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TOTAL EXPOSURE ASSESSMENT METHODOLOGY (TEAM) STUDY: ELIZABETH AND BAYONNE, NEW JERSEY, DEVILS LAKE, NORTH DAKOTA AND GREENSBORO, NORTH CAROLINA

VOLUME II (SECTION 8 AND REFERENCES)

FINAL REPORT

PART II

by

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EPA

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SECTION 8

STATISTICAL ANALYSIS OF DATA

NORTHERN NEW JERSEY

This section gives the statistical analysis for the three seasons (fall, summer and winter) of data collected in Bayonne and Elizabeth, New Jersey. Each season is analyzed separately followed by analysis of Devils Lake, North Dakota and Greensboro, North Carolina. The three seasons of New Jersey are then compared.

First Season

A description of the 362 people studied in Bayonne and Elizabeth in the first season is given by the results of the Household Questionnaire (see Table 143). Slightly more than half (50.6%) were male. The age range was from 5 to 89 years of age. About 56% were employed, 16% were housewives, 15% were students and 5% were retired. About 46% were current smokers and 17% were former smokers. The vast majority of smokers used cigarettes. Fifty-one people listed painting as a hobby and nine listed it as an occupation. About 74% had window air conditioners and about 95% had gas stoves.

The results of the 24-hour activity screener are given in Table 144. More people were exposed to tobacco (45%) or smoke (60%), service stations or garages (19%), odorous chemicals (23%), high dust or particulate levels (17%), auto or truck exhaust (17%), and cleaning solutions (26%) during the study period than any other substances covered by the screener.

Table 145 presents a summary of the sample sizes available for the twenty-two volatile compounds collected in environmental and breath samples for Bayonne and Elizabeth, New Jersey, for statistical analysis of the TEAM First Season Pilot Study. The table shows variation in the sample sizes by media and by compound. This indicates that not all information was collected on each person in the sample. While the ranges of sample sizes for personal air were relatively small over compounds, those for breath and water were relatively large. Also, as described earlier, the sample sizes for outdoor fixed-site were much smaller than those of the other media.

Table 143. HOUSEHOLD QUESTIONNAIRE - NEW JERSEY

Q.1	SEX	Male	183
		Female	179
			362

Q.2	RACE	Hispanic	60
		Black - Not Hispanic	44
		Asian/Pacific Islander	1
		White - Not Hispanic	249
		Other	2
			356

Q.3	AGE	5 - 17	54
		18 - 29	100
		30 - 39	76
		40 - 49	40
		50 - 59	44
		60 - 69	36
		70 - 79	9
		80 - 89	2
			361

Q.4	Employed	203
	Unemployed	159
		362

Q.8 Length of Time With Present Employer

Less Than 1 Year	44
1 - 5 Years	71
6 - 10 Years	36
11 - 15 Years	21
16 - 20 Years	5
21 - 25 Years	11
26 - 30 Years	6
31 - 35 Years	5
36 - 40 Years	3
	202

Q.9 Percent of Time Employment Puts You In Close Contact With Smokers.

0 - 9	38
10 - 19	29
20 - 29	14
30 - 39	7
40 - 49	5
50 - 59	15
60 - 69	6
70 - 79	7
80 - 89	6
90 - 99	74
	201

continued

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Table 143 (continued)

Q.10 Does Your Occupation Usually Take You Away From Home?

Yes	190
No	11
	201

Q.12 Status If Not Presently Employed.

Housewife	57
Student	55
Unemployed	22
Retired	19
Disabled	5
	158

Q.14 Presently Employed At Usual Occupation.

Yes	200
No	38
	238

Q.15 How Long Employed At Usual Occupation.

Less Than 1 Year	46
1 - 5	70
6 - 10	30
11 - 15	16
16 - 20	13
21 - 25	9
26 - 30	6
31 - 35	6
36 - 40	4
	200

Q.16 Do You Work In Or At Any Of The Following Occupations Or Establishments?

Painting	9
Dry Cleaning	0
Chemical Plant	20
Petroleum Plant	14
Service Station/Garage/Engine Repair	12
Furniture Repair or Refinishing	2
Plastics Manufacture or Formulation	16
Textile Mill	1
Wood Processing Plant	1
Printing	4
Scientific Laboratory	4
Dye Plant	2
Hospital	6
Metal Products	7
Battery or Electrical Components Manufacture	2
Refrigerator/Air Cond. Repair or Manufacture	1
Taxi/Bus/Truck Driver	15
Pest Control	0
Drug Manufacturing or Formulating	4
Photo Developing	1
Landscaping/Gardening	2

continued

Table 143 (continued)

Q.17 Does Anyone Else In Your Household Work At Or In Any Of The Following Occupations Or Establishments?

Painting	10
Dry Cleaning	1
Chemical Plant	14
Petroleum Plant	8
Service Station/Garage/Engine Repair	9
Furniture Repair or Refinishing	1
Plastics Manufacture or Formulation	7
Textile Mill	5
Wood Processing Plant	0
Printing	4
Scientific Laboratory	3
Dye Plant	1
Hospital	7
Metal Products	21
Battery or Electrical Components Manufacture	4
Refrigerator/Air Cond. Repair or Manufacture	1
Taxi/Bus/Truck Driver	11
Pest Control	0
Drug Manufacturing or Formulating	8
Photo Developing	1
Landscaping/Gardening	0

Q.18 Average Number Of Hours Normally Spent Away From Home.

Weekday	0 - 3	61
	4 - 7	64
	8 - 11	169
	12 - 15	56
	16 - 19	6
	20 - 24	4
		360
Weekend	0 - 3	94
	4 - 7	122
	8 - 11	86
	12 - 15	33
	16 - 19	9
	20 - 24	16
		360

Q.20 Do You Now Or Have You Ever Smoked Cigarettes?

Yes	228
No	134
	362

continued

Table 143 (continued)

Q.21 Age When First Started Smoking.

5 - 9	5
10 - 14	56
15 - 19	131
20 - 24	26
25 - 29	6
30 - 39	1
40 - 49	2
	227

Q.22 If You No Longer Smoke, How Old Were You When You Last Gave Up Smoking?

10 - 14	2
15 - 19	9
20 - 24	12
25 - 29	9
30 - 34	8
35 - 39	4
40 - 44	2
45 - 49	5
50 - 54	5
55 - 59	3
60 - 64	1
	60

Q.23 How Many Cigarettes Smoked Per Day?

1 - 4	26
5 - 14	46
15 - 24	74
25 - 34	45
35 - 49	27
50 or More	10
	228

Q.24 Use Other Forms of Tobacco.

Cigars	9
Snuff	0
Chewing Tobacco	3
Pipe	5
Other	0

Q.25 Does Anyone Else In Your Household Smoke?

Yes	196
No	165
	361

continued

Table 143 (continued)

Number of Smokers.	
1	132
2	34
3	12
4	3
5	4
6	1
7	1

Cigarettes	187
Cigars	4
Pipe	6

Q.26 Pump Own Gas.

Yes	26
No	335
	361

Q.27 Do Your Own Dry Cleaning

Yes	5
No	357
	362

Q.28 Do You Pursue Any Of The Following Hobbies?

Furniture Refinishing	15
Painting	51
Scale Models	7
Gardening	68

Q.29 Does Anyone Else In Your Household Pursue Any Of The Following Hobbies?

Painting	37
Furniture Refinishing	15
Scale Models	7
Gardening	68

Q.30 Do You Work With Or Use Insecticides, Pesticides, or Herbicides, As In Farming, Gardening, Or Extermination?

Yes	47
No	315
	362

How Often?	Rarely	22
	Occasionally	17
	Often	7
		46

continued

Table 143 (continued)

How Often Do You Have Your House Treated For Pests?

Never	200
Weekly	6
Monthly	84
Yearly	72
	362

Q.31 What Do You Consider Your Current Physical Condition?

Excellent	106
Good	201
Fair	53
Poor	2
	362

Q.32 Currently Taking Any Prescription Medication(s) On A Regular Daily Basis?

Yes	79
No	282
	361

Q.33 Have You Taken Any Non-Prescription Medications In The Past 48 Hours?

Yes	140
No	217
	357

Q.34 Are You Presently Under A Doctor's Care?

Yes	59
No	302
	361

Q.35 Are You Presently Suffering From Any Respiratory Problems?

Yes	68
No	288
	356

Q.36 Which Of The Following Conditions Have You Ever Been Treated For?

Anemia	40
Liver Disease	4
Kidney Disease	11

Q.37 How Would You Rate Your General Recreation/Exercise Activity Pattern?

Heavy	53
Light	227
Sedentary	82
	362

continued

Table 143 (continued)

Q.38 How Would You Rate Your Activity On The Job?

Heavy Physical Activity	65
Light Physical Activity	107
Sedentary	34
Not Applicable	156
	362

Q.43 How Many Years Have You Lived In This Area?

1 - 10	150
11 - 20	84
21 - 30	56
31 - 40	28
41 - 50	20
51 - 60	13
61 - 70	9
71 - 74	1
	361

Q.44 How Long Have You Lived At Your Current Address?

1 - 9	218
10 - 19	85
20 - 29	34
30 - 39	11
40 - 49	2
50 - 59	3
60 - 69	1
	354

Q.45 Do You Cool Your Home With Any Of The Following Appliances?

Central Air Conditioning	14
Window Air Conditioning	267
Evaporative Cooler(s)	2
Window Fan(s)	100
Ceiling Exhaust Fan(s)	15
Circulating Fan(s)	72

Q.46 Do You Have Any Of The Following Appliances?

Gas Stove	342
Electric Oven	28
Gas Furnace	161
Oil Heat	182

Table 144. 24-HOUR EXPOSURE AND ACTIVITY SCREENER - NEW JERSEY FIRST SEASON

Frequencies of 24-Hour Screener

1.	Have you pumped your own gas in the past 24 hours?	Yes	9
		No	352
			361
2.	Have you been to a dry cleaning establishment in the past 24 hours?	Yes	9
		No	352
			361
3.	Have you done your own dry cleaning in the past 24 hours?	Yes	3
		No	357
			360
4.	Have you used tobacco in any form in the past 24 hours?	Yes	161
		No	199
			360
5.	Have you remained in close contact with smokers for extended periods?	Yes	215
		No	144
			359
6.	Have you used or worked with insecticides, pesticides, or herbicides in any way including farming, gardening, and extermination in the past 24 hours?	Yes	20
		No	341
			361
8.	Have you been swimming in the past 24 hours?	Yes	1
		No	360
			361

9. Have you worked at any of the following occupations or been in any of the following businesses?	Past Week	%	Past 24 Hours	%
Painting	58	16	27	7
Dry Cleaning	35	10	13	4
Chemical Plant	37	10	21	6
Petroleum Plant	19	5	9	2
Service Station/Garage/Engine Repair	154	43	67	19
Furniture Refinishing or Repair	10	3	7	2
Plastics Manufacture or Formulation	15	4	11	3
Textile Mill	6	2	5	1
Wood Processing Plant	8	2	6	2
Printing	17	5	9	2
Scientific Laboratory	18	5	14	4
Dye Plant	4	1	4	1
Hospital	38	11	13	4
Metal Work/Smelters	22	6	17	5

continued

Table 144 (continued)

10. Have you been exposed to any of the following?	Past Week	%	Past 24 Hours	%
Solvents	79	22	37	10
Odorous Chemicals	162	45	83	23
Toxic or Hazardous Chemicals	49	14	27	7
High Dust or Particulate Levels	87	24	63	17
Auto/Truck Exhausts	93	26	62	17
Cleaning Solutions	165	46	94	26
Degreasing Compounds	39	11	19	5
Other	28	8	19	5

000046

NOTES TO TABLES 145 TO 242

1. Toluene was not measured in breath, overnight and daytime personal air or overnight and daytime fixed site outdoor air. Dibromochloropropane, o-dichlorobenzene, and o-xylene were not measured in water.

2. Sample size indicates the number of individual samples. The minimum and maximum sample size indicate that not all compounds always had a value for every individual sampled.

3 Field samples and duplicate measurements were averaged before the percentages were computed.

4. Proximity to point source:
   Low = more than 1.5 kilometers from a point source,
   High = within 1.5 kilometers of at least one point source,
   Moderate = bordering on high exposure areas and intersected by major highways.

5. Percentages in the tables are population estimates (i.e., they are weighted statistics). The estimated population is for persons living in Bayonne or Elizabeth excluding those on military reservations or living in group quarters, people under seven years of age, the mentally or physically incompetent (including many people over 65), and those who changed key categories during the start-up of the study (i.e., those who went from smoker to non-smoker, changed occupational exposure status, etc.).

6. Measurable is defined as above the quantifiable limit. All concentration data is considered significant to two figures.

7. Approximate population sizes vary due to differences in sample sizes.

8. Team first season is August through November of 1981.

9. To calculate an estimate of a 95% confidence interval for the geometric mean, the upper limit would be (geo. mean) x (geo. s.e.)^2 and the lower limit would be (geo. mean) ÷ (geo. s.e.)^2, where geo. mean is the geometric mean and geo. s.e. is the geometric standard error. To obtain a more accurate estimate use 1.96 instead of 2.

000047

Table 145. DATA AVAILABLE FOR STATISTICAL ANALYSIS BY MEDIA
NEW JERSEY FIRST SEASON

Media	Sample Size Ranges a/		
	Bayonne	Elizabeth	Combined
Breath	119-144	176-196	295-339
Overnight Personal Air	147-149	197-199	346-348
Daytime Personal Air	142-143	196-198	339-341
Overnight Fixed Site Outdoor Air	27-31	54-55	81-86
Daytime Fixed Site Outdoor Air	29-33	56-57	86-90
Water	118-153	147-201	265-354

a/ For 22 volatile organics.

000048

Creating the Computer Analysis File

Before statistical analysis could be undertaken, several manipulations were necessary to process the data collected and create computer analysis files. First, a few observations were deleted because it was deemed by chemists that the data was questionable. Second, the water samples collected at two different time periods were averaged. Third, because of the difficulty of maintaining sufficient GC resolution for each pair of chemicals, the quantitative values of m-dichlorobenzene and p-dichlorobenzene as well as m-xylene and p-xylene were combined to give one total number for m,p-dichlorobenzene and one for m,p-xylene. In this manner all samples could be more readily compared. Thus, analysis was done on 20 volatile compounds. Fourth, values below the level of detection (LOD) were set equal to 1/2 LOD and values at trace were set equal to 5/8 QL (quantifiable limit) where 5/8 QL was the midpoint between the LOD and the QL. For water there was no LOD category. Finally, duplicate samples were averaged. The max QL for a particular media and compound was then defined as the maximum of the individual quantifiable limits for each sample.

The calculated sampling weights described in Section 4 were adjusted to compensate for missing data. This adjustment was done by weight class per compound per media. The adjustment factors were calculated by obtaining the total weight for all observations within a weight class, then dividing by the total weight for all observations where concentration information was obtained and not missing. The original weight of the observation was then multiplied by the adjustment factor.

$$\text{adjusted weight} = \frac{\text{original weight x total weight per weight class}}{\text{total weight per weight class excluding those with missing data.}}$$

The population of inference was estimated to include 128,603 individuals. Unless otherwise stated, all results apply to this population or a specified subgroup of this population.

Quantifiable Limits

Before presenting percents measurable and summary statistics, the quantifiable limits for the various compounds and media were examined. The purpose of this examination was to indicate how these limits varied for each compound.

Tables 146 through 151 show by medium and compound the minimum of the range of quantifiable limits (min QL), the maximum of the range of quantifiable limits (max QL), ratios of max QL to min QL (R1), weighted percentages above max QL, weighted percentages measurable, and ratios of percentage measurable to percentage above max QL (R2). For some compounds, the range between max QL and min QL was quite large as demonstrated by R1. Excluding dibromochloropropane which had a very large difference, R1 for breath had a range from 5 to 27, for overnight personal air the range was from 3 to 44, for daytime personal air the range was from 4 to 44, for overnight outdoor air the range was from 2 to 70, and for daytime outdoor air from 5 to 32. As another indication of the variation in the quantifiable limits there were several large differences between percentage measurable and percentage above max QL (R2). For breath, R2 ranged from 1 to 141 (1 to 27 excluding styrene); for overnight personal air from 1 to 109 (1 to 11 excluding chlorobenzene); for daytime personal air from 1 to 7; for overnight outdoor air from 1 to 98 (1 to 55 excluding chloroform); for daytime outdoor air from 1 to 8. Thus, for breath and air the range in the QLs was quite large for the various compound. For water, since there was very little variation in the QLs, there was very little difference in the percentage measurable and percentage above max QL.

Weighted Percent Measurable

Table 152 shows the weighted percentage of compounds measurable (above the quantifiable limit) for breath, water, overnight personal air, daytime personal air, overnight outdoor (fixed-site) air, and daytime outdoor (fixed-site) air samples for 20 compounds.

In general, of the compounds analyzed, 1,2-dichloroethane, bromodichloromethane, dibromochloromethane, chlorobenzene, bromoform, dibromochloropropane, and o-dichlorobenzene had low percentages in air and breath (see Table 153) while 1,2-dichloroethane, benzene, carbon tetrachloride, chlorobenzene, bromoform, styrene, ethylbenzene, m,p-dichlorobenzene, and m,p-xylene were low in water. Generally, for breath, personal air, and outdoor air, the percentages by compound were approximately the same while the percentages by compound were often very different for water (e.g., benzene). For 1,1,1-trichloroethane, benzene, tetrachloroethylene, ethylbenzene, o-xylene, and m,p-xylene, the

Table 146. SUMMARY OF QUANTIFIABLE LIMITS AND PERCENT MEASURABLE FOR BREATH SAMPLES ($\mu g/m^3$)
NEW JERSEY FIRST SEASON

Estimated Population Size: 128,608
Minimum Sample Size: 295
Maximum Sample Size: 339

Compound	Minimum Quantifiable Limit	Maximum Quantifiable Limit	R1 Ratio Max QL* / Min QL**	Percent Above Maximum Quantifiable Limit	Percent Measurable	R2 Ratio % Measurable / % Above Max QL*
Vinylidene Chloride[a/]	4.00	56.0	14.0	1.77	12.0	6.78
Chloroform	0.28	4.30	15.4	20.4	60.2	2.95
1,2-Dichloroethane	0.40	6.40	16.2	0.00	2.75	---
1,1,1-Trichloroethane	0.43	6.80	15.8	48.3	80.0	1.65
Benzene	0.19	5.20	27.1	73.1	89.2	1.22
Carbon Tetrachloride	0.38	6.40	17.0	1.14	19.9	17.4
Trichloroethylene	0.62	9.90	16.0	2.98	28.5	9.57
Bromodichloromethane	0.76	13.2	17.4	0.00	0.12	---
Dibromochloromethane	1.28	6.80	5.31	0.00	0.00	---
Tetrachloroethylene	0.96	5.00	5.21	65.4	93.4	1.43
Chlorobenzene	0.35	2.64	7.46	0.11	2.93	26.6
Bromoform	1.48	14.4	9.73	0.00	0.00	---
Dibromochloropropane	1.48	144	97.3	0.00	0.00	---
Styrene	0.39	8.90	22.8	0.33	46.5	141
m,p-Dichlorobenzene	0.58	11.6	20.0	13.0	60.5	4.65
o-Dichlorobenzene	0.41	10.4	25.6	1.18	2.32	1.97
Ethylbenzene	0.19	2.20	11.7	61.4	93.2	1.52
o-Xylene	0.34	2.50	7.27	45.2	83.2	1.84
m,p-Xylene	0.38	2.28	5.94	83.2	95.5	1.15

* Max QL = Maximum Quantifiable Limit
** Min QL = Minimum Quantifiable Limit
a/ Has a low breakthrough volume.

000051

Table 147. SUMMARY OF QUANTIFIABLE LIMITS AND PERCENT MEASURABLE FOR OVERNIGHT PERSONAL AIR SAMPLES ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 346
Maximum Sample Size: 348

Compound	Minimum Quantifiable Limit	Maximum Quantifiable Limit	R1 Ratio Max QL* / Min QL**	Percent Above Maximum Quantifiable Limit	Percent Measurable	R2 Ratio % Measurable / % Above Max QL*
Vinylidene Chloride[a/]	5.20	244.	46.9	0.00	2.92	---
Chloroform	0.52	14.8	28.5	11.1	57.6	5.20
1,2-Dichloroethane	0.29	12.8	43.8	1.71	3.39	1.98
1,1,1-Trichloroethane	2.92	32.8	11.2	27.3	79.5	2.91
Benzene	0.15	1.04	6.84	94.0	95.1	1.01
Carbon Tetrachloride	0.60	5.60	9.33	11.1	31.3	2.82
Trichloroethylene	0.88	5.20	5.90	21.7	51.4	2.37
Bromodichloromethane	0.48	9.20	19.2	0.18	1.91	10.6
Dibromochloromethane	0.47	5.60	11.8	0.00	0.00	---
Tetrachloroethylene	0.64	3.10	4.84	77.1	92.2	1.20
Chlorobenzene	0.34	3.44	10.3	0.08	8.74	109.
Bromoform	1.01	14.4	14.3	0.00	0.00	---
Dibromochloropropane	0.78	116.	149.	0.00	0.78	---
Styrene	0.39	4.10	10.5	13.8	82.6	6.00
m,p-Dichlorobenzene	0.57	8.60	15.1	31.4	81.5	2.60
o-Dichlorobenzene	0.33	8.80	27.0	0.75	7.15	9.53
Ethylbenzene	0.77	7.00	9.09	45.7	93.4	2.04
o-Xylene	0.92	7.00	7.61	30.8	86.9	2.83
m,p-Xylene	1.64	5.10	3.11	89.2	98.9	1.11

* Max QL = Maximum Quantifiable Limit
** Min QL = Minimum Quantifiable Limit
a/ Has a low breakthrough volume.

000052

Table 148. SUMMARY OF QUANTIFIABLE LIMITS AND PERCENT MEASURABLE FOR DAYTIME PERSONAL AIR SAMPLES ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 339
Maximum Sample Size: 341

Compound	Minimum Quantifiable Limit	Maximum Quantifiable Limit	R1 Ratio Max QL* / Min QL**	Percent Above Maximum Quantifiable Limit	Percent Measurable	R2 Ratio % Measurable / % Above Max QL*
Vinylidene Chloride[a/]	5.20	236.	45.4	2.44	5.98	2.45
Chloroform	0.58	23.6	41.0	6.25	42.5	6.80
1,2-Dichloroethane	0.40	17.6	44.0	0.62	2.91	4.69
1,1,1-Trichloroethane	1.20	46.0	38.3	25.0	73.2	2.93
Benzene	0.20	2.60	13.3	86.4	90.6	1.05
Carbon Tetrachloride	0.52	8.80	16.9	6.07	23.7	3.91
Trichloroethylene	1.11	9.20	8.27	19.3	45.6	2.36
Bromodichloromethane	0.72	14.0	19.4	0.00	1.56	---
Dibromochloromethane	1.10	7.20	6.55	0.00	0.00	---
Tetrachloroethylene	0.62	5.70	9.19	62.1	88.8	1.43
Chlorobenzene	0.49	5.20	10.6	0.00	4.40	---
Bromoform	1.52	16.0	10.5	0.00	0.00	---
Dibromochloropropane	1.20	176.	147.	0.00	0.00	---
Styrene	0.55	4.40	8.00	18.2	77.4	4.29
m,p-Dichlorobenzene	0.59	13.0	22.0	23.7	75.6	3.19
o-Dichlorobenzene	0.39	11.6	29.5	3.25	8.66	2.66
Ethylbenzene	0.34	9.10	26.8	42.2	88.8	2.10
o-Xylene	0.66	12.0	18.2	23.5	82.4	3.51
m,p-Xylene	2.00	8.00	4.00	82.1	98.3	1.20

* Max QL = Maximum Quantifiable Limit
** Min QL = Minimum Quantifiable Limit
a/ Has a low breakthrough volume.

Table 149. SUMMARY OF QUANTIFIABLE LIMITS AND PERCENT MEASURABLE FOR OVERNIGHT OUTDOOR AIR SAMPLES ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 81
Maximum Sample Size: 86

Compound	Minimum Quantifiable Limit	Maximum Quantifiable Limit	R1 Ratio Max QL* / Min QL**	Percent Above Maximum Quantifiable Limit	Percent Measurable	R2 Ratio % Measurable / % Above Max QL*
Vinylidene Chloride[a/]	2.88	48.0	16.7	1.26	1.26	1.00
Chloroform	0.26	10.0	38.5	0.46	45.0	97.9
1,2-Dichloroethane	0.40	14.8	37.4	0.00	3.88	---
1,1,1-Trichloroethane	0.38	12.0	31.9	8.47	85.2	10.0
Benzene	0.30	3.00	9.87	69.5	89.5	1.29
Carbon Tetrachloride	0.26	3.40	13.1	2.95	53.3	18.1
Trichloroethylene	0.49	12.6	25.7	0.95	52.6	55.4
Bromodichloromethane	0.68	36.8	54.1	0.00	0.09	---
Dibromochloromethane	0.92	15.2	16.5	0.00	0.00	---
Tetrachloroethylene	0.17	4.80	28.2	21.7	80.5	3.70
Chlorobenzene	0.14	7.70	55.0	0.00	1.97	---
Bromoform	1.32	18.4	13.9	0.00	0.00	---
Dibromochloropropane	1.68	60.0	35.7	0.00	0.00	---
Styrene	0.25	6.00	23.6	0.52	32.0	61.5
m,p-Dichlorobenzene	0.48	13.2	27.5	0.00	42.6	---
o-Dichlorobenzene	0.25	17.6	69.6	0.00	0.53	---
Ethylbenzene	0.18	2.70	15.0	53.6	88.5	1.65
o-Xylene	0.62	3.70	5.97	42.1	80.4	1.91
m,p-Xylene	0.62	1.10	1.77	98.2	98.2	1.00

* Max QL = Maximum Quantifiable Limit
** Min QL = Minimum Quantifiable Limit
a/ Has a low breakthrough volume.

Table 150. SUMMARY OF QUANTIFIABLE LIMITS AND PERCENT MEASURABLE FOR DAYTIME OUTDOOR AIR SAMPLES ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 86
Maximum Sample Size: 90

Compound	Minimum Quantifiable Limit	Maximum Quantifiable Limit	R1 Ratio Max QL* / Min QL**	Percent Above Maximum Quantifiable Limit	Percent Measurable	R2 Ratio % Measurable / % Above Max QL*
Vinylidene Chloride[a/]	3.44	31.6	9.19	0.35	0.35	1.00
Chloroform	0.35	7.54	21.4	4.45	35.5	7.98
1,2-Dichloroethane	0.48	10.0	20.8	0.00	3.33	---
1,1,1-Trichloroethane	0.40	3.90	9.75	55.2	81.4	1.47
Benzene	0.38	5.60	14.7	55.0	74.6	1.36
Carbon Tetrachloride	0.32	2.90	9.01	3.52	49.0	13.9
Trichloroethylene	0.47	12.4	26.7	0.00	45.8	---
Bromodichloromethane	0.78	27.8	35.6	0.00	0.00	---
Dibromochloromethane	0.95	12.2	12.8	0.00	0.00	---
Tetrachloroethylene	0.48	2.60	5.45	68.5	81.0	1.81
Chlorobenzene	0.19	4.36	23.2	0.00	3.73	---
Bromoform	1.60	14.6	9.13	0.00	0.00	---
Dibromochloropropane	2.28	100.	43.9	0.00	0.00	---
Styrene	0.40	9.60	24.1	0.00	16.9	---
m,p-Dichlorobenzene	0.48	5.60	11.7	4.82	22.6	4.70
o-Dichlorobenzene	0.45	14.6	32.7	0.00	1.16	---
Ethylbenzene	0.19	2.60	13.7	60.8	80.4	1.32
o-Xylene	0.47	3.20	6.81	49.1	72.7	1.48
m,p-Xylene	0.60	2.90	4.83	78.9	88.9	1.13

* Max QL = Maximum Quantifiable Limit
** Min QL = Minimum Quantifiable Limit
a/ Has a low breakthrough volume.

Table 151. SUMMARY OF QUANTIFIABLE LIMITS AND PERCENT MEASURABLE FOR WATER SAMPLES (ng/mL) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 265
Maximum Sample Size: 354

Compound	Minimum Quantifiable Limit	Maximum Quantifiable Limit	R1 Ratio Max QL* / Min QL**	Percent Above Maximum Quantifiable Limit	Percent Measurable	R2 Ratio % Measurable / % Above Max QL*
Vinylidene Chloride	0.05	0.05	1.00	40.0	40.0	1.00
Chloroform	0.05	0.05	1.00	99.8	99.8	1.00
1,2-Dichloroethane	0.50	0.50	1.00	0.52	0.52	1.00
1,1,1-Trichloroethane	0.05	0.05	1.00	45.6	45.6	1.00
Benzene	0.50	0.50	1.00	0.16	0.16	1.00
Carbon Tetrachloride	0.05	0.05	1.00	5.83	5.86	1.01
Trichloroethylene	0.05	0.28	5.50	40.1	51.4	1.28
Bromodichloromethane	0.10	0.10	1.00	99.7	99.7	1.00
Dibromochloromethane	0.10	0.10	1.00	99.7	99.7	1.00
Toluene	0.50	0.50	1.00	12.8	15.8	1.23
Tetrachloroethylene	0.05	0.05	1.00	52.8	53.1	1.01
Chlorobenzene	0.10	0.20	2.00	0.00	0.86	---
Bromoform	0.50	0.50	1.00	2.37	2.37	1.00
Styrene	0.50	0.50	1.00	0.00	0.00	---
m,p-Dichlorobenzene	0.10	0.10	1.00	2.18	2.26	1.04
Ethylbenzene	0.50	0.50	1.00	0.00	0.00	---
m,p-Xylene	0.50	0.50	1.00	0.00	0.00	---

* Max QL = Maximum Quantifiable Limit
** Min QL = Minimum Quantifiable Limit

000056

Table 152. WEIGHTED PERCENTAGE OF POPULATION WITH COMPOUND CONCENTRATIONS MEASURABLE BY MEDIA - NEW JERSEY FIRST SEASON

	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air	Water
Estimated Population Size:	128,603	128,603	128,603	128,603	128,603	128,603
Minimum Sample Size:	295	346	339	81	86	265
Maximum Sample Size:	339	348	341	86	90	354
Vinylidene Chloride	12.0	2.92	5.98	1.26	0.35	40.0
Chloroform	60.2	57.6 *	42.5	45.0	35.5	99.8
1,2-Dichloroethane	2.75	3.39	2.91	3.88	3.33	0.52
1,1,1-Trichloroethane	80.0	79.5 *	73.2	85.2	81.4	45.6
Benzene	89.2	95.1	90.6	89.5 *	74.6	0.16
Carbon Tetrachloride	19.9	31.3	23.7	53.3	49.0	5.86
Trichloroethylene	28.5	51.4	45.6	52.6	45.8	51.4
Bromodichloromethane	0.12	1.91	1.56	0.09	0.00	99.7
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	99.7
Toluene	---	---	---	---	---	15.8
Tetrachloroethylene	93.4	92.2	88.8	80.5	81.0	53.1
Chlorobenzene	2.93	8.74	4.40	1.97	3.73	0.86
Bromoform	0.00	0.00	0.00	0.00	0.00	2.37
Dibromochloropropane	0.00	0.78	0.00	0.00	0.00	---
Styrene	46.5	82.6	77.4	32.0 *	16.9	0.00
m,p-Dichlorobenzene (isomers)	60.5	81.5	75.6	42.6 *	22.6	2.26
o-Dichlorobenzene	2.32	7.15	8.66	0.53	1.16	---
Ethylbenzene	93.2	93.4 *	88.8	88.5	80.4	0.00
o-Xylene	83.2	86.9 *	82.4	80.4	72.7	---
m,p-Xylene (isomers)	95.5	98.9	98.3	98.2	88.9	0.00

---- = not measured.

* = T-test for difference between overnight and daytime percentages significant at .05 level.

000057

Table 153. TARGET COMPOUNDS SORTED BY PERCENT MEASURABLE IN AIR AND BREATH SAMPLES - NEW JERSEY FIRST SEASON

	Range of % Measurable
UBIQUITOUS COMPOUNDS a/	
m,p-Xylene	89 - 99
Tetrachloroethylene	80 - 93
Ethylbenzene	80 - 93
Benzene	75 - 95
1,1,1-Trichloroethane	73 - 85
o-Xylene	73 - 87
OFTEN PRESENT	
Chloroform	36 - 60
Carbon Tetrachloride	20 - 53
Trichloroethylene	29 - 53
Styrene	17 - 83
m,p-Dichlorobenzene	23 - 76
OCCASIONALLY FOUND	
1,2-Dichloroethane	3 - 4
Chlorobenzene	2 - 9
o-Dichlorobenzene	1 - 9
Dibromochloropropane	0 - 1
Bromodichloromethane	0 - 2
Vinylidene Chloride	0 - 12
NEVER FOUND	
Bromoform	0
Dibromochloromethane	0

a/ Greater than 50% measurable in personal air, breath and outdoor air.

000058

percentage measurable was 70% or higher for breath, day and night personal air, and outdoor air samples. For water (see Table 154), chloroform, bromodichloromethane, and dibromochloromethane were measurable in 70% or more of the samples. The bromo- compounds had very low percentages in breath, personal air, and outdoor air but bromodichloromethane and dibromochloromethane had over 99% measurable in water. Most benzene compounds were high in breath and air but low in water. The exceptions were chlorobenzene and o-dichlorobenzene which were low in all media. For personal air and outdoor air, percentages were about the same day and night with nightime percentages usually slightly higher.

By City

Percentages measurable for the six sample types are analyzed by city in Table 155. The table also shows the results of t-tests of differences between the two cities with an asterisk placed by the higher percentage if the difference proved significant. Generally, there were no marked differences between the two cities, but in several cases the percentages for Elizabeth did tend to be higher. Fifteen of the 22 percentages that were significantly different were higher for Elizabeth. Water especially showed higher percentages in Elizabeth for some compounds. Six of the eleven compounds that showed significant differences were significantly different in two or more media. Seven of the eleven compounds were chloro- compounds.

Percent Above 10

Table 156 shows the percentages by compound with concentrations greater than 10 $\mu g/m^3$ for breath, personal air, and outdoor air and greater than 10 ng/mL for water. For water, chloroform and bromodichloromethane showed percentages of 95% or greater, while all others were less than 1%. For breath and the airs, the percentage for personal air was highest, usually followed by breath, then outdoor air. The compounds with the largest percentages over 10 $\mu g/m^3$ were 1,1,1-trichloroethane, benzene, tetrachloroethylene, m,p-dichlorobenzene, and m,p-xylene. Daytime personal air had eight compounds with percentages greater than 20 percent while overnight personal air had six, daytime outdoor air had three, overnight outdoor air only had two and breath, five.

Table 154. TARGET COMPOUNDS SORTED BY PERCENT MEASURABLE IN WATER SAMPLES - NEW JERSEY FIRST SEASON

	% Measurable
UBIQUITOUS COMPOUNDS a/	
Chloroform	99
Trichloroethylene	51
Bromodichloromethane	99
Dibromochloromethane	99
Tetrachloroethylene	53
OFTEN PRESENT	
Vinylidene Chloride	40
1,1,1-Trichloroethane	46
Toluene	16
OCCASIONALLY FOUND	
1,2-Dichloroethane	1
Benzene	1
Carbon Tetrachloride	6
Chlorobenzene	1
Bromoform	2
m,p-Dichlorobenzene (isomers)	2
NEVER FOUND	
Styrene	0
Ethylbenzene	0
m,p-Xylene (isomers)	0

a/ Greater than 50% measurable in water.

Table 155. WEIGHTED PERCENTAGE OF POPULATION WITH COMPOUND CONCENTRATIONS MEASURABLE BY MEDIA AND SITE - NEW JERSEY FIRST SEASON

	Breath		Overnight Personal Air		Daytime Personal Air	
	Bayonne	Elizabeth	Bayonne	Elizabeth	Bayonne	Elizabeth
Estimated Population Size:	54,172	74,431	54,172	74,431	54,172	74,431
Minimum Sample Size:	119	176	147	197	142	196
Maximum Sample Size:	144	196	149	199	143	198
Vinylidene Chloride	11.7	12.2	0.83	4.45	1.57	9.18
Chloroform	61.8	59.0	39.2	70.9 *	28.8	52.5 *
1,2-Dichloroethane	4.53	1.45	5.17	2.09	1.86	3.67
1,1,1-Trichloroethane	79.2	80.6	78.9	79.9	68.0	77.1
Benzene	85.1	92.2	95.9	94.6	89.9	91.0
Carbon Tetrachloride	33.9 *	9.66	36.2	27.8	27.8	20.8
Trichloroethylene	26.4	30.0	46.4	55.1	35.6	52.9 *
Bromodichloromethane	0.00	0.20	0.01	3.29	0.00	2.69
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	---	---	---	---	---	---
Tetrachloroethylene	96.2	91.4	96.6 *	89.0	92.5 *	86.1
Chlorobenzene	3.09	2.81	5.07	11.4	2.51	5.77
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	1.86	0.00	0.00	0.00
Styrene	25.9	61.5 *	79.6	84.7	75.6	78.8
m,p-Dichlorobenzene	43.4	72.9 *	75.6	85.8	71.4	78.6
o-Dichlorobenzene	5.50	0.00	9.13	5.72	6.74	10.1
Ethylbenzene	89.7	95.8	92.2	94.2	83.6	92.6 *
o-Xylene	68.9	93.7 *	88.6	85.7	78.7	85.2
m,p-Xylene	95.2	95.8	98.8	99.0	97.7	98.7

continued

000061

Table 155. (continued)

	Overnight Outdoor Air		Daytime Outdoor Air		Water	
	Bayonne	Elizabeth	Bayonne	Elizabeth	Bayonne	Elizabeth
Estimated Population Size:	54,172	74,431	54,172	74,431	54,172	74,431
Minimum Sample Size:	27	54	29	56	118	147
Maximum Sample Size:	31	55	33	57	153	201
Vinylidene Chloride	0.00	2.18	0.00	0.60	0.00	69.2 *
Chloroform	35.9	51.7	22.2	45.2	100	99.7
1,2-Dichloroethane	7.12	1.53	0.00	5.75	1.24	0.00
1,1,1-Trichloroethane	85.4	85.0	91.7 *	73.8	2.60	76.9 *
Benzene	98.7 *	82.7	78.6	71.7	0.39	0.00
Carbon Tetrachloride	41.8	61.7	38.4	56.6	3.84	7.33
Trichloroethylene	35.4	65.2 *	38.1	51.4	1.83	87.5 *
Bromodichloromethane	0.22	0.00	0.00	0.00	99.6	99.7
Dibromochloromethane	0.00	0.00	0.00	0.00	99.6	99.7
Toluene	---	---	---	---	18.24	14.04
Tetrachloroethylene	91.0 *	72.9	95.6 *	70.5	9.08	85.1 *
Chlorobenzene	4.68	0.00	2.04	4.96	0.81	0.90
Bromoform	0.00	0.00	0.00	0.00	0.00	4.09
Dibromochloropropane	0.00	0.00	0.00	0.00	---	---
Styrene	11.9	46.6 *	4.08	26.3 *	0.00	0.00
m,p-Dichlorobenzene	19.5	59.3 *	11.0	31.2 *	2.51	2.08
o-Dichlorobenzene	0.22	0.75	0.00	2.01	---	---
Ethylbenzene	95.2	83.6	73.3	85.6	0.00	0.00
o-Xylene	71.9	86.5	60.0	81.9	---	---
m,p-Xylene	96.9	99.2	85.4	91.4	0.00	0.00

* T-test for difference in percent measurable significantly different between cities at the .05 level if both percentages are less than 10%, then they are not tested.

---- = not measured.

Table 156. WEIGHTED PERCENTAGE OF POPULATION WITH COMPOUND CONCENTRATIONS OVER 10 ($\mu g/m^3$) FOR BREATH, OVERNIGHT PERSONAL AIR, DAYTIME PERSONAL AIR, OVERNIGHT OUTDOOR AIR AND DAYTIME OUTDOOR AIR, OR 10 (ng/mL) FOR WATER - NEW JERSEY FIRST SEASON

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air	Water
Sample Size:	295-339	346-348	339-341	81-86	86-90	265-354
Vinylidene Chloride[a/]	28.4	32.0	34.3	1.26	1.79	0.00
Chloroform	7.06	18.9	20.3	0.46	0.00	99.7
1,2-Dichloroethane	0.00	1.71	0.88	0.00	0.00	0.52
1,1,1-Trichloroethane	33.3	70.2	63.2	11.0	18.1	0.00
Benzene	55.7	62.6	67.0	28.3	37.6	0.00
Carbon Tetrachloride	1.14	6.66	4.04	0.85	0.00	0.00
Trichloroethylene	2.98	11.8	16.9	2.75	0.59	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	94.9
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	---	---	---	---	---	0.00
Tetrachloroethylene	31.2	30.0	44.7	7.42	29.3	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	3.89	6.94	9.16	0.00	9.05	---
Styrene	0.33	2.00	4.75	0.52	0.00	0.00
m,p-Dichlorobenzene	13.6	25.7	24.2	1.73	2.78	0.00
o-Dichlorobenzene	1.18	0.75	3.84	0.00	0.00	---
Ethylbenzene	7.77	28.9	32.2	6.67	8.67	0.00
o-Xylene	2.75	18.7	26.4	5.32	5.84	---
m,p-Xylene	25.8	69.2	72.1	47.0	45.6	0.00

--- = not measured.

a/ The quantifiable limit usually exceeded 10 $\mu g/m^3$ for breath and personal air.

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Table 157 shows the percentages by compound with concentrations greater than 10 $\mu g/m^3$ or 10 ng/mL for the six media by city. Generally the percentages were about the same for both cities with Elizabeth tending to be slightly higher for some compounds. Some compounds appearing different by city were ethylbenzene and chloroform for daytime and overnight personal air, benzene for overnight outdoor air, and 1,1,1-trichloroethane for daytime outdoor air. In all cases, Elizabeth showed the higher percentage.

Weighted Summary Statistics - Overall

Additional analyses were done on selected compounds with high enough percentages measurable to warrant closer study (see Tables 153 and 154). In particular, weighted summary statistics were computed for eleven compounds for breath, personal air, and outdoor air and eight compounds for water.

Tables 158 through 163 give median quantifiable limits, arithmetic means, arithmetic standard errors, geometric means, geometric standard errors, ranges, and percentiles for these selected compounds by media. The reader should view the estimated weighted 99th percentile with caution. In examining the tables it is noted that the mean was higher than the median and the geometric mean. The difference in these statistics was sometimes quite large as for 1,1,1-trichloroethane, tetrachloroethylene and m,p-dichlorobenzene for daytime personal air. One explanation for this can be illustrated by comparing the 90th percentile to the maximum concentration, as shown in the range. In some cases cited above, the maximum value was 1,000 times larger than the 90th percentile. This suggested large outliers which were increasing the mean. Generally, for air and breath samples, the daytime personal air values were largest followed by overnight personal air, then the breath values which were larger than daytime outdoor air values which were slightly larger than nighttime outdoor air values.

Figures 21 through 30 show histograms of the original data along with histograms obtained after taking the natural logarithms of the data for selected compounds for daytime personal air. The histograms on the original scale show only the values up to the 90th percentile. The figures show that the histograms, after taking natural logs were closer to being normally distributed than those on the original scale. Thus,

Table 157. WEIGHTED PERCENTAGE OF POPULATION BY CITY WITH COMPOUND CONCENTRATIONS OVER 10 ($\mu g/m^3$) FOR BREATH, OVERNIGHT PERSONAL AIR, DAYTIME PERSONAL AIR, OVERNIGHT OUTDOOR AIR AND DAYTIME OUTDOOR AIR, OR 10 (ng/mL) FOR WATER - NEW JERSEY FIRST SEASON

Compound	Breath		Overnight Personal Air		Daytime Personal Air	
	Bayonne	Elizabeth	Bayonne	Elizabeth	Bayonne	Elizabeth
Sample Size:	119-144	176-196	147-149	197-199	142-143	196-198
Vinylidene Chloride	9.23	42.3	20.2	40.6	21.7	43.5
Chloroform	5.46	8.22	10.9	24.7	8.78	28.7
1,2-Dichloroethane	0.00	0.00	2.67	1.02	1.86	0.17
1,1,1-Trichloroethane	25.7	38.9	59.9	77.7	52.6	71.0
Benzene	49.4	60.3	52.5	69.9	58.7	73.0
Carbon Tetrachloride	2.52	0.14	12.9	2.09	8.21	1.01
Trichloroethylene	0.11	5.06	6.26	15.9	9.37	22.3
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	---	---	---	---	---	---
Tetrachloroethylene	31.0	31.4	31.1	29.2	45.4	44.2
Chlorobenzene	0.00	0.00	0.00	0.14	0.00	0.00
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	9.24	0.00	4.67	8.60	6.77	10.9
Styrene	0.00	0.58	1.11	2.65	5.29	4.35
m,p-Dichlorobenzene	15.1	12.6	27.8	24.1	21.2	26.4
o-Dichlorobenzene	2.79	0.00	0.00	1.30	3.84	3.84
Ethylbenzene	8.17	7.48	18.2	36.6	14.6	45.0
o-Xylene	4.27	1.64	11.3	24.1	15.2	34.5
m,p-Xylene	25.8	25.8	60.7	75.5	65.2	77.1

continued

000065

Table 157. (continued)

Compound	Overnight Outdoor Air		Daytime Outdoor Air		Water	
	Bayonne	Elizabeth	Bayonne	Elizabeth	Bayonne	Elizabeth
Sample Size:	27-31	54-55	29-33	56-57	118-153	147-201
Vinylidene Chloride	0.00	2.18	0.00	3.09	0.00	0.00
Chloroform	0.00	0.79	0.00	0.00	99.6	99.7
1,2-Dichloroethane	0.00	0.00	0.00	0.00	1.24	0.00
1,1,1-Trichloroethane	13.0	9.60	8.34	25.2	0.00	0.00
Benzene	14.9	38.0	43.5	33.4	0.00	0.00
Carbon Tetrachloride	2.03	0.00	0.00	0.00	0.00	0.00
Trichloroethylene	0.00	4.75	1.40	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	94.8	95.0
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	---	---	---	---	0.00	0.00
Tetrachloroethylene	8.73	6.47	26.6	31.3	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	21.5	0.00	---	---
Styrene	1.24	0.00	0.00	0.00	0.00	0.00
m,p-Dichlorobenzene	0.00	2.98	2.50	2.98	0.00	0.00
o-Dichlorobenzene	0.00	0.00	0.00	0.00	---	---
Ethylbenzene	1.24	10.6	2.29	13.3	0.00	0.00
o-Xylene	4.66	5.81	1.89	8.72	---	---
m,p-Xylene	57.0	39.8	43.1	47.4	0.00	0.00

--- = not measured.

000066

Table 158. WEIGHTED SUMMARY STATISTICS FOR BREATH ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 295
Maximum Sample Size: 339

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	2.08	3.12	0.38	1.30	1.14	1.80	3.70	8.20	11.5	26.0	.05 - 29.0
1,1,1-Trichloroethane	2.30	15.0	2.64	4.79	1.14	6.60	13.0	30.0	42.0	185	.06 - 520
Benzene	0.44	18.7	1.44	8.19	1.20	12.0	24.0	42.0	56.0	120	.02 - 200
Carbon Tetrachloride	1.70	1.31	0.28	0.60	1.13	0.69	1.06	2.25	2.7	20.0	.05 - 250
Trichloroethylene	1.50	1.77	0.21	0.93	1.13	0.88	1.80	3.94	5.9	14.0	.08 - 30.0
Tetrachloroethylene	4.10	13.3	1.96	7.33	1.09	6.80	12.9	31.0	44.0	190	.12 - 280
Styrene	0.97	1.15	0.13	0.72	1.10	0.79	1.25	2.40	3.0	7.2	.06 - 31.0
m,p-Dichlorobenzene	1.32	8.10	1.72	1.72	1.12	1.30	3.50	21.0	44.0	110	.11 - 158
Ethylbenzene	0.40	4.58	0.58	2.45	1.15	2.90	5.30	8.90	12.0	29.0	.02 - 290
o-Xylene	1.10	3.35	0.38	1.99	1.12	2.20	3.70	6.30	9.2	17.0	.05 - 220
m,p-Xylene	0.52	8.95	0.99	5.34	1.13	6.35	11.0	19.0	21.0	53.0	.05 - 350

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Mean - exp(s) where s is the standard error of the weighted mean of LN(x).

000067

Table 159. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 346
Maximum Sample Size: 348

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	2.96	8.73	2.39	3.32	1.07	3.30	7.90	16.0	24.0	215	.06 - 215
1,1,1-Trichloroethane	24.0	113	72.2	18.6	1.11	16.9	38.0	78.0	180	880	.36 - 8300
Benzene	0.60	29.7	5.22	12.5	1.09	15.0	32.0	54.0	73.0	320	.02 - 510
Carbon Tetrachloride	2.50	13.9	9.63	1.79*	1.11	1.50	2.44	5.75	18.0	200	.14 - 1100
Trichloroethylene	2.45	7.27	2.25	2.60	1.10	2.25	4.80	12.0	22.5	140	.16 - 350
Tetrachloroethylene	2.16	11.3	0.86	6.30	1.08	6.35	12.0	26.0	35.0	70	.08 - 250
Styrene	0.76	2.68	0.31	1.52	1.06	1.75	3.00	4.60	6.20	16	.05 - 76
m,p-Dichlorobenzene	1.20	56.0 *	14.8	5.12	1.19	3.80	13.0	82.0	260	1200	.08 - 1500
Ethylbenzene	4.50	12.6	2.07	6.43	1.06	6.30	12.0	22.0	35.0	110	.17 - 380
o-Xylene	4.90	15.7	6.75	5.26	1.08	4.90	8.70	15.0	27.0	250	.16 - 750
m,p-Xylene	4.80	54.6	27.3	16.0	1.08	14.0	25.0	47.0	87.0	605	.20 - 3100

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between overnight and daytime significant at .05 level.

000068

Table 160. WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 339
Maximum Sample Size: 341

Compound	Mid Q.L. a/	Arith. Mean	Arith. S.E. b/	Geo. Mean c/	Geo. S.E. d/	Median	Percentiles 75	90	95	99	Range
Chloroform	4.10	7.43	1.18	3.01	1.08	3.10	7.70	19.0	28.5	89	.08 - 89
1,1,1-Trichloroethane	8.20	816	665	19.1	1.13	16.9	47.0	130	380	4400	.16 - 333,000
Benzene	1.10	26.2	1.68	11.2	1.13	17.0	32.0	65.0	81.0	160	.02 - 270
Carbon Tetrachloride	3.08	4.62	1.48	1.29	1.11	1.50	2.63	4.9	9.9	37	.06 - 900
Trichloroethylene	3.44	18.9	6.25	3.05*	1.09	2.63	6.65	15.5	46.0	405	.19 - 1,400
Tetrachloroethylene	3.25	78.0	46.0	9.15*	1.08	8.40	20.0	50.0	69.0	1100	.12 - 12,000
Styrene	1.06	15.2	7.33	1.84	1.13	2.00	3.50	6.0	10.0	140	.07 - 6,500
m,p-Dichlorobenzene	1.40	35.1	8.62	4.73	1.17	3.50	8.70	85.0	210	490	.11 - 790
Ethylbenzene	1.80	24.8	7.36	7.33	1.09	7.90	14.0	32.0	52.0	420	.08 - 1,500
o-Xylene	5.50	17.2	4.18	6.12	1.07	5.81	11.0	22.0	35.0	300	.08 - 830
m,p-Xylene	2.10	48.6	10.2	18.5	1.08	18.0	32.0	59.0	100	860	.12 - 1,800

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between overnight and daytime significant at .05 level.

000069

Table 161. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT OUTDOOR AIR ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 81
Maximum Sample Size: 86

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	e/ 99	Range
Chloroform	1.20	1.22	0.23	0.55	1.30	0.66	1.40	2.90	4.80	6.60	.04 - 21.5
1,1,1-Trichloroethane	3.00	5.41	0.69	3.66	1.19	4.50	8.40	11.0	12.0	19.0	.05 - 40.0
Benzene	0.36	8.61	1.04	4.10	1.17	6.70	11.0	15.0	24.0	49.0	.04 - 91.0
Carbon Tetrachloride	1.20	1.16	0.14	0.79	1.12	0.81	1.30	2.06	2.50	5.90	.04 - 14.0
Trichloroethylene	4.80	2.13	0.35	1.37	1.19	1.30	3.00	3.88	7.50	11.0	.08 - 15.0
Tetrachloroethylene	0.99	3.72	0.31	2.08	1.14	2.60	4.10	6.90	15.0	23.0	.06 - 27.0
Styrene	1.30	0.90	0.14	0.55	1.14	0.61	0.94	1.70	2.80	5.40	.06 - 11.0
m,p-Dichlorobenzene	1.30	1.54	0.24	1.00	1.12	1.20	1.69	2.50	4.00	13.0	.07 - 13.0
Ethylbenzene	1.20	3.76	0.45	2.49	1.20	2.90	5.30	6.90	11.0	13.0	.04 - 20.0
o-Xylene	1.70	3.97	0.50	2.80	1.18	2.90	5.50	7.90	11.0	11.6	.18 - 27.0
m,p-Xylene	1.04	11.0	1.24	8.34	1.17	9.90	16.0	21.0	26.0	29.0	.13 - 70.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
e/ Because of limited samples sizes, the estimated percentages should be viewed with caution.
* T-test for difference in means between overnight and daytime significant at .05 level.

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Table 162. WEIGHTED SUMMARY STATISTICS FOR DAYTIME OUTDOOR AIR ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 86
Maximum Sample Size: 90

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	e/ 99	Range
Chloroform	1.32	1.50	0.32	0.58	1.22	0.60	2.00	3.50	6.90	8.70	.04 - 8.80
1,1,1-Trichloroethane	1.44	8.60	2.02	3.32	1.25	4.80	10.0	14.3	20.0	41.0	.05 - 470
Benzene	1.08	9.54	0.95	3.77	1.24	7.80	16.0	20.0	27.0	33.0	.05 - 44.0
Carbon Tetrachloride	1.50	1.00	0.12	0.70	1.18	0.94	1.20	1.80	1.95	3.80	.04 - 7.10
Trichloroethylene	1.86	2.37	0.36	1.43	1.16	1.60	2.60	6.30	6.88	8.10	.08 - 11.0
Tetrachloroethylene	1.20	8.32*	1.40	3.76*	1.24	3.60	13.0	23.0	26.0	57.0	.11 - 57.0
Styrene	1.40	0.82	0.09	0.61	1.13	0.71	1.13	1.50	1.90	3.44	.07 - 5.12
m,p-Dichlorobenzene	1.60	1.94	0.56	0.78	1.12	0.81	1.30	2.88	5.40	57.0	.10 - 57.0
Ethylbenzene	2.10	4.26	0.64	2.61	1.23	3.20	5.90	8.70	14.0	15.0	.06 - 16.0
o-Xylene	2.30	3.99	0.56	2.65	1.19	3.10	5.30	8.30	11.0	12.0	.08 - 19.0
m,p-Xylene	2.90	11.6	1.67	6.96	1.22	8.20	18.0	24.5	31.0	35.0	.08 - 37.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
e/ Because of limited sample sizes, the estimated percentiles should be viewed with caution.
* T-test for difference in means between overnight and daytime significant at .05 level.

000071

Table 163. WEIGHTED SUMMARY STATISTICS FOR WATER (ng/mL) - NEW JERSEY FIRST SEASON

Estimated Population Size: 128,603
Minimum Sample Size: 265
Maximum Sample Size: 354

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Vinylidene Chloride	.05	0.25	0.04	0.08	1.10	0.03	0.24	0.82	1.19	1.85	.03 - 2.36
Chloroform	.05	69.9	1.47	65.9	1.03	66.8	83.4	94.8	102	128	.03 - 168
1,1,1-Trichloroethane	.05	0.59	0.09	0.13	1.14	0.03	0.75	2.14	3.03	4.43	.03 - 5.34
Trichloroethylene	.05	0.56	0.08	0.15	1.14	0.06	0.73	1.87	2.50	3.93	.03 - 4.18
Bromodichloromethane	.10	13.6	0.15	13.2	1.02	13.4	14.6	16.5	17.5	19.9	.06 - 23.4
Dibromochloromethane	.10	2.45	0.05	2.34	1.02	2.38	2.71	3.21	3.38	4.17	.06 - 8.39
Toluene	.50	0.42	0.03	0.36	1.03	0.31	0.31	0.64	0.97	2.63	.31 - 2.73
Tetrachloroethylene	.05	0.44	0.06	0.13	1.13	0.06	0.60	1.45	1.82	2.65	.03 - 3.32

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Frror - exp(s) where s is the standard error of the weighted mean of LN(x).

000072

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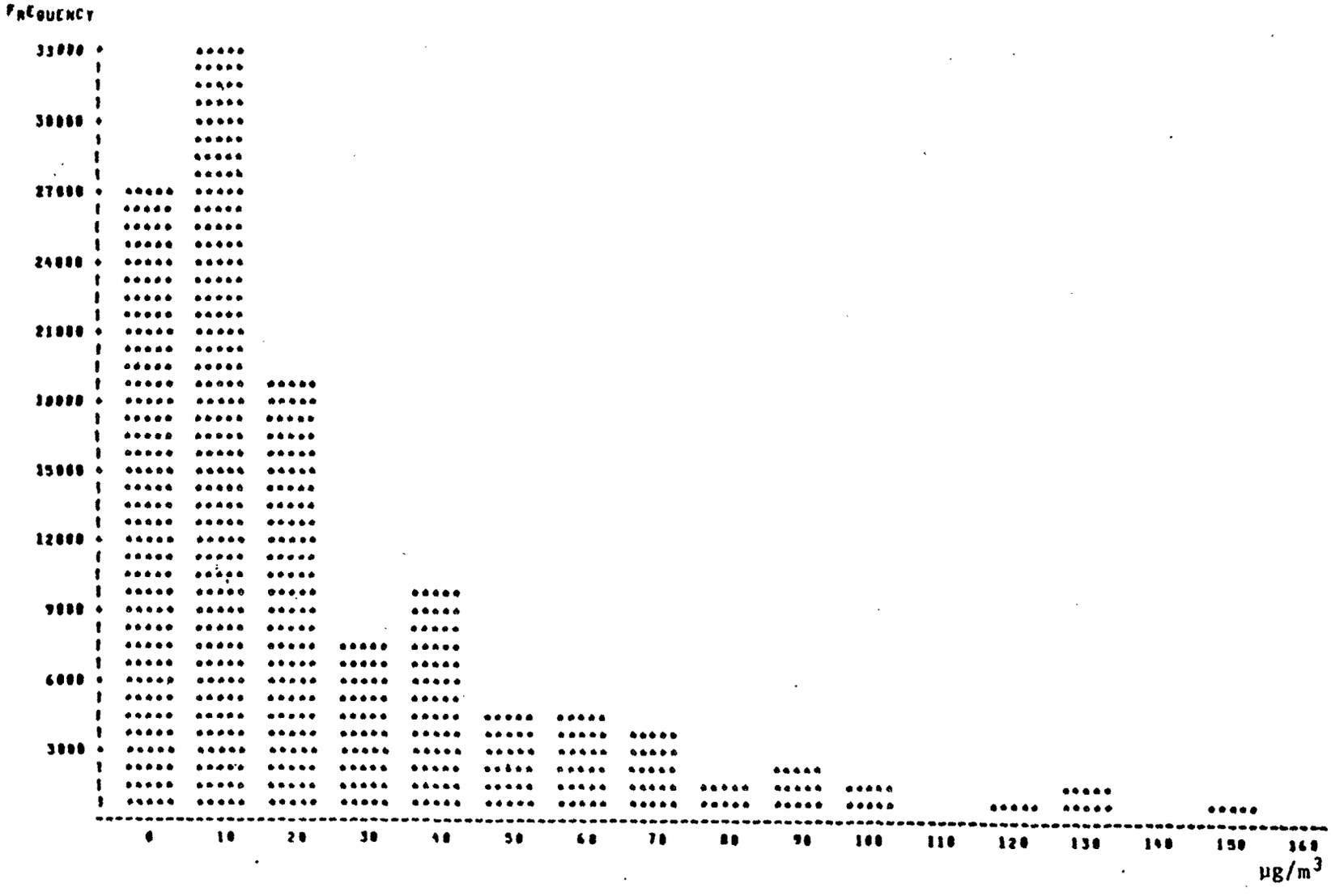

Figure 21. Weighted histogram of 1,1,1-trichloroethane for daytime personal air - New Jersey first season.

000023

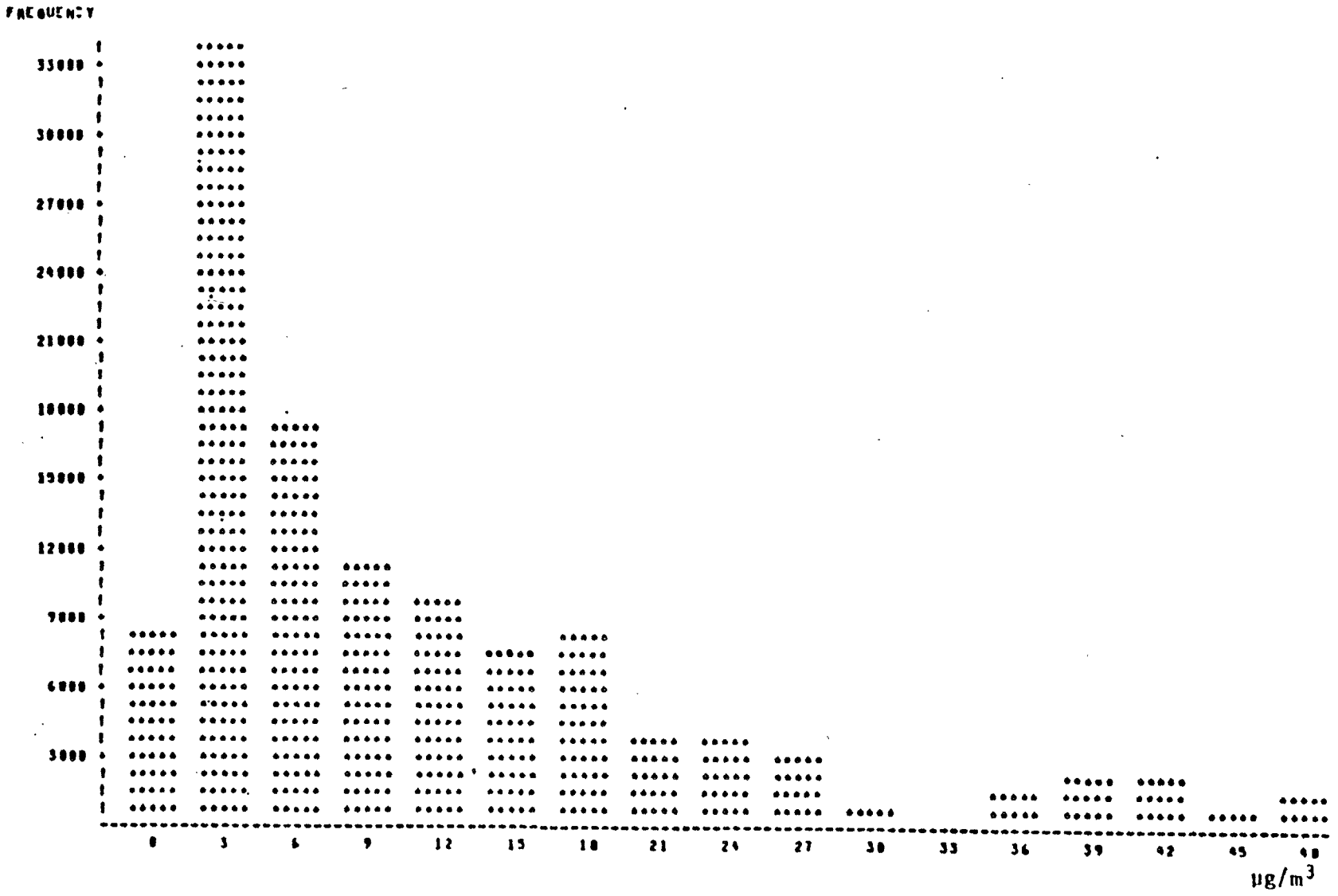

Figure 22. Weighted histogram of tetrachloroethylene for daytime personal air - New Jersey first season.

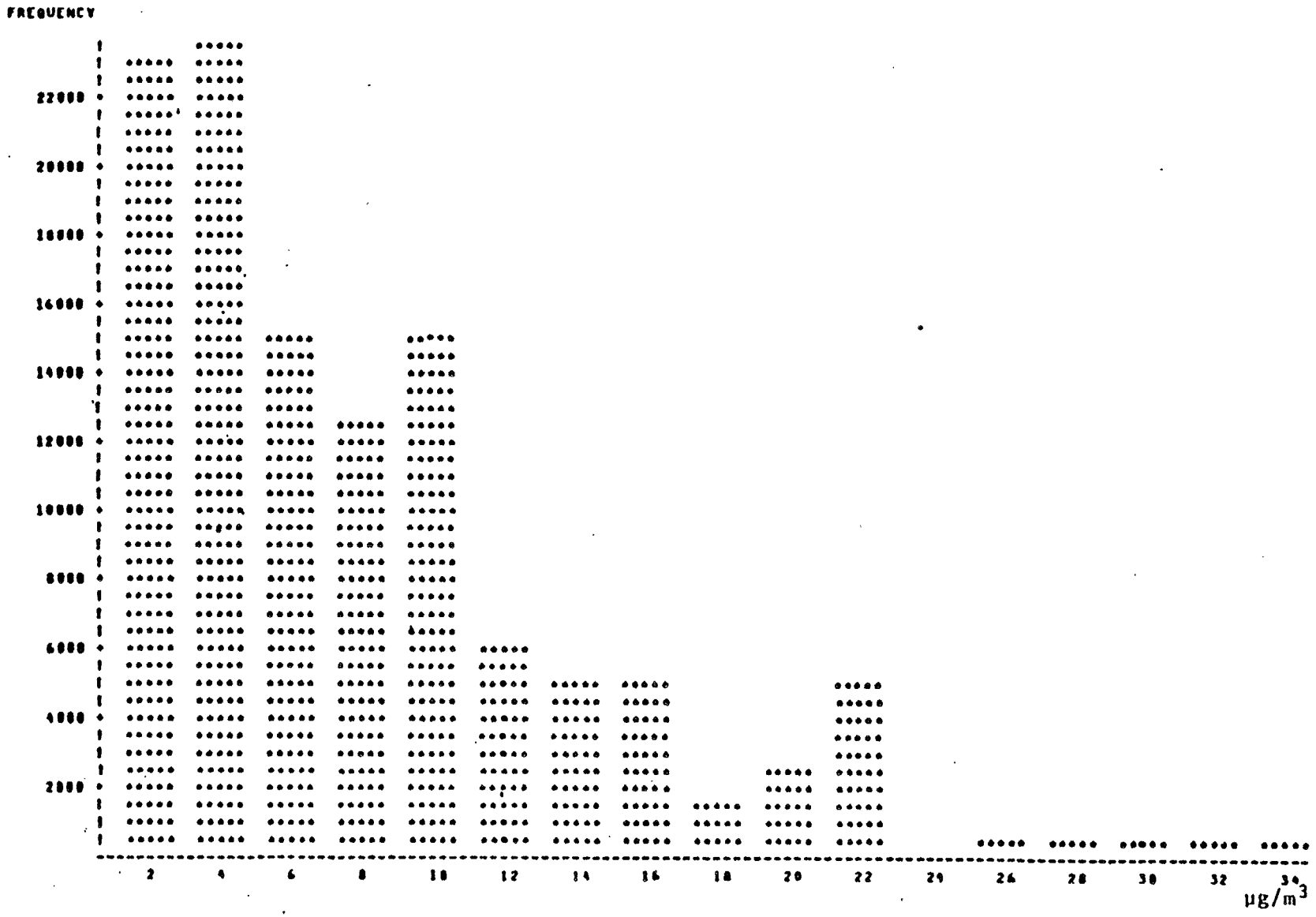

Figure 23. Weighted histogram of ethylbenzene for daytime personal air - New Jersey first season.

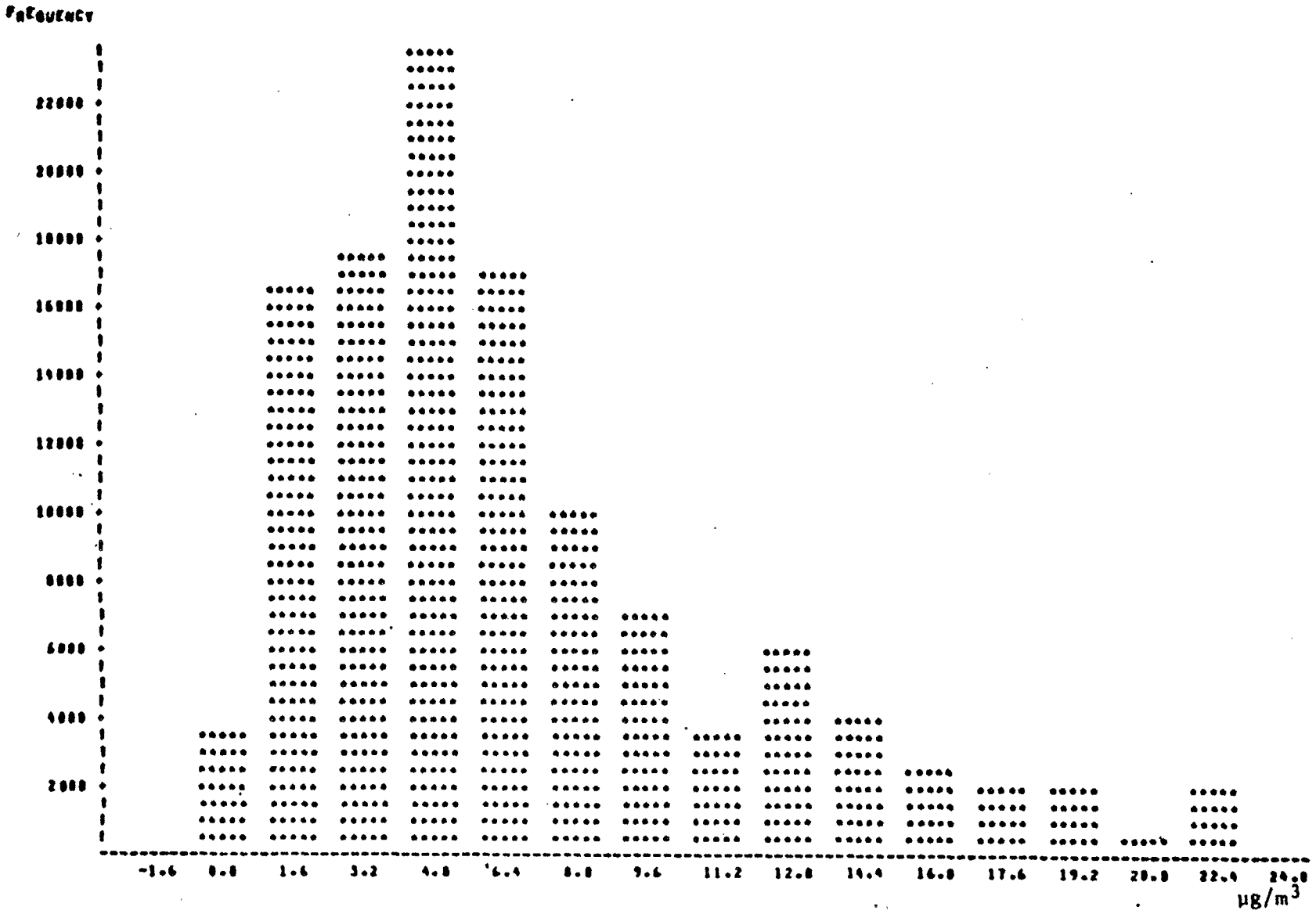

Figure 24. Weighted histogram of o-xylene for daytime personal air - New Jersey first season.

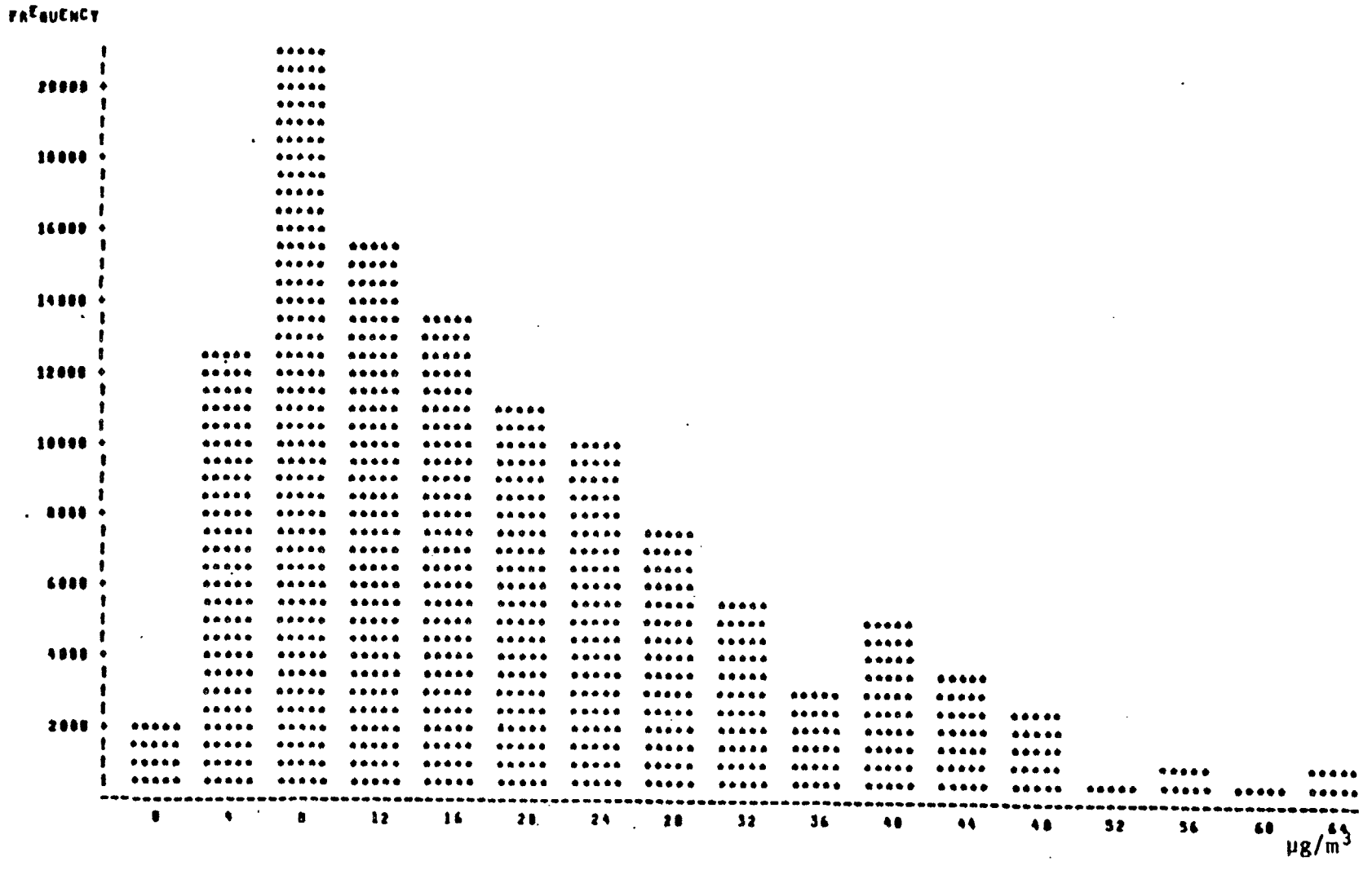

Figure 25. Weighted histogram of m,p-xylene for daytime personal air - New Jersey first season.

000077

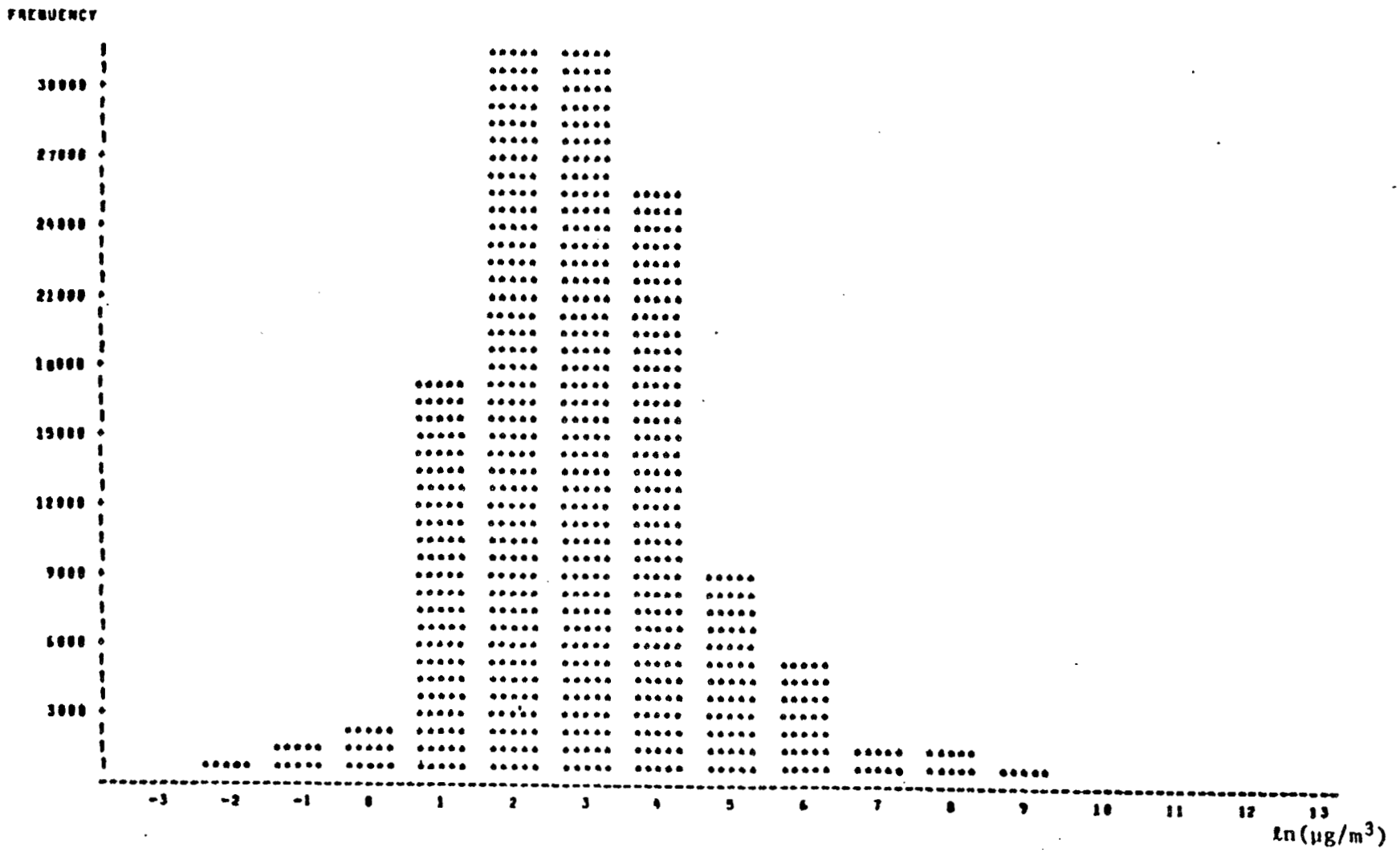

Figure 26. Weighted Ln histogram of 1,1,1-trichloroethane for daytime personal air - New Jersey first season.

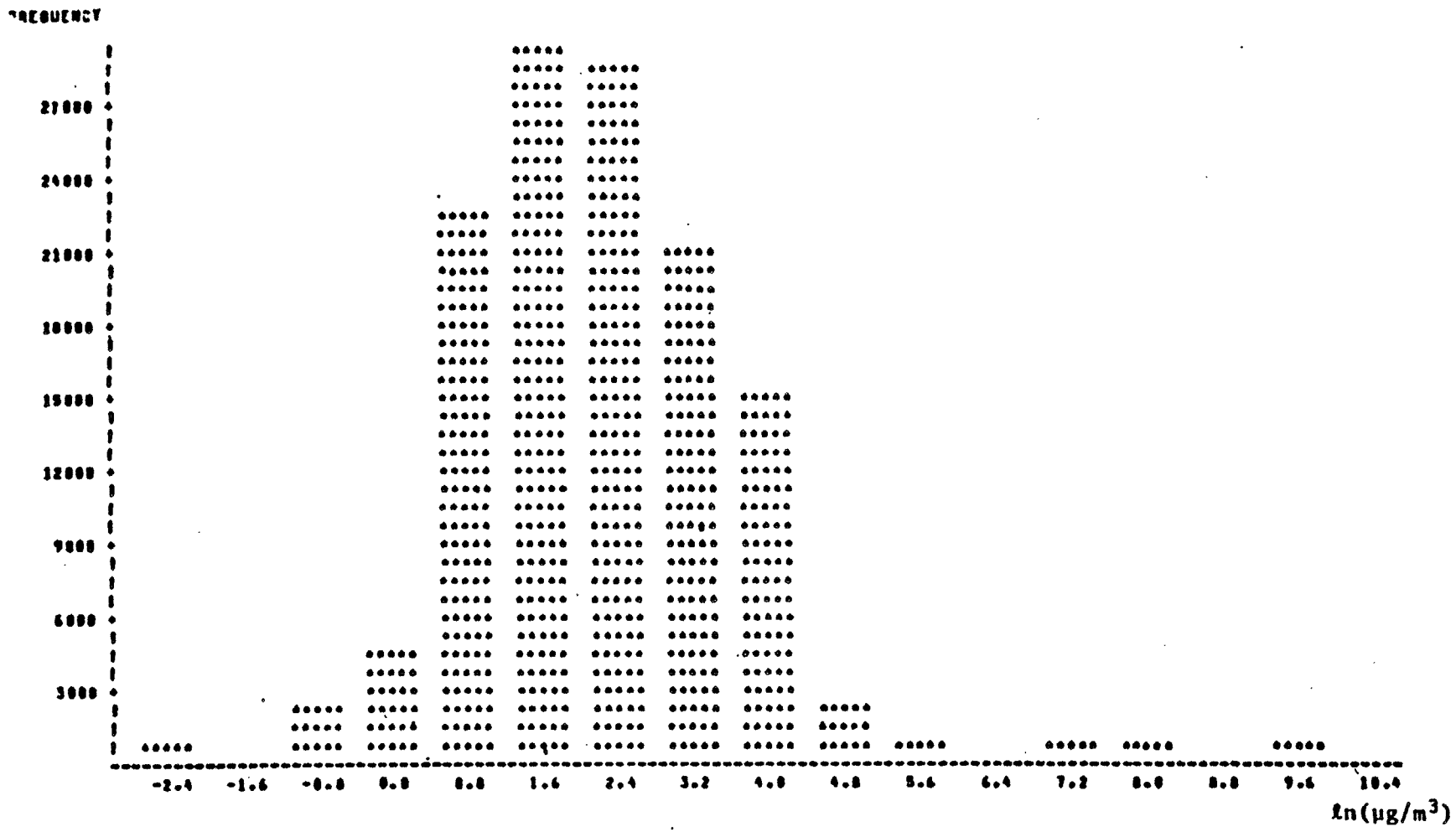

Figure 27. Weighted Ln histogram of tetrachloroethylene for daytime personal air - New Jersey first season.

0000079

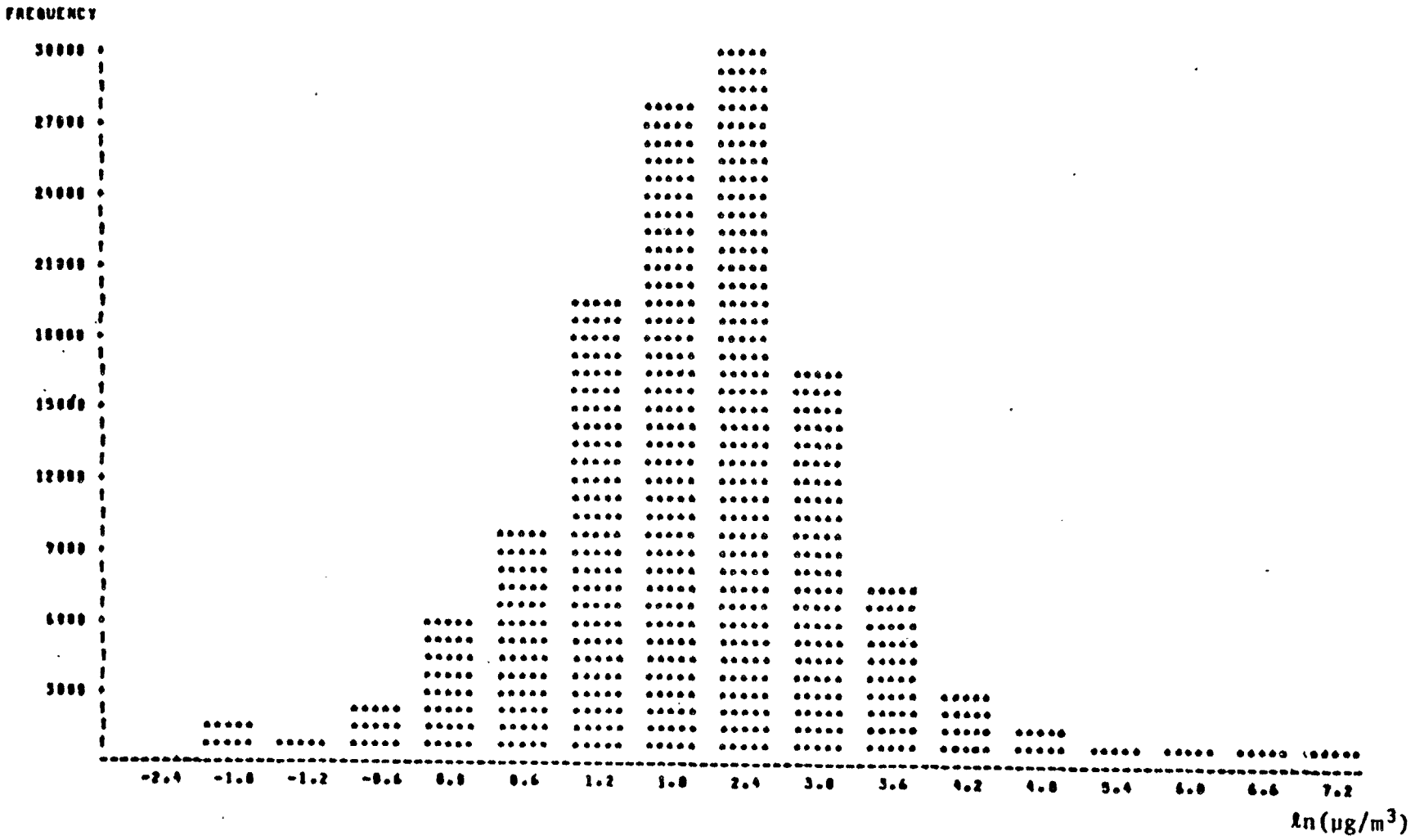

Figure 28. Weighted Ln histogram of ethylbenzene for daytime personal air - New Jersey first season.

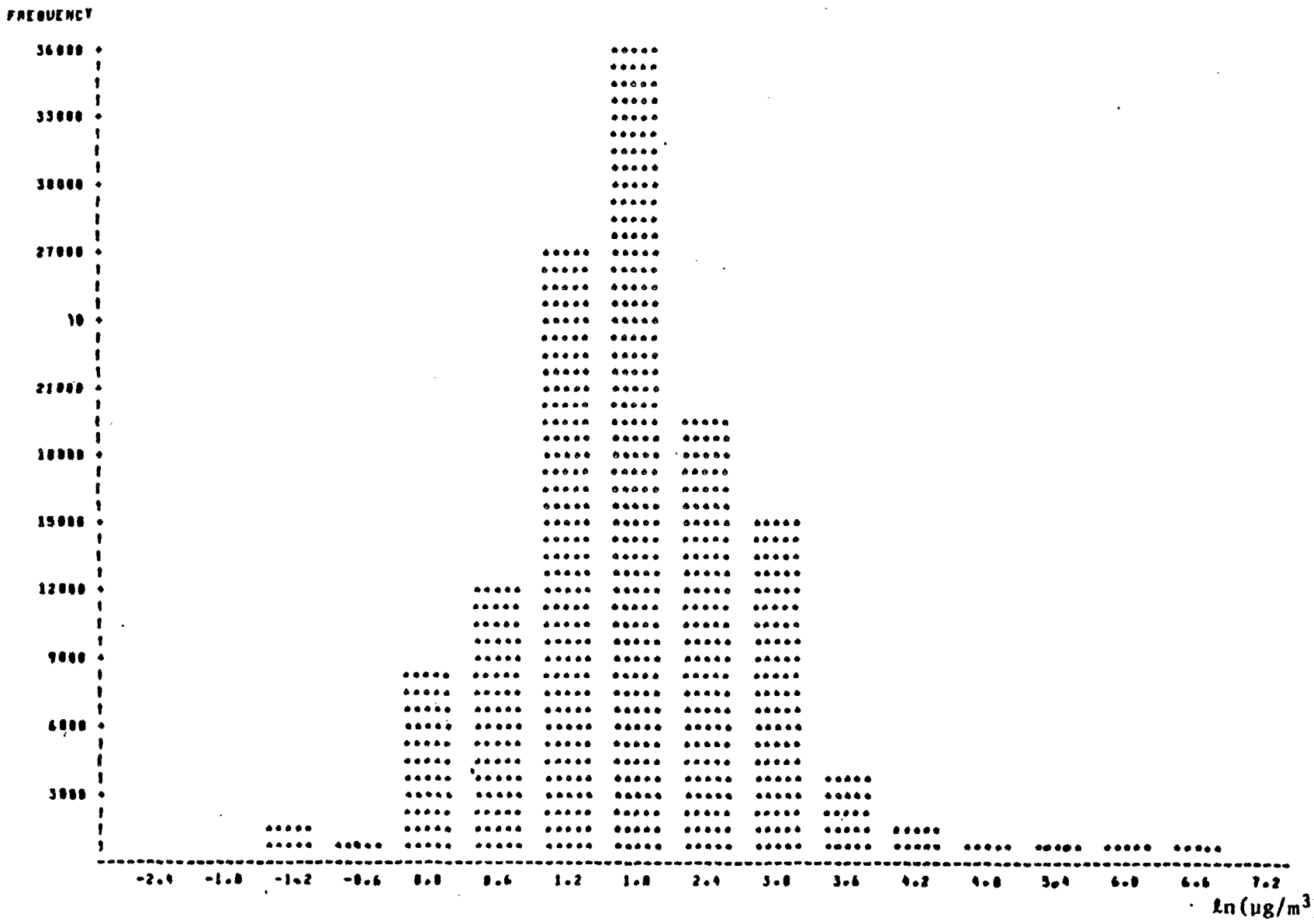

Figure 29. Weighted Ln Histogram of o-xylene for daytime personal air - New Jersey first season.

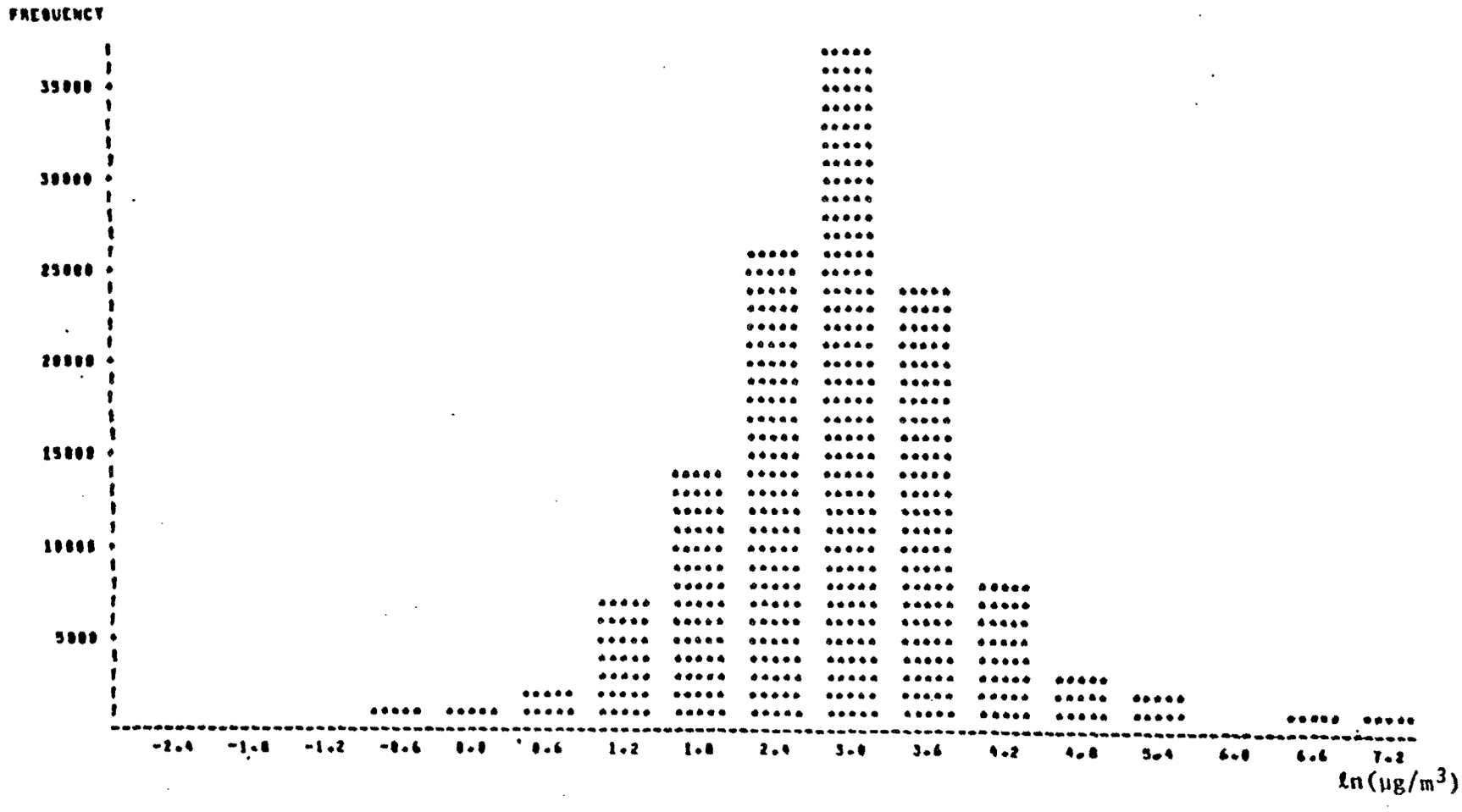

Figure 30. Weighted Ln histogram of m,p-xylene for daytime personal air - New Jersey first season.

000082

the figures indicate that the median and the geometric mean were much better measures of central tendency for the data than the arithmetic mean. Accordingly, in general, statistical tests on differences between geometric means (e.g., between cities) are presented here along with arithmetic means. Tests between medians are not presented since the data was weighted and software was not available for testing weighted medians.

Tables 158 through 163 also indicate that compounds with relatively high levels in breath, personal air and outdoor air included 1,1,1-trichloroethane, benzene, and m,p-xylene. Tetrachloroethylene also had relatively high levels, particularly in breath and personal air. For water, chloroform, bromodichloromethane, and dibromochloromethane had relatively high levels.

In comparing the mid QL (median quantifiable limit over all samples for the compound and media) to the summary statistics, it became apparent that a compound such as ethylbenzene for breath had relatively low summary statistics but relatively high percentage measurable because of a relatively low median QL.

Table 164 gives a general comparison between the magnitude of the compound levels and the median QLs. If the magnitude were low in comparison with the median QL for both cities, then the comparison was labeled "low". If the magnitude were high for a city, then the name appears. Benzene, tetrachloroethylene, ethylbenzene, o-xylene, and m,p-xylene showed high magnitudes over most media (excluding water) for both cities. 1,2-Dichloroethane, carbon tetrachloride, chlorobenzene, bromoform, dibromochloropropane, and o-dichlorobenzene showed low magnitudes when compared with median QL over all the media in which information was obtained.

Weighted Summary Statistics - By City

Tables 165 through 170 give median QLs, weighted arithmetic means, arithmetic standard errors, medians, geometric means, geometric standard errors, percentiles, and ranges for selected compounds by city for the six media. Generally, each statistic for breath, personal air, and water was higher for Elizabeth than for Bayonne. For outdoor air this trend was not at all evident. The tables also show the results of statistical test of differences between the two cities for the arith-

Table 164. SUMMARY OF THE MAGNITUDE OF COMPOUND LEVELS COMPARED TO THE MEDIAN QUANTIFIABLE LIMITS OVER TWO SITES BY COMPOUND AND MEDIA - NEW JERSEY FIRST SEASON

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air	Water
Vinylidene Chloride						Elizabeth
Chloroform	Bayonne	Elizabeth	low	low	low	Bayonne Elizabeth
1,2-Dichloroethane	low	low	low	low	low	low
1,1,1-Trichloroethane	Bayonne Elizabeth	Bayonne	Bayonne	Elizabeth	Bayonne Elizabeth	Elizabeth
Benzene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	low
Carbon Tetrachloride	low	low	low	Elizabeth	Elizabeth	low
Trichloroethylene	low	low	low	Elizabeth	Elizabeth	Elizabeth
Bromodichloromethane	low	low	low	low	low	Bayonne Elizabeth
Dibromochloromethane	low	low	low	low	low	Bayonne Elizabeth
Toluene	----	----	----	----	----	low
Tetrachloroethylene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Elizabeth	Bayonne Elizabeth	Elizabeth
Chlorobenzene	low	low	low	low	low	low
Bromoform	low	low	low	low	low	low
Dibromochloropropane	low	low	low	low	low	----
Styrene	Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Elizabeth	low	low
m,p-Dichlorobenzene	Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Elizabeth	low	low
o-Dichlorobenzene	low	low	low	low	low	----
Ethylbenzene	Elizabeth Bayonne	Elizabeth Bayonne	Elizabeth Bayonne	Bayonne Elizabeth	Bayonne Elizabeth	low
o-Xylene	Elizabeth Bayonne	Bayonne Elizabeth	Bayonne	Bayonne Elizabeth	Elizabeth Bayonne	----
m,p-Xylene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	low

low = magnitude of compound levels to median quantifiable limit low for both cities.
Bayonne = magnitude of compound levels to median quantifiable limit relatively high for Bayonne.
Elizabeth = magnitude of compound levels to median quantifiable limit relatively high for Elizabeth.

000084

Table 165. WEIGHTED SUMMARY STATISTICS FOR BREATH ($\mu g/m^3$) - NEW JERSEY FIRST SEASON

Site: Bayonne
Estimated Population Size: 54,172
Minimum Sample Size: 119
Maximum Sample Size: 144

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	1.70	3.07	0.52	1.43	1.21	1.94	3.60	6.60	11.0	26.0	.05 - 26.0
1,1,1-Trichloroethane	0.60	9.84	2.30	2.99	1.29	5.70	11.0	19.0	32.0	185	.06 - 220
Benzene	0.51	17.7	2.63	7.12	1.35	9.90	22.0	47.0	54.0	170	.05 - 170
Carbon Tetrachloride	1.20	1.78	0.62	0.59	1.26	0.75	1.06	1.44	2.20	25.0	.05 - 250
Trichloroethylene	1.20	1.06	0.21	0.68	1.21	0.88	1.25	1.80	2.80	5.90	.08 - 18.0
Tetrachloroethylene	1.60	11.1	1.99	6.72	1.17	6.60	12.0	31.0	36.0	50.0	.12 - 130
Styrene	1.80	0.98	0.14	0.61	1.18	0.85	1.19	1.80	2.80	5.25	.07 - 7.8
m,p-Dichlorobenzene	1.60	10.6	3.61	1.49	1.25	1.00	3.70	20.0	110	140	.12 - 158
Ethylbenzene	0.43	3.88	0.85	2.09	1.25	2.00	5.15	8.70	12.0	29.0	.02 - 45.0
o-Xylene	1.20	2.85	0.57	1.67	1.19	1.70	3.10	6.30	9.50	17.0	.14 - 46.0
m,p-Xylene	1.50	9.11	1.85	5.14	1.23	5.70	11.0	21.0	27.0	53.0	.05 - 150

Site: Elizabeth
Estimated Population Size: 74,431
Minimum Sample Size: 176
Maximum Sample Size: 196

Chloroform	2.16	3.15	0.52	1.21	1.20	1.75	3.9	9.60	12.0	17.0	.05 - 29
1,1,1-Trichloroethane	3.00	18.7	4.06	6.74*	1.13	7.30	18.0	39.0	62.0	360	.13 - 520
Benzene	0.25	19.4	1.59	9.07	1.26	15.0	24.0	38.0	57.0	120	.02 - 200
Carbon Tetrachloride	2.70	0.96	0.13	0.61	1.13	0.55	1.0	2.38	2.88	4.8	.05 - 48
Trichloroethylene	3.96	2.29*	0.34	1.16*	1.17	0.88	2.9	5.60	11.0	14.0	.15 - 30
Tetrachloroethylene	4.20	14.8	3.03	7.81	1.10	6.90	13.0	31.0	44.0	190	.81 - 280
Styrene	0.65	1.27	0.19	0.81	1.12	0.74	1.3	2.80	3.40	7.2	.06 - 31
m,p-Dichlorobenzene	0.99	6.30	1.36	1.91	1.12	1.50	3.2	21.0	33.0	82.0	.11 - 100
Ethylbenzene	0.20	5.09	0.78	2.75	1.18	3.60	5.3	8.90	13.0	23.0	.03 - 290
o-Xylene	0.40	3.72	0.51	2.26	1.17	2.60	4.0	6.40	9.00	17.0	.05 - 220
m,p-Xylene	0.40	8.84	1.05	5.49	1.16	6.50	11.0	16.0	21.0	36.0	.07 - 350

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

000085

Table 166. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR (μg/m³) - NEW JERSEY FIRST SEASON

Site: Bayonne
Estimated Population Size: 54,172
Minimum Sample Size: 147
Maximum Sample Size: 149

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	2.70	3.89	0.39	2.19	1.12	2.50	5.56	10.3	12.0	18	.24 - 22
1,1,1-Trichloroethane	9.90	29.0	8.01	13.4	1.12	14.2	21.0	52.0	75.0	500	.37 - 990
Benzene	0.86	21.8	4.15	10.6	1.11	11.0	22.0	37.5	54.0	320	.08 - 320
Carbon Tetrachloride	2.70	7.80	1.89	2.52*	1.12	2.00	4.00	17.0	38.5	91	.28 - 200
Trichloroethylene	2.30	3.53	0.68	2.25	1.15	1.94	4.00	7.50	12.0	29	.17 - 30
Tetrachloroethylene	3.00	11.5	0.81	6.52	1.11	6.50	12.0	30.0	44.0	61	.08 - 130
Styrene	0.64	1.92	0.13	1.11	1.11	1.40	2.40	4.40	4.95	12	.05 - 16
m,p-Dichlorobenzene	1.20	69.8	24.9	5.41	1.39	3.80	14.0	154	410	1200	.08 - 1500
Ethylbenzene	2.00	11.9	4.41	4.98	1.11	4.70	7.30	16.0	27.5	270	.17 - 270
o-Xylene	2.30	10.5	4.13	4.34	1.11	4.30	6.80	14.0	27.0	250	.21 - 250
m,p-Xylene	1.64	29.7	9.70	13.7	1.11	13.5	20.0	47.0	75.0	605	.21 - 605

Site: Elizabeth
Estimated Population Size: 74,431
Minimum Sample Size: 197
Maximum Sample Size: 199

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	4.70	12.3	4.12	4.50*	1.08	4.80	10.0	24.0	34.0	215	.07 - 215
1,1,1-Trichloroethane	25.0	174	125	23.5 *	1.16	21.0	44.0	130	290	8300	.37 - 8300
Benzene	0.39	35.4	8.52	14.0	1.13	18.0	41.0	61.0	120	510	.02 - 510
Carbon Tetrachloride	2.40	18.4	16.6	1.40	1.17	1.38	2.31	3.7	5.75	1100	.14 - 1100
Trichloroethylene	3.10	9.99	3.86	2.90	1.14	2.44	5.25	15.0	30.0	350	.16 - 350
Tetrachloroethylene	2.16	11.2	1.37	6.14	1.11	6.35	12.0	25.0	31.0	90	.15 - 250
Styrene	1.36	3.23*	0.55	1.92*	1.07	2.10	3.10	4.7	7.20	29	.14 - 76
m,p-Dichlorobenzene	0.94	45.9	18.0	4.92	1.20	3.90	9.90	82.0	140	915	.10 - 1250
Ethylbenzene	5.10	13.0	1.62	7.74*	1.07	7.90	14.0	27.0	46.0	100	.60 - 380
o-Xylene	5.10	19.5	11.3	6.04*	1.12	5.50	10.0	17.0	27.0	750	.16 - 750
m,p-Xylene	5.10	72.7	46.8	17.9	1.11	17.0	28.0	47.0	94.5	3100	.60 - 3100

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

000086

Table 167. WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR (μg/m³) - NEW JERSEY FIRST SEASON

Site: Bayonne
Estimated Population Size: 54,172
Minimum Sample Size: 143
Maximum Sample Size: 143

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	3.70	4.57	0.77	2.21	1.11	2.50	5.63	9.5	18	41	.27 - 41
1,1,1-Trichloroethane	7.60	59.9	16.8	12.6	1.19	11.0	33.0	88.0	150	1200	.39 - 4300
Benzene	1.12	19.3	2.03	8.79	1.14	12.0	24.0	46.0	73	130	.11 - 170
Carbon Tetrachloride	3.08	6.18	2.90	1.57	1.22	1.60	3.13	9.9	18	57	.07 - 900
Trichloroethylene	3.36	10.4	5.06	2.39	1.15	2.25	5.20	9.9	14	405	.29 - 405
Tetrachloroethylene	2.90	20.7	2.53	8.62	1.08	8.30	23.0	43.0	76	290	.13 - 330
Styrene	0.94	5.20	2.54	1.30	1.21	1.60	2.70	4.0	14	140	.07 - 140
m,p-Dichlorobenzene	1.50	39.6	14.1	4.27	1.30	3.40	8.10	100	250	490	.11 - 790
Ethylbenzene	1.80	12.0	3.09	5.14	1.07	5.00	8.90	17.0	30	270	.23 - 410
o-Xylene	3.20	10.2	2.46	4.66	1.08	4.38	7.65	15.0	20	190	.26 - 390
m,p-Xylene	2.10	32.7	8.79	14.3	1.08	14.0	24.0	41.0	72	800	.12 - 860

Site: Elizabeth
Estimated Population Size: 74,431
Minimum Sample Size: 196
Maximum Sample Size: 198

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	5.10	9.51*	1.92	3.78*	1.11	3.63	11.8	21.0	38.0	89	.08 -
1,1,1-Trichloroethane	23.0	1370	1130	25.9 *	1.17	22.0	61.0	240	630	6100	.16 - 330,0
Benzene	0.48	31.3 *	2.29	13.3	1.20	22.0	40.0	74.0	85.5	232	.02 - 2
Carbon Tetrachloride	3.08	3.48	1.53	1.11	1.12	1.19	2.30	3.44	4.9	37	.12 - 4
Trichloroethylene	3.56	25.2	9.99	3.64*	1.12	3.44	9.20	24.0	55.0	1100	.19 - 1,4
Tetrachloroethylene	3.25	120	79.1	9.54	1.12	8.60	19.0	52.5	69.0	2300	.39 - 12,0
Styrene	1.90	22.5	12.4	2.36*	1.16	2.40	4.20	7.30	10.0	820	.10 - 6,5
m,p-Dichlorobenzene	1.40	31.9	10.9	5.09	1.22	3.60	15.0	53.0	210	490	.15 - 7
Ethylbenzene	5.60	34.1	12.4	9.49*	1.14	9.63	18.0	40.0	54.0	640	.08 - 1,5
o-Xylene	7.40	22.3	6.88	7.47*	1.11	6.88	14.0	26.0	42.0	570	.08 - 8
m,p-Xylene	5.60	60.1	16.2	22.2 *	1.13	22.0	40.0	74.0	110	1400	.70 - 1,8

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

000087

Table 168. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT OUTDOOR AIR (μg/m³) - NEW JERSEY FIRST SEASON

Site: Bayonne
Estimated Population Size: 54,172
Minimum Sample Size: 27
Maximum Sample Size: 31

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	e/ 99	Range
Chloroform	1.90	1.15	0.31	0.78	1.42	0.99	1.90	1.90	2.90	6.6	.15 - 8.4
1,1,1-Trichloroethane	12.0	6.52	1.09	5.14	1.24	6.80	8.40	11.0	12.0	21.0	.33 - 21.0
Benzene	3.00	8.05	1.22	6.13*	1.20	8.10	8.80	12.0	14.0	91.0	.38 - 91.0
Carbon Tetrachloride	1.30	1.65*	0.28	1.20*	1.12	0.94	1.55	2.90	4.80	14.0	.34 - 14.0
Trichloroethylene	5.30	2.22	0.48	1.83	1.32	2.10	3.00	3.38	4.10	7.5	.63 - 9.6
Tetrachloroethylene	3.80	4.12	0.63	2.87*	1.12	2.60	3.20	6.30	20.0	27.0	.83 - 27.0
Styrene	4.40	0.96	0.22	0.65	1.18	0.60	0.75	2.20	2.80	11.0	.18 - 11.0
m,p-Dichlorobenzene	2.50	1.41	0.17	1.14	1.12	1.56	1.69	2.00	4.00	4.0	.17 - 4.0
Ethylbenzene	2.70	3.71	0.75	3.05	1.27	3.65	5.30	5.30	6.80	20.0	.11 - 20.0
o-Xylene	1.70	4.17	0.93	3.13	1.35	3.35	5.50	7.10	8.15	27.0	.69 - 27.0
m,p-Xylene	1.04	11.7	2.43	8.82	1.38	11.4	16.0	18.0	21.0	70.0	.13 - 70.0

Site: Elizabeth
Estimated Population Size: 74,431
Minimum Sample Size: 54
Maximum Sample Size: 55

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	e/ 99	Range
Chloroform	0.76	1.26	0.33	0.42	1.43	0.54	1.32	3.90	5.2	6.0	.04 - 21.5
1,1,1-Trichloroethane	2.92	4.60	0.88	2.85	1.28	4.00	5.10	9.70	13.0	15.5	.05 - 40.0
Benzene	0.36	9.01	1.58	3.05	1.25	5.40	12.0	24.0	34.0	49.0	.04 - 49.0
Carbon Tetrachloride	0.39	0.80	0.11	0.59	1.20	0.75	1.00	1.31	1.9	2.5	.04 - 2.5
Trichloroethylene	0.69	2.06	0.49	1.11	1.23	1.13	1.90	5.35	9.9	15.0	.08 - 15.0
Tetrachloroethylene	0.92	3.42	0.30	1.64	1.20	2.10	4.80	7.20	11.0	23.0	.06 - 23.0
Styrene	0.59	0.86	0.17	0.49	1.21	0.74	1.13	1.50	3.4	5.4	.06 - 5.4
m,p-Dichlorobenzene	0.83	1.63	0.40	0.91	1.18	0.92	1.70	2.50	3.7	13.0	.07 - 13.0
Ethylbenzene	0.98	3.80	0.57	2.15	1.28	2.50	5.40	11.0	11.0	13.0	.04 - 16.0
o-Xylene	1.70	3.82	0.52	2.58	1.19	2.50	5.60	9.20	11.0	11.6	.18 - 16.0
m,p-Xylene	0.62	10.5	1.15	8.00	1.16	8.60	12.0	21.0	26.0	29.0	.39 - 48.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where is is the standard error of the weighted mean of LN(x).
e/ Because of limited sample sizes, the estimated percentiles should be viewed with caution.
* T-test for difference in means between cities significant at .05 level.

