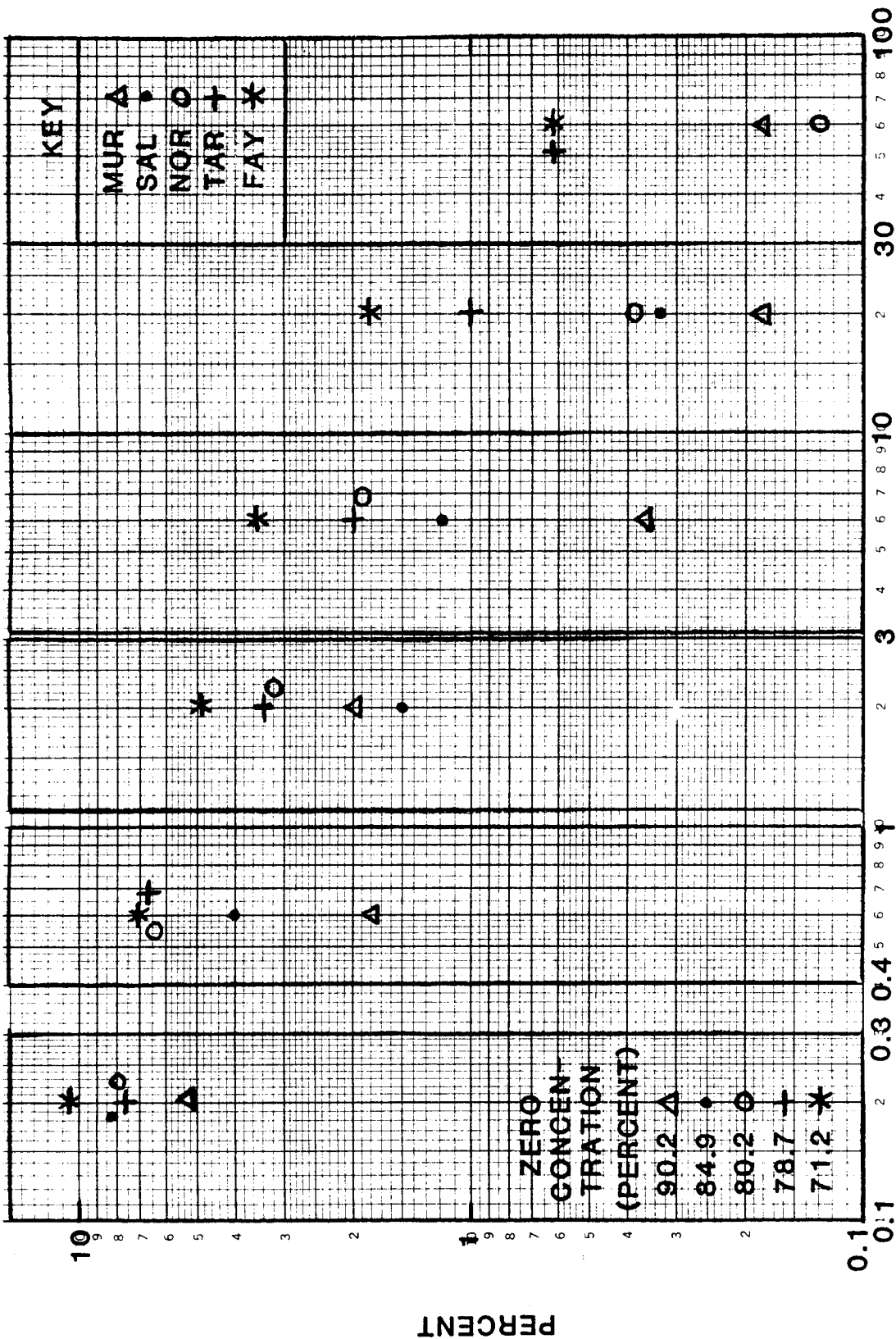


Figure 4. Concentration distributions for the five ACURATE sampling sites (percent at zero concentration and by concentration interval).

The right-hand columns in Appendix B (histogram) are presented as a visual means of separating the SRP plume from background by subtracting BUL values from measurements. The vertical axis at each site is aligned with the BUL value. A ":" on the axis indicates a missing measurement. The "0"s on each axis and to the right reflect measurements above the BUL values and thus SRP pluming (the distributions shown in Fig. 4); the "X"s on the axis and to the left are best interpreted as either background or plume. Visual inspection of the plots should give strong clues. For example, records 22 through 25 indicate no presence of plume at any of the five sampling sites. Records 52 through 60 indicate plume presence, or probable presence, at sites where symbols are shown just on or slightly below the axis. Start and continuation codes are also plotted on the axes for completeness. It should be noted again that visual comparison between source emission and receptor concentration can easily be made by aligning the "HISTOGRAM" portions of Appendices A and B.

FILE 2 on the ACURATE data tape is the measured surface air concentration file (see Appendix C). The file contains 1158 records (similar to FILE 1) where each record includes a record #, start date-time identification, and measured concentrations (with start and continuation codes) at each of the five sampling sites for the period after start. A missing concentration is coded 0. A FILE 2 tape dump should exactly match the left-hand portion of Appendix B below the column headings (note that records 268 and 628 for FAY, written as 999, should be 1353 and 1664, respectively).

## 4. METEOROLOGY

### 4.1 Local Meteorological Data

Local meteorological data were obtained from seven instrumented towers located at the SRP. Each tower is 62 m in height, corresponding to the stack heights of the source emissions. A turbulence quality vector vane mounted on top of each tower provided wind speed, direction, and horizontal and vertical wind fluctuations. In addition, an instrumented television tower (WJBF-TV) 330 m in height located about 15 km northwest of the plant boundary was used to collect meteorological data. The locations of the television tower and the seven production area towers on the SRP site are shown in Fig. 1. The local wind data at the SRP for the ACURATE period March 1, 1982 through September 30, 1983 are three-hour space average means (at 62 m) of wind speed, wind direction, and the standard deviation of horizontal and vertical wind directions.

### 4.2 Surface Meteorological Data

The surface meteorological data for the ACURATE period were taken from the hourly surface observations at 241 NWS stations and averaged over three-hour periods. These stations are located from 30° to 45°N and 70° to 88°W (see Fig. 5). The data consist of pressure, temperature, dewpoint, wind direction, and wind speed.

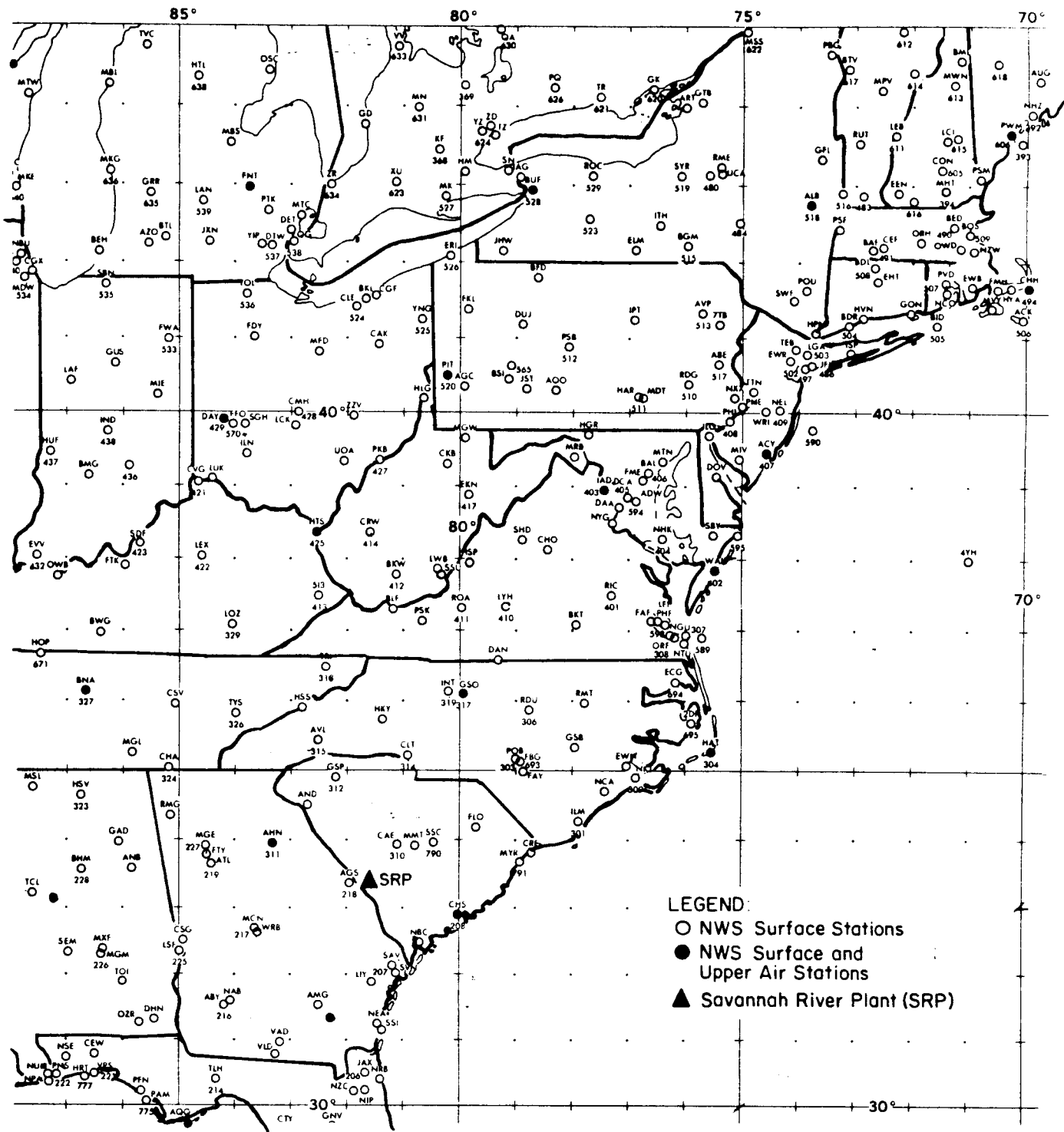


Figure 5. Source, surface, and upper-air stations for which ACURATE meteorological data were archived.

### 4.3 Upper-Air Meteorological Data

Twice-daily (00 and 12 GMT) upper-air data were taken from reports at 20 NWS upper-air stations (see Fig. 5). The data consist of pressure, height, temperature dewpoint, wind direction and wind speed at the mandatory and significant reporting levels.

FILE 3 through FILE 21 on the ACURATE data tape are the archived surface and upper-air meteorology data (see Appendix C). Each file contains one month of data. The date/time records are at 3-hour intervals (00, 03, 06 GMT, etc.). The surface station observations are given at these intervals. It should be noted that the first record after each date/time sequence is from the SRP giving local wind data at 62 m in height. The upper-air stations usually report only twice daily (00 and 12 GMT), so the number of UA records at the intermediate 3-hour intervals will usually have a count of 0. Missing data within a record are coded -99.