000088

Table 169. WEIGHTED SUMMARY STATISTICS FOR DAYTIME OUTDOOR AIR (μg/m³) - NEW JERSEY FIRST SEASON

Site: Bayonne
Estimated Population Size: 54,172
Minimum Sample Size: 29
Maximum Sample Size: 33

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	2.90	1.20	0.09	0.80	1.12	0.75	1.81	2.40	2.90	6.90	.12 - 6.90
1,1,1-Trichloroethane	1.44	6.42	0.62	4.13	1.19	4.80	8.80	10.0	13.5	57.0	.12 - 57.0
Benzene	2.00	10.3	1.22	5.89	1.20	9.60	16.0	19.0	26.0	33.0	.11 - 33.0
Carbon Tetrachloride	1.80	1.17	0.17	0.88	1.23	1.13	1.20	1.95	2.40	7.10	.13 - 7.10
Trichloroethylene	8.40	3.42	0.86	2.32*	1.32	2.60	5.63	6.88	7.45	11.0	.23 - 11.0
Tetrachloroethylene	0.71	9.12	2.14	5.55	1.25	4.90	12.0	20.0	24.0	57.0	.44 - 57.0
Styrene	5.50	0.93	0.15	0.70	1.20	0.95	1.20	1.44	1.81	5.13	.12 - 5.13
m,p-Dichlorobenzene	2.26	2.87	1.17	1.05*	1.19	1.00	2.51	2.88	8.00	57.0	.20 - 57.0
Ethylbenzene	2.10	3.66	0.41	2.80	1.15	3.10	4.50	7.60	7.90	16.0	.12 - 16.0
o-Xylene	2.30	3.85	0.56	3.02	1.19	2.70	5.10	7.50	8.60	19.0	.71 - 19.0
m,p-Xylene	2.90	10.6	1.88	7.51	1.27	8.20	16.5	20.0	26.0	30.0	.71 - 37.0

Site: Elizabeth
Estimated Population Size: 74,431
Minimum Sample Size: 56
Maximum Sample Size: 57

Chloroform	0.60	1.72	0.55	0.45	1.40	0.26	2.55	6.70	8.7	8.7	.04 - 8.8
1,1,1-Trichloroethane	0.68	10.2	3.43	2.83	1.44	4.50	11.0	20.0	41.0	41.0	.05 - 470
Benzene	0.68	8.98	1.35	2.73	1.38	7.80	17.0	20.0	27.0	38.7	.05 - 44.0
Carbon Tetrachloride	0.60	0.88	0.17	0.60	1.27	0.63	1.20	1.60	1.8	3.8	.04 - 3.8
Trichloroethylene	1.04	1.61	0.21	1.01	1.21	1.38	2.30	3.70	4.5	6.3	.09 - 7.2
Tetrachloroethylene	1.44	7.75	1.89	2.82	1.41	2.90	13.0	26.0	27.0	50.0	.11 - 50.0
Styrene	0.89	0.74	0.11	0.56	1.19	0.61	1.00	1.60	1.9	2.1	.07 - 2.1
m,p-Dichlorobenzene	1.10	1.26	0.37	0.63	1.17	0.69	1.30	3.10	4.0	11.4	.10 - 11.4
Ethylbenzene	0.68	4.69	1.04	2.48	1.40	3.30	7.50	10.8	14.0	15.0	.06 - 15.0
o-Xylene	0.68	4.10	0.87	2.40	1.31	3.30	6.80	8.70	11.0	12.0	.08 - 12.0
m,p-Xylene	2.48	12.3	2.51	6.59	1.34	9.05	20.0	31.0	33.5	35.0	.08 - 36.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

000089

Table 170. WEIGHTED SUMMARY STATISTICS FOR WATER (ng/mL) - NEW JERSEY FIRST SEASON

Site: Bayonne
Estimated Population Size: 54,172
Minimum Sample Size: 118
Maximum Sample Size: 153

Compound	Mid Q.L. a/	Arith. Mean	Arith. S.E. b/	Geo. Mean c/	Geo. S.E. d/	Median	Percentiles 75	90	95	99	Range
Vinylidene Chloride	0.05	0.03	0.00	0.03	1.00	0.03	0.03	0.03	0.03	0.03	.03 - 0.03
Chloroform	.	72.4	1.46	68.8	1.03	72.1	84.0	94.5	102	118	.22 - 125
1,1,1-Trichloroethane	0.05	0.04	0.01	0.03	1.01	0.03	0.03	0.03	0.03	0.06	.03 - 2.86
Trichloroethylene	0.05	0.03	0.00	0.03	1.01	0.03	0.03	0.03	0.03	0.05	.03 - 0.17
Bromodichloromethane	0.10	13.4	0.12	13.0	1.02	13.5	14.7	16.2	16.4	17.5	.06 - 18.8
Dibromochloromethane	0.10	2.12	0.03	2.07	1.01	2.20	2.41	2.54	2.62	2.97	.06 - 3.03
Toluene	0.50	0.42	0.04	0.37	1.06	0.31	0.31	0.68	0.97	2.73	.31 - 2.73
Tetrachloroethylene	0.05	0.03	0.00	0.03	1.02	0.03	0.03	0.03	0.06	0.10	.03 - 0.15

Site: Elizabeth
Estimated Population Size: 74,431
Minimum Sample Size: 147
Maximum Sample Size: 201

Compound	Mid Q.L. a/	Arith. Mean	Arith. S.E. b/	Geo. Mean c/	Geo. S.E. d/	Median	Percentiles 75	90	95	99	Range
Vinylidene Chloride	0.05	0.40*	0.06	0.17*	1.20	0.20	0.54	1.07	1.65	1.85	.03 - 2.36
Chloroform	0.05	68.1	2.31	63.9	1.04	65.1	81.0	99.0	105	134	.03 - 168
1,1,1-Trichloroethane	0.05	0.99*	0.15	0.38*	1.27	0.56	1.37	3.02	3.55	4.49	.03 - 5.34
Trichloroethylene	0.05	0.94*	0.15	0.45*	1.27	0.64	1.39	2.42	3.42	3.93	.03 - 4.18
Bromodichloromethane	0.10	13.8	0.25	13.4	1.02	13.4	14.6	16.8	18.8	23.4	.06 - 23.4
Dibromochloromethane	0.10	2.68*	0.09	2.57*	1.03	2.55	2.97	3.34	3.72	8.39	.06 - 8.39
Toluene	0.50	0.42	0.04	0.36	1.05	0.31	0.31	0.53	0.92	2.63	.31 - 2.63
Tetrachloroethylene	0.05	0.74*	0.10	0.37*	1.25	0.52	1.29	1.68	2.03	2.88	.03 - 3.32

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

000090

metic mean and geometric mean, with an asterisk placed by the higher value if the differences were significant. For breath, personal air, and water, several of the tests showed significance with those statistics that were significantly different being predominantly higher for Elizabeth. For daytime outdoor air, those that were significantly higher were higher for Bayonne.

Tables 171 through 176 give the ratios of Elizabeth to Bayonne by the six media for percentage measurable, arithmetic mean, median, geometric mean, and maximum value. For breath, daytime personal air, overnight personal air, and water, the ratios show again the higher values for Elizabeth. For daytime and overnight outdoor air, the relatively small ratios show the apparently lower values for Elizabeth. The difference appeared most prevalent in the maximum values as demonstrated by the relatively large ratios for 1,1,1-trichloroethane, tetrachloroethylene, and styrene for daytime personal air and vinylidene chloride, trichloroethylene and tetrachloroethylene for water.

Figures 31 through 35 show box plots of selected compounds for breath, daytime personal air, and daytime outdoor air. The plots give means (•), geometric means (x), medians, 25th and 75th percentiles by city. These plots demonstrate how large outliers could inflate the mean. This was particularly true for daytime personal air.

Figures 36 and 37 show box plots for styrene and m,p-dichlorobenzene for breath, overnight personal air, and daytime personal air by city. For both chemicals breath values appear smaller than personal air. For styrene the values for Elizabeth were higher while for m,p-dichlorobenzene the values for Bayonne were sometimes higher.

Tables 177 and 178 give weighted summary statistics for the averaged 24-hour exposure (obtained by averaging daytime and overnight concentrations) for personal air and outdoor air. Here again the concentrations for personal air were greater than those for outdoor air. In comparing the 24-hour average statistics to those for overnight and daytime personal air, the statistics for 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, styrene, ethylbenzene, and the xylenes were generally higher for daytime personal air while the others were generally higher for overnight personal air. In comparing the 24-hour average statistics to those for overnight and daytime outdoor air the

Table 171. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED PERCENTAGE MEASURABLE AND WEIGHTED SUMMARY STATISTICS FOR BREATH - NEW JERSEY FIRST SEASON

Compound	Percentage Measurable	Mean	Median	Geometric Mean	Maximum Value
Chloroform	0.96	1.03	0.90	0.84	1.12
1,1,1-Trichloroethane	1.02	1.90	1.28	2.25*	2.36
Benzene	1.08	1.10	1.52	1.28	1.18
Carbon Tetrachloride	0.28*	0.54	0.73	1.03	0.19
Trichloroethylene	1.14	2.16*	1.00	1.70*	1.67
Tetrachloroethylene	0.95	1.33	1.05	1.16	2.15
Styrene	2.37*	1.29	0.87	1.34	3.97
m,p-Dichlorobenzene	1.68*	0.60	1.50	1.28	0.63
Ethylbenzene	1.07	1.31	1.80	1.31	6.44
o-Xylene	1.36*	1.31	1.53	1.36	4.78
m,p-Xylene	1.01	0.97	1.14	1.07	2.33

* T-test for difference between cities significant at .05 level.

Table 172. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED PERCENTAGE MEASURABLE AND WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR - NEW JERSEY FIRST SEASON

Compound	Percentage Measurable	Mean	Median	Geometric Mean	Maximum Value
Chloroform	1.81*	3.15	1.92	2.06*	9.77
1,1,1-Trichloroethane	1.01	5.99	1.48	1.75*	8.38
Benzene	0.99	1.62	1.64	1.33	1.59
Carbon Tetrachloride	0.77	2.36	0.69	0.56*	5.50
Trichloroethylene	1.19	2.83	1.26	1.29	11.7
Tetrachloroethylene	0.92*	0.97	0.98	0.94	1.92
Styrene	1.06	1.68*	1.50	1.73*	4.75
m,p-Dichlorobenzene	1.13	0.66	1.03	0.91	0.83
Ethylbenzene	1.02	1.09	1.68	1.55*	1.41
o-Xylene	0.97	1.86	1.28	1.39*	3.00
m,p-Xylene	1.00	2.45	1.26	1.31	5.12

* T-test for difference between cities significant at .05 level.

Table 173. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED PERCENTAGE MEASURABLE AND WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR - NEW JERSEY FIRST SEASON

Compound	Percentage Measurable	Mean	Median	Geometric Mean	Maximum Value
Chloroform	1.82*	2.08*	1.45	1.71*	2.17
1,1,1-Trichloroethane	1.13	22.8	2.00	2.05*	76.7
Benzene	1.01	1.63*	1.83	1.51	1.59
Carbon Tetrachloride	0.75	0.56	0.74	0.71	0.50
Trichloroethylene	1.49*	2.43	1.53	1.52*	3.46
Tetrachloroethylene	0.93*	5.80	1.04	1.11	36.4
Styrene	1.04	4.33	1.50	1.81*	46.4
m,p-Dichlorobenzene	1.10	0.81	1.06	1.19	0.97
Ethylbenzene	1.11*	2.85	1.93	1.85*	3.66
o-Xylene	1.08	2.18	1.57	1.60*	2.13
m,p-Xylene	1.01	1.83	1.57	1.55*	2.09

* T-test for difference between cities significant at .05 level.

Table 174. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED PERCENTAGE MEASURABLE AND WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT OUTDOOR AIR - NEW JERSEY FIRST SEASON

Compound	Percentage Measurable	Mean	Median	Geometric Mean	Maximum Value
Chloroform	1.44	1.10	0.55	0.54	2.56
1,1,1-Trichloroethane	1.00	0.71	0.59	0.56	1.90
Benzene	0.84*	1.12	0.67	0.50*	0.54
Carbon Tetrachloride	1.48	0.49*	0.80	0.49*	0.18
Trichloroethylene	1.84*	0.93	0.54	0.61	1.56
Tetrachloroethylene	0.80*	0.83	0.81	0.57*	0.85
Styrene	3.93*	0.89	1.23	0.75	0.49
m,p-Dichlorobenzene	3.04*	1.15	0.59	0.80	3.25
Ethylbenzene	0.88	1.02	0.68	0.70	0.80
o-Xylene	1.20	0.91	0.75	0.83	0.59
m,p-Xylene	1.02	0.90	0.75	0.91	0.69

* T-test for difference between cities significant at .05 level.

Table 175. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED PERCENTAGE MEASURABLE AND WEIGHTED SUMMARY STATISTICS FOR DAYTIME OUTDOOR AIR - NEW JERSEY FIRST SEASON

Compound	Percentage Measurable	Mean	Median	Geometric Mean	Maximum Value
Chloroform	2.04	1.44	0.34	0.57	1.28
1,1,1-Trichloroethane	0.80*	1.59	0.94	0.69	8.25
Benzene	0.91	0.87	0.81	0.46	1.33
Carbon Tetrachloride	1.47	0.75	0.56	0.68	0.54
Trichloroethylene	1.35	0.47	0.53	0.43*	0.65
Tetrachloroethylene	0.74*	0.85	0.59	0.51	0.88
Styrene	6.44*	0.79	0.64	0.80	0.41
m,p-Dichlorobenzene	2.85*	0.44	0.69	0.60*	0.20
Ethylbenzene	1.17	1.28	1.06	0.89	0.94
o-Xylene	1.36	1.06	1.22	0.80	0.63
m,p-Xylene	1.07	1.16	1.10	0.88	0.97

* T-test for difference between cities significant at .05 level.

Table 176. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED PERCENTAGE MEASURABLE AND WEIGHTED SUMMARY STATISTICS FOR WATER - NEW JERSEY FIRST SEASON

Compound	Percentage Measurable	Mean	Median	Geometric Mean	Maximum Value
Vinylidene Chloride	--- *	12.8 *	6.37	5.47*	75.7
Chloroform	1.00	0.94	0.90	0.93	1.35
1,1,1-Trichloroethane	29.6 *	22.6 *	17.8	11.6 *	1.87
Trichloroethylene	47.8 *	29.4 *	20.5	14.1 *	24.3
Bromodichloromethane	1.00	1.03	0.99	1.03	1.25
Dibromochloromethane	1.00	1.27*	1.16	1.24*	2.77
Toluene	0.77	1.00	1.00	0.97	0.96
Tetrachloroethylene	9.37*	21.0 *	16.5	10.9 *	22.8

* T-test for difference between cities significant at .05 level.
--- Percent measurable for Bayonne is 0.

000094

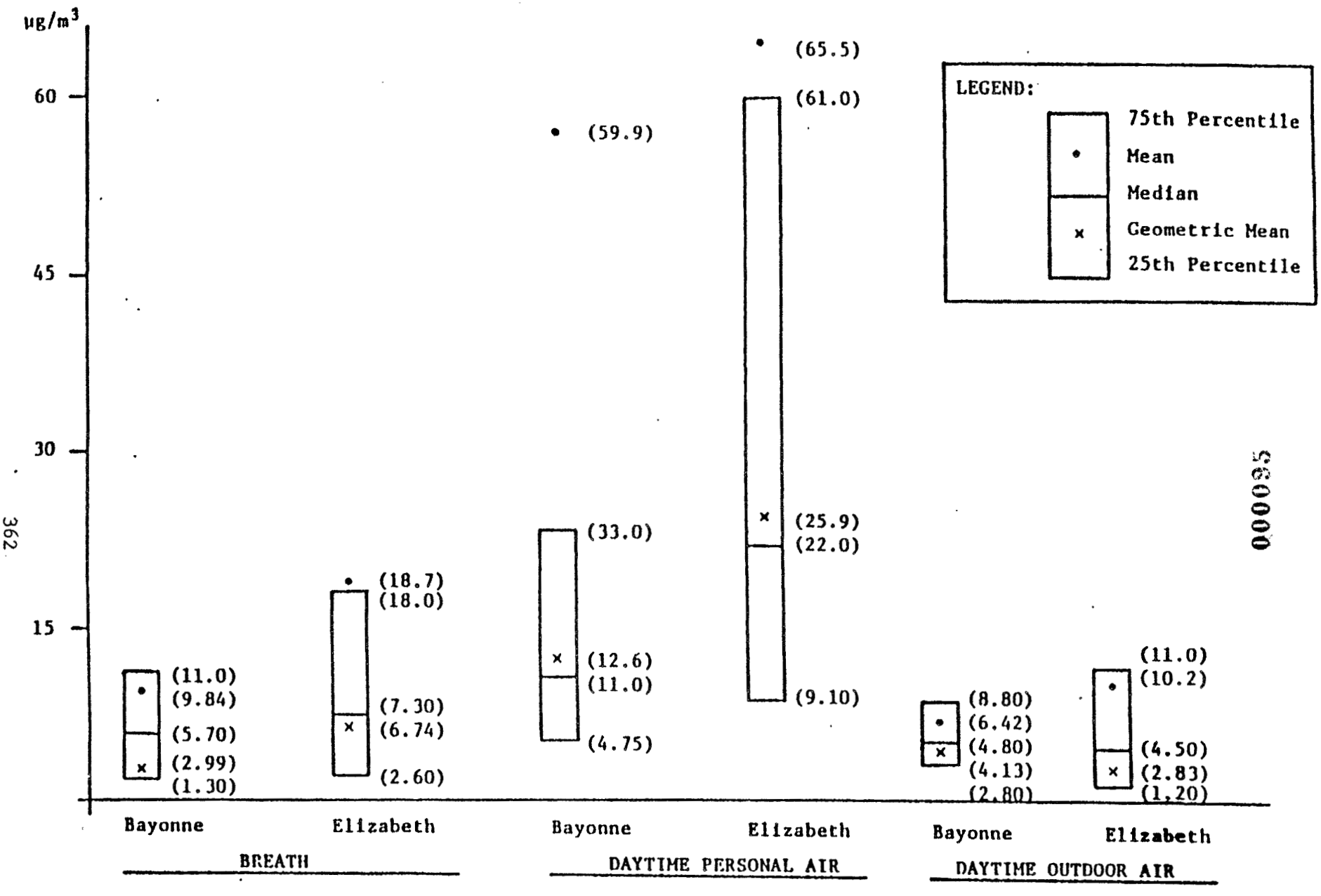

Figure 31. Box plots of weighted means, geometric means, medians, 25th and 75th percentiles for 1,1,1-trichloroethane for breath, daytime personal air and daytime outdoor air by city - New Jersey first season.

000035

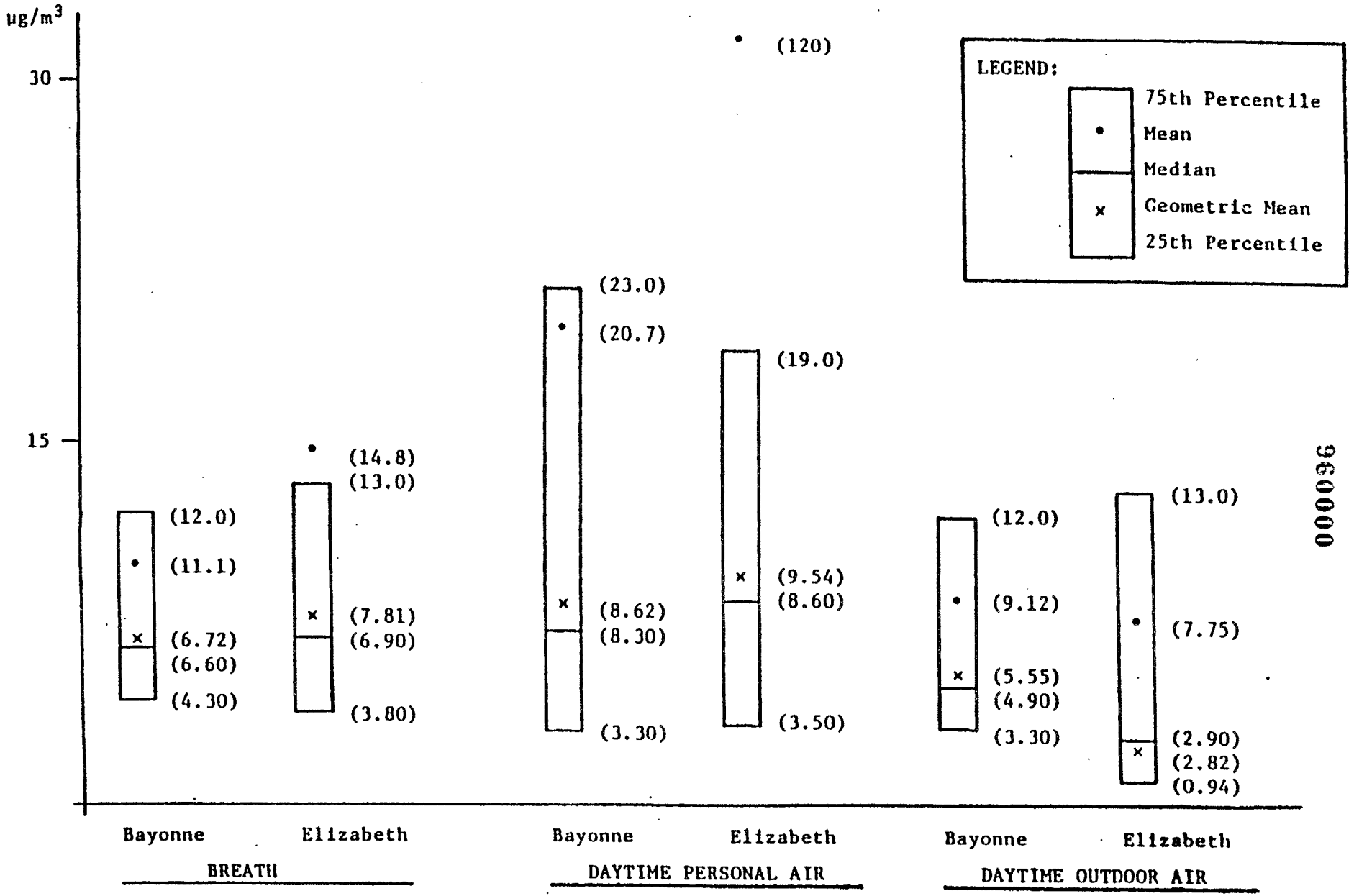

Figure 32. Box plots of weighted means, geometric means, medians, 25th and 75th percentiles for tetrachloroethylene for breath, daytime personal air and daytime outdoor air by city - New Jersey first season.

960000

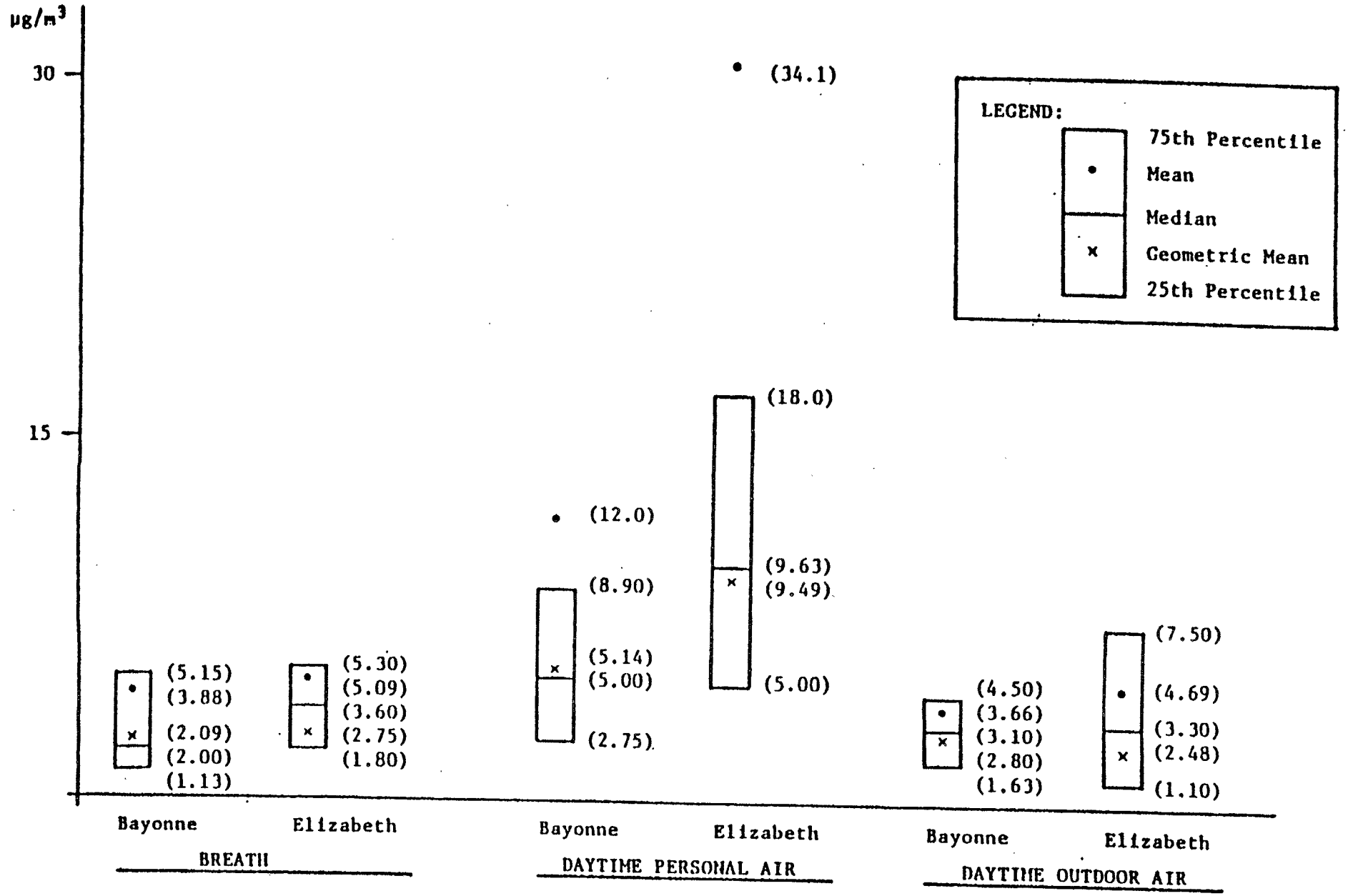

Figure 33. Box plots of weighted means, geometric means, medians, 25th and 75th percentiles for ethylbenzene for breath, daytime personal air and daytime outdoor air by city - New Jersey first season.

000097

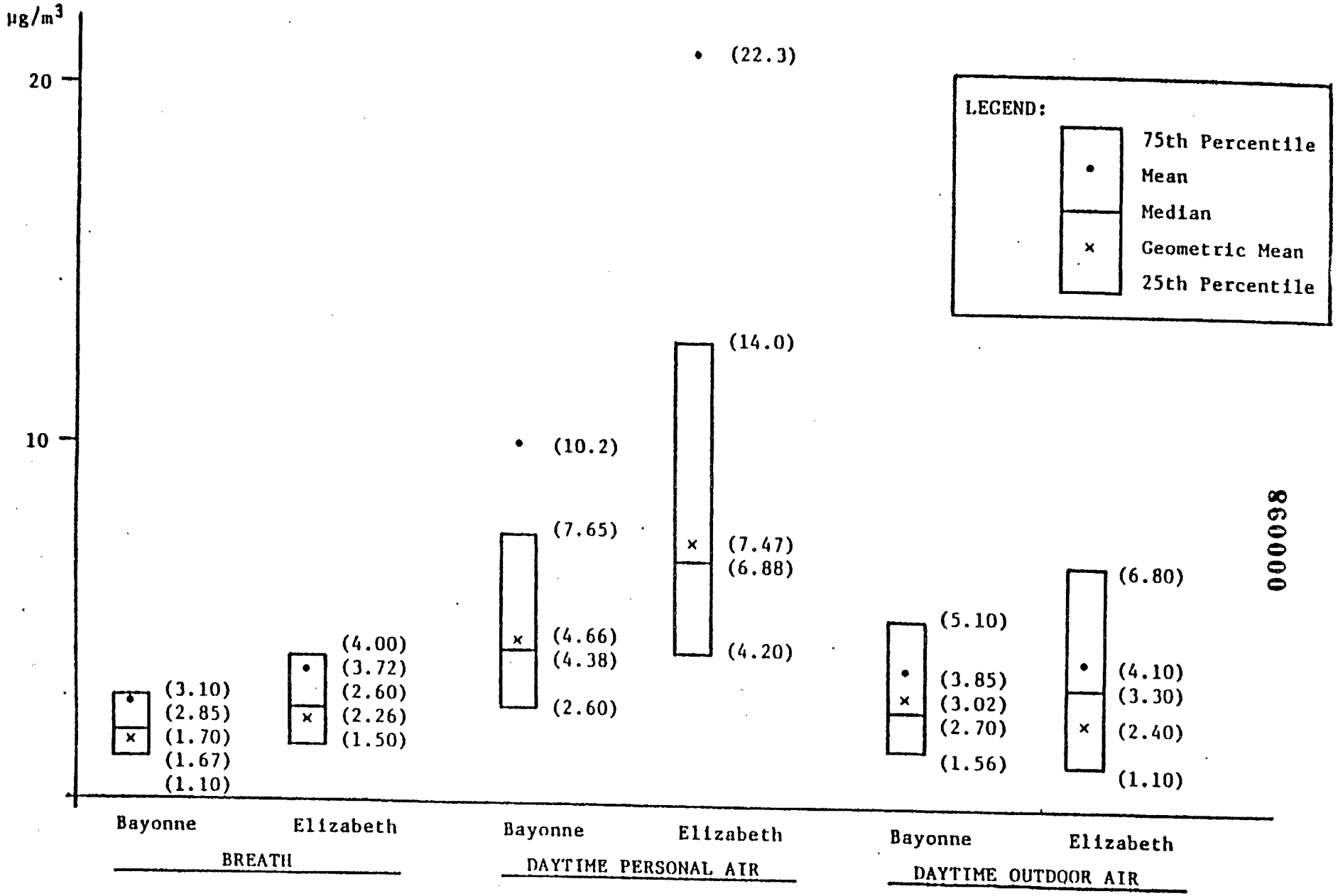

Figure 34. Box plots of weighted means, geometric means, medians, 25th and 75th percentiles for o-xylene for breath, daytime personal air and daytime outdoor air by city - New Jersey first season.

000098

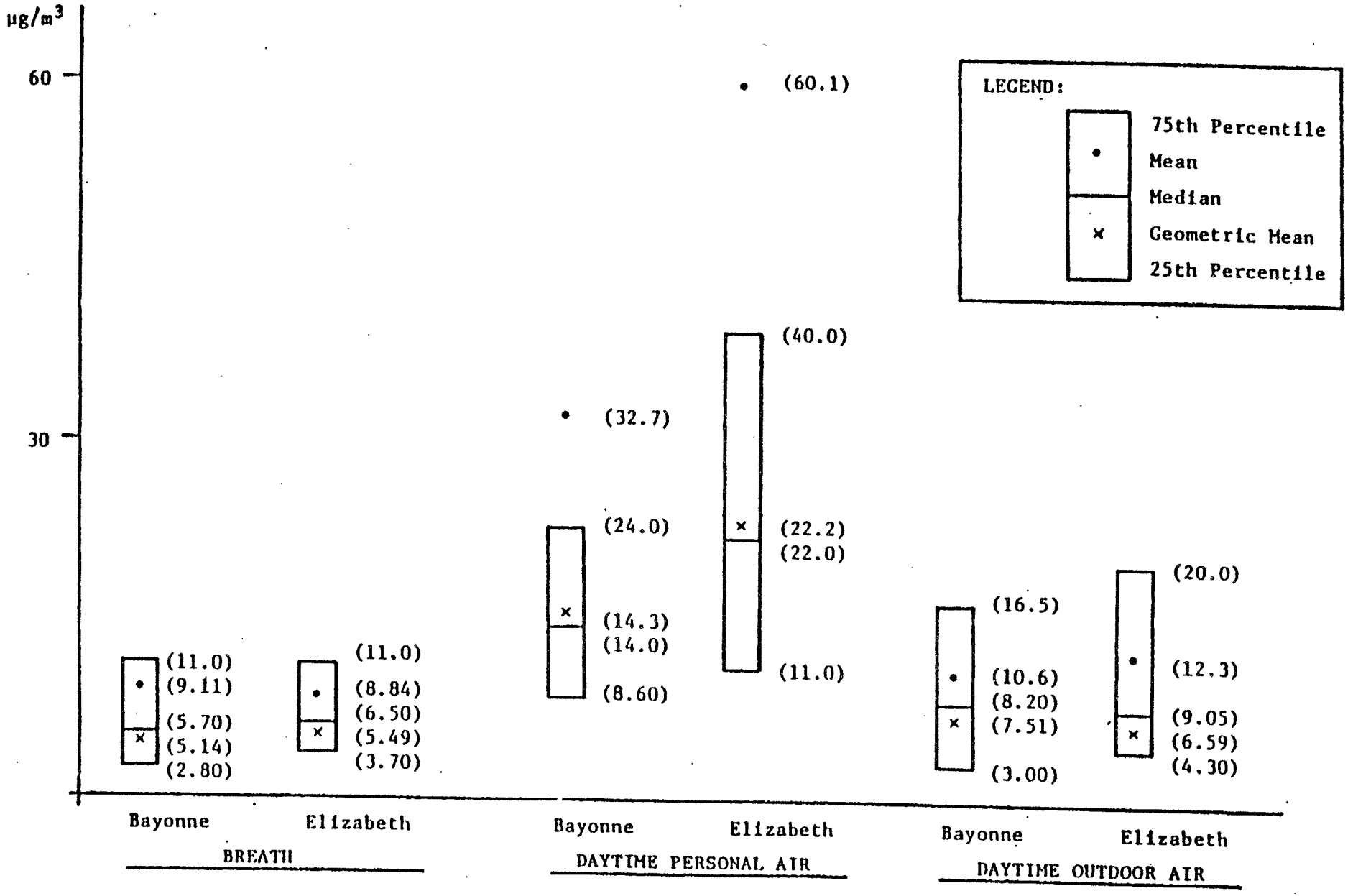

Figure 35. Box plots of weighted means, geometric means, medians, 25th and 75th percentiles for m,p-xylene for breath, daytime personal air and daytime outdoor air by city - New Jersey first season.

000039

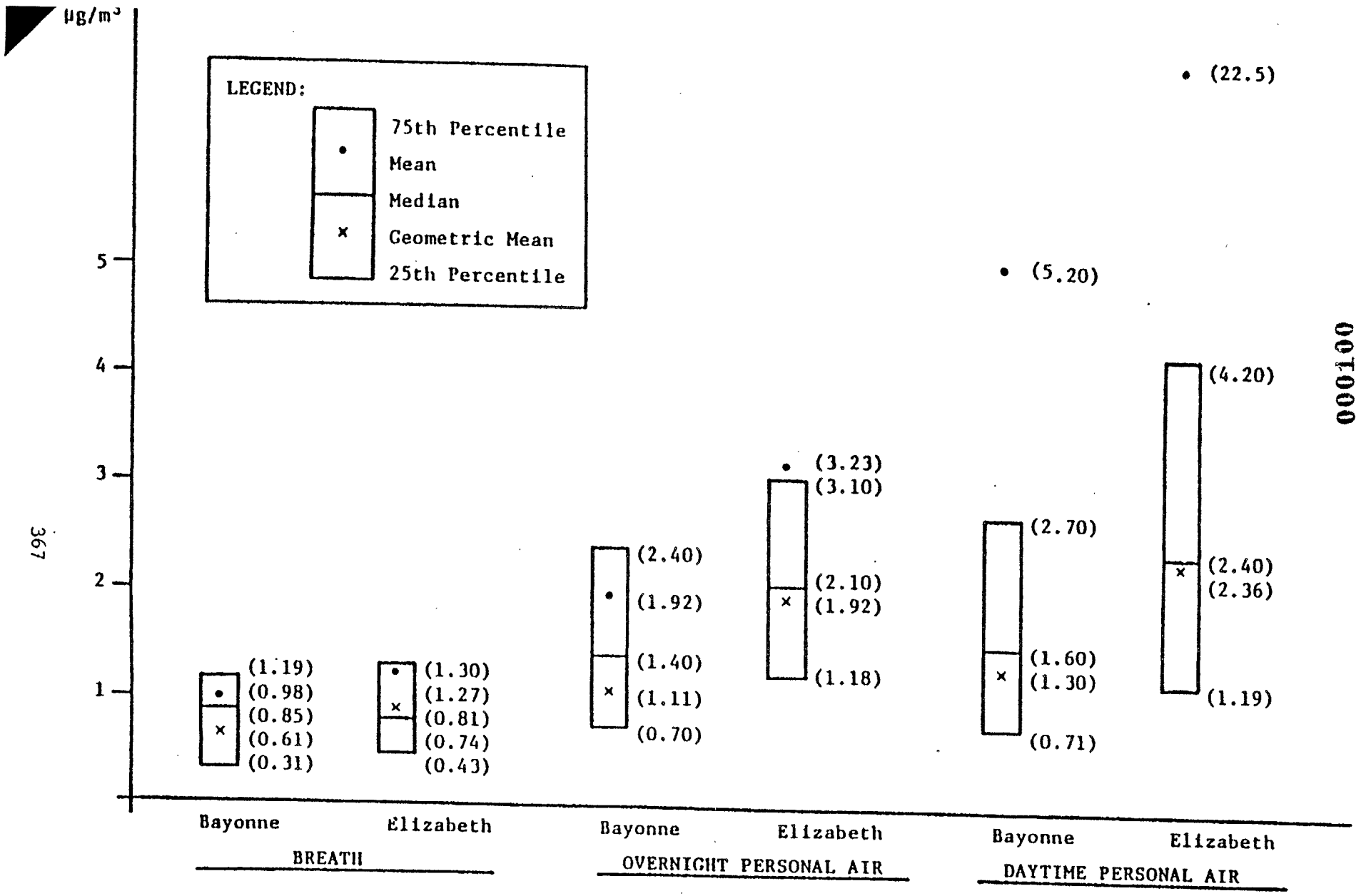

Figure 36. Box plots of weighted means, geometric means, medians, 25th and 75th percentiles for styrene for breath, overnight personal air and daytime personal air by city - New Jersey first season.

001000

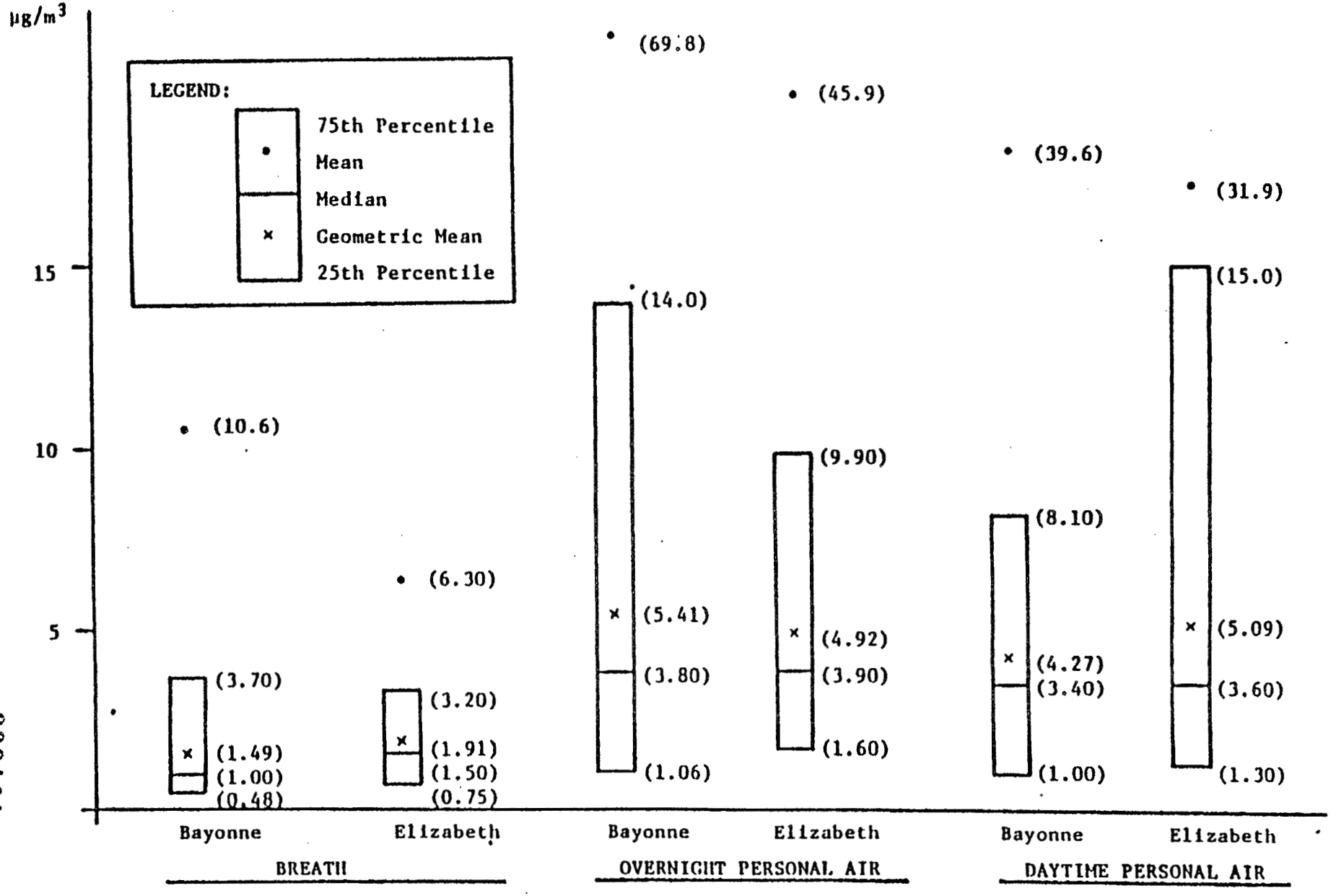

Figure 37. Box plots of weighted means, geometric means, medians, 25th and 75th percentiles for m,p-dichlorobenzene for breath, overnight personal air and daytime personal air by city - New Jersey first season.

000101

Table 177. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - PERSONAL AIR - NEW JERSEY FIRST SEASON

Population Estimate: 128,603
Sample Size Range: 334-336

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	8.03	1.74	3.80	1.08	3.75	8.40	16.6	23.8	152	0.08 - 152
1,1,1-Trichloroethane	486	357	24.7	1.11	19.5	47.8	170	332	4180	0.46 - 165,000
Benzene	28.1	3.25	16.1	1.08	17.5	34.5	53.5	79.0	225	0.02 - 260
Carbon Tetrachloride	9.46	5.03	1.81	1.12	1.53	2.86	6.03	19.2	451	0.20 - 551
Trichloroethylene	13.2	3.33	3.40	1.10	2.87	6.00	16.4	30.5	203	0.24 - 701
Tetrachloroethylene	44.7	22.4	9.33	1.08	8.35	19.7	35.5	53.0	552	0.39 - 6,010
Styrene	9.07	3.68	1.99	1.09	1.90	3.25	5.52	7.70	71.3	0.08 - 3,250
m,p-Dichlorobenzene	45.0	11.8	5.70	1.18	3.78	13.2	114	275	835	0.14 - 1,140
Ethylbenzene	18.9	3.75	7.98	1.08	7.15	13.9	25.7	50.5	310	0.46 - 752
o-Xylene	16.8	3.92	6.67	1.08	6.20	9.95	18.8	36.2	386	0.61 - 417
m,p-Xylene	52.6	15.4	20.0	1.08	19.0	28.5	56.5	145	905	2.58 - 1,600

a/ Arith. Std. Error = Standard error of arith. mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. Std. Error = Geometric standard error - exp(s) where s is the standard error of the weighted mean of LN(x).

Table 178. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - OUTDOOR AIR - NEW JERSEY FIRST SEASON

Population Estimate: 128,603
Sample Size Range: 76-81

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	1.33	0.24	0.79	1.27	1.06	1.60	3.70	4.00	4.43	0.05 - 12.2
1,1,1-Trichloroethane	6.85	1.25	4.13	1.19	5.35	7.10	12.4	14.9	23.0	0.07 - 255
Benzene	8.48	0.87	4.96	1.18	6.45	11.2	17.8	25.0	34.0	0.05 - 34.5
Carbon Tetrachloride	1.08	0.11	0.85	1.11	0.91	1.30	1.78	2.30	5.95	0.14 - 7.06
Trichloroethylene	2.17	0.23	1.64	1.15	1.90	2.50	4.44	5.75	7.19	0.13 - 9.75
Tetrachloroethylene	6.30	0.79	3.47	1.22	3.30	9.35	14.0	18.8	30.3	0.10 - 30.3
Styrene	0.84	0.08	0.67	1.11	0.75	0.96	1.46	2.04	3.65	0.07 - 3.65
m,p-Dichlorobenzene	1.49	0.26	0.98	1.14	0.95	1.70	2.32	6.00	12.2	0.08 - 12.2
Ethylbenzene	3.91	0.46	2.88	1.19	3.70	5.60	8.12	8.40	13.5	0.19 - 13.5
o-Xylene	3.89	0.44	2.98	1.16	3.47	5.55	7.65	10.2	11.5	0.29 - 11.8
m,p-Xylene	10.9	1.20	8.53	1.16	11.0	16.8	19.8	23.5	30.5	0.84 - 31.2

a/ Arith. Std. Error = Standard error of arith. mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. Std. Error = Geometric standard error - exp(s) where s is the standard error of the weighted mean of LN(x).

arithmetic means and percentiles were generally higher for daytime outdoor air while the geometric means and maximum values were generally higher for overnight outdoor air.

Tables 179 through 182 compare the average 24-hour weighted summary statistics for Bayonne and Elizabeth for personal and outdoor air. For personal air with the exception of the geometric mean for carbon tetrachloride, all means that were significantly different were higher for Elizabeth. For overnight air only the arithmetic mean for trichloroethylene and both means for carbon tetrachloride showed a significant difference. All three were higher for Bayonne.

Table 183 gives the percentage measurable by proximity to point source for the six media. Generally the three levels were not significantly different. Exceptions were trichloroethylene and m,p-dichlorobenzene for breath with the moderate level highest; carbon tetrachloride for water with the high level highest; carbon tetrachloride for overnight personal air with the low level highest; for daytime personal air tetrachloroethylene with the high level highest and trichloroethylene and ethylbenzene with the moderate level highest; for overnight outdoor air benzene with the high level highest and carbon tetrachloride and trichloroethylene with the low level highest; and for daytime outdoor air styrene with the low level highest and o-xylene with the moderate level highest.

Tables 184 through 201 give the weighted summary statistics by proximity to point source by media. Pairwise t-tests were done on the means. If any of the pairwise tests were significant, an asterisk was placed by the largest mean. For breath, while the moderate level did show some tendency to be higher, only the geometric mean of tetrachloroethylene was significantly so. For overnight personal air the arithmetic means for the low level were generally highest with the mean for tetrachloroethylene significantly so. The geometric means tended to be higher in the moderate level for overnight personal air with the geometric means for chloroform, 1,1,1-trichloroethane, and ethylbenzene significantly highest. For daytime personal air the means in the moderate level generally were highest with the geometric means for 1,1,1-trichloroethane and tetrachloroethylene significantly so. However, the arithmetic mean for benzene was significantly higher in the

Table 179. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY FIRST SEASON
PERSONAL AIR - BAYONNE

Population Estimate: 54,172
Sample Size Range: 138-140

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	4.18	0.56	2.48	1.10	2.62	5.16	10.4	13.1	26.0	0.28 - 26.0
1,1,1-Trichloroethane	43.4	9.39	15.8	1.14	14.4	29.2	67.5	98.5	639	0.46 - 2,260
Benzene	20.6	3.23	12.0	1.07	12.2	23.8	39.5	58.0	225	0.12 - 225
Carbon Tetrachloride	6.81	1.69	2.42*	1.17	1.73	4.45	8.69	22.0	101	0.28 - 451
Trichloroethylene	6.90	2.73	2.63	1.16	2.22	3.85	9.50	11.2	203	0.26 - 203
Tetrachloroethylene	16.1	1.28	8.86	1.09	7.90	20.6	35.5	53.0	148	0.99 - 183
Styrene	3.44	1.26	1.48	1.16	1.55	2.92	3.90	7.80	71.3	0.08 - 71.3
m,p-Dichlorobenzene	53.2	20.5	5.54	1.35	3.68	12.7	122	330	835	0.14 - 1,140
Ethylbenzene	12.1	2.96	5.61	1.07	5.25	8.35	16.2	23.0	170	0.88 - 212
o-Xylene	10.4	2.73	5.04	1.07	4.60	7.25	12.0	24.0	158	0.61 - 202
m,p-Xylene	31.4	7.23	15.8	1.07	14.6	23.0	42.5	57.2	430	2.58 - 456

a/ Arith. Std. Error = Standard error of arith. mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. Std. Error = Geometric standard error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

Table 180. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY FIRST SEASON
PERSONAL AIR - ELIZABETH

Population Estimate: 74,431
Sample Size Range: 194-196

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	10.8*	2.93	5.17*	1.10	5.12	10.5	22.0	30.0	152	0.08 - 152
1,1,1-Trichloroethane	808	613	34.2*	1.15	23.5	65.5	235	516	4180	2.51 - 165,000
Benzene	33.6*	4.94	19.9*	1.12	23.0	42.5	67.5	93.5	260	0.02 - 260
Carbon Tetrachloride	11.4	8.59	1.47	1.16	1.38	2.31	3.75	5.20	551	0.20 - 551
Trichloroethylene	17.7	5.24	4.09*	1.12	3.39	7.90	20.5	45.8	562	0.24 - 701
Tetrachloroethylene	65.5	37.6	9.69	1.12	8.62	18.7	33.5	52.0	1160	0.39 - 6,010
Styrene	13.2	6.23	2.47*	1.10	2.40	3.75	5.95	7.70	411	0.42 - 3,250
m,p-Dichlorobenzene	39.0	13.8	5.83	1.19	3.90	13.8	67.0	190	702	0.27 - 1,010
Ethylbenzene	23.8	5.83	10.3*	1.10	9.65	17.0	32.6	68.4	323	0.46 - 752
o-Xylene	21.4	6.28	8.19*	1.10	7.25	11.8	24.0	42.5	386	0.62 - 417
m,p-Xylene	68.0	25.8	23.9*	1.12	21.0	30.0	62.0	207	1600	2.95 - 1,600

a/ Arith. Std. Error = Standard error of arith. mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. Std. Error = Geometric standard error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

Table 181. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY FIRST SEASON OUTDOOR AIR - BAYONNE

Population Estimate: 54,172
Sample Size Range: 24-28

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	Range
Chloroform	1.05	0.13	0.81	1.18	0.94	1.14	1.64	2.90	0.16 - 6.15
1,1,1-Trichloroethane	5.78	0.52	4.58	1.17	5.90	6.50	8.30	11.5	0.43 - 30.8
Benzene	7.35	0.70	5.87	1.13	5.45	10.5	12.6	19.5	0.95 - 24.0
Carbon Tetrachloride	1.41*	0.22	1.12*	1.13	0.97	1.75	2.05	3.29	0.34 - 7.06
Trichloroethylene	2.63	0.34	2.32*	1.13	2.02	3.84	4.50	4.55	0.48 - 7.20
Tetrachloroethylene	7.42	1.30	4.79	1.22	4.25	10.9	16.0	18.0	0.64 - 30.3
Styrene	0.93	0.08	0.81	1.09	0.78	1.03	1.52	2.04	0.22 - 2.86
m,p-Dichlorobenzene	1.52	0.31	1.16	1.24	1.35	2.12	2.12	6.00	0.18 - 6.00
Ethylbenzene	3.53	0.28	3.08	1.14	3.70	4.35	5.75	6.50	0.45 - 10.1
o-Xylene	3.73	0.35	3.14	1.16	3.47	4.24	6.58	7.90	0.81 - 11.8
m,p-Xylene	10.4	1.40	8.52	1.23	11.0	12.8	18.0	20.5	1.99 - 22.0

a/ Arith. Std. Error = Standard error of arith. mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. Std. Error = Geometric standard error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

000107

Table 182. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY FIRST SEASON
OUTDOOR AIR - ELIZABETH

Population Estimate: 74,431
Sample Size Range: 51-53

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	Range
Chloroform	1.53	0.39	0.77	1.49	1.14	2.50	3.90	4.43	0.05 - 12.2
1,1,1-Trichloroethane	7.62	2.11	3.82	1.32	4.81	7.55	14.9	23.0	0.07 - 255
Benzene	9.30	1.35	4.38	1.32	7.54	15.0	22.3	25.5	0.05 - 34.5
Carbon Tetrachloride	0.84	0.12	0.70	1.17	0.78	1.06	1.64	1.66	0.14 - 2.37
Trichloroethylene	1.83	0.29	1.28	1.23	1.40	1.92	4.20	5.75	0.13 - 9.75
Tetrachloroethylene	5.68	1.07	2.90	1.35	3.01	8.00	13.5	18.8	0.10 - 29.4
Styrene	0.78	0.13	0.58	1.17	0.67	0.96	1.21	2.30	0.07 - 3.65
m,p-Dichlorobenzene	1.46	0.38	0.86	1.16	0.90	1.42	2.32	3.70	0.08 - 12.2
Ethylbenzene	4.18	0.76	2.75	1.32	3.55	5.60	8.40	9.25	0.19 - 13.5
o-Xylene	4.00	0.71	2.86	1.26	3.60	5.55	7.75	10.2	0.29 - 11.5
m,p-Xylene	11.3	1.80	8.54	1.24	9.70	17.0	22.5	23.5	0.84 - 31.2

a/ Arith. Std. Error = Standard error of arith. mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. Std. Error = Geometric standard error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

Table 183. PERCENT MEASURABLE BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY FIRST SEASON

	Breath			Water		
	High	Moderate	Low	High	Moderate	Low
Vinylidene Chloride	8.20	14.8	12.0	43.9	53.9	28.4
Chloroform	51.6	59.4	65.6	100	99.5	100
1,2-Dichloroethane	3.75	2.17	2.62	0.00	0.00	1.16
1,1,1-Trichloroethane	77.4	83.8	78.6	50.7	57.1	35.0
Benzene	85.1	90.7	90.4	0.73	0.00	0.00
Carbon Tetrachloride	18.7	19.4	20.9	10.5*	10.2	0.47
Trichloroethylene	18.9	40.5*	24.4	50.0	65.5	42.3
Bromodichloromethane	0.00	0.00	0.28	99.2	99.5	100
Dibronochloromethane	0.00	0.00	0.00	99.2	99.5	100
Toluene	---	---	---	10.9	16.6	17.7
Tetrachloroethylene	92.2	93.5	94.1	51.2	60.1	49.1
Chlorobenzene	4.36	2.68	2.32	0.00	0.00	1.91
Bromoform	0.00	0.00	0.00	2.02	2.72	2.31
Dibromochloropropane	0.00	0.00	0.00	---	---	---
Styrene	42.0	53.1	44.0	0.00	0.00	0.00
m,p-Dichlorobenzene	49.2	70.1*	59.5	2.14	1.06	3.15
o-Dichlorobenzene	0.72	3.52	2.30	---	---	---
Ethylbenzene	89.1	97.5	92.5	0.00	0.00	0.00
o-Xylene	83.1	85.4	81.7	---	---	---
m,p-Xylene	95.8	94.2	96.4	0.00	0.00	0.00

	Overnight Personal Air			Daytime Personal Air		
Compound	High	Moderate	Low	High	Moderate	Low
Vinylidene Chloride	1.18	5.50	2.02	3.37	6.72	6.87
Chloroform	54.1	66.0	53.6	30.9	46.5	45.9
1,2-Dichloroethane	5.29	4.03	1.98	1.72	3.17	3.36
1,1,1-Trichloroethane	75.7	85.3	77.3	75.4	77.3	69.4
Benzene	91.2	95.3	97.0	91.2	89.0	91.2
Carbon Tetrachloride	21.2	28.5	38.4*	21.0	29.9	21.1
Trichloroethylene	42.0	55.4	53.5	36.5	55.8*	43.6
Bromodichloromethane	1.79	1.24	2.42	5.19	0.00	0.67
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	---	---	---	---	---	---
Tetrachloroethylene	89.1	94.2	92.5	94.2*	87.8	86.6
Chlorobenzene	6.81	13.4	6.47	5.36	6.01	2.81
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	1.72	0.00	0.00	0.00
Styrene	82.0	88.0	79.1	83.9	77.0	74.3
m,p-Dichlorobenzene	74.8	84.1	83.0	66.7	74.5	81.1
o-Dichlorobenzene	8.77	3.26	9.03	11.0	10.3	6.34
Ethylbenzene	91.3	97.9	91.2	89.4	96.4*	83.4
o-Xylene	84.4	90.9	95.5	83.6	90.0	76.8
m,p-Xylene	100	99.3	98.0	100	99.5	96.5

continued

Table 183 (continued)

Compound	Overnight Outdoor Air			Daytime Outdoor Air		
	High	Moderate	Low	High	Moderate	Low
Vinylidene Chloride	0.00	0.00	3.45	0.00	0.00	0.81
Chloroform	50.2	44.5	40.9	24.1	39.0	40.4
1,2-Dichloroethane	2.47	0.29	8.33	0.00	6.84	3.04
1,1,1-Trichloroethane	87.8	82.6	85.1	81.2	81.3	81.5
Benzene	98.6*	76.6	93.0	59.5	76.6	82.8
Carbon Tetrachloride	33.5	48.6	75.5*	30.4	56.6	55.3
Trichloroethylene	28.6	50.4	76.4*	21.8	50.4	57.8
Bromodichloromethane	0.00	0.00	0.26	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	---	---	---	---	---	---
Tetrachloroethylene	87.3	73.2	84.7	81.6	82.5	79.7
Chlorobenzene	1.67	4.19	0.26	0.00	2.91	6.66
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	36.8	26.2	32.6	0.00	17.6	27.1*
m,p-Dichlorobenzene	29.8	51.2	45.8	13.6	18.6	31.4
o-Dichlorobenzene	0.00	0.29	1.19	0.00	0.00	2.70
Ethylbenzene	100	80.2	85.0	68.8	91.8	80.3
o-Xylene	83.2	80.5	77.7	51.8	91.9*	73.1
m,p-Xylene	97.6	100	97.3	73.1	100	91.6

* Percentages significantly different between proximity at .05 level (pairwise t-tests).

Table 184. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR BREATH - HIGH - NEW JERSEY FIRST SEASON

Population Estimate: 32,000
Sample Size Range: 94-107

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	3.36	0.88	1.04	1.25	1.10	0.05 - 29.0
1,1,1-Trichloroethane	10.3	2.73	4.07	1.28	6.90	0.07 - 520
Benzene	17.3	2.93	6.41	1.34	11.0	0.03 - 150
Carbon Tetrachloride	0.95	0.23	0.50	1.12	0.55	0.05 - 48.0
Trichloroethylene	1.54	0.60	0.80	1.26	0.88	0.08 - 30.0
Tetrachloroethylene	11.0	1.45	6.17	1.13	5.60	0.12 - 68.0
Styrene	1.25	0.41	0.77	1.29	0.87	0.07 - 14.0
m,p-Dichlorobenzene	6.52	2.87	1.44	1.20	1.00	0.13 - 110
Ethylbenzene	4.20	1.28	2.01	1.24	2.20	0.02 - 75.0
o-Xylene	3.09	0.90	1.82	1.21	1.70	0.14 - 46.0
m,p-Xylene	8.96	2.75	4.78	1.25	5.80	0.05 - 150

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 185. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR BREATH - MODERATE - NEW JERSEY FIRST SEASON

Population Estimate: 42,000
Sample Size Range: 83-90

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	3.11	0.84	1.43	1.30	2.10	0.06 - 17.0
1,1,1-Trichloroethane	15.2	2.78	6.43	1.13	7.10	0.13 - 360
Benzene	17.3	2.26	8.79	1.38	12.0	0.02 - 120
Carbon Tetrachloride	1.48	0.60	0.60	1.22	0.70	0.05 - 250
Trichloroethylene	2.02	0.17	1.11	1.17	0.94	0.15 - 14.0
Tetrachloroethylene	19.1	5.03	9.47*	1.17	7.35	1.00 - 200
Styrene	0.97	0.10	0.75	1.09	0.78	0.08 - 6.50
m,p-Dichlorobenzene	9.60	3.26	1.97	1.22	1.40	0.11 - 140
Ethylbenzene	4.27	0.87	2.69	1.30	3.40	0.03 - 65.0
o-Xylene	3.06	0.55	2.00	1.30	2.40	0.05 - 36.0
m,p-Xylene	8.59	1.26	5.75	1.26	6.50	0.25 - 130

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 186. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR BREATH - LOW - NEW JERSEY FIRST SEASON

Population Estimate: 54,000
Sample Size Range: 127-143

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	2.99	0.39	1.36	1.23	1.95	0.05 - 16.0
1,1,1-Trichloroethane	17.4	5.35	4.22	1.29	5.70	0.06 - 520
Benzene	20.6	2.50	8.95	1.35	15.0	0.03 - 200
Carbon Tetrachloride	1.36	0.29	0.66	1.21	0.70	0.05 - 25.0
Trichloroethylene	1.71	0.29	0.88	1.20	0.81	0.09 - 18.0
Tetrachloroethylene	10.2	1.46	6.66	1.07	6.90	0.12 - 280
Styrene	1.22	0.16	0.67	1.17	0.69	0.06 - 31.0
m,p-Dichlorobenzene	7.81	1.64	1.73	1.21	1.40	0.12 - 158
Ethylbenzene	5.01	0.91	2.56	1.19	3.30	0.03 - 290
o-Xylene	3.72	0.59	2.08	1.15	2.50	0.08 - 220
m,p-Xylene	9.22	1.27	5.39	1.17	6.60	0.07 - 350

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 187. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR OVERNIGHT PERSONAL AIR - HIGH - NEW JERSEY FIRST SEASON

Population Estimate: 29,700
Sample Size Range: 107

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	4.87	0.83	2.28	1.15	2.69	0.07 - 34.0
1,1,1-Trichloroethane	35.7	9.80	13.8	1.21	15.0	0.37 - 500
Benzene	20.1	2.31	10.0	1.12	17.0	0.02 - 155
Carbon Tetrachloride	3.39	1.04	1.59	1.22	1.44	0.29 - 69.0
Trichloroethylene	12.3	8.25	2.12	1.16	1.75	0.17 - 350
Tetrachloroethylene	7.72	1.51	4.55	1.24	4.60	0.23 - 70.0
Styrene	2.34	0.23	1.32	1.16	1.60	0.08 - 44.5
m,p-Dichlorobenzene	33.5	11.4	3.60	1.16	2.70	0.08 - 810
Ethylbenzene	10.3	1.71	6.13	1.11	6.00	1.10 - 380
o-Xylene	7.61	1.20	4.69	1.15	4.97	0.16 - 240
m,p-Xylene	24.2	4.02	15.1	1.12	14.0	2.20 - 930

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 188. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR OVERNIGHT PERSONAL AIR - MODERATE - NEW JERSEY FIRST SEASON

Population Estimate: 40,500
Sample Size Range: 90-92

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	14.4	7.80	4.23*	1.22	3.50	0.08 - 215
1,1,1-Trichloroethane	47.4	6.91	23.6*	1.08	24.0	2.20 - 990
Benzene	31.4	5.23	12.8	1.12	18.0	0.02 - 320
Carbon Tetrachloride	3.52	1.02	1.58	1.20	1.69	0.14 - 91.0
Trichloroethylene	6.88	2.83	2.82	1.25	2.28	0.16 - 140
Tetrachloroethylene	12.3	1.94	7.44	1.16	7.80	0.27 - 150
Styrene	2.63	0.26	1.88	1.13	2.00	0.05 - 29.5
m,p-Dichlorobenzene	75.5	29.9	6.16	1.30	4.10	0.24 - 1500
Ethylbenzene	17.5	4.89	8.19*	1.02	7.80	1.10 - 270
o-Xylene	14.6	4.75	6.20	1.04	5.20	0.65 - 250
m,p-Xylene	43.2	11.3	19.0	1.05	18.0	2.74 - 605

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 189. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR OVERNIGHT PERSONAL AIR - LOW - NEW JERSEY FIRST SEASON

Population Estimate: 58,500
Sample Size Range: 147-149

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	6.77	0.75	3.40	1.12	4.40	0.07 - 59.0
1,1,1-Trichloroethane	196	153	18.3	1.20	15.6	0.37 - 8300
Benzene	33.4	10.6	13.7	1.17	13.0	0.04 - 510
Carbon Tetrachloride	26.4	20.3	2.08	1.20	1.56	0.25 - 1100
Trichloroethylene	4.97	0.66	2.73	1.10	2.40	0.16 - 47.0
Tetrachloroethylene	12.4*	1.37	6.61	1.10	7.00	0.08 - 250
Styrene	2.88	0.66	1.42	1.06	1.50	0.06 - 76.0
m,p-Dichlorobenzene	53.9	21.1	5.39	1.34	4.20	0.10 - 1250
Ethylbenzene	10.2	1.86	5.57	1.11	5.35	0.17 - 320
o-Xylene	20.6	13.8	4.97	1.14	4.55	0.21 - 750
m,p-Xylene	77.9	57.4	14.5	1.15	13.0	0.21 - 3100

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

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Table 190. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR DAYTIME PERSONAL AIR - HIGH - NEW JERSEY FIRST SEASON

Population Estimate: 31,000
Sample Size Range: 106-107

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	5.64	0.62	2.46	1.12	2.86	0.08 - 42.0
1,1,1-Trichloroethane	90.7	53.0	11.6	1.20	10.5	0.16 - 36,000
Benzene	19.6	1.03	11.4	1.12	17.0	0.03 - 130
Carbon Tetrachloride	2.34	0.67	1.27	1.13	1.44	0.17 - 24.0
Trichloroethylene	8.54	4.45	2.58	1.13	2.38	0.19 - 550
Tetrachloroethylene	32.1	18.9	7.34	1.17	6.50	0.39 - 1,100
Styrene	3.04	0.69	1.58	1.20	1.70	0.08 - 140
m,p-Dichlorobenzene	26.3	10.9	3.45	1.26	2.70	0.15 - 490
Ethylbenzene	14.8	3.94	6.80	1.09	6.30	0.08 - 420
o-Xylene	10.8	2.04	5.70	1.06	5.20	0.08 - 300
m,p-Xylene	31.0	5.68	17.0	1.08	16.0	0.12 - 800

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 191. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR DAYTIME PERSONAL AIR - MODERATE - NEW JERSEY FIRST SEASON

Population Estimate: 39,000
Sample Size Range: 88

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	8.52	3.20	2.76	1.19	2.60	0.08 - 89.0
1,1,1-Trichloroethane	150	72.5	24.0*	1.27	20.6	0.17 - 4,400
Benzene	26.4	3.53	10.3	1.36	21.0	0.02 - 130
Carbon Tetrachloride	3.23	0.91	1.30	1.32	1.44	0.12 - 83.0
Trichloroethylene	28.8	13.6	3.73	1.22	3.44	0.21 - 1,400
Tetrachloroethylene	205	151	13.4*	1.21	15.0	0.39 - 12,000
Styrene	9.01	4.06	2.31	1.33	2.06	0.13 - 210
m,p-Dichlorobenzene	44.0	14.6	5.45	1.25	3.60	0.11 - 790
Ethylbenzene	36.0	23.0	8.66	1.23	8.00	0.81 - 1,500
o-Xylene	23.7	12.6	7.26	1.17	6.60	0.81 - 830
m,p-Xylene	58.3	29.0	20.4	1.20	20.0	2.60 - 1,800

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

000118

Table 192. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR DAYTIME PERSONAL AIR - LOW - NEW JERSEY FIRST SEASON

Population Estimate: 58,500
Sample Size Range: 145-146

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	7.65	1.52	3.56	1.18	3.81	0.23 - 73.0
1,1,1-Trichloroethane	1640	1430	21.5	1.19	17.5	0.46 - 330,000
Benzene	29.7*	2.46	11.6	1.20	14.0	0.04 - 270
Carbon Tetrachloride	6.76	3.16	1.29	1.13	1.50	0.07 - 900
Trichloroethylene	17.9	9.41	2.91	1.10	2.38	0.29 - 1,100
Tetrachloroethylene	17.8	2.59	7.95	1.05	8.40	0.13 - 290
Styrene	25.8	15.0	1.71	1.12	2.10	0.07 - 6,500
m,p-Dichlorobenzene	33.9	13.2	5.08	1.32	3.90	0.14 - 765
Ethylbenzene	22.6	4.27	6.83	1.13	8.50	0.21 - 640
o-Xylene	16.4	3.36	5.68	1.10	6.10	0.26 - 770
m,p-Xylene	51.3	9.01	18.0	1.13	18.0	0.70 - 1,500

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 193. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR OVERNIGHT OUTDOOR AIR - HIGH - NEW JERSEY FIRST SEASON

Population Estimate: 41,000
Sample Size Range: 18-20

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	0.96	0.40	0.65	1.63	0.66	0.04 - 1.90
1,1,1-Trichloroethane	4.93	1.38	3.95	1.34	4.60	0.05 - 8.40
Benzene	7.45	1.02	5.88*	1.28	8.80	0.05 - 15.0
Carbon Tetrachloride	1.40	0.37	0.99	1.20	0.92	0.23 - 14.0
Trichloroethylene	1.89	0.57	1.49	1.41	1.50	0.08 - 3.75
Tetrachloroethylene	2.99	0.42	2.54	1.16	2.38	0.12 - 8.40
Styrene	0.89	0.11	0.73	1.09	0.70	0.07 - 3.31
m,p-Dichlorobenzene	2.02	0.69	1.36	1.22	1.56	0.18 - 13.0
Ethylbenzene	3.95	0.95	3.38	1.34	4.00	0.69 - 9.50
o-Xylene	3.88	1.13	3.20	1.46	4.20	0.93 - 7.80
m,p-Xylene	11.1	3.08	8.85	1.51	12.0	0.13 - 21.0

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

000120

Table 194. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR OVERNIGHT OUTDOOR AIR - MODERATE - NEW JERSEY FIRST SEASON

Population Estimate: 41,000
Sample Size Range: 23-24

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	1.35	0.50	0.44	1.63	0.32	0.04 - 6.60
1,1,1-Trichloroethane	4.99	1.05	3.34	1.41	4.30	0.33 - 21.0
Benzene	10.4	2.31	2.50	1.31	6.70	0.04 - 91.0
Carbon Tetrachloride	0.85	0.10	0.63	1.15	0.80	0.04 - 2.40
Trichloroethylene	1.79	0.79	0.97	1.45	1.06	0.13 - 11.0
Tetrachloroethylene	3.16	0.38	1.74	1.27	2.60	0.11 - 27.0
Styrene	0.99	0.32	0.44	1.37	0.60	0.06 - 11.0
m,p-Dichlorobenzene	1.08	0.13	0.76	1.24	0.88	0.07 - 3.50
Ethylbenzene	3.70	0.86	2.01	1.46	2.50	0.04 - 20.0
o-Xylene	3.97	0.75	2.71	1.20	2.70	1.00 - 27.0
m,p-Xylene	11.5	1.89	8.50	1.24	8.70	2.10 - 70.0

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 195. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR OVERNIGHT OUTDOOR AIR - LOW - NEW JERSEY FIRST SEASON

Population Estimate: 46,000
Sample Size Range: 40-42

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	1.33	0.32	0.58	1.48	0.88	0.04 - 21.5
1,1,1-Trichloroethane	6.20	1.33	3.69	1.37	4.00	0.07 - 40.0
Benzene	8.04	2.00	4.63	1.41	5.80	0.04 - 39.0
Carbon Tetrachloride	1.22	0.24	0.81	1.31	0.80	0.05 - 5.90
Trichloroethylene	2.65	0.40	1.74	1.16	1.50	0.11 - 15.0
Tetrachloroethylene	4.84*	0.72	2.25	1.32	2.50	0.06 - 23.0
Styrene	0.83	0.20	0.52	1.27	0.45	0.06 - 4.00
m,p-Dichlorobenzene	1.53	0.28	0.98	1.22	1.00	0.10 - 9.20
Ethylbenzene	3.66	0.58	2.26	1.30	2.40	0.11 - 16.0
o-Xylene	4.04	0.74	2.55	1.28	2.50	0.18 - 16.0
m,p-Xylene	10.4	1.20	7.77	1.16	8.40	0.39 - 48.0

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 196. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR DAYTIME OUTDOOR AIR - HIGH - NEW JERSEY FIRST SEASON

Population Estimate: 35,000
Sample Size Range: 23-24

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	1.13	0.16	0.58	1.20	0.48	0.07 - 8.80
1,1,1-Trichloroethane	4.72	1.00	2.17	1.16	3.40	0.07 - 57.0
Benzene	7.29	1.42	2.30	1.23	2.10	0.07 - 44.0
Carbon Tetrachloride	0.90	0.18	0.63	1.27	0.83	0.09 - 3.00
Trichloroethylene	2.68	1.06	1.48	1.42	1.53	0.13 - 8.10
Tetrachloroethylene	6.04	0.93	3.26	1.13	3.60	0.18 - 24.0
Styrene	0.81	0.12	0.61	1.21	0.69	0.11 - 3.44
m,p-Dichlorobenzene	3.72*	1.70	0.93	1.29	0.70	0.11 - 57.0
Ethylbenzene	3.04	0.24	2.09	1.09	2.10	0.12 - 16.0
o-Xylene	3.04	0.40	1.92	1.14	1.81	0.08 - 19.0
m,p-Xylene	7.12	0.66	4.15	1.23	6.00	0.08 - 26.0

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 197. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR DAYTIME OUTDOOR AIR - MODERATE - NEW JERSEY FIRST SEASON

Population Estimate: 38,000
Sample Size Range: 21-22

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	2.30	1.08	0.55	1.92	0.26	0.05 - 8.70
1,1,1-Trichloroethane	11.2	3.26	5.04	1.78	10.0	0.08 - 41.0
Benzene	10.4	1.12	4.07	1.34	8.30	0.07 - 27.0
Carbon Tetrachloride	1.01	0.29	0.72	1.42	0.86	0.07 - 3.80
Trichloroethylene	1.95	0.45	1.26	1.37	1.60	0.13 - 11.0
Tetrachloroethylene	8.71	3.16	4.19	1.61	2.90	0.19 - 27.0
Styrene	0.88	0.19	0.70	1.24	0.69	0.08 - 5.13
m,p-Dichlorobenzene	0.64	0.11	0.46	1.20	0.61	0.10 - 2.51
Ethylbenzene	5.73	1.76	3.30	1.71	4.40	0.08 - 15.0
o-Xylene	5.04	1.55	3.51	1.52	3.70	0.37 - 12.0
m,p-Xylene	15.8	4.38	11.2*	1.46	12.0	1.90 - 35.0

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 198. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR DAYTIME OUTDOOR AIR - LOW - NEW JERSEY FIRST SEASON

Population Estimate: 55,000
Sample Size Range: 41-43

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	1.20	0.14	0.59	1.22	0.92	0.04 - 7.00
1,1,1-Trichloroethane	9.31	4.04	3.27	1.39	4.80	0.05 - 470
Benzene	10.4	1.58	4.90	1.49	10.0	0.05 - 30.0
Carbon Tetrachloride	1.06	0.17	0.74	1.31	1.13	0.04 - 7.10
Trichloroethylene	2.47	0.33	1.53	1.18	2.00	0.09 - 7.45
Tetrachloroethylene	9.54	2.56	3.82	1.45	5.10	0.11 - 57.0
Styrene	0.78	0.11	0.56	1.20	0.71	0.07 - 2.10
m,p-Dichlorobenzene	1.67	0.36	1.01*	1.17	1.06	0.11 - 8.00
Ethylbenzene	4.05	0.69	2.57	1.33	4.00	0.06 - 11.0
o-Xylene	3.89	0.64	2.69	1.28	3.80	0.29 - 12.0
m,p-Xylene	11.6	2.01	7.02	1.38	11.0	0.22 - 37.0

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

Table 199. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR WATER - HIGH - NEW JERSEY FIRST SEASON

Population Estimate: 30,200
Sample Size Range: 88-109

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Vinylidene Chloride	0.21	0.03	0.09	1.19	0.03	0.03 - 2.36
Chloroform	71.4	2.14	65.9	1.06	64.0	0.22 - 128
1,1,1-Trichloroethane	0.51	0.10	0.14	1.30	0.05	0.03 - 2.86
Trichloroethylene	0.43	0.07	0.14	1.29	0.03	0.03 - 2.14
Bromodichloromethane	13.9	0.31	13.2	1.04	13.8	0.06 - 19.8
Dibromochloromethane	2.39	0.06	2.30	1.02	2.36	0.06 - 4.87
Toluene	0.38	0.01	0.35	1.02	0.31	0.31 - 2.23
Tetrachloroethylene	0.42	0.08	0.14	1.30	0.10	0.03 - 2.03

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

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Table 200. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR WATER - MODERATE - NEW JERSEY FIRST SEASON

Population Estimate: 40,400
Sample Size Range: 65-93

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Vinylidene Chloride	0.22	0.06	0.10	1.32	0.07	0.03 - 1.07
Chloroform	71.7	3.58	66.9	1.07	67.2	0.03 - 134
1,1,1-Trichloroethane	0.63	0.21	0.18	1.51	0.16	0.03 - 3.55
Trichloroethylene	0.52	0.14	0.19	1.46	0.22	0.03 - 2.42
Bromodichloromethane	14.0	0.25	13.5	1.03	14.0	0.06 - 19.9
Dibromochloromethane	2.49	0.06	2.40	1.02	2.43	0.06 - 4.64
Toluene	0.43	0.07	0.37	1.08	0.31	0.31 - 2.63
Tetrachloroethylene	0.45	0.12	0.16	1.40	0.14	0.03 - 2.44

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

000127

Table 201. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE FOR WATER - LOW - NEW JERSEY FIRST SEASON

Population Estimate: 58,000
Sample Size Range: 113-152

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Vinylidene Chloride	0.28	0.06	0.07	1.18	0.03	0.03 - 1.92
Chloroform	67.8	1.60	65.3	1.02	67.2	27.1 - 168
1,1,1-Trichloroethane	0.61	0.12	0.11	1.21	0.03	0.03 - 5.34
Trichloroethylene	0.65	0.16	0.12	1.27	0.03	0.03 - 4.18
Bromodichloromethane	13.2	0.23	13.0	1.02	13.1	6.33 - 23.4
Dibromochloromethane	2.45	0.12	2.33	1.03	2.30	1.01 - 8.39
Toluene	0.43	0.05	0.37	1.06	0.31	0.31 - 2.73
Tetrachloroethylene	0.45	0.10	0.11	1.24	0.03	0.03 - 3.32

a/ Arith. S.E. = Standard Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* Means significantly different between proximity classes at .05 level (pairwise t-tests).

000128

low level. For overnight outdoor air the geometric means were almost all highest in the high level with the mean for benzene significantly so. The arithmetic means show no tendency to be higher in any one level but the arithmetic mean for tetrachloroethylene was significantly higher in the low level. For daytime outdoor air again the means tended to be highest in the moderate level with the geometric mean for m,p-xylene significantly so. However, the arithmetic mean in the high level, the geometric mean in the low level for m,p-dichlorobenzene were significantly higher. For water there appeared to be little difference in the levels.

In Appendix X the percentages measurable and weighted summary statistics are given by city by proximity to point source. Percentages measurable and weighted summary statistics are also given by potential exposure based on responses to the 24-hour screener.

Comparison of Overnight Personal and Outdoor Air

To gain additional insight into the comparison between indoor and outdoor air, Tables 202 through 206 compared the unweighted percentages of concentrations measurable and unweighted summary statistics for 85 people in New Jersey who provided both overnight personal air and overnight outdoor air data. The fixed sites which collected the outdoor air were in the vicinity of the subject's home.

Table 202 shows the percentage measurable overall and by city. The overnight personal air percentages were usually higher than the overnight outdoor air percentages. Overall, ten of the eighteen compounds examined had more than 40 percent of the samples measurable in both media. Of these ten compounds, nine had more samples with measurable concentrations for personal indoor air than outdoor air, although in several cases the percentages were similar. Statistically significant differences in percent measurable between overnight personal air and overnight outdoor air were noted for five compounds with four of these having higher percentages for the personal air samples (i.e., chloroform, chlorobenzene, styrene, and m,p-dichlorobenzene).

Table 203 gives the unweighted arithmetic means, standard errors, medians, and ranges for overnight outdoor air and overnight personal air samples for eleven compounds. All eleven compounds showed higher means and medians for personal air. For ten of the eleven means and all of

Table 202. UNWEIGHTED PERCENTAGE OF CONCENTRATIONS MEASURABLE FOR THOSE PERSONS HAVING BOTH OVERNIGHT OUTDOOR AIR AND OVERNIGHT PERSONAL AIR DATA - NEW JERSEY FIRST SEASON

Compound	Overall		Bayonne		Elizabeth	
	Outdoor	Personal	Outdoor	Personal	Outdoor	Personal
Sample Size Range:	81-85	84-85	27-30	29-30	54-55	54-55
Chloroform	42.4	63.5 *	30.0	43.3	49.1	74.5 *
1,2-Dichloroethane	5.88	3.53	10.0	6.67	3.64	1.82
1,1,1-Trichloroethane	82.4	83.5	80.0	76.7	83.6	87.3
Benzene	88.1	90.5	96.6	89.7	83.6	90.9
Carbon Tetrachloride	61.9 *	24.7	55.2 *	20.0	65.5 *	27.3
Trichloroethylene	61.9	52.9	48.3	33.3	69.1	63.6
Bromodichloromethane	1.18	4.71	3.33	3.33	0.00	7.27
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Tetrachloroethylene	77.1	87.1	82.1	96.7	74.5	81.8
Chlorobenzene	4.71	11.8	13.3	3.33	0.00	16.4 *
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	42.2	83.3 *	17.2	76.7 *	55.6	87.0 *
m,p-Dichlorobenzene	43.9	76.5 *	29.6	70.0 *	50.9	80.0 *
o-Dichlorobenzene	3.70	8.24	3.70	6.67	3.70	9.09
Ethylbenzene	87.8	94.0	89.3	93.3	87.0	94.4
o-Xylene	84.3	90.5	72.4	90.0	90.7	90.7
m,p-Xylene	96.4	97.6	93.1	96.7	98.2	98.2

* T-test for difference between media significant at .05 level.

Table 203. UNWEIGHTED SUMMARY STATISTICS ($\mu g/m^3$) FOR THOSE PERSONS HAVING BOTH OVERNIGHT OUTDOOR AIR AND OVERNIGHT PERSONAL AIR - NEW JERSEY FIRST SEASON

Compound	Mean	Standard Error	Median	Range
OVERNIGHT OUTDOOR AIR				
Sample Size Range: 81-85				
Chloroform	1.68	0.38	0.74	0.04 - 21.5
1,1,1-Trichloroethane	5.83	0.64	4.20	0.05 - 40.0
Benzene	9.66	1.36	7.00	0.04 - 91.0
Carbon Tetrachloride	1.22	0.18	0.81	0.04 - 14.0
Trichloroethylene	2.42	0.31	1.34	0.08 - 15.0
Tetrachloroethylene	4.17	0.55	2.60	0.06 - 27.0
Styrene	1.04	0.16	0.67	0.06 - 11.0
m,p-Dichlorobenzene	1.33	0.20	0.80	0.07 - 13.0
Ethylbenzene	4.03	0.41	3.20	0.04 - 20.0
o-Xylene	4.23	0.44	3.00	0.18 - 27.0
m,p-Xylene	11.7	1.12	9.90	0.13 - 70.0
OVERNIGHT PERSONAL AIR				
Sample Size Range: 84-85				
Chloroform	8.36*	2.59	2.94**	0.08 - 215
1,1,1-Trichloroethane	53.0 *	14.4	15.6 **	0.36 - 880
Benzene	21.1 *	2.51	13.0 **	0.02 - 120
Carbon Tetrachloride	1.86*	0.22	1.38**	0.20 - 14.0
Trichloroethylene	3.48	0.60	2.00**	0.24 - 47.0
Tetrachloroethylene	10.7 *	2.98	5.60**	0.08 - 250
Styrene	3.00*	0.66	1.80**	0.06 - 53.5
m,p-Dichlorobenzene	40.1 *	15.4	2.80**	0.12 - 915
Ethylbenzene	13.1 *	3.87	6.10**	0.17 - 320
o-Xylene	7.60*	0.90	4.98**	0.20 - 46.0
m,p-Xylene	21.0 *	2.34	15.5 **	0.20 - 120

* T-test for difference in means between media significant at .05 level.
** Wilcoxon signed rank test for difference in medians between media significant at .05 level.

000131

the medians the value for personal air was significantly higher. For some compounds such as chloroform, 1,1,1-trichloroethane, m,p-dichlorobenzene, styrene, and ethylbenzene, the maximum values of the ranges were much higher for personal air.

Table 204 gives a summary of median and maximum values overall and for the two cities by the two media. For overnight outdoor air, the median and maximum values for Bayonne tended to be higher while the opposite was true for overnight personal air.

Table 205 gives a summary of median and maximum concentrations for overnight outdoor and personal air and their ratios. The table demonstrates how much larger the overnight personal air values were than the overnight outdoor air values. In all cases examined, the personal air median and maximum values were larger than the corresponding outdoor air values.

Table 206 shows the Spearman correlations between overnight outdoor air and overnight personal air for all values and for measurable amounts only for the eleven compounds. Although many of the correlations were significantly different from zero, in general, the magnitudes were low with none of the correlations greater than .63.

Figures 38 through 40 show the natural logarithmic plots of selected chemicals for overnight outdoor air versus overnight personal air. One was added to each number before the log was taken so each plot starts at 0. The lines represent the mid QL values for the compound for the two media. An "0" represents both measurable and an "X" represents one or both not measurable. The Spearman correlations for all concentrations and for only those with both media measurable are also shown. Although the logarithmic transformations improved the plots and there is some evidence of a positive trend, it is evident that there was not strong correlation between the two media. This is partly due to the large number of observations below or near the max QL.

Tables 207 through 210 give percentages measurable and summary statistics for overnight personal air and expanded overnight outdoor air. The outdoor air fixed sites were chosen one per segment with several people in the sample from each segment. The expanded outdoor air refers to the matching of the concentrations for the one fixed site per segment to each person in the segment, assuming that had there been

Table 204. UNWEIGHTED MEDIAN AND MAXIMUM VALUES ($\mu g/m^3$) FOR THOSE PERSONS HAVING BOTH OVERNIGHT OUTDOOR AIR AND OVERNIGHT PERSONAL AIR - NEW JERSEY FIRST SEASON

Compound	Overall		Bayonne		Elizabeth	
	Median	Maximum Value	Median	Maximum Value	Median	Maximum Value
OVERNIGHT OUTDOOR AIR						
Chloroform	0.74	21.5	1.04	8.40	0.39	21.5
1,1,1-Trichloroethane	4.20	40.0	6.35	21.0	3.20	40.0
Benzene	7.00	91.0	8.30	91.0	6.10	49.0
Carbon Tetrachloride	0.81	14.0	1.40	14.0	0.75	2.50
Trichloroethylene	1.34	15.0	1.58	9.60	1.20	15.0
Tetrachloroethylene	2.60	27.0	3.00	27.0	2.10	23.0
Styrene	0.67	11.0	0.65	11.0	0.71	5.40
m,p-Dichlorobenzene	0.80	13.0	0.94	4.00	0.62	13.0
Ethylbenzene	3.20	20.0	3.12	20.0	3.20	16.0
o-Xylene	3.00	27.0	3.00	27.0	3.00	16.0
m,p-Xylene	9.90	70.0	10.8	70.0	9.12	48.0
OVERNIGHT PERSONAL AIR						
Chloroform	2.94	215	2.08	14.0	3.83	215
1,1,1-Trichloroethane	15.6	880	11.5	650	17.0	880
Benzene	13.0	120	13.0	45.0	14.0	120
Carbon Tetrachloride	1.38	14.0	1.72	14.0	1.29	5.75
Trichloroethylene	2.00	47.0	1.66	9.10	2.30	47.0
Tetrachloroethylene	5.60	250	5.85	32.0	5.50	250
Styrene	1.80	53.5	1.45	16.0	1.89	53.5
m,p-Dichlorobenzene	2.80	915	4.45	810	2.70	915
Ethylbenzene	6.10	320	5.05	28.0	7.55	320
o-Xylene	5.00	46.0	4.80	29.5	5.70	46.0
m,p-Xylene	15.5	120	15.0	87.0	15.9	120

000133

Table 205. SUMMARY OF MEDIANS, MAXIMUM CONCENTRATIONS, AND THEIR RATIOS FOR MATCHED OVERNIGHT PERSONAL AIR AND OVERNIGHT OUTDOOR AIR - NEW JERSEY FIRST SEASON

Compound	Overnight Outdoor Air	Overnight Personal Air	Personal/ Outdoor Ratio
Chloroform	0.74 (21.5)*	2.94 (215)	3.97 (10.0)
1,1,1-Trichloroethane	4.20 (40.0)	15.6 (880)	3.71 (22.0)
Benzene	7.00 (91.0)	13.0 (120)	1.86 (1.32)
Carbon Tetrachloride	0.81 (14.0)	1.38 (14.0)	1.70 (1.00)
Trichloroethylene	1.34 (15.0)	2.00 (47.0)	1.49 (3.13)
Tetrachloroethylene	2.60 (27.0)	5.60 (250)	2.15 (9.26)
Styrene	0.67 (11.0)	1.80 (53.5)	2.69 (4.86)
m,p-Dichlorobenzene (isomers)	0.80 (13.0)	2.80 (915)	3.50 (70.4)
Ethylbenzene	3.20 (20.0)	6.10 (320)	1.91 (16.0)
o-Xylene	3.00 (27.0)	4.98 (46.0)	1.66 (1.70)
m,p-Xylene (isomers)	9.90 (70.0)	15.5 (120)	1.57 (1.71)

* Median (maximum concentration).

000134

Table 206. SPEARMAN CORRELATIONS OF ALL CONCENTRATIONS AND OF MEASURABLE AMOUNTS ONLY - OVERNIGHT OUTDOOR AIR VS. OVERNIGHT PERSONAL AIR - NEW JERSEY FIRST SEASON a/

Compound	All Concentrations		Measurable Amounts	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	0.19	85	0.27	28
1,1,1-Trichloroethane	0.20	85	0.20	57
Benzene	0.34*	83	0.19	69
Carbon Tetrachloride	0.35*	84	0.57*	17
Trichloroethylene	0.48*	84	0.49*	31
Tetrachloroethylene	0.42*	83	0.26	56
Styrene	0.19	82	0.09	33
m,p-Dichlorobenzene	0.44*	82	0.63*	32
Ethylbenzene	0.18	81	0.26*	68
o-Xylene	0.22*	82	0.23	63
m,p-Xylene	0.25*	82	0.22	77

* Significantly different from zero at .05 level.
a/ See Tables 211 and 212 for other media.

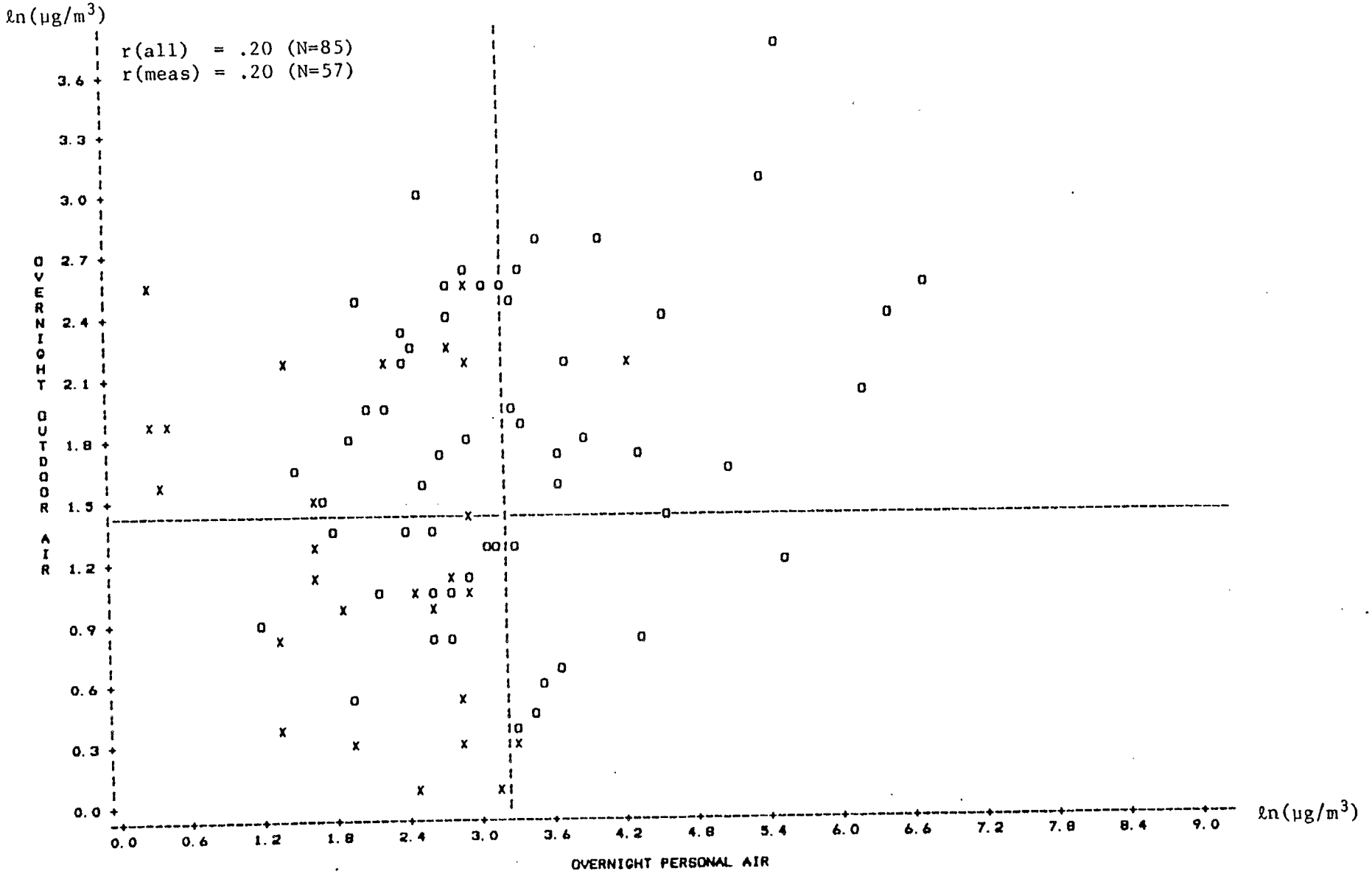

Figure 38. 1,1,1-Trichloroethane - New Jersey first season.

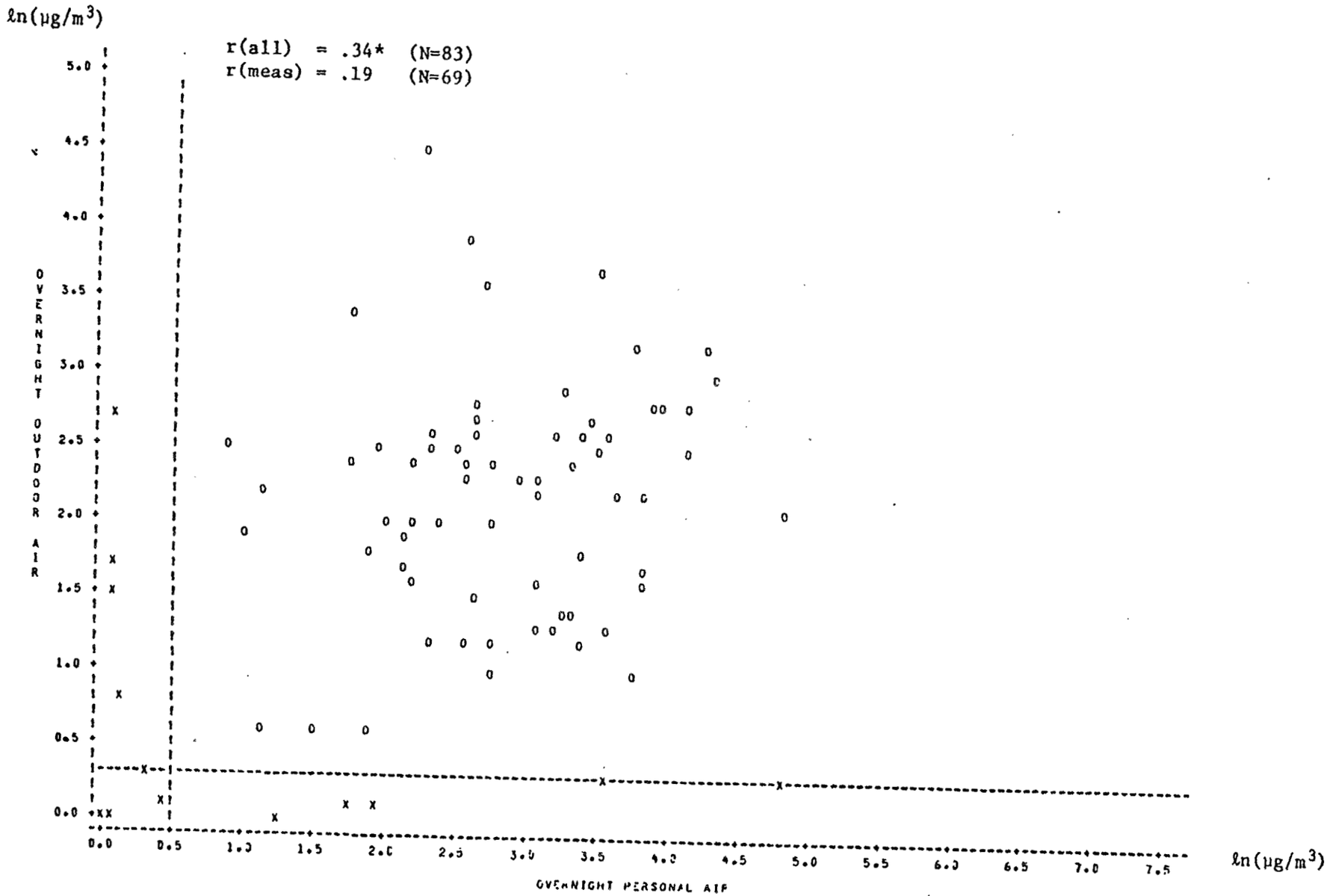

Figure 39. Benzene - New Jersey first season.

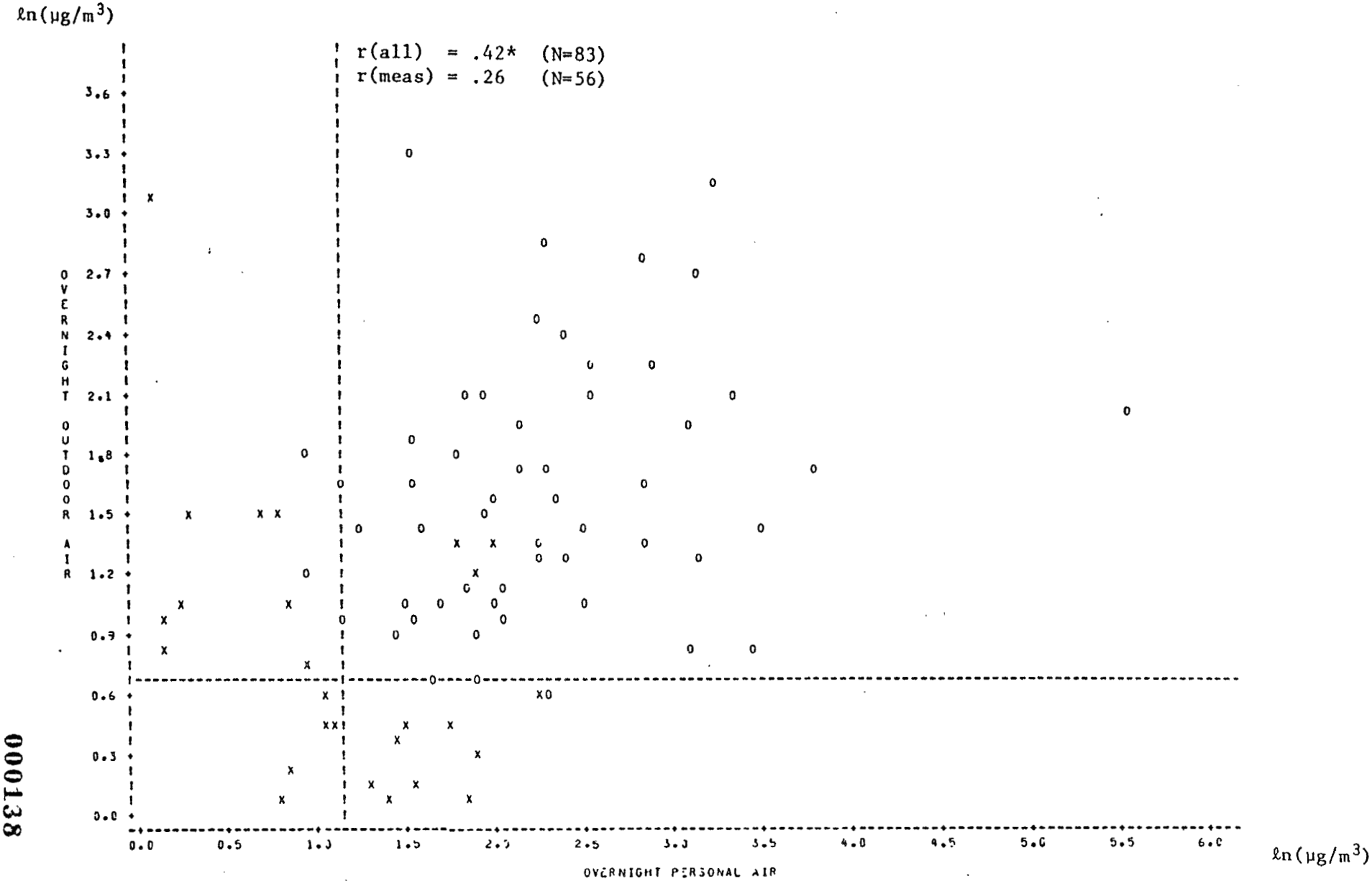

Figure 40. Tetrachloroethylene - New Jersey first season.

Table 207. PERCENT MEASURABLE OVERALL AND BY CITY FOR OVERNIGHT PERSONAL AIR AND EXPANDED OVERNIGHT OUTDOOR AIR - NEW JERSEY FIRST SEASON

Population Estimate - Overall: 128,603
Bayonne: 54,172
Elizabeth: 74,431

Compound	Overall		Overnight Personal Air		Overnight Outdoor Air	
	Overnight Personal Air	Overnight Outdoor Air	Bayonne	Elizabeth	Bayonne	Elizabeth
Vinylidene Chloride	2.92	1.03	0.83	4.45	0.00	1.78
Chloroform	57.6	33.0	39.2	70.9*	22.6	40.5
1,2-Dichloroethane	3.39	3.14	5.17	2.09	4.22	2.36
1,1,1-Trichloroethane	79.5	82.2	78.9	79.9	82.5	82.1
Benzene	95.1	82.8	95.9	94.6	90.5	77.2
Carbon Tetrachloride	31.3	56.4	36.2	27.8	53.8	58.4
Trichloroethylene	51.4	56.9	46.4	55.1	42.3	67.5
Bromodichloromethane	1.91	0.43	0.01	3.29	1.02	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Tetrachloroethylene	92.2	77.8	96.6*	89.0	82.3	74.5
Chlorobenzene	8.74	2.78	5.07	11.4	6.59	0.00
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.78	0.00	1.86	0.00	0.00	0.00
Styrene	82.6	37.4	79.6	84.7	16.5	52.6*
m,p-Dichlorobenzene	81.5	44.6	75.6	85.8	28.7	56.1
o-Dichlorobenzene	7.15	0.76	9.13	5.72	1.08	0.52
Ethylbenzene	93.4	89.8	92.2	94.2	88.6	90.7
o-Xylene	86.9	82.1	88.6	85.7	67.8	92.5*
m,p-Xylene	98.9	94.2	98.8	99.0	87.1	99.3
Sample Size Range:	346-348	285-301	147-149	197-199	107-121	174-180

* Significantly different between cities at .05 level by t-test.

000139

Table 208. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR - NEW JERSEY FIRST SEASON

Population Estimate: 128,603
Sample Size Range: 346-348

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	2.96	8.73	2.39	3.32	1.07	3.30	7.90	16.0	24.0	215	0.07 - 215
1,1,1-Trichloroethane	24.0	113.	72.2	18.6	1.11	16.9	38.0	78.0	180	880	0.37 - 8300
Benzene	0.60	29.7	5.22	12.5	1.09	15.0	32.0	54.0	73.0	320	0.02 - 510
Carbon Tetrachloride	2.50	13.9	9.63	1.79	1.11	1.50	2.44	5.75	18.0	200	0.14 - 1100
Trichloroethylene	2.45	7.27	2.25	2.60	1.10	2.25	4.80	12.0	22.5	140	0.16 - 350
Tetrachloroethylene	2.16	11.3	0.86	6.30	1.08	6.35	12.0	26.0	35.0	70.0	0.08 - 250
Styrene	0.76	2.68	0.31	1.52	1.06	1.75	3.00	4.60	6.20	16.0	0.05 - 76.0
m,p-Dichlorobenzene	1.20	56.0	14.8	5.12	1.19	3.80	13.0	82.0	260	1200	0.08 - 1500
Ethylbenzene	4.50	12.6	2.07	6.43	1.06	6.30	12.0	22.0	35.0	110	0.17 - 380
o-Xylene	4.90	15.7	6.75	5.26	1.08	4.90	8.70	15.0	27.0	250	0.16 - 750
m,p-Xylene	4.80	54.6	27.3	16.0	1.08	14.0	25.0	47.0	87.0	605	0.21 - 3100

a/ Mid Q.L. = Median Quantifiable Limit.
b/ Arith. S.E. = Standard Error of Arith. Mean.
c/ Geo. Mean = Geometric Mean.
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).

Table 209. WEIGHTED SUMMARY STATISTICS FOR EXPANDED OVERNIGHT OUTDOOR AIR - NEW JERSEY FIRST SEASON

Population Estimate: 128,603
Sample Size Range: 286-301

Compound	Mid a/ Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	1.00	0.91	0.14	0.42	1.16	0.48	1.10	1.90	3.10	6.60	0.04 - 21.5
1,1,1-Trichloroethane	1.10	4.83	0.54	2.98	1.18	3.50	6.20	11.0	15.0	19.0	0.05 - 40.0
Benzene	0.48	8.09	0.73	3.37	1.17	5.40	11.0	15.0	24.0	49.0	0.04 - 91.0
Carbon Tetrachloride	1.10	1.31	0.25	0.84	1.09	0.81	1.30	2.10	4.80	14.0	0.04 - 14.0
Trichloroethylene	1.70	2.22	0.36	1.38	1.17	1.31	2.90	4.13	7.50	13.0	0.08 - 15.0
Tetrachloroethylene	1.00	3.32	0.24	2.12	1.08	2.50	4.00	6.30	8.40	20.0	0.06 - 27.0
Styrene	1.30	0.83	0.11	0.51	1.14	0.60	0.99	1.60	2.76	5.40	0.06 - 11.0
m,p-Dichlorobenzene	1.25	1.49	0.24	0.87	1.11	0.94	1.69	2.50	4.00	13.0	0.07 - 13.0
Ethylbenzene	0.62	3.64	0.41	2.43	1.19	2.70	4.83	6.90	11.0	13.0	0.04 - 20.0
o-Xylene	1.70	3.73	0.36	2.78	1.12	2.70	5.50	7.40	8.15	11.6	0.18 - 27.0
m,p-Xylene	1.10	10.5	1.02	7.72	1.17	9.50	14.0	21.0	26.0	29.0	0.13 - 70.0

a/ Mid Q.L. = Median Quantifiable Limit.
b/ Arith. S.E. = Standard Error of Arith. Mean.
c/ Geo. Mean = Geometric Mean.
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).

Table 210. RATIO OF OVERNIGHT PERSONAL AIR TO EXPANDED OVERNIGHT OUTDOOR AIR FOR WEIGHTED ARITHMETIC MEAN, GEOMETRIC MEAN, MEDIAN AND MAXIMUM - NEW JERSEY FIRST SEASON

Compound	Mean	Mean	Median	Maximum
Chloroform	9.58	7.91	6.82	10.0
1,1,1-Trichloroethane	23.3	6.24	4.82	208
Benzene	3.67	3.70	2.78	5.60
Carbon Tetrachloride	10.6	2.14	1.85	78.6
Trichloroethylene	3.27	1.89	1.71	23.3
Tetrachloroethylene	3.41	2.97	2.54	9.26
Styrene	3.24	3.01	2.92	6.91
m,p-Dichlorobenzene	37.7	5.89	4.05	115
Ethylbenzene	3.45	2.64	2.33	19.0
o-Xylene	4.21	1.89	1.81	27.8
m,p-Xylene	5.19	2.07	1.47	44.3

000142

a fixed site in each person's yard the readings would be basically the same for each fixed site in a segment. The percentages measurable for expanded overnight outdoor air as shown in Table 207 were very similar to those of overnight outdoor air in Tables 152 and 155. Also compared to the unweighted percentages measurable in Table 202, there was little difference. In comparing weighted summary statistics for the expanded overnight outdoor air with those in Table 161 again little difference was found. In Table 210 the ratios of overnight personal air to expanded overnight outdor air for arithmetic mean, geometric mean, median and maximum are given. In each case the ratio was greater than one signifying that the personal air value was larger. For the maximum value the ratio was as large as 200 for 1,1,1-trichloroethane.

The statistics for expanded outdoor air by city are given in Tables X-69 through X-72 of Appendix X.

Correlations

To examine the relationships between the various media, unweighted Spearman correlations were computed for the eleven compounds discussed in the previous summary statistics tables.

Table 211 gives unweighted Spearman correlations for all concentrations (measurable and below the QL) between breath, daytime personal air, daytime outdoor air, and water. The correlations for overnight personal air and overnight outdoor air are given in Table 206. While for breath versus daytime personal air, all but one correlation was significantly different from zero; only one (m,p-dichlorobenzene) was greater than .5. None were greater than .5 between breath and daytime outdoor air. For daytime personal air and daytime outdoor air, only tetrachloroethylene and trichloroethylene showed correlations greater than .5. There was very little, if any, correlations between water and the other media.

To further examine correlations between media, Table 212 gives Spearman correlations for measurable amounts only (see Table 206 for overnight personal air and overnight outdoor air). The table indicates the large decrease in sample size between media when only measurable concentrations were included (particularly for water). As with the correlations based on all observations (measurable or not), water and the other media were not well correlated for the compounds examined.

Table 211. SPEARMAN CORRELATIONS OF ALL CONCENTRATIONS FOR BREATH, DAYTIME PERSONAL AIR, DAYTIME OUTDOOR AIR AND WATER FOR SELECTED CHEMICALS - NEW JERSEY FIRST SEASON a/

Compound	Breath and Daytime Personal Air		Breath and Daytime Outdoor Air		Daytime Personal Air and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.07	315	.07	80	.10	85
1,1,1-Trichloroethane	.28*	320	.26*	81	.22*	85
Benzene	.21*	326	.27*	86	-.01	87
Carbon Tetrachloride	.24*	303	.07	76	.32*	84
Trichloroethylene	.38*	295	.34*	72	.52*	85
Tetrachloroethylene	.46*	326	.35*	85	.61*	87
Styrene	.19*	302	.01	75	.02	87
m,p-Dichlorobenzene	.54*	305	.31*	75	.30*	84
Ethylbenzene	.33*	327	.18	83	.21	83
o-Xylene	.26*	322	.23*	82	.24*	86
m,p-Xylene	.32*	328	.24*	85	.24*	86

Compound	Breath and Water		Daytime Personal Air and Water		Daytime Outdoor Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.20*	325	-.03	341	.15	87
1,1,1-Trichloroethane	.19*	330	.08	341	-.12	87
Benzene	-.02	253	-.05	254	.00	74
Carbon Tetrachloride	-.05	314	-.22*	339	-.28*	88
Trichloroethylene	.04	305	.05	341	-.26*	87
Tetrachloroethylene	.04	337	-.02	341	-.10	89
Styrene	.00	231	.00	255	.00	78
m,p-Dichlorobenzene	.08	315	.04	341	.00	86
Ethylbenzene	.00	254	.00	253	.00	74
o-Xylene	----	0	----	0	----	0
m,p-Xylene	.00	256	.00	255	.00	76

* Significantly different from zero at .05 level.

a/ See Table 206 for the correlations between overnight personal air and overnight outdoor air.

000144

Table 212. SPEARMAN CORRELATIONS OF MEASURABLE AMOUNTS FOR BREATH, DAYTIME PERSONAL AIR, DAYTIME OUTDOOR AIR AND WATER FOR SELECTED CHEMICALS - NEW JERSEY FIRST SEASON a/

Compound	Breath and Daytime Personal Air		Breath and Daytime Outdoor Air		Daytime Personal Air and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.07	84	.51*	18	.39	19
1,1,1-Trichloroethane	.28*	203	.39*	56	.31*	52
Benzene	.17*	275	.31*	58	.03	59
Carbon Tetrachloride	.01	24	.83*	6	.23	11
Trichloroethylene	.54*	58	-.03	12	.35	24
Tetrachloroethylene	.44*	286	.41*	63	.51*	66
Styrene	.23*	129	-.27	8	-.19	11
m,p-Dichlorobenzene	.63*	140	.53	14	.29	18
Ethylbenzene	.37*	282	.08	69	.27*	63
o-Xylene	.28*	233	.15	62	.16	59
m,p-Xylene	.30*	309	.20	77	.15	80

Compound	Breath and Water		Daytime Personal Air and Water		Daytime Outdoor Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.25*	188	.01	145	.28	35
1,1,1-Trichloroethane	-.04	125	.02	128	-.27	41
Benzene	----	0	----	0	----	0
Carbon Tetrachloride	-.20	4	----	0	----	0
Trichloroethylene	-.13	39	-.17	93	.36	27
Tetrachloroethylene	-.04	167	.11	163	-.03	40
Styrene	----	0	----	0	----	0
m,p-Dichlorobenzene	-.60	6	.14	7	----	0
Ethylbenzene	----	0	----	0	----	0
o-Xylene	----	0	----	0	----	0
m,p-Xylene	----	0	----	0	----	0

* Significantly different from zero at .05 level.

a/ See Table 206 for the correlations between overnight personal air and overnight outdoor air.

000145

Also, in almost all cases, the correlations were less than .5 between all pairs of media.

Figures 41 through 52 show plots of breath versus daytime personal air and breath versus daytime outdoor air for selected chemicals on the natural logarithmic scale. One was added to each number before the log was taken. The lines represent the median QL values for the compound for the two media. An "0" represents both measurable and an "X" represents one or both not measurable. These plots demonstrate the lack of strong correlation between the media for each compound. Again, it is obvious that part of the lack of correlation was caused by the large proportion of observations below or near the maximum quantifiable limit. Until both media have a significant portion of relatively large values it is difficult to show correlations between them.

Tables 213 through 222 give the Spearman correlations between the eleven selected compounds for breath and the airs for all amounts and measurable amounts only. The eleven compounds were divided into three groups -- aromatics (benzene, styrene, ethylbenzene, o-xylene and m,p-xylene), chlorinated solvents (1,1,1-trichloroethane, trichloroethylene, and tetrachloroethylene), and miscellaneous (m,p-dichlorobenzene, chloroform, and carbon tetrachloride). For breath and the airs the strongest correlations were associated with the aromatics with ethylbenzene and the xylenes in particular.

Tables 223 through 232 give the Pearson correlations for the natural logarithm of the concentrations for the selected compounds by breath and the airs. Again the strongest correlations were associated with the aromatics.

Questionnaire and 24-Hour Screener

To further examine the relationship between certain characteristics of the people in the study and the amount of exposure to the compounds analyzed, the following approach was used. First, stepwise regressions were done on natural logarithms of the concentrations of breath and the personal airs using selected questions from the questionnaire. Second, analyses of variance (ANOVAs) were done on the variables which appeared in the stepwise regression models. Third, means for the variables which showed significant differences in the ANOVAs will be calculated.

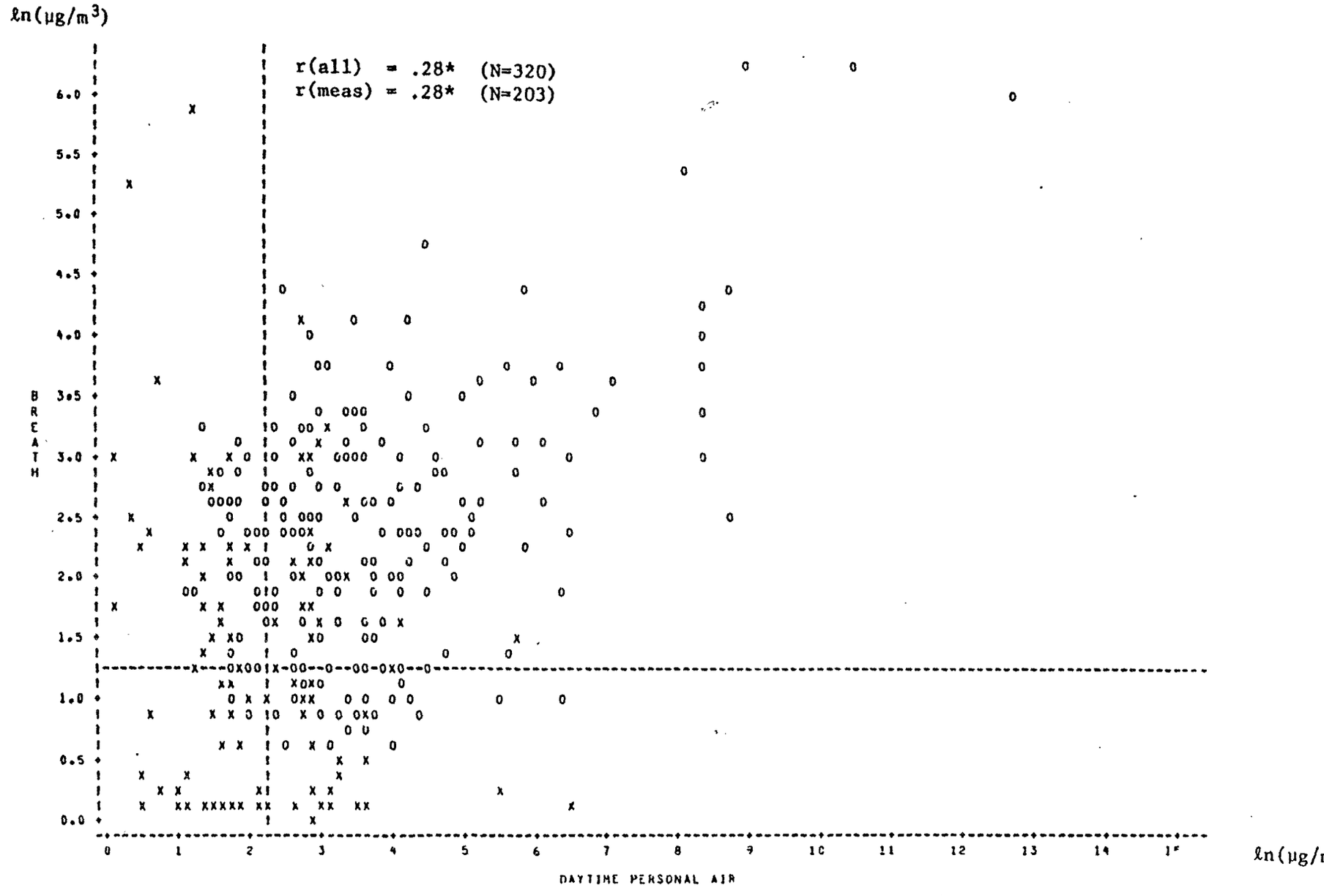

Figure 41. 1,1,1-Trichloroethane - New Jersey first season.

0001447

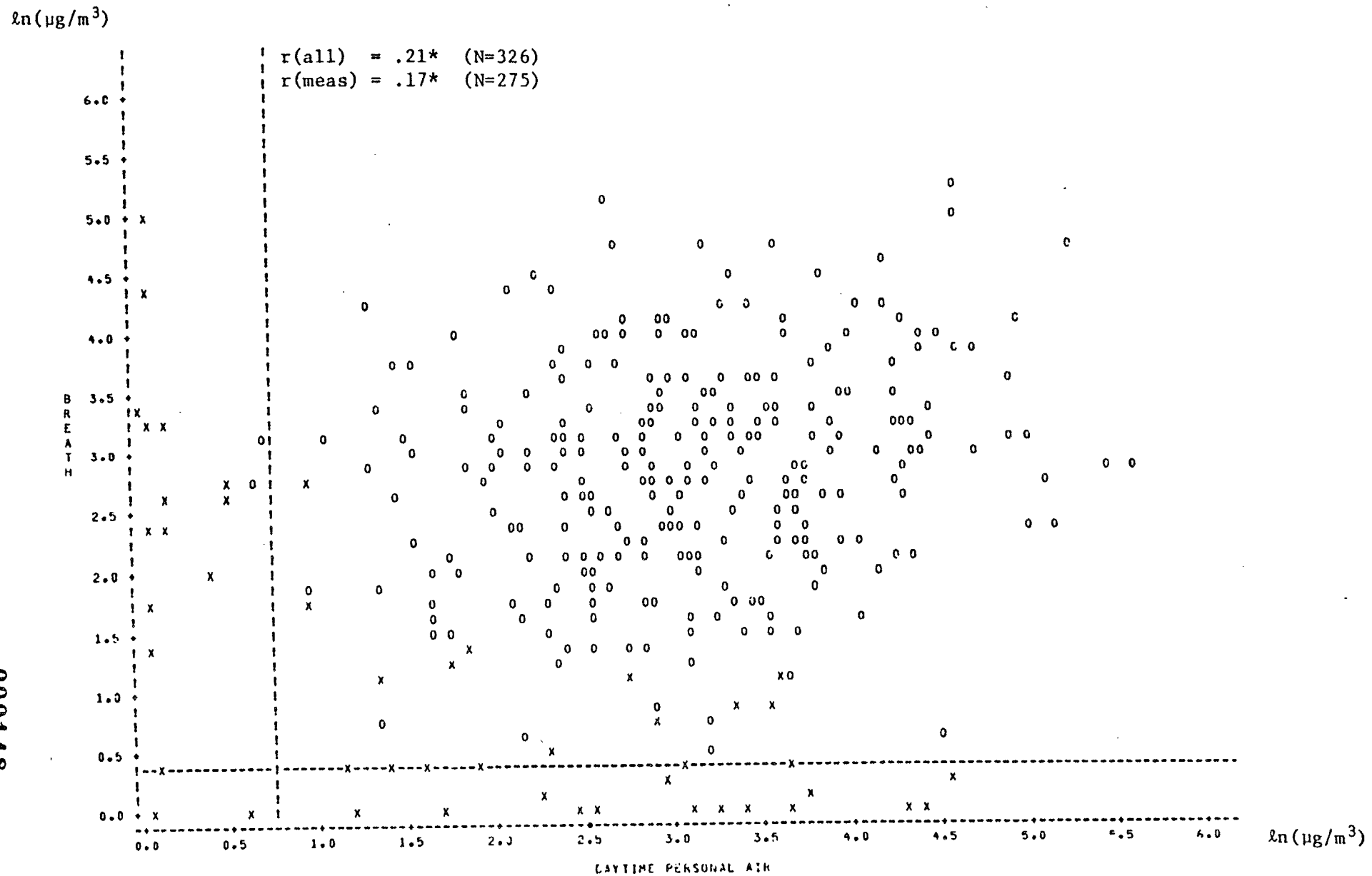

Figure 42. Benzene - New Jersey first season.

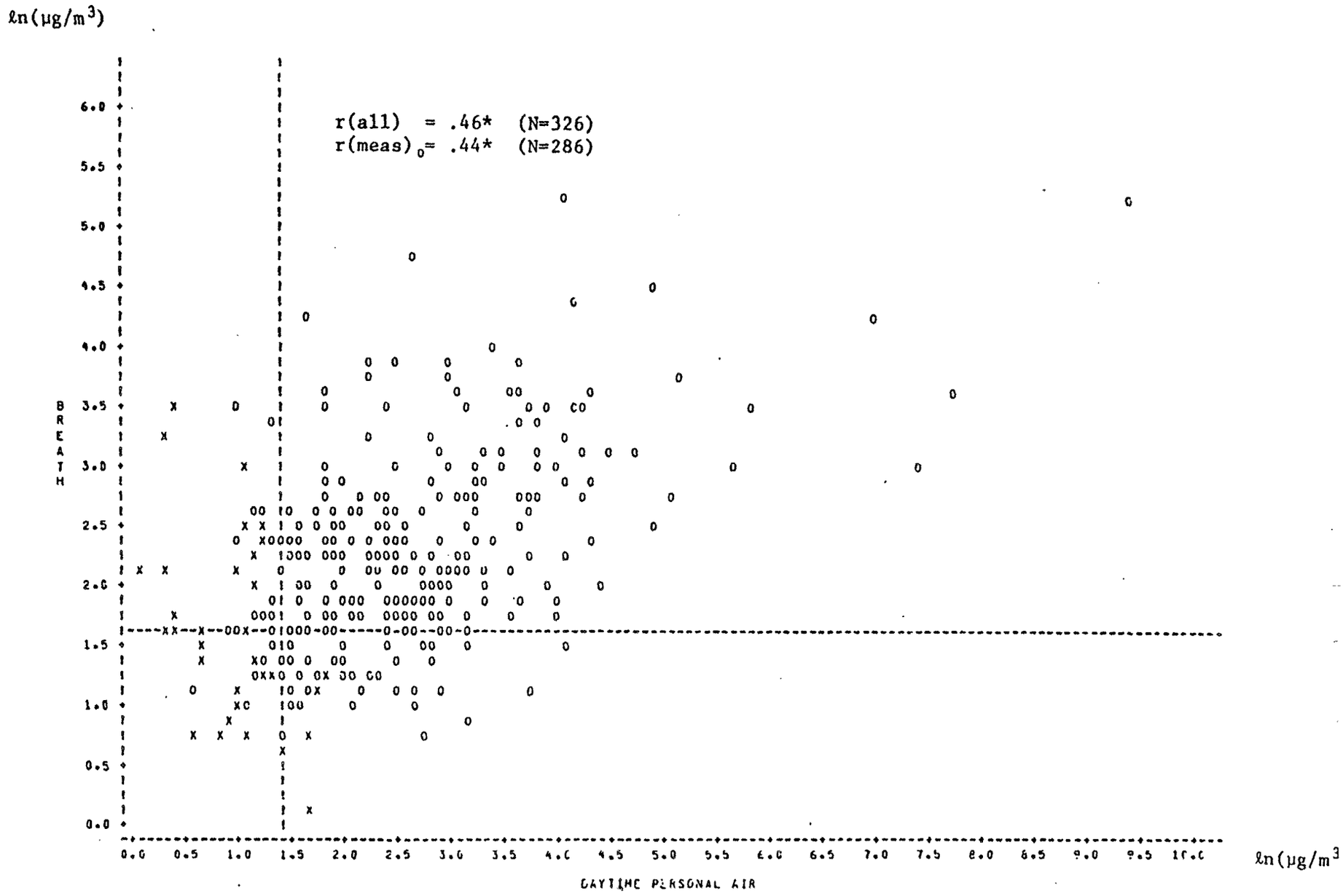

Figure 43. Tetrachloroethylene - New Jersey first season.

000149

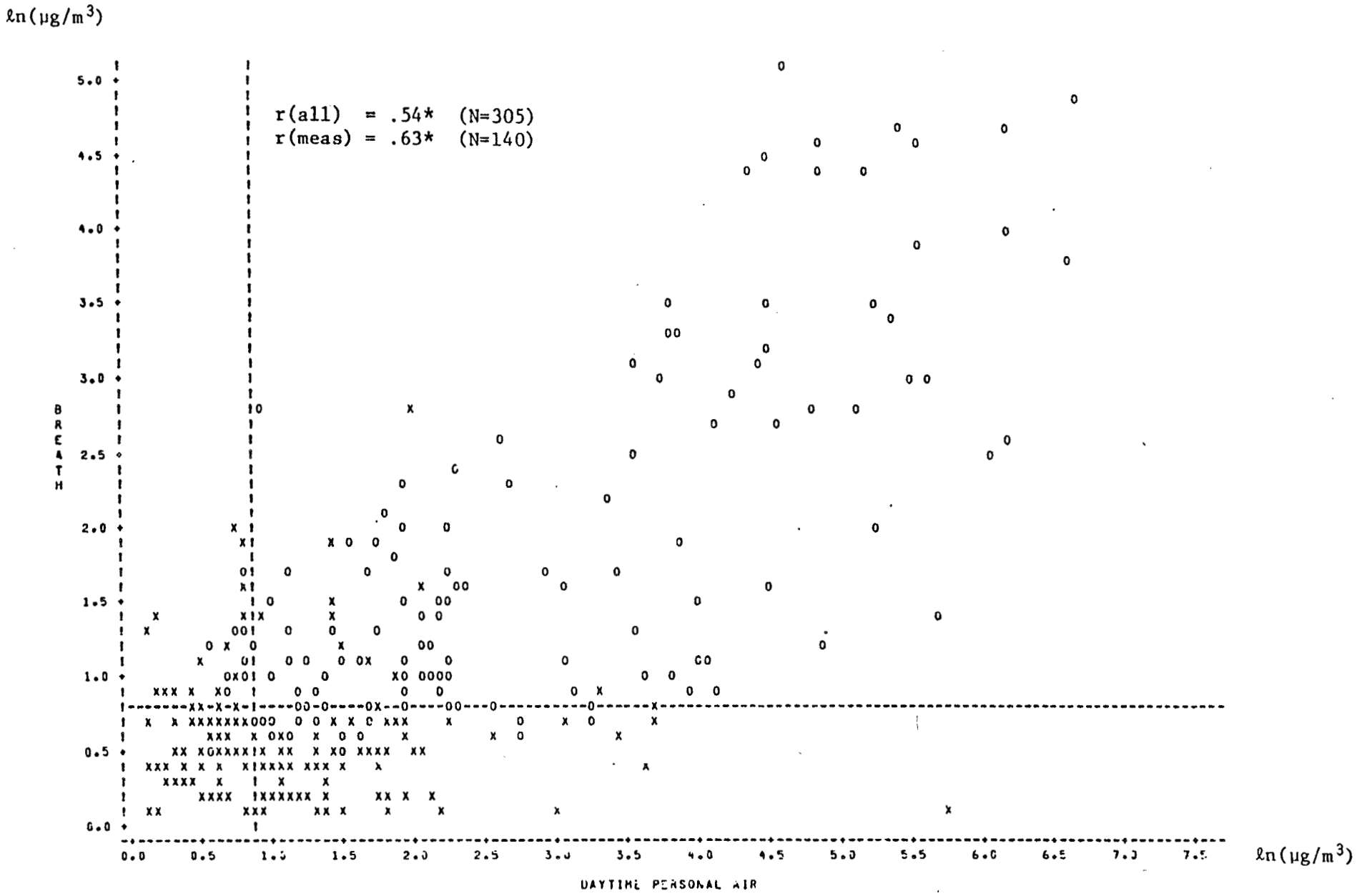

Figure 44. m,p-Dichlorobenzene - New Jersey first season.

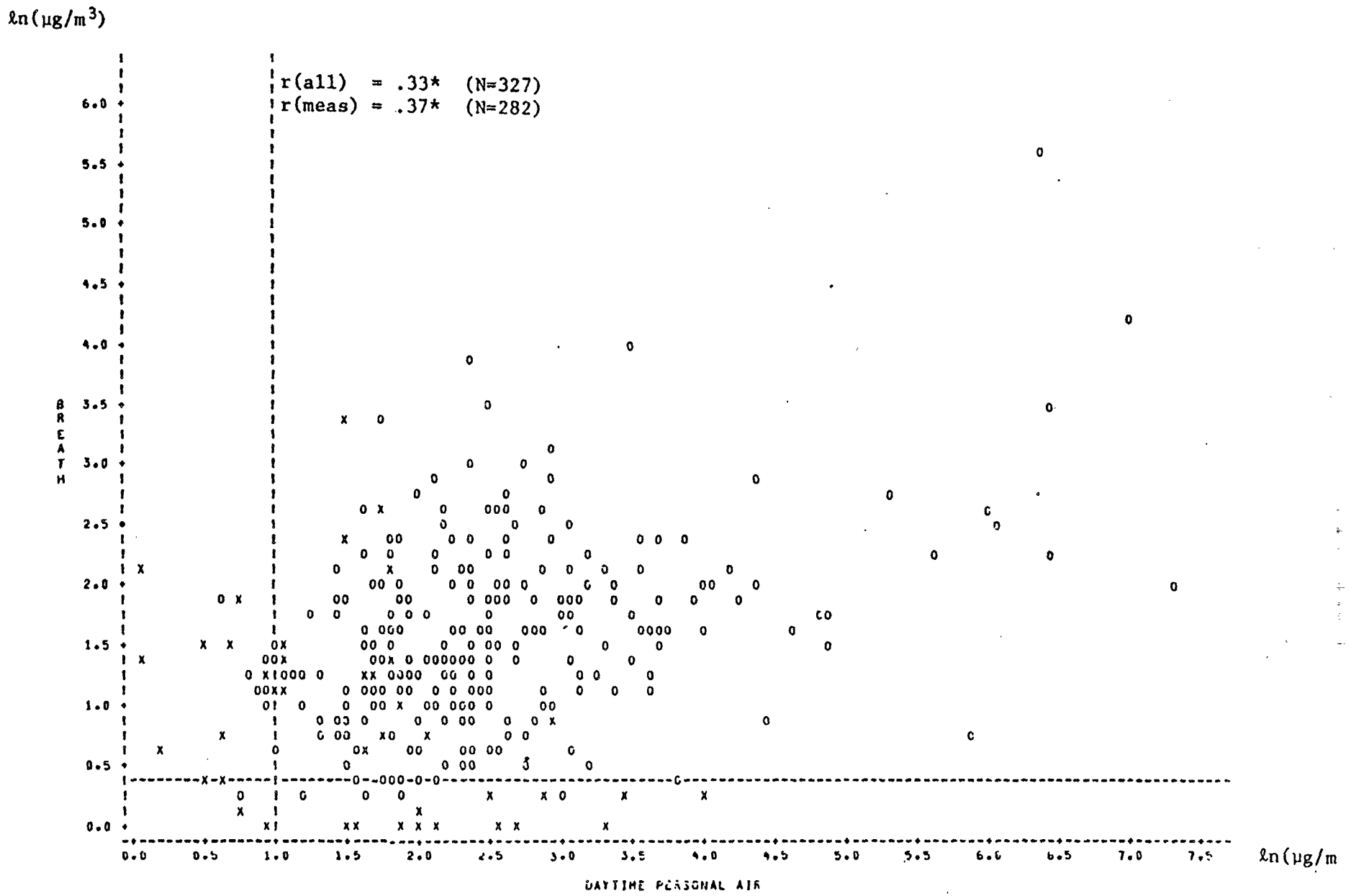

Figure 45. Ethylbenzene - New Jersey first season.

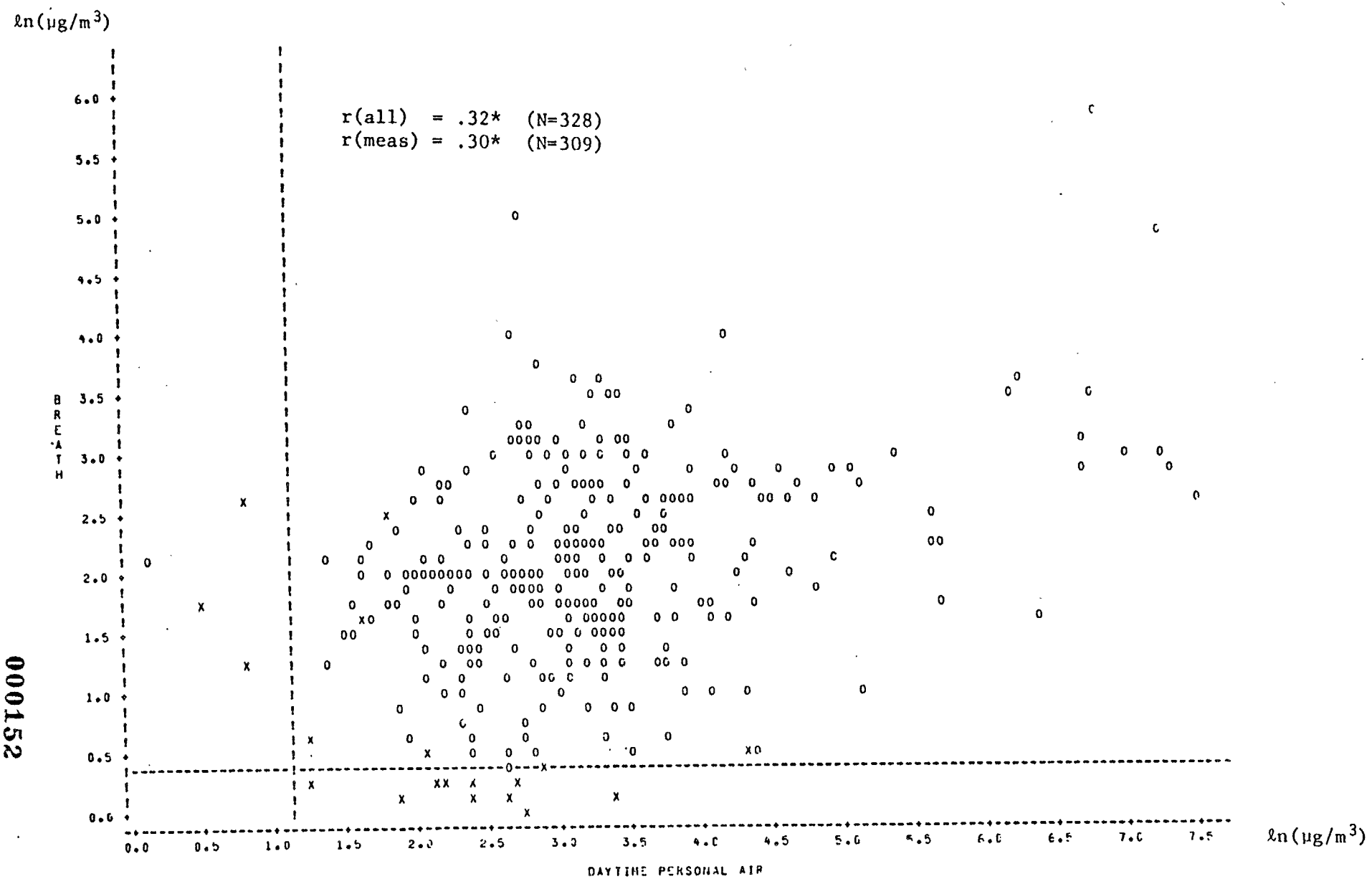

Figure 46. m,p-Xylene - New Jersey first season.

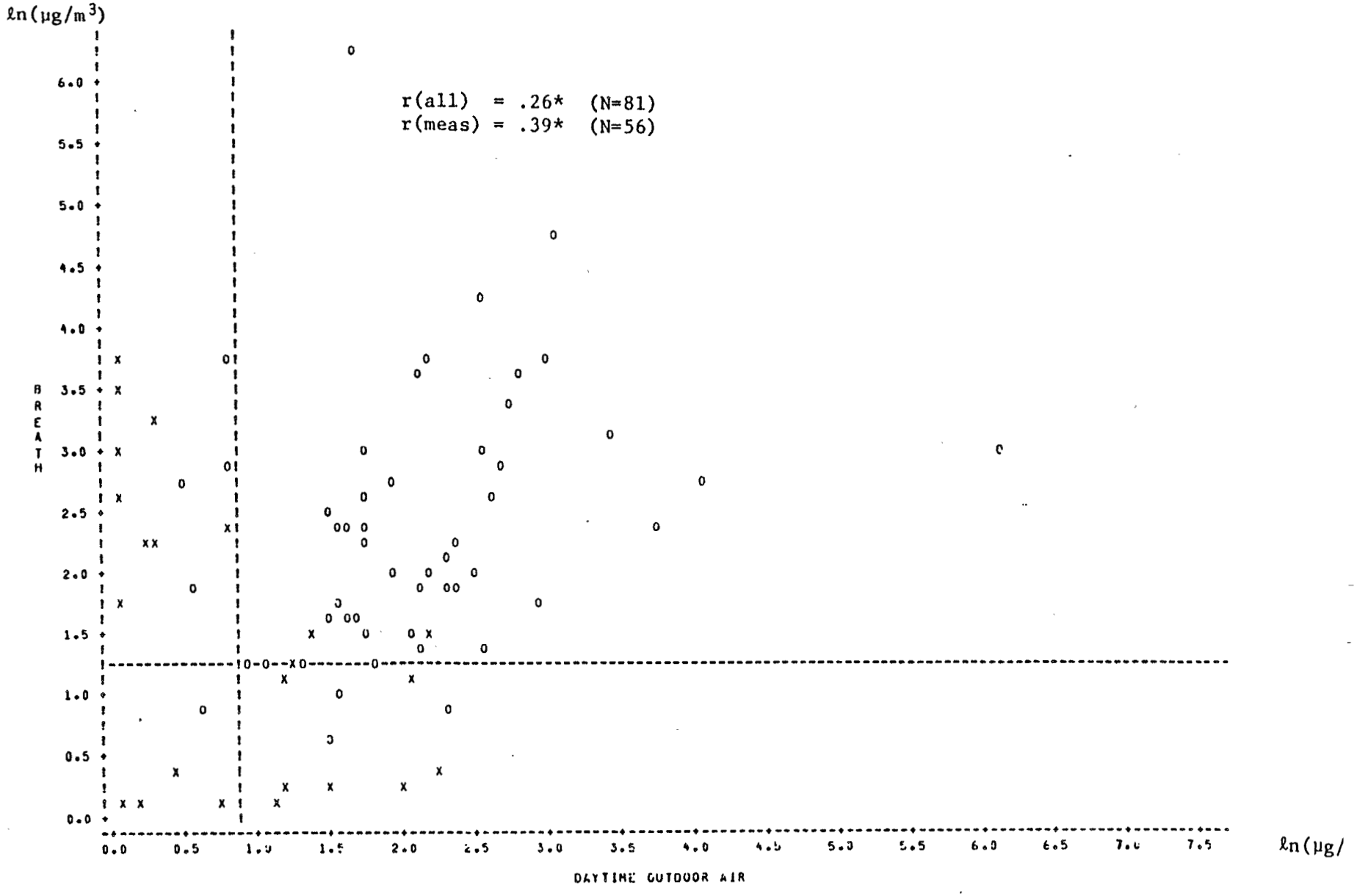

Figure 47. 1,1,1-Trichloroethane - New Jersey first season.

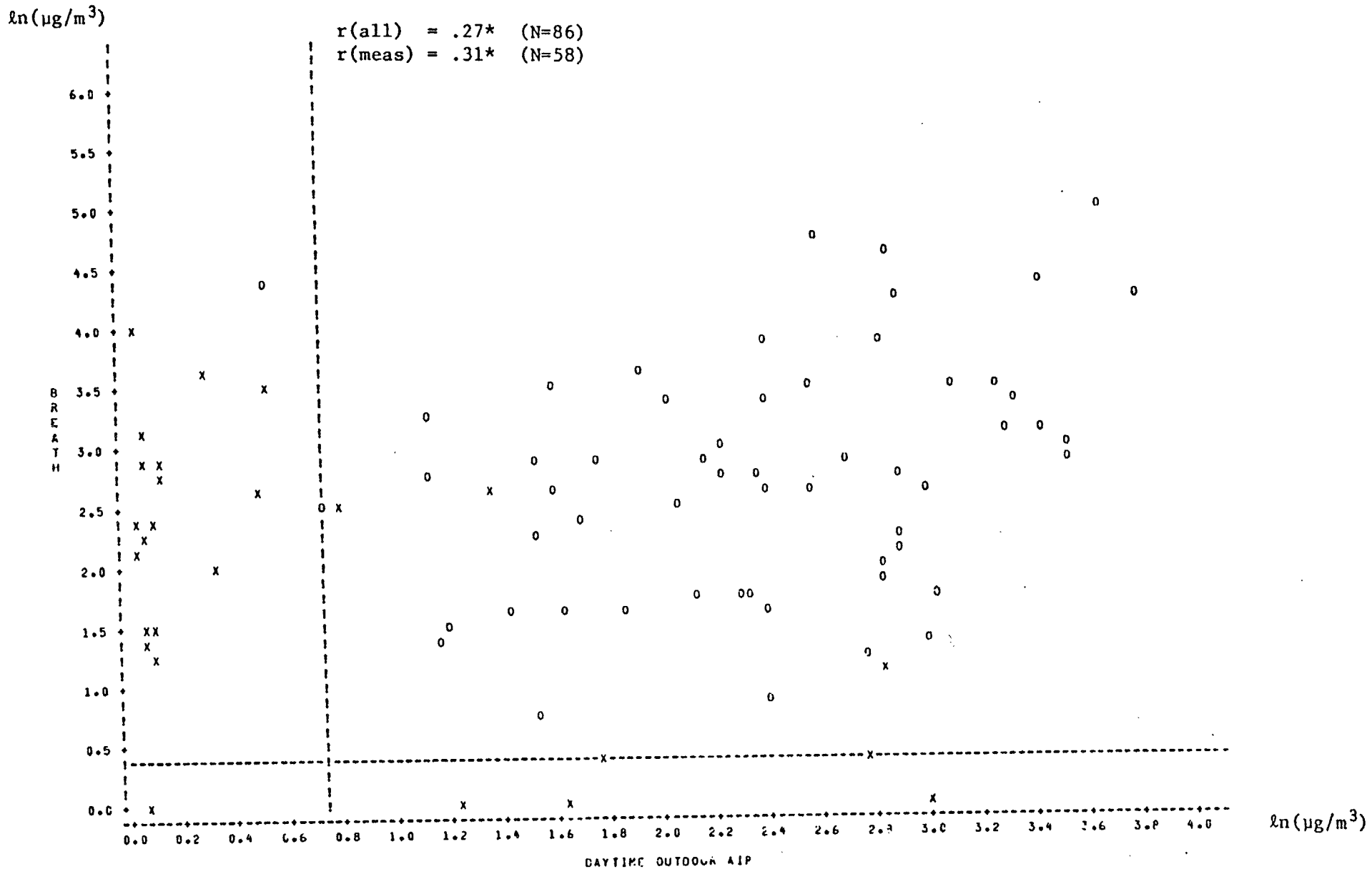

Figure 48. Benzene - New Jersey first season.

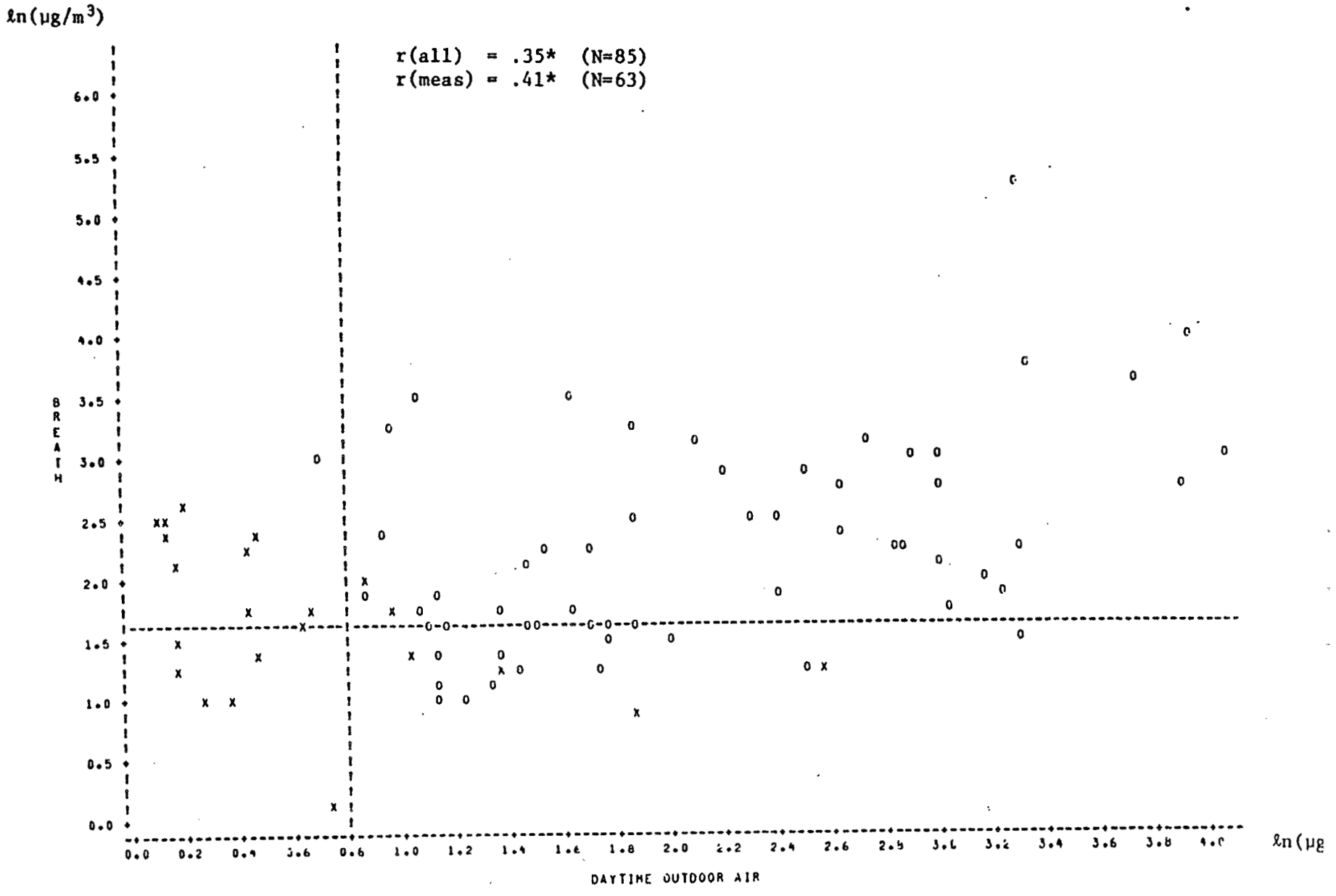

Figure 49. Tetrachloroethylene - New Jersey first season.

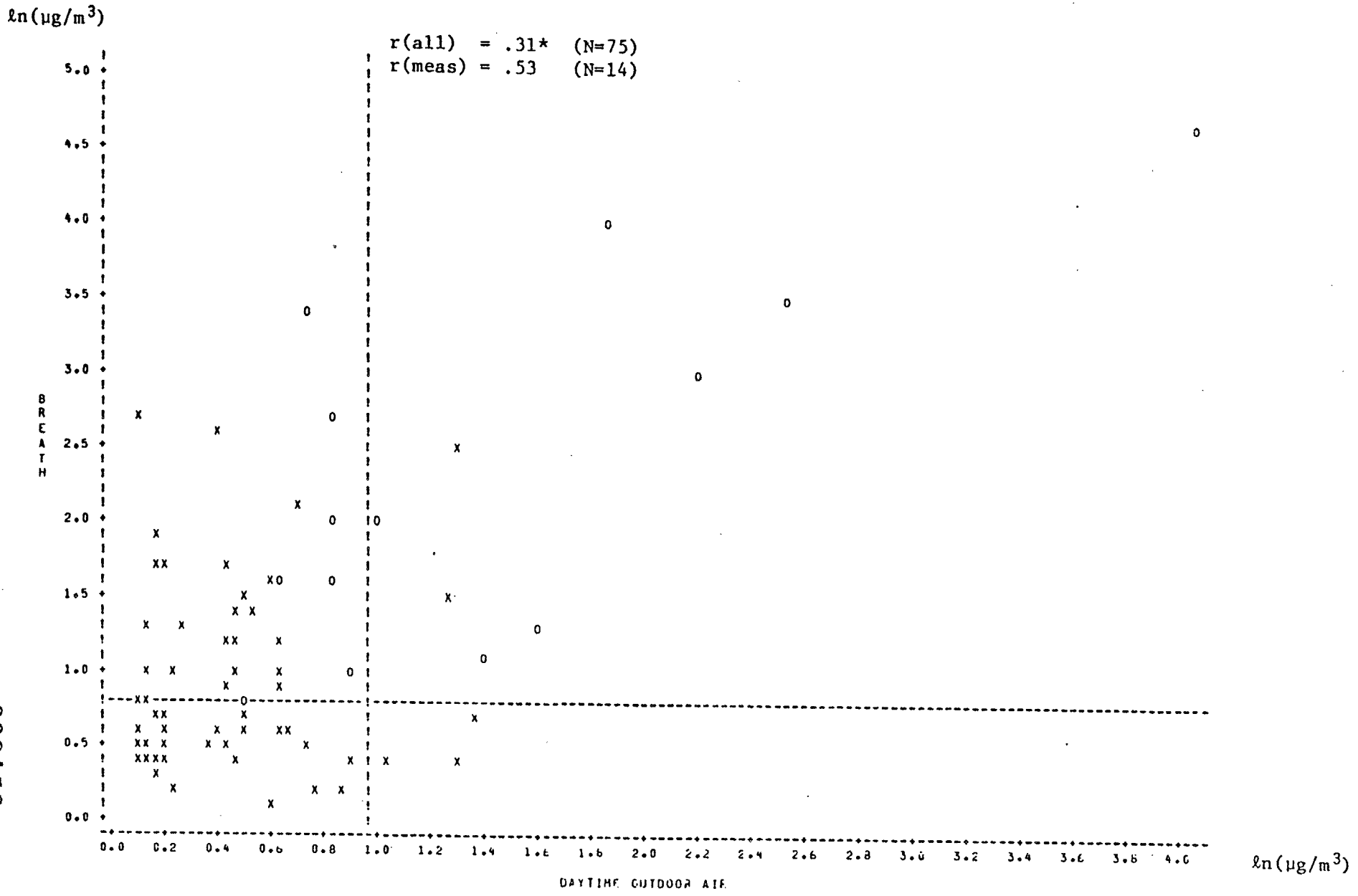

Figure 50. m,p-Dichlorobenzene - New Jersey first season.

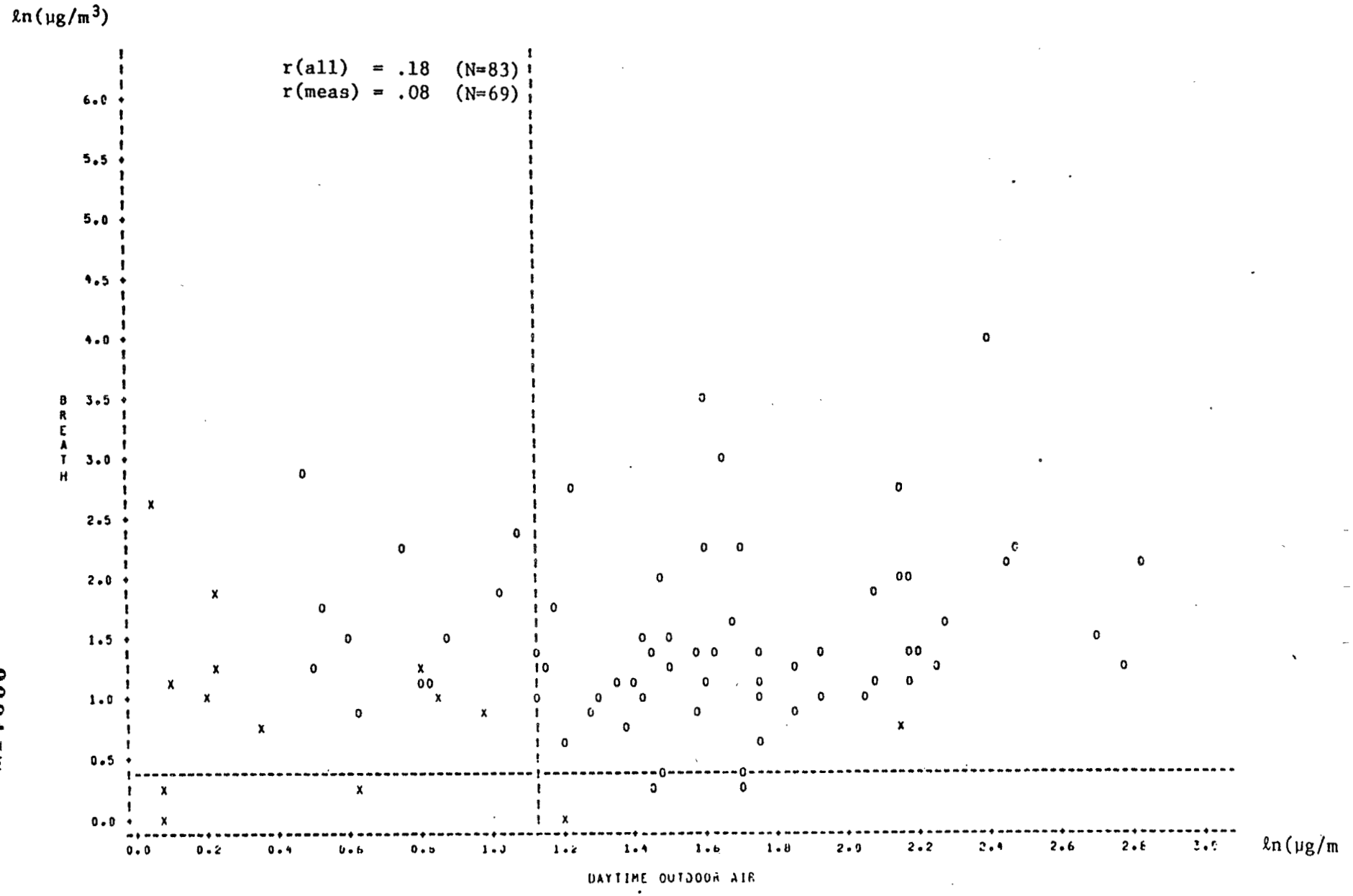

Figure 51. Ethylbenzene - New Jersey first season.

001157

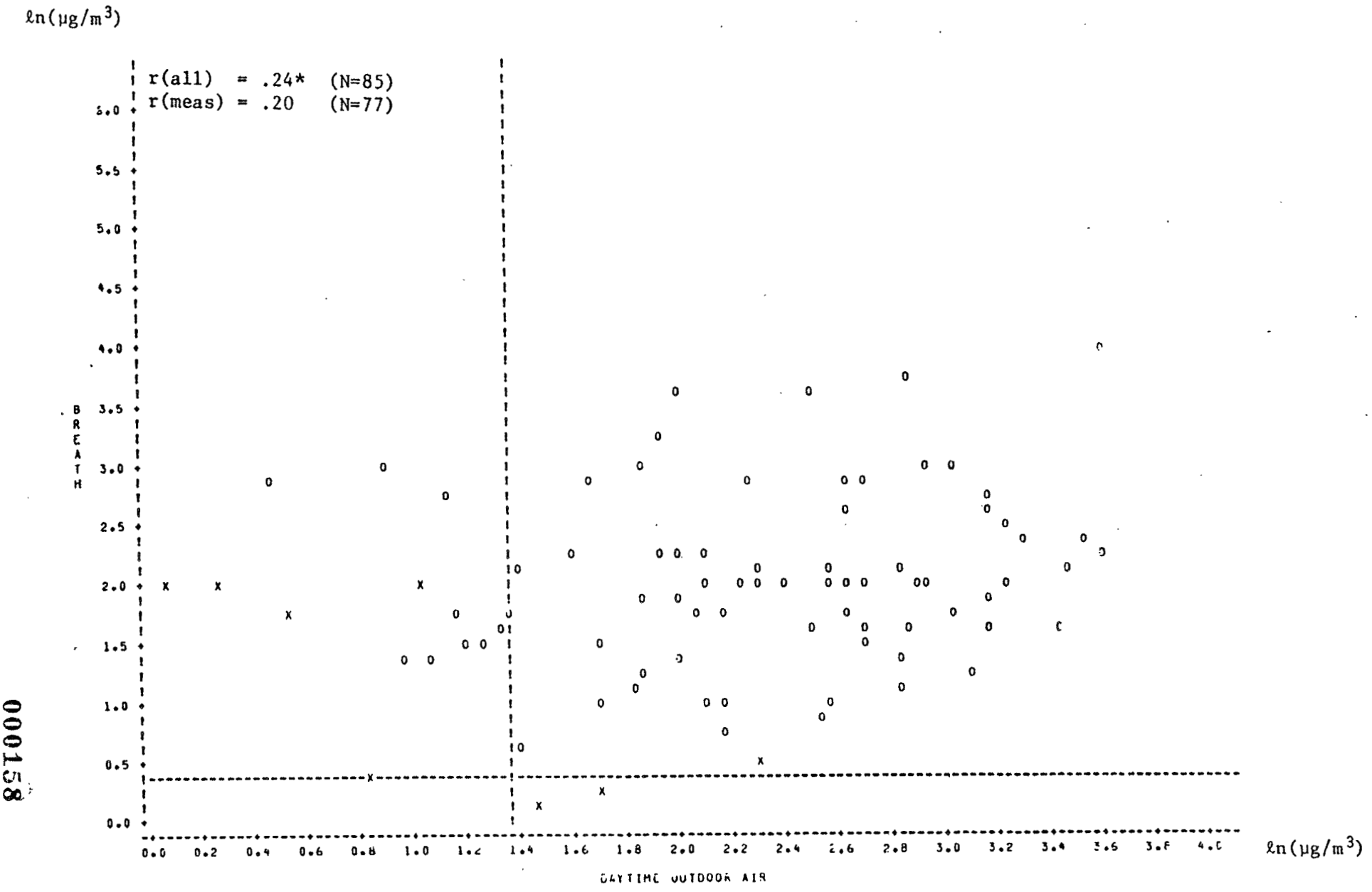

Figure 52. m,p-Xylene - New Jersey first season.

000158

Table 213. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR BREATH ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 301-337

Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
	A	B	C	D	E	F	G	H	I	J	K
A Benzene		.58*	.69*	.61*	.65*	.33*	.43*	.39*	.17*	.43*	.25*
B Styrene			.58*	.50*	.51*	.23*	.31*	.25*	.22*	.27*	.19*
C Ethylbenzene				.93*	.94*	.41*	.51*	.47*	.30*	.51*	.32*
D o-Xylene					.92*	.45*	.49*	.46*	.30*	.52*	.33*
E m,p-Xylene						.40*	.47*	.44*	.26*	.48*	.30*
F 1,1,1-Trichloroethane							.37*	.33*	.12*	.46*	.38*
G Trichloroethylene								.35*	.06	.44*	.35*
H Tetrachloroethylene									.23*	.37*	.32*
I m,p-Dichlorobenzene										.18*	.06
J Chloroform											.56*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000159

Table 214. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT PERSONAL AIR ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 344-348

Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
	A	B	C	D	E	F	G	H	I	J	K
A Benzene		.52*	.66*	.59*	.63*	.51*	.48*	.55*	.12*	.51*	.30*
B Styrene			.67*	.61*	.65*	.47*	.39*	.47*	.30*	.43*	.24*
C Ethylbenzene				.91*	.93*	.47*	.45*	.49*	.30*	.43*	.26*
D o-Xylene					.93*	.45*	.44*	.49*	.31*	.31*	.20*
E m,p-Xylene						.48*	.46*	.51*	.29*	.37*	.29*
F 1,1,1-Trichloroethane							.47*	.47*	.22*	.43*	.33*
G Trichloroethylene								.53*	.16*	.35*	.34*
H Tetrachloroethylene									.22*	.35*	.41*
I m,p-Dichlorobenzene										.19*	.05
J Chloroform											.25*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000160

Table 215. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME PERSONAL AIR ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 338-341

Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
	A	B	C	D	E	F	G	H	I	J	K
A Benzene		.49*	.62*	.53*	.59*	.39*	.48*	.41*	.13*	.52*	.33*
B Styrene			.60*	.60*	.61*	.30*	.37*	.33*	.21*	.26*	.16*
C Ethylbenzene				.90*	.95*	.45*	.47*	.47*	.18*	.32*	.28*
D o-Xylene					.93*	.39*	.43*	.49*	.21*	.21*	.20*
E m,p-Xylene						.45*	.46*	.50*	.21*	.26*	.29*
F 1,1,1-Trichloroethane							.56*	.50*	.19*	.29*	.30*
G Trichloroethylene								.58*	.11*	.32*	.37*
H Tetrachloroethylene									.14*	.24*	.36*
I m,p-Dichlorobenzene										.15*	.05
J Chloroform											.40*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000161

Table 216. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT OUTDOOR AIR ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 79-86

Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
	A	B	C	D	E	F	G	H	I	J	K
A Benzene		.53*	.73*	.69*	.62*	.58*	.53*	.71*	.32*	.55*	.30*
B Styrene			.59*	.54*	.46*	.34*	.41*	.50*	.32*	.36*	.24*
C Ethylbenzene				.93*	.91*	.53*	.50*	.79*	.45*	.36*	.18
D o-Xylene					.93*	.52*	.46*	.77*	.37*	.33*	.12
E m,p-Xylene						.48*	.42*	.71*	.43*	.33*	.07
F 1,1,1-Trichloroethane							.52*	.56*	.27*	.65*	.36*
G Trichloroethylene								.66*	.25*	.43*	.27*
H Tetrachloroethylene									.35*	.48*	.39*
I m,p-Dichlorobenzene										.25*	.25*
J Chloroform											.28*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000162

Table 217. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME OUTDOOR AIR ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 84-90

Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
	A	B	C	D	E	F	G	H	I	J	K
A Benzene		.37*	.65*	.63*	.61*	.48*	.48*	.51*	.11	.63*	.30*
B Styrene			.45*	.43*	.36*	.40*	.62*	.55*	.24*	.23*	.29*
C Ethylbenzene				.95*	.94*	.72*	.61*	.70*	.22*	.50*	.36*
D o-Xylene					.96*	.65*	.63*	.75*	.18	.44*	.35*
E m,p-Xylene						.66*	.56*	.68*	.16	.45*	.29*
F 1,1,1-Trichloroethane							.60*	.54*	.16	.50*	.45*
G Trichloroethylene								.74*	.28*	.40*	.42*
H Tetrachloroethylene									.22*	.32*	.37*
I m,p-Dichlorobenzene										.15	.10
J Chloroform											.30*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

Table 218. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR BREATH MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 29-312

Number	Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
		A	B	C	D	E	F	G	H	I	J	K
302	A Benzene		.56*	.63*	.52*	.58*	.19*	.21	.32*	-.03	.34*	.41*
162	B Styrene			.51*	.45*	.47*	.03	.27*	.20*	.20*	.28*	.72*
317	C Ethylbenzene				.93*	.93*	.31*	.22*	.42*	.11	.47*	.34*
282	D o-Xylene					.91*	.24*	.26*	.35*	.11	.44*	.46*
325	E m,p-Xylene						.26*	.08	.40*	.13	.37*	.39*
267	F 1,1,1-Trichloroethane							.34*	.28*	.08	.30*	.30*
80	G Trichloroethylene								-.06	-.07	.33*	.43*
320	H Tetrachloroethylene									.10	.28*	.13
178	I m,p-Dichlorobenzene										-.03	.17
189	J Chloroform											.32*
65	K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

Table 219. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT PERSONAL AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 82-325

		Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
Number	Compound	A	B	C	D	E	F	G	H	I	J	K
327	A Benzene		.46*	.62*	.57*	.60*	.46*	.38*	.48*	.03	.43*	.30*
295	B Styrene			.66*	.60*	.65*	.43*	.39*	.38*	.21*	.32*	-.02
325	C Ethylbenzene				.93*	.92*	.45*	.36*	.43*	.15*	.37*	.07
306	D o-Xylene					.94*	.41*	.29*	.41*	.14*	.25*	.08
343	E m,p-Xylene						.42*	.37*	.43*	.19*	.30*	.07
277	F 1,1,1-Trichloroethane							.48*	.39*	.06	.50*	.39*
180	G Trichloroethylene								.44*	.18*	.48*	.21
320	H Tetrachloroethylene									.13*	.28*	.22*
278	I m,p-Dichlorobenzene										.04	-.10
203	J Chloroform											.48*
116	K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000165

Table 220. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME PERSONAL AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 52-314

Number	Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
		A	B	C	D	E	F	G	H	I	J	K
317	A Benzene		.42*	.55*	.50*	.55*	.34*	.22*	.31*	.01	.43*	.33*
270	B Styrene			.60*	.57*	.58*	.28*	.22*	.21*	.13	.26*	.28*
311	C Ethylbenzene				.95*	.95*	.46*	.22*	.36*	.08	.36*	.27*
286	D o-Xylene					.96*	.41*	.17*	.40*	.10	.22*	.24*
336	E m,p-Xylene						.46*	.22*	.43*	.09	.32*	.30*
257	F 1,1,1-Trichloroethane							.39*	.41*	-.01	.38*	.39*
164	G Trichloroethylene								.32*	.16	.24*	.24
310	H Tetrachloroethylene									.13*	.09	.24*
248	I m,p-Dichlorobenzene										.14	-.12
145	J Chloroform											.50*
85	K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000166

Table 221. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT OUTDOOR AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 18-72

Number	Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
		A	B	C	D	E	F	G	H	I	J	K
75	A Benzene		.56*	.65*	.55*	.58*	.44*	.65*	.52*	.21	.35*	.16
35	B Styrene			.59*	.64*	.54*	.34	.51*	.33	.48*	.35	.38
73	C Ethylbenzene				.94*	.92*	.41*	.53*	.63*	.13	.47*	.04
70	D o-Xylene					.92*	.41*	.49*	.60*	.17	.41*	.12
81	E m,p-Xylene						.36*	.61*	.60*	.16	.35*	.07
71	F 1,1,1-Trichloroethane							.48*	.47*	-.11	.52*	.19
52	G Trichloroethylene								.60*	.23	.36*	.19
65	H Tetrachloroethylene									.06	.45*	.29
36	I m,p-Dichlorobenzene										.05	.17
36	J Chloroform											.13
53	K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000187

Table 222. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME OUTDOOR AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 7-72

			Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
Number		Compound	A	B	C	D	E	F	G	H	I	J	K
68	A	Benzene		.07	.57*	.52*	.56*	.36*	.27	.40*	-.13	.22	.29
15	B	Styrene			.37	.54*	.33	.81*	.60*	.36	-.02	.38	.06
74	C	Ethylbenzene				.94*	.93*	.59*	.37*	.59*	-.21	.28	.38*
70	D	o-Xylene					.96*	.47*	.41*	.61*	-.17	.47*	.44*
83	E	m,p-Xylene						.48*	.43*	.61*	-.44	.48*	.26
69	F	1,1,1-Trichloroethane							.15	.38*	-.30	.57*	.16
45	G	Trichloroethylene								.54*	-.61*	-.08	.25
71	H	Tetrachloroethylene									-.03	.11	.23
20	I	m,p-Dichlorobenzene										-.25	-.14
35	J	Chloroform											.38
45	K	Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000168

Table 223. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR BREATH ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 301-337

Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
	A	B	C	D	E	F	G	H	I	J	K
A Benzene		.47*	.65*	.57*	.66*	.34*	.42*	.34*	.13*	.43*	.27*
B Styrene			.56*	.53*	.52*	.26*	.31*	.28*	.21*	.27*	.25*
C Ethylbenzene				.88*	.93*	.38*	.47*	.47*	.28*	.48*	.27*
D o-Xylene					.90*	.44*	.45*	.45*	.26*	.51*	.32*
E m,p-Xylene						.41*	.45*	.46*	.24*	.48*	.27*
F 1,1,1-Trichloroethane							.37*	.35*	.13*	.47*	.34*
G Trichloroethylene								.29*	.06	.41*	.34*
H Tetrachloroethylene									.22*	.34*	.28*
I m,p-Dichlorobenzene										.18*	.06
J Chloroform											.47*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000169

Table 224. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR OVERNIGHT PERSONAL AIR ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 344-348

	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
Compound	A	B	C	D	E	F	G	H	I	J	K
A Benzene		.41*	.55*	.51*	.54*	.43*	.45*	.49*	.12*	.43*	.20*
B Styrene			.58*	.50*	.50*	.37*	.38*	.44*	.26*	.37*	.19*
C Ethylbenzene				.89*	.92*	.45*	.46*	.51*	.26*	.40*	.24*
D o-Xylene					.92*	.44*	.44*	.51*	.25*	.27*	.25*
E m,p-Xylene						.48*	.45*	.53*	.25*	.33*	.30*
F 1,1,1-Trichloroethane							.47*	.46*	.15*	.38*	.33*
G Trichloroethylene								.49*	.14*	.33*	.29*
H Tetrachloroethylene									.20*	.35*	.36*
I m,p-Dichlorobenzene										.16*	.03
J Chloroform											.15*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000170

Table 225. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR DAYTIME PERSONAL AIR ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 338-341

Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
	A	B	C	D	E	F	G	H	I	J	K
A Benzene		.37*	.46*	.43*	.48*	.34*	.39*	.34*	.10	.49*	.32*
B Styrene			.52*	.50*	.50*	.22*	.28*	.34*	.14*	.23*	.14*
C Ethylbenzene				.89*	.92*	.42*	.38*	.45*	.13*	.25*	.29*
D o-Xylene					.88*	.40*	.37*	.47*	.12*	.17*	.27*
E m,p-Xylene						.43*	.37*	.46*	.16*	.20*	.31*
F 1,1,1-Trichloroethane							.52*	.49*	.10	.23*	.30*
G Trichloroethylene								.52*	.09	.28*	.32*
H Tetrachloroethylene									.10	.20*	.28*
I m,p-Dichlorobenzene										.15*	.07
J Chloroform											.33*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000171

Table 226. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR OVERNIGHT OUTDOOR AIR ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 79-86

	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
Compound	A	B	C	D	E	F	G	H	I	J	K
A Benzene		.52*	.56*	.63*	.53*	.58*	.51*	.67*	.25*	.44*	.21
B Styrene			.63*	.57*	.49*	.40*	.48*	.50*	.30*	.44*	.20
C Ethylbenzene				.85*	.73*	.46*	.47*	.71*	.44*	.26*	.26*
D o-Xylene					.81*	.48*	.49*	.78*	.32*	.30*	.09
E m,p-Xylene						.46*	.38*	.63*	.38*	.31*	.08
F 1,1,1-Trichloroethane							.57*	.51*	.29*	.61*	.38*
G Trichloroethylene								.64*	.24*	.48*	.25*
H Tetrachloroethylene									.28*	.44*	.32*
I m,p-Dichlorobenzene										.21	.26*
J Chloroform											.28*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000172

Table 227. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR DAYTIME OUTDOOR AIR ALL AMOUNTS - NEW JERSEY FIRST SEASON

Sample Size Range: 84-90

Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
	A	B	C	D	E	F	C	H	I	J	K
A Benzene		.42*	.68*	.59*	.53*	.56*	.57*	.50*	.14	.65*	.32*
B Styrene			.39*	.37*	.28*	.43*	.61*	.52*	.24*	.24*	.33*
C Ethylbenzene				.85*	.81*	.72*	.63*	.64*	.16	.52*	.38*
D o-Xylene					.94*	.64*	.65*	.72*	.21	.45*	.41*
E m,p-Xylene						.58*	.53*	.61*	.11	.41*	.35*
F 1,1,1-Trichloroethane							.66*	.54*	.11	.52*	.50*
G Trichloroethylene								.75*	.23*	.44*	.44*
H Tetrachloroethylene									.18	.33*	.39*
I m,p-Dichlorobenzene										.15	.17
J Chloroform											.33*
K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

Table 228. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR BREATH MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 29-312

			Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
No.		Compound	A	B	C	D	E	F	G	H	I	J	K
302	A	Benzene		.55*	.61*	.49*	.55*	.17*	.12	.30*	-.01	.35*	.47*
162	B	Styrene			.56*	.54*	.54*	.07	.18	.22*	.12	.27*	.64*
317	C	Ethylbenzene				.94*	.94*	.30*	.16	.40*	.13	.43*	.04
282	D	o-Xylene					.93*	.22*	.14	.34*	.09	.40*	.41*
325	E	m,p-Xylene						.28*	.02	.41*	.15*	.37*	.19
267	F	1,1,1-Trichloroethane							.27*	.30*	.16	.27*	.14
80	G	Trichloroethylene								-.09	-.06	.35*	.39*
320	H	Tetrachloroethylene									.10	.28*	-.06
178	I	m,p-Dichlorobenzene										-.00	-.05
189	J	Chloroform											.13
65	K	Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000174

Table 229. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR OVERNIGHT PERSONAL AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 29-312

No.	Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
		A	B	C	D	E	F	G	H	I	J	K
327	A Benzene		.41*	.58*	.55*	.57*	.41*	.32*	.47*	.05	.39*	.25*
295	B Styrene			.60*	.56*	.56*	.37*	.32*	.34*	.18*	.27*	-.02
325	C Ethylbenzene				.91*	.91*	.42*	.30*	.42*	.14*	.38*	.18
306	D o-Xylene					.95*	.43*	.25*	.39*	.16*	.26*	.27*
343	E m,p-Xylene						.43*	.32*	.42*	.19*	.32*	.26*
277	F 1,1,1-Trichloroethane							.41*	.39*	.01	.50*	.48*
180	G Trichloroethylene								.34*	.14	.42*	.23*
320	H Tetrachloroethylene									.10	.28*	.21*
278	I m,p-Dichlorobenzene										.03	-.01
203	J Chloroform											.43*
116	K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000175

Table 230. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR DAYTIME PERSONAL AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 52-314

			Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
No.		Compound	A	B	C	D	E	F	C	H	I	J	K
317.	A	Benzene		.35*	.48*	.45*	.49*	.33*	.12	.27*	-.00	.41*	.34*
270	B	Styrene			.58*	.50*	.57*	.18*	.08	.24*	.06	.14	.37*
311	C	Ethylbenzene				.95*	.94*	.47*	.12	.32*	.06	.31*	.48*
286	D	o-Xylene					.93*	.47*	.11	.34*	.07	.20*	.47*
336	E	m,p-Xylene						.47*	.13	.38*	.05	.28*	.49*
257	F	1,1,1-Trichloroethane							.33*	.42*	-.09	.32*	.53*
164	G	Trichloroethylene								.29*	.10	.12	.19
310	H	Tetrachloroethylene									.08	.07	.23
248	I	m,p-Dichlorobenzene										.17	-.11
145	J	Chloroform											.43*
85	K	Carbon Tetrachloride											

* Significantly different from zero at .05 level.

0001276

Table 231. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR OVERNIGHT OUTDOOR AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 18-72

No.		Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
			A	B	C	D	E	F	G	H	I	J	K
75	A	Benzene		.67*	.69*	.64*	.69*	.41*	.71*	.52*	.17	.29	.12
35	B	Styrene			.62*	.70*	.57*	.46*	.49*	.47*	.24	.39	.40
73	C	Ethylbenzene				.93*	.90*	.46*	.58*	.64*	-.21	.51*	.06
70	D	o-Xylene					.92*	.45*	.52*	.61*	-.23	.46*	.12
81	E	m,p-Xylene						.40*	.65*	.64*	-.13	.34*	.07
71	F	1,1,1-Trichloroethane							.42*	.48*	-.26	.48*	.19
52	G	Trichloroethylene								.58*	.17	.39*	.15*
65	H	Tetrachloroethylene									-.09	.41*	.30*
36	I	m,p-Dichlorobenzene										.09	.12
36	J	Chloroform											.16
53	K	Carbon Tetrachloride											

* Significantly different from zero at .05 level.

0001277

Table 232. PEARSON CORRELATIONS OF NATURAL LOGARITHM OF CONCENTRATIONS FOR SELECTED COMPOUNDS FOR DAYTIME OUTDOOR AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY FIRST SEASON

Sample Size Range: 7-72

No.	Compound	Group I: Aromatics					Group II: Chlorinated Solvents			Miscellaneous		
		A	B	C	D	E	F	G	H	I	J	K
68	A Benzene		.05	.62*	.59*	.56*	.36*	.30	.35*	.02	.22	.21
15	B Styrene			.40	.52*	.35	.65*	.60*	.40	-.14	.39	.19
74	C Ethylbenzene				.95*	.93*	.56*	.36*	.59*	.12	.27	.42*
70	D o-Xylene					.96*	.46*	.30	.62*	.22	.40*	.46*
83	E m,p-Xylene						.44*	.42*	.62*	-.23	.40*	.26
69	F 1,1,1-Trichloroethane							.26	.32*	-.19	.51*	.17
45	G Trichloroethylene								.53*	-.77*	-.07	.29
71	H Tetrachloroethylene									.05	.16	.24
20	I m,p-Dichlorobenzene										-.18	.02
35	J Chloroform											.36
45	K Carbon Tetrachloride											

* Significantly different from zero at .05 level.

000178

Stepwise regression is an unweighted method of building a potential regression model by bringing in the independent variables one at a time until no appreciable gain can be achieved by including another variable. Caution should be exercised in using stepwise results for anything other than a preliminary step in the selection of variables for further study due to the small sample sizes for some of the variables. Table 143 at the beginning of this section gives the results of the questionnaire indicating the sample sizes for the variables. Table 233 gives the coding of the variables chosen to be included in the stepwise procedures. The questions were chosen by their apparent relevance to each media. Those questions covered on the 24-hour screener will be discussed later.

The results of the stepwise regressions for breath for the eleven selected compounds is shown in Table 234. The number in the table represents the order the variable was selected into the model. The sign in parentheses represents the sign of the coefficient in the regression model. For breath, the variables employed and race appeared most often while the variables close smoker contact, driver, furniture refinishing as a hobby, painting as a hobby, non-prescription medication, hours away from home, window fan, ceiling exhaust fan and gas furnace never appeared. Chloroform, 1,1,1-trichloroethane and m,p-xylene were affected by the least number of variables with none, two and three, respectively, while tetrachloroethylene and m,p-dichlorobenzene were affected by the most with six. In general, the correlations for the models were low, ranging from .23 for 1,1,1-trichloroethane and carbon tetrachloride to .49 for styrene.

The stepwise regressions for overnight personal air for the eleven selected compounds are given in Table 235. The variables used were those which were concerned with the home. The most prevelant variables were poison (pesticides, herbicides, insecticides) and ceiling exhaust fan chosen five and four times, respectively. The variables age, scale model building, window air conditioning and circulating fan were never chosen. Trichloroethylene, m,p-dichlorobenzene, o-xylene and m,p-xylene used the least number of variables with one or two each, while chloroform used the most with six. As with breath, the correlations were low with a range of .11 for o-xylene to .28 for 1,1,1-trichloroethane.

Table 233. CODING OF QUESTIONNAIRE VARIABLES FOR STEPWISE REGRESSIONS

(Q.1)	Sex	Male=1 Female=0
(Q.2)	Race	Hispanic=1 Black=2 Other=0
(Q.3)	Age = age in years	
(Q.7)	Employed	1=yes 0=no
(Q.9)	Close smoker contact = %	
(Q.16.17)	Taxi/Bus/Truck driver	1=yes 0=no
(Q.20)	Smoke	0=nonsmoker not living with smoker 1=nonsmoker living with smoker 2=former smoker 3=now smoking
(Q.23)	Packs	0=no cigarettes 1=less than ½ pack 2=about ½ pack 3=about 1 pack 4=about 1½ packs 5=about 2 packs 6=more than 2 packs
(Q.28-1)	Furniture refinishing as a hobby	1=yes 0=no
(Q.28-2)	Painting as a hobby	1=yes 0=no
(Q.28-3)	Scale models as a hobby	1=yes 0=no
(Q.28-4)	Gardening as a hobby	1=yes 0=no
(Q.30)	Poisons - Insecticides, Pesticides, Herbicides	1=yes 0=no
(Q.31)	Physical condition	1=excellent 2=good 3=fair 4=poor

000180

Table 233 (continued)

(Q.32)	Taking prescription medicine	1=yes 0=no
(Q.33)	Taking non-prescription medicine	1=yes 0=no
(Q.18)	Away=average week day hours away from home	
(Q.45-1)	Central air conditioning	yes=1 no=0
(Q.45-2)	window air conditioning	yes=1 no=0
(Q.45-4)	window fan(s)	yes=1 no=0
(Q.45-5)	ceiling exhaust fan(s)	yes=1 no=0
(Q.45-6)	circulating fan(s)	yes=1 no=0
(Q.46-1)	gas stove	yes=1 no=0
(Q.46-2)	electic oven	yes=1 no=0
(Q.46-3)	gas furnace	yes=1 no=0
(Q.46-4)	oil heat	yes=1 no=0

Table 234. RESULTS OF STEPWISE REGRESSIONS[1/] FOR SELECTED COMPOUNDS WITH BREATH CONCENTRATIONS AS THE DEPENDENT VARIABLES AND QUESTIONNAIRE VARIABLES AS PREDICTORS - NEW JERSEY FIRST SEASON

Questionnaire Variable	Chloroform	1,1,1-Trichloroethane	2/ 3/ Benzene	Carbon Tetrachloride	Trichloroethylene	Tetrachloroethylene	Styrene	m,p-Dichlorobenzene	Ethylbenzene	o-Xylene	m,p-Xylene	Number 4/ of Times Selected
(Q.1) Sex			3 (-)		4 (-)							2
(Q.2) Race			4 (+)			2 (+)	2 (+)	4 (+)	4 (+)	2 (+)		6
(Q.3) Age						6 (+)						1
(Q.7) Employed		1 (+)	2 (+)			1 (+)	4 (+)		2 (+)	1 (+)	2 (+)	7
(Q,9) Close Smoker Contact												0
(Q16.17) Taxi/Bus/ Truck Driver												0
(Q.20) Smoke			1 (+)				1 (+)		1 (+)		1 (+)	4
(Q.23) Packs			5 (+)			3 (+)						2
(Q.28.1) Furniture Refinishing												0
(Q.28.2) Painting												0
(Q.28.3) Scale Models							5 (-)					1
(Q.28.4) Gardening								3 (-)				1
(Q.30) Poison					3 (+)	4 (+)						2
(Q.31) Physical Cond.				2 (+)								1
(Q.32) Prescription Medication												0
(Q.33) Non-Presription Medication												0
(Q.18) Hours away from home				1 (+)	2 (+)	5 (+)		2 (+)				4
(Q.45.1) Central AC					5 (-)			1 (+)				2
(Q.45.2) Window AC								6 (+)				1
(Q.45.4) Window fan												0
(Q.45.5) Ceiling Exhaust Fan												0
(Q.45.6) Circulating Fan				3 (+)				5 (+)				2
(Q.46.1) Gas Stove									3 (-)	3 (-)	3 (-)	3
(Q.46.2) Electric Oven							3 (+)					1
(Q.46.3) Gas Furnace												0
(Q.46.4) Oil Heat		2 (-)		4 (-)	1 (-)					4 (-)		4
R^2 = (corr)^2		.05	.18	.05	.08	.14	.24	.09	.11	.09	.09	
R = corr		.23	.42	.23	.29	.38	.49	.30	.33	.30	.31	
Sample Size	311	315	323	300	291	323	297	301	323	318	325	

1/ All questionnaire variables in final model were significant at .10 level. All regressions run on LN (concentration) levels.
2/ Column indicates that LN (benzene) = linear function of "smoke". The variable correlation coefficient for this regression is .23.
3/ Number in column indicates most significant questionnaire variable, 2nd most significant, ...; (+) = regression coefficient is positive; (-) = regression coefficient is negative. For coding of questionnaire variables, see Table 233.
4/ Number of times over selected compounds that questionnaire variable was selected by stepwise regression procedure.

Table 235. RESULTS OF STEPWISE REGRESSIONS[1/] FOR SELECTED COMPOUNDS WITH OVERNIGHT PERSONAL AIR CONCENTRATIONS AS THE DEPENDENT VARIABLES AND QUESTIONNAIRE VARIABLES AS PREDICTORS - NEW JERSEY FIRST SEASON

Questionnaire Variable	[2/] [3/] Chloroform	1,1,1-Trichloroethane	Benzene	Carbon Tetrachloride	Trichloroethylene	Tetrachloroethylene	Styrene	m,p-Dichlorobenzene	Ethylbenzene	o-Xylene	m,p-Xylene	Number [4/] of Times Selected
(Q.1) Sex												1
(Q.2) Race						2 (+)						1
(Q.3) Age				1 (-)								0
(Q.20) Smoke			2 (+)				2 (+)					2
(Q.23) Packs	3 (-)											1
(Q.28.1) Furniture Refinishing					2 (+)				1 (+)	1 (+)		3
(Q.28.2) Painting								2 (-)				1
(Q.28.3) Scale Models												0
(Q.28.4) Gardening							3 (-)		4 (-)			2
(Q.30) Poison	2 (+)	4 (+)				1 (+)			3 (+)		1 (+)	5
(Q.45.1) Central AC	6 (-)	3 (-)						1 (+)				3
(Q.45.2) Window AC												0
(Q.45.4) Window fan	1 (-)		3 (-)			3 (-)						3
(Q.45.5) Ceiling Exhaust Fan	5 (+)	1 (+)	1 (+)	2 (+)								4
(Q.45.6) Circulating Fan												0
(Q.46.1) Gas Stove							1 (-)					1
(Q.46.2) Electric Oven					1 (+)							1
(Q.46.3) Gas Furnace	4 (+)								2 (+)			2
(Q.46.4) Oil Heat		2 (-)		3 (-)							2 (-)	3
R^2 = (corr)^2	.07	.08	.03	.04	.02	.04	.06	.03	.06	.01	.02	
R = corr	.27	.28	.17	.21	.14	.20	.24	.16	.25	.11	.14	
Sample Size	339	340	339	400	341	341	340	339	340	339	340	

1/ All questionnaire variables in final model were significant at .10 level. All regressions run on LN (concentration) levels.
2/ Column indicates that LN (chloroform) = linear function of packs, poison, ..., and gas furnace. The correlation coefficient for this regression is .27.
3/ Number in column indicates most significant questionnaire variable, 2nd most significant, ...; (+) = regression coefficient is positive; (-) = regression coefficient is negative. For coding of questionnaire variables, see Table 233.
4/ Number of times over selected compounds that questionnaire variable was selected by stepwise regression procedure.

The results of the stepwise regressions for daytime personal air for the eleven compounds are given in Table 236. Again, the variables chosen were those that apparently related to daytime activities. By far, the most prevalent variable was employed while the variables race, packs of cigarettes and hours away from home did not appear. For trichloroethylene and m,p-dichlorobenzene no variables appeared in the model. As previously, the correlations were low with a range of .09 for chloroform to .31 for m,p-xylene.

One-way analyses of variance for the variables appearing at least once in the stepwise regressions by compound and media were then performed. Table 237 gives the results of the ANOVAs for breath. The variables hours away from home, number of cigarettes, smoke, age groups and employed were significant for many of the compounds. Particularly high F-values were noted for benzene and styrene under smoke and 1,1,1-trichloroethane, tetrachloroethylene, ethylbenzene, o-xylene and m,p-xylene under employed.

The one-way analyses of variance for the variables appearing in the overnight personal air stepwise regressions are presented in Table 238. The variables smoke and non-prescription medication were significant over many of the compounds. 1,1,1-trichloroethane under ceiling exhaust fan had a particularly high F-value.

The one-way analyses of variance for the variables appearing at least once in the daytime personal air stepwise regression are given in Table 239. The variables hours away from home, smoker contact at work and employed showed significant differences over many compounds. Employed also showed particularly high F-values for 1,1,1-trichloroethane, ethylbenzene, o-xylene and m,p-xylene as did prescription medication for m,p-xylene.

Throughout the stepwise analyses and ANOVAs the variables associated with smoking and employed appeared frequently and often with strong results.

The unweighted geometric means for those compounds which showed significant differences are given in Table X-107 in the appendices.

One-way analyses of variance were also done on selected variables from the 24-hour activity and exposure screener. Table 144 at the beginning of this section gives a breakdown of the answers to the

Table 236. RESULTS OF STEPWISE REGRESSIONS[1/] FOR SELECTED COMPOUNDS WITH DAYTIME PERSONAL AIR CONCENTRATIONS AS THE DEPENDENT VARIABLES AND QUESTIONNAIRE VARIABLES AS PREDICTORS - NEW JERSEY FIRST SEASON

Questionnaire Variable	Chloroform	1,1,1-Trichloroethane [2/] [3/]	Benzene	Carbon Tetrachloride	Trichloroethylene	Tetrachloroethylene	Styrene	m,p-Dichlorobenzene	Ethylbenzene	o-Xylene	m,p-Xylene	Number of Times Selected [4/]
(Q.1) Sex									2 (+)	2 (+)	2 (+)	3
(Q.2) Race												0
(Q.3) Age		2 (-)							3 (-)			2
(Q.7) Employed		1 (+)				1 (+)	1 (+)		1 (+)	1 (+)	1 (+)	6
(Q.9) Close Smoker Contact			1 (+)	1 (+)								2
(Q.16.17) Taxi/Bus/ Truck Driver	1 (-)											1
(Q.20) Smoke							2 (+)					1
(Q.23) Packs												0
(Q.18) Hours away from home												0
(Q.30) Poison						2 (+)						1
R^2 = (corr)^2	.01	.07	.03	.02		.04	.04		.07	.05	.09	
R = corr	.09	.26	.18	.14		.19	.19		.27	.23	.31	
Sample Size	331	331	331	329	331	331	331	331	330	331	331	

1/ All questionnaire variables in final model were significant at .10 level. All regressions run on LN (concentration) levels.
2/ Column indicates that LN (1,1,1-Trichloroethane) = linear function of age and employed. The correlation coefficient for this regression is .27.
3/ Number in column indicates most significant questionnaire variable, 2nd most significant, ...; (+) = regression coefficient is positive; (-) = regression coefficient is negative. For coding of questionnaire variables, see Table 233.
4/ Number of times over selected compounds that questionnaire variable was selected by stepwise regression procedure.

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Table 237. ANALYSIS OF VARIANCE WITH QUESTIONNAIRE VARIABLES USING NATURAL LOGARITHMS OF THE CONCENTRATIONS FOR BREATH - NEW JERSEY FIRST SEASON

Compounds	Type of Heat		Hours Away From Home		Packs of Cigarettes		Smoke	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	0.24	.79	0.77	.51	0.83	.55	0.87	0.46
1,1,1-Trichloroethane	2.30	.10	4.09*	.01	0.74	.61	0.73	0.54
Benzene	2.24	.11	2.90*	.03	5.80*	.00	23.1 *	0.00
Carbon Tetrachloride	1.19	.31	1.43	.23	0.45	.85	0.66	0.58
Trichloroethylene	3.92*	.02	1.43	.23	0.54	.78	0.98	0.40
Tetrachloroethylene	0.73	.48	6.50*	.00	3.12*	.01	3.57*	0.01
Styrene	1.23	.29	2.33	.07	6.96*	.00	19.5 *	0.00
m,p-Dichlorobenzene	0.32	.73	1.96	.12	0.79	.58	1.27	0.28
Ethylbenzene	1.02	.36	3.77*	.01	2.59*	.02	7.21*	0.00
o-Xylene	1.09	.34	5.39*	.00	0.89	.50	1.53	0.20
m,p-Xylene	0.63	.53	4.26*	.01	3.02*	.01	6.98*	0.00

Compounds	Central Air Conditioning		Window Air Conditioning		Circulating Fan		Gas Stove	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	1.63	.20	0.01	.92	0.09	.76	1.33	.25
1,1,1-Trichloroethane	0.18	.67	0.66	.42	0.25	.62	0.17	.68
Benzene	0.02	.89	0.03	.87	0.97	.32	1.18	.28
Carbon Tetrachloride	0.84	.36	0.40	.53	3.30	.07	0.86	.35
Trichloroethylene	0.73	.39	0.36	.55	3.56	.06	0.28	.59
Tetrachloroethylene	0.13	.72	0.48	.49	0.00	.96	2.50	.11
Styrene	1.59	.21	2.27	.13	0.14	.70	6.45*	.01
m,p-Dichlorobenzene	8.47*	.00	0.01	.93	2.57	.11	1.67	.20
Ethylbenzene	0.00	.99	0.65	.42	0.18	.67	5.92*	.02
o-Xylene	0.01	.94	0.48	.49	0.00	.98	6.15*	.01
m,p-Xylene	0.02	.89	1.43	.23	0.55	.46	4.47*	.04

continued

Table 237. (continued)

Compounds	Electric Oven F-Value	Electric Oven Prob.	Sex F-Value	Sex Prob.	Driver F-Value	Driver Prob.	Poison F-Value	Poison Prob.
Chloroform	0.12	.73	0.00	.94	0.30	.59	0.12	.73
1,1,1-Trichloroethane	0.01	.91	1.43	.23	2.15	.14	3.20	.07
Benzene	0.28	.60	0.57	.45	0.00	.96	2.83	.09
Carbon Tetrachloride	0.10	.76	0.37	.54	2.32	.13	0.54	.46
Trichloroethylene	0.12	.73	0.12	.73	1.88	.17	4.46*	.04
Tetrachloroethylene	0.70	.40	3.00	.08	0.28	.59	6.44*	.01
Styrene	4.36*	.04	1.26	.26	0.16	.69	0.34	.56
m,p-Dichlorobenzene	0.05	.82	0.30	.58	0.06	.81	0.01	.94
Ethylbenzene	2.85	.09	1.58	.21	0.01	.92	2.31	.13
o-Xylene	2.01	.16	6.64*	.01	1.28	.26	0.87	.35
m,p-Xylene	1.65	.20	2.78	.10	0.23	.63	1.66	.20

Compounds	Age Groups F-Value	Age Groups Prob.	Race F-Value	Race Prob.	Employed F-Value	Employed Prob.	Physical Condition F-Value	Physical Condition Prob.
Chloroform	0.43	.73	3.29*	.04	1.20	.27	0.65	.59
1,1,1-Trichloroethane	1.86	.13	5.37*	.01	12.8 *	.00	0.84	.48
Benzene	2.77*	.04	0.78	.46	8.03	.00	2.46	.06
Carbon Tetrachloride	0.29	.83	0.23	.80	1.98	.16	1.86	.13
Trichloroethylene	1.59	.19	6.63*	.00	2.85	.09	0.18	.91
Tetrachloroethylene	3.28*	.02	1.57	.21	27.1 *	.00	0.13	.94
Styrene	1.67	.17	3.04*	.05	8.50*	.00	2.18	.09
m,p-Dichlorobenzene	2.67*	.05	1.80	.17	4.77*	.03	1.80	.15
Ethylbenzene	2.70*	.05	1.79	.17	15.9 *	.00	0.80	.50
o-Xylene	3.20*	.02	3.00	.05	19.8 *	.00	2.12	.10
m,p-Xylene	3.06*	.03	0.92	.40	14.1 *	.00	0.85	.47

continued

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Table 237. (continued)

Compounds	Scale Models F-Value	Scale Models Prob.	Gardening F-Value	Gardening Prob.
Chloroform	1.30	.25	0.07	.79
1,1,1-Trichloroethane	0.01	.94	0.91	.34
Benzene	1.08	.30	0.01	.93
Carbon Tetrachloride	0.47	.49	1.92	.17
Trichloroethylene	0.05	.82	1.08	.30
Tetrachloroethylene	0.58	.45	0.08	.78
Styrene	6.75*	.01	1.15	.28
m,p-Dichlorobenzene	0.05	.82	2.86	.09
Ethylbenzene	0.07	.80	0.16	.69
o-Xylene	0.03	.86	0.27	.60
m,p-Xylene	0.00	.98	0.25	.62

* Significantly different at .05 level.
LCONC = LN (Conc * 1000)

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Table 238. ANALYSIS OF VARIANCE WITH QUESTIONNAIRE VARIABLES USING NATURAL LOGARITHMS OF THE CONCENTRATIONS FOR OVERNIGHT PERSONAL AIR - NEW JERSEY FIRST SEASON

Compounds	Physical Condition		Type of Heat		Packs of Cigarettes		Smoke	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	0.54	.66	1.90	.15	1.62	.14	3.18*	0.02
1,1,1-Trichloroethane	1.00	.40	1.94	.15	0.49	.81	2.06	0.10
Benzene	0.59	.63	1.25	.29	1.18	.32	2.86*	0.04
Carbon Tetrachloride	0.49	.69	1.11	.33	1.54	.16	0.23	0.88
Trichloroethylene	0.68	.57	0.39	.68	0.65	.69	1.45	0.23
Tetrachloroethylene	1.35	.26	0.01	.99	0.18	.98	1.28	0.28
Styrene	0.39	.77	1.35	.26	1.26	.28	8.33*	0.00
m,p-Dichlorobenzene	0.84	.48	0.95	.39	0.56	.76	1.96	0.12
Ethylbenzene	1.75	.15	2.95	.05	0.38	.89	6.41*	0.00
o-Xylene	0.98	.40	0.85	.43	0.22	.97	5.42*	0.00
m,p-Xylene	0.80	.50	1.76	.17	0.17	.98	6.23*	0.00

Compounds	Central Air Conditioning		Window Air Conditioning		Ceiling Exhaust Fan		Paint	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	1.46	.23	6.01*	.01	4.41*	.04	0.72	.40
1,1,1-Trichloroethane	4.59*	.03	0.61	.44	13.2 *	.00	0.35	.55
Benzene	0.59	.44	3.29	.07	4.63*	.03	0.00	.96
Carbon Tetrachloride	0.42	.52	1.18	.28	6.41*	.01	2.29	.13
Trichloroethylene	0.53	.47	0.46	.50	2.17	.14	0.66	.42
Tetrachloroethylene	0.13	.72	4.95*	.03	2.19	.14	0.00	.98
Styrene	0.00	.96	0.20	.66	0.05	.82	0.18	.67
m,p-Dichlorobenzene	5.08*	.02	0.85	.36	0.78	.38	3.25	.07
Ethylbenzene	1.36	.24	0.41	.52	0.91	.34	1.54	.22
o-Xylene	2.84	.09	0.07	.80	1.63	.20	0.73	.39
m,p-Xylene	1.13	.29	0.61	.43	1.00	.32	0.28	.60

continued

Table 238. (continued)

Compounds	Electric Oven F-Value	Electric Oven Prob.	Sex F-Value	Sex Prob.	Driver F-Value	Driver Prob.	Poison F-Value	Poison Prob.
Chloroform	3.17	.08	0.09	.77	0.33	.57	5.23*	.02
1,1,1-Trichloroethane	1.34	.25	2.78	.10	0.99	.32	4.19*	.04
Benzene	1.53	.22	0.55	.46	1.15	.28	1.58	.21
Carbon Tetrachloride	0.00	.98	0.36	.55	0.00	.97	0.11	.74
Trichloroethylene	3.87*	.05	1.33	.25	0.01	.93	0.24	.62
Tetrachloroethylene	0.92	.34	5.52*	.02	0.21	.65	6.22*	.01
Styrene	5.34*	.02	0.50	.48	0.49	.48	2.06	.15
m,p-Dichlorobenzene	0.02	.88	0.09	.77	3.89*	.05	0.02	.90
Ethylbenzene	1.04	.31	2.94	.09	2.61	.11	5.48*	.02
o-Xylene	1.04	.31	2.71	.10	1.60	.21	3.29	.07
m,p-Xylene	1.11	.29	2.41	.12	0.86	.35	2.75	.10

Compounds	Prescription Medication F-Value	Prescription Medication Prob.	Race F-Value	Race Prob.	Employed F-Value	Employed Prob.	Nonprescription Medication F-Value	Nonprescription Medication Prob.
Chloroform	0.31	.58	2.42	.09	0.98	.32	3.10	.08
1,1,1-Trichloroethane	0.77	.38	4.54*	.01	0.27	.60	6.89*	.01
Benzene	0.00	.95	0.61	.54	0.14	.71	1.29	.26
Carbon Tetrachloride	0.00	.99	3.57*	.03	0.03	.86	0.76	.38
Trichloroethylene	2.75	.10	3.84*	.02	1.04	.31	0.45	.50
Tetrachloroethylene	0.66	.42	0.73	.48	0.62	.43	1.20	.27
Styrene	0.28	.60	1.12	.33	1.65	.20	4.40*	.04
m,p-Dichlorobenzene	0.46	.50	0.46	.63	1.20	.27	0.43	.51
Ethylbenzene	0.07	.80	2.90	.06	2.05	.15	6.88*	.01
o-Xylene	0.21	.65	1.43	.24	0.53	.47	7.06*	.01
m,p-Xylene	1.12	.29	2.35	.10	0.98	.32	7.80*	.01

continued

Table 238. (continued)

Compounds	Furniture Refinishing F-Value	Furniture Refinishing Prob.	Gardening F-Value	Gardening Prob.
Chloroform	0.66	.42	0.09	.76
1,1,1-Trichloroethane	0.02	.89	0.12	.73
Benzene	1.96	.16	1.73	.19
Carbon Tetrachloride	1.07	.30	0.11	.73
Trichloroethylene	3.06	.08	1.84	.18
Tetrachloroethylene	1.00	.32	0.91	.34
Styrene	0.01	.91	2.74	.10
m,p-Dichlorobenzene	0.17	.68	1.57	.21
Ethylbenzene	8.70*	.00	0.31	.58
o-Xylene	4.15*	.04	0.32	.58
m,p-Xylene	3.56	.06	0.42	.52

* Significantly different at .05 level.
LCONC = LN (Conc * 1000)

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Table 239. ANALYSIS OF VARIANCE WITH QUESTIONNAIRE VARIABLES USING NATURAL LOGARITHMS OF THE CONCENTRATIONS FOR DAYTIME PERSONAL AIR - NEW JERSEY FIRST SEASON

Compounds	Hours Away From Home		Paint		Smoke		Scale Models	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	0.45	.72	0.16	.69	0.84	0.48	0.22	.64
1,1,1-Trichloroethane	6.58*	.00	0.22	.64	1.29	0.28	1.30	.25
Benzene	1.14	.33	0.57	.45	3.15*	0.02	0.04	.85
Carbon Tetrachloride	0.88	.46	0.94	.33	0.55	0.65	1.09	.30
Trichloroethylene	1.35	.26	0.06	.81	0.39	0.77	0.95	.33
Tetrachloroethylene	1.49	.22	0.12	.73	0.63	0.60	0.23	.64
Styrene	3.09*	.03	1.96	.16	2.25	0.08	8.49*	.00
m,p-Dichlorobenzene	0.29	.83	1.04	.31	2.19	0.09	2.39	.12
Ethylbenzene	6.99*	.00	0.95	.33	2.57	0.05	0.34	.56
o-Xylene	5.37*	.00	2.59	.11	2.13	0.09	0.00	.99
m,p-Xylene	9.65*	.00	1.68	.20	3.28*	0.02	0.66	.42

Compounds	Smoker Contact at Work		Central Air Conditioning		Window Air Conditioning		Gas Stove	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	1.39	.25	0.54	.46	10.7*	.00	3.28	.07
1,1,1-Trichloroethane	6.65*	.00	0.18	.67	1.25	.26	3.49	.06
Benzene	5.21*	.01	1.15	.29	0.10	.76	0.01	.92
Carbon Tetrachloride	5.70*	.00	0.04	.85	0.12	.73	1.58	.21
Trichloroethylene	1.15	.32	0.16	.69	1.82	.18	0.08	.78
Tetrachloroethylene	2.43	.09	0.27	.60	1.63	.20	0.87	.35
Styrene	4.62*	.01	0.44	.51	0.01	.92	7.63*	.01
m,p-Dichlorobenzene	0.97	.38	4.17*	.04	0.16	.69	0.01	.90
Ethylbenzene	6.61*	.00	0.69	.41	0.02	.89	2.52	.11
o-Xylene	6.70*	.00	1.95	.16	0.87	.35	1.21	.27
m,p-Xylene	9.53*	.00	1.54	.22	0.13	.72	2.07	.15

continued

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Table 239. (continued)

Compounds	Electric Oven F-Value	Electric Oven Prob.	Sex F-Value	Sex Prob.	Type of Heat F-Value	Type of Heat Prob.	Physical Condition F-Value	Physical Condition Prob.
Chloroform	1.50	.22	2.51	.11	1.72	.18	3.24*	.02
1,1,1-Trichloroethane	3.50	.06	0.81	.67	0.33	.72	2.25	.08
Benzene	0.00	.99	0.74	.39	0.14	.87	1.68	.17
Carbon Tetrachloride	1.39	.24	0.01	.91	0.22	.81	3.60*	.01
Trichloroethylene	0.03	.87	0.79	.38	0.34	.71	2.13	.09
Tetrachloroethylene	1.08	.30	0.79	.37	1.03	.36	0.93	.43
Styrene	4.15*	.04	0.56	.46	1.30	.27	0.35	.79
m,p-Dichlorobenzene	0.12	.73	0.37	.54	0.07	.94	1.51	.21
Ethylbenzene	1.32	.25	11.6 *	.00	1.28	.28	1.94	.12
o-Xylene	0.95	.33	11.5 *	.00	0.69	.50	2.48	.06
m,p-Xylene	1.61	.21	18.0 *	.00	1.41	.24	1.75	.16

Compounds	Driver F-Value	Driver Prob.	Poison F-Value	Poison Prob.	Prescription Medication F-Value	Prescription Medication Prob.	Employed F-Value	Employed Prob.
Chloroform	3.20	.07	0.56	.46	0.00	.99	0.56	.46
1,1,1-Trichloroethane	0.50	.48	0.02	.88	1.69	.19	20.6 *	.00
Benzene	0.49	.49	0.06	.80	3.97*	.05	4.62*	.03
Carbon Tetrachloride	0.18	.67	0.21	.65	0.00	.99	5.58*	.02
Trichloroethylene	1.44	.23	1.78	.18	0.51	.47	1.02	.31
Tetrachloroethylene	0.02	.90	4.58	.03	2.30	.13	8.59*	.00
Styrene	1.64	.20	0.44	.51	2.29	.13	7.14*	.01
m,p-Dichlorobenzene	4.14*	.04	0.03	.87	0.01	.93	0.48	.49
Ethylbenzene	0.01	.91	0.30	.58	6.24*	.01	20.5 *	.00
o-Xylene	0.03	.86	0.16	.69	6.78*	.01	15.3 *	.00
m,p-Xylene	0.11	.74	0.37	.54	12.2 *	.00	29.4 *	.00

* Significantly different at .05 level.
LCONC = LN (Conc * 1000)

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screener. The ANOVAs for breath are given in Table 240. The variables painting, tobacco and close contact with smoker showed significant F-values for many of the compounds. Benzene, styrene, ethylbenzene and m,p-xylene had particularly high F-values for tobacco. Ethylbenzene and the xylenes under painting, benzene under close contact with smokers, styrene under chemical plant, and ethylbenzene and the xylenes under solvents also had high F-values.

The one-way analyses of variance for overnight personal air for the eleven compounds are given in Table 241. There were fewer significant differences for overnight personal air than for breath. Styrene under tobacco and close contact with smokers showed high F-values.

The one-way analyses of variance for daytime personal air for the selected variables from the screener are given in Table 242. While daytime personal air showed more significant differences than overnight personal air, it did not show as many as breath. The variables high dust or particulate levels and painting showed the most significant differences. Styrene, ethylbenzene and m,p-xylene under painting; o-xylene under garage; ethylbenzene, o-xylene and m,p-xylene under solvents and odorous chemicals; 1,1,1-trichloroethane, ethylbenzene, and the xylenes under high dust or particulate levels; and styrene under degreasing compounds all showed high F-values.

The percentages measurable, medians and maximum values by 24-hour screener variables and media are given in Tables X-1 through X-22 in Appendix X for 1,1,1-trichloroethane, benzene, trichloroethylene, m,p-dichlorobenzene, m,p-xylene and tetrachloroethylene.