## 5. ACKNOWLEDGEMENTS

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APPENDIX A

SOURCE EMISSION RATE

SOURCE EMISSION RATES (CI/HR)

REC- ORD	YEAR-YR MONTH-MO DAY-DY HOUR-HR	START YR-MO-DY (GMT)	HOURS AFTER 05	START 06 07	START 08	START 09	START 10	START 11	HOUR TOTAL	***** HISTOGRAM *****
1	11123	8220301100	0	0	0	0	0	0	0	0
1	11234	8220302100	0	0	0	0	0	0	0	0
1	11345	8220303100	0	0	0	0	0	0	0	0
1	11456	8220304100	0	0	0	0	0	0	0	0
1	11567	8220305100	0	0	0	0	0	0	0	0
1	11678	8220306100	0	0	0	0	0	0	0	0
1	11789	8220307100	0	0	0	0	0	0	0	0
1	11890	8220308100	0	0	0	0	0	0	0	0
1	11901	8220309100	0	0	0	0	0	0	0	0
2	22012	8220310100	0	0	0	0	0	0	0	0
2	22123	8220311100	0	0	0	0	0	0	0	0
2	22234	8220312100	0	0	0	0	0	0	0	0
2	22345	8220313100	0	0	0	0	0	0	0	0
2	22456	8220314100	0	0	0	0	0	0	0	0
2	22567	8220315100	0	0	0	0	0	0	0	0
2	22678	8220316100	0	0	0	0	0	0	0	0
2	22789	8220317100	0	0	0	0	0	0	0	0
2	22890	8220318100	0	0	0	0	0	0	0	0
3	33012	8220319100	0	0	0	0	0	0	0	0
3	33123	8220320100	0	0	0	0	0	0	0	0
3	33234	8220321100	0	0	0	0	0	0	0	0
3	33345	8220322100	0	0	0	0	0	0	0	0
3	33456	8220323100	0	0	0	0	0	0	0	0
3	33567	8220324100	0	0	0	0	0	0	0	0
3	33678	8220325100	0	0	0	0	0	0	0	0
3	33789	8220326100	0	0	0	0	0	0	0	0
4	44012	8220327100	0	0	0	0	0	0	0	0
4	44123	8220328100	0	0	0	0	0	0	0	0
4	44234	8220329100	0	0	0	0	0	0	0	0
4	44345	8220330100	0	0	0	0	0	0	0	0
4	44456	8220331000	0	0	0	0	0	0	0	0
4	44567	8220332100	0	0	0	0	0	0	0	0
4	44678	8220333100	0	0	0	0	0	0	0	0
4	44789	8220334100	0	0	0	0	0	0	0	0
4	44890	8220335100	0	0	0	0	0	0	0	0
5	55012	8220336100	0	0	0	0	0	0	0	0
5	55123	8220337100	0	0	0	0	0	0	0	0
5	55234	8220338100	0	0	0	0	0	0	0	0
5	55345	8220339100	0	0	0	0	0	0	0	0
5	55456	8220340100	0	0	0	0	0	0	0	0
5	55567	8220341000	0	0	0	0	0	0	0	0
5	55678	8220342100	0	0	0	0	0	0	0	0
5	55789	8220343100	0	0	0	0	0	0	0	0
5	55890	8220344100	0	0	0	0	0	0	0	0

SOURCE EMISSION RATES (CI/HR)

REC- ORD	START YEAR-YR	MONTH-MO	DAY-DY	HOUR-HR	START YR-MO-DY	HOURS AFTER	START YR-MO-DY	01	02	03	04	05	06	07	08	09	10	11	12	TOTAL	HISTOGRAM
61	82	03	33	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	82	03	33	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	82	04	01	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	82	04	01	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	82	04	01	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	82	04	01	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	82	04	01	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	82	04	01	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	82	04	01	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	82	04	01	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	82	04	01	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	82	04	01	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	82	04	01	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	82	04	01	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	82	04	01	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	82	04	01	01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	82	04	01	02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	82	04	01	03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	82	04	01	04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	82	04	01	05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	82	04	01	06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	82	04	01	07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	82	04	01	08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	82	04	01	09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	82	04	01	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	82	04	01	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	82	04	01	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	82	04	01	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	82	04	01	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	82	04	01	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	82	04	01	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	82	04	01	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	82	04	01	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	82	04	01	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	82	04	01	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	82	04	01	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	82	04	01	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	82	04	01	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	82	04	01	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	82	04	01	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	82	04	01	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	82	04	01	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	82	04	01	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	82	04	01	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	82	04	01	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	82	04	01	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	82	04	02	01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	82	04	02	02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	82	04	02	03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	82	04	02	04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	82	04	02	05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	82	04	02	06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	82	04	02	07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	82	04	02	08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	82	04	02	09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	82	04	02	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	82	04	02	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	82	04	02	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	82	04	02	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	82	04	02	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



SOURCE EMISSION RATES (CI/HR)

REC#	YEAR	MONTH	DAY	HR	YRMO	YRDAY	YRHR	START	AFTER	HOURS	START	START	TOTAL	HISTOGRAM
								07	06	04	05	08	09	
181	82	05	30	02	82	05	30	02	05	04	05	08	15	0
182	82	05	30	03	82	05	30	03	05	04	05	08	15	0
183	82	05	30	04	82	05	30	04	05	04	05	08	15	0
184	82	05	30	05	82	05	30	05	05	03	04	05	15	0
185	82	05	30	06	82	05	30	06	05	03	04	05	15	0
186	82	05	30	07	82	05	30	07	05	03	04	05	15	0
187	82	05	30	08	82	05	30	08	05	03	04	05	15	0
188	82	05	30	09	82	05	30	09	05	03	04	05	15	0
189	82	05	30	10	82	05	30	10	05	03	04	05	15	0
190	82	05	30	11	82	05	30	11	05	03	04	05	15	0
191	82	05	30	12	82	05	30	12	05	03	04	05	15	0
192	82	05	30	13	82	05	30	13	05	03	04	05	15	0
193	82	05	30	14	82	05	30	14	05	03	04	05	15	0
194	82	05	30	15	82	05	30	15	05	03	04	05	15	0
195	82	05	30	16	82	05	30	16	05	03	04	05	15	0
196	82	05	30	17	82	05	30	17	05	03	04	05	15	0
197	82	05	30	18	82	05	30	18	05	03	04	05	15	0
198	82	05	30	19	82	05	30	19	05	03	04	05	15	0
199	82	05	30	20	82	05	30	20	05	03	04	05	15	0
200	82	05	30	21	82	05	30	21	05	03	04	05	15	0
201	82	05	30	22	82	05	30	22	05	03	04	05	15	0
202	82	05	30	23	82	05	30	23	05	03	04	05	15	0
203	82	05	30	24	82	05	30	24	05	03	04	05	15	0
204	82	05	30	25	82	05	30	25	05	03	04	05	15	0
205	82	05	30	26	82	05	30	26	05	03	04	05	15	0
206	82	05	30	27	82	05	30	27	05	03	04	05	15	0
207	82	05	30	28	82	05	30	28	05	03	04	05	15	0
208	82	05	30	29	82	05	30	29	05	03	04	05	15	0
209	82	05	30	30	82	05	30	30	05	03	04	05	15	0
210	82	05	30	01	82	06	01	01	05	03	04	05	15	0
211	82	06	01	02	82	06	01	02	05	03	04	05	15	0
212	82	06	01	03	82	06	01	03	05	03	04	05	15	0
213	82	06	01	04	82	06	01	04	05	03	04	05	15	0
214	82	06	01	05	82	06	01	05	05	03	04	05	15	0
215	82	06	01	06	82	06	01	06	05	03	04	05	15	0
216	82	06	01	07	82	06	01	07	05	03	04	05	15	0
217	82	06	01	08	82	06	01	08	05	03	04	05	15	0
218	82	06	01	09	82	06	01	09	05	03	04	05	15	0
219	82	06	01	10	82	06	01	10	05	03	04	05	15	0
220	82	06	01	11	82	06	01	11	05	03	04	05	15	0
221	82	06	01	12	82	06	01	12	05	03	04	05	15	0
222	82	06	01	13	82	06	01	13	05	03	04	05	15	0
223	82	06	01	14	82	06	01	14	05	03	04	05	15	0
224	82	06	01	15	82	06	01	15	05	03	04	05	15	0
225	82	06	01	16	82	06	01	16	05	03	04	05	15	0
226	82	06	01	17	82	06	01	17	05	03	04	05	15	0
227	82	06	01	18	82	06	01	18	05	03	04	05	15	0
228	82	06	01	19	82	06	01	19	05	03	04	05	15	0
229	82	06	01	20	82	06	01	20	05	03	04	05	15	0
230	82	06	01	21	82	06	01	21	05	03	04	05	15	0
231	82	06	01	22	82	06	01	22	05	03	04	05	15	0
232	82	06	01	23	82	06	01	23	05	03	04	05	15	0
233	82	06	01	24	82	06	01	24	05	03	04	05	15	0
234	82	06	01	25	82	06	01	25	05	03	04	05	15	0
235	82	06	01	26	82	06	01	26	05	03	04	05	15	0
236	82	06	01	27	82	06	01	27	05	03	04	05	15	0
237	82	06	01	28	82	06	01	28	05	03	04	05	15	0
238	82	06	01	29	82	06	01	29	05	03	04	05	15	0
239	82	06	01	30	82	06	01	30	05	03	04	05	15	0
240	82	06	01	01	82	06	02	01	05	03	04	05	15	0















SOURCE EMISSION RATES (CI/HR)

REC- ORD #	START YEAR-YR MONTH-MO DAY-DY HOUR-HR	START (GMT) YRMO DXHR	HOURS 03 04 05 06 07 08 09 10 11 12	AFTER 05 06 07 08 09 10 11 12	START 06 07 08 09 10 11 12	START 07 08 09 10 11 12	START 08 09 10 11 12	START 09 10 11 12	START 10 11 12	START 11 12	START 12	HISTOGRAM 1 2 3 4	
601	821122600	00	00	00	00	00	00	00	00	00	00	00	00
602	821122700	00	00	00	00	00	00	00	00	00	00	00	00
603	821122712	00	00	00	00	00	00	00	00	00	00	00	00
604	821122800	00	00	00	00	00	00	00	00	00	00	00	00
605	821122812	00	00	00	00	00	00	00	00	00	00	00	00
606	821122900	00	00	00	00	00	00	00	00	00	00	00	00
608	821122912	00	00	00	00	00	00	00	00	00	00	00	00
609	821123000	00	00	00	00	00	00	00	00	00	00	00	00
610	821123012	00	00	00	00	00	00	00	00	00	00	00	00
611	821123100	00	00	00	00	00	00	00	00	00	00	00	00
612	821123112	00	00	00	00	00	00	00	00	00	00	00	00
613	821123100	00	00	00	00	00	00	00	00	00	00	00	00
614	821123112	00	00	00	00	00	00	00	00	00	00	00	00
615	821123200	00	00	00	00	00	00	00	00	00	00	00	00
616	821123212	00	00	00	00	00	00	00	00	00	00	00	00
618	821123312	00	00	00	00	00	00	00	00	00	00	00	00
619	821123400	00	00	00	00	00	00	00	00	00	00	00	00
620	821123412	00	00	00	00	00	00	00	00	00	00	00	00
622	821123500	00	00	00	00	00	00	00	00	00	00	00	00
623	821123512	00	00	00	00	00	00	00	00	00	00	00	00
624	821123600	00	00	00	00	00	00	00	00	00	00	00	00
625	821123612	00	00	00	00	00	00	00	00	00	00	00	00
626	821123700	00	00	00	00	00	00	00	00	00	00	00	00
627	821123712	00	00	00	00	00	00	00	00	00	00	00	00
628	821123800	00	00	00	00	00	00	00	00	00	00	00	00
629	821123812	00	00	00	00	00	00	00	00	00	00	00	00
630	821123900	00	00	00	00	00	00	00	00	00	00	00	00
631	821123912	00	00	00	00	00	00	00	00	00	00	00	00
632	821124000	00	00	00	00	00	00	00	00	00	00	00	00
633	821124012	00	00	00	00	00	00	00	00	00	00	00	00
634	821124100	00	00	00	00	00	00	00	00	00	00	00	00
635	821124112	00	00	00	00	00	00	00	00	00	00	00	00
636	821124200	00	00	00	00	00	00	00	00	00	00	00	00
637	821124212	00	00	00	00	00	00	00	00	00	00	00	00
638	821124300	00	00	00	00	00	00	00	00	00	00	00	00
639	821124312	00	00	00	00	00	00	00	00	00	00	00	00
640	821124412	00	00	00	00	00	00	00	00	00	00	00	00
641	821124500	00	00	00	00	00	00	00	00	00	00	00	00
642	821124512	00	00	00	00	00	00	00	00	00	00	00	00
643	821124600	00	00	00	00	00	00	00	00	00	00	00	00
644	821124612	00	00	00	00	00	00	00	00	00	00	00	00
645	821124700	00	00	00	00	00	00	00	00	00	00	00	00
646	821124712	00	00	00	00	00	00	00	00	00	00	00	00
647	821124800	00	00	00	00	00	00	00	00	00	00	00	00
648	821124812	00	00	00	00	00	00	00	00	00	00	00	00
649	821124900	00	00	00	00	00	00	00	00	00	00	00	00
650	821124912	00	00	00	00	00	00	00	00	00	00	00	00
651	821125000	00	00	00	00	00	00	00	00	00	00	00	00
652	821125012	00	00	00	00	00	00	00	00	00	00	00	00
653	821125100	00	00	00	00	00	00	00	00	00	00	00	00
654	821125112	00	00	00	00	00	00	00	00	00	00	00	00
655	821125200	00	00	00	00	00	00	00	00	00	00	00	00
656	821125212	00	00	00	00	00	00	00	00	00	00	00	00
657	821125300	00	00	00	00	00	00	00	00	00	00	00	00
658	821125312	00	00	00	00	00	00	00	00	00	00	00	00
659	821125400	00	00	00	00	00	00	00	00	00	00	00	00
660	821125412	00	00	00	00	00	00	00	00	00	00	00	00