Table 240. ANALYSIS OF VARIANCE WITH 24-HOUR SCREENER VARIABLES USING NATURAL LOGARITHMS OF THE CONCENTRATIONS FOR BREATH - NEW JERSEY FIRST SEASON

Compounds	Q.9 Painting		Q.4 Tobacco		Q.5 Close Contact With Smokers		Q.6 Pesticides, Insecticides, Herbicides	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	7.45*	.01	0.55	.46	1.30	.26	3.06	.08
1,1,1-Trichloroethane	6.33*	.01	2.89	.09	0.50	.48	0.33	.57
Benzene	6.80*	.01	63.2 *	.00	11.3 *	.00	0.15	.70
Carbon Tetrachloride	3.58	.06	0.05	.83	1.96	.16	0.01	.91
Trichloroethylene	1.36	.24	5.35*	.02	7.52*	.01	0.88	.35
Tetrachloroethylene	8.69*	.00	3.69	.06	3.97*	.05	0.14	.71
Styrene	9.54*	.00	64.7 *	.00	9.18*	.00	0.02	.89
m,p-Dichlorobenzene	1.85	.18	0.02	.89	0.00	.99	0.81	.37
Ethylbenzene	11.1 *	.00	24.3 *	.00	9.56*	.00	0.00	.99
o-Xylene	11.9 *	.00	4.31*	.04	5.50*	.02	0.03	.86
m,p-Xylene	10.3 *	.00	23.1 *	.00	9.37*	.00	0.10	.75

Compounds	Q.9 Chemical Plant		Q.9 Garage		Q.10 Solvents		Q.10 Odorous Chemicals	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	1.48	.23	3.17	.08	2.82	.09	0.10	.76
1,1,1-Trichloroethane	1.34	.25	0.08	.78	3.09	.08	1.77	.18
Benzene	2.73	.10	1.62	.20	2.44	.12	0.67	.41
Carbon Tetrachloride	1.28	.26	0.72	.40	0.56	.45	0.00	.97
Trichloroethylene	2.74	.10	1.05	.31	3.56	.06	1.26	.26
Tetrachloroethylene	3.55	.06	0.51	.48	3.02	.08	1.69	.19
Styrene	14.7 *	.00	0.07	.79	7.87*	.01	1.50	.22
m,p-Dichlorobenzene	0.02	.89	0.00	.97	0.20	.65	0.74	.39
Ethylbenzene	8.59*	.00	0.89	.35	16.0 *	.00	6.33*	.01
o-Xylene	9.86*	.00	1.51	.22	14.9 *	.00	9.44*	.00
m,p-Xylene	9.41*	.00	1.23	.27	15.9 *	.00	6.87*	.01

continued

Table 240. (continued)

Compounds	Q.10 Hazardous or Toxic Chemicals		Q.10 High Dust Or Particulate Levels		Q.10 Auto/Truck Exhaust		Q.10 Cleaning Solutions	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	3.75	.05	0.10	.75	0.17	.68	1.70	.19
1,1,1-Trichloroethane	1.97	.16	3.04	.08	0.32	.57	2.52	.11
Benzene	1.68	.20	1.22	.27	0.25	.62	0.43	.51
Carbon Tetrachloride	0.37	.54	0.00	.96	1.13	.29	1.16	.28
Trichloroethylene	0.04	.84	2.71	.10	1.60	.21	0.06	.80
Tetrachloroethylene	0.39	.53	0.72	.40	0.25	.62	0.01	.92
Styrene	0.56	.46	5.43*	.02	0.55	.46	0.26	.61
m,p-Dichlorobenzene	1.12	.29	0.51	.48	1.13	.29	0.39	.53
Ethylbenzene	0.01	.91	2.86	.09	0.13	.72	0.47	.49
o-Xylene	0.19	.67	3.82	.05	0.07	.79	0.88	.35
m,p-Xylene	0.09	.77	2.95	.09	0.35	.55	0.74	.39

Compounds	Q.10 Degreasing Compounds	
	F-Value	Prob.
Chloroform	0.76	.38
1,1,1-Trichloroethane	2.02	.16
Benzene	0.28	.60
Carbon Tetrachloride	0.09	.76
Trichloroethylene	0.44	.51
Tetrachloroethylene	1.11	.29
Styrene	0.02	.90
m,p-Dichlorobenzene	1.49	.22
Ethylbenzene	1.81	.18
o-Xylene	1.33	.25
m,p-Xylene	2.22	.14

* Significantly different at .05 level.
LCONC = LN (Conc * 1000)

000196

Table 241. ANALYSIS OF VARIANCE WITH 24-HOUR SCREENER VARIABLES USING NATURAL LOGARITHMS OF THE CONCENTRATIONS FOR OVERNIGHT PERSONAL AIR - NEW JERSEY FIRST SEASON

Compounds	Q.9 Painting		Q.4 Tobacco		Q.5 Close Contact With Smokers		Q.6 Pesticides, Insecticides, Herbicides	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	0.24	.63	0.42	.52	1.19	.28	1.04	.31
1,1,1-Trichloroethane	0.11	.74	0.24	.62	1.17	.28	0.45	.50
Benzene	2.23	.14	4.49*	.03	8.61*	.00	0.01	.93
Carbon Tetrachloride	0.67	.41	0.00	.95	0.35	.55	0.01	.92
Trichloroethylene	0.01	.94	0.70	.40	1.96	.16	0.34	.56
Tetrachloroethylene	0.18	.67	2.33	.13	4.64*	.03	0.20	.66
Styrene	0.47	.49	11.3 *	.00	15.3 *	.00	0.05	.82
m,p-Dichlorobenzene	0.04	.83	0.01	.93	0.07	.80	0.08	.78
Ethylbenzene	0.24	.62	1.38	.24	2.31	.13	0.38	.54
o-Xylene	0.02	.89	0.23	.63	1.43	.23	0.26	.61
m,p-Xylene	0.48	.49	1.81	.18	1.83	.18	0.30	.58

Compounds	Q.9 Chemical Plant		Q.9 Garage		Q.10 Solvents		Q.10 Odorous Chemicals	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	0.61	.44	2.95	.09	0.62	.43	0.28	.60
1,1,1-Trichloroethane	1.21	.27	1.46	.23	4.79*	.03	0.36	.55
Benzene	0.22	.64	2.53	.11	2.36	.13	0.01	.93
Carbon Tetrachloride	0.15	.70	0.46	.50	3.02	.08	1.64	.20
Trichloroethylene	0.59	.44	3.12	.08	0.08	.78	0.32	.57
Tetrachloroethylene	0.35	.55	0.15	.70	0.00	.99	0.68	.41
Styrene	4.47*	.04	0.01	.92	1.79	.18	0.47	.50
m,p-Dichlorobenzene	2.68	.10	0.63	.43	3.06	.08	0.00	.96
Ethylbenzene	2.97	.09	0.45	.50	4.69*	.03	0.24	.63
o-Xylene	1.40	.24	0.05	.83	3.19	.08	0.02	.89
m,p-Xylene	3.56	.06	0.08	.77	3.80	.05	0.07	.79

continued

000197

Table 241. (continued)

Compounds	Q.10 Hazardous or Toxic Chemicals F-Value	Q.10 Hazardous or Toxic Chemicals Prob.	Q.10 High Dust Or Particulate Levels F-Value	Q.10 High Dust Or Particulate Levels Prob.	Q.10 Auto/Truck Exhaust F-Value	Q.10 Auto/Truck Exhaust Prob.	Q.10 Cleaning Solutions F-Value	Q.10 Cleaning Solutions Prob.
Chloroform	0.52	.47	0.27	.61	0.06	.81	0.23	.63
1,1,1-Trichloroethane	2.64	.11	1.98	.16	1.20	.27	1.20	.27
Benzene	0.00	.96	0.04	.85	1.43	.23	0.31	.58
Carbon Tetrachloride	0.81	.37	1.14	.29	0.43	.51	2.90	.09
Trichloroethylene	0.35	.56	1.27	.26	0.06	.81	0.17	.68
Tetrachloroethylene	0.15	.70	3.57	.06	1.42	.23	0.65	.42
Styrene	0.80	.37	2.66	.10	0.25	.62	0.06	.80
m,p-Dichlorobenzene	2.83	.09	0.04	.85	0.63	.43	0.37	.54
Ethylbenzene	3.20	.07	8.07*	.00	0.00	.97	0.86	.35
o-Xylene	4.69*	.03	6.02*	.01	0.20	.66	0.79	.38
m,p-Xylene	5.46*	.02	6.86*	.01	0.04	.84	0.93	.34

Compounds	Q.10 Degreasing Compounds F-Value	Q.10 Degreasing Compounds Prob.
Chloroform	1.56	.21
1,1,1-Trichloroethane	2.68	.10
Benzene	0.22	.64
Carbon Tetrachloride	1.66	.20
Trichloroethylene	0.66	.42
Tetrachloroethylene	2.60	.11
Styrene	3.87	.05
m,p-Dichlorobenzene	2.06	.15
Ethylbenzene	2.73	.10
o-Xylene	1.38	.24
m,p-Xylene	2.18	.14

* Significantly different at .05 level.
LCONC = LN (Conc * 1000)

000198

Table 242. ANALYSIS OF VARIANCE WITH 24-HOUR SCREENER VARIABLES USING NATURAL LOGARITHMS OF THE CONCENTRATIONS FOR DAYTIME PERSONAL AIR - NEW JERSEY FIRST SEASON

Compounds	Q.9 Painting		Q.4 Tobacco		Q.5 Close Contact With Smokers		Q.6 Pesticides, Insecticides, Herbicides	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	0.01	.91	0.01	.94	1.47	.23	0.21	.65
1,1,1-Trichloroethane	3.96*	.05	1.38	.24	0.41	.52	0.07	.80
Benzene	1.13	.29	6.92*	.01	7.85*	.01	0.17	.68
Carbon Tetrachloride	1.39	.24	0.00	.95	0.65	.42	0.34	.56
Trichloroethylene	0.48	.49	0.58	.45	1.74	.19	1.16	.28
Tetrachloroethylene	2.61	.11	1.47	.23	0.00	.98	0.02	.90
Styrene	18.2 *	.00	7.55*	.01	7.58*	.01	0.60	.44
m,p-Dichlorobenzene	0.64	.42	0.00	.97	1.33	.25	0.03	.86
Ethylbenzene	12.2 *	.00	2.53	.11	2.27	.13	0.62	.43
o-Xylene	9.24*	.00	2.17	.14	0.43	.51	0.79	.37
m,p-Xylene	20.2 *	.00	4.26*	.04	1.57	.21	0.58	.45

Compounds	Q.9 Chemical Plant		Q.9 Garage		Q.10 Solvents		Q.10 Odorous Chemicals	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	1.80	.18	0.68	.41	1.03	.31	0.06	.80
1,1,1-Trichloroethane	2.40	.12	0.03	.86	1.66	.20	3.06	.08
Benzene	0.48	.49	1.29	.26	0.00	.95	2.44	.12
Carbon Tetrachloride	3.99*	.05	0.00	.99	0.18	.67	0.81	.37
Trichloroethylene	0.41	.52	0.76	.38	1.42	.23	8.91*	.00
Tetrachloroethylene	0.24	.62	0.74	.39	0.60	.44	1.66	.20
Styrene	3.78	.05	0.52	.47	4.26*	.04	3.69	.06
m,p-Dichlorobenzene	1.59	.21	0.29	.59	0.24	.63	1.68	.20
Ethylbenzene	5.12*	.02	6.95*	.01	12.1 *	.00	19.4 *	.00
o-Xylene	0.49	.48	10.4 *	.00	10.0 *	.00	19.9 *	.00
m,p-Xylene	5.45*	.02	8.98*	.00	16.7 *	.00	12.9 *	.00

continued

000199

Table 242. (continued)

Compounds	Q.10 Hazardous or Toxic Chemicals		Q.10 High Dust Or Particulate Levels		Q.10 Auto/Truck Exhaust		Q.10 Cleaning Solutions	
	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.	F-Value	Prob.
Chloroform	0.32	.57	0.65	.42	3.84	.05	1.47	.23
1,1,1-Trichloroethane	0.28	.60	10.6 *	.00	0.16	.69	0.11	.74
Benzene	0.67	.41	0.30	.58	0.14	.70	0.03	.86
Carbon Tetrachloride	0.01	.92	4.03*	.05	0.23	.63	0.00	.98
Trichloroethylene	0.27	.61	7.17*	.01	1.74	.19	0.80	.37
Tetrachloroethylene	0.48	.49	4.77*	.03	0.77	.38	0.48	.49
Styrene	1.92	.17	0.91	.34	0.05	.82	0.07	.79
m,p-Dichlorobenzene	2.19	.14	2.98	.08	0.02	.90	0.15	.70
Ethylbenzene	1.02	.31	22.3 *	.00	3.23	.07	0.33	.57
o-Xylene	1.18	.28	16.7 *	.00	3.69	.06	1.67	.20
m,p-Xylene	0.06	.80	23.9 *	.00	3.43	.06	1.28	.26

Compounds	Q.10 Degreasing Compounds	
	F-Value	Prob.
Chloroform	0.27	.61
1,1,1-Trichloroethane	1.15	.28
Benzene	0.17	.68
Carbon Tetrachloride	0.51	.48
Trichloroethylene	1.51	.22
Tetrachloroethylene	0.43	.51
Styrene	14.6 *	.00
m,p-Dichlorobenzene	0.00	.99
Ethylbenzene	8.87*	.00
o-Xylene	4.80*	.03
m,p-Xylene	7.17*	.01

* Significantly different at .05 level.
LCONC = LN (Conc * 1000)

000200

SECOND SEASON

As a follow-up to the initial TEAM study in Bayonne and Elizabeth, New Jersey, a second season study was conducted in July and August of 1982. A subsample of 157 of those who had participated in the first season study were selected representing approximately 109,500 people.

To gain insight into possible sources of exposure, the 24-hour activity screener was again administered at the end of the 24-hour study period. Table 243 summarizes the 24-hour exposure and activity screener. As in the first season, the largest number of people exposed were associated with smoking and tobacco, service station/garage/engine repair, odorous chemicals, auto/truck exhaust and cleaning solutions. However, there was a large increase in the number of people who had been swimming.

Table 244 shows the sample size ranges for Bayonne and Elizabeth for each media over the twenty compounds studied. The variation in sample size reflects the fact that not every analysis for each compound for each media could be done for each subject. Also, fixed outdoor sites were not set up at each home but only at one home per sample segment. The data file was created in the same manner as described in first season.

Quantifiable Limits

Tables 245 through 249 give the minimum and maximum quantifiable limits, the ratio of the maximum to the minimum, the percentage of concentrations above the maximum quantifiable limit, and the percentage measurable for each compound in each media. Generally there were no large differences between the minimum and maximum quantifiable limits as reflected in the ratio of max QL to min QL. Some exceptions were chlorobenzene and dibromochloropropane for breath (ratios of 22.2 and 24.8, respectively), and dibromochloromethane and dibromochloropropane for overnight and daytime outdoor airs (with ratios of 20.0, 69.3, 28.3, and 110, respectively). However, some compounds with moderate ratios such as trichloroethylene and styrene for overnight and daytime personal air and carbon tetrachloride, tetrachloroethylene, chlorobenzene, styrene, and m,p-dichlorobenzene for overnight and daytime outdoor air showed large differences between percent above the maximum quantifiable limit and the percent measurable (e.g., m,p-dichlorobenzene for over-

NOTES TO TABLES 243 to 312

1. The terms daytime outdoor air and overnight outdoor air refer to samples collected during the day and during the night from fixed sites outside the participants' homes.

2. Toluene was not measured in breath, air or water samples. Dibromochloropropane, o-dichlorobenzene, and o-xylene were not measured in water.

3. Sample size indicates the number of individual samples. The minimum and maximum sample sizes indicate that not all compounds always had a value for every individual sampled.

4. Duplicate measurements were averaged before the percentages were computed.

5. Proximity to point source:
   Low = more than 1.5 kilometers from a point source,
   High = within 1.5 kilometers of at least one point source,
   Moderate = bordering on high exposure areas and intersected by major highways.

6. Percentages in the tables are population estimates (i.e., they are weighted statistics). The estimated population is for persons living in Bayonne or Elizabeth excluding those on military reservations or living in group quarters, people under seven years of age, the mentally or physically incompetent (including many people over 65), and those who changed key categories (i.e., whose who went from smoker to non-smoker, changed occupational exposure status, etc.).

7. Measurable is defined as above the quantifiable limit. All concentration data is considered significant to two figures.

8. Approximate population sizes vary due to differences in sample sizes.

9. New Jersey second season was July and August of 1982.

10. To calculate an estimate of a 95% confidence interval for the geometric mean, the upper limit would be (geo. mean) x (geo. s.e.)^2 and the lower limit would be (geo. mean) ÷ (geo. s.e.)^2, where geo. mean is the geometric mean and geo. s.e. is the geometric standard error. To obtain a more accurate estimate use 1.96 instead of 2.

000202

Table 243. 24-HOUR EXPOSURE AND ACTIVITY SCREENER - NEW JERSEY SECOND SEASON

1.	Have you pumped your own gas in the past 24 hours?	Yes 5 No 152
2.	Have you been to a dry cleaning establishment in the past 24 hours?	Yes 3 No 154
3.	Have you done your own dry cleaning in the past 24 hours?	No 157
4.	Have you used tobacco in any form in the past 24 hours?	Yes 74 No 83
	Which of the following forms of tobacco did you use?	
	cigarettes 72	
	cigars 2	
	snuff 0	
	chewing tobacco 0	
	pipe 1	
5.	Have you remained in close contact with smokers for extended periods?	Yes 80 No 68
6.	Have you used or worked with insecticides, pesticides, or herbicides in any way including farming, gardening, and extermination in the past 24 hours?	Yes 12 No 145
8.	Have you been swimming in the past 24 hours?	Yes 17 No 140
	In which of the following did you swim?	
	Outdoor Pool 14	
	Indoor Pool 1	
	Lake 2	
	River 0	
	Ocean 1	

continued

000203

Table 243 (continued)

9. Have you worked at any of the following occupations or been in any of the following businesses during the past week?

	Past Week	Past 24 Hrs
Painting	25	11
Dry cleaning	14	4
Chemical plant	17	12
Petroleum plant	10	6
Service station/garage/engine repair	68	31
Furniture refinishing or repair	2	1
Plastics Manufacture or formation	5	5
Textile mill	2	1
Wood processing plant	2	0
Printing	4	3
Scientific laboratory	6	5
Dye plant	1	1
Hospital	12	3
Metal work/smelter	7	4
None	9	5

10. Have you been exposed to any of the following during the past week?

	Past Week	Past 24 Hrs
Solvents	41	21
Odorous chemicals	53	27
Toxic or hazardous chemicals	30	12
High dust or particulate levels	29	17
Auto/truck exhausts	53	22
Cleaning solutions	69	39
Degreasing compounds	13	6
Other	14	6

000204

Table 244. DATA AVAILABLE FOR STATISTICAL ANALYSIS BY MEDIA - NEW JERSEY SECOND SEASON

Media	Sample Size Ranges Over Compounds[a/]		
	Bayonne	Elizabeth	Combined
Breath	33 - 62	48 - 81	81 - 143
Overnight Personal Air	60 - 66	90	150 - 156
Daytime Personal Air	58 - 61	84 - 85	142 - 146
Overnight Fixed Site Outdoor Air	16 - 28	32 - 43	48 - 71
Daytime Fixed Site Outdoor Air	15 - 26	32 - 42	47 - 68
Water	67	89 - 90	156 - 157

a/ For 20 volatile organics.

000205

Table 245. SUMMARY OF QUANTIFIABLE LIMITS FOR BREATH SAMPLES ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	Percent Above a/ Max QL	Percent Measurable
Vinylidene Chloride	5.18	22.4	4.32	15.0	22.0
Chloroform	0.48	1.40	2.92	55.7	59.4
1,2-Dichloroethane	0.39	2.92	7.49	0.00	1.23
1,1,1-Trichloroethane	0.56	2.64	4.71	57.1	61.3
Benzene	0.18	0.80	4.55	54.5	55.1
Carbon Tetrachloride	0.64	2.20	3.44	1.56	7.53
Trichloroethylene	0.42	2.56	6.04	29.0	33.1
Bromodichloromethane	0.56	3.28	5.86	0.84	2.69
Dibromochloromethane	0.52	3.64	7.00	0.00	0.00
Toluene	----	----	----	----	----
Tetrachloroethylene	0.40	2.40	6.00	63.6	74.0
Chlorobenzene	0.18	4.00	2.22	2.55	16.0
Bromoform	0.72	4.40	6.11	0.00	0.00
Dibromochloropropane	1.60	39.6	24.8	0.00	0.00
Styrene	0.20	0.72	3.53	52.1	61.2
m,p-Dichlorobenzene	0.35	1.20	3.41	50.3	60.8
o-Dichlorobenzene	0.31	1.20	3.82	3.17	5.23
Ethylbenzene	0.17	0.40	2.33	61.3	62.5
o-Xylene	0.17	0.72	4.19	54.4	58.5
m,p-Xylene	0.17	0.72	4.19	64.8	67.6

a/ The percentage of concentrations above the maximum quantifiable limit.

000206

Table 246. SUMMARY OF QUANTIFIABLE LIMITS FOR OVERNIGHT PERSONAL AIR SAMPLES ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	Percent Above Max QL	Percent Measurable
Vinylidene Chloride	6.00	48.0	8.00	3.34	9.75
Chloroform	0.38	1.80	4.74	47.0	51.4
1,2-Dichloroethane	0.44	2.04	4.64	0.55	2.31
1,1,1-Trichloroethane	0.60	2.96	4.83	82.4	83.8
Benzene	0.18	1.20	6.82	80.7	82.2
Carbon Tetrachloride	0.78	3.10	3.96	3.90	15.3
Trichloroethylene	0.72	4.00	5.56	39.2	60.0
Bromodichloromethane	0.48	3.00	6.25	0.56	3.44
Dibromochloromethane	0.68	6.80	10.0	0.00	0.00
Toluene	----	----	----	----	----
Tetrachloroethylene	0.52	3.40	6.54	65.9	81.3
Chlorobenzene	0.29	3.08	10.6	3.87	16.0
Bromoform	0.84	4.80	5.71	0.00	0.00
Dibromochloropropane	0.68	8.00	11.8	0.00	0.00
Styrene	0.18	1.70	9.66	42.8	82.1
m,p-Dichlorobenzene	0.71	1.10	1.55	83.8	94.1
o-Dichlorobenzene	0.29	1.96	6.76	4.51	24.0
Ethylbenzene	0.18	1.10	6.25	92.8	94.0
o-Xylene	0.18	1.04	5.91	93.6	96.7
m,p-Xylene	0.18	1.04	5.91	95.0	96.4

000207

Table 247. SUMMARY OF QUANTIFIABLE LIMITS FOR DAYTIME PERSONAL AIR SAMPLES ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	Percent Above Max QL	Percent Measurable
Vinylidene Chloride	6.00	48.0	8.00	3.08	11.0
Chloroform	0.48	2.12	4.42	35.0	45.6
1,2-Dichloroethane	0.52	2.12	4.08	1.36	2.20
1,1,1-Trichloroethane	0.60	3.72	6.20	59.8	64.4
Benzene	0.18	1.76	10.0	65.4	66.2
Carbon Tetrachloride	0.56	3.52	6.32	0.14	6.77
Trichloroethylene	0.72	6.00	8.33	37.7	60.1
Bromodichloromethane	0.52	4.40	8.46	0.06	2.47
Dibromochloromethane	0.72	8.40	11.7	0.00	0.63
Toluene	----	----	----	----	----
Tetrachloroethylene	0.52	3.88	7.46	63.8	68.2
Chlorobenzene	0.35	4.80	13.6	0.51	16.1
Bromoform	0.88	6.00	6.82	0.00	0.00
Dibromochloropropane	0.72	9.60	13.3	0.00	0.00
Styrene	0.12	2.10	17.6	29.3	65.0
m,p-Dichlorobenzene	0.27	1.70	6.25	67.0	85.0
o-Dichlorobenzene	0.35	2.40	6.86	2.79	6.85
Ethylbenzene	0.18	1.36	7.73	79.6	86.5
o-Xylene	0.18	1.10	6.25	86.6	88.4
m,p-Xylene	0.18	1.10	6.25	89.9	91.8

000208

Table 248. SUMMARY OF QUANTIFIABLE LIMITS FOR OVERNIGHT OUTDOOR AIR SAMPLES ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	Percent Above Max QL	Percent Measurable
Vinylidene Chloride	3.60	39.2	10.9	0.00	10.9
Chloroform	0.39	1.12	2.86	31.3	31.3
1,2-Dichloroethane	0.29	1.80	6.27	1.73	12.3
1,1,1-Trichloroethane	0.56	2.24	4.00	63.5	75.1
Benzene	0.17	0.48	2.86	92.7	92.7
Carbon Tetrachloride	0.60	2.30	3.83	10.7	43.4
Trichloroethylene	0.44	1.36	3.09	53.1	55.3
Bromodichloromethane	0.40	1.80	4.50	0.00	0.00
Dibromochloromethane	0.48	9.60	20.0	0.00	0.00
Toluene	----	----	----	----	----
Tetrachloroethylene	0.34	2.72	8.10	40.3	66.2
Chlorobenzene	0.17	1.36	8.10	13.1	39.8
Bromoform	0.64	4.80	7.50	0.00	0.00
Dibromochloropropane	0.56	38.8	69.3	0.00	0.00
Styrene	0.15	1.40	9.21	7.11	49.8
m,p-Dichlorobenzene	0.34	2.00	5.88	21.1	72.5
o-Dichlorobenzene	0.24	2.68	11.3	0.00	11.6
Ethylbenzene	0.17	0.44	2.62	81.4	85.2
o-Xylene	0.17	0.44	2.62	84.6	84.6
m,p-Xylene	0.17	0.44	2.62	89.0	89.3

002209

Table 249. SUMMARY OF QUANTIFIABLE LIMITS FOR DAYTIME OUTDOOR AIR SAMPLES ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	Percent Above Max QL	Percent Measurable
Vinylidene Chloride	6.40	56.0	8.75	0.00	8.38
Chloroform	0.52	1.64	3.15	31.3	34.4
1,2-Dichloroethane	0.41	2.24	5.42	0.00	4.40
1,1,1-Trichloroethane	0.68	3.52	5.18	61.1	73.4
Benzene	0.21	1.00	4.76	70.0	70.0
Carbon Tetrachloride	0.57	3.52	6.15	5.62	33.0
Trichloroethylene	0.66	2.12	3.21	38.1	43.2
Bromodichloromethane	0.44	2.64	6.00	0.00	0.35
Dibromochloromethane	0.48	13.6	28.3	0.00	0.35
Toluene	----	----	----	----	----
Tetrachloroethylene	0.44	2.88	6.55	53.4	73.1
Chlorobenzene	0.17	2.00	12.0	5.24	30.7
Bromoform	0.64	6.80	10.6	0.00	0.00
Dibromochloropropane	0.58	64.0	110.	0.00	0.00
Styrene	0.13	2.00	15.6	12.1	46.1
m,p-Dichlorobenzene	0.18	3.00	16.7	8.62	44.0
o-Dichlorobenzene	0.23	3.90	17.0	0.00	7.85
Ethylbenzene	0.21	1.30	6.13	63.9	80.7
o-Xylene	0.21	0.72	3.40	79.4	82.1
m,p-Xylene	0.21	0.56	2.64	84.7	84.9

012000

night outdoor air had a ratio of 5.88 with percent measurable of 72.5 and a percent above max QL of 21.1). For water samples the quantifiable limit was constant for each compound. Therefore the percent measurable and percent above the maximum quantifiable limit were the same.

Table 251 shows the weighted percentage of compound concentrations measurable by media and compound. Overall, the patterns were similar for breath, personal air and outdoor air while the pattern for water was different. Generally, personal air percentages seemed higher than breath and outdoor air percentages. Exceptions were outdoor air higher for carbon tetrachloride and chlorobenzene and breath higher for chloroform. Compounds showing relatively higher percentages measurable were 1,1,1-trichloroethane, benzene, trichloroethylene, tetrachloroethylene, styrene, m,p-dichlorobenzene, ethylene, o-xylene, and m,p-xylene for breath and the airs (see Table 252). For water chloroform, bromodichloromethane, and dibromochloromethane showed very high percentages (see Table 253). Also, t-tests were performed to determine if there were significant differences between overnight and daytime for personal and outdoor airs. For personal air the overnight percentages were significantly higher for 1,1,1-trichloroethane, benzene, carbon tetrachloride, tetrachloroethylene, styrene, m,p-dichlorobenzene, o-dichlorobenzene and o-xylene. For outdoor air only benzene and m,p-dichlorobenzene were significantly higher for overnight.

Table 254 gives the percentage measurable by site. For breath and overnight personal air the percentages for Elizabeth were generally slightly higher but not significantly so. For daytime personal air, overnight and daytime outdoor air the percentages for Bayonne were generally slightly higher but again not significantly so. For water, however, the percentages for vinylidene chloride, 1,1,1-trichloroethylene, carbon tetrachloride, trichloroethylene, tetrachloroethylene, and bromoform were significantly higher for Elizabeth while benzene was significantly higher for Bayonne.

Summary Statistics

Tables 255 through 260 show weighted summary statistics by media for those compounds showing 25 or more percent measurable in breath, the airs and water. Benzene was not included because of high background contamination of the samples. Summary statistics given are median

Table 250. SUMMARY OF QUANTIFIABLE LIMITS FOR WATER SAMPLES (ng/mL) - NEW JERSEY SECOND SEASON

	Quantifiable Limits a/	Percent Measurable
Vinylidene Chloride	0.05	25.9
Chloroform	0.05	99.8
1,2-Dichloroethane	0.50	1.46
1,1,1-Trichloroethane	0.05	48.6
Benzene	0.50	25.4
Carbon Tetrachloride	0.05	6.68
Trichloroethylene	0.05	43.8
Bromodichloromethane	0.10	99.8
Dibromochloromethane	0.10	99.8
Tetrachloroethylene	0.05	43.3
Chlorobenzene	0.10	0.00
Bromoform	0.50	6.32
Styrene	0.50	0.00
m,p-Dichlorobenzene	0.10	0.00
Ethylbenzene	0.50	0.00
m,p-Xylene	0.50	0.00

a/ Quantifiable limits were constant for each compound.

000212

Table 251. WEIGHTED PERCENT MEASURABLE - NEW JERSEY SECOND SEASON

Estimated Population Size:	109,438					
Sample Size:	81-143	150-156	142-146	48-71	47-68	156-157
	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air	Water
Vinylidene Chloride	22.0	9.75	11.0	10.9	8.38	25.9
Chloroform	59.4	51.4	45.6	31.3	34.4	99.8
1,2-Dichloroethane	1.23	2.31	2.20	12.3	4.40	1.46
1,1,1-Trichloroethane	61.3	83.8 *	64.4	75.1	73.4	48.6
Benzene	55.1	82.2 *	66.2	92.7 *	70.0	25.4
Carbon Tetrachloride	7.53	15.3 *	6.77	43.4	33.0	6.68
Trichloroethylene	33.1	60.0	60.1	55.3	43.2	43.8
Bromodichloromethane	2.69	3.44	2.47	0.00	0.35	99.8
Dibromochloromethane	0.00	0.00	0.63	0.00	0.35	99.8
Toluene	----	----	----	----	----	----
Tetrachloroethylene	74.0	81.3 *	68.2	66.2	73.1	43.3
Chlorobenzene	16.0	16.0	16.1	39.8	30.7	0.00
Bromoform	0.00	0.00	0.00	0.00	0.00	6.32
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	----
Styrene	61.2	82.1 *	65.0	49.8	46.1	0.00
m,p-Dichlorobenzene	60.8	94.1 *	85.0	72.5 *	44.0	0.00
o-Dichlorobenzene	5.23	24.0 *	6.85	11.6	7.85	----
Ethylbenzene	62.5	94.0	86.5	85.2	80.7	0.00
o-Xylene	58.5	96.7 *	88.4	84.6	82.1	----
m,p-Xylene	67.6	96.4	91.8	89.3	84.9	0.00

* T-test for difference in overnight and daytime significant at .05 level.
---- = not measured.

000213

Table 252. TARGET COMPOUNDS SORTED BY PERCENT MEASURABLE IN BREATH AND AIR SAMPLES - NEW JERSEY SECOND SEASON

	Range of % Measurable
Ubiquitous Compounds	
1,1,1-Trichloroethane	61 - 84
Benzene	55 - 93
Tetrachloroethylene	66 - 81
Ethylbenzene	62 - 94
o-Xylene	58 - 97
m,p-Xylene	68 - 96
Often Present	
Chloroform	31 - 59
Trichloroethylene	33 - 60
Styrene	46 - 82
m,p-Dichlorobenzene	44 - 94
Occasionally Found	
Vinylidene Chloride	8 - 22
1,2-Dichloroethane	1 - 12
Carbon Tetrachloride	7 - 43
Bromodichloromethane	0 - 3
Dibromochloromethane	0 - 1
Chlorobenzene	16 - 40
o-Dichlorobenzene	5 - 24
Never Found	
Bromoform	0
Dibromochloropropane	0

000214

Table 253. TARGET COMPOUNDS SORTED BY PERCENT MEASURABLE IN WATER SAMPLES - NEW JERSEY SECOND SEASON

	% Measurable
Ubiquitous Compounds	
Chloroform	100
Bromodichloromethane	100
Dibromochloromethane	100
Often Present	
1,1,1-Trichloroethane	49
Trichloroethylene	44
Tetrachloroethylene	43
Occasionally Found	
Vinylidene Chloride	26
1,2-Dichloroethane	1
Benzene	25
Carbon Tetrachloride	7
Bromoform	6
Never Found	
Chlorobenzene	0
Styrene	0
m,p-Dichlorobenzene	0
Ethylbenzene	0
m,p-Xylene	0

000215

Table 254. WEIGHTED PERCENT MEASURABLE BY SITE - NEW JERSEY SECOND SEASON

Estimated Population Sizes: Bayonne - 49,542
Elizabeth - 59,896

	Breath		Overnight Personal Air		Daytime Personal Air	
	Bayonne	Elizabeth	Bayonne	Elizabeth	Bayonne	Elizabeth
Sample Size	33 - 62	48 - 81	60 - 66	90	58 - 61	84 - 85
Vinylidene Chloride	14.4	28.2	7.94	11.2	6.44	14.7
Chloroform	46.2	70.4	47.1	55.0	41.5	48.9
1,2-Dichloroethane	2.72	0.00	5.10	0.00	2.43	2.00
1,1,1-Trichloroethane	56.4	65.4	84.8	83.1	56.7	70.8
Benzene	44.0	64.3	81.4	82.8	63.0	68.9
Carbon Tetrachloride	9.23	6.12	13.8	16.4	3.64	9.37
Trichloroethylene	29.4	36.1	64.8	56.0	62.3	58.2
Bromodichloromethane	0.16	4.78	1.23	5.26	2.85	2.16
Dibromochloromethane	0.00	0.00	0.00	0.00	1.40	0.00
Tetrachloroethylene	71.0	76.4	82.9	80.0	74.0	63.3
Chlorobenzene	9.88	21.1	14.9	16.8	17.7	14.8
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	56.0	65.5	77.8	85.6	65.1	64.9
m,p-Dichlorobenzene	65.0	57.4	96.4	92.3	90.0	80.9
o-Dichlorobenzene	6.91	3.83	25.4	22.9	4.74	8.59
Ethylbenzene	59.4	65.1	92.9	94.8	85.4	87.3
o-Xylene	55.8	61.4	96.6	96.8	92.2	85.2
m,p-Xylene	69.0	66.3	96.0	96.8	96.9	87.6

000216

Table 254. continued

	Overnight Outdoor Air		Daytime Outdoor Air		Water	
Sample Size:	Bayonne 16 - 28	Elizabeth 32 - 43	Bayonne 15 - 26	Elizabeth 32 - 42	Bayonne 67	Elizabeth 89 - 90
Vinylidene Chloride	9.70	11.8	16.9	1.33	0.00	47.2*
Chloroform	31.2	31.4	37.7	31.7	100.	99.7
1,2-Dichloroethane	24.8	1.96	9.73	0.00	1.77	1.20
1,1,1-Trichloroethane	84.6	67.2	68.0	77.9	26.1	67.3*
Benzene	100.	86.6	69.0	70.7	33.7*	18.4
Carbon Tetrachloride	52.5	35.9	35.2	31.2	0.00	12.2*
Trichloroethylene	53.1	57.2	35.5	49.7	7.45	73.8*
Bromodichloromethane	0.00	0.00	0.00	0.64	100.	99.7
Dibromochloromethane	0.00	0.00	0.00	0.64	100.	99.7
Tetrachloroethylene	74.6	59.3	75.5	71.1	1.97	77.4*
Chlorobenzene	45.0	35.4	34.4	27.7	0.00	0.00
Bromoform	0.00	0.00	0.00	0.00	0.00	11.5*
Dibromochloropropane	0.00	0.00	0.00	0.00	---	---
Styrene	59.2	42.1	52.3	41.0	0.00	0.00
m,p-Dichlorobenzene	77.5	68.3	58.6	32.0	0.00	0.00
o-Dichlorobenzene	6.63	15.8	15.5	1.53	---	---
Ethylbenzene	90.7	80.6	78.8	82.2	0.00	0.00
o-Xylene	89.6	80.5	79.9	84.0	---	---
m,p-Xylene	95.3	84.4	86.1	84.0	0.00	0.00

* T-test for difference between cities significant at .05 level.

000217

Table 255. WEIGHTED SUMMARY STATISTICS FOR BREATH ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	0.92	6.33	1.50	1.34	1.42	2.30	8.50	22.0	25.0	0.06 - 38.0
1,1,1-Trichloroethane	1.76	14.8	4.33	2.60	1.38	5.20	18.0	34.0	60.0	0.07 - 900.
Carbon Tetrachloride	1.12	0.44	0.09	0.23	1.10	0.17	0.28	0.88	1.40	0.08 - 9.60
Trichloroethylene	0.80	5.86	1.19	0.48	1.28	0.14	4.10	20.0	28.0	0.07 - 110.
Tetrachloroethylene	1.50	10.4	2.20	2.82	1.22	4.10	8.80	22.0	38.0	0.05 - 330.
Chlorobenzene	0.79	0.60	0.11	0.21	1.14	0.12	0.50	1.50	2.20	0.02 - 7.70
Styrene	0.42	1.57	0.26	0.46	1.18	0.75	1.40	4.10	6.20	0.03 - 57.0
m,p-Dichlorobenzene	0.66	6.30	1.09	1.08	1.18	1.30	4.80	22.0	28.0	0.04 - 190.
Ethylbenzene	0.24	4.71	1.10	0.68	1.25	1.70	3.60	8.70	15.0	0.02 - 120.
o-Xylene	0.40	5.45	1.39	0.64	1.26	1.00	4.40	9.50	15.0	0.02 - 150.
m,p-Xylene	0.40	10.0	2.22	1.36	1.25	3.20	8.30	19.0	36.0	0.02 - 240.

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).

000218

Table 256. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	1.28	4.64	0.88	1.26	1.31	0.88	7.60	13.0	15.0	0.05 - 35
1,1,1-Trichloroethane	2.32	20.7	3.28	8.16*	1.22	12.0	24.0	58.0	68.0	0.08 - 17
Carbon Tetrachloride	2.30	1.24*	0.09	0.95*	1.08	1.31	1.63	1.94	2.40	0.11 - 7.
Trichloroethylene	2.20	4.82	0.77	1.84	1.23	2.70	7.20	12.0	15.0	0.09 - 59
Tetrachloroethylene	1.64	9.02	0.87	4.33	1.18	5.50	11.0	19.0	33.5	0.07 - 98
Chlorobenzene	0.78	0.66	0.11	0.36	1.17	0.39	0.69	1.38	2.70	0.04 - 6.
Styrene	0.95	1.97	0.14	1.31	1.07	1.40	2.20	4.05	6.40	0.02 - 10
m,p-Dichlorobenzene	0.83	48.6	21.9	5.12*	1.18	3.20	13.0	63.0	180.	0.44 - 15
Ethylbenzene	0.68	7.78	1.66	4.22	1.12	4.90	7.90	13.0	18.0	0.02 - 18
o-Xylene	0.68	8.05	1.15	4.91	1.11	5.40	9.10	12.0	20.0	0.02 - 10
m,p-Xylene	0.62	18.6	2.06	11.4	1.12	13.0	23.5	33.0	49.0	0.02 - 15

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means between overnight and daytime significant at .05 level.

000219

Table 257. WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	1.36	3.88	0.52	0.94	1.14	0.75	4.40	11.0	14.5	0.06 - 140.
1,1,1-Trichloroethane	2.40	218.	194.	4.97	1.34	6.60	24.0	92.0	140.	0.08 - 49,0
Carbon Tetrachloride	2.50	0.66	0.04	0.51	1.07	0.41	0.88	1.50	1.63	0.11 - 7.10
Trichloroethylene	2.84	7.85	1.91	2.28	1.28	3.00	8.00	21.0	29.0	0.09 - 120.
Tetrachloroethylene	2.40	12.5	1.90	4.09	1.25	5.90	15.0	30.0	44.0	0.07 - 240.
Chlorobenzene	1.12	0.62	0.09	0.33	1.14	0.26	0.80	1.88	2.44	0.04 - 6.4(
Styrene	1.00	2.17	0.34	1.08	1.16	1.20	2.60	4.25	5.10	0.02 - 150.
m,p-Dichlorobenzene	1.00	50.7	34.0	3.29	1.15	2.30	7.80	31.0	110.	0.03 - 260(
Ethylbenzene	1.08	10.6	2.79	3.17	1.22	4.20	8.50	15.0	21.0	0.02 - 579.
o-Xylene	0.68	15.8	4.58	3.94	1.19	5.10	9.10	18.4	30.0	0.02 - 180(
m,p-Xylene	0.27	55.1	23.2	8.43	1.24	13.0	22.0	41.0	53.0	0.02 - 10,(

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means between overnight and daytime significant at .05 level.

000220

Table 258. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT OUTDOOR AIR ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	0.56	12.3	3.58	0.48	1.59	0.08	13.0	44.0	89.0	0.05 - 1[illegible]
1,1,1-Trichloroethane	0.89	10.5	2.03	3.02	1.50	4.70	13.0	32.0	46.0	0.07 - 51
Carbon Tetrachloride	0.82	1.05	0.15	0.65	1.22	0.61	1.50	2.50	3.10	0.08 - 5.
Trichloroethylene	0.76	7.75	2.20	1.06	1.45	1.40	9.10	27.0	44.0	0.06 - 61
Tetrachloroethylene	0.70	3.98	0.81	1.26	1.31	1.80	5.45	11.0	14.5	0.04 - 26
Chlorobenzene	0.72	0.77	0.17	0.29	1.25	0.40	0.87	1.85	2.89	0.02 - 6.
Styrene	0.53	0.60	0.11	0.26	1.24	0.41	0.73	1.30	1.70	0.02 - 11
m,p-Dichlorobenzene	1.20	1.39	0.13	1.02	1.12	1.30	1.80	2.50	2.70	0.09 - 7.
Ethylbenzene	0.25	3.50	0.62	1.54	1.30	2.50	5.70	7.40	8.80	0.02 - 28
o-Xylene	0.25	4.34	0.78	1.91	1.30	3.40	5.70	10.0	12.0	0.02 - 31
m,p-Xylene	0.20	11.2	1.71	4.77	1.31	9.15	16.0	24.0	27.0	0.02 - 65

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means between overnight and daytime significant at .05 level.

000221

Table 259. WEIGHTED SUMMARY STATISTICS FOR DAYTIME OUTDOOR AIR ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	0.92	14.1	5.16	0.64	1.50	0.13	6.50	59.0	67.0	0.07 - 230.
1,1,1-Trichloroethane	0.92	14.3	3.64	3.53	1.60	5.50	17.0	45.0	76.0	0.09 - 78.0
Carbon Tetrachloride	1.12	1.02	0.18	0.66	1.20	0.75	1.20	2.00	4.10	0.12 - 5.10
Trichloroethylene	0.96	7.81	3.00	0.82	1.52	0.19	7.40	20.0	47.0	0.08 - 106.
Tetrachloroethylene	0.88	8.49	2.77	2.02	1.38	3.30	8.30	17.0	26.0	0.06 - 95.0
Chlorobenzene	0.77	0.82	0.27	0.31	1.27	0.31	0.88	1.40	3.50	0.03 - 11.7
Styrene	0.58	0.79	0.23	0.30	1.33	0.36	0.73	2.60	4.00	0.02 - 6.30
m,p-Dichlorobenzene	1.35	1.27	0.29	0.70	1.21	0.94	1.40	1.90	5.10	0.06 - 13.0
Ethylbenzene	0.30	2.99	0.52	1.20	1.27	1.90	4.10	8.00	8.10	0.03 - 39.0
o-Xylene	0.30	2.93	0.50	1.25	1.26	1.80	3.80	7.60	7.90	0.03 - 19.0
m,p-Xylene	0.30	8.55	1.42	3.27	1.31	5.90	11.5	22.0	29.0	0.03 - 47.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means between overnight and daytime significant at .05 level.

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Table 260. WEIGHTED SUMMARY STATISTICS FOR WATER (ng/mL) - NEW JERSEY SECOND SEASON

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Vinylidene Chloride	0.05	0.10	0.02	0.05	1.11	0.03	0.07	0.25	0.59	0.03 - 2.48
Chloroform	0.05	61.1	2.01	56.9	1.03	54.8	77.1	97.8	104.	0.03 - 134.
1,1,1-Trichloroethane	0.05	0.19	0.03	0.07	1.14	0.03	0.15	0.54	0.91	0.03 - 2.57
Benzene	0.50	0.71	0.06	0.45	1.05	0.31	0.41	2.09	3.34	0.31 - 4.83
Trichloroethylene	0.05	0.39	0.06	0.09	1.16	0.03	0.14	1.37	1.80	0.03 - 8.27
Bromodichloromethane	0.10	13.6	0.89	12.5	1.04	12.3	15.2	18.4	19.5	0.06 - 54.0
Dibromochloromethane	0.10	2.07	0.07	1.94	1.04	1.91	2.35	3.12	3.75	0.06 - 7.19
Tetrachloroethylene	0.05	0.36	0.06	0.08	1.13	0.03	0.11	0.65	1.91	0.03 - 9.26

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).

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quantifiable limit, arithmetic mean, arithmetic standard error, geometric mean, geometric standard error, median, percentiles, and range. The standard error given with the geometric mean is not a measure of the precision of the mean but is to be used to easily construct confidence intervals. For each compound and media the arithmetic mean was larger than the median and the geometric mean. This presumably was caused by large maximum values which represented high concentration levels resulting in a skewed frequency distribution. Generally, the medians were larger than the geometric means. Some exceptions were chloroform in the airs and carbon tetrachloride for breath, daytime personal air, and overnight outdoor air. For breath, 1,1,1-trichloroethane, tetrachloroethylene, and m,p-xylene showed relatively large values for the summary statistics. For overnight personal air, 1,1,1-trichloroethane, m,p-dichlorobenzene, and m,p-xylene showed relatively high arithmetic means. 1,1,1-trichloroethane and m,p-xylene showed relatively high geometric means and medians, while m,p-dichlorobenzene had a relatively large maximum value. For daytime personal air 1,1,1-trichloroethane, m,p-dichlorobenzene, and m,p-xylene showed relatively high arithmetic means. 1,1,1-trichloroethane and m,p-xylene had rather higher maximum values. For overnight outdoor air chloroform, 1,1,1-trichloroethane and m,p-xylene showed relatively high arithmetic means. 1,1,1-trichloroethane and m,p-xylene had relatively higher geometric means and medians while chloroform had a rather high maximum value. For daytime outdoor air, chloroform and 1,1,1-trichloroethane showed relatively high arithmetic means while 1,1,1-trichloroethane and m,p-xylene had relatively high geometric means and medians. Chloroform had the highest maximum value. For personal air and outdoor air the arithmetic means and geometric means were tested to see if there were any differences between overnight and daytime. For overnight personal air the arithmetic mean for carbon tetrachloride and the geometric means for 1,1,1-trichloroethane, carbon tetrachloride and m,p-dichlorobenzene were significantly higher. For outdoor air there were no significant differences between daytime and overnight. For water (see Table 260), chloroform consistantly had the highest summary statistics followed by bromodichloromethane.

Tables 261 through 266 give the weighted summary statistics by media by city for the selected compounds. In addition, results of

Table 261. WEIGHTED SUMMARY STATISTICS FOR BREATH BY SITE ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

BAYONNE	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	0.93	5.19	2.61	0.75	1.87	0.18	7.10	22.0	23.0	0.08 - 38.
1,1,1-Trichloroethane	1.60	10.4	3.24	1.79	1.52	2.80	19.0	30.0	34.0	0.07 - 71.
Carbon Tetrachloride	1.00	0.52	0.18	0.23	1.18	0.15	0.46	0.88	1.60	0.08 - 9.6
Trichloroethylene	0.76	3.05	0.86	0.33	1.24	0.12	2.30	6.20	8.60	0.08 - 110
Tetrachloroethylene	0.92	7.57	1.79	2.27	1.45	3.80	8.80	22.0	27.0	0.05 - 57.
Chlorobenzene	0.73	0.50	0.07	0.22	1.13	0.26	0.43	1.50	1.50	0.02 - 6.5
Styrene	0.46	1.57	0.37	0.43	1.25	0.66	1.40	3.10	10.0	0.03 - 20.
m,p-Dichlorobenzene	0.60	8.18	1.63	1.43	1.21	1.70	6.60	27.0	28.0	0.04 - 74.
Ethylbenzene	0.23	5.16	2.00	0.66	1.36	2.90	3.50	8.10	14.0	0.02 - 120
o-Xylene	0.40	5.47	2.38	0.58	1.47	1.30	3.30	6.90	9.20	0.03 - 150
m,p-Xylene	0.42	11.2	4.10	1.42	1.36	3.60	8.60	16.0	26.0	0.03 - 240
ELIZABETH										
Chloroform	0.92	7.27	1.87	2.14	1.51	6.20	8.50	25.0	25.0	0.06 - 38.
1,1,1-Trichloroethane	2.04	18.5	7.53	3.54	1.58	7.80	17.0	40.0	60.0	0.09 - 900
Carbon Tetrachloride	1.28	0.38	0.06	0.23	1.12	0.17	0.28	0.81	1.40	0.09 - 4.1
Trichloroethylene	0.84	8.19*	1.96	0.67	1.55	0.14	10.0	22.0	28.0	0.07 - 93.
Tetrachloroethylene	1.50	12.8	3.72	3.37	1.19	4.30	9.40	29.0	38.0	0.06 - 330
Chlorobenzene	0.79	0.69	0.19	0.21	1.25	0.11	0.56	2.10	2.20	0.02 - 7.7
Styrene	0.40	1.56	0.37	0.48	1.27	0.91	1.30	4.10	6.00	0.03 - 57.
m,p-Dichlorobenzene	0.76	4.75	1.43	0.85	1.30	1.10	2.60	16.0	22.0	0.06 - 190
Ethylbenzene	0.25	4.33	1.13	0.69	1.37	1.60	3.80	11.0	17.0	0.02 - 110
o-Xylene	0.40	5.43	1.60	0.69	1.32	1.00	4.90	12.0	26.0	0.02 - 110
m,p-Xylene	0.40	9.09	2.20	1.30	1.38	2.40	8.20	26.0	39.0	0.02 - 140

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means between cities significant at .05 level.

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Table 262. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR BY SITE ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

BAYONNE	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	1.24	4.17	0.96	1.08	1.35	0.81	7.80	13.0	14.0	0.06 - 28.0
1,1,1-Trichloroethane	2.52	17.2	1.59	7.88	1.17	12.0	20.0	44.0	58.0	0.09 - 86.0
Carbon Tetrachloride	2.36	1.30	0.13	1.06	1.08	1.38	1.50	1.75	2.00	0.13 - 7.20
Trichloroethylene	1.90	5.64	1.40	2.21	1.36	3.00	8.10	12.0	17.0	0.10 - 59.0
Tetrachloroethylene	1.64	10.3	1.18	5.48	1.21	7.10	13.0	22.0	36.0	0.08 - 60.0
Chlorobenzene	0.76	0.66	0.20	0.36	1.28	0.39	0.59	1.38	2.70	0.05 - 6.60
Styrene	0.95	2.43*	0.27	1.49	1.13	1.90	2.50	6.40	8.30	0.02 - 10.0
m,p-Dichlorobenzene	0.74	89.1	48.8	7.34	1.33	4.25	13.0	150.	800.	0.46 - 1550
Ethylbenzene	0.37	11.0	3.59	5.27	1.19	6.60	9.00	18.0	22.5	0.03 - 180.
o-Xylene	1.04	10.6	2.45	6.00	1.14	6.60	9.95	20.0	35.5	0.13 - 100.
m,p-Xylene	1.04	2.43*	4.13	14.4	1.15	16.0	27.5	49.0	66.5	0.03 - 150.
ELIZABETH										
Chloroform	1.30	5.04	1.39	1.44	1.51	2.20	7.50	13.0	15.0	0.05 - 35.0
1,1,1-Trichloroethane	2.20	23.7	5.59	8.40	1.41	11.0	25.0	66.0	130.	0.08 - 170.
Carbon Tetrachloride	2.30	1.19	0.12	0.87	1.14	1.25	1.75	1.94	2.40	0.11 - 6.50
Trichloroethylene	2.24	4.15	0.80	1.58	1.34	2.30	5.10	10.4	14.0	0.09 - 53.0
Tetrachloroethylene	1.84	7.94	1.19	3.57	1.29	4.70	11.0	18.0	28.0	0.07 - 98.0
Chlorobenzene	0.81	0.67	0.13	0.37	1.22	0.41	0.86	1.50	3.10	0.04 - 5.20
Styrene	1.10	1.58	0.12	1.17	1.08	1.30	2.00	3.40	3.80	0.02 - 8.30
m,p-Dichlorobenzene	0.94	15.2	4.75	3.80	1.23	2.60	13.0	23.0	63.0	0.44 - 320.
Ethylbenzene	0.75	5.10	0.52	3.51	1.18	4.50	7.30	10.0	13.0	0.02 - 46.0
o-Xylene	0.18	5.94	0.62	4.16	1.18	5.00	8.00	10.0	16.0	0.02 - 54.0
m,p-Xylene	0.18	13.9	1.73	9.43	1.20	11.5	16.0	27.0	31.0	0.02 - 120.

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means between cities significant at .05 level.

Table 263. WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR BY SITE ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

BAYONNE	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	1.36	3.46	0.61	0.84	1.26	0.56	3.90	11.0	15.0	0.15 - 32.(
1,1,1-Trichloroethane	2.40	25.5	10.1	3.35	1.46	5.50	15.0	59.0	140.	0.09 - 390.
Carbon Tetrachloride	2.54	0.70	0.07	0.56	1.11	0.39	1.04	1.56	1.63	0.28 - 3.4(
Trichloroethylene	3.32	7.34	2.85	2.56	1.59	3.00	10.0	22.0	30.0	0.12 - 57.(
Tetrachloroethylene	2.50	12.8	2.79	6.08	1.38	7.80	18.0	31.0	44.0	0.23 - 58.(
Chlorobenzene	1.20	0.44	0.09	0.28	1.17	0.23	0.51	1.16	1.55	0.05 - 4.8(
Styrene	1.20	1.75	0.35	1.13	1.28	1.10	2.20	3.20	4.70	0.04 - 10.(
m,p-Dichlorobenzene	1.20	23.6	11.5	4.71*	1.21	3.00	9.90	37.5	65.0	0.63 - 630
Ethylbenzene	1.20	10.9	3.67	3.62	1.36	5.30	8.40	15.0	20.0	0.04 - 579
o-Xylene	1.00	11.2	3.30	4.92	1.25	5.70	9.10	18.4	19.0	0.08 - 400
m,p-Xylene	0.60	24.0	6.04	12.0	1.27	14.0	24.0	41.0	48.0	0.08 - 540
ELIZABETH										
Chloroform	1.36	4.23	0.78	1.04	1.13	0.81	5.50	11.0	14.5	0.06 - 140
1,1,1-Trichloroethane	2.44	378.	362.	6.88	1.55	8.70	28.0	110.	300.	0.08 - 49,
Carbon Tetrachloride	2.32	0.63	0.06	0.48	1.09	0.41	0.69	1.50	1.56	0.11 - 7.1
Trichloroethylene	2.52	8.28	2.61	2.08	1.26	2.82	7.80	20.0	25.0	0.09 - 120
Tetrachloroethylene	2.40	12.3	2.57	2.94	1.33	4.90	13.0	30.0	40.0	0.07 - 240
Chlorobenzene	1.10	0.77	0.13	0.37	1.22	0.41	1.20	2.10	2.63	0.04 - 6.4
Styrene	0.90	2.52	0.56	1.04	1.21	1.20	2.90	4.30	5.10	0.02 - 150
m,p-Dichlorobenzene	0.88	73.1	62.1	2.45	1.23	1.80	6.50	31.0	170.	0.03 - 260
Ethylbenzene	0.27	10.3	4.08	2.85	1.31	3.80	8.50	17.0	21.0	0.02 - 550
o-Xylene	0.27	19.7	8.13	3.28	1.31	4.80	9.10	17.0	33.0	0.02 - 180
m,p-Xylene	0.27	80.8	42.7	6.32	1.41	10.0	22.0	43.0	69.0	0.02 - 10,

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means between cities significant at .05 level.

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Table 264. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT OUTDOOR AIR BY SITE ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

BAYONNE	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	0.56	13.0	3.54	0.49	1.99	0.08	20.0	35.0	51.0	0.05 - 130.
1,1,1-Trichloroethane	0.92	9.32	1.96	3.09	1.33	3.40	11.0	29.0	32.0	0.07 - 51.0
Carbon Tetrachloride	0.86	1.19	0.22	0.78	1.23	0.69	1.70	2.20	4.80	0.08 - 5.40
Trichloroethylene	0.73	6.86	2.24	0.96	1.57	1.40	7.00	18.1	38.0	0.06 - 61.0
Tetrachloroethylene	0.70	4.43	1.09	2.02	1.39	2.10	5.50	11.0	13.5	0.05 - 22.0
Chlorobenzene	0.64	0.80	0.20	0.38	1.26	0.51	0.64	1.85	2.70	0.03 - 5.20
Styrene	0.49	0.66	0.21	0.30	1.44	0.50	0.67	1.20	1.20	0.02 - 7.50
m,p-Dichlorobenzene	0.84	1.29	0.16	1.02	1.19	1.30	1.50	2.50	2.70	0.09 - 3.80
Ethylbenzene	0.29	3.41	0.65	2.21	1.29	3.10	5.30	6.20	6.70	0.03 - 7.65
o-Xylene	0.29	4.46	1.10	2.66	1.30	3.90	5.80	6.70	15.6	0.03 - 15.6
m,p-Xylene	0.20	11.2	2.07	6.91	1.22	9.90	16.0	24.0	24.0	0.03 - 26.5
ELIZABETH										
Chloroform	0.60	11.8	5.85	0.46	1.87	0.09	7.80	44.0	98.0	0.06 - 98.0
1,1,1-Trichloroethane	0.89	11.5	3.33	2.97	2.01	6.90	13.0	46.0	46.0	0.07 - 46.5
Carbon Tetrachloride	0.75	0.94	0.19	0.56	1.34	0.51	1.38	2.50	2.90	0.08 - 3.10
Trichloroethylene	0.76	8.50	3.55	1.14	1.78	1.90	9.10	36.0	44.0	0.07 - 44.0
Tetrachloroethylene	0.60	3.62	1.17	0.85	1.43	1.10	5.40	7.40	18.0	0.04 - 26.0
Chlorobenzene	0.72	0.74	0.27	0.23	1.41	0.13	0.92	1.60	3.30	0.02 - 6.30
Styrene	0.56	0.54	0.10	0.22	1.29	0.33	0.83	1.46	1.80	0.02 - 11.0
m,p-Dichlorobenzene	1.64	1.46	0.20	1.02	1.15	1.20	1.80	2.70	2.70	0.21 - 7.60
Ethylbenzene	0.25	3.57	1.01	1.15	1.50	2.30	5.70	8.80	10.0	0.02 - 28.0
o-Xylene	0.25	4.25	1.10	1.45	1.50	3.40	4.90	10.0	10.8	0.02 - 31.0
m,p-Xylene	0.20	11.1	2.61	3.51	1.56	8.00	19.0	27.0	27.5	0.02 - 65.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means between cities significant at .05 level.

000228

Table 265. WEIGHTED SUMMARY STATISTICS FOR DAYTIME OUTDOOR AIR BY SITE ($\mu g/m^3$) - NEW JERSEY SECOND SEASON

BAYONNE	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	0.92	14.8	5.29	0.87	1.69	0.12	20.0	59.0	67.0	0.09 - 95.0
1,1,1-Trichloroethane	0.88	18.4	6.70	3.42	2.21	6.80	17.0	76.0	78.0	0.09 - 78.0
Carbon Tetrachloride	0.96	1.14	0.35	0.73	1.34	0.69	1.50	2.80	4.10	0.12 - 4.60
Trichloroethylene	0.88	9.93	6.47	0.55	1.87	0.16	6.41	30.0	79.0	0.09 - 106.
Tetrachloroethylene	0.88	10.0	4.59	2.54	1.65	4.40	9.90	15.0	22.5	0.06 - 95.0
Chlorobenzene	0.77	1.04	0.56	0.34	1.45	0.31	0.61	1.40	4.30	0.03 - 11.7
Styrene	0.58	0.77	0.32	0.33	1.59	0.46	0.73	2.15	4.00	0.02 - 5.20
m,p-Dichlorobenzene	1.50	1.69	0.59	0.89	1.45	1.19	1.80	5.10	5.20	0.06 - 6.85
Ethylbenzene	0.30	3.33	0.81	1.28	1.52	2.80	4.74	8.10	11.0	0.03 - 12.0
o-Xylene	0.30	3.51	0.96	1.38	1.48	2.20	5.40	7.60	13.0	0.03 - 13.6
m,p-Xylene	0.30	10.3	2.71	3.64	1.53	5.80	13.0	29.0	34.0	0.03 - 36.0
ELIZABETH										
Chloroform	0.96	13.5	8.35	0.49	1.80	0.14	4.40	19.0	97.0	0.07 - 230.
1,1,1-Trichloroethane	1.40	10.9	3.65	3.62	1.75	4.10	14.0	31.0	45.0	0.12 - 67.0
Carbon Tetrachloride	1.20	0.92	0.17	0.60	1.25	0.81	1.20	1.40	3.90	0.12 - 5.10
Trichloroethylene	1.12	6.06	1.83	1.15	1.69	0.75	7.45	19.0	23.0	0.08 - 55.0
Tetrachloroethylene	0.92	7.22	3.35	1.67	1.48	2.60	5.70	19.0	26.0	0.08 - 74.0
Chlorobenzene	0.60	0.64	0.18	0.28	1.37	0.25	1.00	1.50	1.80	0.03 - 6.50
Styrene	0.41	0.80	0.32	0.28	1.43	0.25	0.72	2.60	4.90	0.03 - 6.30
m,p-Dichlorobenzene	1.35	0.93	0.22	0.58	1.18	0.55	1.19	1.80	1.88	0.08 - 13.0
Ethylbenzene	0.30	2.71	0.66	1.14	1.31	1.90	2.90	5.50	8.00	0.03 - 39.0
o-Xylene	0.30	2.45	0.45	1.15	1.29	1.70	3.00	5.20	7.90	0.03 - 19.0
m,p-Xylene	0.30	7.12	1.19	3.00	1.40	6.10	8.60	14.5	22.0	0.03 - 47.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means significantly different between cities at .05 level.

000229

Table 266. WEIGHTED SUMMARY STATISTICS FOR WATER BY SITE (ng/mL) - NEW JERSEY SECOND SEASON

BAYONNE	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Vinylidene Chloride	0.05	0.03	0.00	0.03	1.00	0.03	0.03	0.03	0.03	0.03 - 0.03
Chloroform	--- e/	47.6	1.73	45.9	1.04	48.2	53.4	56.0	64.2	18.0 - 116.
1,1,1-Trichloroethane	0.05	0.04	0.00	0.04	1.05	0.03	0.04	0.07	0.07	0.03 - 0.15
Benzene	0.50	0.93*	0.09	0.53*	1.06	0.31	0.58	3.34	4.54	0.31 - 4.83
Trichloroethylene	0.05	0.03	0.00	0.03	1.05	0.03	0.03	0.03	0.07	0.03 - 0.10
Bromodichloromethane	--- e/	10.3	0.39	9.98	1.04	10.6	11.7	12.4	12.6	4.80 - 41.0
Dibromochloromethane	--- e/	1.61	0.05	1.56	1.03	1.63	1.80	2.03	2.05	0.66 - 7.19
Tetrachloroethylene	0.05	0.03	0.00	0.03	1.01	0.03	0.03	0.03	0.03	0.03 - 0.14
ELIZABETH										
Vinylidene Chloride	0.05	0.16*	0.04	0.07*	1.22	0.03	0.10	0.56	0.64	0.03 - 2.48
Chloroform	0.05	72.2 *	2.91	67.8 *	1.04	71.6	83.6	102.	106.	0.03 - 134.
1,1,1-Trichloroethane	0.05	0.31*	0.07	0.13*	1.25	0.11	0.41	0.91	1.32	0.03 - 2.57
Benzene	0.50	0.53	0.10	0.40	1.08	0.31	0.31	0.77	2.22	0.31 - 3.93
Trichloroethylene	0.05	0.68*	0.14	0.20*	1.29	0.12	0.94	1.73	2.84	0.03 - 8.27
Bromodichloromethane	0.10	16.4 *	1.44	15.0 *	1.05	14.8	17.2	19.4	22.4	0.06 - 54.0
Dibromochloromethane	0.10	2.45*	0.10	2.32*	1.04	2.30	3.05	3.49	3.81	0.06 - 4.70
Tetrachloroethylene	0.05	0.64*	0.13	0.18*	1.24	0.11	0.51	1.88	3.53	0.03 - 9.26

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in arithmetic or geometric means between cities significant at .05 level.

000230

t-tests of arithmetic means and geometric means between cities are presented. For breath the only significant difference between means for the two cities was the arithmetic means for trichloroethylene with Elizabeth higher. For overnight personal air styrene and m,p-xylene had significantly higher arithmetic means for Bayonne. For daytime personal air the geometric mean for m,p-dichlorobenzene was significantly higher for Bayonne. While the arithmetic means for 1,1,1-trichloroethane, m,p-dichlorobenzene and m,p-xylene appeared much higher for Elizabeth, they were, in fact, not significantly higher due to large associated standard errors. Both the large arithmetic means and large standard errors were caused by very high maximum values as reflected in the range. For the outdoor airs no means were significantly different between the two cities. For water all means were significantly different with benzene higher in Bayonne and Elizabeth having higher levels for the other seven compounds examined.

To help summarize Tables 261 through 266, Tables 267 through 272 give the ratios of Elizabeth to Bayonne by media for the arithmetic means, the geometric means, the medians, and the maximum values. Generally, the summary statistics were higher for Bayonne for overnight personal air. For the outdoor airs the arithmetic means, geometric means and medians were usually higher for Bayonne while Elizabeth generally had higher maximum values. For daytime personal air the geometric means were generally higher for Bayonne while the arithmetic means and maximum values were usually higher for Elizabeth. For water the statistics were generally higher for Elizabeth. No pattern was apparent for breath.

Figures 53 through 56 give box plots for breath and the personal airs for selected compounds. The plots demonstrate the trend of personal air levels being higher than breath levels. The plots also show the skewness of the concentration distributions.

Tables 273 and 274 gives a general comparison between the magnitude of the selected compound levels and the median quantiable limits (QLs) by media. If the magnitude were judged low in comparison with the median QLs for both cities, then the concentrations were labelled "low". If the magnitude were judged high for a city, then the name of the city appears. For breath and the airs, 1,1,1-trichloroethane, tetrachloro-

Table 267. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS FOR BREATH - NEW JERSEY SECOND SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	1.40	2.84	35.4	1.00
1,1,1-Trichloroethane	1.79	1.98	2.79	12.7
Carbon Tetrachloride	0.73	1.02	1.17	0.43
Trichloroethylene	2.68	2.01*	1.22	0.85
Tetrachloroethylene	1.69	1.48	1.13	5.79
Chlorobenzene	1.38	0.96	0.43	1.18
Styrene	1.00	1.13	1.38	2.85
m,p-Dichlorobenzene	0.58	0.60	0.65	2.57
Ethylbenzene	0.84	1.05	0.55	0.92
o-Xylene	0.99	1.20	0.77	0.73
m,p-Xylene	0.81	0.92	0.67	0.58

* T-test for difference in means between cities significant at .05 level.

Table 268. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR - NEW JERSEY SECOND SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	1.21	1.34	2.71	1.25
1,1,1-Trichloroethane	1.38	1.07	0.92	1.98
Carbon Tetrachloride	0.92	0.82	0.91	0.90
Trichloroethylene	0.74	0.72	0.77	0.90
Tetrachloroethylene	0.77	0.65	0.66	1.63
Chlorobenzene	1.01	1.04	1.06	0.79
Styrene	0.65*	0.78	0.68	0.83
m,p-Dichlorobenzene	0.17	0.52	0.61	0.21
Ethylbenzene	0.46	0.66	0.68	0.26
o-Xylene	0.56	0.69	0.76	0.54
m,p-Xylene	0.57*	0.65	0.72	0.80

* T-test for difference in means between cities significant at .05 level.

000232

Table 269. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR - NEW JERSEY SECOND SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	1.22	1.23	1.45	4.38
1,1,1-Trichloroethane	14.8	2.05	1.58	126.
Carbon Tetrachloride	0.90	0.84	1.04	2.09
Trichloroethylene	1.13	0.81	0.94	2.11
Tetrachloroethylene	0.96	0.48	0.63	4.14
Chlorobenzene	1.77	1.32	1.76	1.33
Styrene	1.44	0.92	1.09	15.0
m,p-Dichlorobenzene	3.10	0.52*	0.60	4.13
Ethylbenzene	0.95	0.79	0.72	0.95
o-Xylene	1.76	0.67	0.84	4.49
m,p-Xylene	3.37	0.53	0.71	18.5

* T-test for difference in means between cities significant at .05 level.

Table 270. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT OUTDOOR AIR - NEW JERSEY SECOND SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	0.91	0.94	1.13	0.75
1,1,1-Trichloroethane	1.23	0.96	2.03	0.91
Carbon Tetrachloride	0.79	0.72	0.73	0.57
Trichloroethylene	1.24	1.19	1.36	0.72
Tetrachloroethylene	0.82	0.42	0.52	1.18
Chlorobenzene	0.93	0.59	0.25	1.21
Styrene	0.83	0.73	0.66	1.47
m,p-Dichlorobenzene	1.13	1.00	0.92	2.00
Ethylbenzene	1.05	0.52	0.74	3.66
o-Xylene	0.95	0.54	0.87	1.99
m,p-Xylene	0.99	0.51	0.81	2.45

* T-test for difference in means between cities significant at .05 level.

Table 271. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS FOR DAYTIME OUTDOOR AIR - NEW JERSEY SECOND SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	0.92	0.57	1.17	2.42
1,1,1-Trichloroethane	0.59	1.06	0.60	0.86
Carbon Tetrachloride	0.80	0.81	1.18	1.11
Trichloroethylene	0.61	2.09	4.84	0.52
Tetrachloroethylene	0.72	0.66	0.59	0.78
Chlorobenzene	0.61	0.83	0.82	0.56
Styrene	1.05	0.84	0.54	1.21
m,p-Dichlorobenzene	0.55	0.65	0.46	1.90
Ethylbenzene	0.81	0.89	0.68	3.25
o-Xylene	0.70	0.83	0.77	1.40
m,p-Xylene	0.69	0.82	1.05	1.31

* T-test for difference in means between cities significant at .05 level.

Table 272. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS FOR WATER - NEW JERSEY SECOND SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Vinylidene Chloride	5.23*	2.32*	1.00	79.2
Chloroform	1.52*	1.48*	1.48	1.15
1,1,1-Trichloroethane	7.74*	3.53*	3.56	17.3
Benzene	0.56*	0.76*	1.00	0.81
Trichloroethylene	19.7*	5.93*	3.94	84.3
Bromodichloromethane	1.60*	1.51*	1.41	1.32
Dibromochloromethane	1.53*	1.49*	1.42	0.65
Tetrachloroethylene	19.8*	5.68*	3.42	66.6

* T-test for difference in means between cities significant at .05 level.

000234

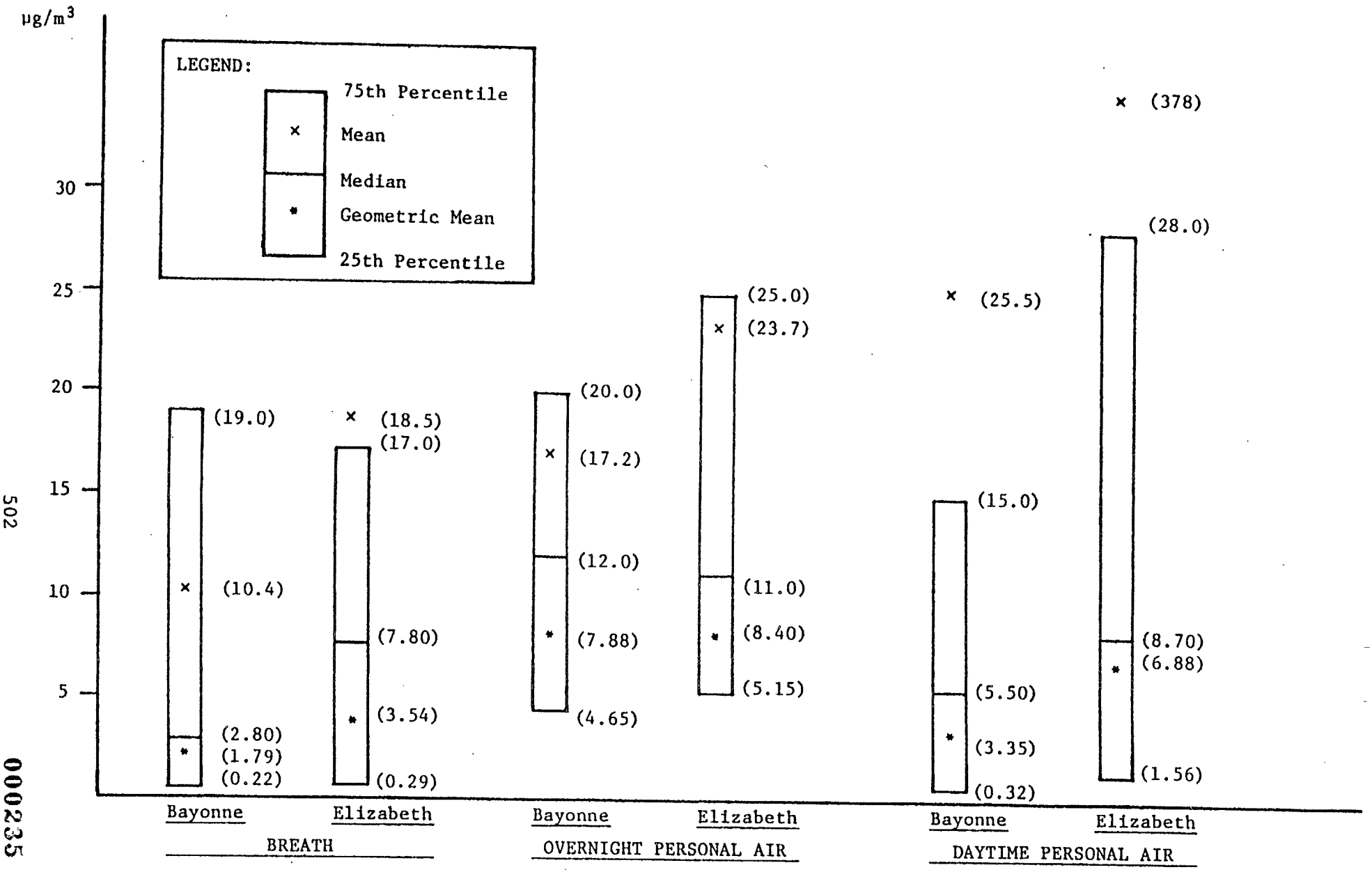

Figure 53. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for 1,1,1-trichloroethane for breath, overnight personal air, and daytime personal air by city - New Jersey second season.

000235

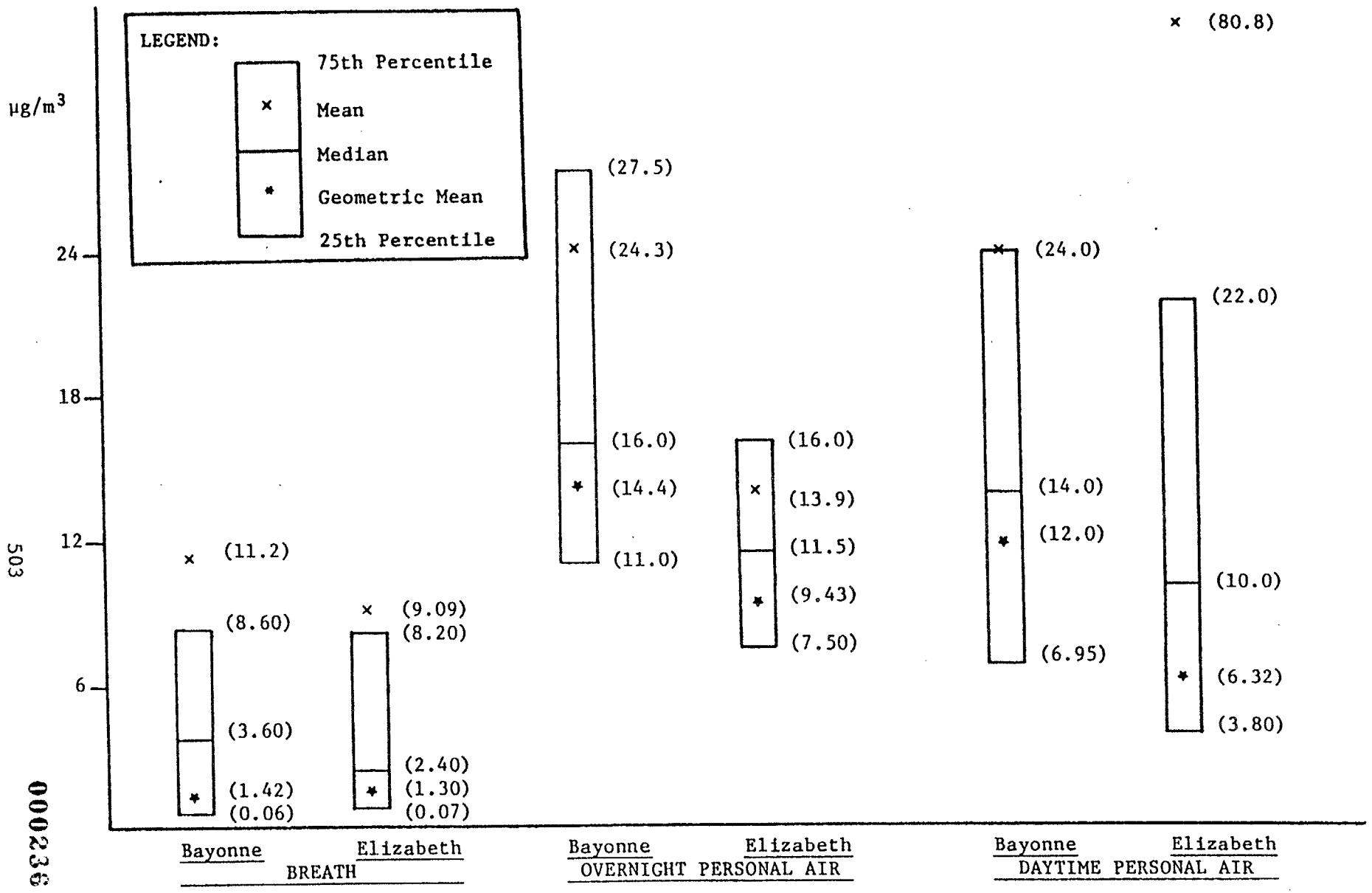

Figure 54. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for m,p-xylene for breath, overnight personal air, and daytime personal air by city - New Jersey second season.

000236

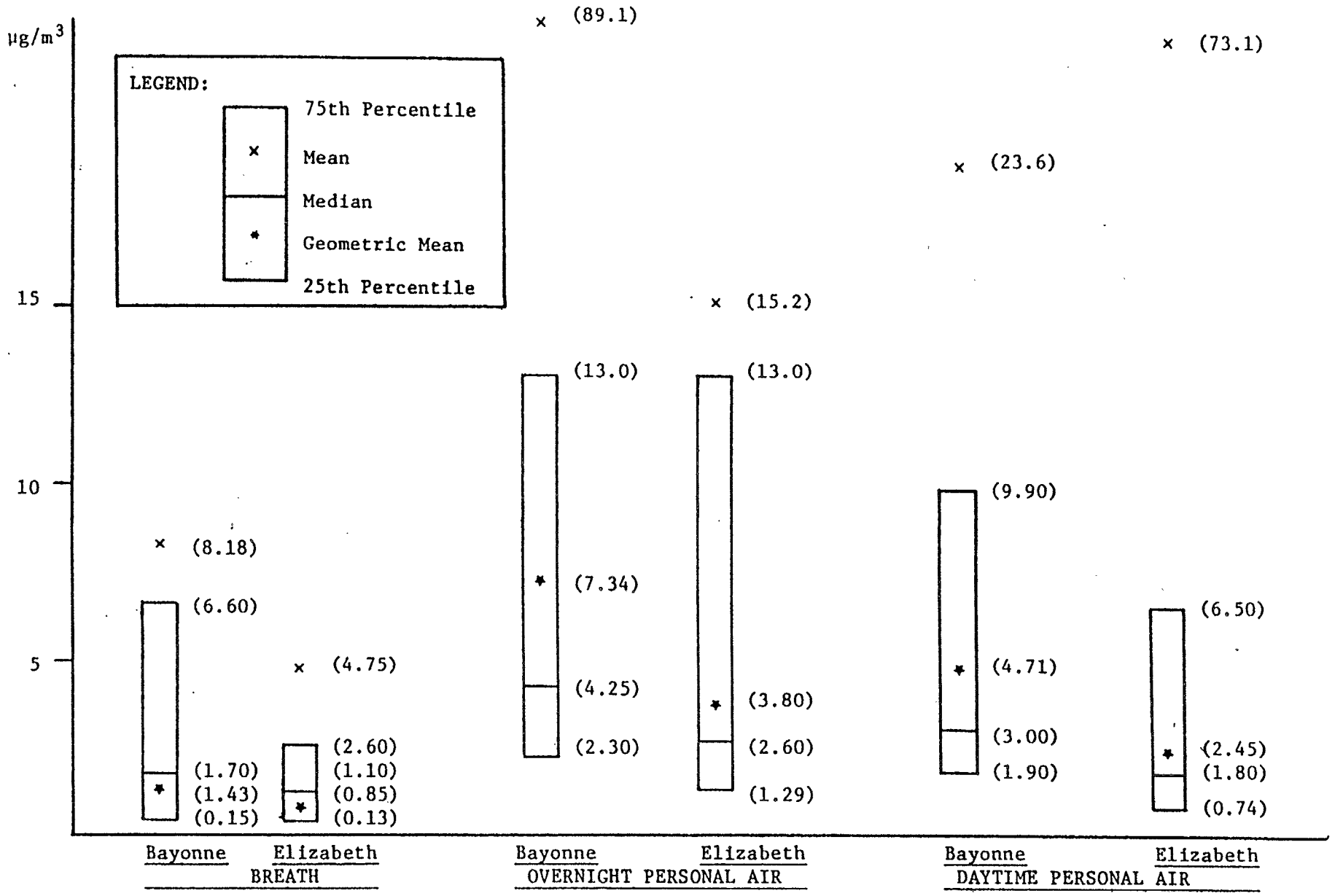

Figure 55. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for m,p-dichlorobenzene for breath, overnight personal air, and daytime personal air by city - New Jersey second season.

000237

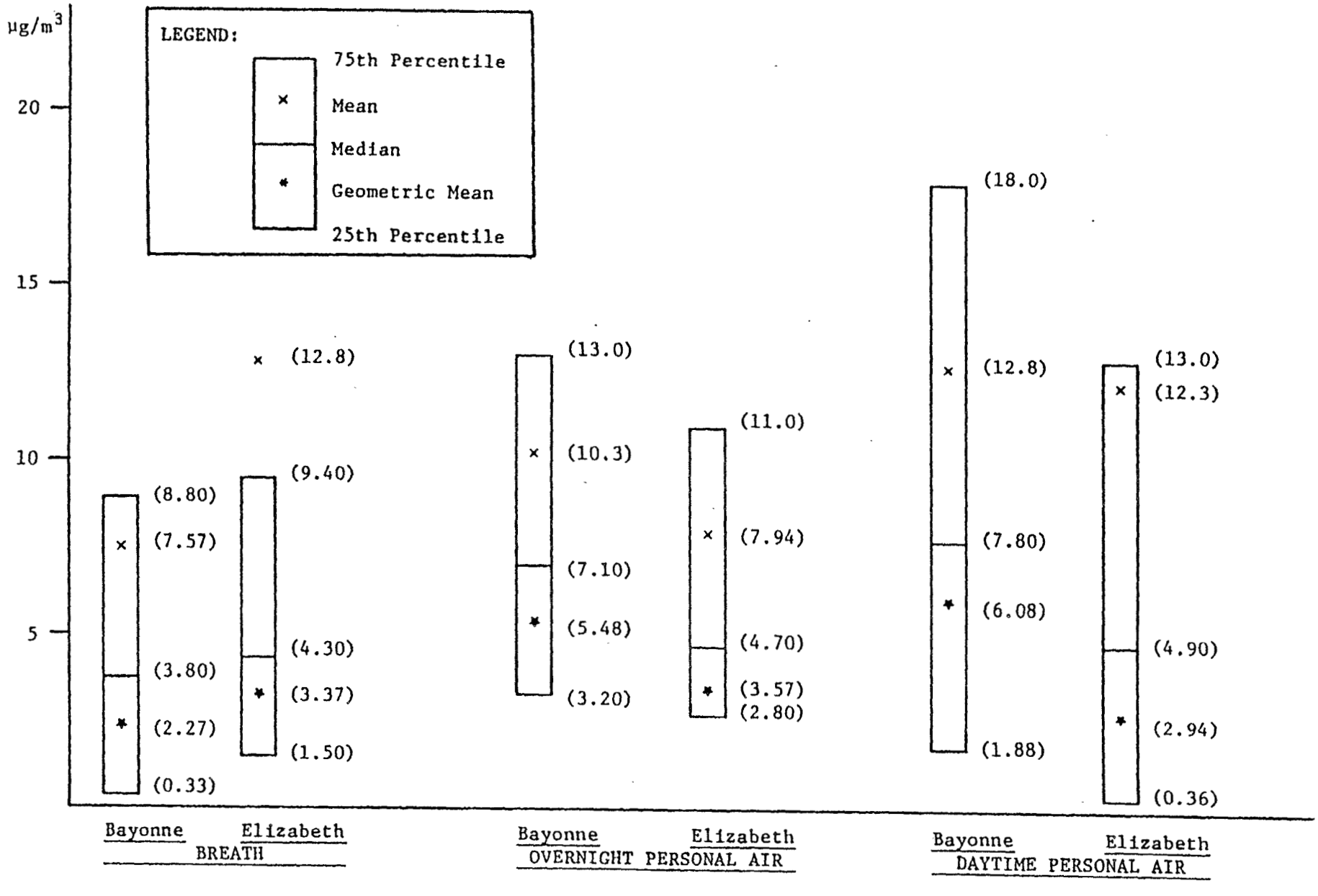

Figure 56. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for tetrachloroethylene for breath, overnight personal air, and daytime personal air by city - New Jersey second season.

000238

Table 273. SUMMARY OF THE MAGNITUDE OF SELECTED COMPOUND LEVELS COMPARED TO THE MEDIAN QUANTIFIABLE LIMITS OVER THE TWO CITIES BY BREATH AND AIR SAMPLES - NEW JERSEY SECOND SEASON

	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air
Chloroform	Elizabeth	Elizabeth	Low	Low	Low
1,1,1-Trichloroethane	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth
Carbon Tetrachloride	Low	Low	Low	Low	Low
Trichloroethylene	Low	Bayonne Elizabeth	Elizabeth	Bayonne Elizabeth	Low
Tetrachloroethylene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth
Chlorobenzene	Low	Low	Low	Low	Low
Styrene	Bayonne Elizabeth	Bayonne Elizabeth	Elizabeth	Bayonne	Low
m,p-Dichlorobenzene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne	Low
Ethylbenzene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth
o-Xylene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth
m,p-Xylene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth

Low = magnitude of compound levels to median quantifiable limit low for both cities.
Bayonne = magnitude of compound levels to median quantifiable limit relatively high for Bayonne.
Elizabeth = magnitude of compound levels to median quantifiable limit relatively high for Elizabeth.

Table 274. SUMMARY OF THE MAGNITUDE OF SELECTED COMPOUND LEVELS COMPARED TO THE MEDIAN QUANTIFIABLE LIMIT OVER THE TWO CITIES BY WATER SAMPLES - NEW JERSEY SECOND SEASON

	Water
Vinylidene Chloride	Low
Chloroform	Bayonne Elizabeth
1,1,1-Trichloroethane	Elizabeth
Benzene	Low
Trichloroethylene	Elizabeth
Bromodichloromethane	Bayonne Elizabeth
Dibromochloromethane	Bayonne Elizabeth
Tetrachloroethylene	Elizabeth

Low = magnitude of compound levels to median quantifiable limit low for both cities.
Bayonne = magnitude of compound levels to median quantifiable limit relatively high for Bayonne.
Elizabeth = magnitude of compound levels to median quantifiable limit relatively high for Elizabeth.

000240

ethane, ethylbenzene, and the xylenes were judged high over both cities, while carbon tetrachloride and chlorobenzene were judged low over both cities. For water, chloroform, bromodichloromethane, and dibromochloromethane were judged high over both cities while vinylidene chloride and benzene were judged low over both cities.

24-Hour Exposure

Tables 275 and 276 give the averaged 24-hour exposure for personal air and outdoor air. In comparing the 24-hour exposure statistics for personal air to the daytime and overnight statistics (see Tables 256 and 257) the arithmetic mean and maximum values for daytime personal air were generally highest while the geometric means for overnight air were highest. For outdoor air no trend was apparent.

Tables 277 and 278 present the averaged 24-hour exposure for outdoor and personal air by site. There was no significant difference between the two cities for the arithmetic or geometric means. In comparing the averaged 24-hour exposure with daytime and overnight personal air, for Bayonne the overnight air was generally highest. For Elizabeth the comparison showed the arithmetic means generally highest for daytime personal air while the geometric means were generally highest for overnight personal air. In comparing the averaged 24-hour exposure with daytime and overnight outdoor air, for Bayonne the arithmetic means for daytime outdoor air tended to be highest while the geometric means for overnight outdoor air generally were highest. For Elizabeth the opposite was true.

Indoor Versus Outdoor

Tables 279 through 282 compare overnight personal air to overnight outdoor air for those 71 persons who had fixed site air monitors outside their homes. In Table 279 the unweighted percent measurable is given overall and by city. Overall, 1,2-dichloroethane, carbon tetrachloride and chlorobenzene were significantly higher in outdoor air while 1,1,1-trichloroethane, styrene, m,p-dichlorobenzene, ethylbenzene, and the xylenes were significantly higher for personal air. For Bayonne, carbon tetrachloride and chlorobenzene were significantly higher in overnight outdoor air while m,p-dichlorobenzene and o-xylene were significantly higher in overnight personal air. For Elizabeth, chloroform, styrene, m,p-dichlorobenzene and the xylenes were significantly higher in over-

Table 275. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY SECOND SEASON

PERSONAL AIR
Population Estimate: 109,438
Sample Size: 139-145

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	99	Range
Chloroform	4.18	0.57	1.70	1.20	2.28	5.40	11.5	16.3	18.5	0.06 - 75.5
1,1,1-Trichloroethane	119.	97.5	9.63	1.24	10.4	27.5	58.2	125.	265.	0.08 - 24,500
Carbon Tetrachloride	0.96	0.06	0.81	1.07	0.91	1.10	1.62	1.95	3.59	0.12 - 4.70
Trichloroethylene	6.09	1.15	2.98	1.23	3.88	7.15	11.5	19.5	63.6	0.11 - 63.6
Tetrachloroethylene	10.7	1.18	5.62	1.19	7.30	12.5	24.4	34.5	58.5	0.08 - 121.
Chlorobenzene	0.64	0.08	0.41	1.14	0.38	0.90	1.53	1.84	3.38	0.05 - 4.00
Styrene	2.09	0.20	1.41	1.09	1.50	2.65	4.27	4.55	9.55	0.03 - 76.3
m,p-Dichlorobenzene	49.8	21.2	5.06	1.17	3.25	10.2	60.5	200.	1300.	0.29 - 1,300
Ethylbenzene	9.26	1.62	4.79	1.14	5.25	8.25	12.4	18.5	100.	0.03 - 292.
o-Xylene	12.0	2.38	5.64	1.12	6.55	8.10	17.5	24.4	58.0	0.03 - 902.
m,p-Xylene	37.0	11.2	13.0	1.13	15.5	21.5	34.2	50.5	110.	0.03 - 5,000

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Mean - exp(s) where s is the standard error of the weighted mean of LN(x).

000242

Table 276. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY SECOND SEASON

OUTDOOR AIR
Population Estimate: 109,438
Sample Size: 46-68

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	Range
Chloroform	13.0	3.70	0.87	1.60	0.12	11.6	47.5	61.5	0.07 - 137.
1,1,1-Trichloroethane	12.6	2.53	4.89	1.43	6.06	19.5	38.5	42.3	0.09 - 56.5
Carbon Tetrachloride	1.03	0.14	0.75	1.17	0.73	1.44	2.30	2.96	0.10 - 3.60
Trichloroethylene	7.52	2.06	1.50	1.44	1.37	9.65	25.7	32.0	0.08 - 52.8
Tetrachloroethylene	6.15	1.63	2.16	1.29	3.50	6.45	11.8	17.5	0.06 - 52.2
Chlorobenzene	0.80	0.18	0.39	1.21	0.41	0.81	2.04	3.00	0.03 - 5.86
Styrene	0.64	0.12	0.37	1.20	0.43	0.95	1.35	2.17	0.02 - 6.15
m,p-Dichlorobenzene	1.34	0.16	1.01	1.12	1.14	1.42	2.84	3.80	0.10 - 7.40
Ethylbenzene	3.21	0.38	1.91	1.20	2.85	3.97	6.20	7.80	0.03 - 19.5
o-Xylene	3.61	0.43	2.20	1.21	2.95	4.75	8.64	8.70	0.03 - 16.8
m,p-Xylene	9.85	0.90	5.95	1.23	8.55	12.5	19.4	22.5	0.03 - 34.8

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Mean - exp(s) where s is the standard error of the weighted mean of LN(x).

000243

Table 277. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY SECOND SEASON

PERSONAL AIR - BAYONNE
Population Estimate: 49,542
Sample Size: 55-60

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	Range
Chloroform	3.69	0.71	1.28	1.26	1.34	4.27	12.1	14.8	0.15 - 29.0
1,1,1-Trichloroethane	20.2	4.85	7.17	1.22	9.20	20.2	37.5	58.5	0.09 - 205.
Carbon Tetrachloride	1.01	0.08	0.91	1.07	0.93	1.05	1.53	1.75	0.30 - 4.30
Trichloroethylene	6.03	1.80	3.30	1.42	3.18	8.00	14.2	17.0	0.30 - 44.5
Tetrachloroethylene	11.4	1.81	6.62	1.28	7.82	14.5	27.0	38.0	0.21 - 58.5
Chlorobenzene	0.54	0.13	0.36	1.23	0.32	0.64	1.33	1.70	0.10 - 3.38
Styrene	2.13	0.25	1.57	1.16	1.58	2.75	4.27	5.40	0.03 - 9.55
m,p-Dichlorobenzene	56.8	26.0	6.83	1.29	4.05	12.0	69.5	715.	0.61 - 794.
Ethylbenzene	11.2	2.38	6.03	1.23	6.65	9.95	17.5	31.6	0.15 - 292.
o-Xylene	11.1	1.96	7.01	1.18	7.25	9.55	20.5	41.6	0.27 - 203.
m,p-Xylene	24.6	3.54	17.0	1.17	18.0	25.0	45.0	81.5	0.50 - 279.

PERSONAL AIR - ELIZABETH
Population Estimate: 59,896
Sample Size: 84-85

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	Range
Chloroform	4.58	0.85	2.15	1.28	3.32	6.00	10.0	17.1	0.06 - 75.5
1,1,1-Trichloroethane	201.	184.	12.3	1.41	13.6	31.6	60.2	154.	0.08 - 24,500
Carbon Tetrachloride	0.91	0.07	0.74	1.11	0.86	1.18	1.69	1.95	0.12 - 4.70
Trichloroethylene	6.15	1.48	2.74	1.29	3.97	6.85	10.8	19.5	0.11 - 63.6
Tetrachloroethylene	10.1	1.53	4.91	1.26	5.12	12.0	20.6	26.5	0.08 - 121.
Chlorobenzene	0.71	0.09	0.45	1.18	0.43	1.08	1.59	1.99	0.05 - 4.00
Styrene	2.06	0.30	1.30	1.10	1.28	2.65	3.59	4.50	0.03 - 76.3
m,p-Dichlorobenzene	44.0	32.0	3.95	1.23	2.25	9.95	35.4	124.	0.29 - 1,300
Ethylbenzene	7.68	2.13	3.96	1.18	4.80	7.01	10.8	16.3	0.03 - 276.
o-Xylene	12.8	4.07	4.72	1.17	6.05	7.95	13.8	19.0	0.03 - 902.
m,p-Xylene	47.3	20.5	10.5	1.19	11.6	20.8	26.4	38.2	0.03 - 5,000

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Mean - exp(s) where s is the standard error of the weighted mean of LN(x).

000244

Table 278. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY SECOND SEASON

OUTDOOR AIR - BAYONNE
Population Estimate: 49,542
Sample Size: 15-26

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	Range
Chloroform	14.4	4.13	1.11	2.03	0.10	29.5	40.5	47.5	0.08 - 109.
1,1,1-Trichloroethane	14.2	3.77	4.78	1.74	10.2	21.0	42.3	42.3	0.09 - 48.0
Carbon Tetrachloride	1.15	0.24	0.86	1.26	0.64	1.71	2.75	2.96	0.26 - 3.60
Trichloroethylene	7.78	3.55	1.21	1.72	1.04	9.45	28.5	39.7	0.08 - 52.8
Tetrachloroethylene	7.02	2.42	3.49	1.26	4.90	7.15	11.8	14.0	0.12 - 52.2
Chlorobenzene	0.93	0.32	0.48	1.34	0.52	1.01	2.44	3.00	0.05 - 5.86
Styrene	0.61	0.15	0.42	1.24	0.43	0.88	1.09	2.17	0.02 - 2.79
m,p-Dichlorobenzene	1.50	0.29	1.14	1.22	1.28	1.94	3.80	3.80	0.10 - 4.14
Ethylbenzene	3.31	0.35	2.59	1.14	3.50	4.08	4.65	6.75	0.06 - 7.80
o-Xylene	3.93	0.61	3.02	1.16	3.35	4.75	8.64	8.64	0.06 - 8.70
m,p-Xylene	10.7	0.88	8.35	1.09	10.7	12.5	21.6	22.5	1.04 - 22.5

OUTDOOR AIR - ELIZABETH
Population Estimate: 59,896
Sample Size: 31-42

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75	90	95	Range
Chloroform	11.8	5.76	0.71	1.84	0.12	9.54	49.3	74.0	0.07 - 137.
1,1,1-Trichloroethane	11.2	3.39	4.98	1.60	6.06	13.0	36.2	38.5	0.17 - 56.5
Carbon Tetrachloride	0.93	0.15	0.68	1.23	0.78	1.20	2.15	2.30	0.10 - 3.40
Trichloroethylene	7.31	2.37	1.80	1.63	2.11	9.65	25.7	32.0	0.11 - 35.0
Tetrachloroethylene	5.42	2.22	1.46	1.45	2.30	4.60	13.2	17.5	0.06 - 50.0
Chlorobenzene	0.69	0.20	0.32	1.29	0.41	0.67	1.72	3.90	0.03 - 4.35
Styrene	0.67	0.18	0.33	1.32	0.44	0.97	1.36	2.68	0.02 - 6.15
m,p-Dichlorobenzene	1.20	0.16	0.92	1.14	1.10	1.25	2.10	4.17	0.23 - 7.40
Ethylbenzene	3.14	0.64	1.49	1.35	2.20	3.97	6.90	9.00	0.03 - 19.5
o-Xylene	3.35	0.61	1.69	1.34	2.45	4.35	7.35	8.95	0.03 - 16.8
m,p-Xylene	9.11	1.44	4.49	1.40	7.20	12.2	18.9	24.5	0.03 - 34.8

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Mean - exp(s) where s is the standard error of the weighted mean of LN(x).

000245

Table 279. UNWEIGHTED PERCENTAGE OF CONCENTRATIONS MEASURABLE FOR THOSE PERSONS HAVING BOTH OVERNIGHT PERSONAL AIR AND OVERNIGHT OUTDOOR AIR - NEW JERSEY SECOND SEASON

	Overall		Bayonne		Elizabeth	
	Outdoor	Personal	Outdoor	Personal	Outdoor	Personal
Vinylidene Chloride	8.45	1.41	7.14	0.00	9.30	2.33
Chloroform	39.6	54.9	43.8	46.4	37.5	60.5*
1,2-Dichloroethane	14.1*	4.23	25.0	10.7	6.98	0.00
1,1,1-Trichloroethane	71.7	88.6*	79.0	92.6	67.6	86.0
Benzene	---	---	---	---	---	---
Carbon Tetrachloride	53.5*	12.7	53.6*	10.7	53.5*	14.0
Trichloroethylene	54.9	66.2	53.6	64.3	55.8	67.4
Bromodichloromethane	0.00	7.04	0.00	3.57	0.00	9.30
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	---	---	---	---	---	---
Tetrachloroethylene	66.2	74.6	75.0	78.6	60.5	72.1
Chlorobenzene	49.3*	22.5	57.1*	17.9	44.2	25.6
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	56.3	78.9*	64.3	78.6	51.2	79.1*
m,p-Dichlorobenzene	74.6	94.4*	78.6	100. *	72.1	90.7*
o-Dichlorobenzene	12.7	22.5	10.7	28.6	14.0	18.6
Ethylbenzene	85.9	95.8*	89.3	100.	83.7	93.0
o-Xylene	83.1	98.6*	85.7	100. *	81.4	97.7*
m,p-Xylene	88.6	98.6*	92.6	100.	86.0	97.7*
Sample Size Range	48 - 71	70 - 71	16 - 28	28	32 - 43	43

* T-test for difference between media significant at .05 level.

000246

night personal air while carbon tetrachloride was significantly higher in outdoor air.

The unweighted summary statistics for the two media are given in Table 280. The means and medians were tested for significant differences between the two media. Only the arithmetic mean for chloroform tested significantly higher for overnight outdoor air while means for 1,1,1-trichloroethane, tetrachloroethylene, styrene, ethylbenzene, o-xylene and m,p-xylene were significantly higher for overnight personal air. The medians for 1,1,1-trichloroethane, tetrachloroethylene, styrene, m,p-dichlorobenzene, ethylbenzene, o-xylene and m,p-xylene were significantly higher for overnight personal air. Generally the maximum values for overnight personal air were about the same or higher than those of overnight outdoor air. The notable exception to this was the maximum value for chloroform which was much higher for overnight outdoor air.

Table 281 gives the median and maximum values for overnight personal air and overnight outdoor air and their ratios. These ratios further illustrate the trend of personal air values being larger than outdoor air values. With the exception of the maximum value for chloroform (ratio = .27) the ratios were approximately one or greater. Particularly noteworthy were the medians for chloroform (ratio = 16.67) and the maximum values for m,p-dichlorobenzene (ratio = 204).

Table 282 presents the unweighted median and maximum values overall and by city for the two overnight media for those 71 persons having had an air monitor outside their homes. While there appears to be no large differences in the medians over the two cities for outdoor air, all but one compound (trichloroethylene) showed higher median values in Bayonne over Elizabeth. For maximum values, in seven of the eleven compounds, Elizabeth was higher but with the exception of ethylbenzene and m,p-xylene not remarkably so. For overnight personal air, again Bayonne generally had higher median and maximum values. Two exceptions to this were chloroform and carbon tetrachloride with both the median and maximum values higher in Elizabeth. Generally there appears to be no great differences between the values for Bayonne and Elizabeth; however, the median for chloroform in Elizabeth and the maximum values for

000247

Table 280. UNWEIGHTED SUMMARY STATISTICS ($\mu g/m^3$) FOR THOSE PERSONS HAVING BOTH OVERNIGHT OUTDOOR AIR AND OVERNIGHT PERSONAL AIR - NEW JERSEY SECOND SEASON

	Overnight Outdoor Air				Overnight Personal Air			
	Mean	S.E.	Median	Range	Mean	S.E.	Median	Range
Chloroform	13.9 *	3.97	0.12	0.05 - 130.	5.19	0.94	2.00	0.06 - 35.0
1,1,1-Trichloroethane	10.8	1.84	5.00	0.07 - 51.0	17.2 *	2.49	9.95**	0.09 - 120.
Carbon Tetrachloride	1.22	0.12	0.97	0.08 - 5.40	1.39	0.15	1.38	0.12 - 6.50
Trichloroethylene	7.75	1.54	1.36	0.06 - 61.0	6.63	1.08	3.92	0.09 - 59.0
Tetrachloroethylene	3.92	0.61	1.80	0.04 - 26.0	9.78*	1.84	4.70**	0.06 - 98.0
Chlorobenzene	0.74	0.13	0.43	0.02 - 6.30	0.78	0.12	0.42	0.04 - 6.60
Styrene	0.75	0.18	0.44	0.02 - 11.0	2.22*	0.24	1.75**	0.02 - 10.0
m,p-Dichlorobenzene	1.46	0.16	1.20	0.09 - 7.60	44.8	22.6	2.60**	0.44 - 1550
Ethylbenzene	3.47	0.47	2.50	0.02 - 28.0	9.56*	2.61	5.40**	0.02 - 180
o-Xylene	4.04	0.54	3.40	0.02 - 31.0	9.29*	1.74	5.90**	0.02 - 100
m,p-Xylene	11.0	1.23	8.98	0.02 - 65.0	21.1 *	2.98	14.0 **	0.02 - 150
Sample Size:			48 - 71				70 - 71	

* T-test for difference in means between media significant at .05 level or less.
** Wilcoxon signed rank test for difference in medians between media significant at .05 level.

000248

Table 281. SUMMARY OF MEDIANS, MAXIMUM CONCENTRATIONS AND THEIR RATIOS FOR MATCHED OVERNIGHT OUTDOOR AIR AND OVERNIGHT PERSONAL AIR - NEW JERSEY SECOND SEASON

	Overnight Outdoor Air	Overnight Personal Air	Personal/ Outdoor Ratio
Chloroform	0.12 (130.)*	2.00 (35.0)	16.7 (0.27)
1,1,1-Trichloroethane	5.00 (51.0)	9.95 (120.)	1.99 (2.35)
Carbon Tetrachloride	0.97 (5.40)	1.38 (6.50)	1.42 (1.20)
Trichloroethylene	1.36 (61.0)	3.92 (59.0)	2.88 (0.97)
Tetrachloroethylene	1.80 (26.0)	4.70 (98.0)	2.61 (3.77)
Chlorobenzene	0.43 (6.30)	0.42 (6.60)	0.98 (1.05)
Styrene	0.44 (11.0)	1.75 (10.0)	3.98 (0.91)
m,p-Dichlorobenzene	1.20 (7.60)	2.60 (1550)	2.17 (204.)
Ethylbenzene	2.50 (28.0)	5.40 (180.)	2.16 (6.43)
o-Xylene	3.40 (31.0)	5.90 (100.)	1.74 (3.23)
m,p-Xylene	8.98 (65.0)	14.0 (150.)	1.56 (2.31)

* Median (Maximum)

000249

Table 282. UNWEIGHTED MEDIAN AND MAXIMUM VALUES ($\mu g/m^3$) FOR THOSE PERSONS HAVING BOTH OVERNIGHT OUTDOOR AIR AND OVERNIGHT PERSONAL AIR - NEW JERSEY SECOND SEASON

	Overnight Outdoor Air					
	Overall		Bayonne		Elizabeth	
	Median	Maximum	Median	Maximum	Median	Maximum
Chloroform	0.12	130.	0.39	130.	0.12	98.0
1,1,1-Trichloroethane	5.00	51.0	5.90	51.0	4.90	46.5
Carbon Tetrachloride	0.97	5.40	1.00	5.40	0.97	3.10
Trichloroethylene	1.36	61.0	1.25	61.0	1.36	44.0
Tetrachloroethylene	1.80	26.0	2.55	22.0	1.38	26.0
Chlorobenzene	0.43	6.30	0.52	5.20	0.17	6.30
Styrene	0.44	11.0	0.47	7.50	0.41	11.0
m,p-Dichlorobenzene	1.20	7.60	1.30	3.80	1.10	7.60
Ethylbenzene	2.50	28.0	3.25	7.65	2.30	28.0
o-Xylene	3.40	31.0	3.82	15.6	2.80	31.0
m,p-Xylene	8.98	65.0	9.90	26.5	8.00	65.0

	Overnight Personal Air					
	Overall		Bayonne		Elizabeth	
	Median	Maximum	Median	Maximum	Median	Maximum
Chloroform	2.00	35.0	0.75	28.0	3.10	35.0
1,1,1-Trichloroethane	9.95	120.	11.6	86.0	9.90	120.
Carbon Tetrachloride	1.38	6.50	1.34	5.50	1.38	6.50
Trichloroethylene	3.92	59.0	4.65	59.0	3.80	34.0
Tetrachloroethylene	4.70	98.0	6.20	60.0	4.00	98.0
Chlorobenzene	0.42	6.60	0.39	6.60	0.45	3.70
Styrene	1.75	10.0	1.90	10.0	1.70	8.30
m,p-Dichlorobenzene	2.60	1550	3.42	1550	2.40	320.
Ethylbenzene	5.40	180.	6.10	180.	5.00	19.0
o-Xylene	5.90	100.	7.25	100.	5.50	21.0
m,p-Xylene	14.0	150.	19.5	150.	13.0	62.0

000250

m,p-dichlorobenzene, ethylbenzene, and the xylenes in Bayonne appeared larger.