SOURCE EMISSION RATES (CI/HR)

REC-#	YEAR-MO	DAY-DR	HOUR-HR	YRMO (GMT)	HOURS	AFTER START	START	08	09	10	11	TOTAL
661	83	01	25	00	03	04	31	24	08	00	00	269
662	83	01	26	00	00	00	00	00	00	00	00	00
663	83	01	26	00	00	00	00	00	00	00	00	00
664	83	01	26	00	00	00	00	00	00	00	00	00
665	83	01	27	00	00	00	00	00	00	00	00	00
666	83	01	27	00	00	00	00	00	00	00	00	00
667	83	01	28	00	00	00	00	00	00	00	00	00
668	83	01	28	00	00	00	00	00	00	00	00	00
669	83	01	29	00	00	00	00	00	00	00	00	00
670	83	01	29	00	00	00	00	00	00	00	00	00
671	83	01	30	00	00	00	00	00	00	00	00	00
672	83	01	30	00	00	00	00	00	00	00	00	00
673	83	01	31	00	00	00	00	00	00	00	00	00
674	83	02	01	00	00	00	00	00	00	00	00	00
675	83	02	01	00	00	00	00	00	00	00	00	00
676	83	02	02	00	00	00	00	00	00	00	00	00
677	83	02	02	00	00	00	00	00	00	00	00	00
678	83	02	03	00	00	00	00	00	00	00	00	00
679	83	02	03	00	00	00	00	00	00	00	00	00
680	83	02	04	00	00	00	00	00	00	00	00	00
681	83	02	04	00	00	00	00	00	00	00	00	00
682	83	02	05	00	00	00	00	00	00	00	00	00
683	83	02	05	00	00	00	00	00	00	00	00	00
684	83	02	06	00	00	00	00	00	00	00	00	00
685	83	02	06	00	00	00	00	00	00	00	00	00
686	83	02	07	00	00	00	00	00	00	00	00	00
687	83	02	07	00	00	00	00	00	00	00	00	00
688	83	02	08	00	00	00	00	00	00	00	00	00
689	83	02	08	00	00	00	00	00	00	00	00	00
690	83	02	09	00	00	00	00	00	00	00	00	00
691	83	02	09	00	00	00	00	00	00	00	00	00
692	83	02	10	00	00	00	00	00	00	00	00	00
693	83	02	10	00	00	00	00	00	00	00	00	00
694	83	02	11	00	00	00	00	00	00	00	00	00
695	83	02	11	00	00	00	00	00	00	00	00	00
696	83	02	12	00	00	00	00	00	00	00	00	00
697	83	02	12	00	00	00	00	00	00	00	00	00
698	83	02	13	00	00	00	00	00	00	00	00	00
699	83	02	13	00	00	00	00	00	00	00	00	00
700	83	02	14	00	00	00	00	00	00	00	00	00
701	83	02	14	00	00	00	00	00	00	00	00	00
702	83	02	15	00	00	00	00	00	00	00	00	00
703	83	02	15	00	00	00	00	00	00	00	00	00
704	83	02	16	00	00	00	00	00	00	00	00	00
705	83	02	16	00	00	00	00	00	00	00	00	00
706	83	02	17	00	00	00	00	00	00	00	00	00
707	83	02	17	00	00	00	00	00	00	00	00	00
708	83	02	18	00	00	00	00	00	00	00	00	00
709	83	02	18	00	00	00	00	00	00	00	00	00
710	83	02	19	00	00	00	00	00	00	00	00	00
711	83	02	19	00	00	00	00	00	00	00	00	00
712	83	02	20	00	00	00	00	00	00	00	00	00
713	83	02	20	00	00	00	00	00	00	00	00	00
714	83	02	21	00	00	00	00	00	00	00	00	00
715	83	02	21	00	00	00	00	00	00	00	00	00
716	83	02	22	00	00	00	00	00	00	00	00	00
717	83	02	22	00	00	00	00	00	00	00	00	00
718	83	02	23	00	00	00	00	00	00	00	00	00
719	83	02	23	00	00	00	00	00	00	00	00	00
720	83	02	23	00	00	00	00	00	00	00	00	00





















APPENDIX B

MEASURED SURFACE AIR CONCENTRATIONS

MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

REC- ORD	START YEAR	MONTH	DAY	HR	YRMO (GMT)	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR
1	82	03	01	02	00	0	0	0	0	0	0	0	0	0	0
2	82	03	01	14	00	0	0	0	0	0	0	0	0	0	0
3	82	03	02	02	00	0	0	0	0	0	0	0	0	0	0
4	82	03	02	14	00	0	0	0	0	0	0	0	0	0	0
5	82	03	03	02	00	0	0	0	0	0	0	0	0	0	0
6	82	03	03	14	00	0	0	0	0	0	0	0	0	0	0
7	82	03	04	02	00	0	0	0	0	0	0	0	0	0	0
8	82	03	04	14	00	0	0	0	0	0	0	0	0	0	0
9	82	03	05	02	00	0	0	0	0	0	0	0	0	0	0
10	82	03	05	14	00	0	0	0	0	0	0	0	0	0	0
11	82	03	06	02	00	0	0	0	0	0	0	0	0	0	0
12	82	03	06	14	00	0	0	0	0	0	0	0	0	0	0
13	82	03	07	02	00	0	0	0	0	0	0	0	0	0	0
14	82	03	07	14	00	0	0	0	0	0	0	0	0	0	0
15	82	03	08	02	00	0	0	0	0	0	0	0	0	0	0
16	82	03	08	14	00	0	0	0	0	0	0	0	0	0	0
17	82	03	09	02	00	0	0	0	0	0	0	0	0	0	0
18	82	03	09	14	00	0	0	0	0	0	0	0	0	0	0
19	82	03	10	02	00	0	0	0	0	0	0	0	0	0	0
20	82	03	10	14	00	0	0	0	0	0	0	0	0	0	0
21	82	03	11	02	00	180	177	177	178	188	186	186	186	186	188
22	82	03	11	14	00	183	177	177	178	188	186	186	186	186	188
23	82	03	12	02	00	175	177	177	178	188	186	186	186	186	188
24	82	03	12	14	00	177	177	177	178	188	186	186	186	186	188
25	82	03	13	02	00	197	176	176	177	188	186	186	186	186	188
26	82	03	13	14	00	0	174	174	182	189	189	189	189	189	191
27	82	03	14	02	00	0	184	184	186	189	189	189	189	189	191
28	82	03	14	14	00	182	184	184	186	189	189	189	189	189	191
29	82	03	15	02	00	185	184	184	186	189	189	189	189	189	191
30	82	03	15	14	00	184	184	184	186	189	189	189	189	189	191
31	82	03	16	02	00	189	189	189	191	191	191	191	191	191	191
32	82	03	16	14	00	188	189	189	191	191	191	191	191	191	191
33	82	03	17	02	00	206	231	192	189	189	189	189	189	189	189
34	82	03	17	14	00	289	287	197	185	185	185	185	185	185	185
35	82	03	18	02	00	239	187	189	189	189	189	189	189	189	189
36	82	03	18	14	00	185	185	188	188	188	188	188	188	188	188
37	82	03	19	02	00	184	185	188	188	188	188	188	188	188	188
38	82	03	19	14	00	227	183	184	182	182	182	182	182	182	182
39	82	03	20	02	00	184	184	186	186	186	186	186	186	186	186
40	82	03	20	14	00	185	184	188	188	188	188	188	188	188	188
41	82	03	21	02	00	185	187	187	188	188	188	188	188	188	188
42	82	03	21	14	00	178	182	187	188	188	188	188	188	188	188
43	82	03	22	02	00	180	190	190	190	190	190	190	190	190	190
44	82	03	22	14	00	189	190	192	192	192	192	192	192	192	192
45	82	03	23	02	00	189	186	189	189	189	189	189	189	189	189
46	82	03	23	14	00	0	187	189	189	189	189	189	189	189	189
47	82	03	24	02	00	207	188	188	187	187	187	187	187	187	187
48	82	03	24	14	00	0	187	187	186	186	186	186	186	186	186
49	82	03	25	02	00	0	185	185	184	184	184	184	184	184	184
50	82	03	25	14	00	192	190	191	191	191	191	191	191	191	191
51	82	03	26	02	00	189	190	191	191	191	191	191	191	191	191
52	82	03	26	14	00	190	190	191	191	191	191	191	191	191	191
53	82	03	27	02	00	193	190	195	194	193	193	193	193	193	193
54	82	03	27	14	00	193	191	195	194	193	193	193	193	193	193
55	82	03	28	02	00	192	193	195	194	193	193	193	193	193	193
56	82	03	28	14	00	193	197	195	198	196	196	196	196	196	196
57	82	03	29	02	00	191	193	196	196	196	196	196	196	196	196
58	82	03	29	14	00	185	188	191	189	192	192	192	192	192	192
59	82	03	30	01	00	185	188	191	189	192	192	192	192	192	192

+ = VALUE CONTINUED, - = CONTINUATION  
A = 1 HOUR LATE, B = 2 HOURS LATE, ETC.  
(LATE START BEFORE VALUE, LATE END AFTER VALUE)

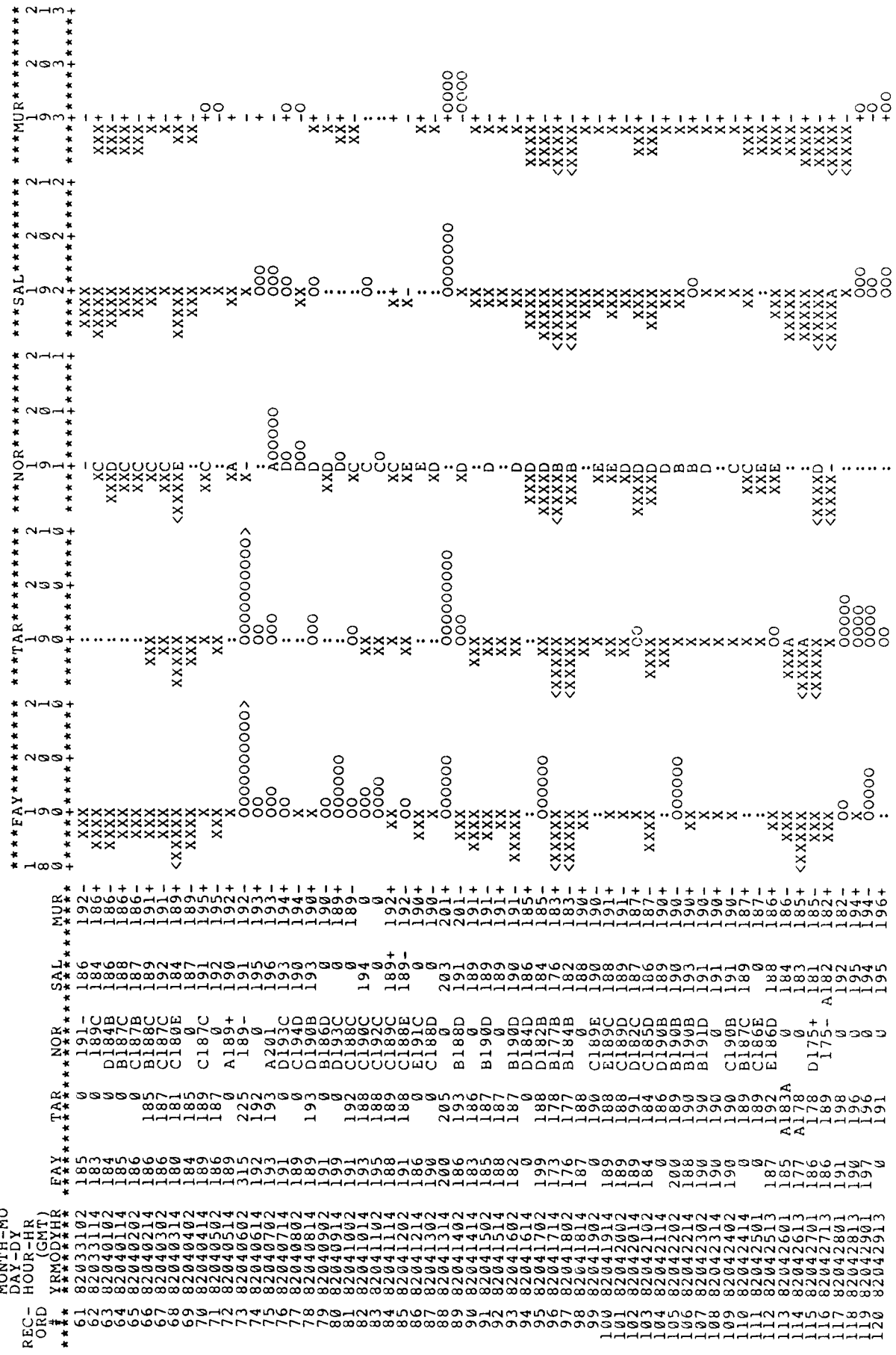


MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

REC- ORD	START YEAR-YR MONTH-MO DAY-DY HOUR-HR	FAY	TAR	NOR	SAL	MUR
61	820333102	185	0	191-	186	192-
62	820403114	183	0	189C	186+	186+
63	820404102	184	0	D184B	186	186+
64	820404114	185	0	B187C	188	186+
65	820404202	186	0	C187C	189	186+
66	820404214	186	185	B188C	189	191+
67	820404302	186	187	C187C	184	189+
68	820404314	184	185	C180E	187	189+
69	820404402	189	189	0	191	195+
70	820404414	189	187	C187C	192	195+
71	82040502	186	0	A189+	190	192+
72	820405014	189	0	A189+	191	192+
73	82040602	315	225	189-	191	192-
74	820406102	192	193	0	195	193+
75	82040702	193	193	A201	0	193+
76	82040714	191	0	D193C	0	194+
77	82040802	189	0	C194D	190	194+
78	82040814	193	193	D190B	193	190+
79	82040902	191	0	B186D	0	190+
80	82040914	191	0	D193C	0	189+
81	82040914	191	188	C188C	0	189-
82	82041014	193	188	C192C	194	0
83	82041102	195	188	C192C	0	0
84	82041114	188	189	C189C	0	0
85	82041202	191	188	C188E	189+	192+
86	82041214	190	188	E191C	189-	190+
87	82041302	186	0	C188D	0	190+
88	82041314	200	205	0	203	201+
89	82041402	186	193	B188D	191	190+
90	82041414	185	186	0	189	201-
91	82041502	183	187	B190D	189	191+
92	82041514	188	187	0	189	191+
93	82041602	182	187	B190D	190	191+
94	82041614	199	0	D184D	186	185+
95	82041702	173	188	D182B	184	185+
96	82041714	176	178	B177B	176	183-
97	82041802	187	177	B184B	182	183-
98	82041814	188	188	0	188	190+
99	82041902	189	190	C189E	188	190+
100	82041914	189	188	E189C	188	191+
101	82042002	189	188	C189D	187	191+
102	82042014	189	191	D182C	187	187+
103	82042102	184	184	C185D	186	187-
104	82042114	200	186	D190B	189	187+
105	82042202	188	189	B190B	190	190+
106	82042214	188	190	B190B	193	190+
107	82042302	190	190	B191D	191	190+
108	82042314	190	190	0	191	190+
109	82042402	190	190	C190B	191	190+
110	82042414	0	189	B187C	189	187+
111	82042501	0	189	E186D	188	187+
112	82042513	187	192	0	188	186+
113	82042601	185	A183A	0	184	186+
114	82042613	177	A178	0	183	185+
115	82042701	186	189	D175+	181	185+
116	82042713	191	198	0	182	182+
117	82042801	191	198	0	192	182+
118	82042813	197	196	0	195	194+
119	82042831	197	191	0	194	194+
120	82042913	0	191	0	195	196+

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(LATE START BEFORE VALUE, LATE END AFTER VALUE)

HISTOGRAM



MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

REC- ORD	START YEAR-YR	MONTH-MO	DAY-DY	HOUR-HR	YRMO (GMT)	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR
121	8204	30	01	194	197	0	197	0	197	196-	0000	0000	0000	0000	0000
122	8204	30	13	193	197	0	196	0	196	193+	0000	0000	0000	0000	0000
123	8205	01	01	192	194	196	194	0	195	193+	0000	0000	0000	0000	0000
124	8205	01	193	194	195	0	194	0	195	193+	0000	0000	0000	0000	0000
125	8205	02	01	192	190	0	190	0	191	192+	0000000000	0000000000	0000000000	0000000000	0000000000
126	8205	02	13	371	199	0	192	0	193	192+	0000000000	0000000000	0000000000	0000000000	0000000000
127	8205	03	01	202	192	0	192	0	192	190+	0000000000	0000000000	0000000000	0000000000	0000000000
128	8205	03	13	188	213	0	193	0	190	189+	0000000000	0000000000	0000000000	0000000000	0000000000
129	8205	04	13	190	192	0	188	0	189	189+	0000000000	0000000000	0000000000	0000000000	0000000000
130	8205	04	13	191	191	0	189	0	189	189+	0000000000	0000000000	0000000000	0000000000	0000000000
131	8205	05	13	188	191	0	189	0	189	191+	0000000000	0000000000	0000000000	0000000000	0000000000
132	8205	05	13	188	191	0	189	0	189	191+	0000000000	0000000000	0000000000	0000000000	0000000000
133	8205	06	13	207	192	0	189	0	189	191+	0000000000	0000000000	0000000000	0000000000	0000000000
134	8205	07	13	209	208	0	193	0	193	193+	0000000000	0000000000	0000000000	0000000000	0000000000
135	8205	07	13	205	305	0	193	0	193	193+	0000000000	0000000000	0000000000	0000000000	0000000000
136	8205	08	13	0	222	0	191	0	191	191+	0000000000	0000000000	0000000000	0000000000	0000000000
137	8205	08	13	0	222	0	191	0	191	191+	0000000000	0000000000	0000000000	0000000000	0000000000
138	8205	08	13	199	188	0	191	0	191	190+	0000000000	0000000000	0000000000	0000000000	0000000000
139	8205	09	13	189	188	0	191	0	191	190+	0000000000	0000000000	0000000000	0000000000	0000000000
140	8205	10	13	189	187	0	191	0	191	190+	0000000000	0000000000	0000000000	0000000000	0000000000
141	8205	11	13	189	187	0	191	0	191	190+	0000000000	0000000000	0000000000	0000000000	0000000000
142	8205	11	13	192	207	0	192	0	192	192+	0000000000	0000000000	0000000000	0000000000	0000000000
143	8205	11	13	189	204	0	192	0	192	190+	0000000000	0000000000	0000000000	0000000000	0000000000
144	8205	11	13	190	195	0	191	0	191	190+	0000000000	0000000000	0000000000	0000000000	0000000000
145	8205	12	13	190	195	0	191	0	191	191+	0000000000	0000000000	0000000000	0000000000	0000000000
146	8205	12	13	190	188	0	191	0	191	191+	0000000000	0000000000	0000000000	0000000000	0000000000
147	8205	13	13	0	189	0	192	0	192	190+	0000000000	0000000000	0000000000	0000000000	0000000000
148	8205	13	13	0	186	0	192	0	192	190+	0000000000	0000000000	0000000000	0000000000	0000000000
149	8205	14	13	0	198	0	190	0	190	190+	0000000000	0000000000	0000000000	0000000000	0000000000
150	8205	14	13	185	190	0	190	0	190	190+	0000000000	0000000000	0000000000	0000000000	0000000000
151	8205	14	13	186	194	0	189	0	188	189+	0000000000	0000000000	0000000000	0000000000	0000000000
152	8205	15	13	186	194	0	188	0	188	189+	0000000000	0000000000	0000000000	0000000000	0000000000
153	8205	16	13	185	187	0	187	0	187	189+	0000000000	0000000000	0000000000	0000000000	0000000000
154	8205	16	13	196	187	0	187	0	187	189+	0000000000	0000000000	0000000000	0000000000	0000000000
155	8205	17	13	189	187	0	187	0	187	189+	0000000000	0000000000	0000000000	0000000000	0000000000
156	8205	17	13	221	187	0	186	0	186	189+	0000000000	0000000000	0000000000	0000000000	0000000000
157	8205	18	13	195	189	185	185	0	185	186+	0000000000	0000000000	0000000000	0000000000	0000000000
158	8205	18	13	199	187	191	187	0	187	186+	0000000000	0000000000	0000000000	0000000000	0000000000
159	8205	19	13	188	191	187	185	0	185	186+	0000000000	0000000000	0000000000	0000000000	0000000000
160	8205	19	13	198	191	186	185	0	185	186+	0000000000	0000000000	0000000000	0000000000	0000000000
161	8205	22	13	186	188	186	224	0	197	210+	0000000000	0000000000	0000000000	0000000000	0000000000
162	8205	22	13	186	187	186	197	0	197	199+	0000000000	0000000000	0000000000	0000000000	0000000000
163	8205	22	13	184	183	185	187	0	187	199+	0000000000	0000000000	0000000000	0000000000	0000000000
164	8205	22	13	183	180	182	184	0	184	302+	0000000000	0000000000	0000000000	0000000000	0000000000
165	8205	22	13	181	180	182	182	0	182	302+	0000000000	0000000000	0000000000	0000000000	0000000000
166	8205	22	13	183	183	184	187	0	187	192+	0000000000	0000000000	0000000000	0000000000	0000000000
167	8205	23	13	182	186	181	188	0	188	192+	0000000000	0000000000	0000000000	0000000000	0000000000
168	8205	23	13	183	185	183	188	0	188	192+	0000000000	0000000000	0000000000	0000000000	0000000000
169	8205	24	13	173	185	182	189	0	189	192+	0000000000	0000000000	0000000000	0000000000	0000000000
170	8205	24	13	174	185	182	185	0	185	192+	0000000000	0000000000	0000000000	0000000000	0000000000
171	8205	25	13	174	172	174	190	0	190	186+	0000000000	0000000000	0000000000	0000000000	0000000000
172	8205	25	13	180	179	174	190	0	190	186+	0000000000	0000000000	0000000000	0000000000	0000000000
173	8205	26	13	177	174	175	186	0	186	188+	0000000000	0000000000	0000000000	0000000000	0000000000
174	8205	26	13	177	174	175	186	0	186	188+	0000000000	0000000000	0000000000	0000000000	0000000000
175	8205	27	13	175	178	178	189	0	189	185+	0000000000	0000000000	0000000000	0000000000	0000000000
176	8205	27	13	195	181	183	190	0	190	186+	0000000000	0000000000	0000000000	0000000000	0000000000
177	8205	28	13	181	178	181	183	0	183	186+	0000000000	0000000000	0000000000	0000000000	0000000000
178	8205	28	13	189	181	180	183	0	183	186+	0000000000	0000000000	0000000000	0000000000	0000000000
179	8205	29	13	189	178	185	182	0	182	185+	0000000000	0000000000	0000000000	0000000000	0000000000
180	8205	29	13	235	152	0	181	0	181	182+	0000000000	0000000000	0000000000	0000000000	0000000000

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(LATE START BEFORE VALUE, LATE END AFTER VALUE)







MEASURED CONCENTRATIONS  
(0.1 FCI/M3)

START  
YEAR-YR  
MONTH-MO  
DAY-DY  
HOUR-HR  
YRMOYHR  
(GMT)