The 41 people who had fixed site air monitors outside their homes and listed no outdoor activities or trips on their screeners were examined in Tables X-97 through X-104 in the appendix. Overall, there were no large differences between the 41 who listed no trips or outdoor activities and the 71. However, there was a tendency for the values to be slightly higher for the 41.

Correlations

Table 283 gives the Spearman correlations between breath and the airs for all amounts for the selected compounds. Overall, the correlations were low with a magnitude of less than .70 and many less than .35. The strongest correlations appeared between breath and daytime personal air, between daytime and overnight personal air, between overnight personal air and overnight outdoor air, and between daytime and overnight outdoor air. The correlations between breath and daytime personal air appeared stronger than those between breath and overnight personal air. Also, the correlations between overnight personal air and overnight outdoor air seemed to be stronger than those between daytime personal air and daytime outdoor air. There was very little correlation between water and the other media (see Table 284).

Table 285 gives the Spearman correlations for breath and the airs for the selected compounds for measurable amounts only. The strongest correlations appeared to be for m,p-dichlorobenzene between breath and daytime personal air and between overnight personal air and daytime personal air.

Table 286 presents the Spearman correlations between water and the other media for the selected compounds for measurable amounts only. Again, there was very little correlation between water and the other media.

Tables 287 through 291 give the Spearman correlations between the selected compounds by media for all amounts. The compounds were grouped into aromatics (styrene, ethylbenzene, o-xylene and m,p-xylene), chlorinated solvents (1,1,1-trichloroethane, trichloroethylene, and tetrachloroethylene) and miscellaneous (m,p-dichlorobenzene, chloroform, carbon tetrachloride and chlorobenzene). The aromatics showed the strongest

Table 283. SPEARMAN CORRELATIONS FOR ALL AMOUNTS OF SELECTED COMPOUNDS FOR BREATH, PERSONAL AIRS, AND OUTDOOR AIRS - NEW JERSEY SECOND SEASON

	Breath and Overnight Personal Air		Breath and Daytime Personal Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	-.04	80	-.11	76
1,1,1-Trichloroethane	.11	132	.28*	125
Carbon Tetrachloride	.24*	137	-.01	126
Trichloroethylene	.04	138	.10	129
Tetrachloroethylene	.11	141	.23*	132
Chlorobenzene	.08	136	.06	127
Styrene	.07	141	.20*	132
m,p-Dichlorobenzene	.34*	139	.38*	131
Ethylbenzene	.09	140	.22*	132
o-Xylene	.03	139	.22*	131
m,p-Xylene	.09	140	.27*	132

	Breath and Overnight Outdoor Air		Breath and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.40*	38	.05	37
1,1,1-Trichloroethane	.09	47	-.04	45
Carbon Tetrachloride	.22	63	-.07	60
Trichloroethylene	.25*	63	.13	60
Tetrachloroethylene	-.02	66	.09	63
Chlorobenzene	.33*	62	.20	59
Styrene	-.17	65	-.02	62
m,p-Dichlorobenzene	.28*	64	.05	61
Ethylbenzene	-.18	64	-.17	61
o-Xylene	-.19	64	-.16	61
m,p-Xylene	-.11	63	-.13	61

	Overnight Personal Air and Daytime Personal Air		Overnight Personal Air and Overnight Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.28*	144	-.01	48
1,1,1-Trichloroethane	.34*	139	.10	52
Carbon Tetrachloride	.16	144	.39*	71
Trichloroethylene	.28*	145	.33*	71
Tetrachloroethylene	.40*	145	.40*	71
Chlorobenzene	.37*	144	.36*	71
Styrene	.35*	144	.13	71
m,p-Dichlorobenzene	.61*	145	.35*	71
Ethylbenzene	.20*	145	.24*	71
o-Xylene	.16	145	.29*	71
m,p-Xylene	.19*	145	.24*	70

continued

Table 283 continued

	Overnight Personal Air and Daytime Outdoor Air		Daytime Personal Air and Overnight Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	-.02	47	.04	43
1,1,1-Trichloroethane	.05	50	.12	49
Carbon Tetrachloride	.14	68	.06	65
Trichloroethylene	.17	68	.32*	66
Tetrachloroethylene	.31*	68	.34*	66
Chlorobenzene	.19	68	.15	65
Styrene	.15	68	.20	65
m,p-Dichlorobenzene	.29*	68	.14	66
Ethylbenzene	.19	68	.25*	66
o-Xylene	.22	68	.13	66
m,p-Xylene	.15	68	.14	65

	Daytime Personal Air and Daytime Outdoor Air		Overnight Outdoor Air and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	-.09	43	.68*	46
1,1,1-Trichloroethane	.05	47	.55*	51
Carbon Tetrachloride	-.04	63	.39*	68
Trichloroethylene	.13	63	.41*	68
Tetrachloroethylene	.54*	63	.48*	68
Chlorobenzene	.05	63	.30*	68
Styrene	.03	63	.15	68
m,p-Dichlorobenzene	.24	63	.27*	68
Ethylbenzene	.20	63	.25*	68
o-Xylene	.08	63	.24	68
m,p-Xylene	.13	63	.19	67

* Significantly different from zero at .05 level.

Table 284. SPEARMAN CORRELATIONS FOR ALL AMOUNTS OF SELECTED COMPOUNDS BETWEEN WATER AND BREATH, PERSONAL AIRS, AND OUTDOOR AIRS - NEW JERSEY SECOND SEASON

	Breath and Water		Overnight Personal Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Vinylidene Chloride	.07	136	.04	156
Chloroform	-.18	81	.06	156
1,1,1-Trichloroethane	-.03	139	-.07	150
Trichloroethylene	.06	139	-.14	156
Bromodichloromethan	.20*	136	-.13	156
Dibromochloromethane	.24*	136	-.13	156
Tetrachloroethylene	.01	142	-.17*	156

	Daytime Personal Air and Water		Overnight Outdoor Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Vinylidene Chloride	-.09	146	-.02	71
Chloroform	-.02	145	-.47*	48
1,1,1-Trichloroethane	.00	142	-.10	53
Trichloroethylene	-.05	146	-.11	71
Bromodichloromethane	-.12	146	.17	71
Dibromochloromethane	-.07	146	.11	71
Tetrachloroethylene	-.12	146	-.26*	71

	Daytime Outdoor Air and Water	
	Spearman Correlation	Sample Size
Vinylidene Chloride	.01	68
Chloroform	-.30*	47
1,1,1-Trichloroethane	-.03	51
Trichloroethylene	.04	68
Bromodichloromethane	.08	68
Dibromochloromethane	.19	68
Tetrachloroethylene	-.12	68

* Significantly different from zero at .05 level.

000254

Table 285. SPEARMAN CORRELATIONS FOR MEASURABLE AMOUNTS OF SELECTED COMPOUNDS FOR BREATH, PERSONAL AIRS, AND OUTDOOR AIRS - NEW JERSEY SECOND SEASON

	Breath and Overnight Personal Air		Breath and Daytime Personal Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.18	14	-.28	13
1,1,1-Trichloroethane	-.01	66	-.04	57
Carbon Tetrachloride	-.80	4		0
Trichloroethylene	.13	31	-.07	29
Tetrachloroethylene	.20	83	.22	75
Chlorobenzene	-.03	6	-.22	7
Styrene	.11	75	.18	61
m,p-Dichlorobenzene	.48*	87	.57*	75
Ethylbenzene	.16	92	.31*	79
o-Xylene	.11	84	.34*	73
m,p-Xylene	.11	97	.23*	87

	Breath and Overnight Outdoor Air		Breath and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.36	10	.00	8
1,1,1-Trichloroethane	-.02	20	-.14	18
Carbon Tetrachloride	-.55	6	-.63	4
Trichloroethylene	-.35	13	-.09	10
Tetrachloroethylene	.04	33	.10	37
Chlorobenzene	.36	7	.60	4
Styrene	-.57*	20	-.30	20
m,p-Dichlorobenzene	.00	34	.01	23
Ethylbenzene	-.19	36	-.35	29
o-Xylene	-.25	29	-.19	26
m,p-Xylene	-.33	36	-.22	31

	Overnight Personal Air and Daytime Personal Air		Overnight Personal Air and Overnight Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.40*	47	.07	12
1,1,1-Trichloroethane	.23*	84	-.18	35
Carbon Tetrachloride	.05	11	.20	5
Trichloroethylene	.35*	63	.09	31
Tetrachloroethylene	.36*	88	.21	42
Chlorobenzene	.38*	8	.08	12
Styrene	.23*	89	-.07	35
m,p-Dichlorobenzene	.58*	120	.33*	53
Ethylbenzene	.10	126	.21	59
o-Xylene	.03	131	.22	59
m,p-Xylene	.11	134	.17	62

continued

Table 285. continued

	Overnight Personal Air and Daytime Outdoor Air		Daytime Personal Air and Overnight Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	-.19	14	-.05	8
1,1,1-Trichloroethane	-.01	36	-.24	27
Carbon Tetrachloride	-.30	5		1
Trichloroethylene	.14	25	.34	27
Tetrachloroethylene	.09	39	.36*	34
Chlorobenzene	-.25	7	.02	9
Styrene	.17	26	-.22	28
m,p-Dichlorobenzene	.45*	36	.08	44
Ethylbenzene	.05	50	.19	53
o-Xylene	.13	55	.07	52
m,p-Xylene	.16	56	.10	57

	Daytime Personal Air and Daytime Outdoor Air		Overnight Outdoor Air and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	-.17	7	.16	15
1,1,1-Trichloroethane	-.20	26	.44*	32
Carbon Tetrachloride		2	.13	20
Trichloroethylene	-.04	19	.30	23
Tetrachloroethylene	.43*	37	.42*	38
Chlorobenzene	.80	4	-.06	19
Styrene	-.31	21	-.07	21
m,p-Dichlorobenzene	.15	31	.30	33
Ethylbenzene	.17	47	.22	46
o-Xylene	.01	51	.14	47
m,p-Xylene	.15	53	.05	50

* Significantly different from zero at .05 level.

000256

Table 286. SPEARMAN CORRELATIONS FOR MEASURABLE AMOUNTS OF SELECTED COMPOUNDS BETWEEN WATER AND BREATH, PERSONAL AIRS, AND OUTDOOR AIRS - NEW JERSEY SECOND SEASON

	Breath and Water		Overnight Personal Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Vinylidene Chloride	.40	4	.50	3
Chloroform	-.18	45	-.13	83
1,1,1-Trichloroethane	-.16	46	-.28*	69
Trichloroethylene	.24	22	.04	42
Bromodichloromethane	-.80	4	-.46	7
Dibromochloromethane		0		0
Tetrachloroethylene	-.24	50	.03	57

	Daytime Personal Air and Water		Overnight Outdoor Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Vinylidene Chloride	.10	5		2
Chloroform	-.03	71	-.31	19
1,1,1-Trichloroethane	.18	55	-.20	18
Trichloroethylene	-.07	37	.22	17
Bromodichloromethane	.60	5		0
Dibromochloromethane		1		0
Tetrachloroethylene	-.07	44	.03	21

	Daytime Outdoor Air and Water	
	Spearman Correlation	Sample Size
Vinylidene Chloride		1
Chloroform	-.22	20
1,1,1-Trichloroethane	.07	20
Trichloroethylene	.29	13
Bromodichloromethane		1
Dibromochloromethane		1
Tetrachloroethylene	-.21	23

* Significantly different from zero at .05 level.

000257

Table 287. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR BREATH ALL AMOUNTS - NEW JERSEY SECOND SEASON

Sample Size Range: 80 - 142

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
	A	B	C	D	E	F	G	H	I	J	K
A Styrene		.82*	.83*	.82*	.19*	.26*	.48*	.38*	.20	.08	.53*
B Ethylbenzene			.88*	.93*	.26*	.28*	.59*	.37*	.24*	.00	.52*
C o-Xylene				.87*	.25*	.26*	.60*	.38*	.25*	-.01	.54*
D m,p-Xylene					.27*	.26*	.60*	.42*	.28*	.04	.46*
E 1,1,1-Trichloroethane						.55*	.36*	.20*	.70*	.38*	.44*
F Trichloroethylene							.37*	.02	.70*	.49*	.60*
G Tetrachloroethylene								.29*	.29*	.18*	.45*
H m,p-Dichlorobenzene									.14	-.06	.22*
I Chloroform										.69*	.48*
J Carbon Tetrachloride											.30*
K Chlorobenzene											

* Significantly different from zero at .05 level.

000258

Table 288. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT PERSONAL AIR ALL AMOUNTS - NEW JERSEY SECOND SEASON

Sample Size Range: 149 - 156

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
	A	B	C	D	E	F	G	H	I	J	K
A Styrene		.70*	.64*	.67*	.37*	.18*	.37*	.37*	.30*	.10	.27*
B Ethylbenzene			.89*	.89*	.40*	.36*	.47*	.38*	.43*	.20*	.44*
C o-Xylene				.92*	.33*	.28*	.38*	.42*	.31*	.15	.33*
D m,p-Xylene					.34*	.27*	.38*	.43*	.33*	.18*	.31*
E 1,1,1-Trichloroethane						.55*	.40*	.22*	.47*	.17*	.39*
F Trichloroethylene							.51*	.08	.60*	.14	.61*
G Tetrachloroethylene								.25*	.60*	.09	.62*
H m,p-Dichlorobenzene									.19*	.02	.20*
I Chloroform										.21*	.66*
J Carbon Tetrachloride											.16*
K Chlorobenzene											

* Significantly different from zero at .05 level.

000259

Table 289. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME PERSONAL AIR ALL AMOUNTS - NEW JERSEY SECOND SEASON

Sample Size Range: 141 - 146

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
	A	B	C	D	E	F	G	H	I	J	K
A Styrene		.74*	.62*	.66*	.39*	.36*	.45*	.39*	.15	.25*	.45*
B Ethylbenzene			.91*	.91*	.50*	.51*	.55*	.30*	.16	.31*	.48*
C o-Xylene				.93*	.44*	.47*	.50*	.32*	.12	.27*	.39*
D m,p-Xylene					.44*	.41*	.45*	.34*	.12	.31*	.36*
E 1,1,1-Trichloroethane						.62*	.51*	.16	.35*	.35*	.47*
F Trichloroethylene							.65*	.22*	.36*	.24*	.50*
G Tetrachloroethylene								.33*	.36*	.36*	.54*
H m,p-Dichlorobenzene									.14	.19*	.20*
I Chloroform										.39*	.42*
J Carbon Tetrachloride											.38*
K Chlorobenzene											

* Significantly different from zero at .05 level.

000260

Table 290. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT OUTDOOR AIR ALL AMOUNTS - NEW JERSEY SECOND SEASON

Sample Size Range: 47 - 71

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
	A	B	C	D	E	F	G	H	I	J	K
A Styrene		.81*	.78*	.74*	.58*	.59*	.70*	.39*	.53*	.63*	.70*
B Ethylbenzene			.96*	.96*	.67*	.63*	.84*	.59*	.48*	.63*	.75*
C o-Xylene				.93*	.62*	.58*	.79*	.62*	.38*	.54*	.73*
D m,p-Xylene					.58*	.56*	.80*	.60*	.35*	.53*	.68*
E 1,1,1-Trichloroethane						.84*	.77*	.38*	.74*	.65*	.70*
F Trichloroethylene							.68*	.25*	.67*	.55*	.73*
G Tetrachloroethylene								.42*	.51*	.56*	.68*
H m,p-Dichlorobenzene									.13	.19	.30*
I Chloroform										.75*	.67*
J Carbon Tetrachloride											.72*
K Chlorobenzene											

* Significantly different from zero at .05 level.

000261

Table 291. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME OUTDOOR AIR ALL AMOUNTS - NEW JERSEY SECOND SEASON

Sample Size Range: 46 - 68

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
	A	B	C	D	E	F	G	H	I	J	K
A Styrene		.65*	.67*	.60*	.62*	.40*	.38*	.43*	.47*	.37*	.61*
B Ethylbenzene			.97*	.95*	.63*	.45*	.62*	.47*	.38*	.48*	.71*
C o-Xylene				.92*	.60*	.38*	.59*	.49*	.35*	.43*	.67*
D m,p-Xylene					.57*	.41*	.56*	.44*	.29*	.42*	.68*
E 1,1,1-Trichloroethane						.76*	.51*	.11	.71*	.84*	.72*
F Trichloroethylene							.39*	.09	.70*	.58*	.72*
G Tetrachloroethylene								.21	.24	.33*	.47*
H m,p-Dichlorobenzene									.09	.15	.35*
I Chloroform										.67*	.62*
J Carbon Tetrachloride											.58*
K Chlorobenzene											

* Significantly different from zero at .05 level.

000262

correlations for breath, personal airs and outdoor airs. Also chlorobenzene and tetrachloroethylene for overnight outdoor air showed high correlations with most other compounds. For daytime outdoor air 1,1,1-trichloroethane and chlorobenzene showed high correlations with most other compounds.

Tables 292 through 296 give the Spearman correlations between the selected compounds by media for measurable amounts only. Again the aromatics showed the strongest correlations. Carbon tetrachloride for daytime personal air also showed high correlations with several compounds, as did tetrachloroethylene for overnight outdoor air and trichloroethylene and chlorobenzene for daytime outdoor air.

Figures 57 through 68 show scatter plots for breath versus daytime personal air, breath versus daytime outdoor air, and overnight personal air versus overnight outdoor air for selected compounds on the natural logarithmic scale. One was added to each number before the log was taken. The lines represent the median QL values for the compounds for the two media. An "O" represents both measurable and an "X" represents one or both not measurable. These plots demonstrate the lack of strong correlation between the media for each compound. Again, it is obvious that part of the lack of correlation was caused by the number of observations below or near the quantifiable limits.

Proximity to Point Source

Tables 297 through 312 discuss the percentages measurable and concentrations by proximity to point source. The t-tests were done pairwise with an asterisk by the highest value if any of the tests were significant. Overall there were few significant differences between percentage measurable for the three levels of proximity (see Table 297). However, for breath, benzene, m,p-dichlorobenzene and ethylbenzene showed significant differences with the high level of proximity highest. For water 1,1,1-trichloroethane, carbon tetrachloride, tetrachloroethylene and bromoform showed significant differences with the moderate level highest in three of the four cases. For overnight personal air chlorobenzene had a significant difference with the low level showing the highest percentage. For daytime personal air o-dichlorobenzene showed significant difference with high level highest. For overnight outdoor air vinylidene chloride and styrene both had significant differ-

Table 292. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR BREATH MEASURABLE AMOUNTS ONLY - NEW JERSEY SECOND SEASON

Sample Size Range: 11 - 92

			Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
No.		Compound	A	B	C	D	E	F	G	H	I	J	K
93	A	Styrene		.72*	.61*	.70*	.01	.37*	.24*	.12	.11	.02	.58*
96	B	Ethylbenzene			.89*	.97*	-.05	.48*	.47*	.15	.03	.13	.52*
88	C	o-Xylene				.90*	.04	.56*	.46*	.17	.13	.19	.63*
101	D	m,p-Xylene					.04	.56*	.45*	.18	.17	.12	.54*
90	E	1,1,1-Trichloroethane						.26	.33*	-.01	.59*	.39	.48*
52	F	Trichloroethylene							.32*	.11	.30	-.18	.76*
111	G	Tetrachloroethylene								.03	.10	.33	.43*
92	H	m,p-Dichlorobenzene									-.10	.50	-.03
45	I	Chloroform										.79*	.64*
17	J	Carbon Tetrachloride											-.30
33	K	Chlorobenzene											

* Significantly different from zero at .05 level.

000264

Table 293. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT PERSONAL AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY SECOND SEASON

Sample Size Range: 9 - 149

			Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
No.		Compound	A	B	C	D	E	F	G	H	I	J	K
125	A	Styrene		.58*	.51*	.58*	.31*	.07	.34*	.29*	.06	.01	.30
145	B	Ethylbenzene			.86*	.86*	.28*	.25*	.39*	.25*	.18	.02	.55*
150	C	o-Xylene				.91*	.16	.22*	.29*	.31*	.10	.04	.40*
149	D	m,p-Xylene					.21*	.27*	.34*	.33*	.17	.13	.49*
123	E	1,1,1-Trichloroethane						.51*	.39*	.18	.24*	.03	.47*
102	F	Trichloroethylene							.47*	.06	.22	.53*	.64*
125	G	Tetrachloroethylene								.18	.41*	.12	.74*
147	H	m,p-Dichlorobenzene									.02	.11	-.07
83	I	Chloroform										.10	.41
30	J	Carbon Tetrachloride											.07
27	K	Chlorobenzene											

* Significantly different from zero at .05 level.

000265

Table 294. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME PERSONAL AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY SECOND SEASON

Sample Size Range: 5 - 133

			Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
No.		Compound	A	B	C	D	E	F	G	H	I	J	K
100	A	Styrene		.65*	.60*	.65*	.18	.33*	.54*	.38*	.37*	.69*	.54*
132	B	Ethylbenzene			.93*	.94*	.36*	.44*	.43*	.08	.25*	.46	.43*
134	C	o-Xylene				.92*	.26*	.41*	.38*	.19*	.18	.58*	.36
137	D	m,p-Xylene					.33*	.42*	.42*	.14	.28*	.67*	.30
93	E	1,1,1-Trichloroethane						.62*	.39*	-.12	.23	.39	.38
85	F	Trichloroethylene							.56*	.11	.35*	.61*	.39
102	G	Tetrachloroethylene								.36*	.38*	.07	.27
123	H	m,p-Dichlorobenzene									.12	.27	.13
71	I	Chloroform										.70*	.34
14	J	Carbon Tetrachloride											.30
26	K	Chlorobenzene											

* Significantly different from zero at .05 level.

000266

Table 295. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT OUTDOOR AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY SECOND SEASON

Sample Size Range: 18 - 60

No.		Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
			A	B	C	D	E	F	G	H	I	J	K
40	A	Styrene		.81*	.72*	.73*	.35	.49*	.56*	.42*	.33	.52*	.42*
61	B	Ethylbenzene			.95*	.94*	.44*	.51*	.71*	.59*	.37	.51*	.57*
59	C	o-Xylene				.91*	.29	.38*	.62*	.60*	.11	.46*	.54*
62	D	m,p-Xylene					.34*	.42*	.69*	.60*	.08	.42*	.50*
38	E	1,1,1-Trichloroethane						.66*	.47*	.20	.71*	.66*	.31
39	F	Trichloroethylene							.42*	.31	.38	.42*	.54*
47	G	Tetrachloroethylene								.35*	.10	.36*	.22
53	H	m,p-Dichlorobenzene									.11	.18	.32
19	I	Chloroform										.56*	.28
38	J	Carbon Tetrachloride											.60*
38	K	Chlorobenzene											

* Significantly different from zero at .05 level.

000237

Table 296. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME OUTDOOR AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY SECOND SEASON

Sample Size Range: 14 - 53

			Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous			
No.		Compound	A	B	C	D	E	F	G	H	I	J	K
31	A	Styrene		.42*	.48*	.36	.71*	.58*	.56*	.63*	.67*	.53*	.74*
52	B	Ethylbenzene			.95*	.90*	.73*	.65*	.60*	.42*	.08	.32	.66*
55	C	o-Xylene				.86*	.74*	.69*	.52*	.36*	.14	.36	.69*
56	D	m,p-Xylene					.65*	.64*	.59*	.37*	.14	.21	.64*
39	E	1,1,1-Trichloroethane						.84*	.57*	.50*	.72*	.51*	.57*
31	F	Trichloroethylene							.52*	.39	.64*	.68*	.81*
48	G	Tetrachloroethylene								.34	-.04	.17	.45*
36	H	m,p-Dichlorobenzene									.08	.28	.54*
20	I	Chloroform										.83*	.55*
29	J	Carbon Tetrachloride											.50*
25	K	Chlorobenzene											

* Significantly different from zero at .05 level.

000268

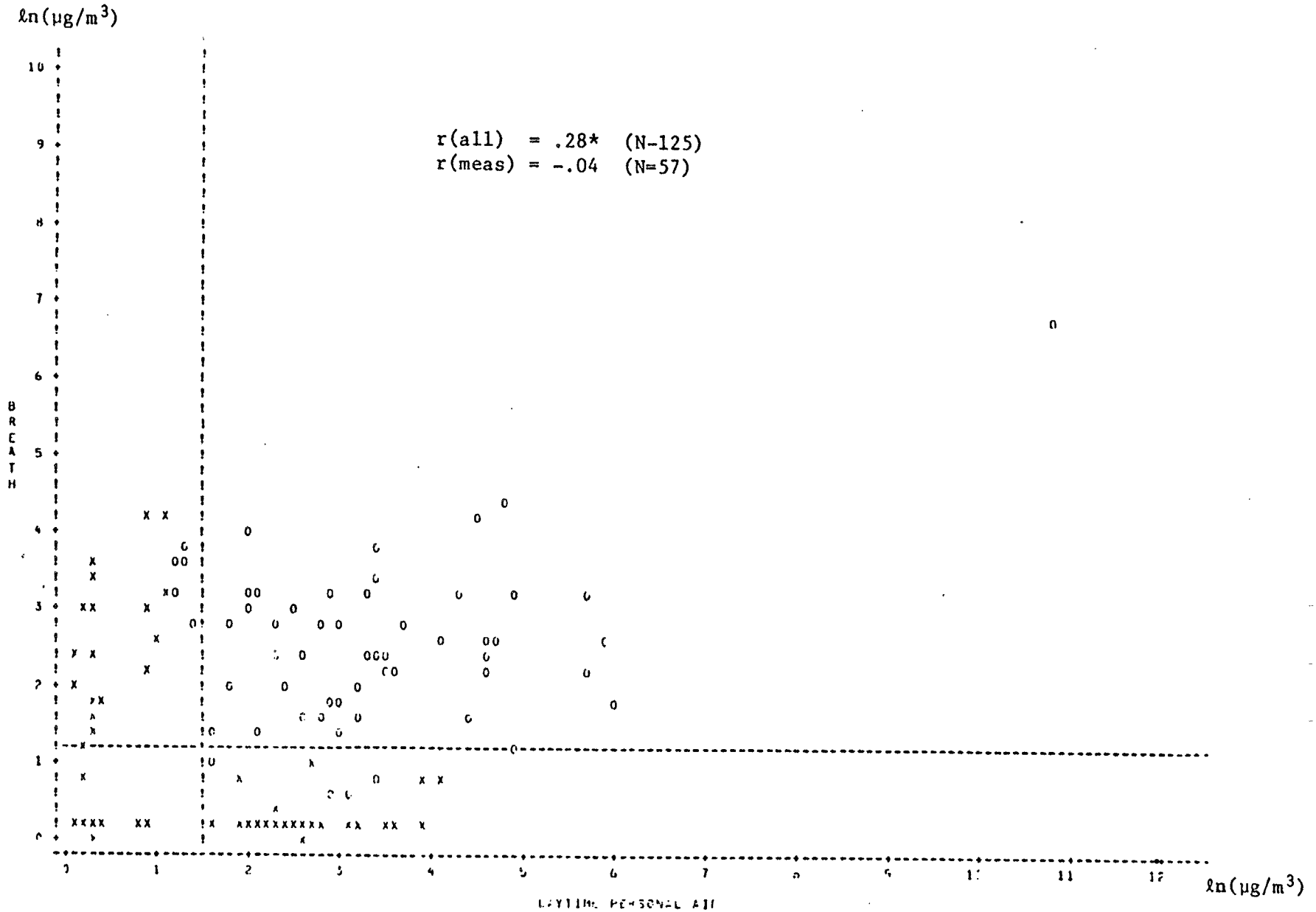

Figure 57. 1,1,1-Trichloroethane - New Jersey second season.

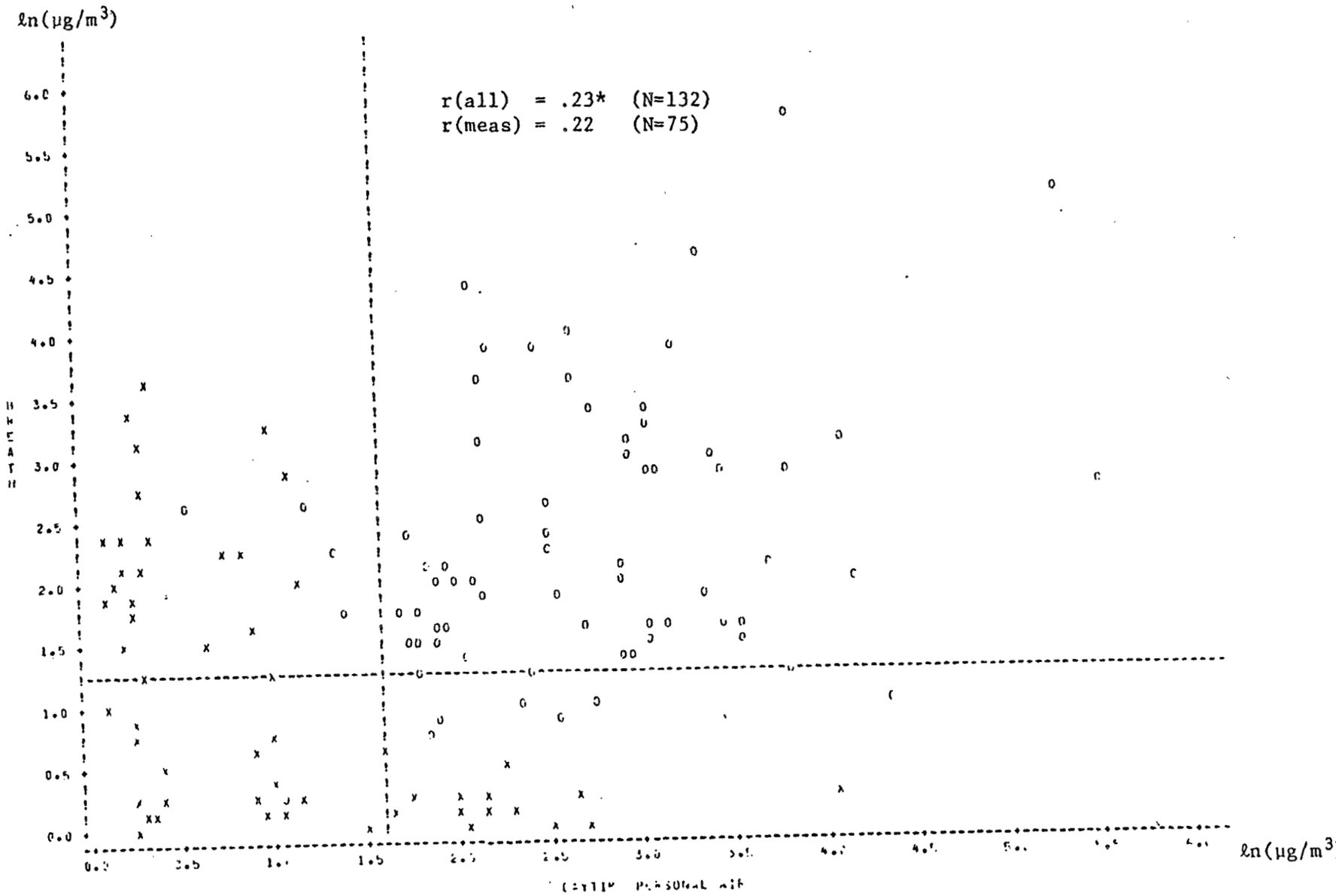

Figure 58. Tetrachloroethylene - New Jersey second season.

002270

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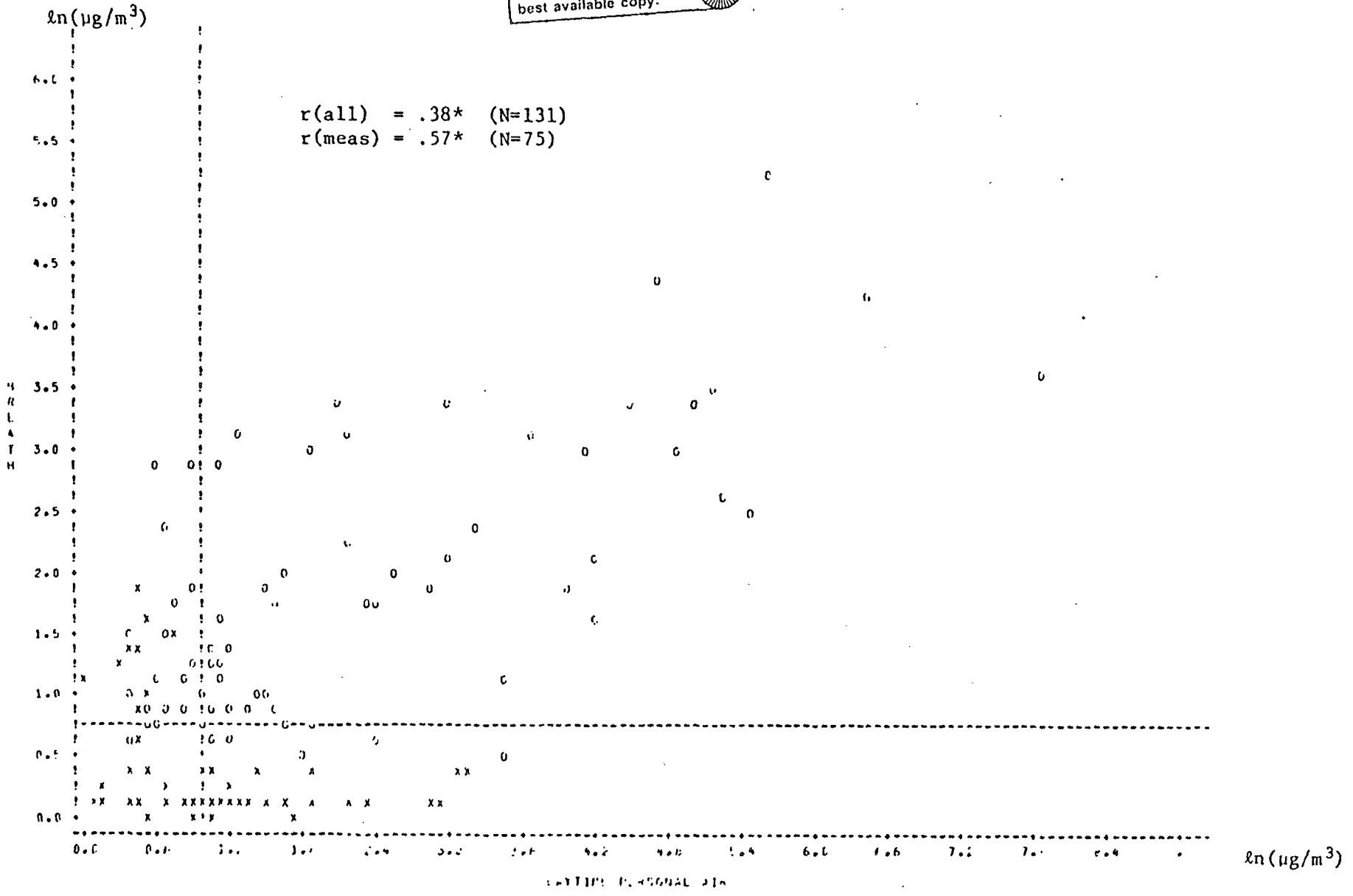

Figure 59. m,p-Dichlorobenzene - New Jersey second season.

000271

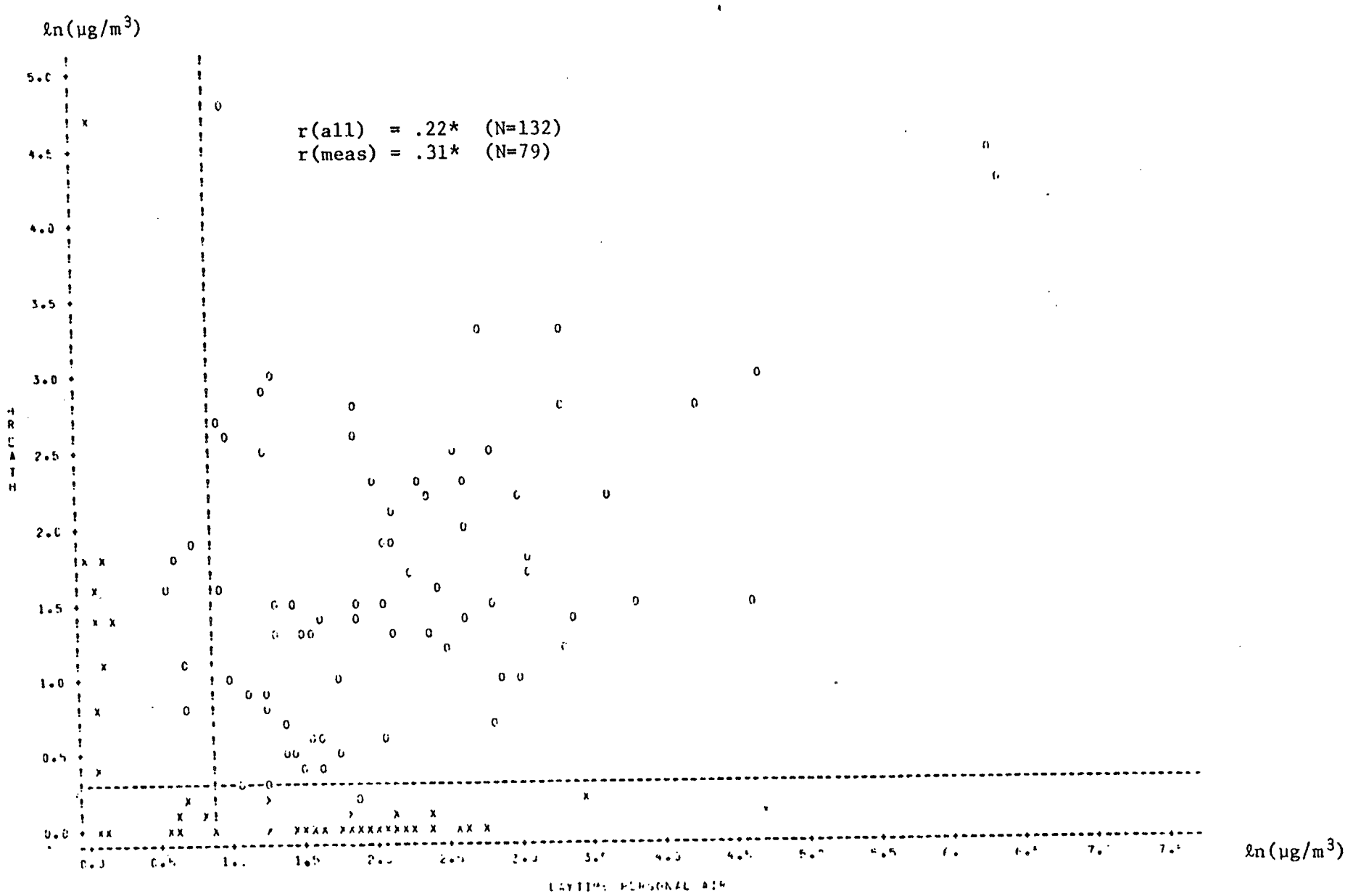

Figure 60. Ethylbenzene - New Jersey second season.

0002272

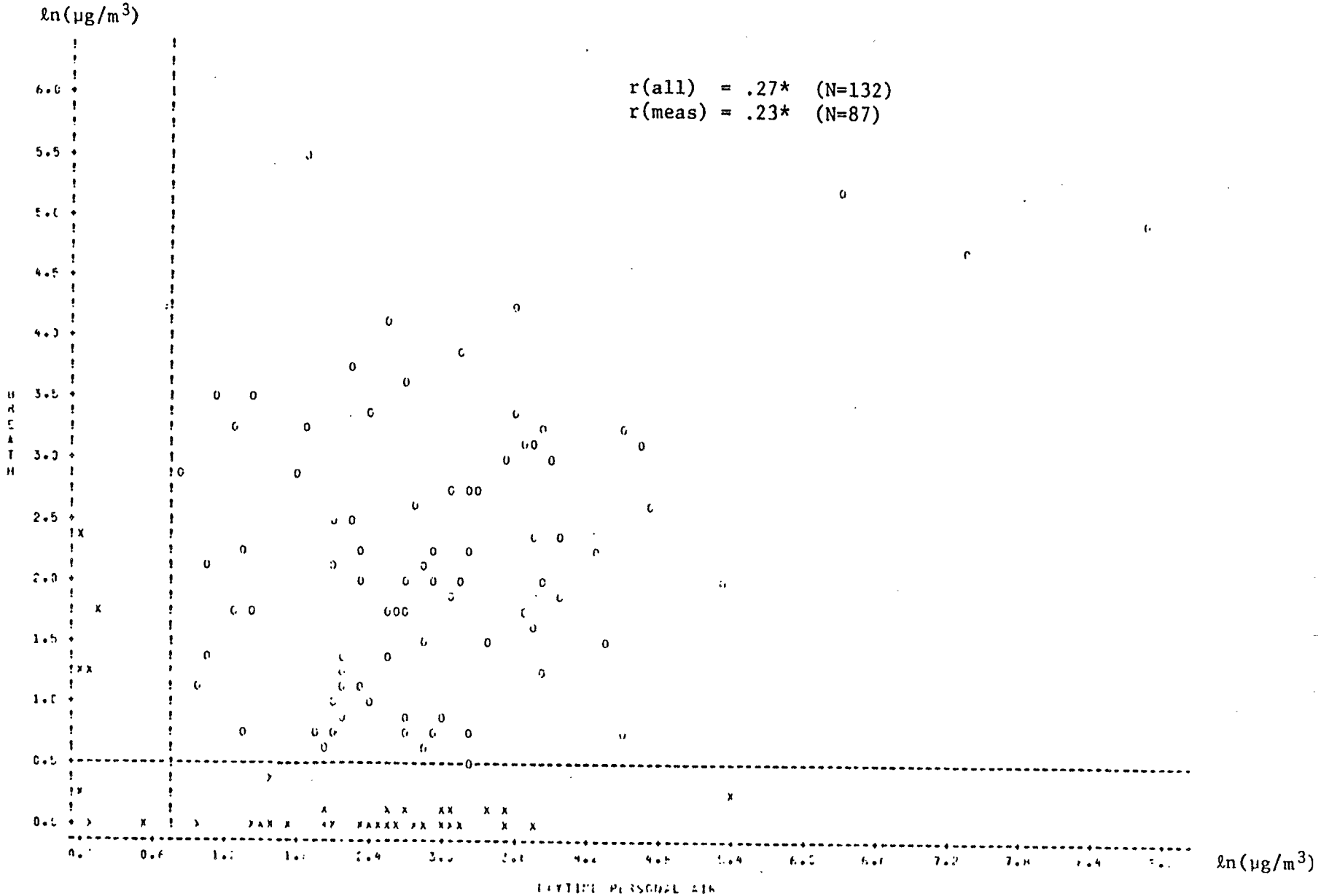

Figure 61. m,p-Xylene - New Jersey second season.

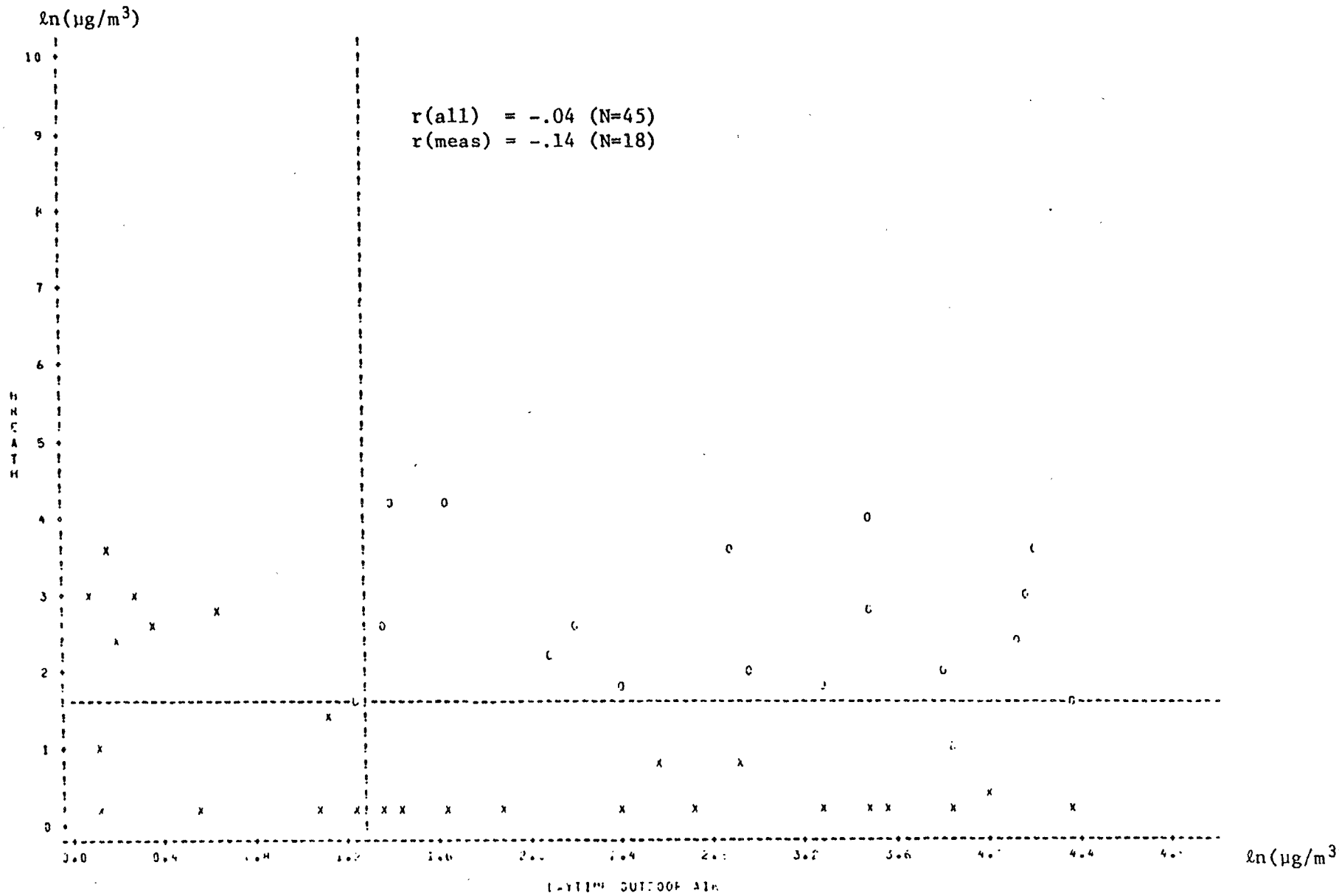

Figure 62. 1,1,1-Trichloroethane - New Jersey second season.

000274

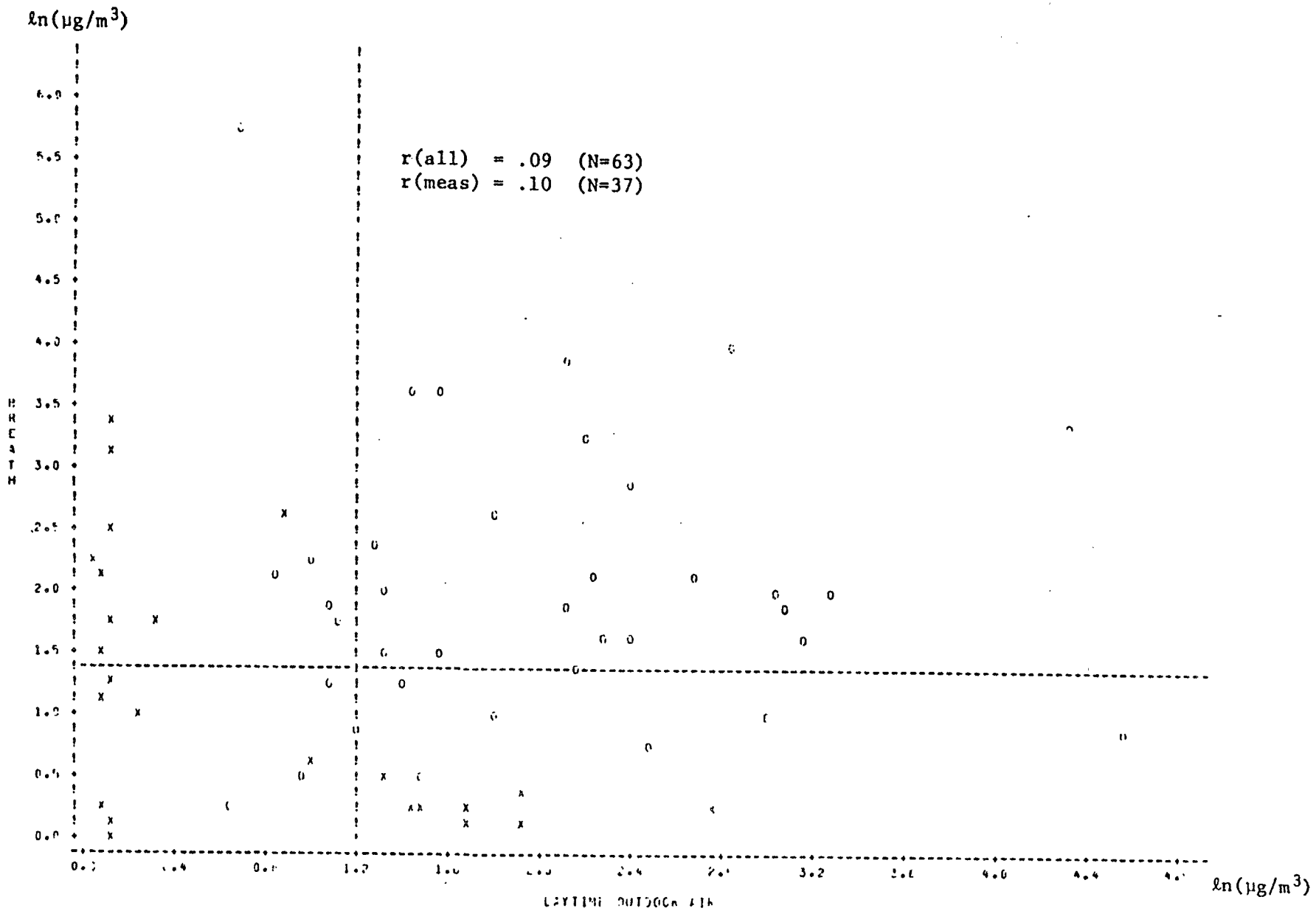

Figure 63. Tetrachloroethylene - New Jersey second season.

000225

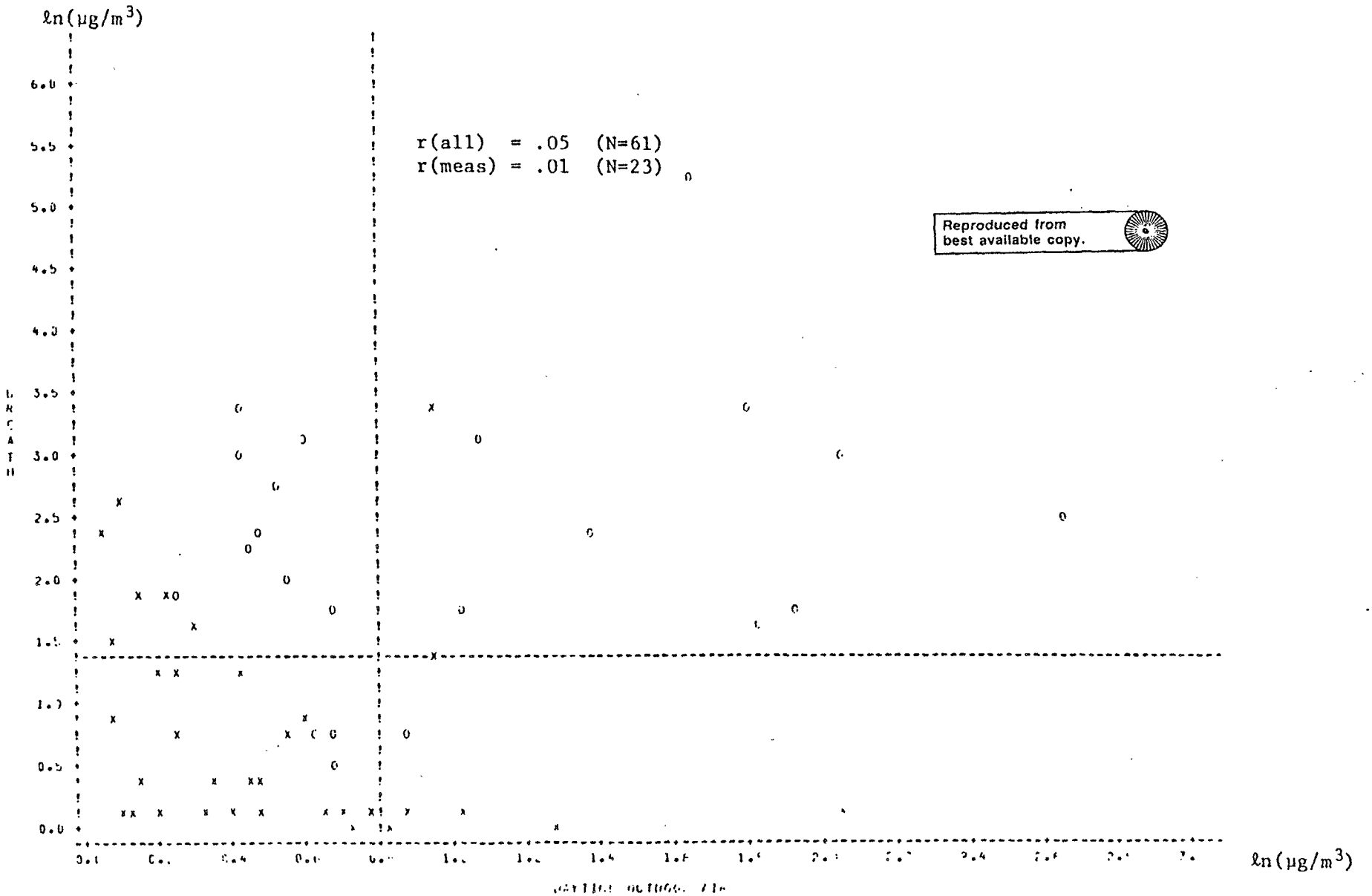

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Figure 64. m,p-Dichlorobenzene - New Jersey second season.

000276

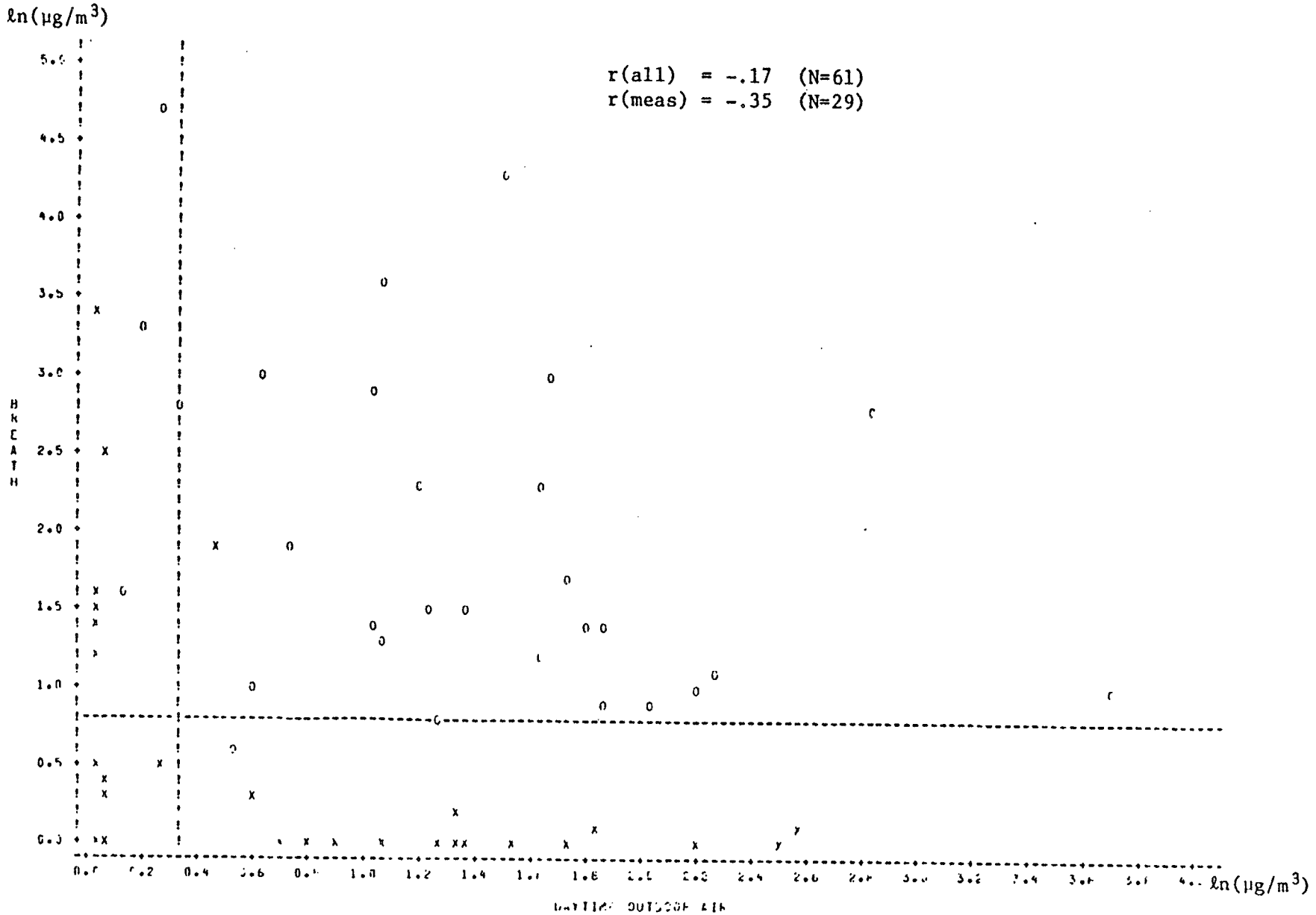

Figure 65. Ethylbenzene - New Jersey second season.

000327

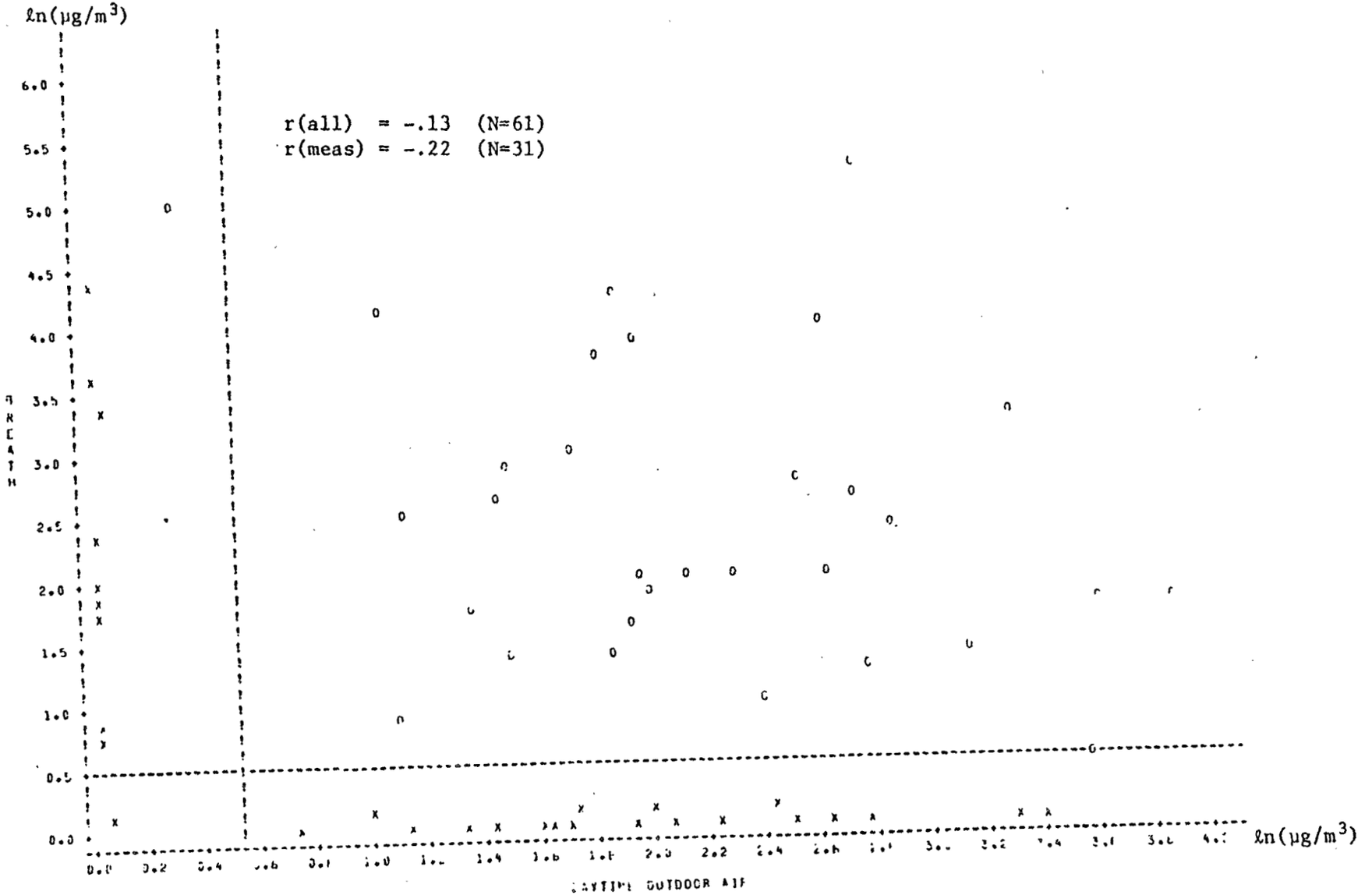

Figure 66. m,p-Xylene - New Jersey second season.

000278

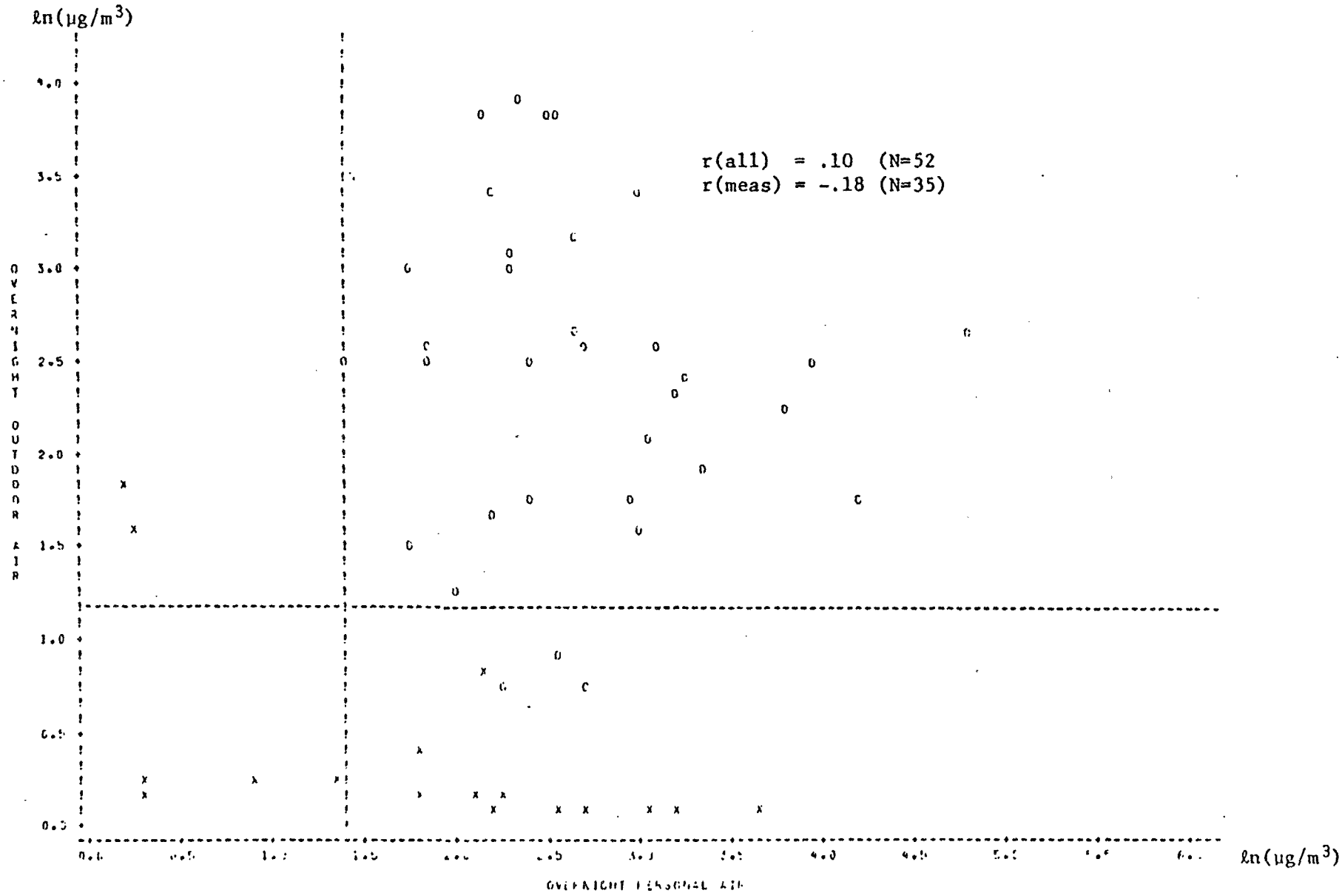

Figure 67. 1,1,1-Trichloroethylene - New Jersey second season.

000279

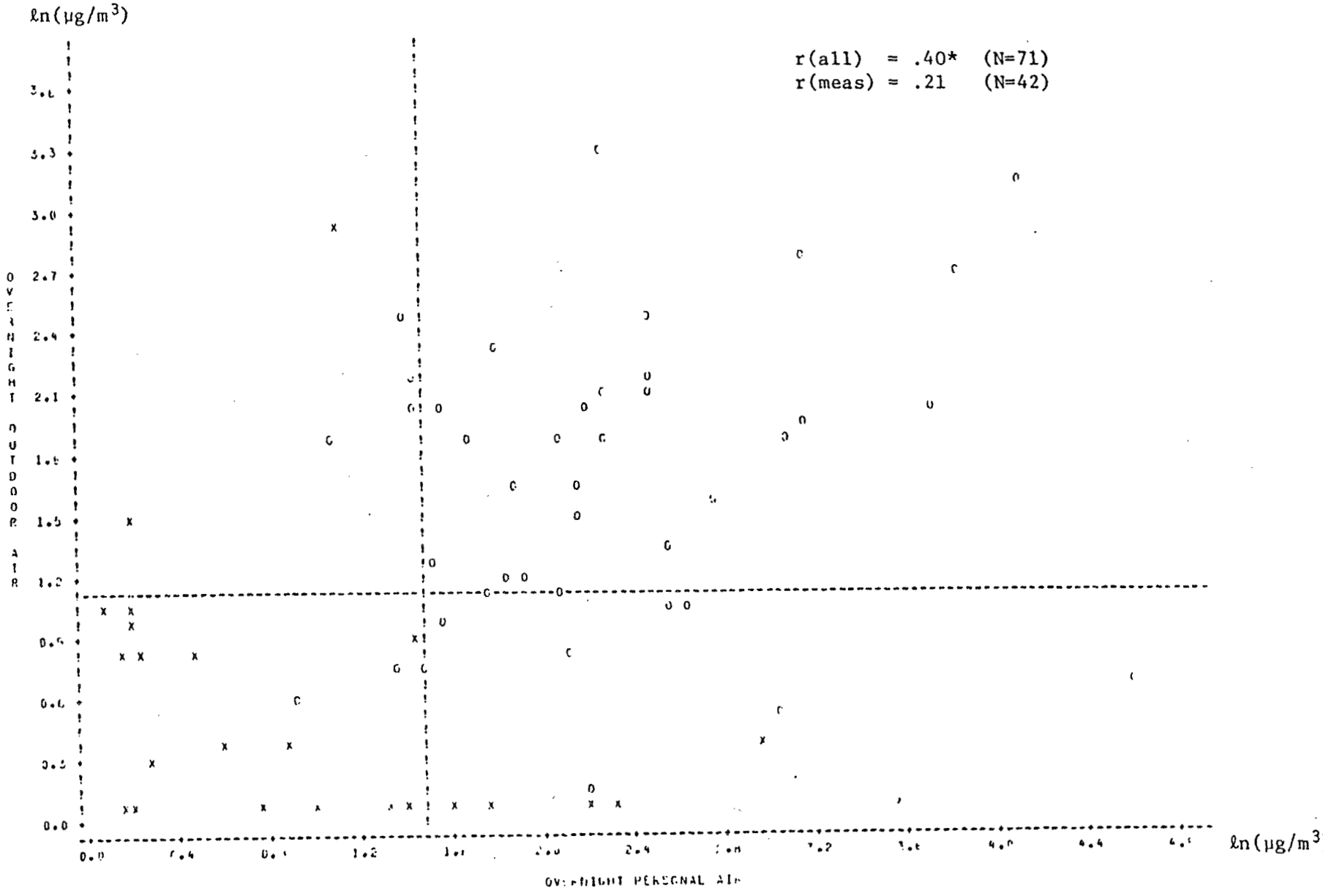

Figure 68. Tetrachloroethylene - New Jersey second season.

002280

Table 297. PERCENT MEASURABLE BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

Compound	Breath			Water		
	High	Moderate	Low	High	Moderate	Low
Vinylidene Chloride	23.5	31.8	14.2	25.2	31.0	22.3
Chloroform	84.5	63.8	48.9	100.	100.	99.7
1,2-Dichloroethane	0.00	0.44	2.26	0.00	1.90	1.75
1,1,1-Trichloroethane	63.4	73.4	51.2	62.4*	53.8	38.9
Benzene	87.0*	56.3	45.4	19.3	32.3	22.7
Carbon Tetrachloride	12.8	6.97	5.79	3.52	13.4*	2.93
Trichloroethylene	47.9	36.5	24.5	38.8	60.8	32.9
Bromodichloromethane	5.98	2.39	1.71	100.	100.	99.7
Dibromochloromethane	0.00	0.00	0.00	100.	100.	99.7
Toluene	---	---	---	---	---	---
Tetrachloroethylene	80.0	76.6	69.4	37.1	66.0*	28.7
Chlorobenzene	22.7	14.1	14.9	0.00	0.00	0.00
Bromoform	0.00	0.00	0.00	3.52	12.5*	2.83
Dibromochloropropane	0.00	0.00	0.00	---	---	---
Styrene	74.3	69.7	49.0	0.00	0.00	0.00
m,p-Dichlorobenzene	76.6*	65.8	50.4	0.00	0.00	0.00
o-Dichlorobenzene	5.33	3.10	6.76	---	---	---
Ethylbenzene	78.2*	67.2	52.4	0.00	0.00	0.00
o-Xylene	65.6	71.6	46.2	---	---	---
m,p-Xylene	77.6	73.4	58.9	0.00	0.00	0.00
Sample Size	15-38	29-44	37-62	41	45-46	70

Compound	Overnight Personal Air			Daytime Personal Air		
	High	Moderate	Low	High	Moderate	Low
Vinylidene Chloride	7.23	16.2	6.05	12.1	13.5	8.67
Chloroform	56.9	54.2	47.1	46.0	41.8	48.2
1,2-Dichloroethane	0.30	0.00	4.88	0.00	0.00	4.64
1,1,1-Trichloroethane	83.9	90.3	79.6	61.0	76.0	58.0
Benzene	75.5	88.6	80.2	56.6	69.9	67.1
Carbon Tetrachloride	16.5	15.4	14.6	13.6	9.54	2.15
Trichloroethylene	53.4	55.9	65.9	58.3	62.5	59.0
Bromodichloromethane	7.04	0.00	4.45	4.56	4.80	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	1.33
Toluene	---	---	---	---	---	---
Tetrachloroethylene	62.7	88.4	83.9	58.5	66.4	73.1
Chlorobenzene	1.50	18.1	20.4*	15.9	12.4	18.9
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	80.3	86.3	79.8	60.3	66.2	65.9
m,p-Dichlorobenzene	88.3	97.7	93.9	84.8	89.8	81.7
o-Dichlorobenzene	20.4	35.6	16.9	11.4*	1.65	8.91
Ethylbenzene	89.6	95.3	94.8	81.5	88.4	86.9
o-Xylene	98.6	95.6	96.7	91.9	86.9	88.1
m,p-Xylene	98.6	95.6	96.1	91.9	88.4	94.2
Sample Size	40-41	45	70	34	41-44	67-68

continued

Table 297. (continued)

Compound	Overnight Outdoor Air			Daytime Outdoor Air		
	High	Moderate	Low	High	Moderate	Low
Vinylidene Chloride	4.96	0.00	21.6*	8.97	7.75	8.44
Chloroform	41.4	26.4	31.7	43.5	29.4	34.9
1,2-Dichloroethane	0.65	9.55	20.6	0.00	0.00	9.51
1,1,1-Trichloroethane	84.5	62.2	80.0	86.2	68.3	70.8
Benzene	91.8	87.8	96.6	68.8	59.6	77.2
Carbon Tetrachloride	23.1	41.4	56.2	30.7	23.3	40.2
Trichloroethylene	48.0	44.2	67.0	30.0	30.9	58.0
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.75
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.75
Toluene	---	---	---	---	---	---
Tetrachloroethylene	55.4	72.2	68.2	67.6	68.1	79.2
Chlorobenzene	24.9	42.6	46.2	24.6	20.7	40.2
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	23.1	58.0	59.2*	57.0	31.6	48.8
m,p-Dichlorobenzene	69.0	72.8	74.1	48.3	29.5	50.4
o-Dichlorobenzene	5.36	7.11	18.2	15.0	0.00	8.63
Ethylbenzene	88.5	86.6	82.4	82.6	76.9	81.8
o-Xylene	88.5	86.6	81.1	82.6	76.9	85.0
m,p-Xylene	88.3	86.9	91.7	88.4	75.2	88.8
Sample Size	10-18	15-21	23-32	10-18	14-19	23-31

* Percentages significantly different between proximity at .05 level (pairwise t-tests).

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ences with the low level highest. Daytime outdoor air had no significant differences. However, caution should be used in interpreting the outdoor air data due to small sample sizes.

Tables 298 through 312 give the arithmetic mean, arithmetic standard error, geometric mean, geometric standard error, median and range by proximity to point source and media. Pairwise t-tests were done on the arithmetic and geometric means. If any of the tests were significant then an asterisk was placed by the largest. For breath only the geometric mean for styrene showed a significant difference in level with the moderate level highest. However, for seven of the eleven compounds the low level had the largest maximum values. For overnight personal air the arithmetic means for carbon tetrachloride, styrene and m,p-dichlorobenzene and the geometric mean for styrene showed significant differences. For styrene and m,p-dichlorobenzene, the low level had the highest values while for carbon tetrachloride the moderate level had the highest value. As with breath the highest maximum values for eight of the eleven compounds were at the low level. For daytime personal air there were no significant differences in the means. Again the low level showed the highest maximum values for nine of the eleven compounds. For overnight outdoor air arithmetic means for styrene, chlorobenzene and m,p-dichlorobenzene and the geometric mean for styrene showed significant differences. For the arithmetic mean of styrene the moderate level was highest while for all others the low level was highest. For daytime outdoor air no means tested significantly higher.

Table 298. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

BREATH - HIGH
Population Estimate: 20,500
Sample Size Range: 15-38

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	14.4	4.64	6.92	2.39	22.0	0.07 - 23.0
1,1,1-Trichloroethane	13.9	6.84	2.52	1.66	6.40	0.08 - 63.0
Carbon Tetrachloride	0.47	0.14	0.24	1.30	0.16	0.08 - 4.10
Trichloroethylene	7.06	1.72	0.86	1.49	0.17	0.08 - 110.
Tetrachloroethylene	7.19	2.23	2.79	1.55	3.80	0.05 - 28.0
Chlorobenzene	0.68	0.14	0.23	1.19	0.10	0.02 - 6.10
Styrene	1.59	0.65	0.68	1.31	0.70	0.03 - 10.0
m,p-Dichlorobenzene	8.94	2.37	1.69	1.44	1.80	0.05 - 63.0
Ethylbenzene	3.71	1.24	1.18	1.74	3.00	0.02 - 15.0
o-Xylene	2.98	1.20	0.68	2.16	1.20	0.02 - 12.0
m,p-Xylene	7.73	2.28	2.32	1.72	6.30	0.02 - 29.0

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

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Table 299. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

BREATH - MODERATE
Population Estimate: 38,500
Sample Size Range: 29-44

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	4.41	0.99	1.28	1.51	2.30	0.06 - 38.0
1,1,1-Trichloroethane	12.6	1.33	4.50	1.43	11.0	0.11 - 71.0
Carbon Tetrachloride	0.39	0.07	0.26	1.18	0.17	0.09 - 2.80
Trichloroethylene	6.15	1.67	0.49	1.56	0.11	0.07 - 93.0
Tetrachlorcethylene	12.4	4.94	3.84	1.26	5.60	0.22 - 330.
Chlorobenzene	0.60	0.20	0.26	1.28	0.28	0.03 - 7.20
Styrene	1.66	0.42	0.69*	1.38	0.97	0.03 - 20.0
m,p-Dichlorobenzene	5.15	1.51	1.21	1.40	1.70	0.04 - 190.
Ethylbenzene	3.86	1.09	0.88	1.42	1.90	0.03 - 30.0
o-Xylene	5.46	2.08	1.11	1.39	1.90	0.02 - 59.0
m,p-Xylene	8.72	2.60	1.67	1.41	2.40	0.03 - 81.0

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

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Table 300. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

BREATH - LOW
Population Estimate: 50,500
Sample Size Range: 37-62

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	5.92	1.87	0.90	1.60	0.58	0.08 - 38.0
1,1,1-Trichloroethane	17.0	8.85	1.73	1.70	2.04	0.07 - 900.
Carbon Tetrachloride	0.47	0.18	0.21	1.15	0.16	0.09 - 9.60
Trichloroethylene	5.16	1.96	0.38	1.41	0.14	0.08 - 90.0
Tetrachloroethylene	10.2	2.91	2.23	1.45	3.40	0.06 - 175.
Chlorobenzene	0.57	0.16	0.18	1.25	0.10	0.02 - 7.70
Styrene	1.48	0.43	0.28	1.37	0.21	0.03 - 57.0
m,p-Dichlorobenzene	6.07	1.74	0.81	1.27	0.81	0.06 - 74.0
Ethylbenzene	5.76	2.14	0.33	1.48	0.91	0.02 - 120.
o-Xylene	6.48	2.49	0.41	1.45	0.08	0.03 - 150.
m,p-Xylene	12.0	4.19	0.92	1.49	1.60	0.03 - 240.

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

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Table 301. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

OVERNIGHT PERSONAL AIR - HIGH
Population Estimate: 21,300
Sample Size Range: 40-41

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	4.24	1.70	1.07	1.74	0.53	0.06 - 20.0
1,1,1-Trichloroethane	29.8	10.3	10.1	1.21	17.0	0.09 - 170.
Carbon Tetrachloride	1.08	0.10	0.86	1.16	1.20	0.13 - 2.00
Trichloroethylene	4.28	1.55	1.49	1.91	2.70	0.10 - 15.0
Tetrachloroethylene	6.46	0.80	2.64	1.38	5.70	0.08 - 34.0
Chlorobenzene	0.43	0.15	0.23	1.49	0.21	0.04 - 1.69
Styrene	1.53	0.09	1.05	1.11	1.40	0.02 - 5.70
m,p-Dichlorobenzene	30.1	7.96	4.20	1.34	2.30	0.46 - 270.
Ethylbenzene	4.96	0.62	3.27	1.10	4.50	0.03 - 25.0
o-Xylene	5.65	0.97	4.06	1.10	4.80	0.13 - 28.0
m,p-Xylene	14.1	2.34	9.83	1.11	11.0	0.03 - 68.0

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

Table 302. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

OVERNIGHT PERSONAL AIR - MODERATE
Population Estimate: 37,500
Sample Size Range: 40-45

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	4.40	1.44	1.44	1.67	2.10	0.06 - 18.5
1,1,1-Trichloroethane	22.8	3.08	12.8	1.29	14.0	0.09 - 86.0
Carbon Tetrachloride	1.49*	0.13	1.16	1.08	1.50	0.13 - 6.50
Trichloroethylene	5.22	1.74	1.88	1.29	2.30	0.09 - 59.0
Tetrachloroethylene	9.57	1.45	5.29	1.30	5.30	0.07 - 98.0
Chlorobenzene	0.67	0.10	0.42	1.19	0.39	0.04 - 5.20
Styrene	1.82	0.17	1.27	1.12	1.50	0.02 - 9.10
m,p-Dichlorobenzene	15.0	3.23	6.30	1.18	6.70	0.46 - 300.
Ethylbenzene	6.04	0.70	4.19	1.24	5.65	0.02 - 46.0
o-Xylene	6.55	0.78	4.85	1.22	6.20	0.02 - 54.0
m,p-Xylene	15.9	2.44	11.0	1.27	15.0	0.02 - 120.

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

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Table 303. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

OVERNIGHT PERSONAL AIR - LOW
Population Estimate: 50,600
Sample Size Range: 70

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	5.00	1.44	1.23	1.46	0.81	0.05 - 35.0
1,1,1-Trichloroethane	15.5	5.14	5.54	1.40	8.20	0.08 - 130.
Carbon Tetrachloride	1.13	0.13	0.86	1.14	1.20	0.11 - 7.20
Trichloroethylene	4.76	0.91	1.98	1.39	3.00	0.09 - 34.0
Tetrachloroethylene	9.69	1.61	4.61	1.34	6.10	0.07 - 50.0
Chlorobenzene	0.76	0.22	0.39	1.27	0.41	0.04 - 6.60
Styrene	2.25*	0.28	1.46*	1.13	1.30	0.02 - 10.0
m,p-Dichlorobenzene	81.3*	47.6	4.76	1.31	2.80	0.44 - 1550
Ethylbenzene	10.3	3.47	4.71	1.24	4.90	0.02 - 180.
o-Xylene	10.2	2.38	5.37	1.22	5.10	0.02 - 100.
m,p-Xylene	22.6	4.04	12.5	1.22	13.0	0.02 - 150.

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

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Table 304. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

DAYTIME PERSONAL AIR - HIGH
Population Estimate: 19,600
Sample Size Range: 34

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	3.89	1.45	0.86	1.57	0.23	0.09 - 24.0
1,1,1-Trichloroethane	27.6	19.6	4.10	1.53	2.50	0.08 - 360.
Carbon Tetrachloride	0.66	0.15	0.55	1.23	0.38	0.11 - 1.90
Trichloroethylene	3.61	0.70	1.67	1.17	3.00	0.11 - 29.0
Tetrachloroethylene	9.78	4.54	2.59	1.60	3.50	0.19 - 75.0
Chlorobenzene	0.68	0.29	0.33	1.51	0.23	0.05 - 6.40
Styrene	1.99	0.85	1.06	1.65	0.81	0.03 - 10.0
m,p-Dichlorobenzene	16.5	7.26	3.42	1.59	2.00	0.08 - 230.
Ethylbenzene	10.5	6.82	3.35	1.88	4.10	0.03 - 100.
o-Xylene	11.9	7.18	4.54	1.62	5.05	0.03 - 110.
m,p-Xylene	25.7	14.3	10.1	1.69	13.0	0.03 - 210.

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

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Table 305. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

DAYTIME PERSONAL AIR - MODERATE
Population Estimate: 37,800
Sample Size Range: 41-44

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	3.89	1.21	0.91	1.18	0.80	0.12 - 29.0
1,1,1-Trichloroethane	40.4	16.9	8.31	1.50	13.0	0.09 - 300.
Carbon Tetrachloride	0.68	0.08	0.53	1.07	0.42	0.15 - 2.90
Trichloroethylene	8.27	3.56	2.66	1.81	3.10	0.12 - 57.0
Tetrachloroethylene	13.4	3.90	4.06	1.60	5.05	0.10 - 61.0
Chlorobenzene	0.57	0.11	0.30	1.11	0.23	0.05 - 2.80
Styrene	1.87	0.27	1.08	1.26	1.25	0.03 - 10.0
m,p-Dichlorobenzene	8.51	1.82	3.06	1.15	3.10	0.03 - 270.
Ethylbenzene	6.40	1.20	3.09	1.34	5.50	0.03 - 67.0
o-Xylene	7.51	1.51	3.61	1.34	5.90	0.03 - 43.5
m,p-Xylene	16.7	3.38	6.63	1.57	14.0	0.03 - 100.

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

000291

Table 306. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

DAYTIME PERSONAL AIR - LOW
Population Estimate: 52,100
Sample Size Range: 67-68

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	3.87	0.60	1.01	1.28	0.75	0.06 - 140.
1,1,1-Trichloroethane	409.	407.	3.80	1.44	5.50	0.08 - 49,000
Carbon Tetrachloride	0.65	0.05	0.49	1.11	0.38	0.13 - 7.10
Trichloroethylene	9.15	2.99	2.29	1.23	2.40	0.09 - 120.
Tetrachloroethylene	13.0	2.07	4.88	1.24	6.40	0.07 - 240.
Chlorobenzene	0.63	0.12	0.35	1.21	0.31	0.04 - 4.80
Styrene	2.46	0.69	1.09	1.19	1.31	0.02 - 150.
m,p-Dichlorobenzene	94.2	72.7	3.42	1.26	2.00	0.18 - 2,600
Ethylbenzene	13.6	5.32	3.17	1.25	4.70	0.02 - 579.
o-Xylene	23.3	9.81	3.98	1.22	4.50	0.02 - 1,800
m,p-Xylene	94.0	48.7	9.37	1.24	12.0	0.02 - 10,000

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

Table 307. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

OVERNIGHT OUTDOOR AIR - HIGH
Population Estimate: 27,300
Sample Size Range: 10-18

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	22.1	8.21	1.11	2.34	0.09	0.06 - 130.
1,1,1-Trichloroethane	12.7	4.04	5.41	1.35	6.90	0.10 - 51.0
Carbon Tetrachloride	0.94	0.13	0.69	1.15	0.61	0.10 - 3.20
Trichloroethylene	5.30	3.00	0.89	2.06	0.69	0.10 - 27.0
Tetrachloroethylene	2.71	1.15	0.93	1.52	1.80	0.05 - 18.0
Chlorobenzene	0.41	0.14	0.16	1.40	0.13	0.02 - 2.70
Styrene	0.24	0.10	0.10	1.44	0.10	0.02 - 1.20
m,p-Dichlorobenzene	1.30	0.15	0.98	1.21	1.20	0.22 - 2.70
Ethylbenzene	2.12	0.85	1.01	1.54	1.50	0.02 - 7.30
o-Xylene	2.53	0.70	1.46	1.36	2.30	0.02 - 6.70
m,p-Xylene	7.18	2.23	3.31	1.52	7.80	0.02 - 22.0

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

Table 308. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

OVERNIGHT OUTDOOR AIR - MODERATE
Population Estimate: 33,300
Sample Size Range: 15-21

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	7.46	4.62	0.32	1.91	0.08	0.05 - 89.0
1,1,1-Trichloroethane	7.84	2.46	1.71	2.54	4.70	0.07 - 46.5
Carbon Tetrachloride	0.94	0.29	0.49	1.63	0.47	0.08 - 5.40
Trichloroethylene	4.72	2.69	0.52	1.78	0.46	0.07 - 61.0
Tetrachloroethylene	3.36	1.25	0.94	1.61	1.10	0.04 - 22.0
Chlorobenzene	0.50	0.13	0.25	1.54	0.40	0.02 - 2.89
Styrene	0.76*	0.29	0.30	1.45	0.46	0.02 - 7.50
m,p-Dichlorobenzene	1.02	0.03	0.77	1.13	1.00	0.21 - 6.60
Ethylbenzene	2.77	0.31	1.37	1.58	2.50	0.02 - 7.40
o-Xylene	3.51	0.38	1.67	1.65	3.40	0.02 - 8.10
m,p-Xylene	9.36	1.06	4.15	1.78	10.0	0.02 - 20.5

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

Table 309. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

OVERNIGHT OUTDOOR AIR - LOW
Population Estimate: 48,900
Sample Size Range: 23-32

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	12.9	5.73	0.49	1.97	0.08	0.06 - 98.0
1,1,1-Trichloroethane	11.4	3.36	3.47	1.54	4.20	0.07 - 46.0
Carbon Tetrachloride	1.20	0.22	0.77	1.23	0.69	0.08 - 4.80
Trichloroethylene	11.2	3.73	1.87	1.66	2.80	0.06 - 44.0
Tetrachloroethylene	5.12	1.32	1.81	1.55	4.00	0.05 - 26.0
Chlorobenzene	1.15*	0.31	0.43	1.34	0.46	0.02 - 6.30
Styrene	0.68	0.11	0.40*	1.32	0.56	0.02 - 11.0
m,p-Dichlorobenzene	1.68*	0.28	1.26	1.22	1.43	0.09 - 7.60
Ethylbenzene	4.76	1.18	2.13	1.52	3.10	0.03 - 28.0
o-Xylene	5.92	1.58	2.42	1.57	4.10	0.02 - 31.0
m,p-Xylene	14.9	3.50	6.61	1.57	15.0	0.03 - 65.0

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

Table 310. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

DAYTIME OUTDOOR AIR - HIGH
Population Estimate: 28,200
Sample Size Range: 10-18

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	16.7	12.4	1.03	1.93	0.14	0.09 - 95.0
1,1,1-Trichloroethane	14.6	4.15	7.16	1.32	13.0	0.14 - 45.0
Carbon Tetrachloride	1.07	0.20	0.71	1.21	0.69	0.14 - 4.30
Trichloroethylene	4.96	3.25	0.54	2.15	0.16	0.11 - 30.0
Tetrachloroethylene	5.58	1.77	1.65	1.49	3.40	0.06 - 19.0
Chlorobenzene	0.52	0.07	0.25	1.13	0.18	0.03 - 4.60
Styrene	0.87	0.34	0.35	1.54	0.62	0.02 - 6.30
m,p-Dichlorobenzene	1.65	0.55	0.79	1.46	1.19	0.06 - 13.0
Ethylbenzene	3.63	1.18	1.23	1.16	1.60	0.03 - 39.0
o-Xylene	3.08	0.79	1.30	1.08	1.40	0.03 - 19.0
m,p-Xylene	9.95	2.29	4.27	1.19	5.90	0.03 - 47.0

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

000296

Table 311. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

DAYTIME OUTDOOR AIR - MODERATE
Population Estimate: 30,600
Sample Size Range: 14-19

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	15.1	8.72	0.66	2.61	0.13	0.07 - 97.0
1,1,1-Trichloroethane	14.1	8.89	2.50	2.44	3.10	0.12 - 76.0
Carbon Tetrachloride	0.79	0.23	0.53	1.41	0.75	0.12 - 2.00
Trichloroethylene	8.08	6.33	0.65	2.41	0.16	0.08 - 79.0
Tetrachloroethylene	10.9	7.65	1.42	1.76	1.90	0.06 - 95.0
Chlorobenzene	0.72	0.37	0.24	1.74	0.16	0.03 - 4.30
Styrene	0.84	0.57	0.26	1.75	0.18	0.03 - 4.90
m,p-Dichlorobenzene	0.94	0.17	0.70	1.15	0.84	0.06 - 5.90
Ethylbenzene	2.39	0.98	0.85	1.55	1.90	0.03 - 16.0
o-Xylene	2.42	1.00	0.88	1.53	1.70	0.03 - 13.0
m,p-Xylene	6.98	2.70	1.92	1.70	5.30	0.03 - 34.0

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

Table 312. WEIGHTED SUMMARY STATISTICS BY PROXIMITY TO POINT SOURCE AND MEDIA - NEW JERSEY SECOND SEASON

DAYTIME OUTDOOR AIR - LOW
Population Estimate: 50,700
Sample Size Range: 23-31

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Range
Chloroform	12.6	7.49	0.53	1.67	0.12	0.07 - 230.
1,1,1-Trichloroethane	14.3	5.19	3.19	2.12	7.20	0.09 - 78.0
Carbon Tetrachloride	1.13	0.33	0.72	1.34	0.75	0.12 - 5.10
Trichloroethylene	9.24	4.49	1.21	1.61	1.10	0.09 - 106.
Tetrachloroethylene	8.65	3.52	2.80	1.68	4.40	0.07 - 74.0
Chlorobenzene	1.05	0.50	0.39	1.39	0.44	0.03 - 11.7
Styrene	0.71	0.29	0.31	1.46	0.42	0.02 - 4.00
m,p-Dichlorobenzene	1.26	0.49	0.66	1.37	0.94	0.08 - 6.85
Ethylbenzene	3.00	0.50	1.45	1.44	2.80	0.03 - 8.55
o-Xylene	3.15	0.67	1.52	1.46	2.30	0.03 - 13.6
m,p-Xylene	8.72	1.75	3.89	1.49	5.80	0.03 - 36.0

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of weighted mean of LN(x).
* Arithmetic or geometric means significantly different between proximity at .05 level (pairwise t-test).

THIRD SEASON

The third and final TEAM sample for Bayonne and Elizabeth, New Jersey, was conducted in January and February of 1983 when 49 people were studied. The group consisted of a subsample of the individuals who participated in the study during the first two seasons and represented a population of approximately 94,000. The following tables are an analysis of information obtained in the third season study.

To gain insight into possible sources of exposure to the compounds, the 24-hour exposure and activity screener was again administered at the end of the 24-hour study period. Table 313 gives a summary of the responses to the screener. As before, smoke and tobacco, service stations, odorous chemicals and cleaning solutions accounted for the most sources of potential exposure.

Table 314 shows the sample size ranges for Bayonne and Elizabeth for each media for the third season. Fixed outdoor sites were not set up at each home but only at one home per sample segment. Due to the small number of outdoor fixed air sites, no by city analyses were done for this media.

Tables 315 through 319 give the minimum and maximum quantifiable limits, the ratio of maximum quantifiable limit to minimum quantifiable limit, percent above the maximum quantifiable limit, and percent measurable for breath and the airs. Generally there were no large differences between the minimum and maximum quantifiable limits as reflected in the ratio of max QL to min QL. Some exceptions were 1,2-dichloroethane and chlorobenzene for overnight personal air and 1,1,1-trichloroethane for daytime personal air. However, some compounds with moderate ratios such as styrene for breath and bromodichloromethane for overnight personal air showed relatively large differences between percent above the maximum quantifiable limit and the percent measurable. In general, the ratios were smaller than for first and second seasons. The quantifiable limits for water (see Table 320) were constant for each compound.

Percent Measurable

Table 321 shows the weighted percentage of compound concentrations measurable by media and compound. Overall, the patterns for breath and the airs were somewhat similar while the pattern for water was different. Generally, the percentages for personal air were the same or higher than

000289

NOTES TO TABLES 313 TO 359

1. The terms daytime outdoor air and overnight outdoor air refer to samples collected during the day and during the night from fixed sites outside the participants' homes.

2. Toluene was not measured in breath, air or water samples. Dibromochloropropane, o-dichlorobenzene, and o-xylene were not measured in water.

3. Sample size indicates the number of individual samples. The minimum and maximum sample sizes indicate that not all compounds always had a value for every individual sampled.

4. Duplicate measurements were averaged before the percentages were computed.

5. Percentages in the tables are population estimates (i.e., they are weighted statistics). The estimated population is for persons living in Bayonne or Elizabeth excluding those on military reservations or living in group quarters, people under seven years of age, the mentally or physically incompetent (including many people over 65), and those who changed key categories (i.e., whose who went from smoker to non-smoker, changed occupational exposure status, etc.).

6. Measurable is defined as above the quantifiable limits. All concentration data is considered significant to two figures.

7. Approximate population sizes vary due to differences in sample sizes.

8. New Jersey third season was January and February of 1983.

9. To calculate an estimate of a 95% confidence interval for the geometric mean, the upper limit would be (geo. mean) x (geo. s.e.)^2 and the lower limit would be (geo. mean) ÷ (geo. s.e.)^2, where geo. mean is the geometric mean and geo. s.e. is the geometric standard error. To obtain a more accurate estimate, use 1.96 instead of 2.

Table 313. 24-HOUR EXPOSURE AND ACTIVITY SCREENER - NEW JERSEY THIRD SEASON

1.	Have you pumped your own gas in the past 24 hours?	Yes	1
		No	48
2.	Have you been to a dry cleaning establishment in the past 24 hours?	Yes	1
		No	48
3.	Have you done your own dry cleaning in the past 24 hours?	Yes	0
		No	49
4.	Have you used tobacco in any form in the past 24 hours?	Yes	26
		No	23

Which of the following forms of tobacco did you use?

cigarettes	25
cigars	1
snuff	-
chewing tobacco	-
pipe	-

5.	Have you remained in close contact with smokers for extended periods?	Yes	29
		No	20
6.	Have you used or worked with insecticides, pesticides, or herbicides in any way including farming, gardening, and extermination in the past 24 hours?	Yes	1
		No	48
8.	Have you been swimming in the past 24 hours?	Yes	0
		No	49

9. Have you worked any any of the following occupations or been in any of the following businesses during the past week?

	Past Week	Past 24 Hrs
Painting	6	3
Dry cleaning	7	1
Chemical plant	5	2
Petroleum plant	4	1
Service station/garage/engine repair	25	11
Furniture refinishing or repair	1	1
Plastics manufacture or formation	1	1
Textile mill	0	0
Wood processing plant	3	2
Printing	1	1
Scientific laboratory	5	5
Dye plant	0	0
Hospital	7	3
Metal work/smelter	3	2
None	10	7

continued

Table 313 (continued)

10. Have you been exposed to any of the following during the past week?

	Past Week	Past 24 Hrs
Solvents	12	6
Odorous chemicals	25	13
Toxic or hazardous chemicals	4	1
High dust or particulate levels	14	8
Auto/truck exhausts	11	6
Cleaning solutions	22	10
Degreasing compounds	5	4
Other	6	4

Table 314. DATA AVAILABLE FOR STATISTICAL ANALYSIS BY MEDIA - NEW JERSEY THIRD SEASON

Media	Sample Size Ranges a/		
	Bayonne	Elizabeth	Combined
Breath	22	27	49
Overnight Personal Air	22	27	49
Daytime Personal Air	21	26	47
Overnight Fixed Site Outdoor Air	5	4	9
Daytime Fixed Site Outdoor Air	4	4	8
Water	22	27	49

a/ For 20 volatile organics.

Table 315. SUMMARY OF QUANTIFIABLE LIMITS FOR BREATH SAMPLES ($\mu g/m^3$) - NEW JERSEY THIRD SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	Percent Above a/ Max QL	Percent Measurable
Vinylidene Chloride	6.60	9.60	1.45	94.9	94.9
Chloroform	0.39	0.64	1.64	17.8	24.8
1,2-Dichloroethane	0.60	0.96	1.60	0.00	0.00
1,1,1-Trichloroethane	1.40	2.20	1.57	50.8	62.6
Benzene	0.31	0.31	1.00	99.8	99.8
Carbon Tetrachloride	0.96	1.56	1.63	0.00	0.00
Trichloroethylene	0.40	0.96	2.39	18.6	34.2
Bromodichloromethane	0.78	1.24	1.59	0.00	0.32
Dibromochloromethane	1.16	1.88	1.62	0.00	0.00
Toluene b/	----	----	----	----	----
Tetrachloroethylene	---- c/	----	----	----	----
Chlorobenzene	0.20	0.31	1.55	15.8	100.
Bromoform	0.96	1.56	1.63	0.00	28.7
Dibromochloropropane	0.96	1.56	1.63	0.00	0.00
Styrene	0.20	0.31	1.55	29.7	0.00
m,p-Dichlorobenzene	0.21	0.28	1.33	91.2	63.0
o-Dichlorobenzene	0.15	0.31	2.06	0.60	91.2
Ethylbenzene	---- c/	----	----	----	1.72
o-Xylene	---- c/	----	----	----	100.
m,p-Xylene	---- c/	----	----	----	100.
					100.

a/ The percentage of concentrations above the maximum quantifiable limit.
b/ Toluene was not measured.
c/ 100% measurable.

Table 316. SUMMARY OF QUANTIFIABLE LIMITS FOR OVERNIGHT PERSONAL AIR SAMPLES ($\mu g/m^3$)
NEW JERSEY THIRD SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	Percent Above Max QL [a/]	Percent Measurable
Vinylidene Chloride	8.44	17.2	2.04	2.63	2.63
Chloroform	0.36	0.38	1.06	82.0	82.0
1,2-Dichloroethane	0.33	1.66	5.08	5.17	18.0
1,1,1-Trichloroethane	0.55	0.61	1.11	92.3	92.3
Benzene	0.20	0.20	1.00	97.0	97.0
Carbon Tetrachloride	0.52	1.15	2.22	22.9	25.6
Trichloroethylene	0.56	0.92	1.64	76.9	78.7
Bromodichloromethane	0.60	1.82	3.03	0.74	23.9
Dibromochloromethane	0.60	1.48	2.47	0.00	0.00
Toluene b/	----	----	----	----	----
Tetrachloroethylene	0.87	1.10	1.26	91.5	92.0
Chlorobenzene	0.19	0.90	4.74	0.37	23.0
Bromoform	0.76	1.24	1.63	0.00	0.00
Dibromochloropropane	0.76	2.94	3.87	0.00	0.00
Styrene	0.35	0.48	1.37	80.9	88.3
m,p-Dichlorobenzene	0.35	0.35	1.00	89.7	89.7
o-Dichlorobenzene	0.19	0.50	2.60	12.6	20.4
Ethylbenzene	---- c/	----	----	----	100.
o-Xylene	---- c/	----	----	----	100.
m,p-Xylene	---- c/	----	----	----	100.

a/ Percent of compound concentrations above maximum quantifiable limit.
b/ Toluene was not measured.
c/ 100% measurable.

Table 317. SUMMARY OF QUANTIFIABLE LIMITS FOR DAYTIME PERSONAL AIR SAMPLES ($\mu g/m^3$)
NEW JERSEY THIRD SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	Percent Above Max QL [a]	Percent Measurable
Vinylidene Chloride	8.40	25.0	2.98	8.74	9.25
Chloroform	0.47	0.80	1.70	84.2	91.9
1,2-Dichloroethane	0.40	1.20	3.01	14.1	22.4
1,1,1-Trichloroethane	0.68	2.80	4.12	91.4	99.1
Benzene	---- c/	----	----	----	100.
Carbon Tetrachloride	0.60	1.40	2.35	16.4	18.9
Trichloroethylene	0.83	1.80	2.17	46.4	61.7
Bromodichloromethane	0.84	1.80	2.14	7.52	7.52
Dibromochloromethane	0.80	2.40	3.00	0.00	0.00
Toluene b/	----	----	----	----	----
Tetrachloroethylene	1.20	1.36	1.13	9.26	92.6
Chlorobenzene	0.21	0.72	3.43	1.20	5.80
Bromoform	0.91	2.08	2.29	0.00	0.88
Dibromochloropropane	0.91	2.48	2.73	0.00	1.09
Styrene	0.54	0.57	1.06	91.3	91.3
m,p-Dichlorobenzene	0.43	0.72	1.67	90.8	90.8
o-Dichlorobenzene	0.21	0.72	3.43	9.24	19.4
Ethylbenzene	---- c/	----	----	----	100.
o-Xylene	---- c/	----	----	----	100.
m,p-Xylene	---- c/	----	----	----	100.

a/ Percent of compound concentrations above maximum quantifiable limit.
b/ Toluene was not measured.
c/ 100% measurable.

Table 318. SUMMARY OF QUANTIFIABLE LIMITS FOR OVERNIGHT OUTDOOR AIR SAMPLES ($\mu g/m^3$)
NEW JERSEY THIRD SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	a/ Percent Above Max QL	Percent Measurable
Vinylidene Chloride	4.40	5.00	1.14	1.29	1.29
Chloroform	0.22	0.44	2.00	4.49	4.49
1,2-Dichloroethane	0.48	0.76	1.58	0.00	0.00
1,1,1-Trichloroethane	1.10	1.30	1.18	54.0	54.0
Benzene	---- c/	----	----	----	100.
Carbon Tetrachloride	0.58	1.28	2.20	0.00	0.00
Trichloroethylene	0.48	0.77	1.60	0.00	19.1
Bromodichloromethane	0.60	1.04	1.73	0.00	0.00
Dibromochloromethane	0.92	1.52	1.65	0.00	0.00
Toluene b/	----	----	----	----	----
Tetrachloroethylene	0.31	0.32	1.04	81.6	81.6
Chlorobenzene	0.16	0.26	1.67	3.97	21.2
Bromoform	0.76	1.28	1.68	0.00	0.00
Dibromochloropropane	0.76	1.28	1.68	0.00	0.00
Styrene	---- c/	----	----	----	100.
m,p-Dichlorobenzene	---- c/	----	----	----	100.
o-Dichlorobenzene	0.15	0.26	1.73	33.6	33.6
Ethylbenzene	---- c/	----	----	----	100.
o-Xylene	---- c/	----	----	----	100.
m,p-Xylene	---- c/	----	----	----	100.

a/ Percent of compound concentrations above maximum quantifiable limit.
b/ Toluene was not measured.
c/ 100% measurable.

000306

Table 319. SUMMARY OF QUANTIFIABLE LIMITS FOR DAYTIME OUTDOOR AIR SAMPLES ($\mu g/m^3$)
NEW JERSEY THIRD SEASON

	Minimum Quantifiable Limit	Maximum Quantifiable Limit	Max QL / Min QL	Percent Above Max QL a/	Percent Measurable
Vinylidene Chloride	5.60	6.00	1.07	1.29	1.29
Chloroform	0.32	0.68	2.10	31.4	33.7
1,2-Dichloroethane	0.48	1.00	2.08	0.00	0.00
1,1,1-Trichloroethane	1.10	2.40	2.18	33.7	33.7
Benzene	---- c/	----	----	----	100.
Carbon Tetrachloride	0.81	1.70	2.10	0.00	0.00
Trichloroethylene	0.41	1.00	2.43	0.00	32.7
Bromodichloromethane	0.64	1.36	2.13	0.00	0.00
Dibromochloromethane	0.96	2.04	2.13	0.00	0.00
Toluene b/	----	----	----	----	----
Tetrachloroethylene	---- c/	----	----	0.00	100.
Chlorobenzene	0.14	0.34	2.51	0.00	32.7
Bromoform	0.80	1.68	2.10	0.00	0.00
Dibromochloropropane	0.20	1.68	2.10	0.00	0.00
Styrene	0.20	0.20	1.00	86.2	86.2
m,p-Dichlorobenzene	0.14	0.29	1.45	52.9	52.9
o-Dichlorobenzene	---- c/	0.34	2.51	0.00	1.29
Ethylbenzene	---- c/	----	----	----	100.
o-Xylene	---- c/	----	----	----	100.
m,p-Xylene	---- c/	----	----	----	100.

a/ Percent of compound concentrations above maximum quantifiable limit.
b/ Toluene was not measured.
c/ 100% measurable.

Table 320. SUMMARY OF QUANTIFIABLE LIMITS FOR WATER SAMPLES (ng/mL)
NEW JERSEY THIRD SEASON

	Quantifiable Limits a/	Percent Measurable
Vinylidene Chloride	0.05	43.5
Chloroform	---- c/	100.
1,2-Dichloroethane	0.50	0.52
1,1,1-Trichloroethane	0.05	49.5
Benzene	0.50	0.00
Carbon Tetrachloride	0.05	18.0
Trichloroethylene	0.05	47.8
Bromodichloromethane	---- c/	100.
Dibromochloromethane	0.10	92.6
Toluene	---- b/	----
Tetrachloroethylene	0.05	49.0
Chlorobenzene	0.10	0.52
Bromoform	0.50	3.38
Dichlorochloropropane	---- b/	----
Styrene	0.50	0.00
m,p-Dichlorobenzene	0.10	3.39
o-Dichlorobenzene	---- b/	----
Ethylbenzene	0.50	0.00
o-Xylene	---- b/	----
m,p-Xylene	0.50	0.00

a/ Quantifiable limits were constant for each compound.
b/ Was not measured.
c/ 100% measurable.