REC#	YRMOYHR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR
361	82082801	182	186	190	0	188+	182	186	190	0	188+	182	186	190	0	188+	182	186	190	0	188+
362	82082801	186	186	191	0	189+	186	186	191	0	189+	186	186	191	0	189+	186	186	191	0	189+
363	82082901	0	188	191	0	189+	0	188	191	0	189+	0	188	191	0	189+	0	188	191	0	189+
364	82082913	0	189	0	0	188+	0	189	0	0	188+	0	189	0	0	188+	0	189	0	0	188+
365	82083001	0	189	0	0	189+	0	189	0	0	189+	0	189	0	0	189+	0	189	0	0	189+
366	82083013	0	189	0	0	189+	0	189	0	0	189+	0	189	0	0	189+	0	189	0	0	189+
367	82083101	0	188	0	0	195+	0	188	0	0	195+	0	188	0	0	195+	0	188	0	0	195+
368	82083113	0	188	190+	0	195+	0	188	190+	0	195+	0	188	190+	0	195+	0	188	190+	0	195+
369	82090101	187	190	190	0	200+	187	190	190	0	200+	187	190	190	0	200+	187	190	190	0	200+
370	82090113	0	190	A187A	0	200+	0	190	A187A	0	200+	0	190	A187A	0	200+	0	190	A187A	0	200+
371	82090201	0	199	A187A	0	200+	0	199	A187A	0	200+	0	199	A187A	0	200+	0	199	A187A	0	200+
372	82090213	203	199	A404A	0	184+	203	199	A404A	0	184+	203	199	A404A	0	184+	203	199	A404A	0	184+
373	82090301	194	188	A272+	0	184+	194	188	A272+	0	184+	194	188	A272+	0	184+	194	188	A272+	0	184+
374	82090313	194	185	272+	0	186+	194	185	272+	0	186+	194	185	272+	0	186+	194	185	272+	0	186+
375	82090401	191	182	272+	0	187+	191	182	272+	0	187+	191	182	272+	0	187+	191	182	272+	0	187+
376	82090413	186	185	272+	0	187+	186	185	272+	0	187+	186	185	272+	0	187+	186	185	272+	0	187+
377	82090501	0	188	272+	0	187+	0	188	272+	0	187+	0	188	272+	0	187+	0	188	272+	0	187+
378	82090513	0	188	A208+	0	186+	0	188	A208+	0	186+	0	188	A208+	0	186+	0	188	A208+	0	186+
379	82090601	185	0	208	0	186+	185	0	208	0	186+	185	0	208	0	186+	185	0	208	0	186+
380	82090613	183	0	208	0	185+	183	0	208	0	185+	183	0	208	0	185+	183	0	208	0	185+
381	82090701	183	0	208	0	185+	183	0	208	0	185+	183	0	208	0	185+	183	0	208	0	185+
382	82090713	183	186	203	0	188+	183	186	203	0	188+	183	186	203	0	188+	183	186	203	0	188+
383	82090801	183	187	203	0	188+	183	187	203	0	188+	183	187	203	0	188+	183	187	203	0	188+
384	82090813	182	186	196	0	189+	182	186	196	0	189+	182	186	196	0	189+	182	186	196	0	189+
385	82090901	182	186	0	0	186+	182	186	0	0	186+	182	186	0	0	186+	182	186	0	0	186+
386	82090913	188	186	0	0	186+	188	186	0	0	186+	188	186	0	0	186+	188	186	0	0	186+
387	82091001	182	185	0	0	186+	182	185	0	0	186+	182	185	0	0	186+	182	185	0	0	186+
388	82091013	182	183	0	0	182+	182	183	0	0	182+	182	183	0	0	182+	182	183	0	0	182+
389	82091101	182	182	0	0	182+	182	182	0	0	182+	182	182	0	0	182+	182	182	0	0	182+
390	82091113	181	182	0	0	182+	181	182	0	0	182+	181	182	0	0	182+	181	182	0	0	182+
391	82091201	182	182	0	0	182	182	182	0	0	182	182	182	0	0	182	182	182	0	0	182
392	82091213	0	182	0	0	182	0	182	0	0	182	0	182	0	0	182	0	182	0	0	182
393	82091301	0	182	0	0	182	0	182	0	0	182	0	182	0	0	182	0	182	0	0	182
394	82091313	181	0	184	0	182+	181	0	184	0	182+	181	0	184	0	182+	181	0	184	0	182+
395	82091401	183	0	182	0	182+	183	0	182	0	182+	183	0	182	0	182+	183	0	182	0	182+
396	82091413	182	179	184	0	183+	182	179	184	0	183+	182	179	184	0	183+	182	179	184	0	183+
397	82091501	184	182	0	0	183+	184	182	0	0	183+	184	182	0	0	183+	184	182	0	0	183+
398	82091513	184	182	181	0	181+	184	182	181	0	181+	184	182	181	0	181+	184	182	181	0	181+
399	82091601	181	181	183	0	187+	181	181	183	0	187+	181	181	183	0	187+	181	181	183	0	187+
400	82091701	181	183	183	0	187+	181	183	183	0	187+	181	183	183	0	187+	181	183	183	0	187+
401	82091713	184	186	186	0	187+	184	186	186	0	187+	184	186	186	0	187+	184	186	186	0	187+
402	82091801	0	186	0	0	192+	0	186	0	0	192+	0	186	0	0	192+	0	186	0	0	192+
403	82091813	0	186	0	0	192+	0	186	0	0	192+	0	186	0	0	192+	0	186	0	0	192+
404	82091901	0	181	0	0	188+	0	181	0	0	188+	0	181	0	0	188+	0	181	0	0	188+
405	82091913	185	185	0	0	188+	185	185	0	0	188+	185	185	0	0	188+	185	185	0	0	188+
406	82091913	187	186	0	0	188+	187	186	0	0	188+	187	186	0	0	188+	187	186	0	0	188+
407	82092001	187	188	186	0	189+	187	188	186	0	189+	187	188	186	0	189+	187	188	186	0	189+
408	82092013	187	188	186	0	189+	187	188	186	0	189+	187	188	186	0	189+	187	188	186	0	189+
409	82092101	278	187	A186	0	189+	278	187	A186	0	189+	278	187	A186	0	189+	278	187	A186	0	189+
410	82092113	187	186	185	0	189+	187	186	185	0	189+	187	186	185	0	189+	187	186	185	0	189+
411	82092201	185	185	187	0	187+	185	185	187	0	187+	185	185	187	0	187+	185	185	187	0	187+
412	82092213	185	185	187	0	187+	185	185	187	0	187+	185	185	187	0	187+	185	185	187	0	187+
413	82092301	186	0	0	0	187+	186	0	0	0	187+	186	0	0	0	187+	186	0	0	0	187+
414	82092313	187	0	186	0	187+	187	0	186	0	187+	187	0	186	0	187+	187	0	186	0	187+
415	82092401	187	185	188	0	188+	187	185	188	0	188+	187	185	188	0	188+	187	185	188	0	188+
416	82092413	186	187	187	0	188+	186	187	187	0	188+	186	187	187	0	188+	186	187	187	0	188+
417	82092501	187	184	188	0	188+	187	184	188	0	188+	187	184	188	0	188+	187	184	188	0	188+
418	82092513	187	184	188	0	188+	187	184	188	0	188+	187	184	188	0	188+	187	184	188	0	188+
419	82092601	188	187	186A	0	188+	188	187	186A	0	188+	188	187	186A	0	188+	188	187	186A	0	188+
420	82092613	188	183	0	0	182+	188	183	0	0	182+	188	183	0	0	182+	188	183	0	0	182+

+ = VALUE CONTINUED, - = CONTINUATION  
A = 1 HOUR LATE, B = 2 HOURS LATE, ETC.  
(LATE START BEFORE VALUE, LATE END AFTER VALUE)



MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

START YEAR-YR  
MONTH-MO  
DAY-DY  
HOUR-HR  
VPMODYHR  
(GMT)

REC-ORD	START YEAR-YR	MONTH-MO	DAY-DY	HOUR-HR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	HISTOGRAM
481	8211	02	27	01	186	185	185	186	187	186	185	185	186	187	187
482	8211	02	27	13	187	186	188	188	188	188	188	188	188	188	188
483	8211	02	28	01	185	186	185	188	188	188	185	185	188	188	188
484	8211	02	28	13	184	187	188	190	188	188	187	188	190	188	188
485	8211	02	29	01	185	188	187	190	188	188	187	188	190	188	188
486	8211	02	29	13	185	188	187	190	188	188	187	188	190	188	188
487	8211	03	03	01	188	188	185	190	188	188	185	185	190	188	188
488	8211	03	03	15	188	188	185	190	188	188	185	185	190	188	188
489	8211	03	10	02	188	187	187	190	186	187	187	187	190	186	187
490	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
491	8211	03	11	14	188	187	251	190	206	187	251	190	206	187	187
492	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
493	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
494	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
495	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
496	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
497	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
498	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
499	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
500	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
501	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
502	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
503	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
504	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
505	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
506	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
507	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
508	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
509	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
510	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
511	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
512	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
513	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
514	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
515	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
516	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
517	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
518	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
519	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
520	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
521	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
522	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
523	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
524	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
525	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
526	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
527	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
528	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
529	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
530	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
531	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
532	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
533	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
534	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
535	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
536	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
537	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
538	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
539	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187
540	8211	03	11	02	188	187	251	190	206	187	251	190	206	187	187

+ = VALUE CONTINUED, - = CONTINUATION  
A = 1 HOUR LATE, B = 2 HOURS LATE, ETC.  
(LATE START BEFORE VALUE, LATE END AFTER VALUE)



MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

START  
YEAR-YR  
MONTH-MO  
DAY-DY  
HOUR-HR

REC- ###	ORIG- ###	YEAR-YR ###	MONTH-MO ##	DAY-DY ##	HOUR-HR ##	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	
541	42	82	11	26	02	0	190	0	188	190	0	0	0	188	190	0	190	0	188	190	0	0	0	0	188	190
542	42	82	11	26	14	186	189	0	186	187	0	0	0	186	187	0	189	0	186	187	0	0	0	0	186	187
543	44	82	11	27	02	330	247	0	187	191	0	0	0	187	191	0	189	0	186	189	0	0	0	0	187	191
544	44	82	11	27	14	190	186	0	189	189	0	0	0	189	189	0	188	0	186	189	0	0	0	0	189	189
545	45	82	11	28	02	188	188	0	186	186	0	0	0	186	186	0	183	0	186	186	0	0	0	0	186	186
546	47	82	11	29	02	183	183	0	183	183	0	0	0	183	183	0	183	0	183	183	0	0	0	0	183	183
547	48	82	11	29	14	183	183	0	183	183	0	0	0	183	183	0	183	0	183	183	0	0	0	0	183	183
548	48	82	11	30	02	186	186	0	184	186	0	0	0	184	186	0	186	0	184	186	0	0	0	0	184	186
549	50	82	11	30	14	186	186	0	184	184	0	0	0	184	184	0	186	0	184	184	0	0	0	0	184	184
550	50	82	11	30	14	186	186	0	184	184	0	0	0	184	184	0	186	0	184	184	0	0	0	0	184	184
551	52	82	11	30	14	185	185	0	188	182	0	0	0	188	182	0	185	0	188	182	0	0	0	0	188	182
552	53	82	11	30	20	183	183	0	183	182	0	0	0	183	182	0	183	0	183	182	0	0	0	0	183	182
553	53	82	11	30	22	183	183	0	183	182	0	0	0	183	182	0	183	0	183	182	0	0	0	0	183	182
554	55	82	11	30	30	183	183	0	183	182	0	0	0	183	182	0	183	0	183	182	0	0	0	0	183	182
555	56	82	11	30	30	179	184	0	182	181	0	0	0	182	181	0	184	0	182	181	0	0	0	0	182	181
556	56	82	11	30	30	180	184	0	182	181	0	0	0	182	181	0	184	0	182	181	0	0	0	0	182	181
557	58	82	11	30	40	179	184	0	180	181	0	0	0	180	181	0	184	0	180	181	0	0	0	0	180	181
558	58	82	11	30	40	179	184	0	180	181	0	0	0	180	181	0	184	0	180	181	0	0	0	0	180	181
559	59	82	11	30	50	176	177	0	177	180	0	0	0	177	180	0	177	0	177	180	0	0	0	0	177	180
560	61	82	11	30	50	177	177	0	176	180	0	0	0	176	180	0	177	0	176	180	0	0	0	0	177	180
561	61	82	11	30	50	177	177	0	176	180	0	0	0	176	180	0	177	0	176	180	0	0	0	0	177	180
562	62	82	11	30	60	185	189	0	185	185	0	0	0	185	185	0	189	0	185	185	0	0	0	0	185	185
563	62	82	11	30	60	185	189	0	185	185	0	0	0	185	185	0	189	0	185	185	0	0	0	0	185	185
564	64	82	11	30	70	185	185	0	184	187	0	0	0	184	187	0	185	0	184	187	0	0	0	0	184	187
565	64	82	11	30	80	185	187	0	188	187	0	0	0	188	187	0	185	0	188	187	0	0	0	0	188	187
566	67	82	11	30	80	185	186	0	187	187	0	0	0	187	187	0	186	0	187	187	0	0	0	0	187	187
567	67	82	11	30	80	185	186	0	187	187	0	0	0	187	187	0	186	0	187	187	0	0	0	0	187	187
568	68	82	11	30	90	185	186	0	188	187	0	0	0	188	187	0	185	0	188	187	0	0	0	0	188	187
569	69	82	11	30	90	185	187	0	189	189	0	0	0	189	189	0	185	0	189	189	0	0	0	0	189	189
570	69	82	11	30	90	185	187	0	189	189	0	0	0	189	189	0	185	0	189	189	0	0	0	0	189	189
571	72	82	11	31	10	185	186	0	190	191	0	0	0	190	191	0	186	0	190	191	0	0	0	0	190	191
572	72	82	11	31	10	206	186	0	188	188	0	0	0	188	188	0	186	0	188	188	0	0	0	0	188	188
573	73	82	11	31	12	189	188	0	187	189	0	0	0	187	189	0	189	0	187	189	0	0	0	0	187	189
574	74	82	11	31	20	188	188	0	189	190	0	0	0	189	190	0	188	0	189	190	0	0	0	0	189	190
575	75	82	11	31	30	189	188	0	189	190	0	0	0	189	190	0	188	0	189	190	0	0	0	0	189	190
576	76	82	11	31	30	189	188	0	189	190	0	0	0	189	190	0	188	0	189	190	0	0	0	0	189	190
577	77	82	11	31	30	189	188	0	189	190	0	0	0	189	190	0	188	0	189	190	0	0	0	0	189	190
578	78	82	11	31	40	187	188	0	189	191	0	0	0	189	191	0	188	0	189	191	0	0	0	0	189	191
579	79	82	11	31	40	188	188	0	189	191	0	0	0	189	191	0	188	0	189	191	0	0	0	0	189	191
580	80	82	11	31	50	188	188	0	189	191	0	0	0	189	191	0	188	0	189	191	0	0	0	0	189	191
581	82	82	11	31	60	184	184	0	187	189	0	0	0	187	189	0	184	0	187	189	0	0	0	0	187	189
582	82	82	11	31	60	184	184	0	187	189	0	0	0	187	189	0	184	0	187	189	0	0	0	0	187	189
583	83	82	11	31	60	184	184	0	187	189	0	0	0	187	189	0	184	0	187	189	0	0	0	0	187	189
584	84	82	11	31	70	193	188	0	187	189	0	0	0	187	189	0	193	0	187	189	0	0	0	0	187	189
585	84	82	11	31	70	193	188	0	187	189	0	0	0	187	189	0	193	0	187	189	0	0	0	0	187	189
586	86	82	11	31	80	186	186	0	186	188	0	0	0	186	188	0	186	0	186	188	0	0	0	0	186	188
587	87	82	11	31	80	186	186	0	186	188	0	0	0	186	188	0	186	0	186	188	0	0	0	0	186	188
588	88	82	11	31	90	188	187	0	186	189	0	0	0	186	189	0	188	0	186	189	0	0	0	0	186	189
589	89	82	11	31	90	188	187	0	186	189	0	0	0	186	189	0	188	0	186	189	0	0	0	0	186	189
590	91	82	11	31	90	186	186	0	187	189	0	0	0	187	189	0	186	0	187	189	0	0	0	0	187	189
591	91	82	11	31	90	186	186	0	187	189	0	0	0	187	189	0	186	0	187	189	0	0	0	0	187	189
592	92	82	11	31	90	185	183	0	184	185	0	0	0	184	185	0	185	0	184	185	0	0	0	0	184	185
593	93	82	11	31	90	184	183	0	184	185	0	0	0	184	185	0	184	0	184	185	0	0	0	0	184	185
594	94	82	11	31	90	189	184	0	185																	

MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

START YEAR-YR MONTH-MO DAY-DY HOUR-HR YRMO(GMT)

REC-ORD	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR
601	0	179	179	183	184	0	179	179	183	184	0	179	179	183	184	0	179	179	183	184
602	0	178	178	182	183	0	178	178	182	183	0	178	178	182	183	0	178	178	182	183
603	0	0	179	183	188	0	0	179	183	188	0	0	179	183	188	0	0	179	183	188
604	175	0	183	184	198	175	0	183	184	198	175	0	183	184	198	175	0	183	184	198
605	178	0	193	194	198	178	0	193	194	198	178	0	193	194	198	178	0	193	194	198
606	177	177	179	179	179	177	177	179	179	179	177	177	179	179	179	177	177	179	179	179
607	184	176	183	182	183	184	176	183	182	183	184	176	183	182	183	184	176	183	182	183
608	182	185	188	189	187	182	185	188	189	187	182	185	188	189	187	182	185	188	189	187
609	184	187	184	185	187	184	187	184	185	187	184	187	184	185	187	184	187	184	185	187
610	186	185	185	186	187	186	185	185	186	187	186	185	185	186	187	186	185	185	186	187
611	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
612	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
613	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
614	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
615	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
616	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
617	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
618	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
619	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
620	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
621	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
622	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
623	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
624	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
625	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
626	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
627	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
628	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186	185	185	185	185	186
629	999	189	185	183	183	999	189	185	183	183	999	189	185	183	183	999	189	185	183	183
630	236	189	185	183	183	236	189	185	183	183	236	189	185	183	183	236	189	185	183	183
631	185	189	185	183	183	185	189	185	183	183	185	189	185	183	183	185	189	185	183	183
632	185	189	185	183	183	185	189	185	183	183	185	189	185	183	183	185	189	185	183	183
633	192	194	188	186	184	192	194	188	186	184	192	194	188	186	184	192	194	188	186	184
634	184	183	184	189	185	184	183	184	189	185	184	183	184	189	185	184	183	184	189	185
635	184	183	184	189	185	184	183	184	189	185	184	183	184	189	185	184	183	184	189	185
636	186	185	185	187	187	186	185	185	187	187	186	185	185	187	187	186	185	185	187	187
637	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187
638	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187
639	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187
640	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187
641	191	187	185	185	187	191	187	185	185	187	191	187	185	185	187	191	187	185	185	187
642	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187
643	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187	187	185	185	187	187
644	188	186	186	186	186	188	186	186	186	186	188	186	186	186	186	188	186	186	186	186
645	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186
646	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186
647	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186
648	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186
649	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186	185	186	186	186	186
650	187	188	188	188	187	187	188	188	188	187	187	188	188	188	187	187	188	188	188	187
651	187	188	188	188	187	187	188	188	188	187	187	188	188	188	187	187	188	188	188	187
652	187	188	188	188	187	187	188	188	188	187	187	188	188	188	187	187	188	188	188	187
653	201	188	188	188	186	201	188	188	188	186	201	188	188	188	186	201	188	188	188	186
654	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186
655	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186
656	184	182	181	184	184	184	182	181	184	184	184	182	181	184	184	184	182	181	184	184
657	184	182	181	184	184	184	182	181	184	184	184	182	181	184	184	184	182	181	184	184
658	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182	182
659	184	183	183	183	183	184	183	183	183	183	184	183	183	183	183	184	183	183	183	183
660	184	183	183	183	183	184	183	183	183	183	184	183	183	183	183	184	183	183	183	183

A = VALUE CONTINUED, B = CONTINUATION  
 + = 1 HOUR LATE, - = 1 HOUR EARLY  
 (LATE START BEFORE VALUE, LATE END AFTER VALUE)





MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

START YEAR-YR MONTH-MO DAY-DY HOUR-HR  
(GMT)

REC #	YEAR-YR	MONTH-MO	DAY-DY	HOUR-HR	YRMODE	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR
781	8303	26	02	14	192	192	192	193A	195	196-	192	192	193A	195	196-	192	192	193A	195	196-
782	8303	26	14	14	193	193	193	193A	195	196-	193	193	193A	195	196-	193	193	193A	195	196-
783	8303	27	02	14	192	192	192	193A	195	196-	192	192	193A	195	196-	192	192	193A	195	196-
784	8303	27	14	14	187	187	187	193A	195	196-	187	187	193A	195	196-	187	187	193A	195	196-
785	8303	28	02	14	189	189	189	193A	195	196-	189	189	193A	195	196-	189	189	193A	195	196-
786	8303	28	14	14	199	199	199	193A	195	196-	199	199	193A	195	196-	199	199	193A	195	196-
787	8303	29	02	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
788	8303	29	14	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
789	8303	30	02	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
790	8303	30	14	14	189	189	189	193A	195	196-	189	189	193A	195	196-	189	189	193A	195	196-
791	8303	31	02	14	189	189	189	193A	195	196-	189	189	193A	195	196-	189	189	193A	195	196-
792	8303	31	14	14	192	192	192	193A	195	196-	192	192	193A	195	196-	192	192	193A	195	196-
793	8304	01	02	14	194	194	194	193A	195	196-	194	194	193A	195	196-	194	194	193A	195	196-
794	8304	01	14	14	212	212	212	193A	195	196-	212	212	193A	195	196-	212	212	193A	195	196-
795	8304	02	02	14	203	203	203	193A	195	196-	203	203	193A	195	196-	203	203	193A	195	196-
796	8304	02	14	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
797	8304	03	02	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
798	8304	03	14	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
799	8304	04	02	14	188	188	188	193A	195	196-	188	188	193A	195	196-	188	188	193A	195	196-
800	8304	04	14	14	188	188	188	193A	195	196-	188	188	193A	195	196-	188	188	193A	195	196-
801	8304	05	02	14	188	188	188	193A	195	196-	188	188	193A	195	196-	188	188	193A	195	196-
802	8304	05	14	14	224	224	224	193A	195	196-	224	224	193A	195	196-	224	224	193A	195	196-
803	8304	06	02	14	183	183	183	193A	195	196-	183	183	193A	195	196-	183	183	193A	195	196-
804	8304	06	14	14	181	181	181	193A	195	196-	181	181	193A	195	196-	181	181	193A	195	196-
805	8304	07	02	14	177	177	177	193A	195	196-	177	177	193A	195	196-	177	177	193A	195	196-
806	8304	07	14	14	179	179	179	193A	195	196-	179	179	193A	195	196-	179	179	193A	195	196-
807	8304	08	02	14	179	179	179	193A	195	196-	179	179	193A	195	196-	179	179	193A	195	196-
808	8304	08	14	14	174	174	174	193A	195	196-	174	174	193A	195	196-	174	174	193A	195	196-
809	8304	09	02	14	174	174	174	193A	195	196-	174	174	193A	195	196-	174	174	193A	195	196-
810	8304	09	14	14	174	174	174	193A	195	196-	174	174	193A	195	196-	174	174	193A	195	196-
811	8304	10	02	14	183	183	183	193A	195	196-	183	183	193A	195	196-	183	183	193A	195	196-
812	8304	10	14	14	184	184	184	193A	195	196-	184	184	193A	195	196-	184	184	193A	195	196-
813	8304	11	02	14	186	186	186	193A	195	196-	186	186	193A	195	196-	186	186	193A	195	196-
814	8304	11	14	14	185	185	185	193A	195	196-	185	185	193A	195	196-	185	185	193A	195	196-
815	8304	12	02	14	184	184	184	193A	195	196-	184	184	193A	195	196-	184	184	193A	195	196-
816	8304	12	14	14	185	185	185	193A	195	196-	185	185	193A	195	196-	185	185	193A	195	196-
817	8304	13	02	14	185	185	185	193A	195	196-	185	185	193A	195	196-	185	185	193A	195	196-
818	8304	13	14	14	186	186	186	193A	195	196-	186	186	193A	195	196-	186	186	193A	195	196-
819	8304	14	02	14	186	186	186	193A	195	196-	186	186	193A	195	196-	186	186	193A	195	196-
820	8304	14	14	14	186	186	186	193A	195	196-	186	186	193A	195	196-	186	186	193A	195	196-
821	8304	15	02	14	185	185	185	193A	195	196-	185	185	193A	195	196-	185	185	193A	195	196-
822	8304	15	14	14	179	179	179	193A	195	196-	179	179	193A	195	196-	179	179	193A	195	196-
823	8304	16	02	14	189	189	189	193A	195	196-	189	189	193A	195	196-	189	189	193A	195	196-
824	8304	16	14	14	189	189	189	193A	195	196-	189	189	193A	195	196-	189	189	193A	195	196-
825	8304	17	02	14	189	189	189	193A	195	196-	189	189	193A	195	196-	189	189	193A	195	196-
826	8304	17	14	14	188	188	188	193A	195	196-	188	188	193A	195	196-	188	188	193A	195	196-
827	8304	18	02	14	188	188	188	193A	195	196-	188	188	193A	195	196-	188	188	193A	195	196-
828	8304	18	14	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
829	8304	19	02	14	192	192	192	193A	195	196-	192	192	193A	195	196-	192	192	193A	195	196-
830	8304	19	14	14	194	194	194	193A	195	196-	194	194	193A	195	196-	194	194	193A	195	196-
831	8304	20	02	14	193	193	193	193A	195	196-	193	193	193A	195	196-	193	193	193A	195	196-
832	8304	20	14	14	192	192	192	193A	195	196-	192	192	193A	195	196-	192	192	193A	195	196-
833	8304	21	02	14	192	192	192	193A	195	196-	192	192	193A	195	196-	192	192	193A	195	196-
834	8304	21	14	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
835	8304	22	02	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
836	8304	22	14	14	192	192	192	193A	195	196-	192	192	193A	195	196-	192	192	193A	195	196-
837	8304	23	02	14	188	188	188	193A	195	196-	188	188	193A	195	196-	188	188	193A	195	196-
838	8304	23	14	14	187	187	187	193A	195	196-	187	187	193A	195	196-	187	187	193A	195	196-
839	8304	24	02	14	190	190	190	193A	195	196-	190	190	193A	195	196-	190	190	193A	195	196-
840	8304	24	14	14	313	313	313	193A	195	196-	313	313	193A	195	196-	313	313	193A	195	196-