000308

Table 321. WEIGHTED PERCENT MEASURABLE - NEW JERSEY THIRD SEASON

Estimated Population Size: 94,044

Sample Size:	49	49	47	9	8	49
	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air	Water
Vinylidene Chloride	94.9	2.63	9.25	1.29	1.29	43.5
Chloroform	24.8	82.0	91.9	4.49	33.7	100.
1,2-Dichloroethane	0.00	18.0	22.4	0.00	0.00	0.52
1,1,1-Trichloroethane	62.6	92.3	99.1	54.0	33.7	49.5
Benzene	99.8	97.0	100.	100.	100.	0.00
Carbon Tetrachloride	0.00	25.6	18.9	0.00	0.00	18.0
Trichloroethylene	34.2	78.7 *	61.7	19.1	32.7	47.8
Bromodichloromethane	0.32	23.9	7.52	0.00	0.00	100.
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	92.6
Toluene	----	----	----	----	----	----
Tetrachloroethylene	100.	92.0	92.6	81.6	100.	49.0
Chlorobenzene	28.7	23.0	5.80	21.2	32.7	0.52
Bromoform	0.00	0.00	0.88	0.00	0.00	3.38
Dibromochloropropane	0.00	0.00	1.09	0.00	0.00	----
Styrene	63.0	88.3	91.3	100.	86.2	0.00
m,p-Dichlorobenzene	91.2	89.7	90.8	100.	52.9	3.39
o-Dichlorobenzene	1.72	20.4	19.4	33.6	1.29	----
Ethylbenzene	100.	100.	100.	100.	100.	0.00
o-Xylene	100.	100.	100.	100.	100.	----
m,p-Xylene	100.	100.	100.	100.	100.	0.00

* T-test for difference in percent measurable between overnight and daytime significant at .05 level.

000309

those for breath or outdoor air. One notable exception was vinylidene chloride which showed a very high percentage for breath and low percentages for the airs. Compounds showing high percentages were benzene, tetrachloroethylene, styrene, m,p-dichlorobenzene, ethylbenzene, o-xylene, and m,p-xylene for breath and the airs and chloroform, bromodichloromethane, and dibromochloromethane for water. Tables 322 and 323 present a summary of compounds and their frequency of appearance for breath and the airs and for water, respectively.

Table 324 shows the percent measurable by media by city. Due to small sample sizes the percent measurable by city for outdoor air is not shown. Significant differences between the two cities were found for chloroform in overnight personal air and for 1,2-dichloroethane in daytime personal air. In both cases Bayonne had the higher percentage. However for water Elizabeth was significantly higher for vinylidene chloride, 1,1,1-trichloroethane, trichloroethylene and tetrachloroethylene. Generally in those compounds where there was a difference in percent measurable Bayonne was higher for breath and personal air while Elizabeth tended to show higher percentages in water.

Summary Statistics

Tables 325 through 330 give weighted summary statistics by media for ubiquitous and often present compounds (see Tables 322 and 323). Due to the small sample sizes for outdoor air, care should be used in interpreting the data. Summary statistics given are median quantifiable limit, arithmetic mean, arithmetic standard error, geometric mean, geometric standard error, median, percentiles, and range. The standard error given with the geometric mean is not a measure of the precision of the mean but is to be used to easily construct confidence intervals. Generally the arithmetic mean was larger than the geometric mean and median indicating the presents of relatively large maximum values. For breath (see Table 325) tetrachloroethylene had relatively high summary statistics. In addition, 1,1,1-trichloroethane and tetrachloroethylene had relatively large ranges. For overnight personal air (see Table 326) 1,1,1-trichloroethane, m,p-dichlorobenzene and m,p-xylene had relatively high arithmetic means. 1,1,1-trichloroethane and m,p-xylene had higher geometric means and medians while m,p-dichlorobenzene had by far the highest maximum value. For daytime personal air (see Table 327) 1,1,1-

Table 322. TARGET COMPOUNDS SORTED BY PERCENT MEASURABLE IN BREATH AND AIR SAMPLES - NEW JERSEY THIRD SEASON

	Range of % Measurable
Ubiquitous Compounds	
Tetrachloroethylene	82 - 100
Styrene	62 - 91
m,p-Dichlorobenzene	53 - 100
Ethylbenzene	100
o-Xylene	100
m,p-Xylene	100
Benzene	97 - 100
Often Present	
Chloroform	4 - 92
1,1,1-Trichloroethane	33 - 99
Trichloroethylene	19 - 79
Occasionally Found	
Vinylidene Chloride	1 - 95
1,2-Dichloroethane	0 - 22
Carbon Tetrachloride	0 - 26
Bromodichloromethane	0 - 24
Chlorobenzene	6 - 33
Bromoform	0 - 1
Dibromochloropropane	0 - 1
o-Dichlorobenzene	1 - 34
Never Found	
Dibromochloromethane	0

000311

Table 323. TARGET COMPOUNDS SORTED BY PERCENT MEASURABLE IN WATER SAMPLES - NEW JERSEY THIRD SEASON

	% Measurable
Ubiquitous Compounds	
Chloroform	100
Bromodichloromethane	100
Dibromochloromethane	93
Often Present	
Vinylidene Chloride	43
1,1,1-Trichloroethane	50
Trichloroethylene	48
Tetrachloroethylene	49
Occasionally Found	
1,2-Dichloroethane	1
Carbon Tetrachloride	18
Bromoform	3
Chlorobenzene	1
m,p-Dichlorobenzene	3
Never Found	
Styrene	0
Ethylbenzene	0
m,p-Xylene	0

000312

Table 324. WEIGHTED PERCENT MEASURABLE BY SITE - NEW JERSEY THIRD SEASON

Estimated Population Sizes: Bayonne - 48,503
Elizabeth - 45,541

	Breath		Overnight Personal Air		Daytime Personal Air		Water	
	Bayonne	Elizabeth	Bayonne	Elizabeth	Bayonne	Elizabeth	Bayonne	Elizabeth
Sample Size	22	27	22	27	21	26	22	27
Vinylidene Chloride	97.6	92.1	0.00	5.43	0.90	18.2	13.6	75.4 *
Chloroform	33.7	15.2	100. *	62.9	98.5	84.8	100.	100.
1,2-Dichloroethane	0.00	0.00	30.6	4.44	41.3 *	2.30	1.02	0.00
1,1,1-Trichloroethane	61.6	63.8	100.	84.2	99.2	99.0	24.8	75.7 *
Benzene	----	----	----	----	----	----	0.00	0.00
Carbon Tetrachloride	0.00	0.00	26.8	24.4	26.3	10.9	12.1	24.2
Trichloroethylene	26.7	42.2	96.0	60.2	66.6	56.4	1.02	97.7 *
Bromodichloromethane	0.00	0.67	39.0	7.92	14.3	0.34	100.	100.
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00	85.7	100.
Toluene	----	----	----	----	----	----	----	----
Tetrachloroethylene	100.	100.	98.6	84.8	86.4	99.3	1.02	100. *
Chlorobenzene	31.2	26.1	22.5	23.5	4.61	7.07	1.02	0.00
Bromoform	0.00	0.00	0.00	0.00	0.00	1.82	0.00	6.98
Dibromochloropropane	0.00	0.00	0.00	0.00	2.11	0.00	----	----
Styrene	76.3	48.8	98.6	77.2	97.4	84.8	0.00	0.00
m,p-Dichlorobenzene	98.1	83.8	86.4	93.3	99.3	81.7	0.72	6.23
o-Dichlorobenzene	2.70	0.67	21.3	19.4	19.6	19.3	----	----
Ethylbenzene	100.	100.	100.	100.	100.	100.	0.00	0.00
o-Xylene	100.	100.	100.	100.	100.	100.	----	----
m,p-Xylene	100.	100.	100.	100.	100.	100.	0.00	0.00

* T-test for difference between cities significant at .05 level.

000213

Table 325. WEIGHTED SUMMARY STATISTICS FOR BREATH ($\mu g/m^3$) NEW JERSEY THIRD SEASON

Sample Size = 49	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Arith. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	0.48	0.34	0.11	0.16	1.26	0.07	0.35	0.67	1.90	0.05 - 3.60
1,1,1-Trichloroethane	1.60	4.01	0.88	1.92	1.23	2.30	4.10	9.80	11.0	0.19 - 300.
Trichloroethylene	0.64	0.55	0.12	0.26	1.27	0.12	0.82	1.80	1.80	0.08 - 5.50
Tetrachloroethylene	---- e/	10.6	2.66	5.94	1.28	4.50	11.0	27.0	45.0	1.20 - 170.
Styrene	0.23	0.67	0.20	0.35	1.29	0.24	0.43	2.00	3.50	0.13 - 6.60
m,p-Dichlorobenzene	0.28	6.25	2.14	1.81	1.37	1.20	8.20	17.0	43.0	0.13 - 43.0
Ethylbenzene	---- e/	2.14	0.55	1.41	1.18	1.30	1.80	3.85	11.0	0.36 - 24.0
o-Xylene	---- e/	1.63	0.34	1.17	1.16	0.98	1.60	2.70	6.90	0.31 - 25.0
m,p-Xylene	---- e/	4.70	1.05	3.40	1.16	3.00	4.20	8.10	21.0	0.85 - 53.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.

Table 326. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR ($\mu g/m^3$) - NEW JERSEY THIRD SEASON

Sample Size = 49

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	0.38	4.01	0.96	1.96	1.39	2.20	6.15	12.0	15.5	0.23 - 15.5
1,1,1-Trichloroethane	0.61	31.1	7.96	14.4	1.48	17.5	38.0	86.0	120.	0.34 - 200.
Trichloroethylene	0.68	3.05	0.89	1.34	1.39	1.50	3.20	5.40	7.10	0.07 - 41.0
Tetrachloroethylene	0.87	13.3	4.84	6.38	1.44	6.60	20.0	36.0	72.0	0.54 - 72.0
Styrene	0.35	2.16	0.52	1.25	1.23	1.30	2.80	4.50	11.0	0.22 - 11.0
m,p-Dichlorobenzene	0.35	53.6	25.4	5.51	1.61	4.20	12.0	140.	220.	0.22 - 570.
Ethylbenzene	---- e/	11.1	2.15	6.31	1.32	5.30	20.0	27.0	30.0	0.37 - 32.0
o-Xylene	---- e/	9.83	1.55	6.56	1.28	6.00	16.0	22.0	23.5	0.47 - 27.0
m,p-Xylene	---- e/	29.2	5.31	18.7	1.32	19.0	57.0	63.0	67.0	1.10 - 67.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between overnight and daytime significant at .05 level.

000315

Table 327. WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR ($\mu g/m^3$) - NEW JERSEY THIRD SEASON

Sample Size = 47	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	0.47	4.02	0.89	2.25	1.26	2.20	4.40	10.0	16.6	0.07 - 40.0
1,1,1-Trichloroethane	0.68	65.8	22.7	21.0	1.38	26.0	41.0	75.0	310.	0.09 - 8400
Trichloroethylene	1.12	6.30	2.42	2.07	1.56	1.65	7.10	15.0	29.0	0.14 - 53.0
Tetrachloroethylene	1.36	41.7	17.8	8.65	1.60	9.70	20.5	164.	230.	0.17 - 1800
Styrene	0.56	2.62	0.47	1.67*	1.19	1.70	3.70	4.00	5.40	0.34 - 130.
m,p-Dichlorobenzene	0.56	92.8	30.7	13.4	1.53	5.80	150.	200.	320.	0.27 - 770.
Ethylbenzene	----	e/ 14.1	3.34	8.01	1.30	8.20	17.0	26.0	47.5	0.95 - 310.
o-Xylene	----	e/ 16.8	3.97	9.38*	1.31	9.90	18.0	38.0	42.0	1.10 - 720.
m,p-Xylene	----	e/ 43.6	9.55	24.5	1.33	25.0	54.0	100.	122.	2.60 - 1400

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between overnight and daytime significant at .05 level.

000316

Table 328. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT OUTDOOR AIR ($\mu g/m^3$) - NEW JERSEY THIRD SEASON

Sample Size = 9	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	Range
Chloroform	0.33	0.09	0.05	0.05	1.16	0.04	0.06	0.04 - 1.20
1,1,1-Trichloroethane	1.16	1.35	0.45	0.74	1.73	1.40	1.90	0.15 - 10.0
Trichloroethylene	0.48	0.25	0.11	0.14	1.56	0.06	0.39	0.06 - 0.74
Tetrachloroethylene	0.32	1.86	0.71	0.85	2.00	1.30	3.30	0.04 - 5.20
Styrene	---- e/	0.64	0.12	0.55	1.22	0.53	1.00	0.24 - 1.00
m,p-Dichlorobenzene	---- e/	1.20	0.65	0.58	1.56	0.65	1.30	0.16 - 4.60
Ethylbenzene	---- e/	3.40	0.59	2.97	1.21	4.00	5.20	1.40 - 5.30
o-Xylene	---- e/	3.08	0.52	2.71	1.20	3.20	4.30	1.30 - 5.20
m,p-Xylene	---- e/	8.46	1.44	7.42	1.20	11.0	12.0	3.60 - 14.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between overnight and daytime significant at .05 level.

000317

Table 329. WEIGHTED SUMMARY STATISTICS FOR DAYTIME OUTDOOR AIR ($\mu g/m^3$) - NEW JERSEY THIRD SEASON

Sample Size = 8	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	Range
Chloroform	0.44	0.43	0.28	0.17	2.08	0.09	1.20	0.04 - 1.20
1,1,1-Trichloroethane	1.50	2.04	0.74	1.35	1.67	1.50	3.90	0.18 - 11.0
Trichloroethylene	0.64	0.45	0.17	0.29	1.77	0.63	0.78	0.06 - 0.97
Tetrachloroethylene	---- e/	7.58*	1.80	6.00*	1.32	8.00	14.0	1.30 - 14.0
Styrene	0.20	0.69	0.13	0.58	1.30	0.61	0.91	0.13 - 1.10
m,p-Dichlorobenzene	0.25	1.15	0.72	0.49	1.75	0.71	0.77	0.13 - 3.80
Ethylbenzene	---- e/	4.24	0.64	3.77	1.22	4.10	5.60	1.20 - 6.30
o-Xylene	---- e/	4.08*	0.75	3.54*	1.24	3.60	5.00	1.10 - 6.70
m,p-Xylene	---- e/	10.3 *	1.47	9.22	1.20	10.0	14.0	3.10 - 20.5

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between overnight and daytime significant at .05 level.

Table 330. WEIGHTED SUMMARY STATISTICS FOR WATER (ng/mL) - NEW JERSEY THIRD SEASON

Sample Size = 49	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Vinylidene Chloride	0.05	0.20	0.07	0.08	1.35	0.03	0.35	0.72	0.87	0.03 - 0.91
Chloroform	---- e/	17.2	1.76	13.8	1.24	16.0	24.4	26.4	29.6	0.75 - 32.7
1,1,1-Trichloroethane	0.05	0.21	0.05	0.09	1.19	0.03	0.32	0.76	0.80	0.03 - 1.64
Trichloroethylene	0.05	0.38	0.09	0.11	1.25	0.03	0.66	1.25	1.50	0.03 - 3.45
Bromodichloromethane	---- e/	5.40	0.72	4.39	1.24	5.80	7.06	8.34	8.34	0.35 - 16.1
Dibromochloromethane	0.10	1.38	0.13	1.11	1.24	1.55	1.82	1.99	2.06	0.06 - 3.02
Tetrachloroethylene	0.05	0.39	0.09	0.11	1.26	0.03	0.55	1.31	1.37	0.03 - 4.97

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.

000318

trichloroethane, tetrachloroethylene, m,p-dichlorobenzene and m,p-xylene showed relatively high arithmetic means. 1,1,1-trichloroethane and m,p-xylene had relatively high geometric means and medians. 1,1,1-trichloroethane, tetrachloroethylene and m,p-xylene showed relatively higher maximum values while m,p-dichlorobenzene showed the highest percentile values. The maximum values for daytime personal air were larger than those for overnight personal air. For overnight outdoor air (see Table 328) ethylbenzene, o-xylene, and m,p-xylene had the highest values for arithmetic mean, geometric mean, median, and 75th percentile. However, 1,1,1-trichloroethane and m,p-xylene exhibited the highest maximum values. For daytime outdoor air (see Table 329) tetrachloroethylene and m,p-xylene showed the highest summary statistics. Personal air statistics were consistantly higher than those for outdoor air. For water (see Table 330) chloroform and bromodichloromethane exhibited the highest summary statistics.

Tables 331 through 334 give the summary statistics by city for selected compounds for breath, the personal airs and water. In addition, results of testing arithmetic and geometric means between cities are presented. For daytime and overnight personal airs the arithmetic and geometric means for chloroform were significantly higher for Bayonne. For water the arithmetic and geometric means for 1,1,1-trichloroethane, trichloroethylene, and tetrachloroethylene tested significantly higher for Elizabeth. Generally, the means and medians for breath, overnight personal air, and daytime personal air seemed higher for Bayonne while the maximum values appeared higher for Elizabeth. For water, all summary statistics were generally higher for Elizabeth.

Tables 335 through 338 summarize the relationship between Elizabeth and Bayonne by giving their ratios for the arithmetic and geometric means, the medians and maximum values. For overnight personal air the values for Bayonne were generally higher as shown by the small ratios. For breath and daytime personal air the values for the means and medians were generally higher for Bayonne while the maximum values were generally higher for Elizabeth. For water the summary statistics were generally higher for Elizabeth.

Table 339 summarized a comparison of compound concentration levels to median quantifiable limits by compound by city for breath, the

Table 331. WEIGHTED SUMMARY STATISTICS FOR BREATH (μg/m³) - NEW JERSEY THIRD SEASON

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
BAYONNE										
Sample Size: 22										
Population Estimate: 48,503										
Chloroform	0.40	0.43	0.20	0.18	1.45	0.06	0.67	1.90	1.90	0.05 - 3.10
1,1,1-Trichloroethane	1.50	2.34	0.57	1.78	1.32	1.80	3.20	4.10	4.10	0.19 - 15.0
Trichloroethylene	0.60	0.33	0.09	0.20	1.27	0.09	0.62	0.82	0.82	0.08 - 1.50
Tetrachloroethylene	---- e/	11.8	3.33	8.69	1.38	9.60	11.0	27.0	27.0	1.60 - 82.5
Styrene	0.22	0.74	0.30	0.34	1.40	0.24	0.29	3.50	3.50	0.13 - 6.60
m,p-Dichlorobenzene	0.22	8.87	4.37	2.74	1.73	2.30	13.0	19.0	43.0	0.13 - 43.0
Ethylbenzene	---- e/	2.63	0.92	1.54	1.29	1.30	1.70	11.0	11.0	0.37 - 16.0
o-Xylene	---- e/	1.73	0.56	1.15	1.24	0.98	1.60	6.90	6.90	0.31 - 6.90
m,p-Xylene	---- e/	5.42	1.77	3.56	1.27	3.00	4.20	21.0	21.0	0.85 - 26.0
ELIZABETH										
Sample Size: 27										
Population Estimate: 45,541										
Chloroform	0.52	0.24	0.06	0.14	1.33	0.08	0.35	0.57	0.64	0.05 - 3.60
1,1,1-Trichloroethane	1.75	5.78	1.99	2.07	1.37	2.03	9.65	9.80	12.0	0.21 - 300.
Trichloroethylene	0.76	0.78	0.19	0.34	1.49	0.28	1.35	1.80	2.40	0.08 - 5.50
Tetrachloroethylene	---- e/	9.26	3.99	3.96	1.30	3.40	4.70	45.0	57.0	1.20 - 170.
Styrene	0.28	0.60	0.26	0.35	1.47	0.19	0.66	2.00	2.00	0.13 - 2.00
m,p-Dichlorobenzene	0.28	3.45	1.07	1.16	1.45	0.54	8.20	8.20	15.0	0.15 - 15.0
Ethylbenzene	---- e/	1.61	0.34	1.29	1.19	0.98	1.80	2.50	3.85	0.36 - 24.0
o-Xylene	---- e/	1.52	0.34	1.20	1.23	0.90	2.30	2.50	2.70	0.36 - 25.0
m,p-Xylene	---- e/	3.93	0.72	3.23	1.16	2.70	3.90	7.35	8.10	1.20 - 53.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between cities significant at .05 level.

000320

Table 332. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR ($\mu g/m^3$) - NEW JERSEY THIRD SEASON

BAYONNE
Sample Size: 22
Population Estimate: 48,503

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	---- e/	5.87*	1.24	3.70*	1.27	2.50	12.0	15.5	15.5	0.54 - 15.5
1,1,1-Trichloroethane	---- e/	25.2	7.40	18.9	1.38	17.5	38.0	70.0	70.0	2.40 - 70.0
Trichloroethylene	0.65	2.14	0.43	1.70	1.21	1.50	2.80	5.40	5.40	0.07 - 7.70
Tetrachloroethylene	0.93	19.1	7.89	11.4	1.54	8.60	21.0	72.0	72.0	0.58 - 72.0
Styrene	0.37	2.69	0.80	1.60	1.22	1.55	2.80	11.0	11.0	0.23 - 11.0
m,p-Dichlorobenzene	0.35	27.2	22.8	3.51	1.98	2.30	5.30	120.	220.	0.22 - 220.
Ethylbenzene	---- e/	14.1	2.56	8.77	1.26	6.95	27.0	30.0	30.0	0.37 - 32.0
o-Xylene	---- e/	11.9	1.68	8.73	1.19	5.95	22.0	23.5	23.5	0.47 - 24.0
m,p-Xylene	---- e/	35.2	6.24	25.5	1.23	20.0	63.0	67.0	67.0	1.10 - 67.0

ELIZABETH
Sample Size: 27
Population Estimate: 45,541

Chloroform	0.38	2.03	0.62	1.00	1.48	0.88	3.00	4.60	6.15	0.23 - 14.0
1,1,1-Trichloroethane	0.61	37.3	15.8	10.8	1.94	22.0	42.5	120.	120.	0.34 - 200.
Trichloroethylene	0.68	4.02	1.92	1.04	1.81	0.98	3.80	6.70	29.5	0.09 - 41.0
Tetrachloroethylene	0.87	7.07	2.73	3.42	1.46	2.70	6.60	18.0	38.0	0.54 - 38.0
Styrene	0.35	1.61	0.39	0.97	1.33	0.92	1.65	4.50	4.50	0.22 - 8.60
m,p-Dichlorobenzene	0.35	81.8	37.9	8.89	1.81	8.90	112.	140.	570.	0.22 - 570.
Ethylbenzene	---- e/	7.86	2.32	4.44	1.52	4.90	12.0	20.0	20.0	0.79 - 29.0
o-Xylene	---- e/	7.67	1.94	4.84	1.48	6.00	12.1	15.0	15.0	0.89 - 27.0
m,p-Xylene	---- e/	22.8	6.53	13.4	1.54	17.0	37.0	57.0	57.0	2.30 - 57.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between cities significant at .05 level.

000321

Table 333. WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR ($\mu g/m^3$) - NEW JERSEY THIRD SEASON

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
BAYONNE										
Sample Size: 21										
Population Estimate: 48,503										
Chloroform	0.80	5.78*	1.31	3.68*	1.27	4.40	7.40	16.6	16.6	0.07 - 25.5
1,1,1-Trichloroethane	2.80	34.2	13.3	22.8	1.62	32.0	44.0	75.0	75.0	1.75 - 310.
Trichloroethylene	1.20	6.62	3.80	2.52	1.91	1.50	7.10	29.0	29.0	0.14 - 29.0
Tetrachloroethylene	1.36	54.8	28.0	13.7	2.25	16.0	24.0	164.	230.	0.17 - 230.
Styrene	0.57	2.51	0.20	2.01	1.10	2.60	3.80	3.85	3.85	0.34 - 23.0
m,p-Dichlorobenzene	0.54	65.1	22.1	19.0	1.78	5.80	150.	160.	270.	0.34 - 270.
Ethylbenzene	----	e/ 15.7	4.95	10.6	1.18	14.0	17.0	47.5	47.5	1.50 - 47.5
o-Xylene	----	e/ 15.8	3.70	11.8	1.14	15.9	18.0	42.0	42.0	1.80 - 42.0
m,p-Xylene	----	e/ 45.7	10.2	32.9	1.15	50.0	57.0	122.	122.	4.20 - 122.
ELIZABETH										
Sample Size: 26										
Population Estimate: 45,541										
Chloroform	0.47	2.14	0.52	1.33	1.32	1.50	2.70	3.50	6.75	0.29 - 40.0
1,1,1-Trichloroethane	0.68	99.5	50.7	19.2	1.50	23.0	37.0	310.	315.	0.09 - 8400
Trichloroethylene	1.12	5.96	2.82	1.68	1.73	1.90	3.40	11.0	40.0	0.14 - 53.0
Tetrachloroethylene	1.20	27.7	17.4	5.31	1.31	3.30	9.40	20.5	86.0	0.75 - 1800
Styrene	0.56	2.75	0.98	1.36	1.34	1.10	2.00	5.40	5.40	0.35 - 130.
m,p-Dichlorobenzene	0.56	122.	51.6	9.20	1.88	6.00	200.	320.	770.	0.27 - 770.
Ethylbenzene	----	e/ 12.3	4.42	5.92	1.62	7.70	12.7	24.0	26.0	0.95 - 310.
o-Xylene	----	e/ 17.9	7.23	7.39	1.65	9.00	12.5	38.0	38.0	1.10 - 720.
m,p-Xylene	----	e/ 41.3	16.4	17.9	1.69	23.0	35.0	100.	100.	2.60 - 1400

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between cities significant at .05 level.

0003322

Table 334. WEIGHTED SUMMARY STATISTICS FOR WATER (ng/mL) - NEW JERSEY THIRD SEASON

	a/ Mid. Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
BAYONNE										
Sample Size: 22										
Population Estimate: 48,503										
Vinylidene Chloride	0.05	0.14	0.12	0.05	1.62	0.03	0.03	0.87	0.87	0.03 - 0.87
Chloroform	---- e/	19.7	3.26	13.6	1.51	24.4	26.4	29.6	29.6	0.75 - 32.7
1,1,1-Trichloroethane	0.05	0.04	0.00	0.04	1.03	0.03	0.03	0.05	0.07	0.03 - 0.17
Trichloroethylene	0.05	0.03	0.00	0.03	1.00	0.03	0.03	0.03	0.03	0.03 - 0.04
Bromodichloromethane	---- e/	5.93	1.34	4.20	1.50	6.77	8.11	8.34	8.53	0.35 - 16.1
Dibromochloromethane	0.10	1.35	0.20	0.98	1.48	1.55	1.61	1.82	1.82	0.06 - 2.31
Tetrachloroethylene	0.05	0.03	0.00	0.03	1.00	0.03	0.03	0.03	0.03	0.03 - 0.04
ELIZABETH										
Sample Size: 27										
Population Estimate: 45,541										
Vinylidene Chloride	0.05	0.25	0.06	0.15	1.31	0.27	0.40	0.56	0.72	0.03 - 0.91
Chloroform	---- e/	14.6	1.14	14.0	1.09	14.5	16.8	19.4	21.9	8.15 - 26.0
1,1,1-Trichloroethane	0.05	0.40*	0.10	0.22*	1.37	0.35	0.60	0.80	1.25	0.03 - 1.64
Trichloroethylene	0.05	0.75*	0.17	0.40*	1.37	0.66	1.06	1.50	2.30	0.03 - 3.45
Bromodichloromethane	---- e/	4.83	0.37	4.61	1.09	5.07	5.82	6.47	6.87	2.87 - 8.05
Dibromochloromethane	---- e/	1.42	0.14	1.27	1.12	1.47	1.99	2.06	2.61	0.59 - 3.02
Tetrachloroethylene	---- e/	0.76*	0.17	0.44*	1.31	0.66	1.31	1.37	2.72	0.04 - 4.97

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - Exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for differences in means between cities significant at .05 level.

000323

Table 335. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS BREATH - NEW JERSEY THIRD SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	0.55	0.78	1.33	1.16
1,1,1-Trichloroethane	2.47	1.17	1.28	20.0
Trichloroethylene	2.35	1.70	3.13	3.67
Tetrachloroethylene	0.78	0.46	0.35	2.06
Styrene	0.80	1.05	0.81	0.30
m,p-Dichlorobenzene	0.39	0.42	0.23	0.35
Ethylbenzene	0.61	0.84	0.75	1.50
o-Xylene	0.88	1.04	0.92	3.62
m,p-Xylene	0.72	0.91	0.90	2.04

* T-test for difference in means between cities significant at .05 level.

Table 336. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR - NEW JERSEY THIRD SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	0.35*	0.27*	0.35	0.90
1,1,1-Trichloroethane	1.48	0.57	1.26	2.86
Trichloroethylene	1.88	0.61	0.65	5.32
Tetrachloroethylene	0.37	0.30	0.31	0.53
Styrene	0.60	0.61	0.59	0.78
m,p-Dichlorobenzene	3.01	2.53	3.87	2.59
Ethylbenzene	0.56	0.51	0.71	0.91
o-Xylene	0.65	0.55	1.01	1.13
m,p-Xylene	0.65	0.53	0.85	0.85

* T-test for differences in means between cities significant at .05 level.

000324

Table 337. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR - NEW JERSEY THIRD SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	0.37*	0.36*	0.34	1.57
1,1,1-Trichloroethane	2.91	0.84	0.72	27.1
Trichloroethylene	0.90	0.67	1.27	1.83
Tetrachloroethylene	0.51	0.39	0.21	78.3
Styrene	1.10	0.68	0.42	5.65
m,p-Dichlorobenzene	1.88	0.48	1.03	2.85
Ethylbenzene	0.79	0.56	0.55	6.53
o-Xylene	1.13	0.63	0.57	17.1
m,p-Xylene	0.90	0.55	0.46	11.5

* T-test for differences in means between cities significant at .05 level.

Table 338. RATIO OF ELIZABETH TO BAYONNE FOR WEIGHTED SUMMARY STATISTICS FOR WATER - NEW JERSEY THIRD SEASON

	Arith. Mean	Geo. Mean	Median	Maximum
Vinylidene Chloride	1.75	3.04	8.66	1.05
Chloroform	0.74	1.03	0.59	0.80
1,1,1-Trichloroethane	10.3 *	6.02*	11.3	9.56
Trichloroethylene	23.8 *	12.9 *	21.1	82.5
Bromodichloromethane	0.81	1.10	0.75	0.50
Dibromochloromethane	1.05	1.31	0.95	1.31
Tetrachloroethylene	24.3 *	1.42*	21.0	122.

* T-test for differences in means between cities significant at .05 level.

Table 339. SUMMARY OF THE MAGNITUDE OF COMPOUND LEVELS COMPARED TO THE MEDIAN QUANTIFIABLE LIMITS OVER THE TWO SITES BY COMPOUND AND MEDIA - NEW JERSEY THIRD SEASON

	Breath	Overnight Personal Air	Daytime Personal Air	Water
Vinylidene Chloride	Bayonne Elizabeth	Low	Low	Elizabeth
Chloroform	Low	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth
1,2-Dichloroethane	Low	Low	Low	Low
1,1,1-Trichloroethane	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Elizabeth
Carbon Tetrachloride	Low	Low	Low	Low
Trichloroethylene	Low	Bayonne Elizabeth	Bayonne Elizabeth	Elizabeth
Bromodichloromethane	Low	Low	Low	Bayonne Elizabeth
Dibromochloromethane	Low	Low	Low	Bayonne Elizabeth
Tetrachloroethylene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Elizabeth
Chlorobenzene	Low	Low	Low	Low
Bromoform	Low	Low	Low	Low
Dibromochloropropane	Low	Low	Low	Low
Styrene	Bayonne	Bayonne Elizabeth	Bayonne Elizabeth	Low
m,p-Dichlorobenzene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Low
o-Dichlorobenzene	Low	Low	Low	Low
Ethylbenzene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Low
o-Xylene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Low
m,p-Xylene	Bayonne Elizabeth	Bayonne Elizabeth	Bayonne Elizabeth	Low

Low = magnitude of compound levels to median quantifiable limit low for both cities.
Bayonne = magnitude of compound levels to median quantifiable limit relatively high for Bayonne.
Elizabeth = magnitude for compound levels to median quantifiable limit relatively high for Elizabeth.

personal airs, and water. Chlorobenzene, bromoform, dibromochloropropane, carbon tetrachloride, 1,2-dichlorobenzene, and o-dichlorobenzene were comparably low for the four media and both cities. Although no compound was considered high for all four media and both cities; chloroform, 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene, ethylbenzene, styrene, and the xylenes were judged high over most categories. Bromodichloromethane and dibromochloromethane were judged high only in water while styrene, ethylbenzene and the xylenes were judged high in breath and the airs but low in water.

Figures 69 through 72 give box plots of 1,1,1-trichloroethane, m,p-xylene, m,p-dichlorobenzene, and tetrachloroethylene for breath and the personal airs by city. The plots demonstrate the trend of personal air levels being higher than breath levels and also the extreme skewness of some of the distributions.

Tables 340 and 341 present the averaged 24-hour exposure for personal air and outdoor air. The averaged 24-hour exposure was obtained by averaging the overnight and daytime concentrations for each person. In comparing the averaged 24-hour personal air to overnight and daytime personal air, the arithmetic means and most geometric means were highest for daytime personal air. Similarly, daytime outdoor air levels were higher than overnight levels. As mentioned earlier, personal air was higher than outdoor air.

Tables 342 shows the summary statistics for averaged 24-hour exposure for personal air by city. The arithmetic mean for chloroform and the geometric means for chloroform and tetrachloroethylene tested significantly higher for Bayonne. For each city the daytime statistics were generally higher than the overnight ones.

Tables 343 through 345 compare overnight personal air to overnight outdoor air for those nine people having air monitors outside their homes. Care should be used in interpreting these data due to the small sample size. Table 343 gives the unweighted percent measurable for the two media. The percent measurable for personal air was significantly higher for chloroform and trichloroethylene while the percent measurable for outdoor air was significantly higher for styrene. Table 344 gives the mean, standard error, median, and range for overnight personal and

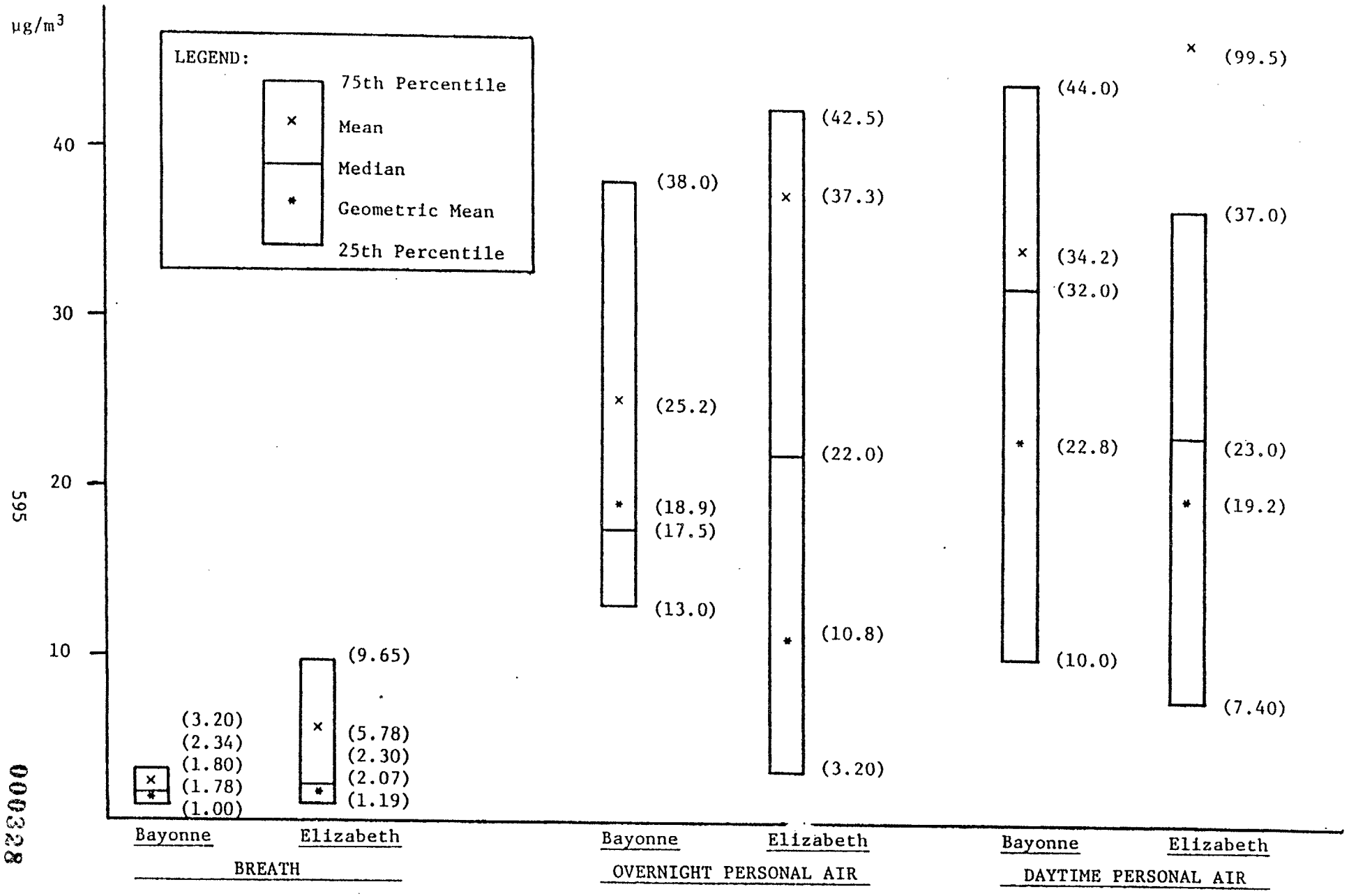

Figure 69. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for 1,1,1-trichloroethane for breath, overnight personal air, and daytime personal air by city - New Jersey third season.

000328

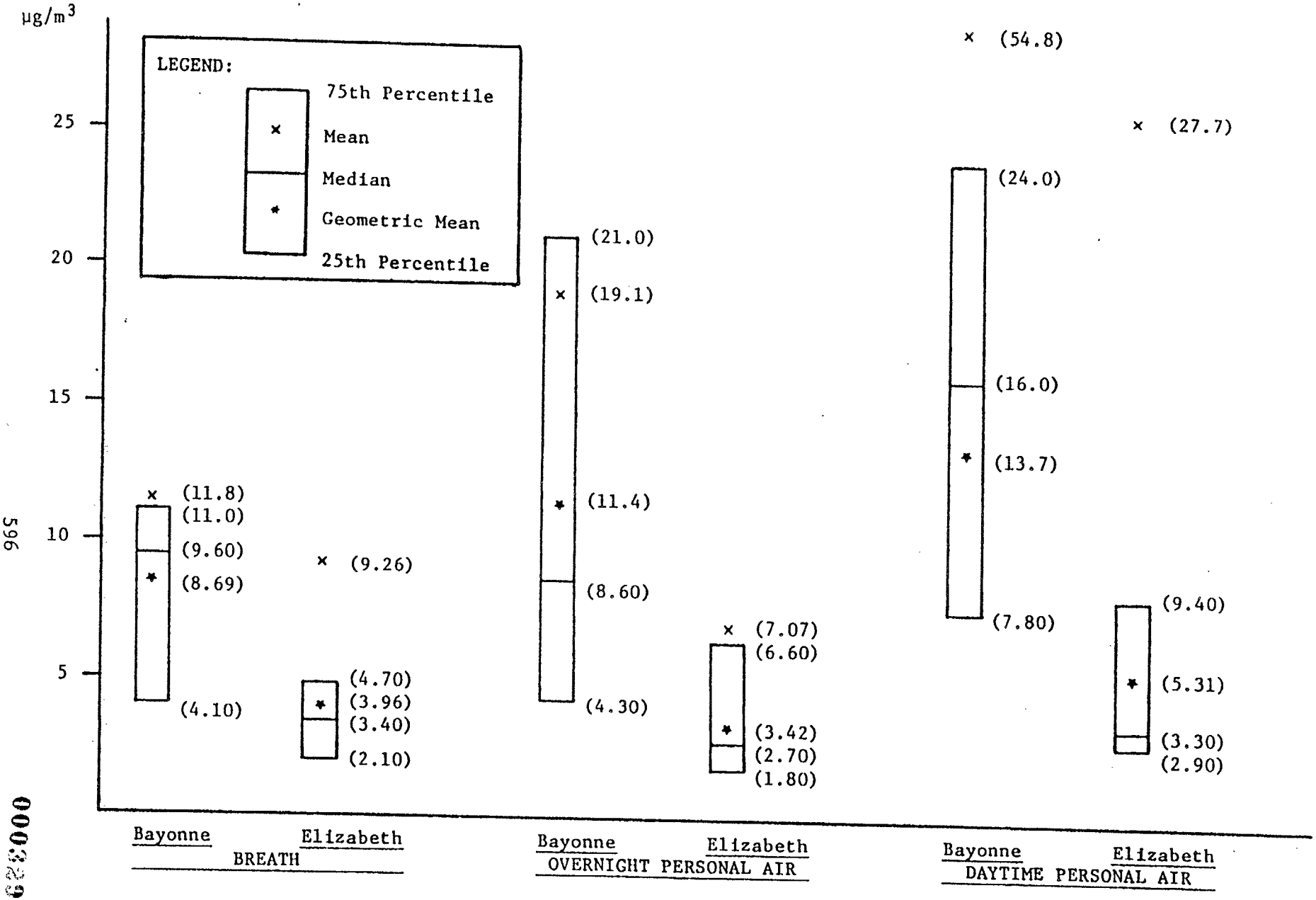

Figure 70. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for tetrachloroethylene for breath, overnight personal air, and daytime personal air by city - New Jersey third season.

000329

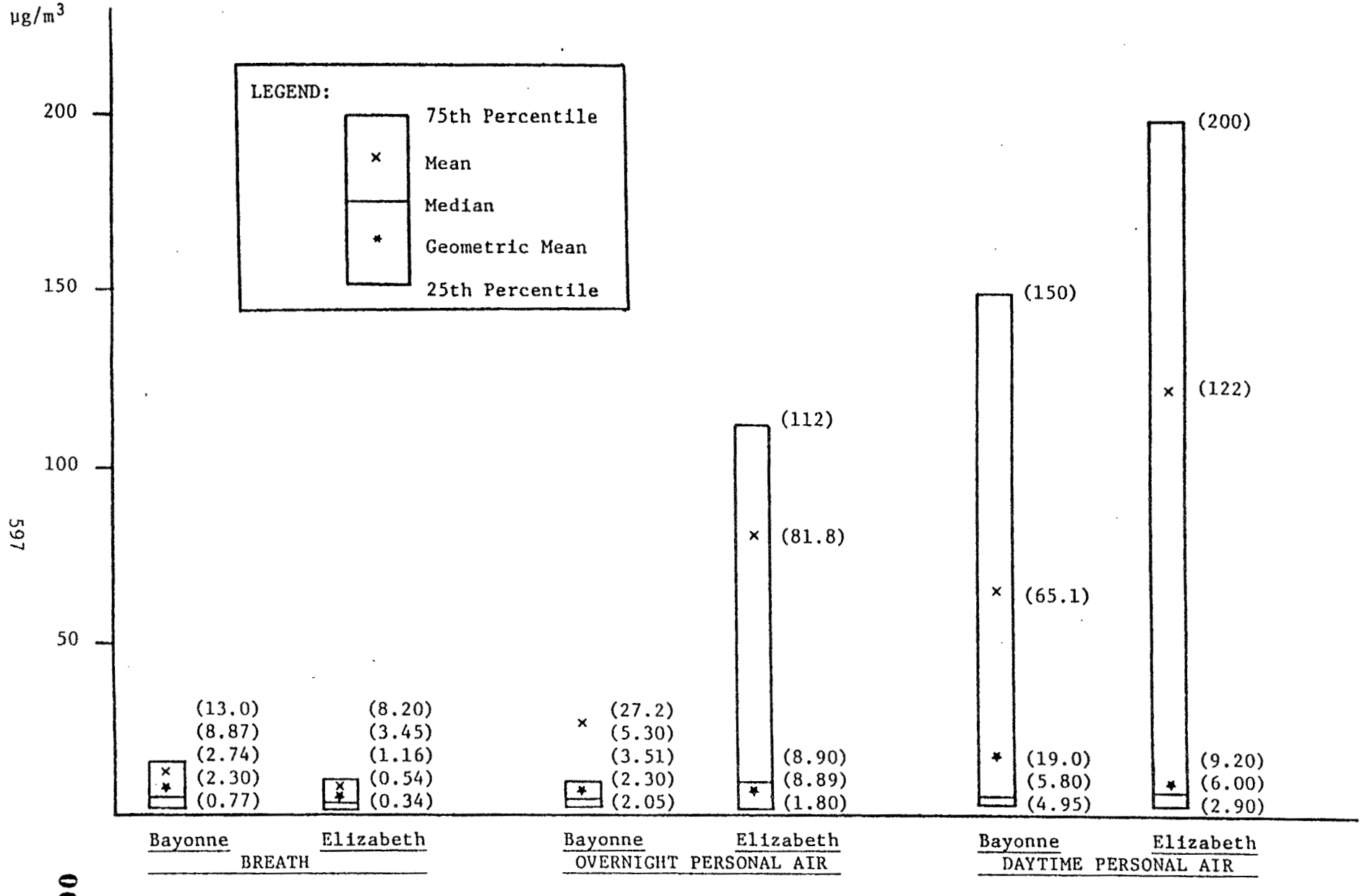

Figure 71. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for m,p-dichlorobenzene for breath, overnight personal air, and daytime personal air by city - New Jersey third season.

000330

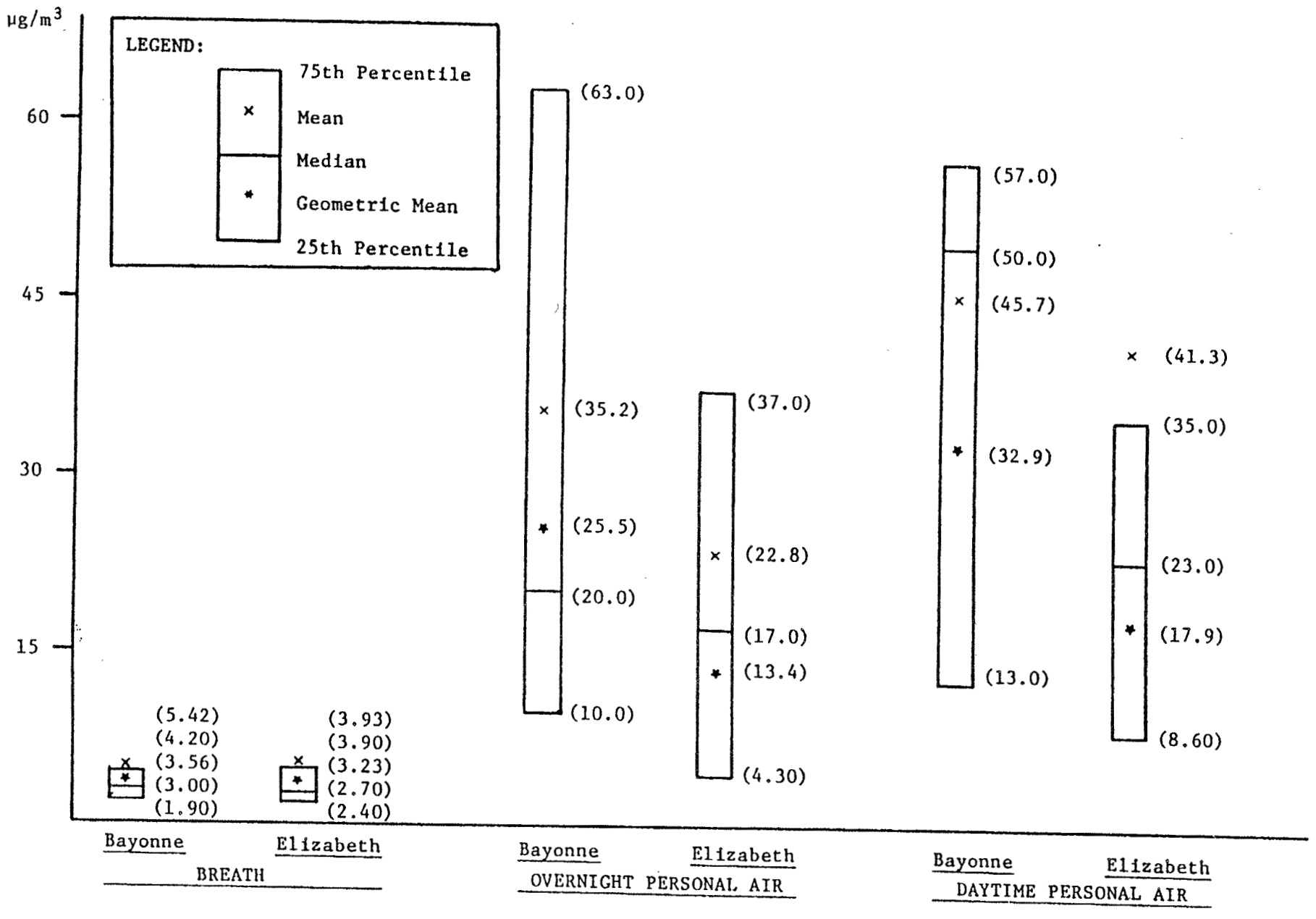

Figure 72. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for m,p-xylene for breath, overnight personal air, and daytime personal air by city - New Jersey third season.

000331

Table 340. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY THIRD SEASON

PERSONAL AIR
Population Estimate: 94,044
Sample Size: 47

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	4.02	0.88	2.35	1.33	2.68	6.45	10.4	11.6	0.26 - 27.0
1,1,1-Trichloroethane	48.5	14.2	20.9	1.38	22.2	42.5	74.5	215.	1.02 - 4230
Trichloroethylene	4.68	1.44	1.98	1.46	1.50	4.18	9.50	17.2	0.11 - 41.0
Tetrachloroethylene	27.3	10.1	10.3	1.46	9.85	20.5	92.5	119.	0.98 - 908
Styrene	2.39	0.42	1.55	1.23	1.33	2.95	4.95	6.80	0.28 - 65.2
m,p-Dichlorobenzene	73.0	26.7	12.7	1.46	7.90	75.1	170.	190.	0.44 - 670
Ethylbenzene	12.5	2.34	7.59	1.32	11.0	18.5	27.5	38.8	0.87 - 157
o-Xylene	13.3	2.41	8.35	1.30	11.5	17.7	25.0	32.8	1.00 - 363
m,p-Xylene	36.3	6.46	22.7	1.33	29.5	57.0	67.0	92.5	2.45 - 710

a/ Arith. S.E. = Stand Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where is is the standard error of the weighted mean of LN(x).

000332

Table 341. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY THIRD SEASON

OUTDOOR AIR
Population Estimate: 94,044
Sample Size: 8

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	75th Percentile	Range
Chloroform	0.26	0.14	0.13	1.83	0.07	0.62	0.05 - 0.62
1,1,1-Trichloroethane	1.68	0.30	1.43	1.27	1.70	2.02	0.43 - 10.5
Trichloroethylene	0.35	0.13	0.24	1.68	0.42	0.68	0.07 - 0.73
Tetrachloroethylene	4.47	1.19	3.70	1.28	4.02	8.65	1.30 - 8.70
Styrene	0.66	0.13	0.57	1.25	0.69	0.91	0.18 - 1.05
m,p-Dichlorobenzene	1.26	0.81	0.55	1.76	0.68	1.14	0.16 - 4.20
Ethylbenzene	3.79	0.64	3.39	1.21	4.45	5.25	1.30 - 5.45
o-Xylene	3.51	0.63	3.11	1.22	3.85	4.55	1.20 - 5.50
m,p-Xylene	9.20	1.46	8.29	1.20	10.5	13.0	3.35 - 13.9

a/ Arith. S.E. = Stand Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where is is the standard error of the weighted mean of LN(x).

000333

Table 342. WEIGHTED SUMMARY STATISTICS FOR AVERAGED 24-HOUR EXPOSURE - NEW JERSEY THIRD SEASON

PERSONAL AIR - BAYONNE
Population Estimate: 48,503
Sample Size: 21

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75th	Percentiles 90th	Range
Chloroform	5.84*	1.01	4.32*	1.28	6.25	10.4	11.6	0.48 - 14.0
1,1,1-Trichloroethane	29.8	9.65	22.1	1.51	35.0	46.2	55.5	2.70 - 165.
Trichloroethylene	4.39	1.95	2.43	1.54	1.40	4.18	17.2	0.44 - 17.2
Tetrachloroethylene	36.6	16.1	20.1 *	1.65	15.2	44.0	92.5	2.34 - 119.
Styrene	2.59	0.49	1.93	1.20	2.20	3.32	6.80	0.28 - 14.8
m,p-Dichlorobenzene	45.8	16.6	15.1	1.65	5.65	75.1	135.	0.53 - 190.
Ethylbenzene	14.9	3.02	10.2	1.22	11.2	21.2	38.8	1.28 - 38.8
o-Xylene	13.8	2.41	10.5	1.18	12.0	20.0	32.8	1.78 - 32.8
m,p-Xylene	40.3	6.75	30.0	1.20	38.5	58.5	92.5	5.25 - 92.5

PERSONAL AIR - ELIZABETH
Population Estimate: 45,541
Sample Size: 26

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75th	Percentiles 90th	Range
Chloroform	2.09	0.57	1.23	1.37	1.39	2.70	3.60	0.27 - 27.0
1,1,1-Trichloroethane	68.4	30.4	19.6	1.63	22.2	35.0	215.	1.02 - 4230
Trichloroethylene	4.99	2.22	1.59	1.77	1.50	4.20	7.60	0.11 - 41.0
Tetrachloroethylene	17.4	8.10	5.04	1.32	3.85	9.85	21.4	0.98 - 908
Styrene	2.18	0.61	1.23	1.35	1.29	1.45	4.95	0.28 - 65.2
m,p-Dichlorobenzene	102.	44.3	10.5	1.80	7.90	162.	170.	0.44 - 670
Ethylbenzene	10.1	2.85	5.55	1.58	6.50	13.8	17.0	0.87 - 157
o-Xylene	12.8	4.14	6.51	1.58	7.95	12.0	25.0	1.00 - 363
m,p-Xylene	32.0	10.2	16.8	1.63	20.0	40.0	67.0	2.45 - 710

a/ Arith. S.E. = Stand Error of Arith. Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between cities significant at .05 level.

000334

Table 343. UNWEIGHTED PERCENTAGE OF CONCENTRATIONS MEASURABLE FOR THOSE PERSONS HAVING BOTH OVERNIGHT OUTDOOR AIR AND OVERNIGHT PERSONAL AIR - NEW JERSEY THIRD SEASON

	Overall	
	Outdoor	Personal
Vinylidene Chloride	11.1	11.1
Chloroform	22.2	77.8 *
1,2-Dichloroethane	0.00	11.1
1,1,1-Trichloroethane	66.7	88.9
Benzene	100.	100.
Carbon Tetrachloride	0.00	11.1
Trichloroethylene	22.2	77.8 *
Bromodichloromethane	0.00	22.2
Dibromochloromethane	0.00	0.00
Tetrachloroethylene	77.8	77.8
Chlorobenzene	33.3	33.3
Bromoform	0.00	0.00
Dibromochloropropane	0.00	0.00
Styrene	100. *	55.6
m,p-Dichlorobenzene	100.	77.8
o-Dichlorobenzene	33.3	11.1
Ethylbenzene	100.	100.
o-Xylene	100.	100.
m,p-Xylene	100.	100.
Sample Size:	9	9

* T-test for difference between media significant at .05 level.

000335

Table 344. UNWEIGHTED SUMMARY STATISTICS ($\mu g/m^3$) FOR THOSE PERSONS HAVING BOTH OVERNIGHT OUTDOOR AIR AND OVERNIGHT PERSONAL AIR - NEW JERSEY THIRD SEASON

Sample Size:	Overnight Outdoor Air (9)				Overnight Personal Air (9)			
	Mean	S.E.	Median	Range	Mean	S.E.	Median	Range
Chloroform	0.25	0.14	0.06	0.04 - 1.20	4.76	1.90	1.40	0.22 - 15.5
1,1,1-Trichloroethane	2.85	1.09	1.90	0.14 - 10.0	38.8	17.9	20.0	0.38 - 170.
Trichloroethylene	0.34	0.08	0.37	0.06 - 0.74	2.76	0.79	1.80	0.08 - 7.10
Tetrachloroethylene	1.94	0.58	1.50	0.04 - 5.20	17.4	7.92	9.30	0.43 - 72.0
Styrene	0.62	0.10	0.53	0.24 - 1.00	2.52	1.18	0.68	0.22 - 11.0
m,p-Dichlorobenzene	1.03	0.48	0.32	0.16 - 4.60	14.8	13.2	1.20	0.22 - 120.
Ethylbenzene	3.62	0.49	4.00	1.40 - 5.30	11.2	4.40	4.40	0.79 - 32.0
o-Xylene	3.15	0.46	3.20	1.30 - 5.20	9.50	3.30	5.10	0.89 - 23.5
m,p-Xylene	9.17	1.17	11.0	2.60 - 14.0	25.5	8.63	15.0	2.30 - 63.0

Table 345. SUMMARY OF MEDIANS, MAXIMUM CONCENTRATIONS AND THEIR RATIOS FOR MATCHED OVERNIGHT OUTDOOR AIR AND OVERNIGHT PERSONAL AIR - NEW JERSEY THIRD SEASON

	Overnight Outdoor Air	Overnight Personal Air	Personal/ Outdoor Ratio
Chloroform	0.06 (1.20)*	1.40 (15.5)	23.3 (12.9)
1,1,1-Trichloroethane	1.90 (10.0)	20.0 (170.)	10.5 (17.0)
Trichloroethylene	0.37 (0.74)	1.80 (7.10)	4.86 (9.59)
Tetrachloroethylene	1.50 (5.20)	9.30 (72.0)	6.20 (13.8)
Styrene	0.53 (1.00)	0.68 (11.0)	1.28 (11.0)
m,p-Dichlorobenzene	0.32 (4.60)	1.20 (120.)	3.75 (26.1)
Ethylbenzene	4.00 (5.30)	4.40 (32.0)	1.10 (6.04)
o-Xylene	3.20 (5.20)	5.10 (23.5)	1.59 (4.52)
m,p-Xylene	11.0 (14.0)	15.0 (63.0)	1.36 (4.50)

* Median (Maximum)

000336

outdoor airs. For each of these statistics the values were higher for personal air. This can be more readily seen by the ratios in Table 345.

Correlations

Table 346 gives the Spearman correlations for all amounts (measurable or not) for the selected compounds for breath, daytime and overnight personal airs, and daytime and overnight outdoor airs. Due to the small sample sizes for outdoor air, several apparently high correlations were not significantly different from zero. The strongest correlations were between breath and daytime personal air, overnight and daytime personal airs, and overnight personal and outdoor airs.

Table 347 gives the Spearman correlations between water and the other media. There was very little correlation.

Tables 348 and 349 give Spearman correlations among the media for measurable amounts only. The strongest correlations again appeared between breath and daytime personal air, overnight and daytime personal air, and overnight personal and outdoor air. Also, there was still very little correlation between water and the other media.

Figures 73 through 84 show plots of breath versus daytime personal air, breath versus daytime outdoor air and overnight personal air versus overnight outdoor air for selected compounds on the natural logarithmic scale. One was added to each number before the log was taken. The lines represent the median QL values for the compound for the two media. An "O" represents both measurable and an "X" represents one or both not measurable. These plots demonstrate the lack of strong correlation between the media for each compound.

Tables 350 through 354 give the Spearman correlations between selected compounds by media for all amounts. The selected compounds were grouped into aromatics (styrene, ethylbenzene, o-xylene and m,p-xylene), chlorinated solvents (1,1,1-trichloroethane, trichloroethylene and tetrachloroethylene) and miscellaneous (m,p-dichlorobenzene and chloroform). The strongest correlations were associated with the aromatics. In fact, the correlations between ethylbenzene, o-xylene and m,p-xylene were always greater than .83.

Tables 355 through 359 give the Spearman correlations between selected compounds by media for measurable amounts only. Again, the aromatics showed the strongest correlations.

Table 346. SPEARMAN CORRELATIONS FOR ALL AMOUNTS BETWEEN MEDIA FOR SELECTED COMPOUNDS - NEW JERSEY THIRD SEASON

	Breath and Overnight Personal Air		Breath and Daytime Personal Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.05	49	-.03	47
1,1,1-Trichloroethane	-.03	49	.32*	47
Trichloroethylene	-.01	49	.35*	47
Tetrachloroethylene	.50*	49	.37*	47
Styrene	.15	49	.19	47
m,p-Dichlorobenzene	.41*	49	.61*	47
Ethylbenzene	.00	49	.44*	47
o-Xylene	-.00	49	.45*	47
m,p-Xylene	.04	49	.48*	47

	Breath and Overnight Outdoor Air		Breath and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	-.11	9	.60	8
1,1,1-Trichloroethane	.39	9	.24	8
Trichloroethylene	-.13	9	.43	8
Tetrachloroethylene	-.10	9	-.49	8
Styrene	.03	9	-.14	8
m,p-Dichlorobenzene	.51	9	.60	8
Ethylbenzene	-.13	9	.12	8
o-Xylene	-.25	9	-.04	8
m,p-Xylene	-.12	9	.07	8

	Overnight Personal Air and Daytime Personal Air		Overnight Personal Air and Overnight Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.63*	47	.18	9
1,1,1-Trichloroethane	.39*	47	.63	9
Trichloroethylene	.56*	47	.78*	9
Tetrachloroethylene	.53*	47	.22	9
Styrene	.65*	47	.72*	9
m,p-Dichlorobenzene	.50*	47	.32	9
Ethylbenzene	.59*	47	.78*	9
o-Xylene	.57*	47	.68*	9
m,p-Xylene	.63*	47	.89*	9

continued

000338

Table 346 continued

	Overnight Personal Air and Daytime Outdoor Air		Daytime Personal Air and Overnight Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	-.31	8	-.32	9
1,1,1-Trichloroethane	-.07	8	.51	9
Trichloroethylene	.13	8	.30	9
Tetrachloroethylene	.02	8	.83*	9
Styrene	.42	8	.40	9
m,p-Dichlorobenzene	.42	8	.42	9
Ethylbenzene	.05	9	.42	9
o-Xylene	.26	8	.33	9
m,p-Xylene	.37	8	.61	9

	Daytime Personal Air and Daytime Outdoor Air		Overnight Outdoor Air and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	-.19	8	.10	8
1,1,1-Trichloroethane	-.71*	8	.10	8
Trichloroethylene	-.05	8	.34	8
Tetrachloroethylene	.50	8	.47	8
Styrene	.33	8	.95*	8
m,p-Dichlorobenzene	.57	8	.80*	8
Ethylbenzene	-.17	8	.40	8
o-Xylene	.21	8	.60	8
m,p-Xylene	.23	8	.49	8

* Significantly different from zero at .05 level.

000339

Table 347. SPEARMAN CORRELATIONS BETWEEN WATER AND OTHER MEDIA FOR ALL AMOUNTS FOR SELECTED COMPOUNDS - NEW JERSEY THIRD SEASON

	Breath and Water		Overnight Personal Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Vinylidene Chloride	.00	49	.35*	49
Chloroform	.18	49	.10	49
1,1,1-Trichloroethane	-.10	49	-.00	49
Trichloroethylene	.20	49	-.02	49
Bromodichloromethane	-.16	49	-.04	49
Dibromochloromethane	.13	49	-.11	49
Tetrachloroethylene	-.16	49	-.14	49

	Daytime Personal Air and Water		Overnight Outdoor Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Vinylidene Chloride	.31*	47	.15	9
Chloroform	.11	47	.06	9
1,1,1-Trichloroethane	-.00	47	.49	9
Trichloroethylene	.19	47	.00	9
Bromodichloromethane	.03	47	.43	9
Dibromochloromethane	-.17	47	.65	9
Tetrachloroethylene	-.16	47	-.49	9

	Daytime Outdoor Air and Water	
	Spearman Correlation	Sample Size
Vinylidene Chloride	.23	8
Chloroform	.02	8
1,1,1-Trichloroethane	-.11	8
Trichloroethylene	.41	8
Bromodichloromethane	.49	8
Dibromochloromethane	.18	8
Tetrachloroethylene	-.33	8

* Significantly different from zero at .05 level.

000340

Table 348. SPEARMAN CORRELATIONS FOR MEASURABLE AMOUNTS FOR BREATH, PERSONAL AIRS, AND OUTDOOR AIRS - NEW JERSEY THIRD SEASON

	Breath and Overnight Personal Air		Breath and Daytime Personal Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	-.11	15	.20	12
1,1,1-Trichloroethane	.20	26	.46*	26
Trichloroethylene	.41	11	.28	14
Tetrachloroethylene	.51*	46	.40*	45
Styrene	.38	26	.13	27
m,p-Dichlorobenzene	.49*	42	.61*	40
Ethylbenzene	.00	49	.44*	47
o-Xylene	-.00	49	.45*	47
m,p-Xylene	.04	49	.48*	47

	Breath and Overnight Outdoor Air		Breath and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform		0		0
1,1,1-Trichloroethane	.82	5		2
Trichloroethylene		1		2
Tetrachloroethylene	.18	7	-.49	8
Styrene	.21	5		3
m,p-Dichlorobenzene	.61	7	.60	5
Ethylbenzene	-.13	9	.12	8
o-Xylene	-.25	9	-.04	8
m,p-Xylene	-.12	9	.07	8

	Overnight Personal Air and Daytime Personal Air		Overnight Personal Air and Overnight Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform	.61*	42		2
1,1,1-Trichloroethane	.34*	43	-.14	6
Trichloroethylene	.49*	29		2
Tetrachloroethylene	.51*	42	.40	5
Styrene	.65*	40	-.16	5
m,p-Dichlorobenzene	.42*	40	.82*	7
Ethylbenzene	.59*	47	.78*	9
o-Xylene	.57*	47	.68*	9
m,p-Xylene	.63*	47	.89*	9

continued

Table 348. continued

	Overnight Personal Air and Daytime Outdoor Air		Daytime Personal Air and Overnight Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform		2		2
1,1,1-Trichloroethane		2	-.03	6
Trichloroethylene		1		2
Tetrachloroethylene	-.55	6	.75	7
Styrene	-.95	4	-.08	7
m,p-Dichlorobenzene	1.00*	4	.37	6
Ethylbenzene	.05	8	.42	9
o-Xylene	.26	8	.33	9
m,p-Xylene	.37	8	.61	9

	Daytime Personal Air and Daytime Outdoor Air		Overnight Outdoor Air and Daytime Outdoor Air	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Chloroform		3		1
1,1,1-Trichloroethane		3		1
Trichloroethylene		1		0
Tetrachloroethylene	.61	7	.70	6
Styrene	-.20	5	.93*	7
m,p-Dichlorobenzene	.40	4	1.00*	5
Ethylbenzene	-.17	8	.40	8
o-Xylene	.21	8	.60	8
m,p-Xylene	.23	8	.49	8

* Significantly different from zero at .05 level.

000342

Table 349. SPEARMAN CORRELATIONS BETWEEN WATER AND OTHER MEDIA FOR MEASURABLE AMOUNTS FOR SELECTED COMPOUNDS - NEW JERSEY THIRD SEASON

	Breath and Water		Overnight Personal Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Vinylidene Chloride	.58*	16		1
Chloroform	.15	15	-.05	46
1,1,1-Trichloroethane	.09	15	-.05	30
Trichloroethylene	-.47	12	-.47*	19
Bromodichloromethane		1	-.25	7
Dibromochloromethane		0		0
Tetrachloroethylene	.07	28	-.14	27

	Daytime Personal Air and Water		Overnight Outdoor Air and Water	
	Spearman Correlation	Sample Size	Spearman Correlation	Sample Size
Vinylidene Chloride		3		1
Chloroform	.18	44		2
1,1,1-Trichloroethane	-.00	27	.40	4
Trichloroethylene	-.14	22		1
Bromodichloromethane		2		0
Dibromochloromethane		0		0
Tetrachloroethylene	-.31	26		3

	Daytime Outdoor Air and Water	
	Spearman Correlation	Sample Size
Vinylidene Chloride		1
Chloroform		3
1,1,1-Trichloroethane		1
Trichloroethylene		2
Bromodichloromethane		0
Dibromochloromethane		0
Tetrachloroethylene	.40	4

* Significantly different from zero at .05 level.

000343

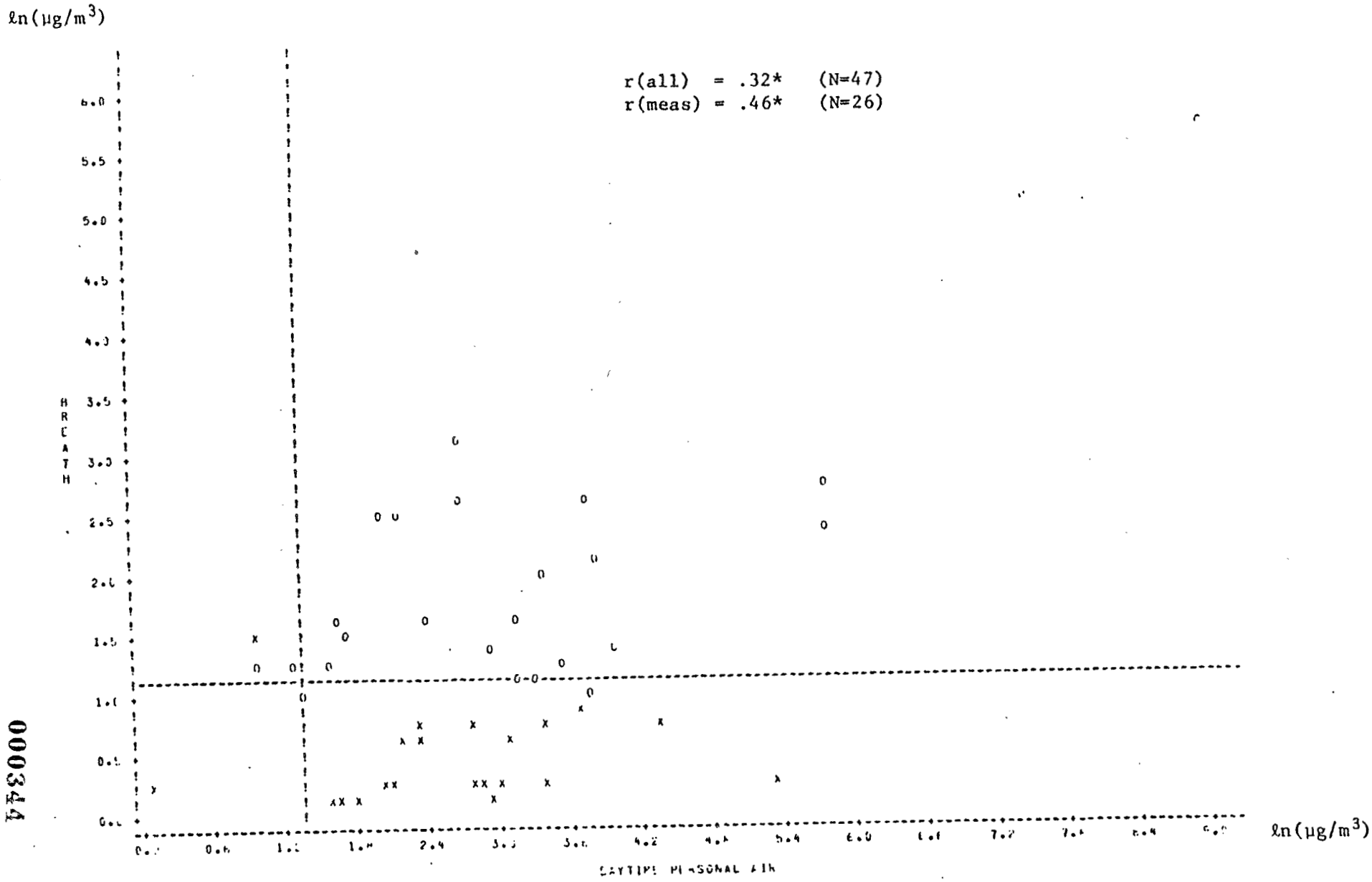

Figure 73. 1,1,1-trichloroethane - New Jersey third season.

000344

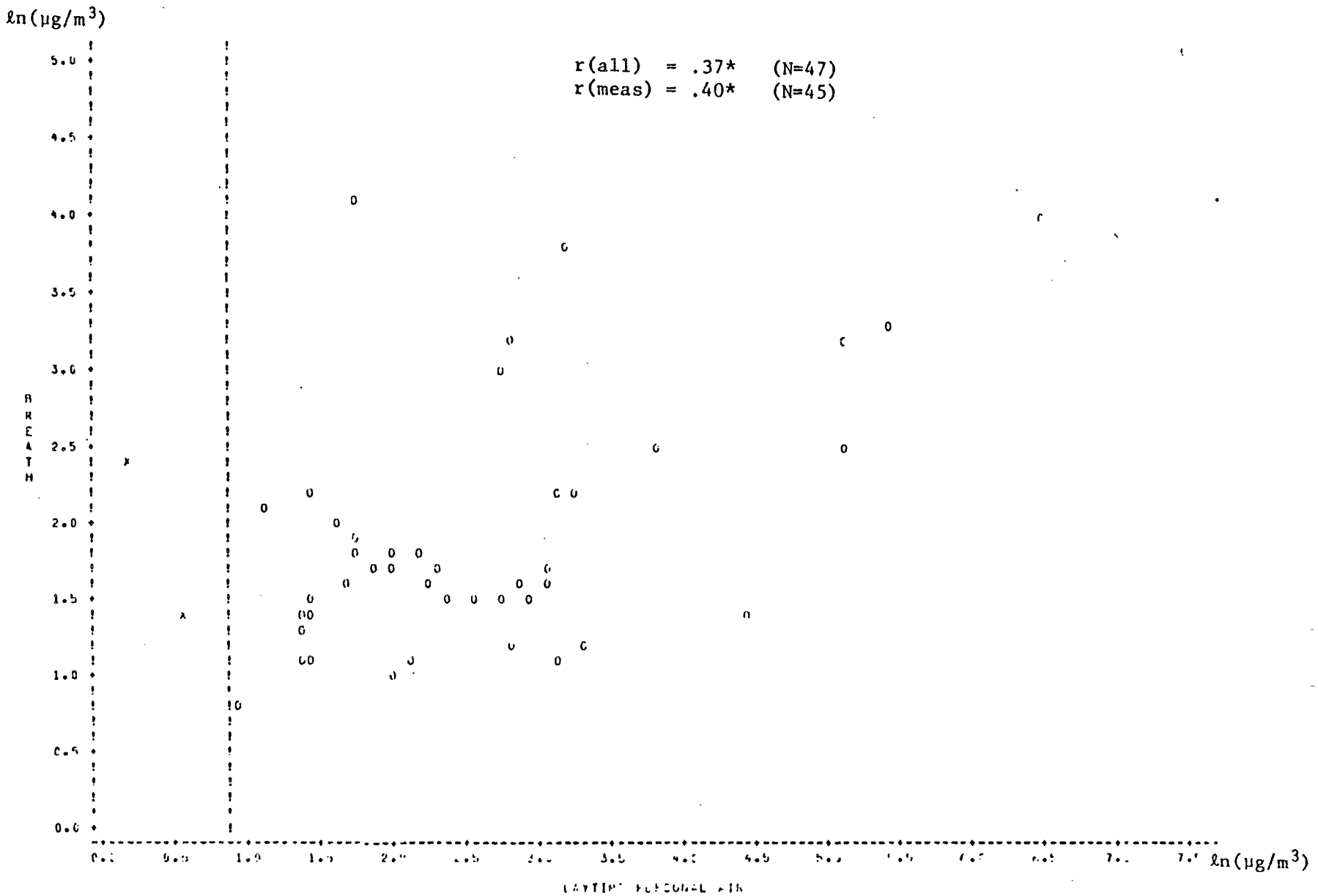

Figure 74. Tetrachloroethylene - New Jersey third season.

000345

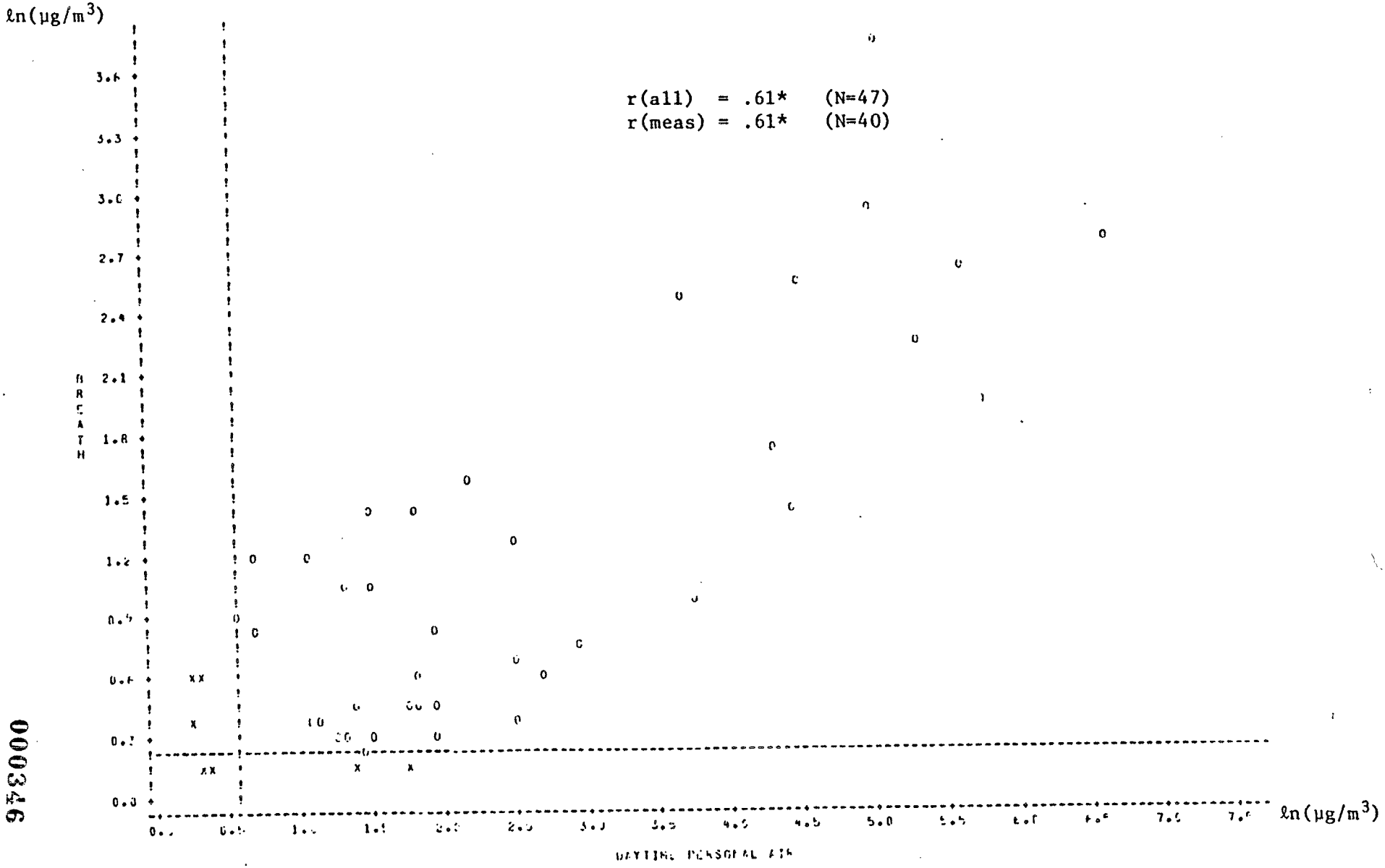

Figure 75. m,p-dichlorobenzene - New Jersey third season.

000346

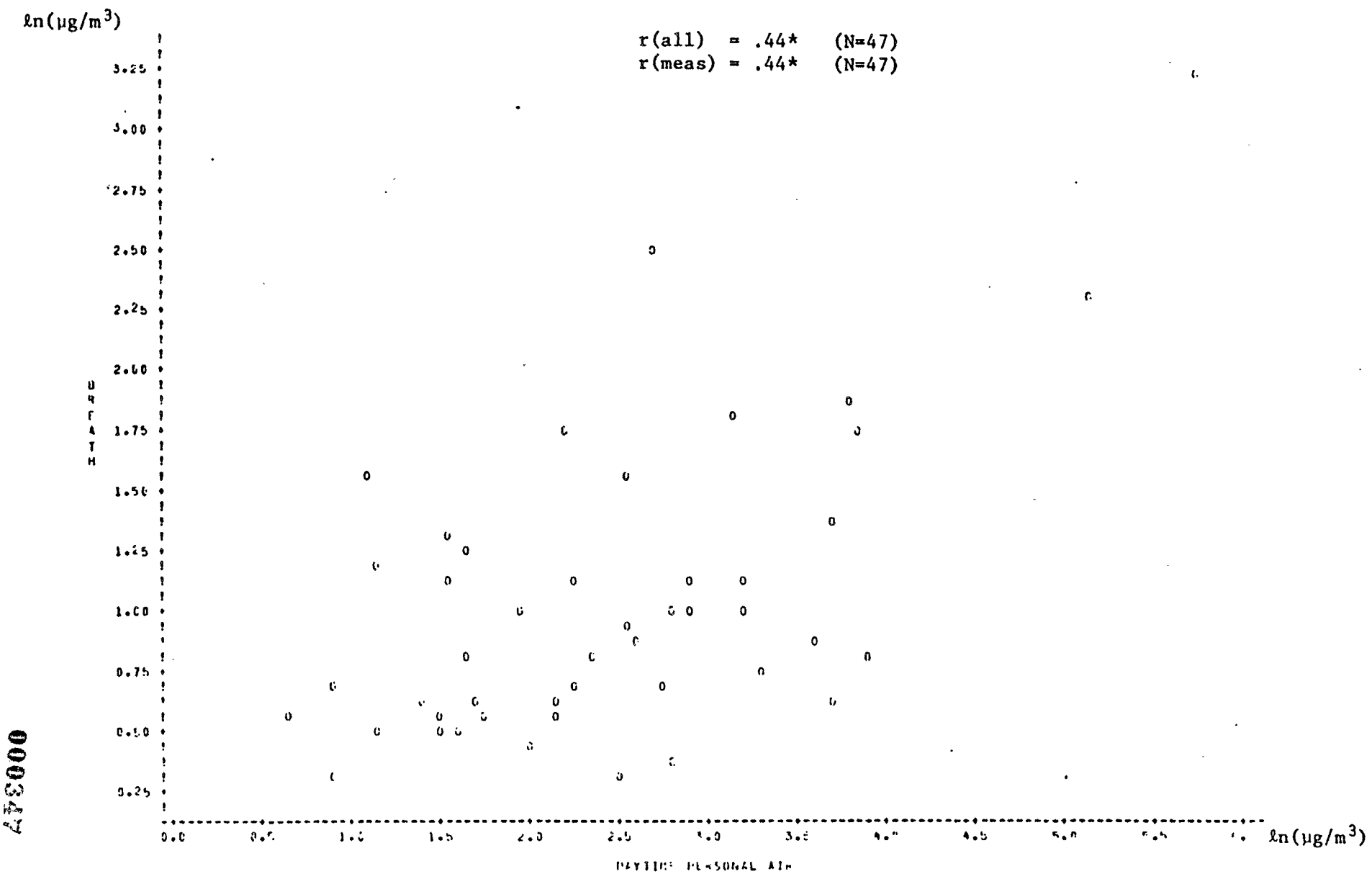

Figure 76. Ethylbenzene - New Jersey third season.

000347

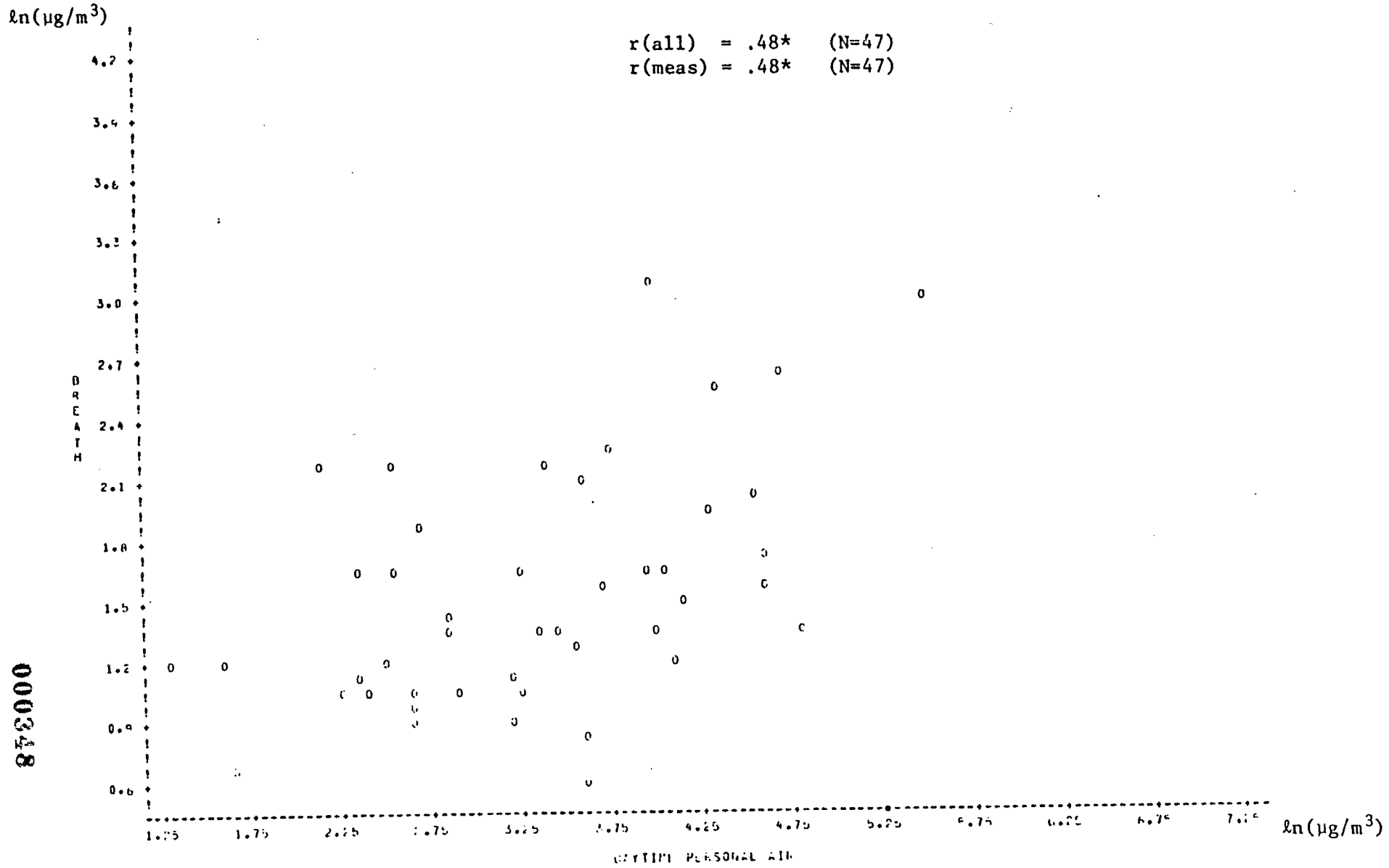

Figure 77. m,p-xylene - New Jersey third season.

000348

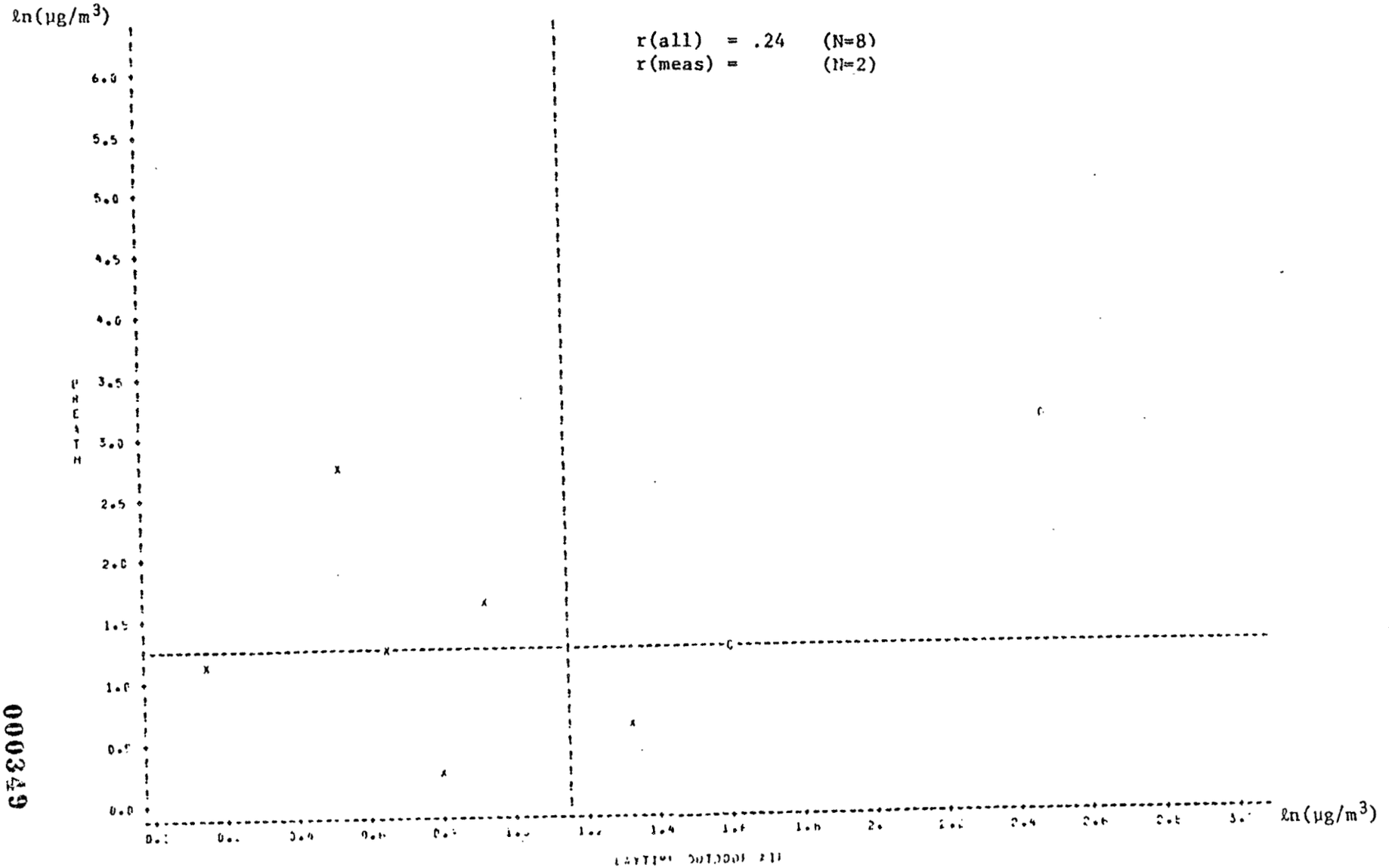

Figure 78. 1,1,1-trichloroethane - New Jersey third season.

000349

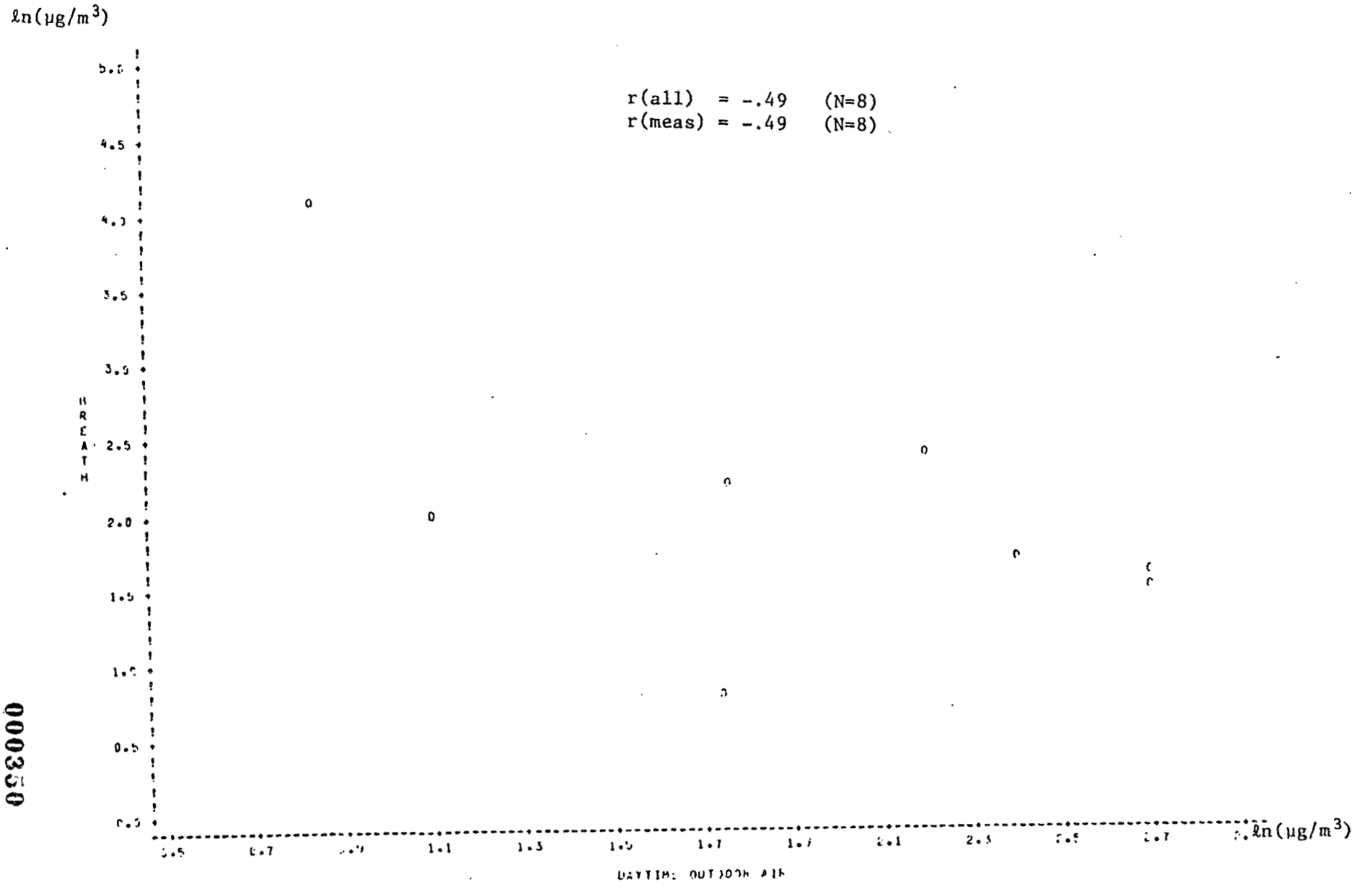

Figure 79. Tetrachloroethylene - New Jersey third season.

000350

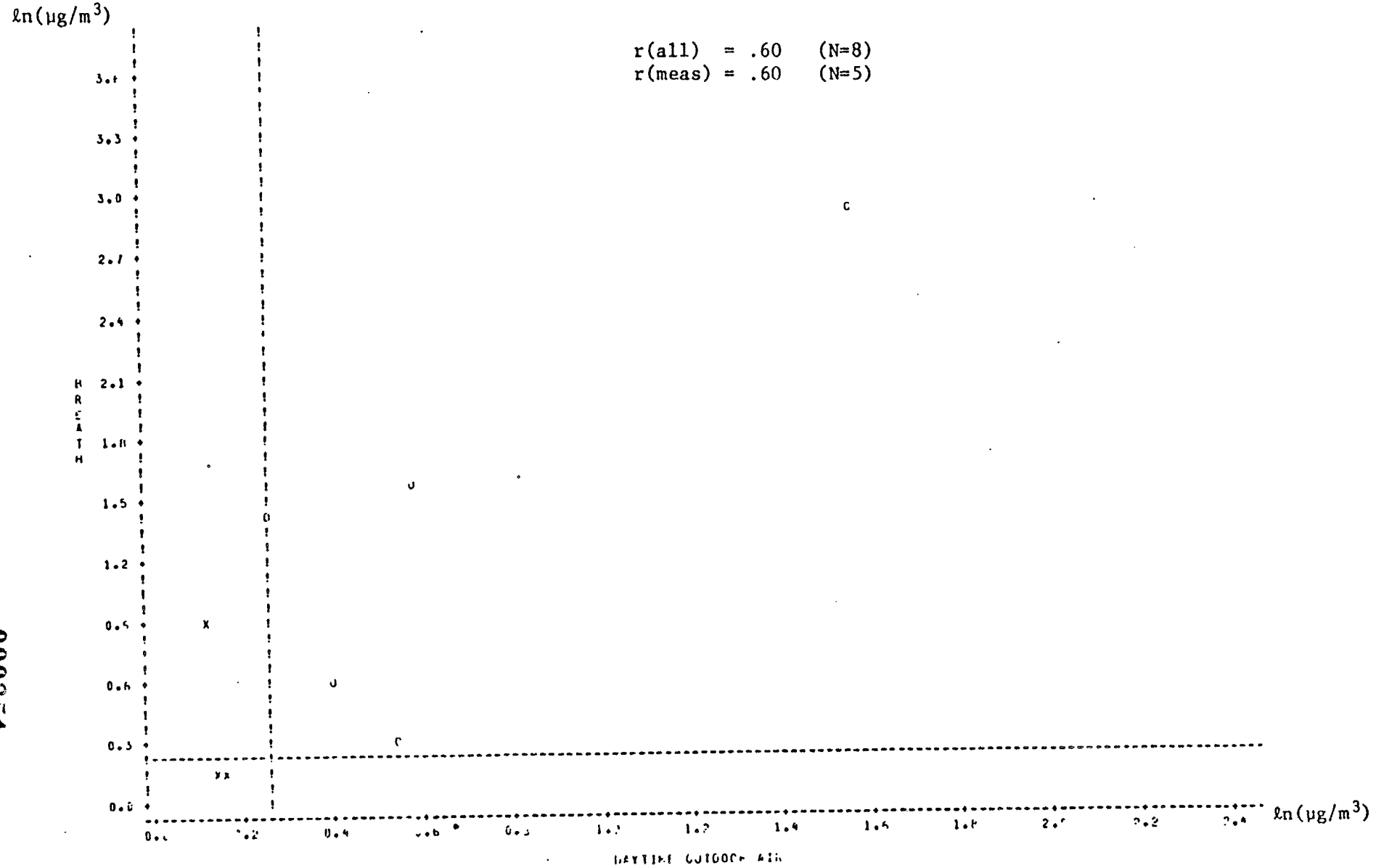

Figure 80. m,p-dichlorobenzene - New Jersey third season.

000351

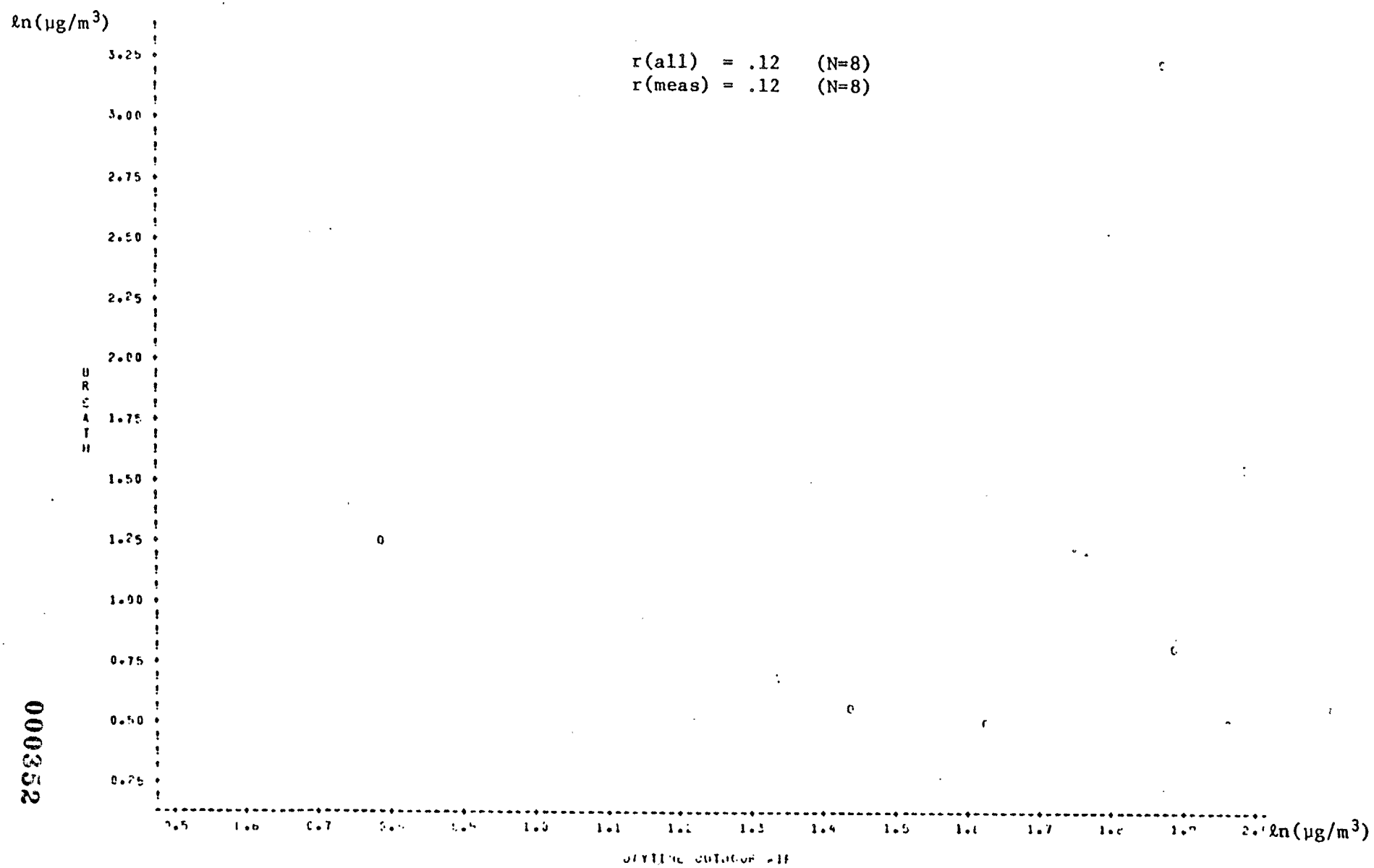

Figure 81. Ethylbenzene - New Jersey third season.

000352

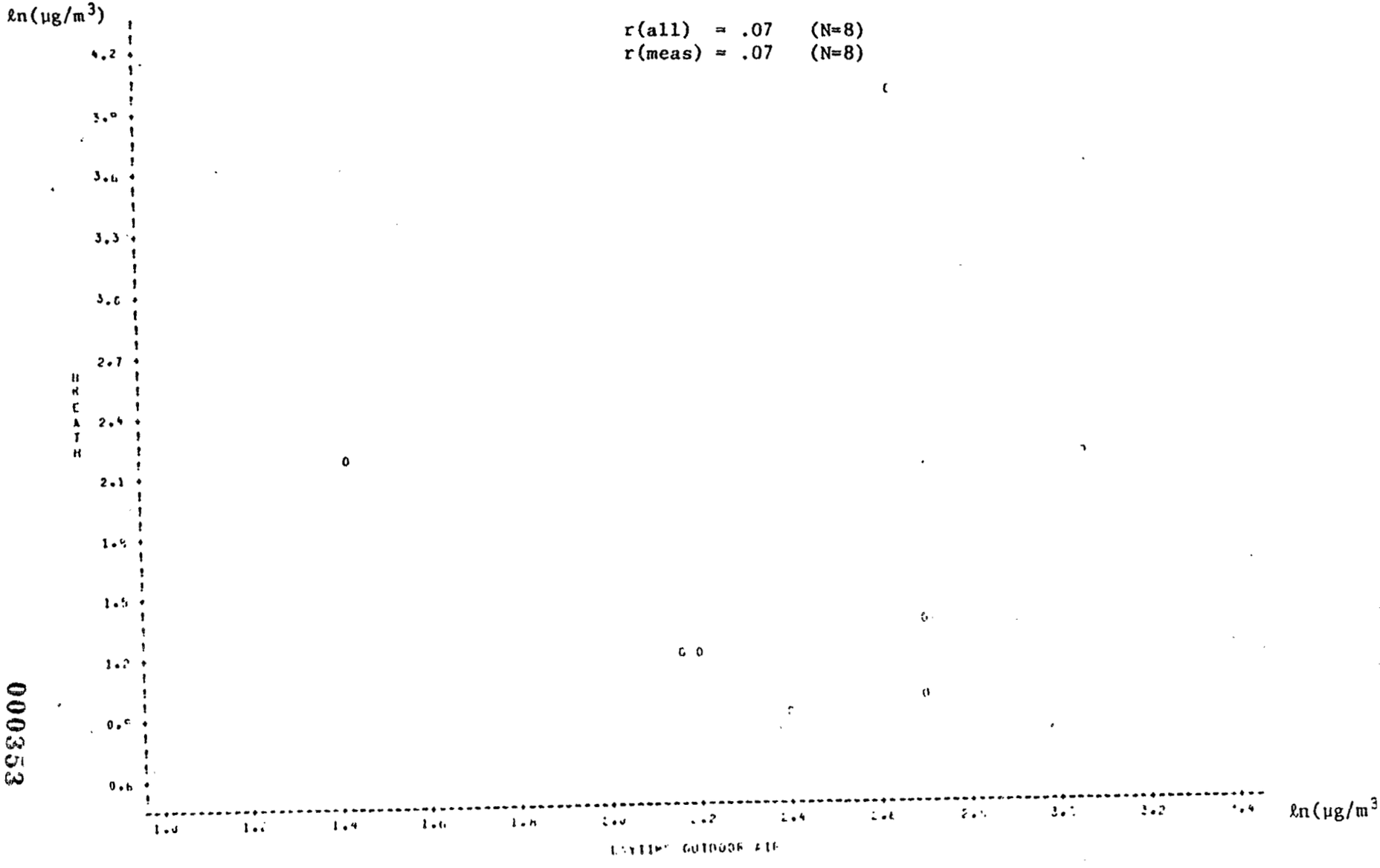

Figure 82. m,p-xylene - New Jersey third season.

000353

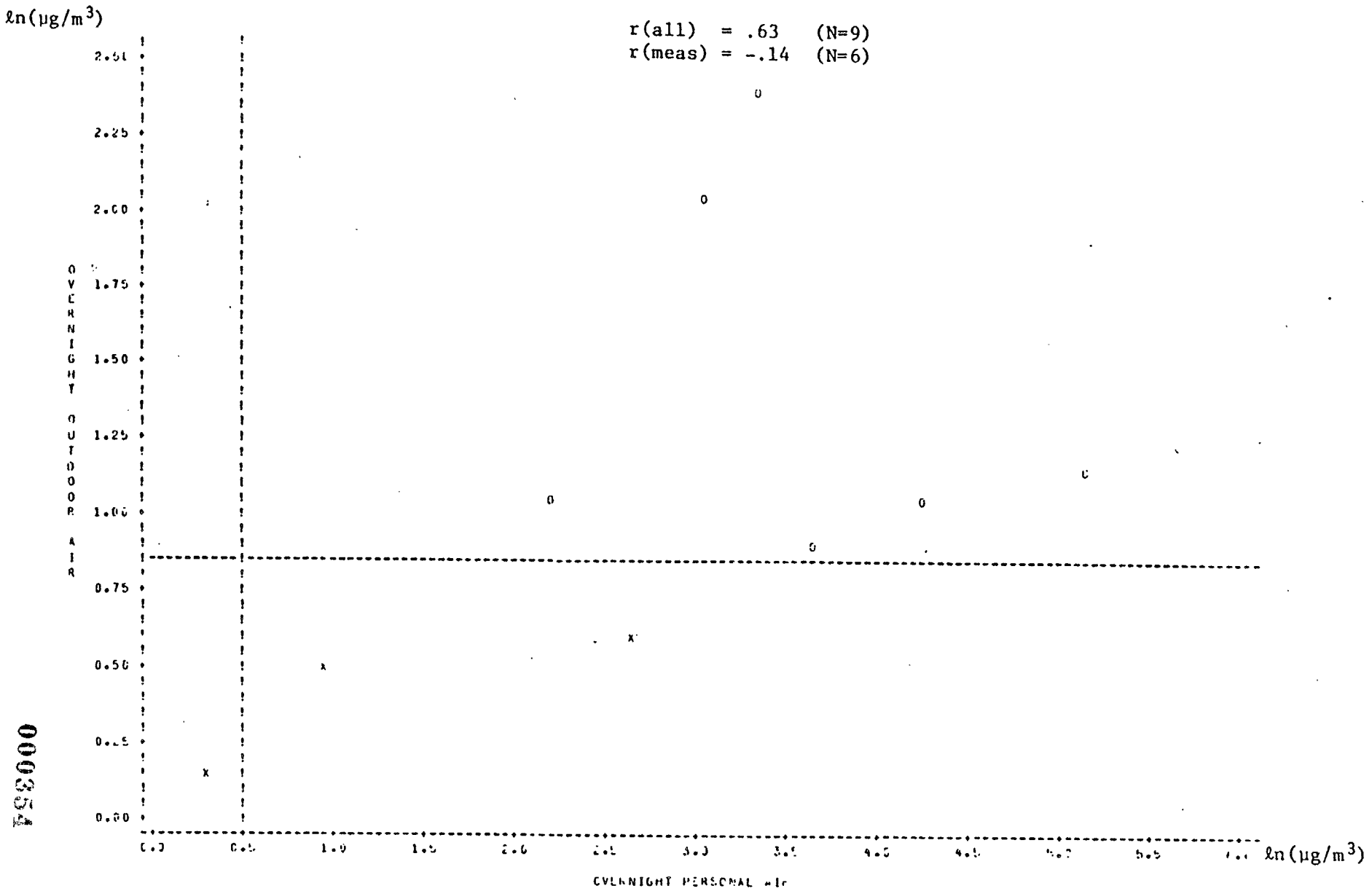

Figure 83. 1,1,1-trichloroethane - New Jersey third season.

000354

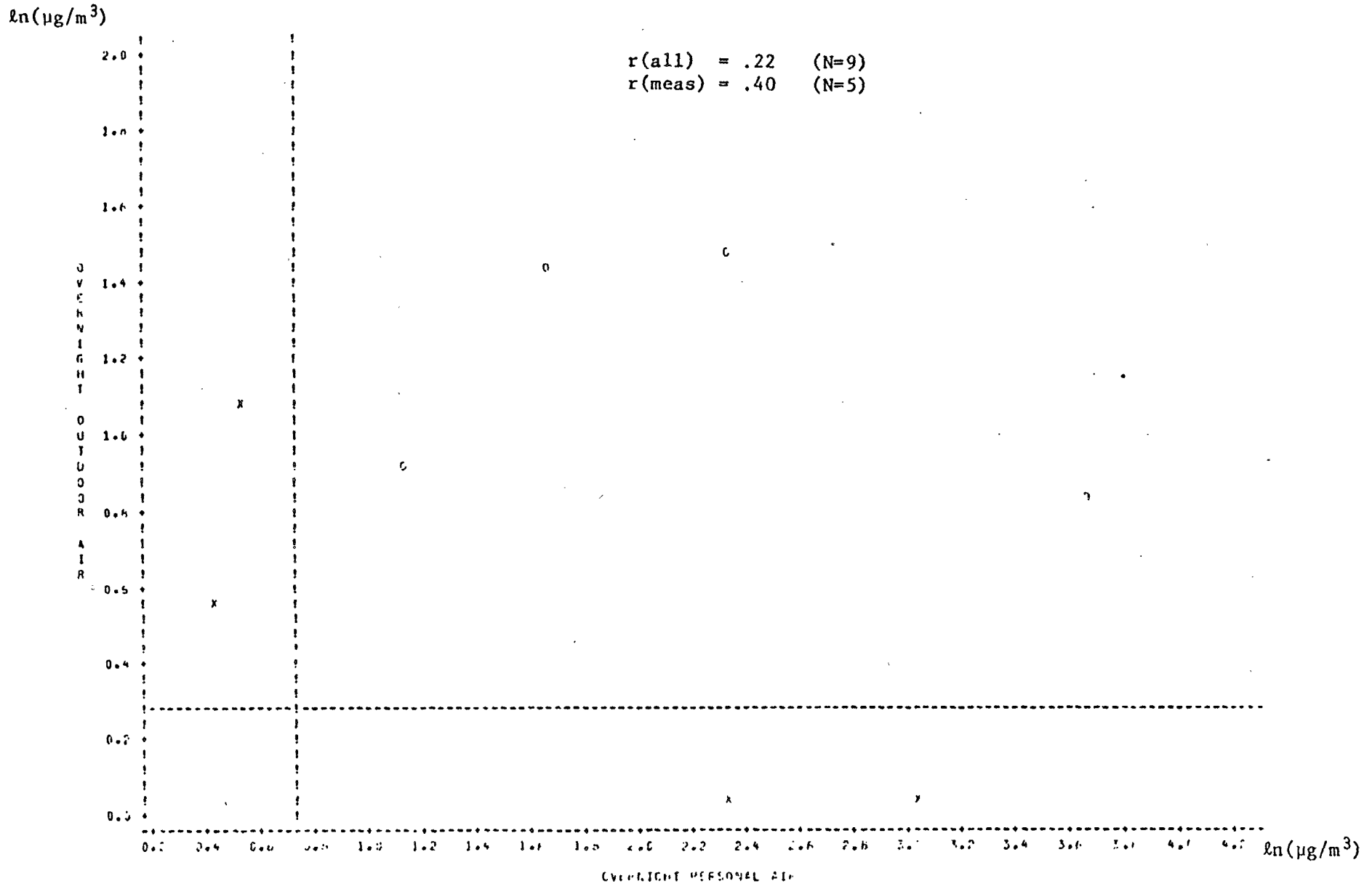

Figure 84. Tetrachloroethylene - New Jersey third season.

000355

Table 350. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR BREATH ALL AMOUNTS - NEW JERSEY THIRD SEASON

Sample Size Range: 49

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
	A	B	C	D	E	F	G	H	I
A Styrene		.76*	.71*	.71*	.21	.32*	.28	.42*	.39*
B Ethylbenzene			.92*	.96*	.51*	.52*	.52*	.40*	.48*
C o-Xylene				.96*	.41*	.50*	.44*	.38*	.41*
D m,p-Xylene					.46*	.55*	.50*	.36*	.48*
E 1,1,1-Trichloroethane						.39*	.34*	.21	.35*
F Trichloroethylene							.33*	.14	.47*
G Tetrachloroethylene								.36*	.18
H m,p-Dichlorobenzene									-.04
I Chloroform									

* Significantly different from zero at .05 level.

0003356

Table 351. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT PERSONAL AIR ALL AMOUNTS - NEW JERSEY THIRD SEASON

Sample Size Range: 49

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
	A	B	C	D	E	F	G	H	I
A Styrene		.73*	.69*	.64*	.34*	.47*	.48*	.34*	.59*
B Ethylbenzene			.96*	.96*	.28	.37*	.38*	.20	.58*
C o-Xylene				.95*	.20	.31*	.36*	.20	.50*
D m,p-Xylene					.32*	.40*	.39*	.19	.58*
E 1,1,1-Trichloroethane						.71*	.37*	.10	.61*
F Trichloroethylene							.39*	.15	.56*
G Tetrachloroethylene								.12	.47*
H m,p-Dichlorobenzene									.20
I Chloroform									

* Significantly different from zero at .05 level.

000357

Table 352. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME PERSONAL AIR ALL AMOUNTS - NEW JERSEY THIRD SEASON

Sample Size Range: 47

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
	A	B	C	D	E	F	G	H	I
A Styrene		.69*	.65*	.64*	.15	.32*	.59*	.13	.45*
B Ethylbenzene			.98*	.98*	.12	.33*	.61*	.11	.11
C o-Xylene				.98*	.17	.38*	.60*	.11	.10
D m,p-Xylene					.16	.37*	.59*	.14	.10
E 1,1,1-Trichloroethane						.45*	.33*	.32*	.27
F Trichloroethylene							.50*	.23	.26
G Tetrachloroethylene								.36*	.45*
H m,p-Dichlorobenzene									.33*
I Chloroform									

* Significantly different from zero at .05 level.

000358

Table 353. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT OUTDOOR AIR
ALL AMOUNTS - NEW JERSEY THIRD SEASON

Sample Size Range: 9

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
	A	B	C	D	E	F	G	H	I
A Styrene		.87*	.97*	.88*	.41	.43	.09	.79*	-.20
B Ethylbenzene			.89*	.97*	.51	.73*	.28	.68*	-.06
C o-Xylene				.92*	.42	.42	.15	.83*	-.19
D m,p-Xylene					.54	.64	.44	.76*	.08
E 1,1,1-Trichloroethane						.72*	.27	.47	.43
F Trichloroethylene							.29	.19	.21
G Tetrachloroethylene								.18	.77*
H m,p-Dichlorobenzene									-.03
I Chloroform									

* Significantly different from zero at .05 level.

000359

Table 354. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME OUTDOOR AIR
ALL AMOUNTS - NEW JERSEY THIRD SEASON

Sample Size Range: 8

Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
	A	B	C	D	E	F	G	H	I
A Styrene		.50	.83*	.47	.29	.43	.62	.64	.19
B Ethylbenzene			.83*	.97*	.45	.29	.12	.48	.38
C o-Xylene				.79*	.48	.45	.38	.62	.36
D m,p-Xylene					.36	.18	.26	.57	.24
E 1,1,1-Trichloroethane						.90*	.08	-.07	.95*
F Trichloroethylene							.11	-.19	.90*
G Tetrachloroethylene								.78*	-.14
H m,p-Dichlorobenzene									-.29
I Chloroform									

* Significantly different from zero at .05 level.

000360

Table 355. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR BREATH MEASURABLE AMOUNTS ONLY - NEW JERSEY THIRD SEASON

Sample Size Range: 6-49

			Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
No.		Compound	A	B	C	D	E	F	G	H	I
30	A	Styrene		.74*	.69*	.68*	.18	.47	.17	.21	.24
49	B	Ethylbenzene			.92*	.96*	.16	.01	.52*	.27	.13
49	C	o-Xylene				.96*	.08	.07	.44*	.24	.14
49	D	m,p-Xylene					.07	.04	.50*	.22	.05
28	E	1,1,1-Trichloroethane						.07	.13	-.12	.19
16	F	Trichloroethylene							.21	-.09	-.03
49	G	Tetrachloroethylene								.33*	.10
44	H	m,p-Dichlorobenzene									.49
15	I	Chloroform									

* Significantly different from zero at .05 level.

Table 356. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT PERSONAL AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY THIRD SEASON

Sample Size Range: 36-49

No.	Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
		A	B	C	D	E	F	G	H	I
43	A Styrene		.66*	.62*	.58*	.24	.41*	.55*	.04	.50*
49	B Ethylbenzene			.96*	.96*	.22	.17	.25	.11	.57*
49	C o-Xylene				.95*	.13	.15	.23	.12	.47*
49	D m,p-Xylene					.25	.19	.27	.10	.57*
47	E 1,1,1-Trichloroethane						.53*	.24	.00	.55*
40	F Trichloroethylene							.27	.25	.39*
46	G Tetrachloroethylene								.10	.44*
47	H m,p-Dichlorobenzene									.16
46	I Chloroform									

* Significantly different from zero at .05 level.

000362

Table 357. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME PERSONAL AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY THIRD SEASON

Sample Size Range: 33-47

			Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
No.		Compound	A	B	C	D	E	F	G	H	I
43	A	Styrene		.60*	.55*	.53*	.14	.34*	.47*	.07	.39*
47	B	Ethylbenzene			.98*	.98*	.14	.20	.58*	-.00	.13
47	C	o-Xylene				.98*	.16	.28	.57*	.00	.11
47	D	m,p-Xylene					.16	.24	.56*	.05	.11
45	E	1,1,1-Trichloroethane						.70*	.37*	.33*	.30
36	F	Trichloroethylene							.42*	.32	.18
45	G	Tetrachloroethylene								.26	.39*
42	H	m,p-Dichlorobenzene									.27
44	I	Chloroform									

* Significantly different from zero at .05 level.

000363

Table 358. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR DAYTIME OUTDOOR AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY THIRD SEASON

Sample Size Range: 5-8

No.	Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
		A	B	C	D	E	F	G	H	I
7	A Styrene		.25	.75	.20	a/	a/	.43	.70	a/
8	B Ethylbenzene			.83*	.97*	a/	a/	.12	-.30	a/
8	C o-Xylene				.79*	a/	a/	.38	.30	a/
8	D m,p-Xylene					a/	a/	.26	-.41	a/
3	E 1,1,1-Trichloroethane						a/	a/	a/	a/
2	F Trichloroethylene							a/	a/	a/
8	G Tetrachloroethylene								.36	a/
5	H m,p-Dichlorobenzene									a/
3	I Chloroform									

a/ Less than 5 sample amounts measurable.
* Significantly different from zero at .05 level.

0003364

Table 359. SPEARMAN CORRELATIONS BETWEEN SELECTED COMPOUNDS FOR OVERNIGHT OUTDOOR AIR MEASURABLE AMOUNTS ONLY - NEW JERSEY THIRD SEASON

Sample Size Range: 6-9

No.	Compound	Group I: Aromatics				Group II: Chlorinated Solvents			Miscellaneous	
		A	B	C	D	E	F	G	H	I
9	A Styrene		.87*	.97*	.88*	-.90*	a/	.68	.79*	a/
9	B Ethylbenzene			.89*	.97*	-.64	a/	.82*	.68*	a/
9	C o-Xylene				.92*	-.87*	a/	.79*	.83*	a/
9	D m,p-Xylene					-.62	a/	.89*	.76*	a/
6	E 1,1,1-Trichloroethane						a/	a/	-.64	a/
2	F Trichloroethylene							a/	a/	a/
7	G Tetrachloroethylene								.74	a/
9	H m,p-Dichlorobenzene									a/
2	I Chloroform									

a/ Less than 5 sample amounts measurable.
* Significantly different from zero at .05 level.

000365

DEVILS LAKE, NORTH DAKOTA

Twenty-four respondents from Devils Lake, North Dakota were surveyed during October of 1982. Samples were collected for breath, water, overnight personal air and daytime personal air. Fixed site outdoor air samples were collected for only five respondents and this number was too small to analyze (see Appendix BB for actual data). Samples were collected and chemically analyzed for 22 different volatile compounds.

A description of the twenty-four respondents is given by the results of the Household Questionnaire (see Table 360). Slightly more than half (14) were male. The age range was from 8 to 76 years. Half were employed. A third were current smokers while one person was a former smoker.

The results of the 24-hour activity screener are given in Table 361. More people were exposed to tobacco (9), smoke (14), or cleaning solutions (7) during the study period than any other substances covered by the screener.

Creating the Computer Analysis File

Before statistical analysis could be undertaken, several manipulations were necessary to process the data collected and create computer analysis files. Water samples for each respondent had been collected at two different time periods. These two samples were averaged. Also because of the difficulty of maintaining sufficient GC resolution for each pair of chemicals, the quantitative values of m-dichlorobenzene and p-dichlorobenzene, as well as m-xylene and p-xylene were added to give one total value for m,p-dichlorobenzene and one value for m-p-xylene. Thus all samples are more readily comparable on the 20 volatile compounds. Next, values below the level of detection (LOD) were set equal to 1/2 LOD and values at trace were set equal to 5/8 QL (quantifiable limit) where 5/8 was the midpoint between the LOD and the QL. For water there was no LOD category. Finally five duplicate overnight personal air and five duplicate personal air samples were analyzed and samples were averaged. The max QL for a particular media and compound was then defined as the maximum of the individual quantifiable limits for each sample.

The calculated sampling (see Section 4) weights were adjusted to compensate for missing data. This adjustment was done by compound by

000366

Table 360. HOUSEHOLD QUESTIONNAIRE - DEVILS LAKE

Q.1	SEX	Male	10
		Female	14
			24

Q.2	RACE	Hispanic	0
		American Indian/ Alaskan Native	2
		Black - Not Hispanic	0
		Asian/Pacific Islander	0
		White - Not Hispanic	21
		Other	1
			24

Q.3	AGE	7 - 17	5
		18 - 29	11
		30 - 39	5
		40 - 49	0
		50 - 59	0
		60 - 69	1
		70 - 79	2
			24

Q.4	Employed	12
	Unemployed	12
		24

Q.8 Length of Time With Present Employer

Less Than 1 Year	6
1 - 5 Years	5
6 - 10 Years	1
	12

Q.9 Percent of Time Employment Puts You In Close Contact With Smokers.

0 - 9	1
10 - 19	5
20 - 29	1
30 - 39	0
40 - 49	0
50 - 59	1
60 - 69	0
70 - 79	0
80 - 89	1
90 - 99	3
	12

continued

000367

Table 360 (continued)

Q.10 Does Your Occupation Usually Take You Away From Home?

Yes	12
No	0
	12

Q.12 Status If Not Presently Employed.

Housewife	2
Student	7
Unemployed	2
Retired	1
Disabled	1
	13

Q.14 Presently Employed At Usual Occupation.

Yes	10
No	1
	11

Q.15 How Long Employed At Usual Occupation.

Less Than 1 Year	3
1 - 5	4
6 - 10	2
11 - 15	1
	10

Q.16 Do You Work In Or At Any Of The Following Occupations Or Establishments?

Painting	3
Dry Cleaning	0
Chemical Plant	0
Petroleum Plant	0
Service Station/Garage/Engine Repair	3
Furniture Repair or Refinishing	1
Plastics Manufacture or Formulation	0
Textile Mill	0
Wood Processing Plant	0
Printing	0
Scientific Laboratory	1
Dye Plant	0
Hospital	3
Metal Products	0
Battery or Electrical Components Manufacture	0
Refrigerator/Air Cond. Repair or Manufacture	1
Taxi/Bus/Truck Driver	0
Pest Control	0
Drug Manufacturing or Formulating	0
Photo Developing	0
Landscaping/Gardening	4

continued

000368

Table 360 (continued)

Q.17 Does Anyone Else In Your Household Work At Or In Any Of The Following Occupations Or Establishments?

Painting	0
Dry Cleaning	1
Chemical Plant	0
Petroleum Plant	0
Service Station/Garage/Engine Repair	2
Furniture Repair or Refinishing	0
Plastics Manufacture or Formulation	0
Textile Mill	0
Wood Processing Plant	0
Printing	0
Scientific Laboratory	0
Dye Plant	0
Hospital	0
Metal Products	0
Battery or Electrical Components Manufacture	0
Refrigerator/Air Cond. Repair or Manufacture	0
Taxi/Bus/Truck Driver	0
Pest Control	0
Drug Manufacturing or Formulating	0
Photo Developing	0
Landscaping/Gardening	6

Q.18 Average Number Of Hours Normally Spent Away From Home.

Weekday	0 - 3	6
	4 - 7	2
	8 - 11	11
	12 - 15	5
		24
Weekend	0 - 3	6
	4 - 7	10
	8 - 11	4
	12 - 15	1
	16 - 19	0
	20 - 24	3
		24

Q.20 Do You Now Or Have You Ever Smoked Cigarettes?

Yes	9
No	15
	24

continued

000369

Table 360 (continued)

Q.21 Age When First Started Smoking.

10 - 14	4
15 - 19	4
20 - 24	1
	9

Q.22 If You No Longer Smoke, How Old Were You When You Last Gave Up Smoking?

15 - 19	1

Q.23 How Many Cigarettes Smoked Per Day?

1 - 4	2
5 - 14	2
15 - 24	1
25 - 34	1
35 - 49	2
	8

Q.24 Use Other Forms of Tobacco.

Cigars	3
Snuff	0
Chewing Tobacco	1
Pipe	1

Q.25 Does Anyone Else In Your Household Smoke?

Yes	9
No	15
	24

continued

000370

Table 360 (continued)

Number of Smokers.

1	5
2	3

Cigarettes	9
Cigars	1
Pipe	0

Q.26 Pump Own Gas.

Yes	11
No	13
	24

Q.27 Do Your Own Dry Cleaning

Yes	1
No	23
	24

Q.28 Do You Pursue Any Of The Following Hobbies?

Furniture Refinishing	2
Painting	5
Scale Models	1
Gardening	2

Q.29 Does Anyone Else In Your Household Pursue Any Of The Following Hobbies?

Painting	2
Furniture Refinishing	0
Scale Models	0
Gardening	7

Q.30 Do You Work With Or Use Insecticides, Pesticides, or Herbicides, As In Farming, Gardening, Or Extermination?

Yes	4
No	20
	24

How Often?	Rarely	3
	Occasionally	1
	Often	1
		5

continued

000371

Table 360 (continued)

How Often Do You Have Your House Treated For Pests?

Never	15
Weekly	0
Monthly	1
Yearly	8
	24

Q.31 What Do You Consider Your Current Physical Condition?

Excellent	4
Good	11
Fair	9
Poor	0
	24

Q.32 Currently Taking Any Prescription Medication(s) On A Regular Daily Basis?

Yes	8
No	16
	24

Q.33 Have You Taken Any Non-Prescription Medications In The Past 48 Hours?

Yes	7
No	17
	24

Q.34 Are You Presently Under A Doctor's Care?

Yes	5
No	19
	24

Q.35 Are You Presently Suffering From Any Respiratory Problems?

Yes	7
No	17
	24

Q.36 Which Of The Following Conditions Have You Ever Been Treated For?

Anemia	0
Liver Disease	0
Kidney Disease	0

Q.37 How Would You Rate Your General Recreation/Exercise Activity Pattern?

Heavy	5
Light	16
Sedentary	3
	24

continued

000372

Table 360 (continued)

Q.38 How Would You Rate Your Activity On The Job?

Heavy Physical Activity	7
Light Physical Activity	3
Sedentary	2
Not Applicable	12
	24

Q.43 How Many Years Have You Lived In This Area?

1 - 10	14
11 - 20	6
21 - 30	3
31 - 40	1
	24

Q.44 How Long Have You Lived At Your Current Address?

0 - 9	20
10 - 19	3
	23

Q.45 Do You Cool Your Home With Any Of The Following Appliances?

Central Air Conditioning	0
Window Air Conditioning	3
Evaporative Cooler(s)	0
Window Fan(s)	8
Ceiling Exhaust Fan(s)	15
Circulating Fan(s)	13

Q.46 Do You Have Any Of The Following Appliances?

Gas Stove	4
Electric Oven	22
Gas Furnace	7
Oil Heat	5

000373

Table 361. 24-HOUR EXPOSURE AND ACTIVITY SCREENER - DEVILS LAKE

Frequencies of 24-Hour Screener

1. Have you pumped your own gas in the past 24 hours?	Yes	0
	No	24
		24
2. Have you been to a dry cleaning establishment in the past 24 hours?	Yes	1
	No	23
		24
3. Have you done your own dry cleaning in the past 24 hours?	Yes	0
	No	24
		24
4. Have you used tobacco in any form in the past 24 hours?	Yes	9
	No	15
		24
5. Have you remained in close contact with smokers for extended periods?	Yes	14
	No	10
		24
6. Have you used or worked with insecticides, pesticides, or herbicides in any way including farming, gardening, and extermination in the past 24 hours?	Yes	0
	No	24
		24
8. Have you been swimming in the past 24 hours?	Yes	0
	No	24
		24

9. Have you worked at any of the following occupations or been in any of the following businesses?	Past Week	%	Past 24 Hours	%
Painting	3	13	2	8
Dry Cleaning	1	4	1	4
Chemical Plant	0	0	0	0
Petroleum Plant	0	0	0	0
Service Station/Garage/Engine Repair	12	50	3	13
Furniture Refinishing or Repair	1	4	1	4
Plastics Manufacture or Formulation	0	0	0	0
Textile Mill	0	0	0	0
Wood Processing Plant	0	0	0	0
Printing	0	0	0	0
Scientific Laboratory	1	4	1	4
Dye Plant	0	0	0	0
Hospital	3	13	2	8
Metal Work/Smelters	0	0	1	4

continued

000374

Table 361 (continued)

10. Have you been exposed to any of the following?	Past Week	%	Past 24 Hours	%
Solvents	5	21	3	13
Odorous Chemicals	7	29	4	17
Toxic or Hazardous Chemicals	2	8	2	8
High Dust or Particulate Levels	4	17	3	13
Auto/Truck Exhausts	1	4	1	4
Cleaning Solutions	15	63	7	29
Degreasing Compounds	1	4	1	4
Other	5	21	1	4

Table 362. WEIGHTED PERCENTAGES WITH MEASURABLE CONCENTRATIONS FOR 20 VOLATILES FOR DEVILS LAKE BY MEDIA

	Breath	Water	Overnight Personal Air	Daytime Personal Air
SAMPLE SIZE	23	24	23	24
Compounds				
Vinylidene Chloride 2/	52.1	0.00	17.9	8.59
Chloroform	65.3	100.	22.0	24.1
1,2-Dichloroethane	5.47	2.29	17.3	8.59
1,1,1-Trichloroethane	84.7	42.3	90.6	79.7
Benzene	96.6	0.00	-----	-----
Carbon Tetrachloride	10.9	0.00	14.0	7.58
Trichloroethylene	51.8	5.29	39.2	32.7
Bromodichloromethane	0.00	73.1	14.0	0.00
Dibromochloromethane	0.00	18.5	0.00	0.00
Toluene	----- 1/	29.7	-----	-----
Tetrachloroethylene	95.3	0.00	73.0	74.1
Chlorobenzene	44.0	2.29	14.0	7.15
Bromoform	0.00	7.58	0.00	0.00
Dibromochloropropane	0.00	-----	0.00	0.00
Styrene	59.0	0.00	-----	-----
m,p-Dichlorobenzene	59.3	2.29	89.30	56.2
o-Dichlorobenzene	7.39	-----	0.00	10.6
Ethylbenzene	80.0	0.00	60.1	66.5
o-Xylene	65.8	-----	90.6	85.0
m,p-Xylene	80.0	0.00	96.6	90.8

1/ Indicates not measurable - all values are missing.
2/ Vinylidene chloride has low breakthrough volume.

000375

NOTES TO THE TABLES 362 TO 374

1. Toluene, benzene, and styrene were not measured in overnight or daytime personal air. Toluene also was not measured in breath. Dibromochloropropane, o-dichlorobenzene, and o-xylene were not measured in water.

2. Field samples and duplicate measurements were averaged before percentages were computed.

3. Percentages in the tables are population estimates (i.e., they are weighted statistics).

4. Measurable is defined as above the quantifiable limit. All concentration data are considered significant to two figures.

5. Devils Lake data was collected in October 1982.

000376

media. The adjustment factors were calculated by obtaining the total weight for all observations, then dividing by the total weight for all observations where concentration information was obtained and not missing. The original weight of the observation was then multiplied by the adjustment factor.

$$\text{Adjusted Weight} = \frac{\text{original weight x total weight}}{\text{total weight less those with missing data}}$$

Weighted Percent Measurable

Table 362 shows the weighted percentages of individuals with concentrations measurable (% above quantifiable limit) for all twenty compounds analyzed by media. Some caution should be observed in interpreting the data since the information was based on only 24 observations.

Tables 363 through 366 summarize the results given in Table 362 by listing the compounds by media according to the frequency of percent measurable.

Generally for these twenty volatiles, breath, overnight personal air and daytime personal air showed similar patterns in percentages measurable. Water had its own distinct pattern. There were six compounds common to both airs and the breath samples in the greater than 50% category. They were 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene, ethylbenzene, o-xylene, and m,p-xylene. Breath also had chloroform, benzene, trichloroethylene and styrene in the high percent measurable category. The high category for water contained chloroform and bromodichloromethane. One compound, dibromochloropropane was common to all four media in the never present category. In addition, in this same category, breath, overnight personal air, and daytime personal air all had three other compounds, and water had six.

Weighted Summary Statistics

Tables 367 through 370 give the weighted summary statistics for those volatile compounds whose weighted percentages with measurable concentrations were greater than twenty percent. These tables are organized by media.

Table 367 contains the statistics for compounds for breath for Devils Lake. Benzene, tetrachloroethylene, 1,1,1-trichloroethane, and m,p-xylene showed relatively large means, ranges, and geometric means. Table 368 has the statistics for water. Only five of the twenty com-

Table 363. TARGET VOLATILES BY PERCENT MEASURABLE FOR DEVILS LAKE FOR BREATH

Ubiquitous Compounds	% Measurable
Chloroform	65
1,1,1-Trichloroethane	85
Benzene	97
Trichloroethylene	52
Tetrachloroethylene	95
Stylene	59
m,p-Dichlorobenzene	59
Ethylbenzene	80
o-Xylene	66
m,p-Xylene	80
Often Present	
Chlorobenzene	44
Occasionally Present	
1,2-Dichloroethane	5
Carbon Tetrachloride	11
o-Dichlorobenzene	7
Never Present	
Bromodichloromethane	0
Dibromochloromethane	0
Bromoform	0
Dibromochloropropane	0

000378

Table 364. TARGET VOLATILES BY PERCENT MEASURABLE FOR DEVILS LAKE FOR OVERNIGHT PERSONAL AIR

Ubiquitous Compounds	% Measurable
1,1,1-Trichloroethane	91
Tetrachloroethylene	73
m,p-Dichlorobenzene	89
Ethylbenzene	60
o-Xylene	91
m,p-Xylene	97
Often Present	
Chloroform	22
Trichloroethylene	39
Occasionally Present	
1,2-Dichloroethane	17
Carbon Tetrachloride	14
Bromodichloromethane	14
Chlorobenzene	13
Never Present	
Dibromochloromethane	0
Bromoform	0
Dibromochloropropane	0
o-Dichlorobenzene	0

Table 365. TARGET VOLATILES BY PERCENT MEASURABLE FOR DEVILS LAKE FOR DAYTIME PERSONAL AIR

Ubiquitous Compounds	% Measurable
1,1,1-Trichloroethane	80
Tetrachloroethylene	74
m,p-Dichlorobenzene	56
Ethylbenzene	66
o-Xylene	85
m,p-Xylene	91
Often Present	
Chloroform	24
Trichloroethylene	33
Occasionally Present	
1,2-Dichloroethane	9
Carbon Tetrachloride	8
Chlorobenzene	7
o-Dichlorobenzene	10
Never Present	
Dibromochloromethane	0
Bromodichloromethane	0
Bromoform	0
Dibromochloropropane	0

000380

Table 366. TARGET VOLATILES BY PERCENT MEASURABLE FOR DEVILS LAKE FOR WATER

Ubiquitous Compounds	% Measurable
Chloroform	100
Bromodichloromethane	73
Often Present	
1,1,1-Trichloroethane	42
Toluene	30
Occasionally Present	
1,2-Dichloroethane	2
Trichloroethylene	5
Dibromochloromethane	18
Chlorobenzene	2
Bromoform	8
m,p-Dichlorobenzene	2
Never Present	
Vinylidene Chloride	0
Benzene	0
Carbon Tetrachloride	0
Tetrachloroethylene	0
Styrene	0
Ethylbenzene	0
m,p-Xylene	0

Table 367. WEIGHTED SUMMARY STATISTICS FOR BREATH SAMPLES FOR DEVILS LAKE (μg/m³)

SAMPLE SIZE = 23
ESTIMATED POPULATION = 6,163

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	0.48	3.45	0.57	2.90	4.40	0.91	0.05- 19.0
1,1,1-Trichloroethane	0.48	30.4	3.62	9.30	28.0	5.73	0.06-680.
Benzene	0.22	60.1	1.84	55.5	82.0	22.3	0.03-230.
Trichloroethylene	0.68	2.52	1.47	0.89	4.80	0.61	0.08- 16.0
Tetrachloroethylene	2.04	16.6	3.06	8.00	20.0	8.92	0.26-170.
Chlorobenzene	0.68	2.54	1.60	0.48	3.00	0.55	0.08- 27.0
Styrene	0.48	2.05	1.13	0.52	3.50	0.75	0.06- 11.0
m,p-Dichlorobenzene	0.74	2.09	0.72	0.82	1.80	0.86	0.10- 27.0
Ethylbenzene	0.25	8.44	4.39	1.40	9.90	1.68	0.03- 62.0
o-Xylene	0.44	6.79	2.87	2.70	7.60	1.42	0.05- 42.0
m,p-Xylene	0.49	13.8	6.00	4.50	17.0	3.08	0.05- 84.0

Table 368. WEIGHTED SUMMARY STATISTICS FOR WATER SAMPLES FOR DEVILS LAKE (μg/mL)

SAMPLE SIZE = 24
ESTIMATED POPULATION = 6,163

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	--- 1/	0.46	0.06	0.38	0.51	0.38	0.12- 1.39
1,1,1-Trichloroethane	0.05	0.04	0.01	0.03	0.04	0.04	0.03- 0.07
Bromodichloromethane	0.10	0.21	0.03	0.18	0.25	0.16	0.06- 1.02
Dibromochloromethane	0.10	0.09	0.01	0.06	0.06	0.08	0.06- 0.45
Toluene	0.50	0.59	0.14	0.31	0.40	0.44	0.31- 3.16

1/ --- indicates all values are measurable.

pounds sampled had weighted percentages greater than twenty percent for water. Of these five, chloroform and toluene had the largest mean, median, range, and geometric mean by far. By comparison with the rest, bromodichloromethane had fairly high statistics.

Table 369 shows the weighted summary statistics for overnight personal air. The four highest means, ranges, and geometric means were 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene, and m,p-xylene. Trichloroethylene and o-xylene also had fairly large means, geometric means, and medians. Daytime personal air weighted summary statistics are given in Table 370. 1,1,1-trichloromethane, tetrachloroethylene, o-xylene and m,p-xylene had the largest values for mean, standard error, median, geometric mean, and range. M,p-dichlorobenzene had a fairly large median and geometric mean.

In general the means were much larger than the medians. This again shows the skewness of these distributions. Also, the 75th percentile quite often was much less than the MAX value.

Table 371 compares the magnitude of the compound concentrations to the median quantifiable limit by media and compound. A compound was reported as high if the % measurable was greater than 50. Overall, most compound levels were low in comparison to the median QL. For air and breath volatiles, the compounds with relatively high levels were 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene, ethylbenzene, o-xylene, and m,p-xylene. Breath also had relatively high levels for chloroform, benzene, trichloroethylene, styrene, and ethylbenzene. Water had high levels for bromodichloromethane only.

Correlations Between Media

Table 372 gives the Spearman correlations among the three media for the compounds (toluene was missing for these three media). Again, care should be taken in interpreting these statistics due to small sample size. Also remember that many of the compounds had a majority of their concentrations below the QL. Significant correlations between breath and overnight personal air were found for 1,1,1-trichloroethane, tetrachloroethylene, chlorobenzene, m,p-dichlorobenzene, ethylbenzene, and m,p-xylene. For breath and daytime personal air, 1,1,1-trichloroethane, tetrachloroethylene, and m,p-dichlorobenzene were significant. 1,1,1-trichloroethane, trichloroethylene, dibromochloromethane, tetrachloro-

Table 369. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR SAMPLES FOR DEVILS LAKE (μg/m³)

SAMPLE SIZE = 23
ESTIMATED POPULATION = 6,163

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	0.94	0.76	0.28	0.56	0.75	0.38	0.11- 2.80
1,1,1-Trichloroethane	2.00	117.	87.9	37.0	82.0	25.5	0.25-1100.
Trichloroethylene	1.08	5.52	4.78	0.75	3.50	0.86	0.12- 32.0
Tetrachloroethylene	2.00	11.9	8.60	4.70	20.0	5.02	0.25- 45.0
Chlorobenzene	1.10	1.48	0.99	0.63	0.75	0.52	0.12- 7.90
m,p-Dichlorobenzene	0.79	10.6	7.70	1.30	5.20	2.28	0.49-230.
Ethylbenzene	0.66	2.83	0.28	2.75	4.50	1.22	0.08- 11.0
o-Xylene	0.48	4.32	0.04	2.90	5.80	2.63	0.07- 19.0
m,p-Xylene	0.56	10.5	0.32	6.00	15.0	5.83	0.07- 40.0

Table 370. WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR SAMPLES FOR DEVILS LAKE (μg/m³)

SAMPLE SIZE = 24
ESTIMATED POPULATION = 6,163

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	1.44	3.26	2.32	0.19	0.78	0.43	0.14- 50.0
1,1,1-Trichloroethane	2.32	45.1	25.2	13.0	36.0	10.6	0.25-300.
Trichloroethylene	1.68	4.30	3.41	0.26	3.20	0.81	0.17- 47.0
Tetrachloroethylene	3.44	36.1	28.7	5.40	10.0	4.98	0.43-1600
Chlorobenzene	1.70	3.90	3.28	0.24	1.13	0.50	0.17- 64.0
m,p-Dichlorobenzene	1.50	15.0	9.56	2.10	4.20	2.65	0.23-320.
Ethylbenzene	1.12	17.7	10.7	1.40	6.00	1.59	0.12-260.
o-Xylene	0.84	30.1	23.0	2.50	5.30	2.78	0.11-490.
m,p-Xylene	0.84	49.2	32.8	6.30	13.0	6.87	0.11-730.

000284

Table 371. SUMMARY OF THE MAGNITUDE OF COMPOUND LEVELS COMPARED TO THE MEDIAN QUANTIFIABLE LIMIT BY COMPOUND AND MEDIA FOR DEVILS LAKE

Compounds	Breath	Water	Overnight Personal Air	Daytime Personal Air
Vinylidene Chloride 2/	---	low	---	---
Chloroform	high	high	low	low
1,2-Dichloroethane	low	low	low	low
1,1,1-Trichloroethane	high	low	high	high
Benzene	high	low	---	---
Carbon Tetrachloride	low	low	low	low
Trichloroethylene	high	low	low	low
Bromodichloromethane	low	high	low	low
Dibromochloromethane	low	low	low	low
Toluene	--- 1/	low	---	---
Tetrachloroethylene	high	low	high	high
Chlorobenzene	high	low	low	low
Bromoform	low	low	low	low
Dibromochloropropane	low	---	low	low
Styrene	high	low	---	---
m,p-Dichlorobenzene	high	low	high	high
o-Dichlorobenzene	low	---	low	low
Ethylbenzene	high	low	high	high
o-Xylene	high	---	high	high
m,p-Xylene	high	low	high	high

1/ Indicates compound was missing for this media.
2/ Vinylidene chloride is not reported for air and breath due to low breakthrough volume.
* 100 percent measurable.

000385

ethylene, bromoform, dibromochloropropane, m,p- dichlorobenzene, and m,p-xylene were found to be significant for overnight and daytime personal air.

Tables 372 through 374 shows the Spearman correlations for water and the other three media. There were no significant correlations between water and any of the other media.

In general a significant difference was found when both media have percent measurable greater than twenty percent. This is shown in Table 374 for breath, daytime personal air, and overnight personal air. This was not true for water. Only chloroform and 1,1,1-trichloroethane had percent measurable greater than twenty for both water and another media.

Figures 85 through 90 show natural logarithmic plots of tetrachloroethylene and m,p-dichlorobenzene for breath versus outdoor personal air, breath versus daytime personal air, and outdoor versus daytime personal air. These two compounds were selected because they showed high percentages measurable over all media as well as having significant correlations between media.

One was added to each number before the log was taken so each plot starts at 0 or greater. The lines represent on each plot the max QL values for the compounds for the two media plotted. If the compound was 100% measurable in the media, then no max QL line is shown. An "O" indicates that both media were measurable and an "X" indicates that one or both media were not measurable. The Spearman correlations are also shown. Although the logarithmic transformation improved the plots and there was some evidence of a trend in several of the plots, it is evident that there was seldom a strong correlation between the various media. Part of this lack of correlation was due, as the plots indicate, to the number of data points below or near the max QL. Also, the limited sample sizes made it difficult to interpret the plots since one data point could have a large effect on the correlation (e.g., Figure 86).

Table 372. SPEARMAN CORRELATIONS FOR DEVILS LAKE

	Breath & Overnight Personal Air	Breath & Daytime Personal Air	Overnight and Daytime Personal Air
SAMPLE SIZE	(22)	(23)	(23)
Compounds			
Chloroform	-.14	-.01	.14
1,2-Dichloroethane	-.04	.18	-.02
1,1,1-Trichloroethane	.60*	.71*	.73*
Carbon Tetrachloride	-.02	-.23	.32
Trichloroethylene	.18	.26	.52*
Bromodichloromethane	-.10	.31	-.06
Dibromochloromethane	-.04	.34	.45*
Tetrachloroethylene	.53*	.53*	.60*
Chlorobenzene	.44*	.37	.30
Bromoform	-.06	.29	-.45*
Dibromochloropropane	-.15	.36	-.43*
m,p-Dichlorobenzene	.45*	.63*	.54*
o-Dichlorobenzene	.07	.01	.35
Ethylbenzene	-.02	.12	.01
o-Xylene	-.09	.21	.33
m,p-Xylene	-.03	.19	.60*

* Significant from zero at .05 level.

000387

Table 373. SPEARMAN CORRELATIONS FOR DEVILS LAKE

	Water & Breath	Water & Overnight Personal Air	Water & Daytime Personal Air
SAMPLE SIZE	(23)	(23)	(24)
Compounds			
Chloroform	.00	.25	.12
1,2-Dichloroethane	.28	.03	.14
1,1,1-Trichloroethane	.18	.47	.20
Trichloroethylene	.26	.13	-.29
Bromodichloromethane	-.02	.12	.43
Dibromochloromethane	-.02	.34	.46
Chlorobenzene	.08	.26	.05
Bromoform	-.04	-.04	.41
m,p-Dichlorobenzene	.32	-.16	-.15

Table 374. SPEARMAN CORRELATIONS FOR DEVILS LAKE WHEN BOTH MEDIA HAVE % MEASURABLE GREATER THAN 20%

	Breath & Overnight Personal Air	Breath & Daytime Personal Air	Overnight and Daytime Personal Air
SAMPLE SIZE	(22)	(23)	(23)
Compounds			
1,1,1-Trichloroethane	.60*	.71*	.73*
Tetrachloroethylene	.53*	.53*	.60*
m,p-Dichlorobenzene	.45*	.63*	.54*
Ethylbenzene	-.02	.12	.01
o-Xylene	-.09	.21	.33
m,p-Xylene	-.03	.19	.60*
Chloroform	-.14	-.01	.14
Trichloroethylene	.18	.26	.52*

* Significant from 0 at .05 level.

000388

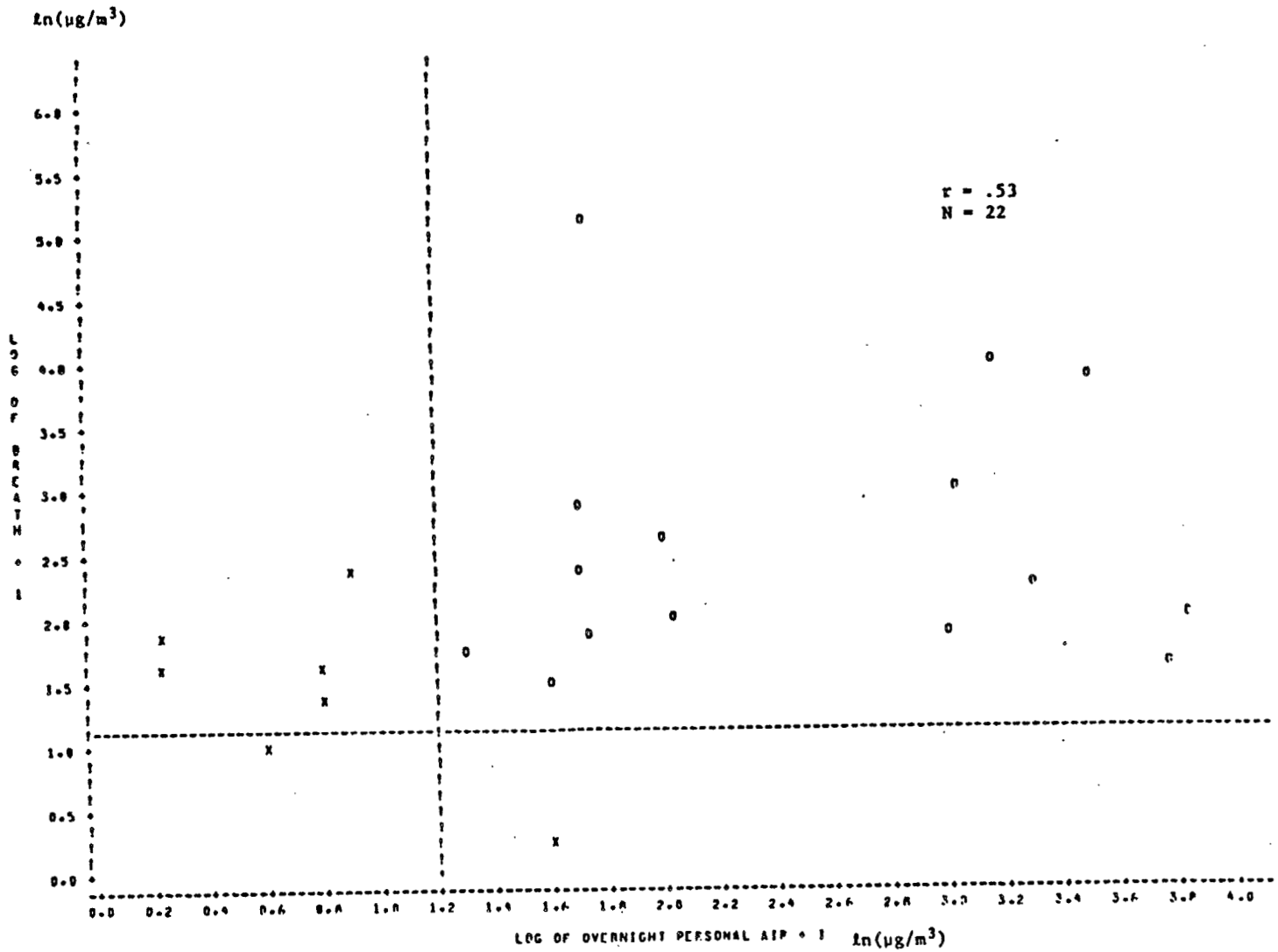

Figure 85. Breath vs. overnight personal air for tetrachloroethylene - Devils Lake

000389

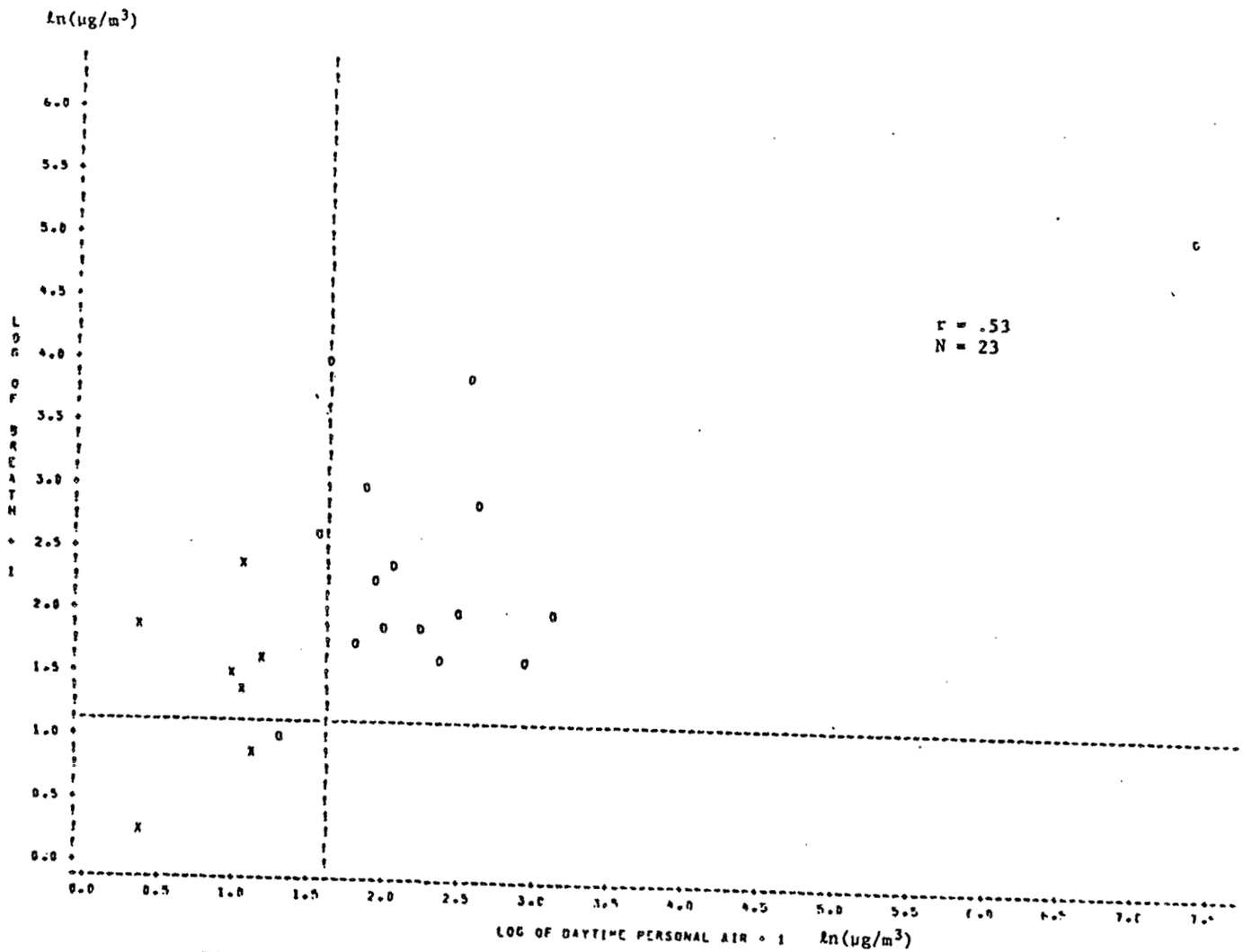

Figure 86. Breath vs. daytime personal air for tetrachloroethylene - Devils Lake.

000390

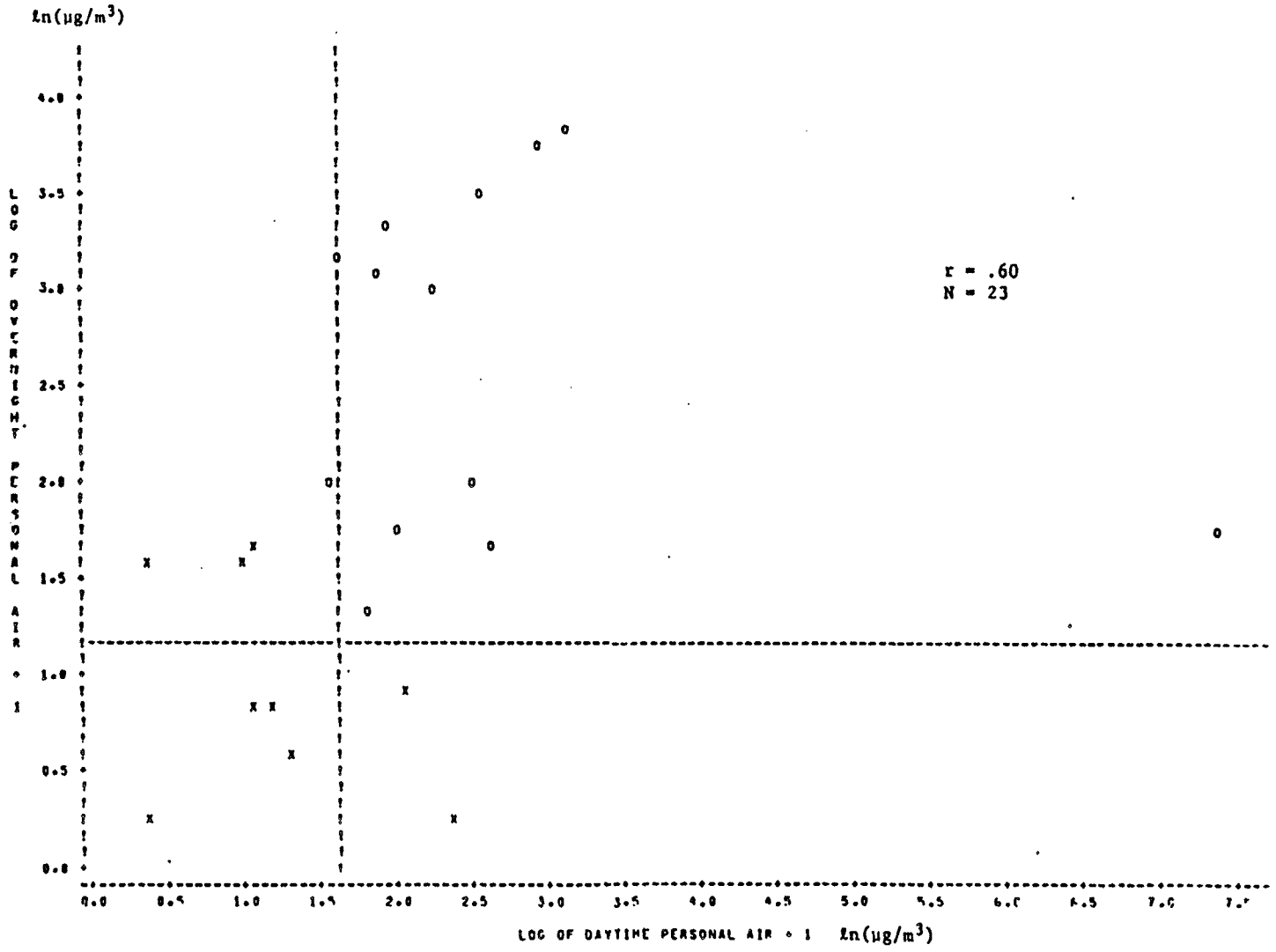

Figure 87. Overnight personal air vs. daytime personal air for tetrachloroethylene - Devils Lake

000331

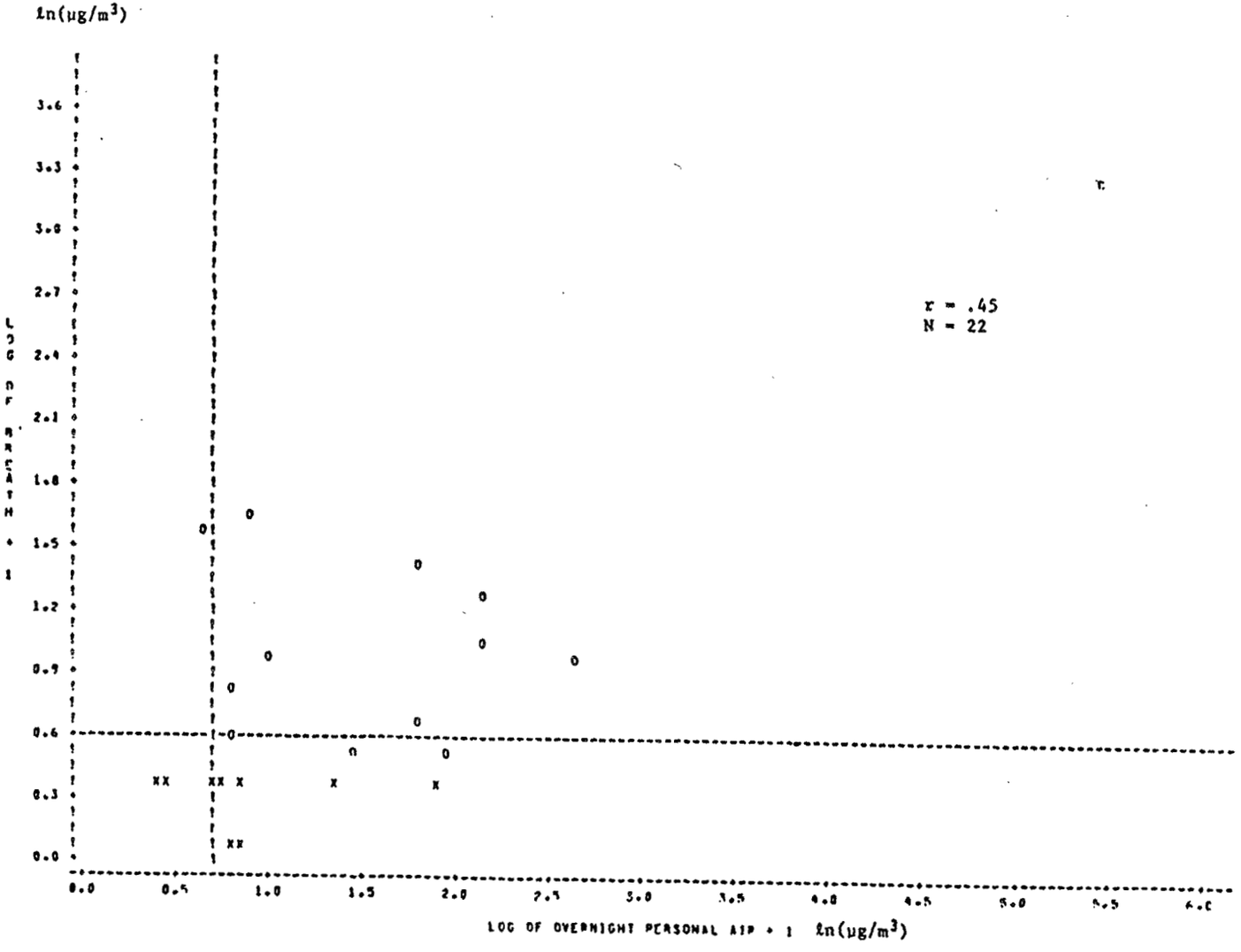

Figure 88. Breath vs. overnight personal air for m,p-dichlorobenzene - Devils Lake.

000392

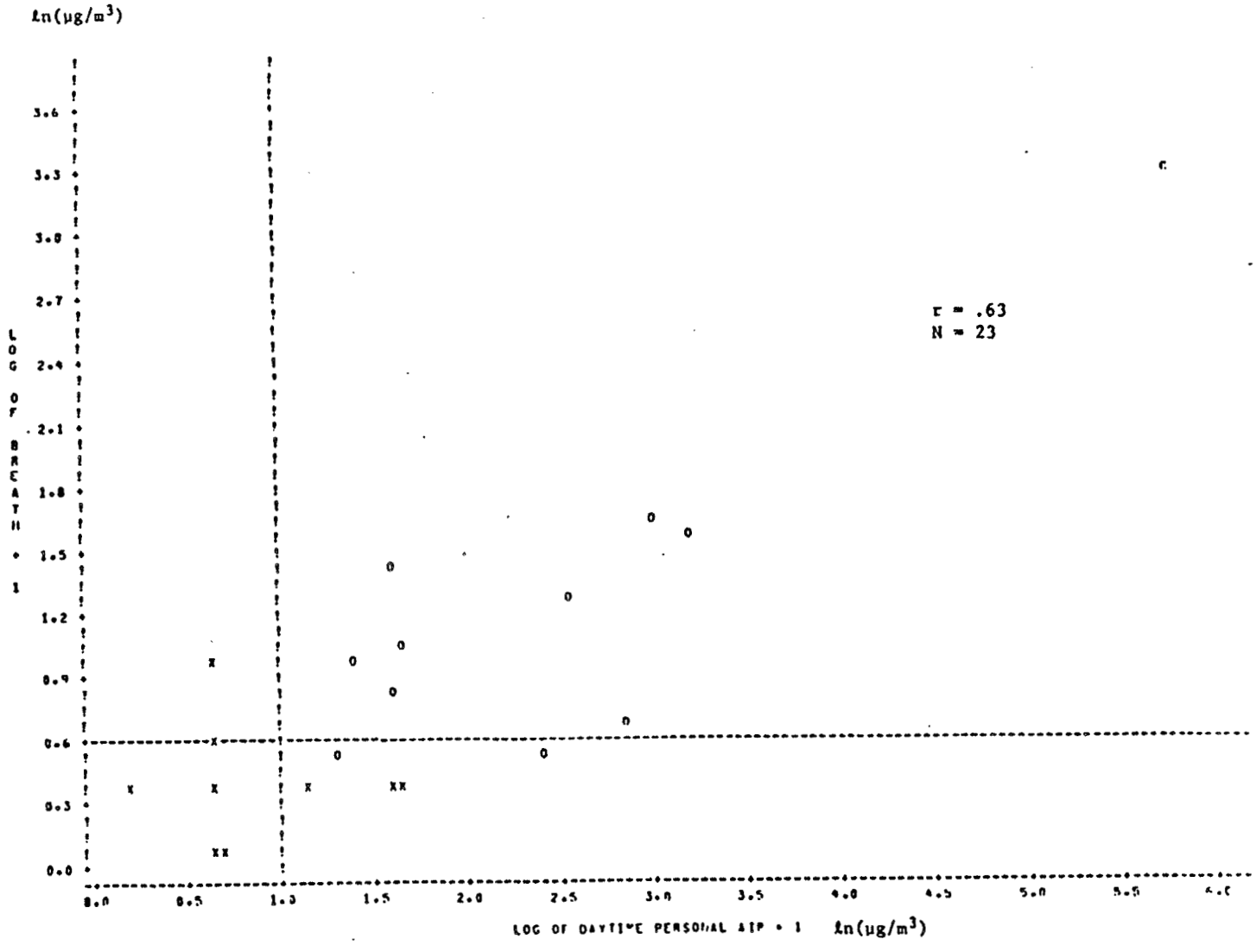

Figure 89. Breath vs. daytime personal air for m,p-dichlorobenzene - Devils Lake.

000393

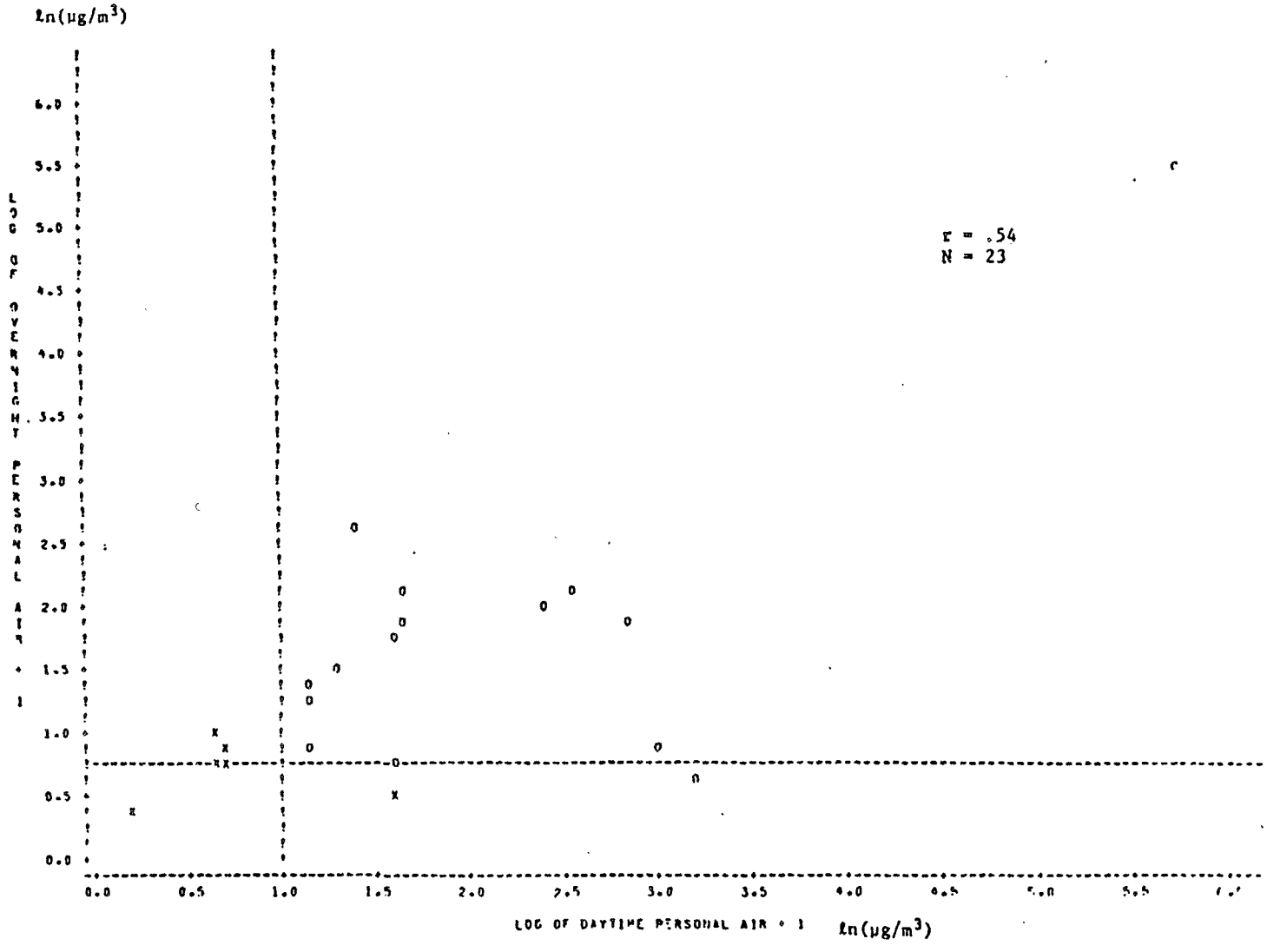

Figure 90. Overnight personal air vs. daytime personal air for m,p-dichlorobenzene - Devils Lake.

000394

GREENSBORO, NORTH CAROLINA

Twenty-four respondents from Greensboro, North Carolina were surveyed during May of 1982. Samples were collected for breath, water, overnight personal air and daytime personal air. Fixed site outdoor air samples were collected for only six respondents and this number was too small to analyze (see Appendix BB for actual data). Samples were collected and chemically analyzed for 22 different volatile compounds.

A description of the twenty-four respondents is given by the results of the Household Questionnaire (see Table 375). Almost two thirds (15) were male. The age range was from 7 to 72 years. Slightly more than half (13) were employed. Nine were current smokers while six were former smokers.

The results of the 24-hour activity screener are given in Table 376. More people were exposed to tobacco (10), smoke (10), odorous chemicals (7), or cleaning solutions (7) during the study period than any other substances covered by the screener.

Creating the Computer Analysis File

Before statistical analysis could be undertaken, several manipulations were necessary to process the data collected and create computer analysis files. Water samples for each respondent had been collected at two different time periods. These two samples were averaged. Also because of the difficulty of maintaining sufficient GC resolution for each pair of chemicals, the quantitative values of m-dichlorobenzene and p-dichlorobenzene, as well as m-xylene and p-xylene were added to give one total value for m,p-dichlorobenzene and one value for m,p-xylene. Thus all samples are more readily comparable on the 20 volatile compounds. Next, values below the level of detection (LOD) were set equal to 1/2 LOD and values at trace were set equal to 5/8 QL (quantifiable limit) where 5/8 was the midpoint between the LOD and the QL. For water there was no LOD category. Finally, five duplicate overnight personal air samples and nine duplicate daytime personal air samples were averaged. The max QL for a particular media and compound was then defined as the maximum of the individual quantifiable limits for each sample.

The calculated sampling weights (see Section 4) were adjusted to compensate for missing data. This adjustment was done by compound by media. The adjustment factors were calculated by obtaining the total

Table 375. HOUSEHOLD QUESTIONNAIRE - GREENSBORO

Q.1	SEX	Male	15
		Female	9
			24

Q.2	RACE	Hispanic	0
		Black - Not Hispanic	13
		Asian/Pacific Islander	0
		White - Not Hispanic	11
		Other	0
			24

Q.3	AGE	7 - 17	5
		18 - 29	5
		30 - 39	4
		40 - 49	3
		50 - 59	3
		60 - 69	1
		70 - 79	3
		80 - 89	0
			24

Q.4	Employed	13
	Unemployed	11
		24

Q.8 Length of Time With Present Employer

Less Than 1 Year	4
1 - 5 Years	3
6 - 10 Years	2
11 - 15 Years	1
16 - 20 Years	1
21 - 25 Years	1
26 - 30 Years	0
31 - 35 Years	0
36 - 40 Years	0
41 - 45 Years	1
	13

Q.9 Percent of Time Employment Puts You In Close Contact With Smokers.

0 - 9	4
10 - 19	1
20 - 29	0
30 - 39	0
40 - 49	1
50 - 59	1
60 - 69	1
70 - 79	0
80 - 89	0
90 - 99	4
	12

continued

Table 375 (continued)

Q.10 Does Your Occupation Usually Take You Away From Home?

Yes	13
No	0
	13

Q.12 Status If Not Presently Employed.

Housewife	4
Student	5
Unemployed	0
Retired	2
Disabled	0
	11

Q.14 Presently Employed At Usual Occupation.

Yes	14
No	1
	15

Q.15 How Long Employed At Usual Occupation.

Less Than 1 Year	3
1 - 5	3
6 - 10	4
11 - 15	0
16 - 20	0
21 - 25	1
26 - 30	0
31 - 35	0
36 - 40	0
41 - 45	0
46 - 50	1
	12

continued

Table 375 (continued)

Q.16 Do You Work In Or At Any Of The Following Occupations Or Establishments?

Painting	0
Dry Cleaning	0
Chemical Plant	0
Petroleum Plant	0
Service Station/Garage/Engine Repair	0
Furniture Repair or Refinishing	0
Plastics Manufacture or Formulation	0
Textile Mill	2
Wood Processing Plant	0
Printing	0
Scientific Laboratory	0
Dye Plant	0
Hospital	0
Metal Products	0
Battery or Electrical Components Manufacture	0
Refrigerator/Air Cond. Repair or Manufacture	0
Taxi/Bus/Truck Driver	1
Pest Control	0
Drug Manufacturing or Formulating	0
Photo Developing	0
Landscaping/Gardening	1

Q.17 Does Anyone Else In Your Household Work At Or In Any Of The Following Occupations Or Establishments?

Painting	0
Dry Cleaning	0
Chemical Plant	1
Petroleum Plant	0
Service Station/Garage/Engine Repair	0
Furniture Repair or Refinishing	0
Plastics Manufacture or Formulation	0
Textile Mill	0
Wood Processing Plant	0
Printing	0
Scientific Laboratory	0
Dye Plant	0
Hospital	2
Metal Products	0
Battery or Electrical Components Manufacture	0
Refrigerator/Air Cond. Repair or Manufacture	0
Taxi/Bus/Truck Driver	1
Pest Control	0
Drug Manufacturing or Formulating	0
Photo Developing	0
Landscaping/Gardening	0

continued

Table 375 (continued)

Q.18 Average Number Of Hours Normally Spent Away From Home.

Weekday	0 - 3	6
	4 - 7	4
	8 - 11	10
	12 - 15	2
	16 - 19	0
	20 - 24	0
		22
Weekend	0 - 3	10
	4 - 7	6
	8 - 11	4
	12 - 15	2
	16 - 19	0
	20 - 24	0
		22

Q.20 Do You Now Or Have You Ever Smoked Cigarettes?

Yes	15
No	9
	24

Q.21 Age When First Started Smoking.

10 - 14	2
15 - 19	10
20 - 24	3
25 - 29	1
	16

Q.22 If You No Longer Smoke, How Old Were You When You Last Gave Up Smoking?

20 - 24	1
25 - 29	2
30 - 34	0
35 - 39	0
40 - 44	2
45 - 49	0
50 - 54	0
55 - 59	0
60 - 64	1
	6

Q.23 How Many Cigarettes Smoked Per Day?

1 - 4	3
5 - 14	2
15 - 24	7
25 - 34	4
	16

continued

Table 375 (continued)

Q.24 Use Other Forms of Tobacco.

Cigars	0
Snuff	0
Chewing Tobacco	2
Pipe	1
Other	0

Q.25 Does Anyone Else In Your Household Smoke?

Yes	12
No	11
	23

Number of Smokers.

1	2
2	1
3	0
4	1

Cigarettes	10
Cigars	2
Pipe	0

Q.26 Pump Own Gas.

Yes	10
No	13
	23

Q.27 Do Your Own Dry Cleaning

Yes	4
No	20
	24

Q.28 Do You Pursue Any Of The Following Hobbies?

Furniture Refinishing	2
Painting	3
Scale Models	2
Gardening	10

Q.29 Does Anyone Else In Your Household Pursue Any Of The Following Hobbies?

Painting	4
Furniture Refinishing	2
Scale Models	1
Gardening	5

continued

Table 375 (continued)

Q.30 Do You Work With Or Use Insecticides, Pesticides, or Herbicides, As In Farming, Gardening, Or Extermination?

Yes	4
No	19
	23

How Often?

Rarely	1
Occasionally	3
Often	0
	4

How Often Do You Have Your House Treated For Pests?

Never	2
Weekly	0
Monthly	1
Yearly	21
	23

Q.31 What Do You Consider Your Current Physical Condition?

Excellent	11
Good	9
Fair	4
Poor	0
	24

Q.32 Currently Taking Any Prescription Medication(s) On A Regular Daily Basis?

Yes	8
No	16
	24

Q.33 Have You Taken Any Non-Prescription Medications In The Past 48 Hours?

Yes	11
No	13
	24

Q.34 Are You Presently Under A Doctor's Care?

Yes	5
No	19
	24

Q.35 Are You Presently Suffering From Any Respiratory Problems?

Yes	8
No	16
	24

continued

Table 375 (continued)

Q.36 Which Of The Following Conditions Have You Ever Been Treated For?

Anemia	1
Liver Disease	0
Kidney Disease	0

Q.37 How Would You Rate Your General Recreation/Exercise Activity Pattern?

Heavy	6
Light	14
Sedentary	4
	24

Q.38 How Would You Rate Your Activity On The Job?

Heavy Physical Activity	4
Light Physical Activity	8
Sedentary	2
Not Applicable	10
	24

Q.43 How Many Years Have You Lived In This Area?

1 - 10	10
11 - 20	8
21 - 30	4
31 - 40	0
41 - 50	1
51 - 60	1
	24

Q.44 How Long Have You Lived At Your Current Address?

0 - 9	12
10 - 19	3
20 - 29	5
30 - 39	1
	2

Q.45 Do You Cool Your Home With Any Of The Following Appliances?

Central Air Conditioning	13
Window Air Conditioning	9
Evaporative Cooler(s)	0
Window Fan(s)	3
Ceiling Exhaust Fan(s)	2
Circulating Fan(s)	1

Q.46 Do You Have Any Of The Following Appliances?

Gas Stove	1
Electric Oven	23
Gas Furnace	12
Oil Heat	3

Table 376. 24-HOUR EXPOSURE AND ACTIVITY SCREENER - GREENSBORO

Frequencies of 24-Hour Screener

1.	Have you pumped your own gas in the past 24 hours?	Yes	4
		No	19
			23
2.	Have you been to a dry cleaning establishment in the past 24 hours?	Yes	1
		No	22
			23
3.	Have you done your own dry cleaning in the past 24 hours?	Yes	0
		No	23
			23
4.	Have you used tobacco in any form in the past 24 hours?	Yes	10
		No	13
			23
5.	Have you remained in close contact with smokers for extended periods?	Yes	10
		No	12
			22
6.	Have you used or worked with insecticides, pesticides, or herbicides in any way including farming, gardening, and extermination in the past 24 hours?	Yes	3
		No	20
			23
8.	Have you been swimming in the past 24 hours?	Yes	0
		No	23
			23

9. Have you worked at any of the following occupations or been in any of the following businesses?	Past Week	%	Past 24 Hours	%
Painting	4	17	2	9
Dry Cleaning	1	4	1	4
Chemical Plant	0	0	0	0
Petroleum Plant	0	0	0	0
Service Station/Garage/Engine Repair	12	52	5	22
Furniture Refinishing or Repair	1	4	1	4
Plastics Manufacture or Formulation	0	0	0	0
Textile Mill	2	9	1	4
Wood Processing Plant	0	0	0	0
Printing	1	4	1	4
Scientific Laboratory	0	0	0	0
Dye Plant	2	9	1	4
Hospital	2	9	1	4
Metal Work/Smelters	1	4	0	0

continued

Table 376 (continued)

10. Have you been exposed to any of the following?	Past Week	%	Past 24 Hours	%
Solvents	1	4	1	4
Odorous Chemicals	16	70	7	30
Toxic or Hazardous Chemicals	1	4	1	4
High Dust or Particulate Levels	6	26	4	17
Auto/Truck Exhausts	3	13	2	9
Cleaning Solutions	10	43	7	30
Degreasing Compounds	0	0	0	0
Other	2	9	1	4

000404

weight for all observations, then dividing by the total weight for all observations where concentration information was obtained and not missing. The original weight of the observation was then multiplied by the adjustment factor.

$$\text{Adjusted Weight} = \frac{\text{original weight x total weight}}{\text{total weight less those with missing data}}$$

Weighted Percent Measurable

Table 377 shows the weighted percentages of individuals with concentrations measurable (% above quantifiable limit) for all twenty compounds analyzed by media. Some caution should be observed in interpreting the data since the information was based on only 24 observations.

Tables 378 through 381 summarize the results given in Table 375 by listing the compounds by media according to the frequency of percent measurable.

Generally for these twenty volatiles breath, overnight personal air and daytime personal air showed similar patterns in percentages measurable. Water had its own distinct pattern. There were seven compounds common to both airs and the breath samples in the greater than 50% category. They are 1,1,1-trichloroethane, benzene, tetrachloroethylene, m,p-dichlorobenzene, ethylbenzene, o-xylene, and m,p-xylene. Breath and overnight personal air also had chloroform and styrene in the high percent measurable category. The high category for water contained chloroform, bromodichloromethane, dibromochloromethane and tetrachloroethylene. One compound, dibromochloropropane, was common to breath and both airs in 'the never present' category. In addition, in this same category, breath had two other compounds, overnight personal air had five, daytime personal air had four, and water had four.

Weighted Summary Statistics

Tables 382 through 385 give the weighted summary statistics for those volatile compounds whose weighted percentages with measurable concentrations were greater than twenty percent. These tables are organized by media.

Table 382 contains the statistics for compounds for breath for Greensboro. Benzene, tetrachloroethylene, m,p-dichlorobenzene, and m,p-xylene show relatively large means, ranges, and geometric means. Ethylbenzene also shows a relatively large geometric mean. Table 383

NOTES TO THE TABLES 377 TO 389

1. Toluene was not measured in breath, overnight personal air or daytime personal air. 1,1,1-Trichloroethane was not measured in breath. Benzene, dibromochloropropane, styrene, o-dichlorobenzene, ethylbenzene, o-xylene and m,p-xylene were not measured in water.

2. Field samples and duplicate measurements were averaged before percentages were computed.

3. Percentages in the tables are population estimates (i.e., they are weighted statistics).

4. Measurable is defined as above the quantifiable limit. All concentration data are considered significant to two figures.

5. Greensboro data was collected in May 1982.

Table 377.- WEIGHTED PERCENTAGES WITH MEASURABLE CONCENTRATIONS FOR 20 VOLATILES FOR GREENSBORO BY MEDIA

	Breath	Water	Overnight Personal Air	Daytime Personal Air
SAMPLE SIZE	23	24	24	24
Compounds				
Vinylidene Chloride 2/	24.2	9.56	0.00	28.0
Chloroform	68.4	92.6	65.2	46.8
1,2-Dichloroethane	4.37	0.00	13.5	10.2
1,1,1-Trichloroethane	----- 1/	24.0	72.6	76.4
Benzene	80.4	-----	65.0	55.6
Carbon Tetrachloride	5.38	3.25	6.41	4.29
Trichloroethylene	68.3	5.21	8.46	37.6
Bromodichloromethane	0.00	92.6	0.00	0.00
Dibromochloromethane	0.00	92.6	0.00	0.00
Toluene	-----	-----	-----	-----
Tetrachloroethylene	100.	74.7	66.4	50.0
Chlorobenzene	16.5	0.00	0.00	0.00
Bromoform	4.37	0.00	0.00	0.00
Dibromochloropropane	0.00	-----	0.00	0.00
Styrene	63.5	-----	57.1	41.0
m,p-Dichlorobenzene	71.5	0.00	80.2	72.8
o-Dichlorobenzene	2.25	-----	0.00	0.00
Ethylbenzene	90.3	-----	100.	95.0
o-Xylene	90.3	-----	100.	95.0
m,p-Xylene	84.9	-----	100.	95.0

1/ Indicates not measured - all values are missing.
2/ Vinylidene chloride has low breakthrough volume.

Table 378. TARGET VOLATILES BY PERCENT MEASURABLE FOR GREENSBORO FOR BREATH

Ubiquitous Compounds	% Measurable
Chloroform	68
Benzene	80
Trichloroethylene	68
Tetrachloroethylene	100
Styrene	64
m,p-Dichlorobenze	71
Ethylbenzene	90
o-Xylene	90
m,p-Xylene	85
Often Present	
None	
Occasionally Present	
1,2-Dichloroethane	4
Carbon Tetrachloride	5
Chlorobenzene	16
Bromoform	4
o-Dichlorobenzene	2
Never Present	
Bromodichloromethane	0
Dibromochloromethane	0
Dibromochloropropane	0

Table 379. TARGET VOLATILES BY PERCENT MEASURABLE FOR GREENSBORO FOR OVERNIGHT PERSONAL AIR

Ubiquitous Compounds	% Measurable
Chloroform	65
1,1,1-Trichloroethane	72
Benzene	65
Tetrachloroethylene	66
Styrene	57
m,p-Dichlorobenze	80
Ethylbenzene	100
o-Xylene	100
m,p-Xylene	100
Often Present	
none	
Occasionally Present	
1,2-Dichloroethane	14
Carbon Tetrachloride	6
Trichloroethylene	8
Never Present	
Bromodichloromethane	0
Dibromochloromethane	0
Chlorobenzene	0
Bromoform	0
Dibromochloropropane	0
o-Dichlorobenzene	0

Table 380. TARGET VOLATILES BY PERCENT MEASURABLE FOR GREENSBORO FOR DAYTIME PERSONAL AIR

Ubiquitous Compounds	% Measurable
1,1,1-Trichloroethane	76
Benzene	56
Tetrachloroethylene	50
m,p-Dichlorobenzene	73
Ethylbenzene	95
o-Xylene	95
m,p-Xylene	95
Often Present	
Chloroform	47
Trichloroethylene	38
Styrene	41
Occasionally Present	
1,2-Dichloroethane	10
Carbon Tetrachloride	4
Never Present	
Bromodichloroethane	0
Dibromochloromethane	0
Chlorobenzene	0
Bromoform	0
Dibromochloropropane	0
o-Dichlorobenzene	0

000410

Table 381. TARGET VOLATILES BY PERCENT MEASURABLE FOR GREENSBORO FOR WATER

Ubiquitous Compounds	% Measurable
Chloroform	93
Bromodichloromethane	93
Dibromochloromethane	93
Tetrachloroethylene	74
Often Present	
1,1,1-Trichloroethane	24
Occasionally Present	
Vinylidene Chloride	10
Carbon Tetrachloride	3
Trichloroethylene	5
Never Present	
1,2-Dichloroethane	0
Chlorobenzene	0
Bromoform	0
m,p-Dichlorobenzene	0

000411

Table 382. WEIGHTED SUMMARY STATISTICS FOR BREATH SAMPLES FOR GREENSBORO ($\mu g/m^3$)

SAMPLE SIZE = 23
ESTIMATED POPULATION = 130,901

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	0.36	2.58	1.67	0.67	1.22	0.48	0.04- 35.0
Benzene	0.28	19.3	2.72	15.0	24.0	5.27	0.03- 96.0
Trichloroethylene	0.48	1.67	0.78	0.54	1.20	0.50	0.05- 11.1
Tetrachloroethylene	--- 1/	9.87	1.51	3.90	18.0	5.92	1.10- 39.0
Chlorobenzene	0.24	0.45	0.37	0.04	0.13	0.07	0.02- 8.01
Styrene	0.26	0.72	0.10	0.40	1.40	0.33	0.03- 2.90
m,p-Dichlorobenzene	0.28	5.74	3.62	1.25	4.80	1.12	0.04- 54.0
Ethylbenzene	0.29	2.47	0.39	1.50	3.18	1.50	0.16- 13.0
o-Xylene	0.28	2.69	0.68	1.20	2.40	1.14	0.03- 14.4
m,p-Xylene	0.26	5.88	1.28	3.80	6.20	2.42	0.03- 35.0

1/ --- indicates all values are measurable.

Table 383. WEIGHTED SUMMARY STATISTICS FOR WATER SAMPLES FOR GREENSBORO ($\mu g/mL$).

SAMPLE SIZE = 24
ESTIMATED POPULATION = 130,901

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	0.05	42.6	6.10	43.8	55.6	24.6	0.03-90.6
1,1,1-Trichloroethane	0.05	0.03	0.01	0.03	0.03	0.03	0.03- 0.05
Bromodichloromethane	0.10	7.11	0.62	7.81	9.16	5.18	0.06-11.4
Dibromochloroethane	0.10	1.19	0.12	1.21	1.51	1.00	0.06- 1.86
Tetrachloroethylene	0.05	0.13	0.06	0.07	0.17	0.08	0.03- 0.64

000412

has the statistics for water. Only five of the twenty compounds sampled had weighted percentages greater than twenty percent for water. Of these five, chloroform had the largest mean, median, range, and geometric mean by far. By comparison with the rest, bromodichloromethane also had fairly high statistics.

Table 384 shows the weighted summary statistics for overnight personal air. The five highest means, ranges, and geometric means were 1,1,1-trichloroethane, benzene, tetrachloroethylene, m,p-dichlorobenzene, and m,p-xylene. O-xylene also had a fairly large mean, geometric mean, and median. Daytime personal air weighted summary statistics are given in Table 385. 1,1,1-trichloroethane had by far the largest values for mean, standard error, median, 75th percentile, geometric mean, and range. M,p-xylene had a fairly large median and geometric mean.

In general, the means were much larger than the medians. This again shows the skewness of these distributions. Also the 75th percentile quite often is much less than the maximum value.

Table 386 compares the magnitude of the compound concentrations to the median quantifiable limit by media and compound. A compound was reported as high if the percent measurable was greater than 50. Overall, most compound levels were low in comparison to the median QL. For air and breath volatiles, the compounds with relatively high levels were benzene, tetrachloroethylene, m,p-dichlorobenzene, ethylbenzene, o-xylene, or m,p-xylene. 1,1,1-trichloroethane was also high for air samples. Water had high levels for chloroform, bromodichloromethane, dibromochloromethane, and tetrachloroethylene.

Correlations Between Media

Table 387 gives the Spearman correlations among the three media for the 19 compounds (toluene was missing from all media). Again, care should be taken in interpreting these statistics due to small sample size. Also remember that many of the compounds have a majority of their concentrations below the QL. Significant correlations from zero between breath and overnight personal air were found for benzene, tetrachloroethylene, m,p-dichlorobenzene, o-dichlorobenzene, ethylbenzene, and m,p-xylene. For breath and daytime personal air, chloroform, carbon tetrachloride, tetrachloroethylene, and m,p-dichlorobenzene were significant. 1,2-dichloroethylene, benzene, tetrachloroethylene, chloro-

Table 384. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR SAMPLES FOR GREENSBORO ($\mu g/m^3$)

SAMPLE SIZE = 24
ESTIMATED POPULATION = 130,901

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	1.16	2.35	0.47	2.60	3.30	1.35	0.13- 5.50
1,1,1-Trichloroethane	2.88	38.7	13.1	24.0	75.0	10.2	0.29-110.
Benzene	0.64	10.2	1.87	12.0	16.0	2.23	0.06- 43.0
Trichloroethylene	2.20	1.32	0.41	0.99	1.63	0.76	0.21- 8.70
Tetrachloroethylene	2.10	6.24	2.42	2.50	5.10	3.28	1.13- 57.0
Chlorobenzene	1.20	0.28	0.05	0.17	0.20	0.21	0.12- 1.13
Styrene	0.55	1.18	0.27	0.55	2.35	0.69	0.06- 3.10
m,p-Dichlorobenzene	0.96	11.9	6.18	2.90	7.50	3.61	0.12- 72.0
Ethylbenzene	--- 1/	4.93	1.02	2.10	7.40	3.03	0.68- 20.0
o-Xylene	---	6.83	1.11	3.60	10.0	4.35	0.82- 26.0
m,p-Xylene	---	13.2	3.04	6.30	18.0	8.24	1.80- 62.0

1/ --- indicates all values are measurable.

Table 385. WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR SAMPLES FOR GREENSBORO ($\mu g/m^3$)

SAMPLE SIZE = 24
ESTIMATED POPULATION = 130,901

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	1.30	2.02	0.40	0.81	3.00	1.07	0.15- 7.50
1,1,1-Trichloroethane	3.04	67.7	20.1	39.5	120.	19.0	0.31-310.
Benzene	0.84	7.93	1.55	7.60	13.0	1.55	0.09- 35.5
Trichloroethylene	3.30	6.84	4.20	2.06	3.90	1.75	0.32- 76.0
Tetrachloroethylene	3.04	7.59	1.40	4.10	10.5	3.60	0.35- 47.0
Styrene	0.77	2.48	1.08	0.75	1.03	0.90	0.09- 22.0
m,p-Dichlorobenzene	1.50	10.6	5.52	2.30	9.40	3.70	0.81- 65.0
Ethylbenzene	0.56	5.15	1.41	2.90	5.00	3.15	0.35- 32.0
o-Xylene	0.68	5.74	1.38	3.50	8.50	3.73	0.43- 24.0
m,p-Xylene	0.68	12.8	2.89	7.45	14.0	7.85	0.43- 66.0

000414

Table 386. SUMMARY OF THE MAGNITUDE OF COMPOUND LEVELS COMPARED TO THE MEDIAN QUANTIFIABLE LIMIT BY COMPOUND AND MEDIA FOR GREENSBORO

Compounds	Breath	Water	Overnight Personal Air	Daytime Personal Air
Vinylidene Chloride 2/	---	low	---	---
Chloroform	high	high	high	low
1,2-Dichloroethane	low	low	low	low
1,1,1-Trichloroethane	--- 1/	low	high	high
Benzene	high	---	high	high
Carbon Tetrachloride	low	low	low	low
Trichloroethylene	high	low	low	low
Bromodichloromethane	low	high	low	low
Dibromochloromethane	low	high	low	low
Toluene	---	---	---	---
Tetrachloroethylene	high	high	high	high
Chlorobenzene	low	low	low	low
Bromoform	low	low	low	low
Dibromochloropropane	low	---	low	low
Styrene	high	---	high	low
m,p-Dichlorobenzene	high	low	high	high
o-Dichlorobenzene	low	---	low	low
Ethylbenzene	high	---	high	high
o-Xylene	high	---	high	high
m,p-Xylene	high	---	high	high

1/ --- indicates compound was missing for this media and site.
2/ Vinylidene chloride is not reported for air and breath due to low breakthrough volume.

Table 387. SPEARMAN CORRELATIONS FOR GREENSBORO

	Breath & Overnight Personal Air	Breath & Daytime Personal Air	Overnight and Daytime Personal Air
SAMPLE SIZE	(23)	(23)	(24)
Compounds			
Chloroform	.03	.45*	.35
1,2-Dichloroethane	-.23	-.33	.69*
1,1,1-Trichloroethane	.00	.00	.05
Benzene	.53*	.22	.59*
Carbon Tetrachloride	.10	-.53*	-.01
Trichloroethylene	.29	.38	.28
Bromodichloromethane	.26	.24	.29
Dibromochloromethane	.24	.11	.28
Tetrachloroethylene	.42*	.58*	.41*
Chlorobenzene	-.05	-.20	.49*
Bromoform	.24	.11	.28
Dibromochloropropane	.35	.06	-.20
Styrene	.36	.32	.27
m,p-Dichlorobenzene	.56*	.68*	.65*
o-Dichlorobenzene	.43*	.02	.21
Ethylbenzene	.45*	-.01	.26
o-Xylene	.37	.28	.29
m,p-Xylene	.45*	.08	.21

* Significantly different from zero at .05 level.

Table 388. SPEARMAN CORRELATIONS FOR GREENSBORO

	Water & Breath	Water & Overnight Personal Air	Water & Daytime Personal Air
SAMPLE SIZE	(23)	(24)	(24)
Compounds			
Vinylidene Chloride	-.23	-.08	-.04
Chloroform	-.22	.21	-.04
1,1,1-Trichloroethane	0	-.21	-.17
Carbon Tetrachloride	0	-.05	-.14
Trichloroethylene	.22	.35	.26
Bromodichloromethane	.36	-.04	-.09
Dibromochloromethane	.24	.13	-.25
Tetrachloroethylene	-.01	-.05	-.26

* Significantly different from zero at .05 level.

000416

benzene, and m,p-dichlorobenzene were found to be significant for overnight and daytime personal air.

Table 388 shows the Spearman correlations for water and the other three media. There are no significant correlations from zero between water and any of the other media.

In general, a significant difference was found when both media have percent measurable greater than twenty percent. This is shown in Table 389 for breath, daytime personal air and overnight personal air. This is not true for water. The only compound having percent measurable greater than twenty for both water and another media is chloroform.

Figures 91 through 96 show natural logarithmic plots of tetrachloroethylene and m,p-dichlorobenzene for breath versus outdoor personal air, breath versus daytime personal air, and outdoor versus daytime personal air. These two compounds were selected because they showed high percentages measurable over all media as well as having significant correlations between media.

One was added to each number before the log was taken so each plot starts at 0 or greater. The lines represent on each plot the max QL values for the compounds for the two media plotted. If the compound was 100% measurable in the media, then no max QL line is shown. An "O" indicates that both media were measurable and an "X" indicates that one or both media were not measurable. The Spearman correlations are also shown. Although the logarithmic transformation improved the plots and there was some evidence of a trend in several of the plots (particularly when compound levels were much larger than the MAX QL), it is evident that there was seldom a strong correlation between the various media. Part of this lack of correlation was due, as the plots indicate, to the number of data points below or near the max QL. Also, the limited sample sizes made it difficult to interpret the plots since one data point could have a large effect on the correlation (e.g., Figure 95).

Table 389. SPEARMAN CORRELATIONS FOR GREENSBORO WHEN BOTH MEDIA HAVE % MEASURABLE GREATER THAN 20%

	Breath & Overnight Personal Air	Breath & Daytime Personal Air	Overnight and Daytime Personal Air
SAMPLE SIZE	(23)	(23)	(24)
Compounds			
Chloroform	.03	.45*	.35
Benzene	.53*	.22	.59*
Tetrachloroethylene	.42*	.58*	.41*
Styrene	.36	.32	.27
m,p-Dichlorobenzene	.56*	.68*	.65*
Ethylbenzene	.45*	-.01	.26
o-Xylene	.37	.28	.29
m,p-Xylene	.45*	.08	.21
1,1,1-Trichloroethane	--- 1/	.00	.05

1/ 1,1,1-Trichloroethane is not measured in breath.
* Significantly different from zero at .05 level.

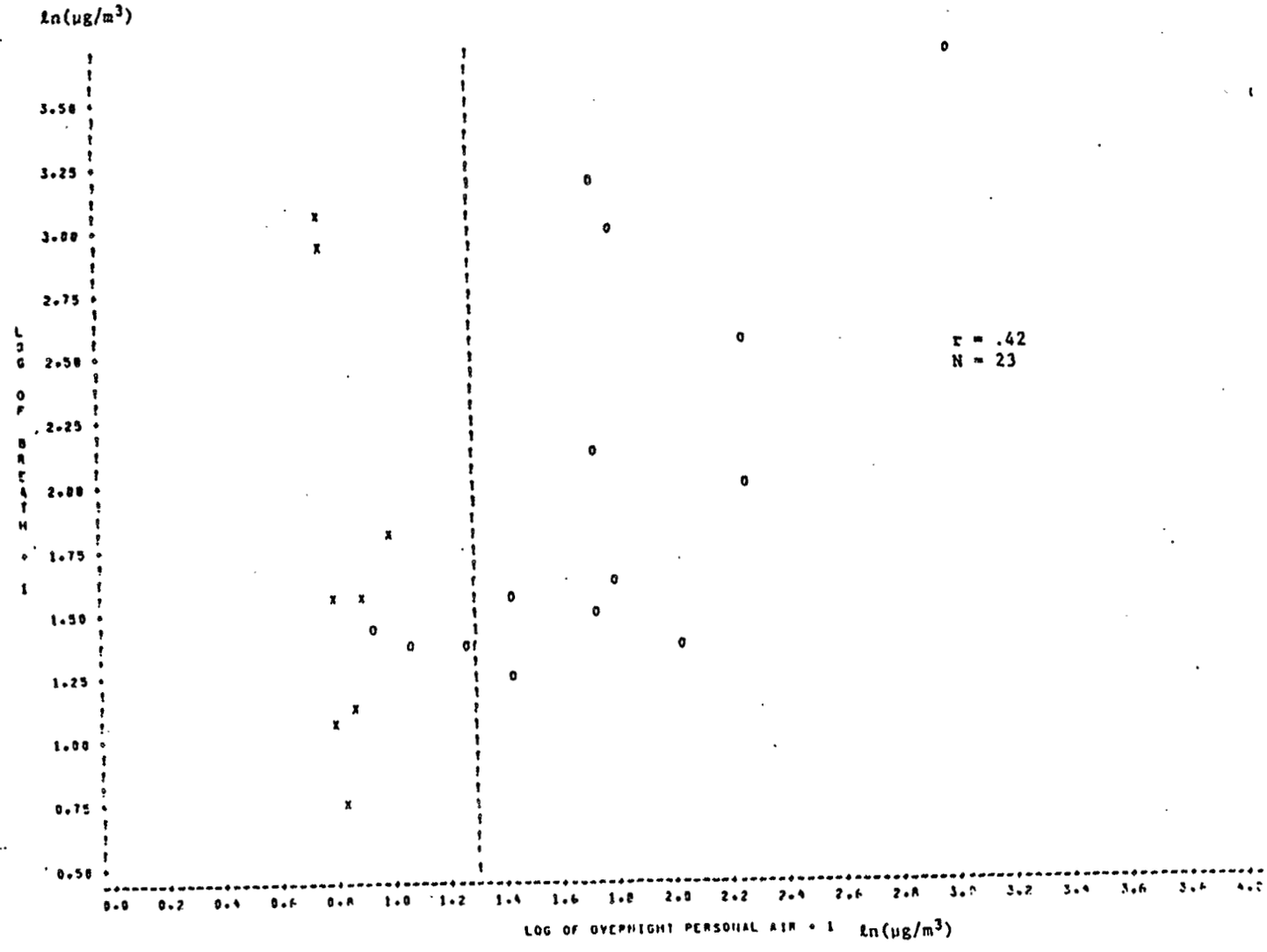

Figure 91. Breath vs. overnight personal air for tetrachloroethylene - Greensboro.

000419

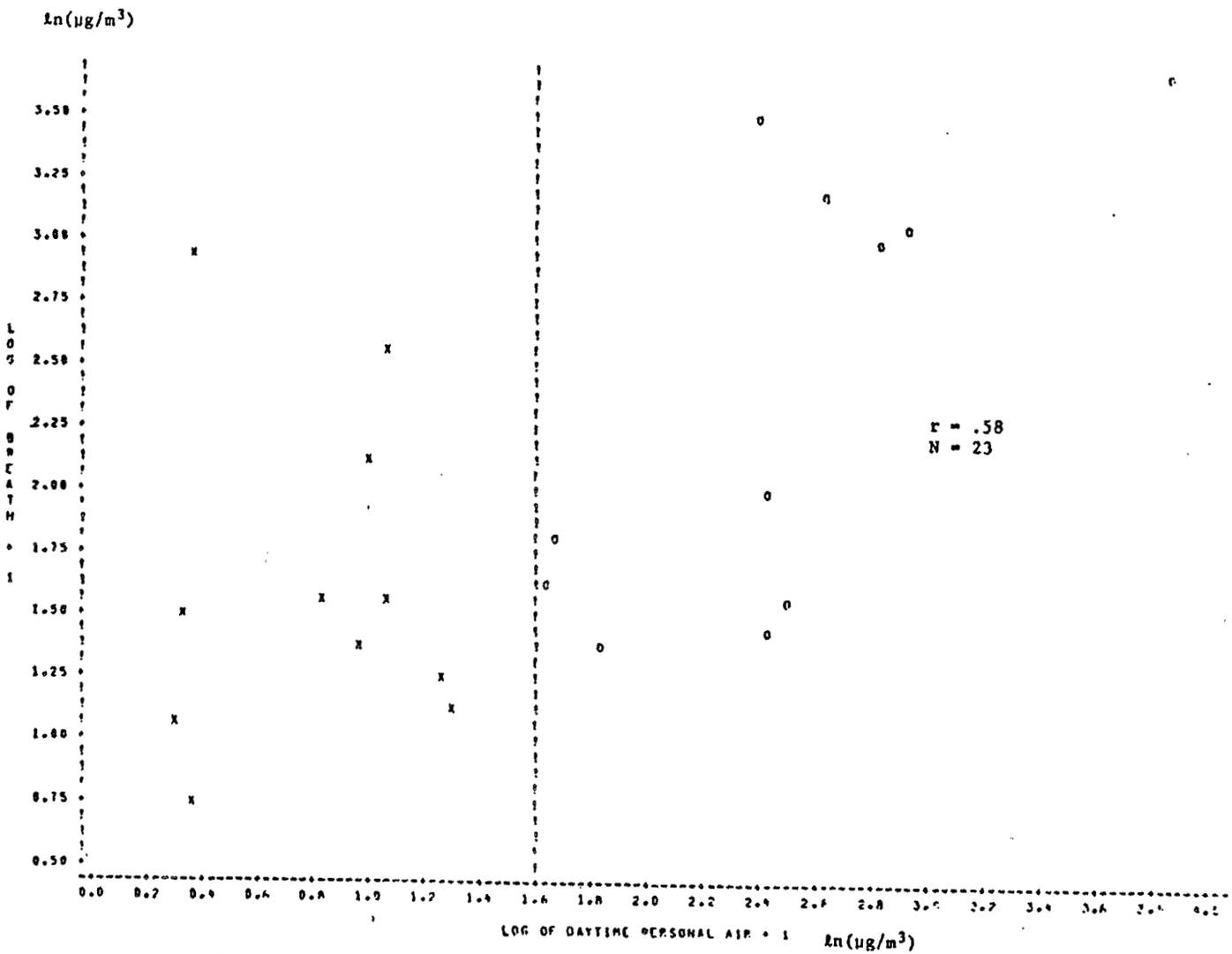

Figure 92. Breath vs. daytime personal air for tetrachloroethylene - Greensboro.

0004220

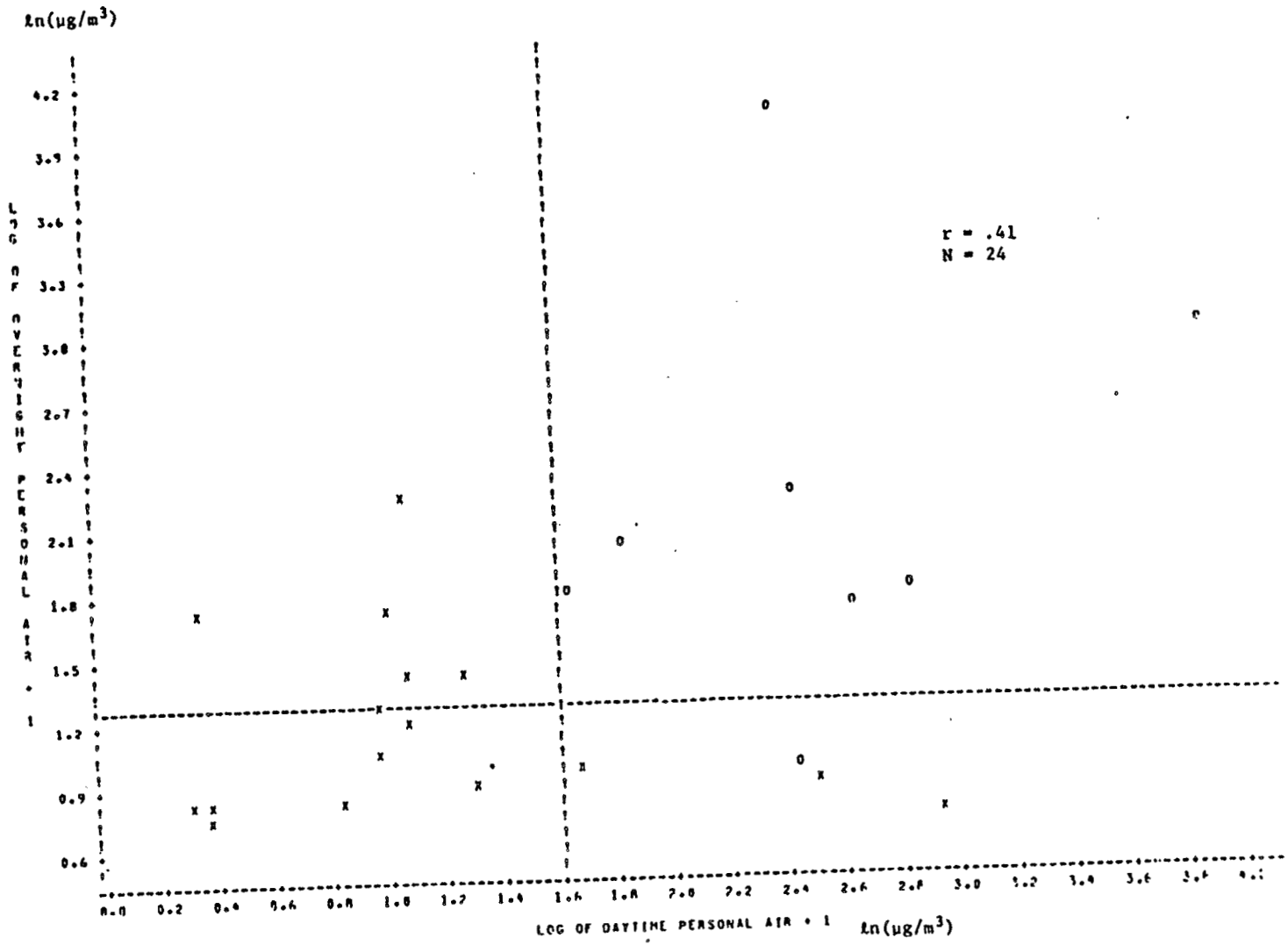

Figure 93. Overnight personal air vs. daytime personal air for tetrachloroethylene - Greensboro.

000421

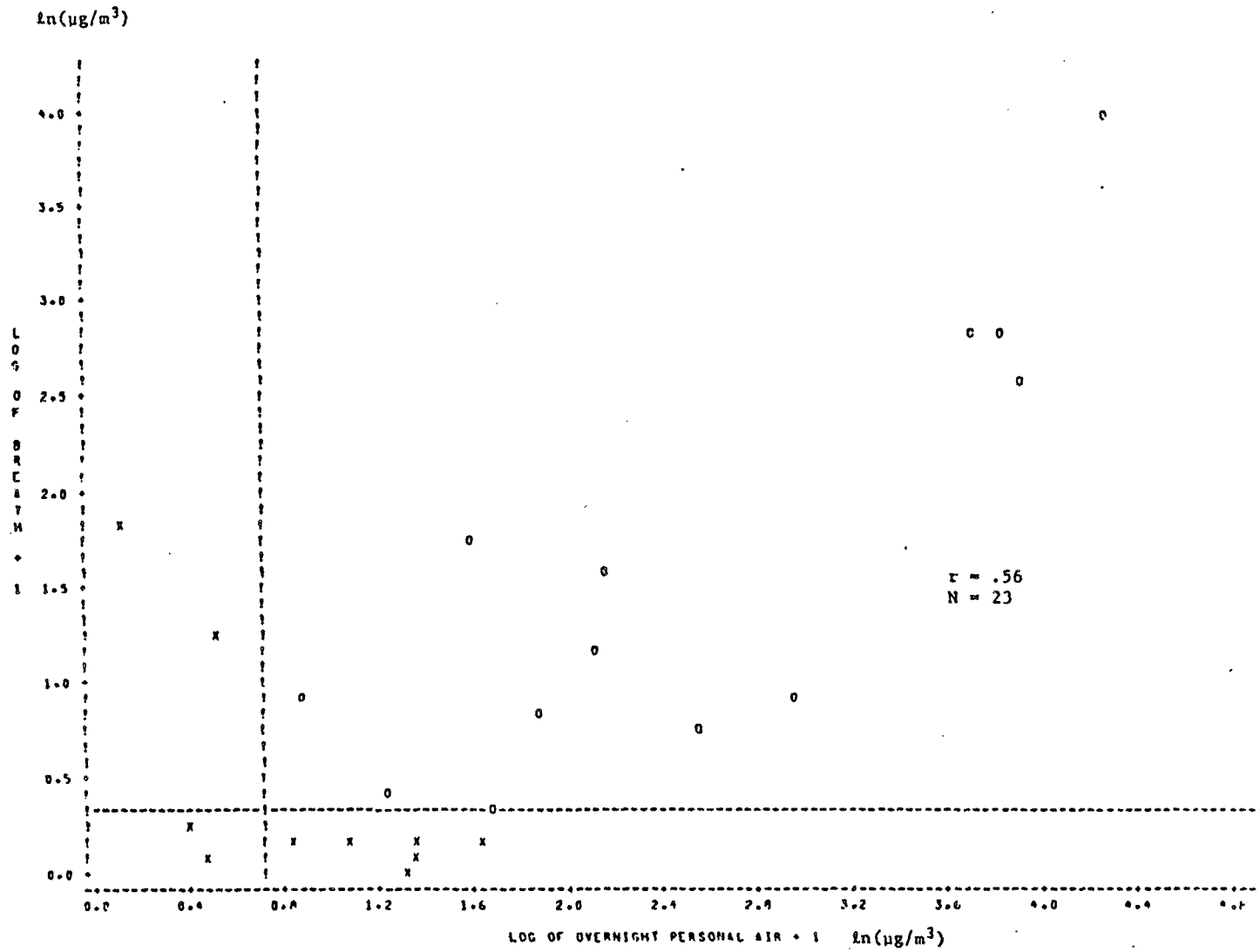

Figure 94. Breath vs. overnight personal air for m,p-dichlorobenzene - Greensboro.

004422

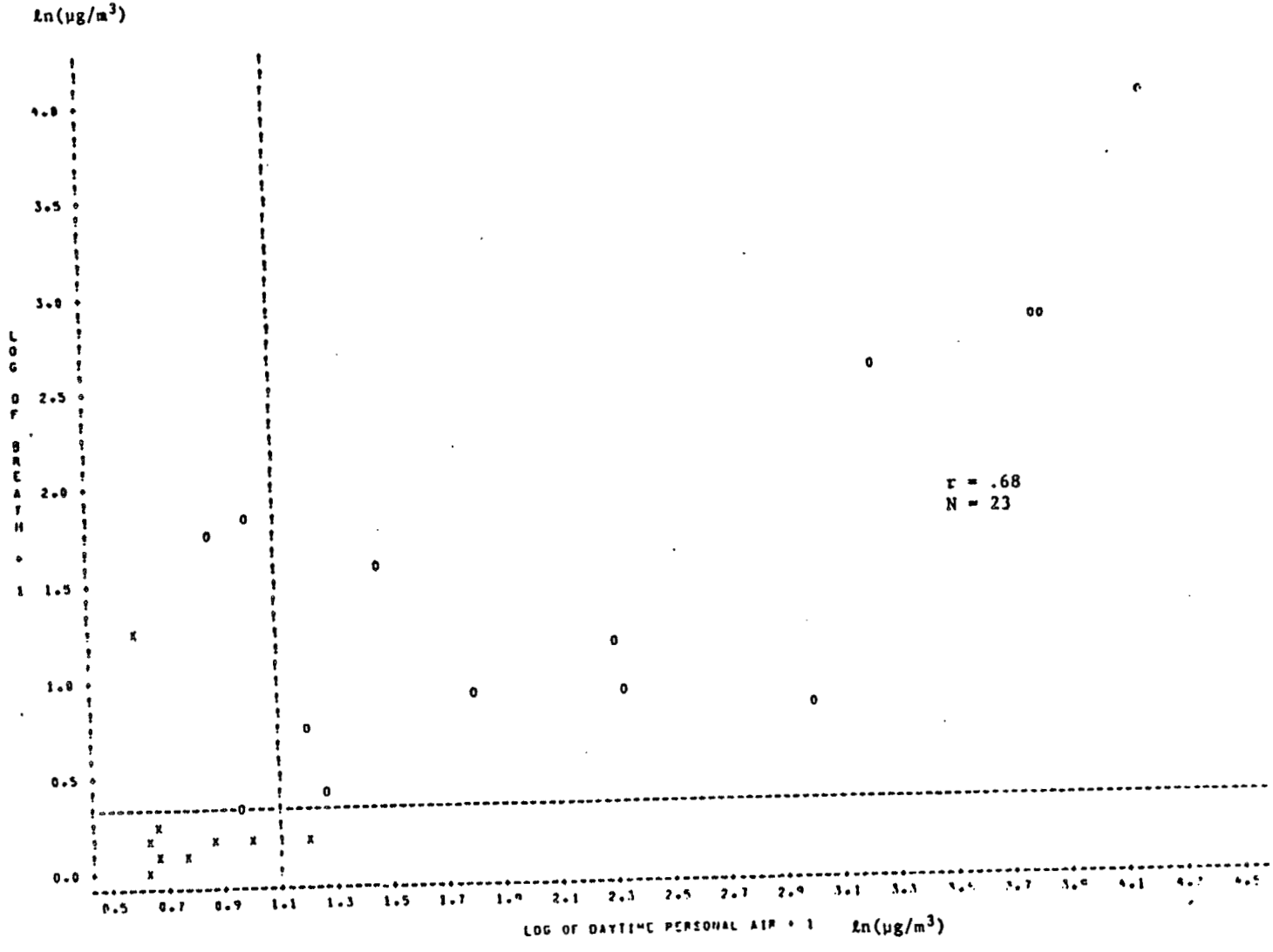

Figure 95. Breath vs. daytime personal air for m,p-dichlorobenzene - Greensboro.

000423

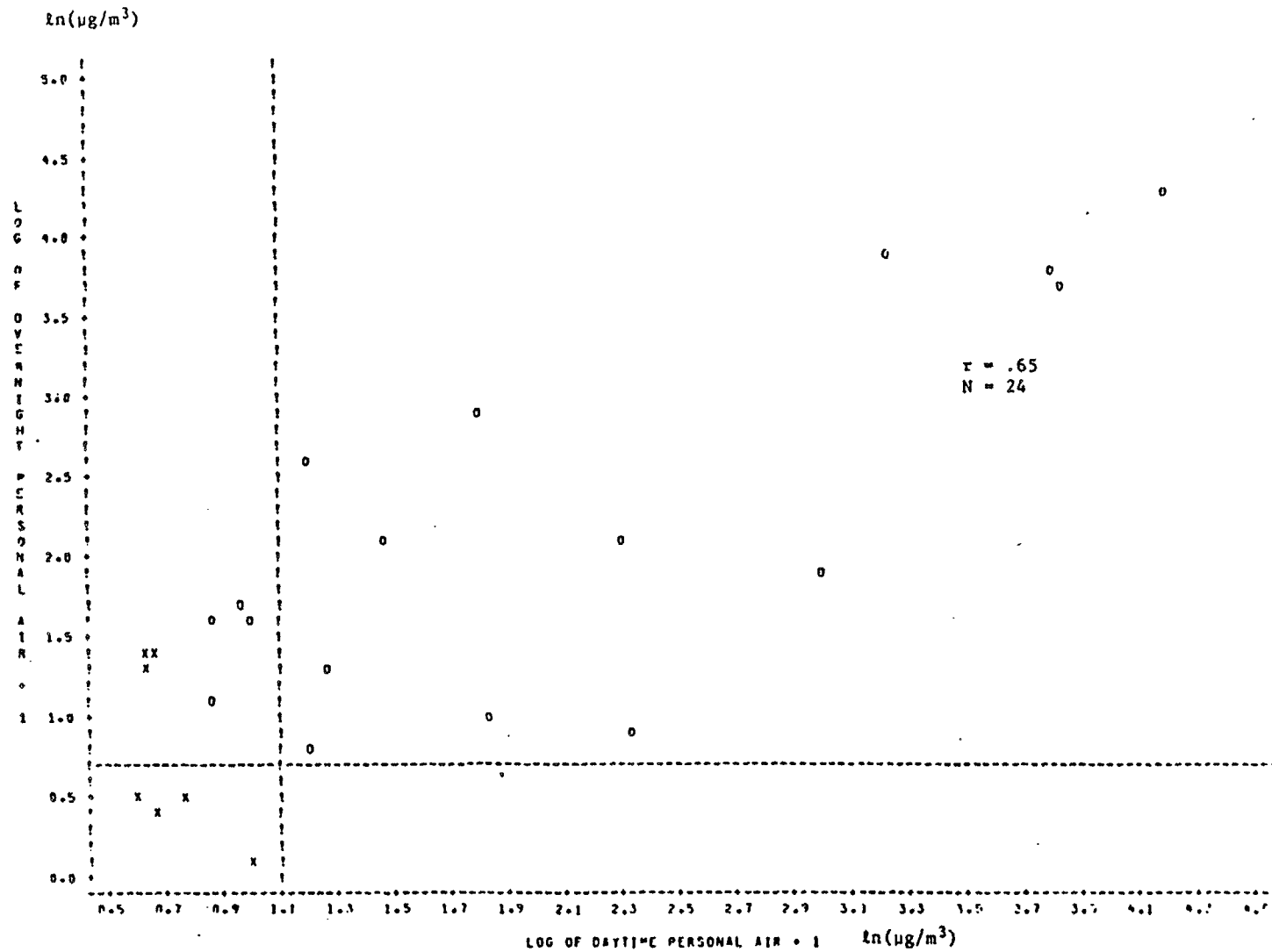

Figure 96. Overnight personal air vs. daytime personal air for m,p-dichlorobenzene - Greensboro.

000424

COMPARISON BETWEEN SEASONS IN BAYONNE AND ELIZABETH, NEW JERSEY

The TEAM study in Bayonne and Elizabeth, New Jersey, monitored exposure to hazardous chemicals for a sample of individuals over three seasons. The first season of exposure monitoring was conducted from August through November 1981. The second season sample consisted of a subsample of the individuals who participated in the first season study, and was conducted in July and August 1982. Similarly, the third season sample consisted of a subgroup of the individuals who participated in the study during the first two seasons, and was conducted in January and February 1983. Data was collected on 354 individuals in the first season, 157 in the second, and 49 in the third. The following analysis was conducted on only those individuals who had data in all seasons of comparison (i.e., in comparing first, second and third seasons the sample was those 49 people with first, second and third season information). Therefore, second season weights were used in the comparison of the 157 people who had both first and second season data and third season weights were used on those who had all three seasons. The weights were adjusted for missing values as described earlier in the first season discussion.

Tables 390 through 394 compare the quantifiable limits for those persons with first and second season samples for breath, overnight personal air, daytime personal air, overnight outdoor air, and daytime outdoor air for the nineteen compounds analyzed. The quantifiable limits for water were constant for each compound. With few exceptions the medians, ninetieth percentiles, and ranges for first season were larger than those for second. In some instances such as m,p-xylene for daytime personal air, 1,1,1-trichloroethane and o-xylene for overnight personal air, the medians were as much as ten times larger for first season (see Table 395).

The percentage of sample concentrations above the maximum quantifiable limit for both first and second seasons is given in Table 396. For breath, the compounds 1,1,1-trichloroethane, benzene, tetrachloroethylene, ethylbenzene, and m,p-xylene had significantly higher percentages in the first season while trichloroethylene tested significantly higher in the second season. For overnight personal air benzene, carbon tetrachloride and ethylbenzene had significantly higher percentages in

Table 390. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

BREATH

Compound	First Season Median Q.L.	First Season 90th Percentile	First Season Range	Second Season Median Q.L.	Second Season 90th Percentile	Second Season Range
Vinylidene Chloride	14.8	35.1	4.00 - 50.0	13.2	18.0	6.40 - 22.4
Chloroform	2.16	3.06	0.44 - 3.50	0.92	1.28	0.48 - 1.40
1,2-Dichloroethane	1.29	4.40	0.44 - 6.00	0.66	1.56	0.39 - 2.40
1,1,1-Trichloroethane	1.30	4.08	0.48 - 6.40	1.82	2.52	0.56 - 2.64
Benzene	0.48	5.10	0.26 - 5.10	0.28	0.72	0.18 - 0.80
Carbon Tetrachloride	1.69	4.49	0.38 - 6.00	1.10	1.96	0.64 - 2.20
Trichloroethylene	1.69	7.02	0.63 - 9.90	0.84	1.56	0.42 - 2.56
Bromodichloromethane	1.32	4.00	0.80 - 13.2	0.84	1.62	0.56 - 2.72
Dibromochloromethane	1.88	4.40	1.28 - 6.80	1.50	2.14	0.52 - 3.00
Tetrachloroethylene	2.25	4.30	1.30 - 4.30	1.16	2.19	0.40 - 2.40
Chlorobenzene	1.10	1.76	0.37 - 2.10	0.72	2.45	0.18 - 4.00
Bromoform	2.27	6.40	1.48 - 11.6	2.12	2.80	0.72 - 3.84
Dibromochloropropane	4.20	68.0	1.48 - 132.	4.10	5.60	1.60 - 39.6
Styrene	1.26	6.40	0.39 - 8.90	0.42	0.60	0.20 - 0.72
m,p-Dichlorobenzene	1.50	4.62	0.58 - 9.40	0.66	1.01	0.35 - 1.20
o-Dichlorobenzene	1.26	3.84	0.41 - 8.40	0.68	0.92	0.31 - 1.20
Ethylbenzene	0.36	2.20	0.24 - 2.20	0.24	0.36	0.17 - 0.40
o-Xylene	1.20	2.28	0.39 - 2.50	0.40	0.56	0.17 - 0.72
m,p-Xylene	0.87	1.80	0.40 - 1.80	0.40	0.59	0.17 - 0.72

000426

Table 391. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OVERNIGHT PERSONAL AIR

Compound	First Season Median Q.L.	First Season 90th Percentile	First Season Range	Second Season Median Q.L.	Second Season 90th Percentile	Second Season Range
Vinylidene Chloride	52.0	199.	5.20 - 244.	27.2	44.0	6.00 - 48.0
Chloroform	3.00	10.0	0.68 - 13.6	1.24	1.72	0.38 - 1.80
1,2-Dichloroethane	6.40	8.00	0.29 - 12.8	1.10	1.44	0.44 - 2.04
1,1,1-Trichloroethane	22.8	28.0	2.96 - 32.8	2.20	2.88	0.60 - 2.96
Benzene	0.61	1.02	0.15 - 1.04	0.44	0.99	0.18 - 1.20
Carbon Tetrachloride	2.50	4.00	0.60 - 5.20	2.30	2.80	0.78 - 3.10
Trichloroethylene	2.30	4.00	0.88 - 5.20	2.24	3.25	0.72 - 4.00
Bromodichloromethane	3.24	6.00	0.48 - 8.40	1.36	2.14	0.48 - 3.00
Dibromochloromethane	1.68	2.85	0.47 - 4.80	1.84	4.80	0.68 - 6.80
Tetrachloroethylene	2.10	3.00	0.64 - 3.00	1.80	2.78	0.52 - 3.40
Chlorobenzene	1.51	2.45	0.37 - 3.08	0.85	2.20	0.29 - 3.08
Bromoform	2.52	4.80	1.01 - 14.4	2.12	3.57	0.84 - 4.80
Dibromochloropropane	1.81	70.8	1.24 - 116.	3.09	5.60	0.68 - 8.00
Styrene	1.10	2.92	0.42 - 4.10	1.04	1.50	0.18 - 1.70
m,p-Dichlorobenzene	1.20	6.40	0.57 - 8.60	0.88	1.10	0.71 - 1.10
o-Dichlorobenzene	1.00	1.86	0.33 - 7.60	0.80	1.51	0.29 - 1.96
Ethylbenzene	5.00	7.00	0.77 - 7.00	0.72	1.08	0.18 - 1.10
o-Xylene	4.60	6.02	0.92 - 7.00	0.21	1.04	0.18 - 1.04
m,p-Xylene	3.32	5.00	1.64 - 5.00	0.41	1.04	0.18 - 1.04

000427

Table 392. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

DAYTIME PERSONAL AIR

Compound	First Season			Second Season		
	Median Q.L.	90th Percentile	Range	Median Q.L.	90th Percentile	Range
Vinylidene Chloride	52.0	192.	5.20 - 208.	27.2	44.0	6.00 - 48.0
Chloroform	4.01	12.0	0.60 - 19.0	1.37	1.76	0.48 - 2.12
1,2-Dichloroethane	7.60	11.6	0.40 - 14.8	1.40	1.86	0.52 - 2.12
1,1,1-Trichloroethane	23.0	32.7	1.60 - 43.0	2.34	3.00	0.60 - 3.72
Benzene	0.82	2.50	0.20 - 2.50	0.68	1.11	0.18 - 1.76
Carbon Tetrachloride	3.24	5.38	0.61 - 8.30	2.44	3.08	0.56 - 3.52
Trichloroethylene	3.20	6.40	1.20 - 9.20	2.88	4.00	0.72 - 6.00
Bromodichloromethane	4.00	8.00	0.76 - 13.2	1.88	2.84	0.52 - 4.40
Dibromochloromethane	2.24	4.40	1.24 - 6.80	2.36	5.76	0.72 - 8.40
Tetrachloroethylene	3.55	5.61	0.62 - 5.70	2.40	3.40	0.52 - 3.88
Chlorobenzene	2.12	3.30	0.51 - 5.20	1.10	3.06	0.35 - 4.80
Bromoform	3.28	7.14	1.72 - 15.2	2.86	4.18	0.88 - 6.00
Dibromochloropropane	2.50	99.4	1.24 - 156.	4.40	6.80	0.72 - 9.60
Styrene	1.15	4.00	0.56 - 4.40	1.00	1.82	0.12 - 2.10
m,p-Dichlorobenzene	1.40	9.74	0.59 - 12.0	1.00	1.45	0.27 - 1.70
o-Dichlorobenzene	1.34	3.00	0.39 - 11.0	1.10	1.72	0.35 - 2.40
Ethylbenzene	2.40	8.56	0.66 - 9.10	0.50	1.32	0.18 - 1.36
o-Xylene	5.68	9.52	0.66 - 11.0	0.72	1.07	0.18 - 1.10
m,p-Xylene	4.25	6.40	2.10 - 6.40	0.27	1.10	0.18 - 1.10

000428

Table 393. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OVERNIGHT OUTDOOR AIR

Compound	First Season Median Q.L.	First Season 90th Percentile	First Season Range	Second Season Median Q.L.	Second Season 90th Percentile	Second Season Range
Vinylidene Chloride	8.20	15.0	2.88 - 29.2	8.80	28.6	3.60 - 39.2
Chloroform	0.98	2.31	0.26 - 8.80	0.60	1.02	0.39 - 1.12
1,2-Dichloroethane	1.08	2.86	0.40 - 14.8	0.80	1.26	0.29 - 1.80
1,1,1-Trichloroethane	2.75	3.50	0.56 - 3.50	1.60	2.22	0.56 - 2.24
Benzene	0.42	2.36	0.30 - 2.36	0.40	0.48	0.17 - 0.48
Carbon Tetrachloride	1.10	1.50	0.26 - 1.70	0.88	2.20	0.60 - 2.30
Trichloroethylene	1.60	6.52	0.49 - 12.0	0.78	1.14	0.44 - 1.36
Bromodichloromethane	1.90	7.20	0.68 - 36.8	0.84	1.48	0.40 - 1.80
Dibromochloromethane	1.92	3.79	0.92 - 15.2	0.84	7.44	0.52 - 9.60
Tetrachloroethylene	1.00	2.18	0.29 - 2.28	0.67	2.56	0.34 - 2.72
Chlorobenzene	0.84	1.18	0.14 - 7.70	0.64	1.12	0.17 - 1.36
Bromoform	2.56	4.80	1.32 - 18.4	1.20	3.83	0.68 - 4.80
Dibromochloropropane	11.6	42.0	1.68 - 60.0	2.12	32.3	0.56 - 38.0
Styrene	1.09	5.36	0.25 - 6.00	0.64	1.23	0.15 - 1.40
m,p-Dichlorobenzene	1.04	3.04	0.48 - 8.18	1.10	1.88	0.34 - 2.00
o-Dichlorobenzene	1.02	3.29	0.25 - 10.7	0.50	2.19	0.24 - 2.68
Ethylbenzene	0.97	2.70	0.18 - 2.70	0.29	0.44	0.17 - 0.44
o-Xylene	1.70	3.47	0.62 - 3.70	0.25	0.44	0.17 - 0.44
m,p-Xylene	1.04	1.10	0.62 - 1.10	0.25	0.44	0.17 - 0.44

004429

Table 394. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

DAYTIME OUTDOOR AIR

Compound	First Season Median Q.L.	First Season 90th Percentile	First Season Range	Second Season Median Q.L.	Second Season 90th Percentile	Second Season Range
Vinylidene Chloride	8.30	18.8	3.44 - 21.4	12.4	27.3	6.40 - 56.0
Chloroform	1.26	3.35	0.35 - 5.21	0.96	1.61	0.52 - 1.64
1,2-Dichloroethane	1.39	3.40	0.52 - 6.12	1.08	1.62	0.41 - 2.24
1,1,1-Trichloroethane	1.76	3.70	0.48 - 3.70	1.26	3.45	0.68 - 3.52
Benzene	0.72	5.20	0.44 - 5.60	0.60	1.00	0.21 - 1.00
Carbon Tetrachloride	1.21	2.09	0.35 - 2.35	1.20	2.72	0.57 - 3.52
Trichloroethylene	1.40	9.25	0.46 - 11.0	1.08	1.52	0.66 - 2.12
Bromodichloromethane	2.84	10.9	0.84 - 19.3	1.16	1.98	0.44 - 2.64
Dibromochloromethane	2.84	5.68	0.95 - 8.90	1.04	8.96	0.48 - 13.6
Tetrachloroethylene	1.30	2.32	0.48 - 2.60	0.96	2.20	0.44 - 2.88
Chlorobenzene	1.10	1.82	0.20 - 3.06	0.68	1.41	0.17 - 2.00
Bromoform	3.56	7.20	1.68 - 10.9	1.36	5.28	0.64 - 6.80
Dibromochloropropane	15.2	61.9	2.36 - 100.	2.70	48.0	0.58 - 64.0
Styrene	1.03	7.57	0.40 - 9.60	0.44	1.12	0.13 - 2.00
m,p-Dichlorobenzene	1.30	2.94	0.48 - 5.60	0.89	2.50	0.18 - 3.00
o-Dichlorobenzene	1.33	5.20	0.59 - 9.90	0.60	2.66	0.23 - 3.90
Ethylbenzene	1.54	2.55	0.48 - 2.60	0.45	1.13	0.21 - 1.30
o-Xylene	2.28	3.14	0.47 - 3.20	0.38	0.67	0.21 - 0.72
m,p-Xylene	2.48	2.90	1.76 - 2.90	0.30	0.56	0.21 - 0.56

000430

Table 395. RATIO OF MEDIAN QUANTIFIABLE LIMIT FOR FIRST SEASON TO MEDIAN QUANTIFIABLE LIMIT FOR SECOND SEASON BY MEDIA AND COMPOUND - NEW JERSEY

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air
Vinylidene Chloride	1.12	1.91	1.91	0.93	0.67
Chloroform	2.35	2.42	2.93	1.63	1.31
1,2-Dichloroethane	1.95	5.82	5.43	1.35	1.29
1,1,1-Trichloroethane	0.71	10.4	9.83	1.72	1.40
Benzene	1.71	1.39	1.21	1.05	1.20
Carbon Tetrachloride	1.54	1.09	1.33	1.25	1.01
Trichloroethylene	2.01	1.03	1.11	2.05	1.30
Bromodichloromethane	1.57	2.38	2.13	2.26	2.45
Dibromochloromethane	1.25	0.91	0.95	2.29	2.73
Tetrachloroethylene	1.94	1.17	1.48	1.49	1.35
Chlorobenzene	1.53	1.78	1.93	1.31	1.62
Bromoform	1.07	1.19	1.15	2.13	2.62
Dibromochloropropane	1.02	0.59	0.57	5.47	5.63
Styrene	3.00	1.06	1.15	1.70	2.34
m,p-Dichlorobenzene	2.27	1.36	1.40	0.95	1.46
o-Dichlorobenzene	1.85	1.25	1.22	2.04	2.22
Ethylbenzene	1.50	6.94	4.80	3.34	3.42
o-Xylene	3.00	21.9	7.89	6.80	6.00
m,p-Xylene	2.18	8.10	15.7	4.16	8.27

000431

Table 396. PERCENTAGE ABOVE THE MAXIMUM QUANTIFIABLE LIMIT FOR FIRST AND SECOND SEASONS BY SEASON, MEDIA AND COMPOUND - NEW JERSEY

	Breath		Overnight Personal Air		Daytime Personal Air	
Sample Size Range	76 - 138		148 - 154		138- 142	
Compound	First Season	Second Season	First Season	Second Season	First Season	Second Season
Vinylidene chloride	2.09	3.51	0.00	0.00	3.85	0.38
Chloroform	44.7	46.6	15.8	9.02	12.2	4.69
1,2-Dichloroethane	0.00	0.00	0.00	0.00	1.20	0.00
1,1,1-Trichloroethane	62.1 *	46.1	20.3	16.1	23.8	15.4
Benzene	71.6 *	39.7	92.1 *	80.6	93.0 *	62.4
Carbon Tetrachloride	2.63	0.88	10.5 *	1.01	6.25	0.00
Trichloroethylene	0.24	17.9 *	12.7	31.3 *	14.8	22.8
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Tetrachloroethylene	70.2 *	46.4	67.8	65.7	65.9	50.4
Chlorobenzene	0.00	2.98	0.17	3.88	0.00	0.44
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	0.58	3.64	13.7	9.99	24.1 *	8.03
m,p-Dichlorobenzene	13.5	18.9	26.3	31.6	23.8	19.8
o-Dichlorobenzene	0.00	0.00	0.33	1.70	7.08	0.00
Ethylbenzene	64.2 *	47.8	51.5 *	34.4	45.3 *	19.5
o-Xylene	44.9	37.0	30.2	37.2	30.0	18.7
m,p-Xylene	87.8 *	55.5	89.8	87.1	92.6 *	75.1

	Overnight Outdoor Air		Daytime Outdoor Air		Water	
Sample Size Range	44 - 61		41 - 59		115 - 157	
Compound	First Season	Second Season	First Season	Second Season	First Season	Second Season
Vinylidene Chloride	1.42	0.00	0.00	0.00	36.4 *	25.9
Chloroform	0.00	25.0 *	0.29	28.7 *	100.	99.8
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.80	1.46
1,1,1-Trichloroethane	59.4	61.6	54.8	62.4	43.3	44.2
Benzene	82.8	85.7	38.1	49.8	0.00	22.7 *
Carbon Tetrachloride	6.93	10.7	5.30	6.38	5.08	6.68
Trichloroethylene	0.00	16.5 *	2.55	16.1 *	50.0	41.6
Bromodichloromethane	0.00	0.00	0.00	0.00	100.	99.8
Dibromochloromethane	0.00	0.00	0.00	0.00	100.	99.8
Tetrachloroethylene	49.1	43.0	59.2	51.0	49.9 *	42.5
Chlorobenzene	0.00	0.00	0.00	6.42	0.00	0.00
Bromoform	0.00	0.00	0.00	0.00	4.22	6.32
Dibromochloropropane	0.00	0.00	0.00	0.00	---	---
Styrene	0.19	0.19	0.00	0.00	0.00	0.00
m,p-Dichlorobenzene	1.35	0.00	4.30	3.18	0.35	0.00
o-Dichlorobenzene	0.00	0.00	0.00	0.00	---	---
Ethylbenzene	58.1	55.6	55.7	31.1	0.00	0.00
o-Xylene	44.8	51.6	46.9 *	19.4	---	---
m,p-Xylene	93.0	88.8	88.4 *	74.2	0.00	0.00

* T-test for difference between seasons significant at .05 level.

000432

the first season while trichloroethylene was again significantly higher in the second. For daytime personal air benzene, styrene, ethylbenzene and m,p-xylene were significantly higher in the first season. For overnight and daytime outdoor airs, chloroform and trichloroethylene were significantly higher in the second season while for daytime outdoor air o-xylene and m,p-xylene were significantly higher in the first season. Thus, higher percentages for trichloroethylene in the second season were observed for both personal and outdoor air. For water vinylidene chloride and tetrachloroethylene percentages were significantly higher in the first season while benzene was significantly higher in the second.

Table 397 further compares the percentages above the maximum quantifiable limit for both seasons by showing the ratio of first to second seasons. If either of the percentages were less than ten then the ratio was not given. For tetrachloroethylene, ethylbenzene and m,p-xylene the first season was consistantly higher while for others such as o-xylene or 1,1,1-trichloroethane the percentages were greater in some media and less in others in the second season. In general, the first season percentage was higher for 1,1,1-trichloroethane, benzene, tetrachloroethylene, ethylbenzene, o-xylene and m,p-xylene while the percentages for trichloroethane and m,p-dichlorobenzene were usually higher in the second season. For outdoor air tetrachloroethylene, ethylbenzene and m,p-xylene showed higher percentages in the first season while 1,1,1-trichloroethane, benzene and carbon tetrachloride percentages appeared higher in the second season. For water chloroform, 1,1,1-trichloroethane, bromodichloromethane and dibromochloromethane showed little or no change between seasons while vinylidene chloride, trichloroethylene and tetrachloroethylene seemed higher in the first season.

Table X-105 in the appendix gives a comparison of percent measurable for those with first and second seasons. Carbon tetrachloride and tetrachloroethylene showed a decrease in percent measurable for breath and the airs in the second season and vinylidene chloride, chlorobenzene, and m,p-dichlorobenzene showed an increase across breath and the airs. Breath showed perhaps the largest change between seasons with seven compounds -- chloroform, 1,1,1-trichloroethane, benzene, tetra-

Table 397. RATIO[a/] OF FIRST SEASON PERCENT ABOVE MAXIMUM QUANTIFIABLE LIMIT TO SECOND SEASON PERCENT ABOVE MAXIMUM QUANTIFIABLE LIMIT - NEW JERSEY

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air	Water
Vinylidene Chloride						
Chloroform	0.96					1.41*
1,2-Dichloroethane						1.00
1,1,1-Trichloroethane	1.35*	1.26	1.55	0.97	0.88	0.98
Benzene	1.80*	1.14*	1.49*	0.97	0.77	
Carbon Tetrachloride				0.65*		
Trichloroethylene		0.40*	0.65			
Bromodichloromethane						1.20
Dibromochloromethane						1.00
Tetrachloroethylene	1.51*	1.03	1.31	1.14	1.16	1.00
Chlorobenzene						1.17*
Bromoform						
Dibromochloropropane						
Styrene						
m,p-Dichlorobenzene	0.72	0.83	1.20			
o-Dichlorobenzene						
Ethylbenzene	1.34*	1.50*	2.33*	1.05	1.79	
o-Xylene	1.21	0.81	1.60	0.87	2.42*	
m,p-Xylene	1.58*	1.03	1.23*	1.05	1.19*	

* T-test for difference between seasons significant at .05 level.
a/ Ratio shown if both percentages greater than 10.

000434

chloroethylene, ethylbenzene, o-xylene, and benzene decreasing by at least twenty percentage points. For daytime personal air the first season percentages tended to be higher while for overnight outdoor air the second season percentages tended to be higher.

Tables 398 through 403 give the weighted summary statistics by media and season for selected compounds for those with first and second season samples. These summary statistics include arithmetic mean, geometric mean, median, percentiles, and range. The seasonal means were tested and an asterisk was placed by the value if it proved to be significantly higher at .05 level. These tables were summarized in Tables 404 through 409 which give the ratios of second season to first season for the arithmetic mean, geometric mean, median and maximum concentration.

Overall, for most compounds, the geometric means and medians were higher for first season (fall). In fact, for breath, daytime personal air and water, the geometric means were often significantly higher in the first season. For overnight and daytime personal air, the arithmetic means and maximum values tended to be higher in the first season while breath and overnight outdoor air showed some tendency to have higher arithmetic means and maximum values in the second season (summer). For daytime outdoor air and water the arithmetic means tended to be higher in the first season but the maximum values tended to be higher in the second. Generally, these tendencies indicate that in many cases large outlying values could appear in either season for the various compounds causing large arithmetic means but when measures of central tendancy were examined the first season usually had the higher concentrations. Also, outdoor airs had not nearly so many significant differences as the other media.

Tables 404 through 409 summarize the comparison between seasons with the ratios of second season to first for the arithmetic mean, geometric mean, median and maximum values. The small ratio values further illustrate the tendancy for higher values in the first season. For example, carbon tetrachloride for breath and the airs showed small ratios over the four statistics. However, chloroform for the outdoor airs showed particularly high maximum values in the second season resulting in high arithmetic means as demonstrated by the high ratios.

Table 398. WEIGHTED SUMMARY STATISTICS BY SEASON FOR SELECTED COMPOUNDS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

BREATH - FIRST SEASON
Population Estimate: 109,438
Sample Size Range: 76-138

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	2.16	3.76	0.46	2.28	1.17	2.90	5.40	9.60	11.0	12.0	0.06 - 15.0
1,1,1-Trichloroethane	1.32	20.4	5.71	5.87*	1.27	9.10	17.0	32.0	79.0	400.	0.06 - 520.
Carbon Tetrachloride	1.70	1.56*	0.39	0.69*	1.14	0.70	1.06	2.63	3.00	25.0	0.06 - 48.0
Trichloroethylene	1.50	1.52	0.16	0.94	1.14	0.90	1.70	3.69	4.88	8.30	0.09 - 14.0
Tetrachloroethylene	2.60	13.9	3.99	7.26*	1.13	6.65	13.0	27.0	45.0	190.	0.81 - 190.
Styrene	0.99	1.28	0.16	0.76	1.10	0.89	1.30	2.80	4.50	7.20	0.06 - 31.0
m,p-Dichlorobenzene	1.20	5.71	1.18	1.56	1.18	1.20	2.90	20.0	30.0	82.0	0.12 - 92.0
Ethylbenzene	0.43	4.76	0.72	2.58*	1.12	2.90	5.40	8.60	12.0	23.0	0.03 - 290.
o-Xylene	1.10	3.64	0.54	2.04*	1.11	2.20	3.73	6.70	9.50	17.0	0.05 - 220.
m,p-Xylene	0.43	9.33	1.06	5.89*	1.10	6.60	9.80	20.0	24.0	36.0	0.18 - 350.

BREATH - SECOND SEASON
Population Estimate: 109,438
Sample Size Range: 76-138

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	0.93	6.65	1.60	1.46	1.45	2.30	9.30	22.0	25.0	38.0	0.06 - 38.0
1,1,1-Trichloroethane	1.76	14.6	4.35	2.49	1.39	5.40	17.0	28.0	60.0	73.0	0.07 - 900.
Carbon Tetrachloride	1.08	0.44	0.10	0.23	1.12	0.17	0.28	0.88	1.40	4.10	0.08 - 9.60
Trichloroethylene	0.80	6.20*	1.27	0.51	1.31	0.13	4.50	20.0	28.0	93.0	0.07 - 110.
Tetrachloroethylene	1.50	10.6	2.23	2.81	1.21	3.90	8.80	25.0	38.0	99.0	0.05 - 330.
Styrene	0.42	1.66	0.28	0.48	1.22	0.80	1.50	5.00	6.70	13.0	0.03 - 57.0
m,p-Dichlorobenzene	0.60	6.72	1.25	1.22	1.24	1.50	5.40	23.0	28.0	65.0	0.04 - 190.
Ethylbenzene	0.24	4.73	1.12	0.70	1.26	1.90	3.50	8.70	17.0	85.0	0.02 - 120.
o-Xylene	0.40	5.56	1.42	0.66	1.28	1.10	4.40	9.50	17.0	110.	0.02 - 150.
m,p-Xylene	0.42	10.1	2.26	1.36	1.27	3.20	8.30	19.0	39.0	140.	0.02 - 240.

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between seasons significant at .05 level.

000436

Table 399. WEIGHTED SUMMARY STATISTICS BY SEASON FOR SELECTED COMPOUNDS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OVERNIGHT PERSONAL AIR - FIRST SEASON
Population Estimate: 109,438
Sample Size Range: 148-154

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	2.90	10.7	3.78	3.96*	1.14	4.55	8.40	17.0	28.0	215.	0.09 - 215.
1,1,1-Trichloroethane	23.6	40.2 *	6.90	15.2 *	1.12	15.0	25.0	64.0	225.	425.	0.37 - 880.
Carbon Tetrachloride	2.50	3.50*	0.74	1.68*	1.14	1.50	2.40	5.40	14.0	38.5	0.20 - 69.0
Trichloroethylene	2.30	3.49	0.56	1.92	1.10	1.94	3.50	6.30	14.0	30.0	0.16 - 50.0
Tetrachloroethylene	3.00	11.1	1.34	5.74	1.12	5.80	11.0	30.0	35.0	53.0	0.08 - 250.
Styrene	0.76	3.55	1.34	1.63	1.13	1.80	3.00	4.40	6.00	76.0	0.06 - 76.0
m,p-Dichlorobenzene	1.20	51.2	17.6	4.38	1.23	3.30	9.60	120.	380.	915.	0.08 - 930.
Ethylbenzene	4.30	10.7	1.18	6.51*	1.11	7.10	12.1	23.0	31.5	64.0	0.17 - 320.
o-Xylene	4.30	7.71	0.97	4.98	1.10	5.10	8.20	14.0	19.0	59.0	0.21 - 75.0
m,p-Xylene	1.64	26.7	5.73	15.3	1.12	15.0	25.0	46.0	63.0	350.	0.21 - 350.

OVERNIGHT PERSONAL AIR - SECOND SEASON
Population Estimate: 109,438
Sample Size Range: 148-154

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	1.30	4.68	0.89	1.29	1.31	1.06	7.60	13.0	15.0	34.0	0.05 - 35.0
1,1,1-Trichloroethane	2.32	20.7	3.30	8.21	1.23	12.0	24.0	58.0	68.0	130.	0.08 - 170.
Carbon Tetrachloride	2.30	1.24	0.09	0.95	1.08	1.31	1.63	1.94	2.40	5.50	0.11 - 7.20
Trichloroethylene	2.20	4.84	0.78	1.84	1.23	2.70	7.20	12.0	15.0	34.0	0.09 - 59.0
Tetrachloroethylene	1.64	9.04	0.88	4.32	1.18	5.50	11.0	20.0	33.5	50.0	0.07 - 98.0
Styrene	0.95	1.97	0.14	1.30	1.07	1.40	2.20	4.05	6.40	9.10	0.02 - 10.0
m,p-Dichlorobenzene	0.83	49.0	21.8	5.12	1.18	3.20	13.0	63.0	180.	1550	0.44 - 1550
Ethylbenzene	0.68	7.85	1.68	4.24	1.12	4.90	8.00	13.0	18.0	59.0	0.02 - 180.
o-Xylene	0.68	8.10	1.17	4.91	1.11	5.40	9.10	12.0	20.0	79.0	0.02 - 100.
m,p-Xylene	0.62	18.7	2.09	11.4	1.12	13.0	23.5	33.0	49.0	150.	0.02 - 150.

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between seasons significant at .05 level.

000437

Table 400. WEIGHTED SUMMARY STATISTICS BY SEASON FOR SELECTED COMPOUNDS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

DAYTIME PERSONAL AIR - FIRST SEASON
Population Estimate: 109,438
Sample Size Range: 138-142

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	3.88	9.12*	2.08	3.21*	1.20	3.10	8.50	21.0	41.0	89.0	0.08 - 89.0
1,1,1-Trichloroethane	25.0	1390	1350	21.1 *	1.12	17.0	39.0	130.	240.	8500	0.39-330,000
Carbon Tetrachloride	3.00	4.46	2.01	1.32*	1.15	1.50	2.63	5.70	10.0	37.0	0.17 - 900.
Trichloroethylene	3.16	7.96	3.03	2.86	1.13	2.38	5.44	12.0	17.0	100.	0.28 - 405.
Tetrachloroethylene	3.30	22.6 *	3.33	10.3 *	1.13	10.0	23.0	52.5	68.0	160.	0.39 - 1600
Styrene	1.20	28.0	17.6	2.46*	1.13	2.20	3.90	7.00	18.0	820.	0.07 - 6500
m,p-Dichlorobenzene	1.30	28.2	8.40	4.70	1.25	3.30	8.35	47.0	210.	490.	0.16 - 490.
Ethylbenzene	1.80	20.4 *	4.21	8.36*	1.14	8.38	17.0	35.4	44.0	410.	0.08 - 1100
o-Xylene	5.50	15.2	3.36	6.78*	1.12	6.88	13.0	25.0	27.0	390.	0.08 - 770.
m,p-Xylene	2.10	40.9	7.11	21.0*	1.10	21.0	40.0	57.0	74.0	860.	1.31 - 1500

DAYTIME PERSONAL AIR - SECOND SEASON
Population Estimate: 109,438
Sample Size Range: 138-142

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	1.36	3.92	0.53	0.92	1.14	0.69	4.40	11.0	15.0	29.0	0.06 - 140.
1,1,1-Trichloroethane	2.40	218.	194.	4.86	1.35	6.20	24.0	92.0	140.	390.	0.08 -49,000
Carbon Tetrachloride	2.50	0.66	0.05	0.51	1.07	0.41	0.88	1.50	1.63	1.75	0.13 - 7.00
Trichloroethylene	2.84	7.71	1.94	2.24	1.28	3.00	7.80	21.0	29.0	120.	0.09 - 120.
Tetrachloroethylene	2.40	12.2	1.82	3.96	1.24	5.80	14.0	30.0	44.0	75.0	0.07 - 240.
Styrene	1.00	2.18	0.35	1.08	1.17	1.10	2.60	4.25	5.10	10.0	0.02 - 150.
m,p-Dichlorobenzene	1.00	51.5	34.5	3.25	1.16	2.25	7.40	31.0	110.	2600	0.03 - 2600
Ethylbenzene	1.08	10.6	2.86	3.14	1.23	4.20	8.40	15.0	21.0	110.	0.02 - 579.
o-Xylene	0.68	15.9	4.63	3.91	1.19	5.10	9.05	18.4	30.0	110.	0.02 - 1800
m,p-Xylene	0.27	55.2	23.3	8.39	1.24	13.0	22.0	41.0	53.0	220.	0.02-10,000

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between seasons significant at .05 level.

000138

Table 401. WEIGHTED SUMMARY STATISTICS BY SEASON FOR SELECTED COMPOUNDS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OVERNIGHT OUTDOOR AIR - FIRST SEASON
Population Estimate: 109,438
Sample Size Range: 44-60

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	1.00	0.87	0.21	0.39	1.27	0.45	1.19	1.61	2.90	5.20	0.04 - 6.00
1,1,1-Trichloroethane	2.92	4.99	0.77	3.54	1.19	4.20	5.90	11.0	12.0	19.0	0.07 - 19.0
Carbon Tetrachloride	1.10	1.19	0.18	0.83	1.11	0.81	1.30	2.10	2.90	14.0	0.16 - 14.0
Trichloroethylene	1.80	2.12	0.30	1.47	1.16	1.50	3.00	4.10	6.50	7.50	0.11 - 11.0
Tetrachloroethylene	1.40	3.31	0.35	2.24	1.10	2.60	4.00	6.30	6.90	20.0	0.06 - 27.0
Styrene	1.50	0.81	0.12	0.54*	1.14	0.60	0.94	1.30	2.80	5.40	0.06 - 11.0
m,p-Dichlorobenzene	1.30	1.23	0.18	0.79	1.18	0.94	1.56	1.90	3.70	9.20	0.07 - 13.0
Ethylbenzene	0.92	3.68	0.42	2.43	1.21	3.50	4.90	6.90	11.0	13.0	0.11 - 20.0
o-Xylene	1.60	3.90	0.41	2.91	1.15	3.05	5.70	7.40	8.15	11.6	0.18 - 27.0
m,p-Xylene	1.10	10.8	1.14	7.94	1.21	11.0	16.0	18.0	21.0	26.0	0.13 - 70.0

OVERNIGHT OUTDOOR AIR - SECOND SEASON
Population Estimate: 109,438
Sample Size Range: 44-60

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	0.56	9.73*	2.40	0.48	1.59	0.09	7.80	35.0	51.0	130.	0.05 - 130.
1,1,1-Trichloroethane	1.04	10.2 *	1.67	3.63	1.42	6.90	13.0	23.0	46.0	51.0	0.07 - 51.0
Carbon Tetrachloride	0.88	1.09	0.14	0.72	1.17	0.64	1.44	2.50	3.20	4.80	0.08 - 4.80
Trichloroethylene	0.76	6.51	2.16	1.04	1.37	1.40	7.00	27.0	38.0	44.0	0.06 - 44.0
Tetrachloroethylene	0.60	3.47	0.61	1.25	1.37	1.80	5.50	9.40	11.0	18.0	0.04 - 18.0
Styrene	0.56	0.51	0.08	0.26	1.26	0.45	0.73	1.20	1.35	1.70	0.02 - 11.0
m,p-Dichlorobenzene	1.10	1.33	0.16	0.95	1.15	1.20	1.70	2.40	2.70	7.60	0.09 - 7.60
Ethylbenzene	0.29	3.59	0.70	1.69	1.34	2.90	5.00	7.30	8.80	28.0	0.02 - 28.0
o-Xylene	0.25	4.45	0.91	2.02	1.36	3.80	5.50	8.10	15.6	31.0	0.02 - 31.0
m,p-Xylene	0.20	11.5	2.00	5.30	1.37	10.0	16.0	24.0	27.5	65.0	0.02 - 65.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between seasons significant at .05 level.

000439

Table 402. WEIGHTED SUMMARY STATISTICS BY SEASON FOR SELECTED COMPOUNDS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

DAYTIME OUTDOOR AIR - FIRST SEASON
Population Estimate: 109,438
Sample Size Range: 41-59

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	1.40	1.20	0.16	0.64	1.15	0.74	1.81	3.30	3.34	4.91	0.04 - 7.00
1,1,1-Trichloroethane	2.10	6.20	1.04	3.40	1.29	4.50	7.60	14.0	20.0	57.0	0.06 - 57.0
Carbon Tetrachloride	1.40	1.20	0.24	0.78	1.20	1.00	1.25	1.85	3.80	7.10	0.04 - 7.10
Trichloroethylene	1.70	2.15	0.36	1.28	1.17	1.25	2.60	6.30	7.45	11.0	0.11 - 11.0
Tetrachloroethylene	1.44	8.66	2.81	3.64*	1.34	4.20	10.0	23.0	40.5	57.0	0.11 - 57.0
Styrene	1.20	0.78	0.14	0.50	1.20	0.51	0.98	1.60	1.90	5.13	0.08 - 5.13
m,p-Dichlorobenzene	1.50	1.19	0.28	0.68	1.17	0.63	1.38	2.69	5.40	8.00	0.11 - 11.4
Ethylbenzene	1.68	3.76	0.61	2.56*	1.20	2.90	4.80	7.90	8.70	14.0	0.06 - 14.0
o-Xylene	2.20	3.72	0.64	2.62*	1.19	2.90	4.90	8.60	11.0	12.0	0.29 - 12.0
m,p-Xylene	2.48	10.9	1.95	7.22*	1.22	7.70	14.0	26.0	30.0	35.0	0.22 - 36.0

DAYTIME OUTDOOR AIR - SECOND SEASON
Population Estimate: 109,438
Sample Size Range: 41-59

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	0.96	16.5	6.25	0.75	1.56	0.14	7.54	59.0	88.0	230.	0.07 - 230.
1,1,1-Trichloroethane	0.92	14.1	3.61	3.42	1.59	5.50	17.0	45.0	76.0	78.0	0.09 - 78.0
Carbon Tetrachloride	1.12	1.05	0.20	0.66	1.22	0.75	1.20	2.30	4.10	4.60	0.12 - 5.10
Trichloroethylene	1.02	8.84	3.67	0.91	1.58	0.19	7.40	19.0	47.0	106.	0.08 - 106.
Tetrachloroethylene	0.92	6.54	2.50	1.58	1.38	3.05	5.70	13.4	20.0	95.0	0.06 - 9.50
Styrene	0.58	0.84	0.26	0.31	1.36	0.36	0.73	2.60	4.00	4.90	0.02 - 6.30
m,p-Dichlorobenzene	0.88	1.15	0.35	0.60	1.29	0.70	1.30	1.90	5.20	6.85	0.06 - 13.0
Ethylbenzene	0.30	2.42	0.45	0.94	1.24	1.80	2.80	4.70	5.50	12.0	0.03 - 39.0
o-Xylene	0.30	2.59	0.51	1.04	1.27	1.69	2.80	5.60	13.0	13.6	0.03 - 19.0
m,p-Xylene	0.30	7.28	1.41	2.73	1.35	5.30	8.60	13.0	34.0	36.0	0.03 - 47.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
* T-test for difference in means between seasons significant at .05 level.

000460

Table 403. WEIGHTED SUMMARY STATISTICS BY SEASON FOR SELECTED COMPOUNDS FOR THOSE WITH FIRST AND SECOND SEASON SAMPLES (ng/mL) - NEW JERSEY

WATER - FIRST SEASON
Population Estimate: 109,438
Sample Size Range: 115-157

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Vinylidene Chloride	0.05	0.21*	0.04	0.08*	1.19	0.03	0.24	0.62	0.98	1.65	0.03 - 2.36
Chloroform	--- e/	70.4*	2.80	67.4 *	1.04	66.4	83.5	95.0	102.	134.	28.8 - 168.
1,1,1-Trichloroethane	0.05	0.51*	0.13	0.12*	1.29	0.03	0.70	1.75	2.62	3.55	0.03 - 4.43
Benzene	0.50	0.31	0.00	0.31	1.00	0.31	0.31	0.31	0.31	0.31	0.31 - 0.31
Trichloroethylene	0.05	0.47	0.09	0.13	1.25	0.05	0.70	1.59	2.01	3.51	0.03 - 4.02
Bromodichloromethane	--- e/	13.8	0.23	13.6	1.02	13.4	14.8	16.8	17.8	23.4	7.00 - 23.4
Dibromochloromethane	--- e/	2.48*	0.08	2.39*	1.03	2.41	2.71	3.25	3.45	8.39	0.99 - 8.39
Tetrachloroethylene	0.05	0.36	0.08	0.11	1.23	0.04	0.43	1.41	1.58	2.03	0.03 - 3.32

WATER - SECOND SEASON
Population Estimate: 109,438
Sample Size Range: 115-157

Compounds	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Vinylidene Chloride	0.05	0.10	0.02	0.05	1.11	0.03	0.07	0.25	0.59	1.11	0.03 - 2.48
Chloroform	0.05	61.1	2.01	56.9	1.03	54.8	77.1	97.8	104.	116.	0.03 - 134.
1,1,1-Trichloroethane	0.05	0.19	0.03	0.07	1.14	0.03	0.15	0.54	0.91	1.65	0.03 - 2.57
Benzene	0.50	0.71*	0.10	0.46*	1.08	0.31	0.42	2.28	3.34	4.54	0.31 - 4.70
Trichloroethylene	0.05	0.39	0.06	0.09	1.16	0.03	0.14	1.37	1.80	3.26	0.03 - 8.27
Bromodichloromethane	0.10	13.6	0.89	12.5	1.04	12.3	15.2	18.4	19.5	54.0	0.06 - 54.0
Dibromochloromethane	0.10	2.07	0.07	1.94	1.04	1.91	2.35	3.12	3.75	4.59	0.06 - 7.19
Tetrachloroethylene	0.05	0.36	0.06	0.08	1.13	0.03	0.11	0.65	1.91	3.63	0.03 - 9.26

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standard Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable
* T-test for difference in means between seasons significant at .05 level.

000441

Table 404. RATIO OF SECOND SEASON TO FIRST SEASON FOR WEIGHTED SUMMARY STATISTICS - NEW JERSEY

BREATH Compound	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	1.77	0.64	0.79	2.53
1,1,1-Trichloroethane	0.72	0.42*	0.59	1.73
Carbon Tetrachloride	0.28*	0.33*	0.24	0.20
Trichloroethylene	4.08*	0.54	0.14	7.86
Tetrachloroethylene	0.76	0.39*	0.59	1.74
Styrene	1.30	0.63	0.90	1.84
m,p-Dichlorobenzene	1.18	0.78	1.25	2.07
Ethylbenzene	0.99	0.27*	0.66	0.41
o-Xylene	1.53	0.32*	0.50	0.68
m,p-Xylene	1.08	0.23*	0.48	0.69

* T-test for difference in means between seasons significant at .05 level.

Table 405. RATIO OF SECOND SEASON TO FIRST SEASON FOR WEIGHTED SUMMARY STATISTICS - NEW JERSEY

OVERNIGHT PERSONAL AIR Compound	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	0.44	0.33*	0.23	0.16
1,1,1-Trichloroethane	0.52*	0.54*	0.80	0.19
Carbon Tetrachloride	0.35*	0.57*	0.88	0.10
Trichloroethylene	1.39	0.96	1.39	1.18
Tetrachloroethylene	0.81	0.75	0.95	0.39
Styrene	0.55	0.80	0.78	0.13
m,p-Dichlorobenzene	0.96	1.17	0.97	1.67
Ethylbenzene	0.73	0.65*	0.69	0.56
o-Xylene	1.05	0.99	1.06	1.33
m,p-Xylene	0.70	0.75	0.87	0.43

* T-test for difference in means between seasons significant at .05 level.

000442

Table 406. RATIO OF SECOND SEASON TO FIRST SEASON FOR WEIGHTED SUMMARY STATISTICS - NEW JERSEY

DAYTIME PERSONAL AIR Compound	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	0.43*	0.29*	0.22	1.57
1,1,1-Trichloroethane	0.16	0.23*	0.36	0.15
Carbon Tetrachloride	0.15	0.39*	0.27	0.01
Trichloroethylene	0.97	0.78	1.26	0.30
Tetrachloroethylene	0.54*	0.39*	0.58	0.15
Styrene	0.08	0.44*	0.50	0.02
m,p-Dichlorobenzene	1.83	0.69	0.68	5.31
Ethylbenzene	0.52*	0.38*	0.50	0.53
o-Xylene	1.05	0.58*	0.74	2.34
m,p-Xylene	1.35	0.40*	0.62	6.67

* T-test for difference in means between seasons significant at .05 level.

Table 407. RATIO OF SECOND SEASON TO FIRST SEASON FOR WEIGHTED SUMMARY STATISTICS - NEW JERSEY

OVERNIGHT OUTDOOR AIR Compound	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	11.2 *	1.23	0.19	21.7
1,1,1-Trichloroethane	2.05*	1.03	1.64	2.68
Carbon Tetrachloride	0.92	0.87	0.79	0.34
Trichloroethylene	3.07	0.71	0.93	4.00
Tetrachloroethylene	1.05	0.56	0.69	0.67
Styrene	0.63	0.48*	0.75	1.00
m,p-Dichlorobenzene	1.08	1.20	1.28	0.58
Ethylbenzene	0.98	0.70	0.83	1.40
o-Xylene	1.14	0.69	1.25	1.15
m,p-Xylene	1.06	0.67	0.91	0.93

* T-test for difference in means between seasons significant at .05 level.

Table 408. RATIO OF SECOND SEASON TO FIRST SEASON FOR WEIGHTED SUMMARY STATISTICS - NEW JERSEY

DAYTIME OUTDOOR AIR Compound	Arith. Mean	Geo. Mean	Median	Maximum
Chloroform	13.7 *	1.17	0.19	32.9
1,1,1-Trichloroethane	2.28	1.01	1.22	1.37
Carbon Tetrachloride	0.88	0.85	0.75	0.72
Trichloroethylene	4.11	0.71	0.15	9.59
Tetrachloroethylene	0.76	0.43*	0.73	1.67
Styrene	1.08	0.62	0.72	1.23
m,p-Dichlorobenzene	0.97	0.88	1.12	1.14
Ethylbenzene	0.64	0.37*	0.62	2.79
o-Xylene	0.70	0.40*	0.58	1.58
m,p-Xylene	0.67	0.38*	0.69	1.31

* T-test for difference in means between seasons significant at .05 level.

Table 409. RATIO OF SECOND SEASON TO FIRST SEASON FOR WEIGHTED SUMMARY STATISTICS - NEW JERSEY

WATER Compound	Arith. Mean	Geo. Mean	Median	Maximum
Vinylidene Chloride	0.48*	0.62*	1.00	1.05
Chloroform	0.87*	0.84*	0.83	0.79
1,1,1-Trichloroethane	0.37*	0.58*	1.00	0.58
Benzene	2.29*	1.48*	1.00	15.2
Trichloroethylene	0.83	0.69	0.60	2.06
Bromodichloromethane	0.99	0.92	0.92	2.30
Dibromochloromethane	0.83*	0.81*	0.79	0.86
Tetrachloroethylene	1.00	0.73	0.75	2.79

* T-test for difference in means between seasons significant at .05 level.

As an example of the levels observed in the two seasons, Figures 97 through 100 give boxplots of 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene and m,p-xylene for breath, overnight and daytime personal air for first and second seasons. For 1,1,1-trichloroethane, tetrachloroethylene and m,p-xylene the values tended to be higher for the first season while for m,p-dichlorobenzene there was some tendancy for the values to be higher in the second season. The plots again indicate the extreme skewness of many of the concentration distributions and show why when examining the arithmetic means, it is difficult to draw any conclusions.

The Spearman correlations between first and second seasons for selected compounds for all amounts is given in Table 410. With the exception of vinylidene chloride, 1,1,1-trichloroethane, trichloroethylene and tetrachloroethylene in water, none of the correlations were above .50.

The Spearman correlations for measurable amounts only between the two seasons is given in Table 411. With the exception of carbon tetrachloride for breath and styrene for daytime outdoor air, neither of which were found significantly different from zero, none of the correlations were more than .50. Overall, for breath and the airs the correlations for all amounts and those for measurable amounts were similar. However, for water the correlations for all amounts were generally much higher.

Figures 101 through 109 further demonstrate this lack of correlation between the seasons with natural logarithmic plots of selected chemicals for first season versus second. One was added to each number before the log was taken so each plot starts at 0. The lines represent the mid QL values for the compound for the two seasons. An "O" represents both measurable and an "X" represents one or both not measurable. The Spearman correlations are also shown.

Tables 412 and 413 give weighted summary statistics for personal air and outdoor air exposures averaged over the 24-hour period and over the two seasons. In comparing personal air to outdoor air, the summary statistics seemed higher for personal air and, with the exception of chloroform and trichloroethylene remarkably so (e.g., the geometric mean

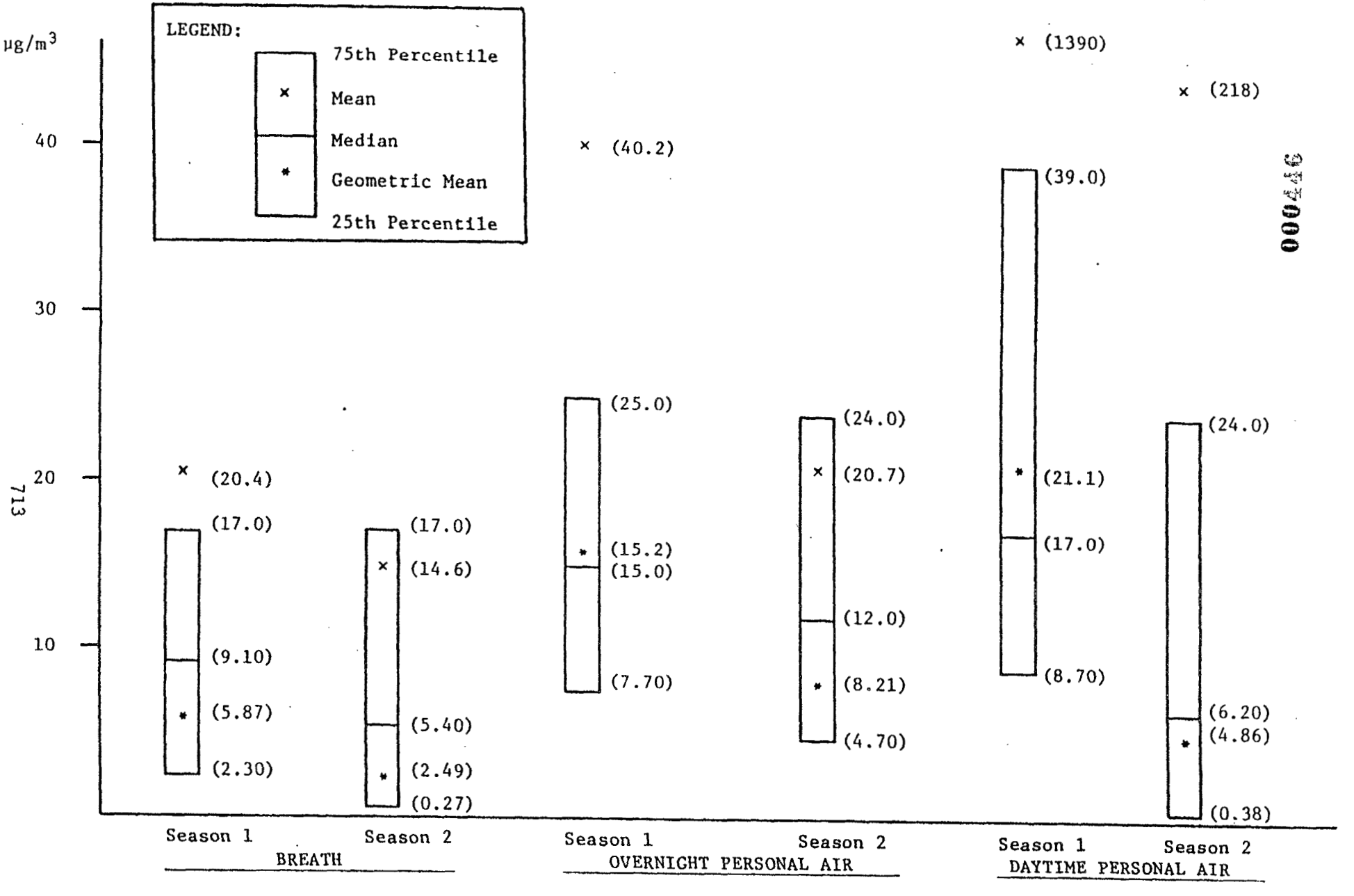

Figure 97. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for 1,1,1-trichloroethane for breath, overnight personal air, and daytime personal air by season - New Jersey.

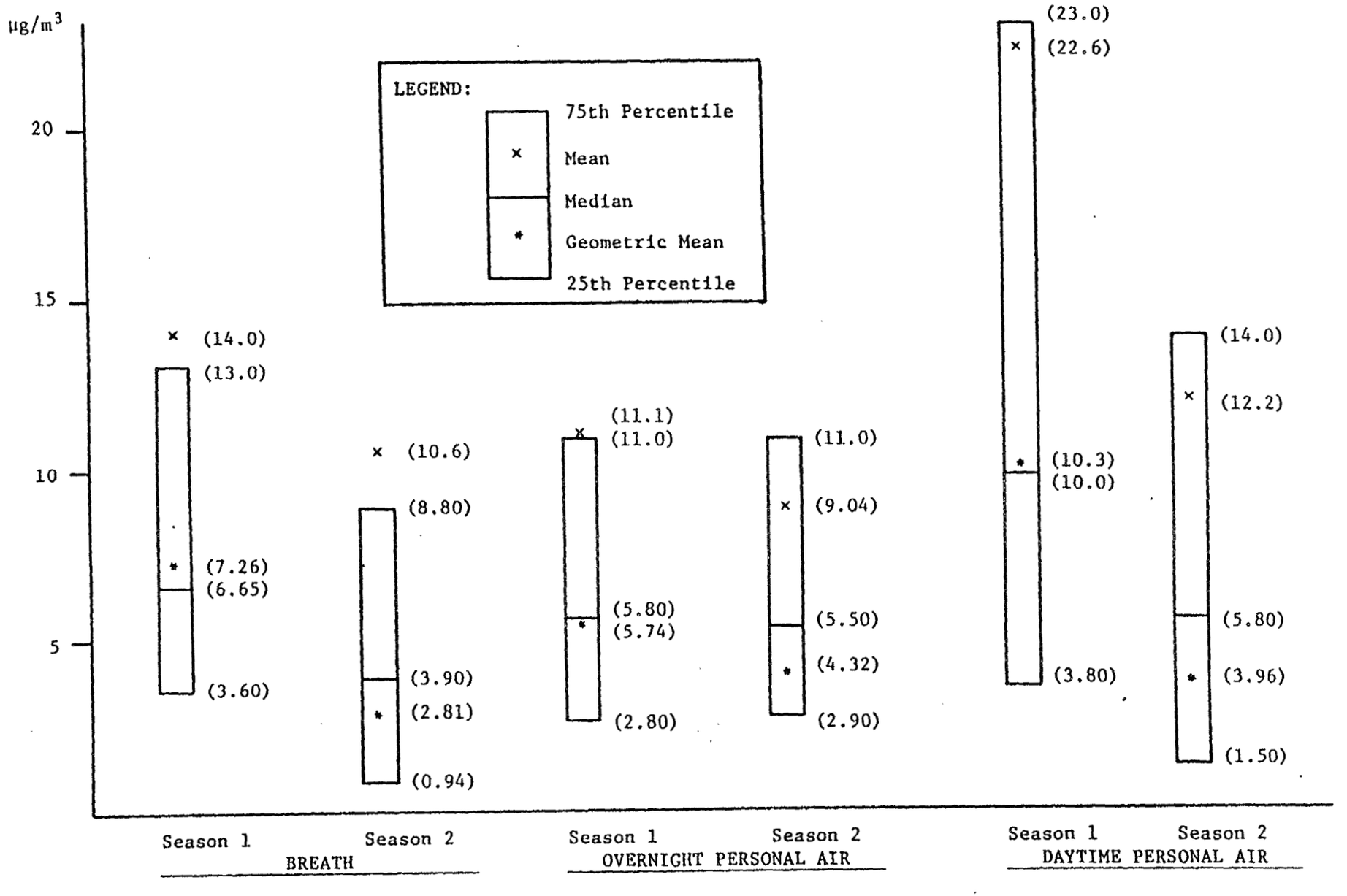

Figure 98. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for tetrachloroethylene for breath, overnight personal air, and daytime personal air by season - New Jersey.

000447

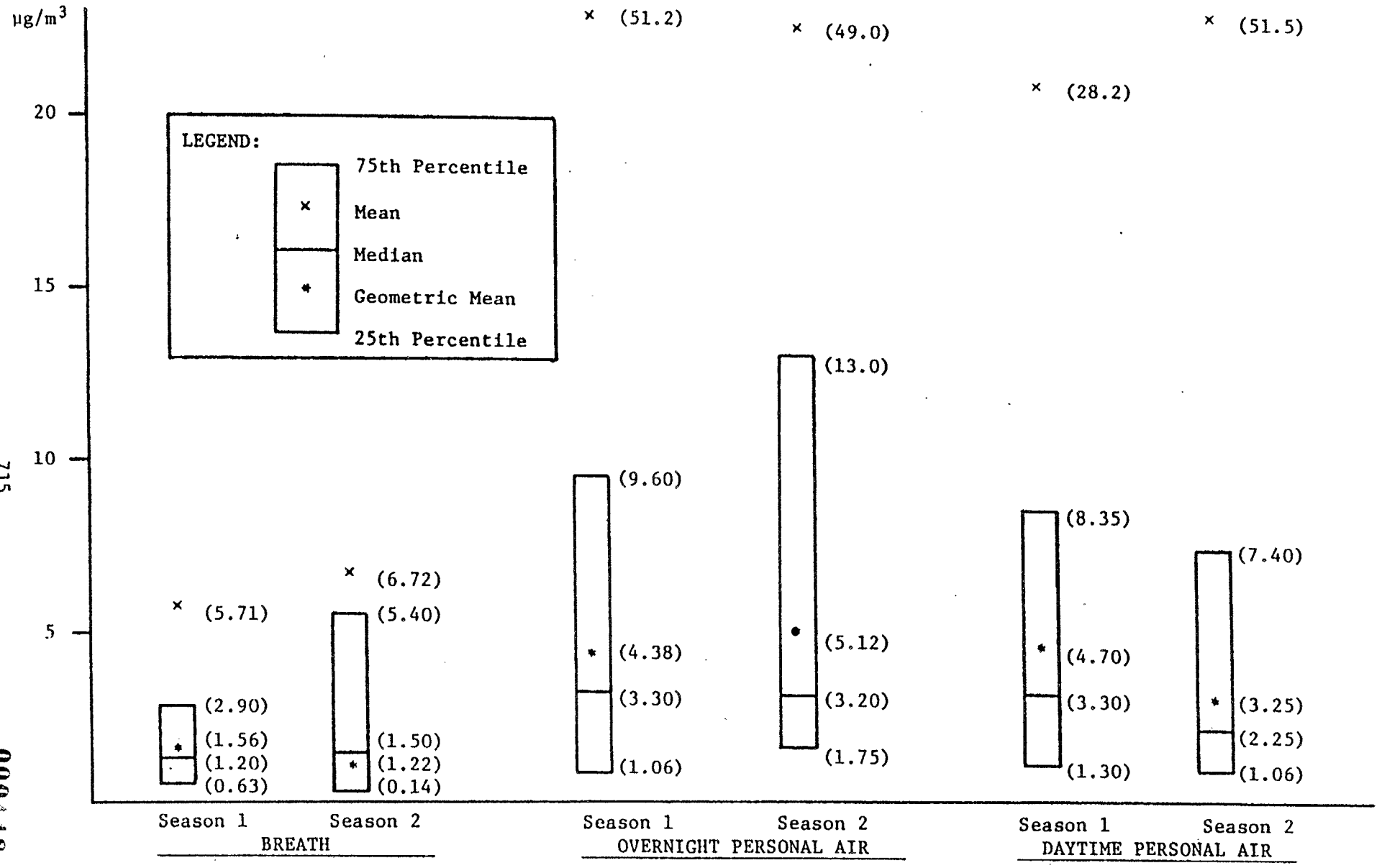

Figure 99. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for m,p-dichlorobenzene for breath, overnight personal air, and daytime personal air by season - New Jersey.

000448

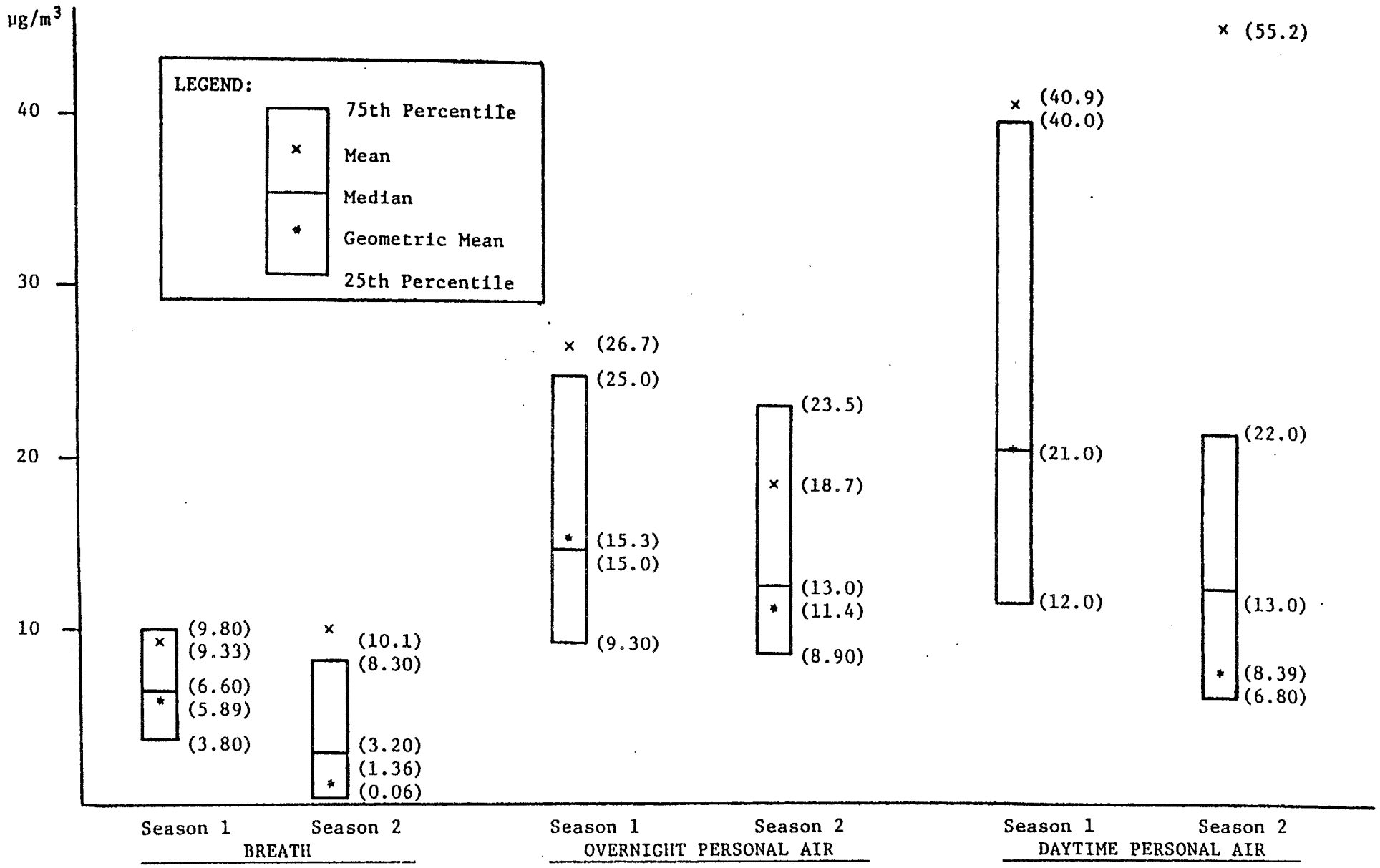

Figure 100. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for m,p-xylene for breath, overnight personal air, and daytime personal air by season - New Jersey.

000749

Table 410. SPEARMAN CORRELATIONS BETWEEN FIRST AND SECOND SEASONS FOR ALL AMOUNTS OF SELECTED COMPOUNDS - NEW JERSEY

Compound	Breath		Overnight Personal Air		Daytime Personal Air	
	Correlation	Sample Size	Correlation	Sample Size	Correlation	Sample Size
Chloroform	.02	76	.08	153	.01	141
1,1,1-Trichloroethane	.15	133	-.01	148	.11	138
Carbon Tetrachloride	-.03	125	-.17*	153	.00	139
Trichloroethylene	-.01	124	.04	154	.08	142
Tetrachloroethylene	.19*	138	.04	154	.03	142
Styrene	.15	131	.19*	152	.16	141
m,p-Dichlorobenzene	.42*	128	.49*	152	.26*	142
Ethylbenzene	.25*	137	.03	152	.11	142
o-Xylene	.09	135	.12	151	.25*	142
m,p-Xylene	.18*	138	.16	152	.17*	142

	Overnight Outdoor Air		Daytime Outdoor Air	
	Correlation	Sample Size	Correlation	Sample Size
Chloroform	-.09	44	.18	41
1,1,1-Trichloroethane	.01	48	.19	46
Carbon Tetrachloride	-.03	60	-.15	58
Trichloroethylene	.01	60	.09	57
Tetrachloroethylene	.06	59	.08	58
Styrene	-.00	59	.08	59
m,p-Dichlorobenzene	-.19	59	-.20	56
Ethylbenzene	.02	59	-.15	55
o-Xylene	.03	59	-.06	57
m,p-Xylene	-.10	59	-.24	57

	Water	
	Correlation	Sample Size
Vinylidene Chloride	.64*	157
Chloroform	-.09	157
1,1,1-Trichloroethane	.66*	157
Benzene	.00	115
Trichloroethylene	.75*	157
Bromodichloromethane	.11	157
Dibromochloromethane	.40*	157
Tetrachloroethylene	.72*	157

* Significantly different from zero at .05 level.

000450

Table 411. SPEARMAN CORRELATIONS BETWEEN FIRST AND SECOND SEASONS FOR MEASURABLE AMOUNTS OF SELECTED COMPOUNDS - NEW JERSEY

Compound	Breath		Overnight Personal Air		Daytime Personal Air	
	Correlation	Sample Size	Correlation	Sample Size	Correlation	Sample Size
Chloroform	-.20	31	.28	48	-.08	32
1,1,1-Trichloroethane	.09	74	-.07	98	.32*	68
Carbon Tetrachloride	.70	6	-.32	9	-.63	4
Trichloroethylene	-.06	18	-.09	51	.10	44
Tetrachloroethylene	.23*	103	.03	115	.17	91
Styrene	.24	49	.06	106	.39*	78
m,p-Dichlorobenzene	.43*	48	.43*	112	.26*	88
Ethylbenzene	.02	90	-.03	136	.22*	118
o-Xylene	.22	70	-.01	131	.33*	111
m,p-Xylene	.10	94	.09	144	.24*	131

	Overnight Outdoor Air		Daytime Outdoor Air	
	Correlation	Sample Size	Correlation	Sample Size
Chloroform	.30	5	.10	5
1,1,1-Trichloroethane	-.10	29	.14	29
Carbon Tetrachloride	.14	19	.01	10
Trichloroethylene	-.30	22	.29	15
Tetrachloroethylene	.11	32	.26	33
Styrene	-.18	16	.60	5
m,p-Dichlorobenzene	.33	16	-.50	3
Ethylbenzene	.07	46	-.12	34
o-Xylene	.08	41	-.19	35
m,p-Xylene	-.06	51	-.14	44

	Water	
	Correlation	Sample Size
Vinylidene Chloride	.23	41
Chloroform	-.10	156
1,1,1-Trichloroethane	.18	62
Benzene		0
Trichloroethylene	.06	67
Bromodichloromethane	.11	156
Dibromochloromethane	.41*	156
Tetrachloroethylene	.03	67

* Significantly different from zero at .05 level.

000451

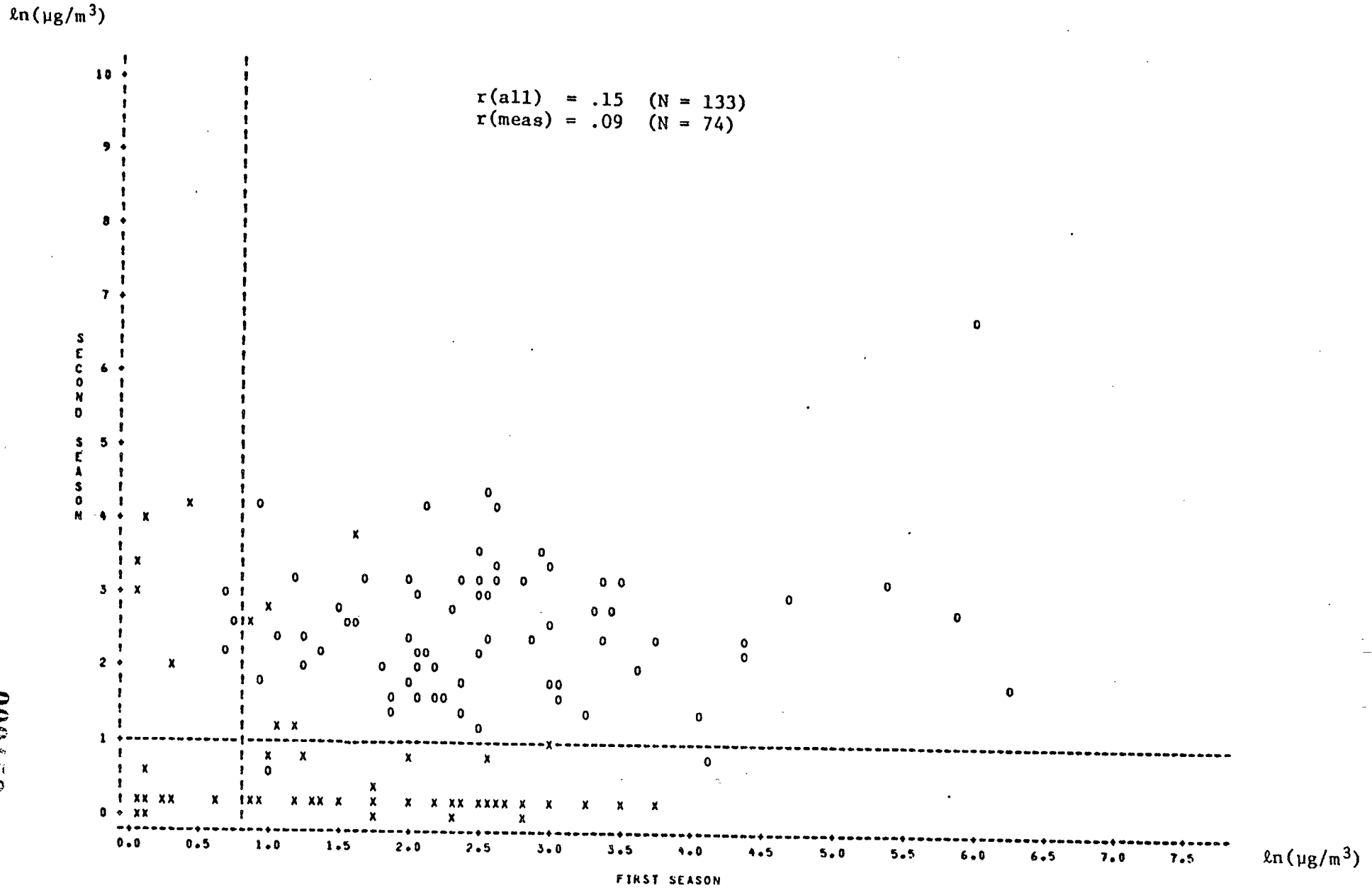

Figure 101. 1,1,1-trichloroethane for breath - New Jersey.

000452

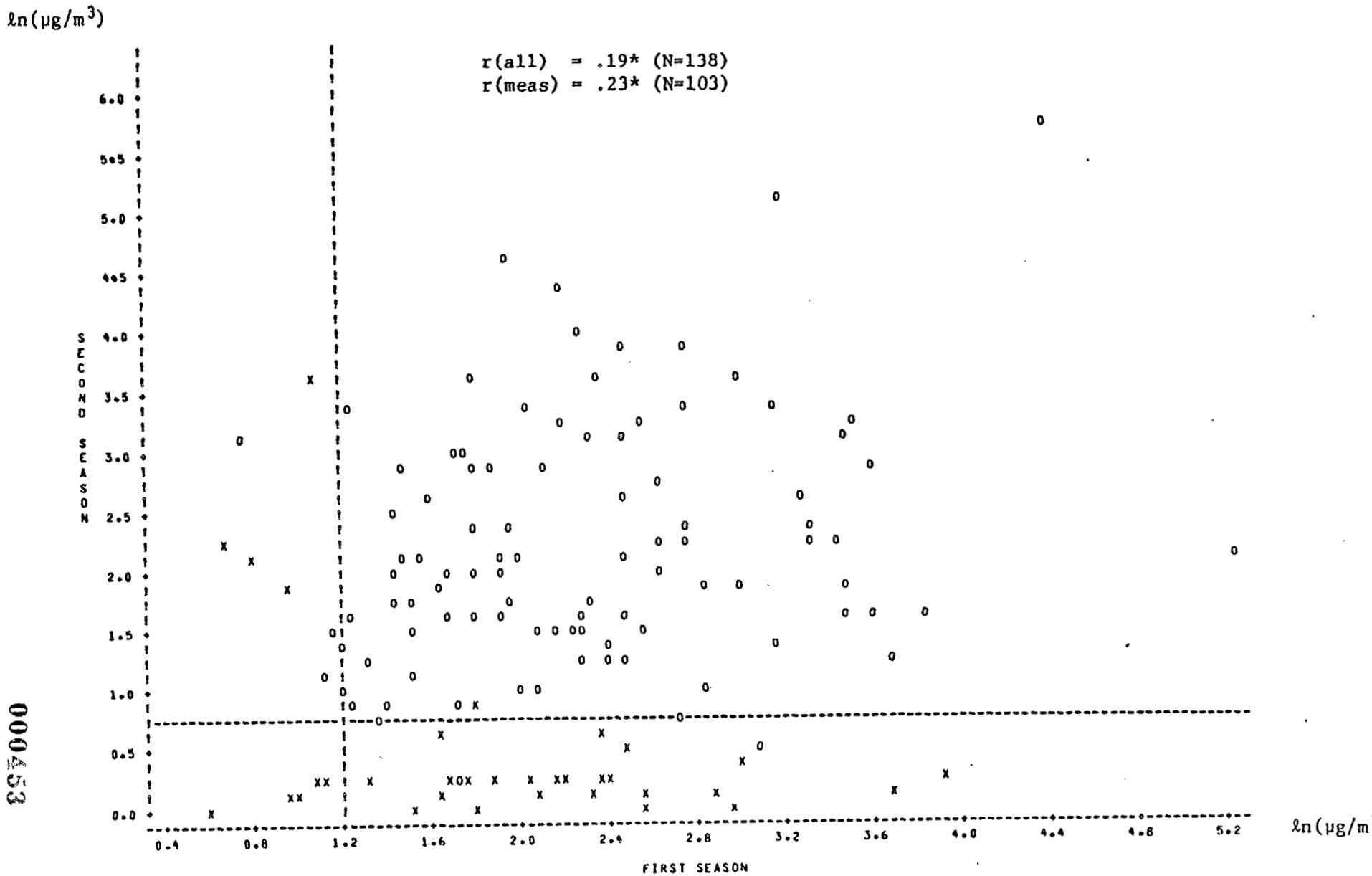

Figure 102. Tetrachloroethylene for breath - New Jersey.

000453

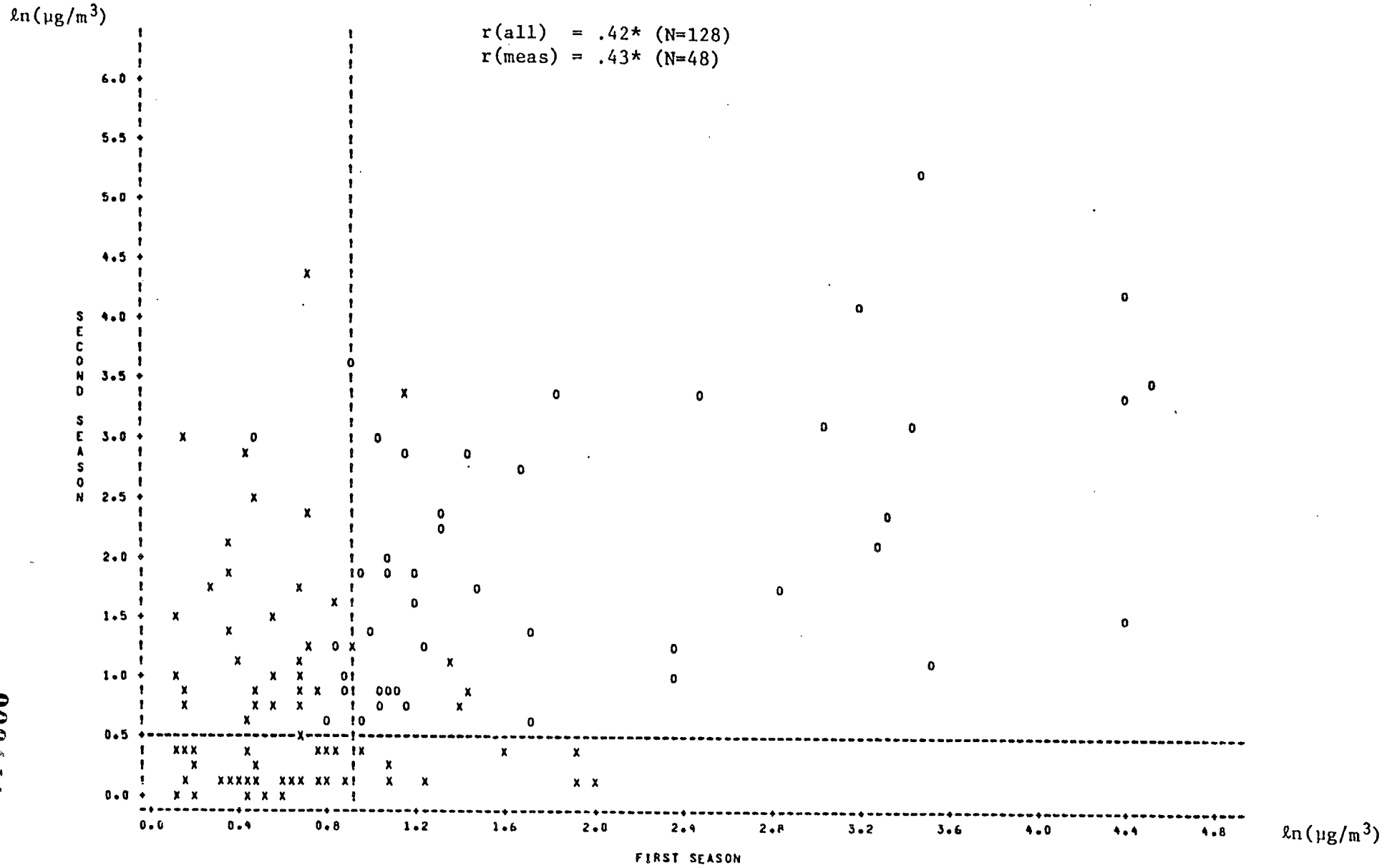

Figure 103. m,p-dichlorobenzene for breath - New Jersey.

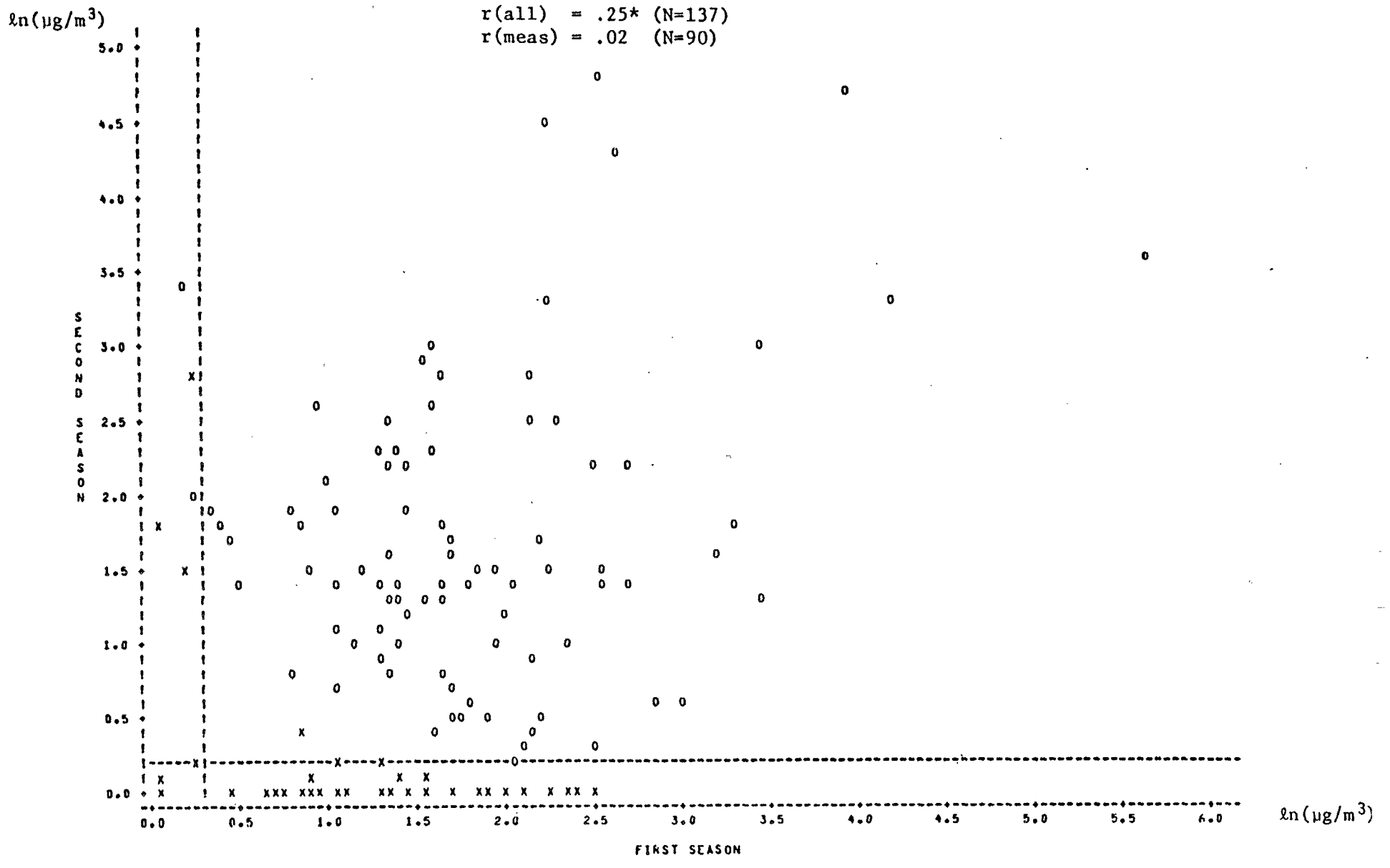

Figure 104. Ethylbenzene for breath - New Jersey.

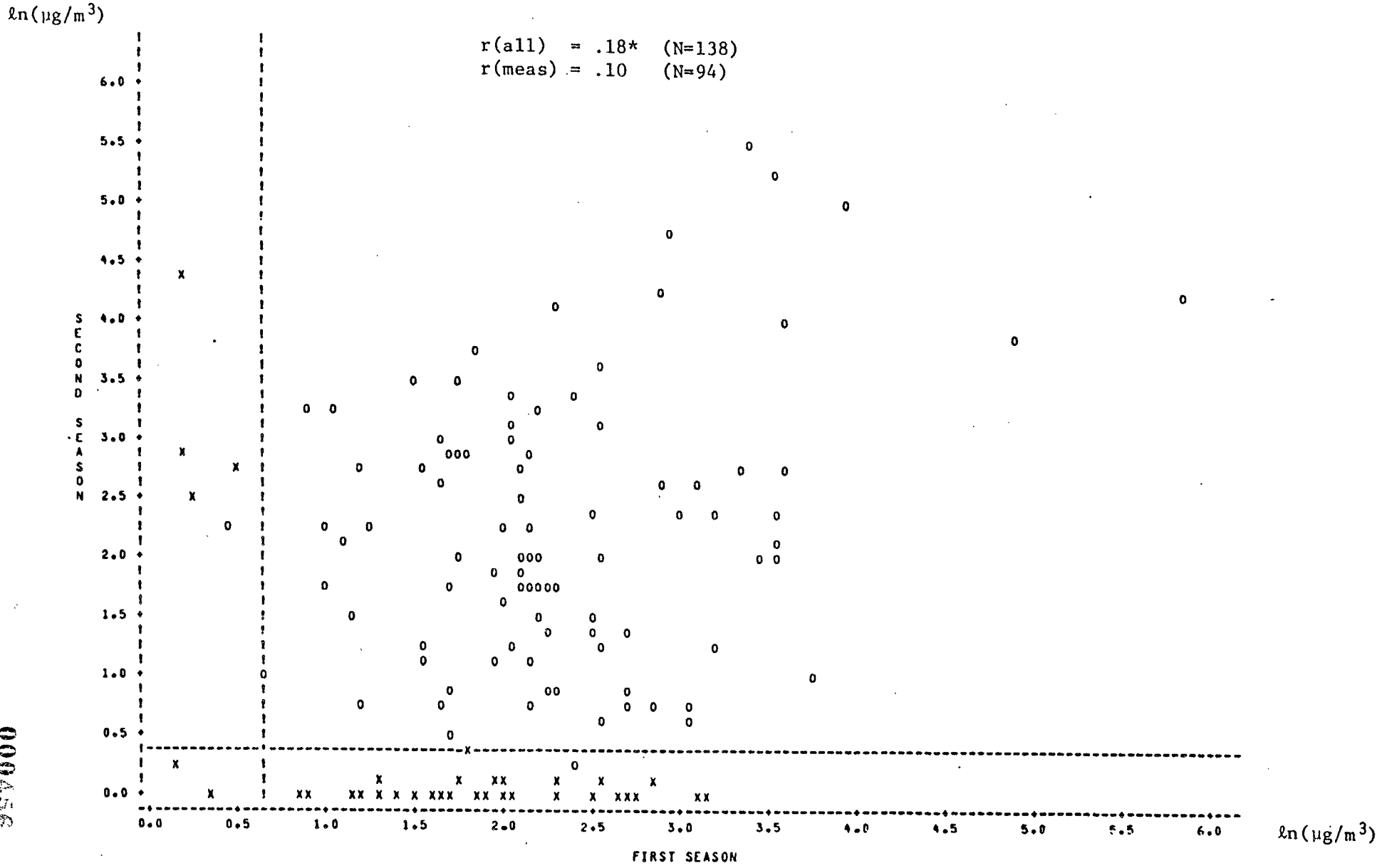

Figure 105. m,p-xylene for breath - New Jersey.

000456

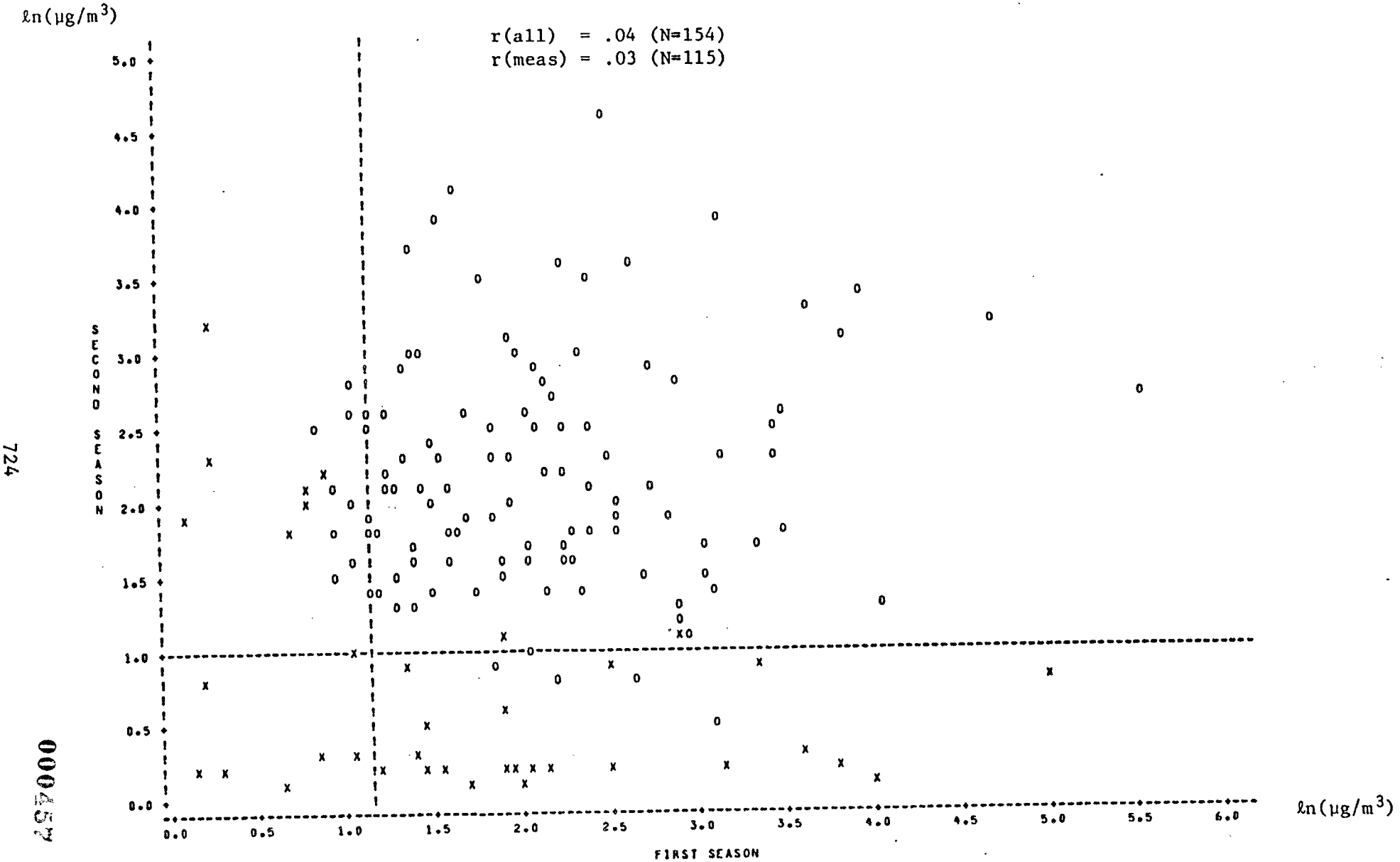

Figure 106. Tetrachloroethylene for overnight personal air - New Jersey.

000454

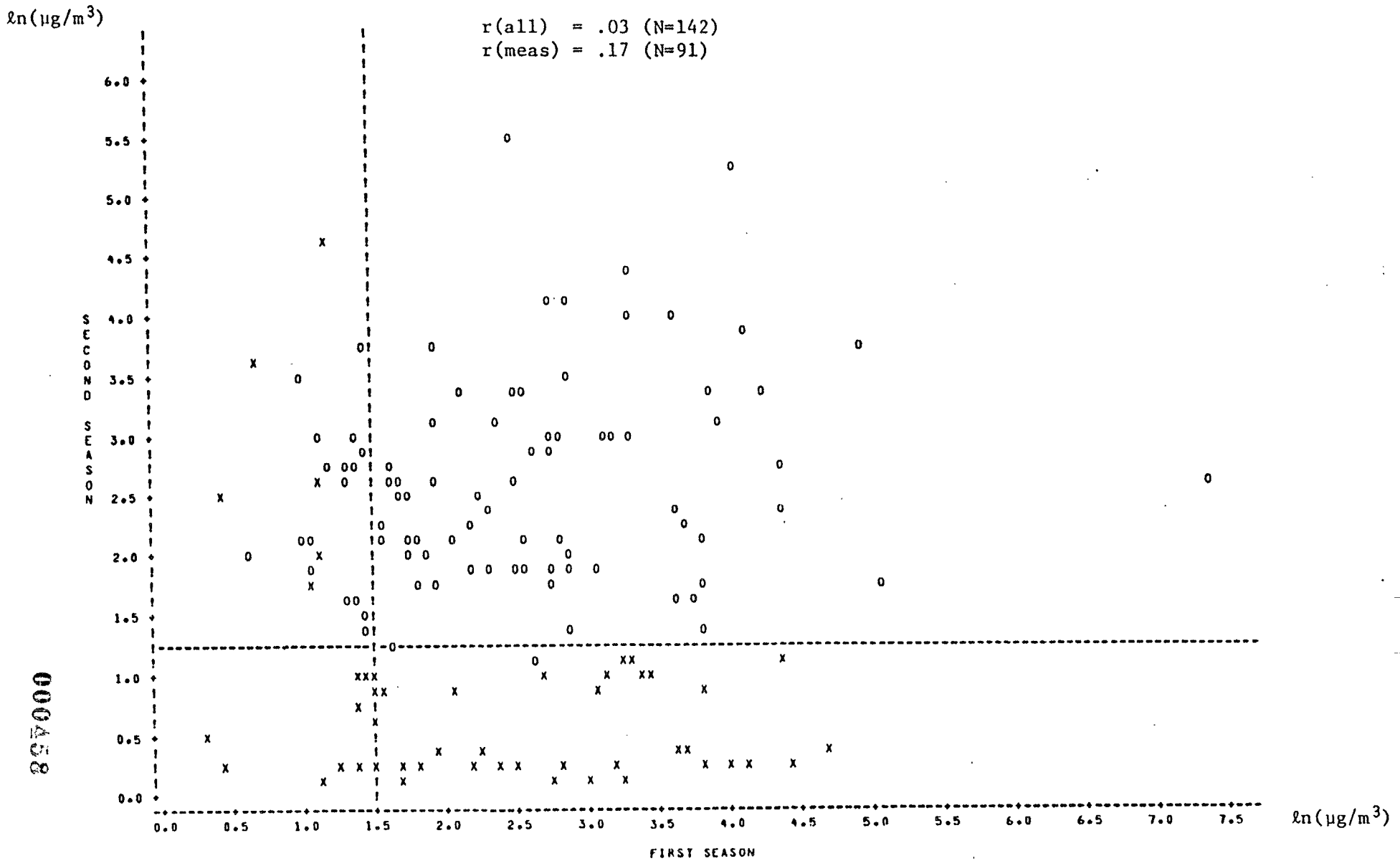

Figure 107. Tetrachloroethylene for daytime personal air - New Jersey.

004458

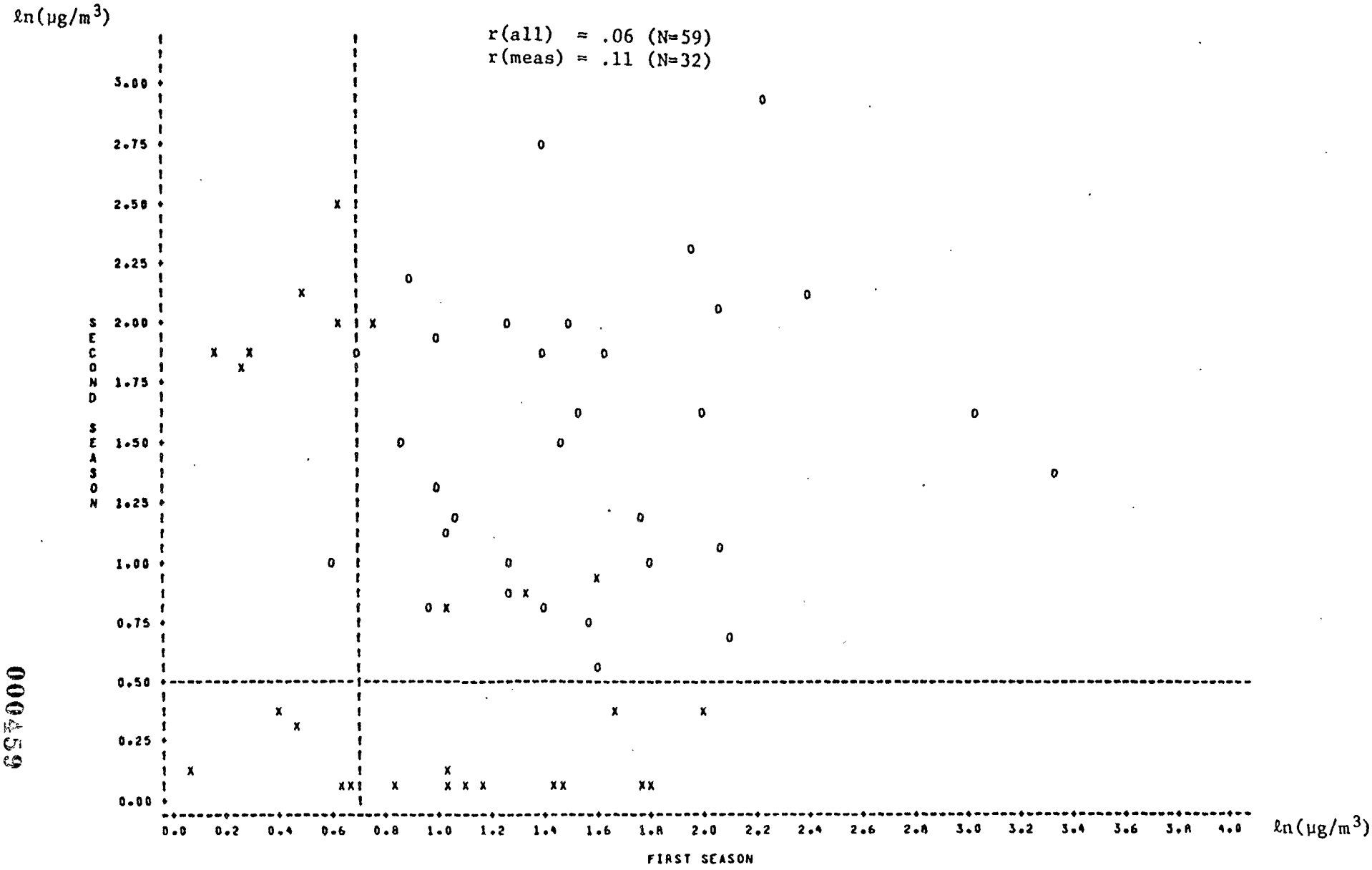

Figure 108. Tetrachloroethylene for overnight outdoor air - New Jersey.

004459