+ = VALUE CONTINUED, - = CONTINUATION  
A = 1 HOUR LATE, B = 2 HOURS LATE, ETC.  
(LATE START BEFORE VALUE, LATE END AFTER VALUE)

HISTOGRAM

FAY	TAR	NOR	SAL	MUR
192	192	193A	195	196-
193	193	193A	195	196-
187	187	193A	195	196-
189	189	193A	195	196-
200	200	193A	195	196-
190	190	193A	195	196-
191	191	193A	195	196-
184	184	193A	195	196-
186	186	193A	195	196-
184	184	193A	195	196-
186	186	193A	195	196-
190	190	193A	195	196-
190	190	193A	195	196-
187	187	193A	195	196-
188	188	193A	195	196-
189	189	193A	195	196-
189	189	193A	195	196-
197	197	193A	195	196-
217	217	193A	195	196-
217	217	193A	195	196-
179	179	193A	195	196-
179	179	193A	195	196-
174	174	193A	195	196-
174	174	193A	195	196-
174	174	193A	195	196-
184	184	193A	195	196-
186	186	193A	195	196-
185	185	193A	195	196-
185	185	193A	195	196-
186	186	193A	195	196-
186	186	193A</		

MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

START  
YEAR-YR  
MONTH-MO  
DAY-DY  
HOUR-HR  
YR(MD)YR  
(GMT)

REC- ORD	YEAR-YR	MONTH-MO	DAY-DY	HOUR-HR	YR(MD)YR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR
841	83	04	25	01	187	190	188	189	189	187	190	188	189	189	187	190	188	189	189	187	190	188	189	189	187
842	83	04	25	13	189	189	188	189	189	191	189	188	189	189	191	189	188	189	189	191	189	188	189	189	191
843	83	04	26	01	188	189	188	189	188	187	188	188	189	188	187	188	188	189	188	187	188	188	189	188	187
844	83	04	26	13	188	186	187	186	186	187	186	187	186	186	187	186	187	186	186	187	186	187	186	186	187
845	83	04	27	01	186	185	185	185	184	185	185	185	185	184	185	185	185	185	184	185	185	185	185	184	185
846	83	04	27	13	184	185	185	185	185	186	185	185	185	185	186	185	185	185	185	185	186	185	185	185	185
847	83	04	28	01	184	185	185	185	185	186	185	185	185	185	186	185	185	185	185	185	186	185	185	185	185
848	83	04	28	13	184	185	185	185	185	186	185	185	185	185	186	185	185	185	185	185	186	185	185	185	185
849	83	04	29	01	193	183	189	189	182	191	183	189	189	182	191	183	189	189	182	191	183	189	189	182	191
850	83	04	29	13	238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
851	83	04	30	01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
852	83	04	30	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
853	83	05	01	01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
854	83	05	01	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855	83	05	02	01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
856	83	05	02	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
857	83	05	03	01	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
858	83	05	03	13	179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
859	83	05	04	01	179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
860	83	05	04	13	181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
861	83	05	05	01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
862	83	05	05	13	187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
863	83	05	06	01	192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
864	83	05	06	13	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
865	83	05	07	01	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
866	83	05	07	13	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
867	83	05	08	01	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
868	83	05	08	13	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869	83	05	09	01	213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
870	83	05	09	13	192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
871	83	05	10	01	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
872	83	05	10	13	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
873	83	05	11	01	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
874	83	05	11	13	193	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
875	83	05	12	01	193	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
876	83	05	12	13	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
877	83	05	13	01	229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
878	83	05	13	13	209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
879	83	05	14	01	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
880	83	05	14	13	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
881	83	05	15	01	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
882	83	05	15	13	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883	83	05	16	01	196	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
884	83	05	16	13	194	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
885	83	05	17	01	194	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
886	83	05	17	13	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
887	83	05	18	01	196	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
888	83	05	18	13	196	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
889	83	05	19	01	192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
890	83	05	19	13	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
891	83	05	20	01	187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
892	83	05	20	13	187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
893	83	05	21	01	185	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
894	83	05	21	13	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
895	83	05	22	01	179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
896	83	05	22	13	181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897	83	05	23	01	181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
898	83	05	23	13	297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
899	83	05	24	01	202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
900	83	05	24																						







MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

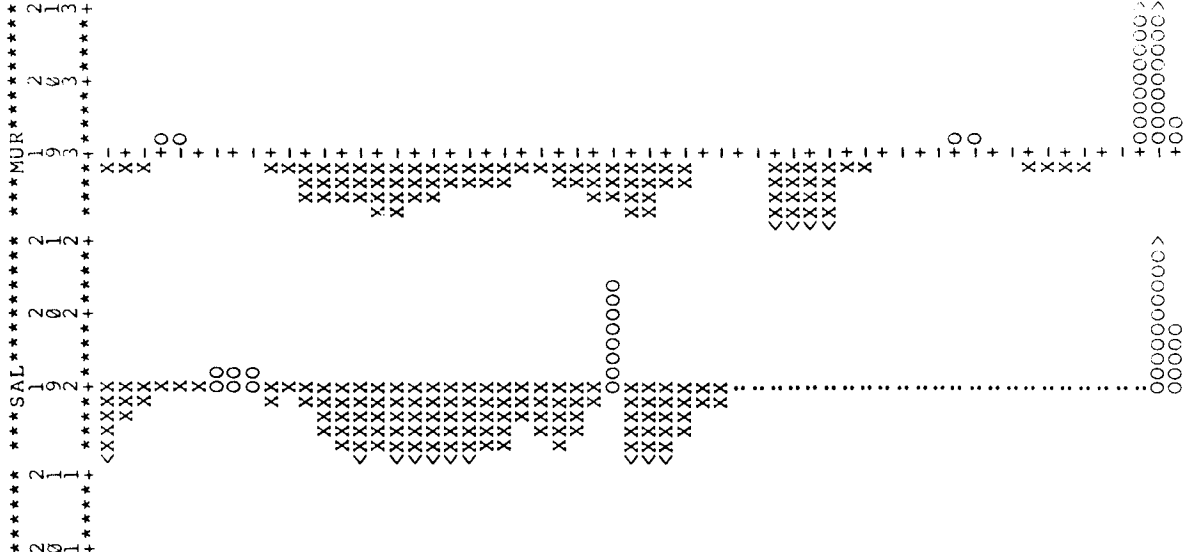
REC- ORD	START YEAR-MO	MONTH-MO	DAY-DY	HOUR-HR	YRMO DTHR	YRMO DTHR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	
1021	83	07	24	01	180	188	180	180A	188	192	193	180	180	180A	188	192	193	180	180A	188	192	193
1022	83	07	25	01	181	189	181	181A	189	193	190	181	181	181A	189	193	190	181	181A	189	193	190
1023	83	07	25	13	189	188	189	186A	188	190	193	189	186	186A	188	190	193	189	186	186A	188	190
1024	83	07	26	01	187	191	187	187	191	192	192	187	187	187	191	192	192	187	187	187	191	192
1025	83	07	26	13	189	188	189	188	188	190	192	189	188	188	190	192	192	189	188	188	190	192
1026	83	07	27	01	187	190	187	187	190	192	192	187	187	187	190	192	192	187	187	187	190	192
1027	83	07	27	13	189	188	189	188	188	190	192	189	188	188	190	192	192	189	188	188	190	192
1028	83	07	28	01	189	190	189	188	188	190	192	189	188	188	190	192	192	189	188	188	190	192
1029	83	07	28	13	191	189	191	188	188	190	192	191	189	188	190	192	192	191	189	188	190	192
1030	83	07	29	01	191	190	191	188	188	190	192	191	190	188	190	192	192	191	190	188	190	192
1031	83	07	29	13	190	188	190	188	188	190	192	190	189	188	190	192	192	190	189	188	190	192
1032	83	07	30	01	188	190	188	188	188	190	192	188	190	188	190	192	192	188	190	188	190	192
1033	83	07	30	13	188	188	188	188	188	190	192	188	187	187	190	192	192	188	187	187	190	192
1034	83	07	31	01	187	183	187	187	183	183	183	187	187	183	183	183	183	187	183	183	183	183
1035	83	07	31	13	190	183	184	184	183	183	183	190	184	183	183	183	183	190	184	183	183	183
1036	83	07	31	13	184	183	184	183	183	183	183	184	183	183	183	183	183	184	183	183	183	183
1037	83	08	01	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1038	83	08	01	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1039	83	08	02	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1040	83	08	02	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1041	83	08	03	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1042	83	08	03	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1043	83	08	04	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1044	83	08	04	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1045	83	08	05	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1046	83	08	05	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1047	83	08	06	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1048	83	08	06	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1049	83	08	07	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1050	83	08	07	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1051	83	08	08	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1052	83	08	08	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1053	83	08	09	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1054	83	08	09	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1055	83	08	10	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1056	83	08	10	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1057	83	08	11	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1058	83	08	11	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1059	83	08	12	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1060	83	08	12	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1061	83	08	13	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1062	83	08	13	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1063	83	08	14	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1064	83	08	14	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1065	83	08	15	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1066	83	08	15	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1067	83	08	16	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1068	83	08	16	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1069	83	08	17	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1070	83	08	17	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1071	83	08	18	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1072	83	08	18	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1073	83	08	19	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1074	83	08	19	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1075	83	08	20	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1076	83	08	20	13	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1077	83	08	21	01	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183	183
1078	83	08	21	13	183	183</																

MEASURED CONCENTRATIONS  
(0.1 PCI/M3)

REC- ORD	START YEAR-YR MONTH-MO DAY-DY HOUR-HR YRMO (GMT) (DVR)	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR	FAY	TAR	NOR	SAL	MUR
1081	83082301	0	0	0	182	190-	0	0	0	182	190-	0	0	0	182	190-
1082	83082313	232	0	0	187	191+	0	0	0	191+	191+	0	0	0	191+	191+
1083	83082401	228	0	0	190	191+	0	0	0	190	191+	0	0	0	190	191+
1084	83082413	260	0	0	192	194+	0	0	0	192	194+	0	0	0	192	194+
1085	83082501	192	0	0	191	193+	0	0	0	191	193+	0	0	0	191	193+
1086	83082513	192	0	0	192	193+	0	0	0	192	193+	0	0	0	192	193+
1087	83082601	192	0	0	193	192+	0	0	0	193	192+	0	0	0	193	192+
1088	83082613	192	0	0	193	192+	0	0	0	193	192+	0	0	0	193	192+
1089	83082701	199	0	0	190	192+	0	0	0	190	192+	0	0	0	190	192+
1090	83082713	199	0	0	190	190+	0	0	0	190	190+	0	0	0	190	190+
1091	83082801	190	0	0	190	186+	0	0	0	190	186+	0	0	0	190	186+
1092	83082813	190	0	0	185	186+	0	0	0	185	186+	0	0	0	185	186+
1093	83082901	0	0	0	184	186+	0	0	0	184	186+	0	0	0	184	186+
1094	83082913	0	0	0	182	186+	0	0	0	182	186+	0	0	0	182	186+
1095	83083001	181	0	0	182	184+	0	0	0	182	184+	0	0	0	182	184+
1096	83083013	180	0	0	184	184+	0	0	0	184	184+	0	0	0	184	184+
1097	83083101	182	0	0	181	184+	0	0	0	182	184+	0	0	0	182	184+
1098	83083113	181	0	0	182	186+	0	0	0	182	186+	0	0	0	182	186+
1099	830901101	181	0	0	181	186+	0	0	0	181	186+	0	0	0	181	186+
1100	830901113	0	0	0	182	188+	0	0	0	182	188+	0	0	0	182	188+
1101	83090201	0	0	0	180	188+	0	0	0	180	188+	0	0	0	180	188+
1102	83090213	181	0	0	184	189+	0	0	0	184	189+	0	0	0	184	189+
1103	83090301	181	0	0	184	189+	0	0	0	184	189+	0	0	0	184	189+
1104	83090313	185	0	0	188	190+	0	0	0	185	190+	0	0	0	185	190+
1105	83090401	188	0	0	185	190+	0	0	0	188	190+	0	0	0	188	190+
1106	83090413	224	0	0	184	189+	0	0	0	224	189+	0	0	0	184	189+
1107	83090501	186	0	0	185	186+	0	0	0	186	186+	0	0	0	186	186+
1108	83090513	197	0	0	190	186+	0	0	0	197	186+	0	0	0	190	186+
1109	83090601	181	0	0	206	186+	0	0	0	181	186+	0	0	0	206	186+
1110	83090613	0	0	0	170	185+	0	0	0	0	185+	0	0	0	170	185+
1111	83090701	0	0	0	180	188+	0	0	0	0	188+	0	0	0	180	188+
1112	83090713	181	0	0	181	188+	0	0	0	181	188+	0	0	0	181	188+
1113	83090801	182	0	0	186	188+	0	0	0	182	188+	0	0	0	186	188+
1114	83090813	189	0	0	190	192+	0	0	0	189	192+	0	0	0	190	192+
1115	83090901	191	0	0	190	192+	0	0	0	191	192+	0	0	0	190	192+
1116	83090913	191	0	0	191	193+	0	0	0	191	193+	0	0	0	191	193+
1117	83091001	188	0	0	0	193+	0	0	0	188	193+	0	0	0	0	193+
1118	83091013	204	0	0	0	183+	0	0	0	204	183+	0	0	0	0	183+
1119	83091101	233	0	0	0	183+	0	0	0	233	183+	0	0	0	0	183+
1120	83091113	0	0	0	0	180+	0	0	0	0	180+	0	0	0	0	180+
1121	83091201	0	0	0	0	180+	0	0	0	0	180+	0	0	0	0	180+
1122	83091213	0	0	0	0	190+	0	0	0	0	190+	0	0	0	0	190+
1123	83091301	318	0	0	0	190+	0	0	0	318	190+	0	0	0	0	190+
1124	83091313	0	0	0	0	193+	0	0	0	0	193+	0	0	0	0	193+
1125	83091401	193	0	0	0	193+	0	0	0	193	193+	0	0	0	0	193+
1126	83091413	193	0	0	0	193+	0	0	0	193	193+	0	0	0	0	193+
1127	83091501	0	0	0	0	194+	0	0	0	0	194+	0	0	0	0	194+
1128	83091513	0	0	0	0	194+	0	0	0	0	194+	0	0	0	0	194+
1129	83091601	0	0	0	0	193+	0	0	0	0	193+	0	0	0	0	193+
1130	83091613	0	0	0	0	193+	0	0	0	0	193+	0	0	0	0	193+
1131	83091701	0	0	0	0	190+	0	0	0	0	190+	0	0	0	0	190+
1132	83091713	0	0	0	0	190+	0	0	0	0	190+	0	0	0	0	190+
1133	83091801	0	0	0	0	191+	0	0	0	0	191+	0	0	0	0	191+
1134	83091813	0	0	0	0	191+	0	0	0	0	191+	0	0	0	0	191+
1135	83091901	0	0	0	0	191+	0	0	0	0	191+	0	0	0	0	191+
1136	83091913	0	0	0	0	193+	0	0	0	0	193+	0	0	0	0	193+
1137	83092001	0	0	0	0	279+	0	0	0	0	279+	0	0	0	0	279+
1138	83092013	0	0	0	0	279+	0	0	0	0	279+	0	0	0	0	279+
1139	83092101	0	0	0	212	279+	0	0	0	212	279+	0	0	0	0	279+
1140	83092113	0	0	0	200	279+	0	0	0	200	279+	0	0	0	0	279+

+ = VALUE CONTINUED, - = CONTINUATION  
A = 1 HOUR LATE, B = 2 HOURS LATE, ETC.  
(LATE START BEFORE VALUE, LATE END AFTER VALUE)

HISTOGRAM





APPENDIX C

ACURATE DATA TAPE

TAPE REQUESTS (Refer to ACURATE Data Tape)

E.I. DuPont & Co.  
Savannah River Laboratory  
Bldg. 733A-1011  
Aiken, SC 29801  
Attn: J.F. Schubert

TAPE CHARACTERISTICS

9 TRACK, 6250 BPI, NO LABEL, EBCDIC  
RECORD FORMAT = FB  
BLOCK SIZE = 8000

FILE 1; Source Emission

RECORD LENGTH = 80  
NUMBER OF RECORDS = 1158

RECORD (#)	[SPACE]	YEAR	MONTH	DAY	HOUR (GMT)	EMISSION RATES (CI/HR)
I4	IX	I2	I2	I2	I2	I2I4

FILE 2; Measured Concentrations

RECORD LENGTH = 80  
NUMBER OF RECORDS = 1158

RECORD (#)	[SPACE]	YEAR	MONTH	DAY	HOUR (GMT)	MEASURED CONCENTRATIONS (PCI/M <sup>3</sup> )	[MSG DATA] (0)
I4	IX	I2	I2	I2	I2	5(1X,A1,I3,A1)	

FILES 3-21; Savannah River Plant (SRP), Surface (SFC), and Upper Air (UA)  
 Station Meteorology (1 file per month)

RECORD LENGTH = 40

RECORD FORMAT

DATE/TIME [3-HOUR INTERVALS]	YEAR	MONTH	DAY	HOUR (GMT)	NUMBER OF SRP & SFC RECS	NUMBER OF UA RECS
	I2	I2	I2	I2	I4	I4

SRP	STA	LAT	LON	ELEV	WIND DIR	WIND SPD	WIND HORIZ STD DEV	WIND VERT STD DEV	[MSG DATA]
	(3-Ltr)	(100°N)	(100°W)	(M)	(DEG)	(0.1M/S)	(0.1DEG)	(0.1DEG)	(-99)
	A3	I5	I5	I5	I4	I4	I4	I4	

SFC	STA	LAT	LON	ELEV	PRESS	TEMP	DEW- POINT	WIND DIR	WIND SPD	[MSG DATA]
	(3-LTR)	(100°N)	(100°W)	(M)	(MB)	(0.1°C)	(0.1°C)	(DEG)	(0.1M/S)	(-99)
	A3	I5	I5	I5	I4	I5	I5	I4	I4	

UA ID	STA	LAT	LON	ELEV	NBR OF LVLS
	(3-LTR)	(100°N)	(100°W)	(M)	
	A3	I5	I5	I5	I3

UA LEVEL	PRESS	HGT	TEMP	DEW- POINT	WIND DIR	WIND SPD	[MSG DATA]
	(MB)	(M)	(0.1°C)	(0.1°C)	(DEG)	(0.1M/S)	(-99)
	I4	I5	I5	I5	I4	I4	

RECORD ORGANIZATION

DATE/TIME1  
 SRP  
 SFC 1  
 SFC 2  
 :  
 UA ID 1  
 UA LEVEL 1  
 UA LEVEL 2  
 :  
 UA ID 2  
 UA LEVEL 1  
 UA LEVEL 2  
 :  
 DATE/TIME 2  
 :

March 1985

Changes to:

NOAA Technical Memorandum ERL ARL-130

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ATLANTIC COAST UNIQUE REGIONAL ATMOSPHERIC TRACER EXPERIMENT

(ACURATE)

J.L. Heffter  
J.F. Schubert  
G.A. Mead

Air Resources Laboratory  
Rockville, Maryland  
October 1984

### 4.3 Upper-Air Meteorological Data

Four times-daily (00, 06, 12, and 18 GMT) upper-air data were taken from reports at NWS upper-air stations (see Fig.5) although most of the stations report only at 00 and 12 GMT. The data consist of pressure, height, temperature, dewpoint, wind direction, and wind speed at the mandatory and significant reporting levels.

FILE 3 through FILE 21 on the ACURATE data tape are the archived surface meteorology data (see Appendix C). Each file contains one month of data. The date/time records are at 3-hour intervals (00, 03, 06 GMT, etc.). It should be noted that the first record after each date/time sequence is from the SRP giving local wind data at 62 m in height. Missing data within a record are coded -99.

FILE 22 through FILE 40 are the archived upper-air meteorological data (see Appendix C). Each file contains one month of data. The date/time records are at 6-hour intervals (00, 06, 12, and 18 GMT). Since most of the stations report only at 00 and 12 GMT, the 06 and 18 GMT data/time records often have the number of reports and number of records equal to 0.



TAPE REQUESTS (Refer to ACURATE Data Tape)

E.I. DuPont & Co.  
 Savannah River Laboratory  
 Bldg. 733A-1011  
 Aiken, SC 29801  
 Attn: J.F. Schubert

TAPE CHARACTERISTICS

9 TRACK, 6250 BPI, NO LABEL, EBCDIC  
 RECORD FORMAT = FB  
 BLOCK SIZE = 8000 (FILES 1-21)  
               = 2500 (FILES 22-40)

FILE 1; Source Emission

RECORD LENGTH = 80  
 NUMBER OF RECORDS = 1158

RECORD	[SPACE]	YEAR	MONTH	DAY	HOUR	EMISSION RATES
(#)					(GMT)	(CI/HR)
I4	IX	I2	I2	I2	I2	I2I4

FILE 2; Measured Concentrations

RECORD LENGTH = 80  
 NUMBER OF RECORDS = 1158

RECORD	[SPACE]	YEAR	MONTH	DAY	HOUR	MEASURED CONCENTRATIONS	[MSG DATA]
(#)					(GMT)	(PCI/M <sup>3</sup> )	(0)
I4	IX	I2	I2	I2	I2	5(IX,A1,I3,A1)	

FILES 3-21; Savannah River Plant (SRP) and Surface (SFC)  
Station Meteorology (1 file per month)

RECORD LENGTH = 40

RECORD FORMAT

DATE/TIME [3-HOUR INTERVALS]	YEAR	MONTH	DAY	HOUR (GMT)	NUMBER OF SRP & SFC RECS
	I2	I2	I2	I2	I4

SRP	STA	LAT	LON	ELEV	WIND DIR	WIND SPD	WIND HORIZ STD DEV	WIND VERT STD DEV	[MSG DATA]
	(3-LTR)	(100°N)	(100°W)	(M)	(DEG)	(0.1M/S)	(0.1DEG)	(0.1DEG)	(-99)
	A3	I5	I5	I5	I4	I4	I4	I4	

SFC	STA	LAT	LON	ELEV	PRESS	TEMP	DEW- POINT	WIND DIR	WIND SPD	[MSG DATA]
	(3-LTR)	(100°N)	(100°W)	(M)	(MB)	(0.1°C)	(0.1°C)	(DEG)	(0.1M/S)	(-99)
	A3	I5	I5	I5	I4	I5	I5	I4	I4	

RECORD ORGANIZATION

DATE/TIME1  
SRP  
SFC 1  
SFC 2  
:  
DATE/TIME 2  
SRP  
SFC 1  
SFC 2  
:

FILES 22-40 Upper Air Meteorology (1 file per month)

RECORD LENGTH = 25

RECORD FORMAT

DATE/TIME [6-HOUR INTERVALS]	YEAR	MONTH	DAY	HOUR (GMT)	NUMBER OF REPORTS	NUMBER OF RECS	CODE
	I2	I2	I2	I2	I4	I5	I2

1=WINDS  
2=TEMPS

ID	BLOCK STATION	LAT (100°N)	LON (100°W)	ELEV (M)	NUMBER OF LEVELS
	I5	I5	I6	I4	I3

WIND	HT (M)	DIR (DEG)	SPD (0.1M/S)
	I4	I4	I5

TEMP	HT (M)	PRESS (MB)	TEMP (0.1°K)	DEWPT (0.1°K)
	I4	I4	I5	I5

RECORD ORGANIZATION

DATE/TIME1 (CODE=1,WINDS)

ID1  
WIND1  
WIND2

:

ID2  
WIND1  
WIND2

:

DATE/TIME1 (CODE=2,TEMPS)

ID1  
TEMP1  
TEMP2

:

ID2  
TEMP1  
TEMP2

:

DATE/TIME2 (CODE=1,WINDS)

: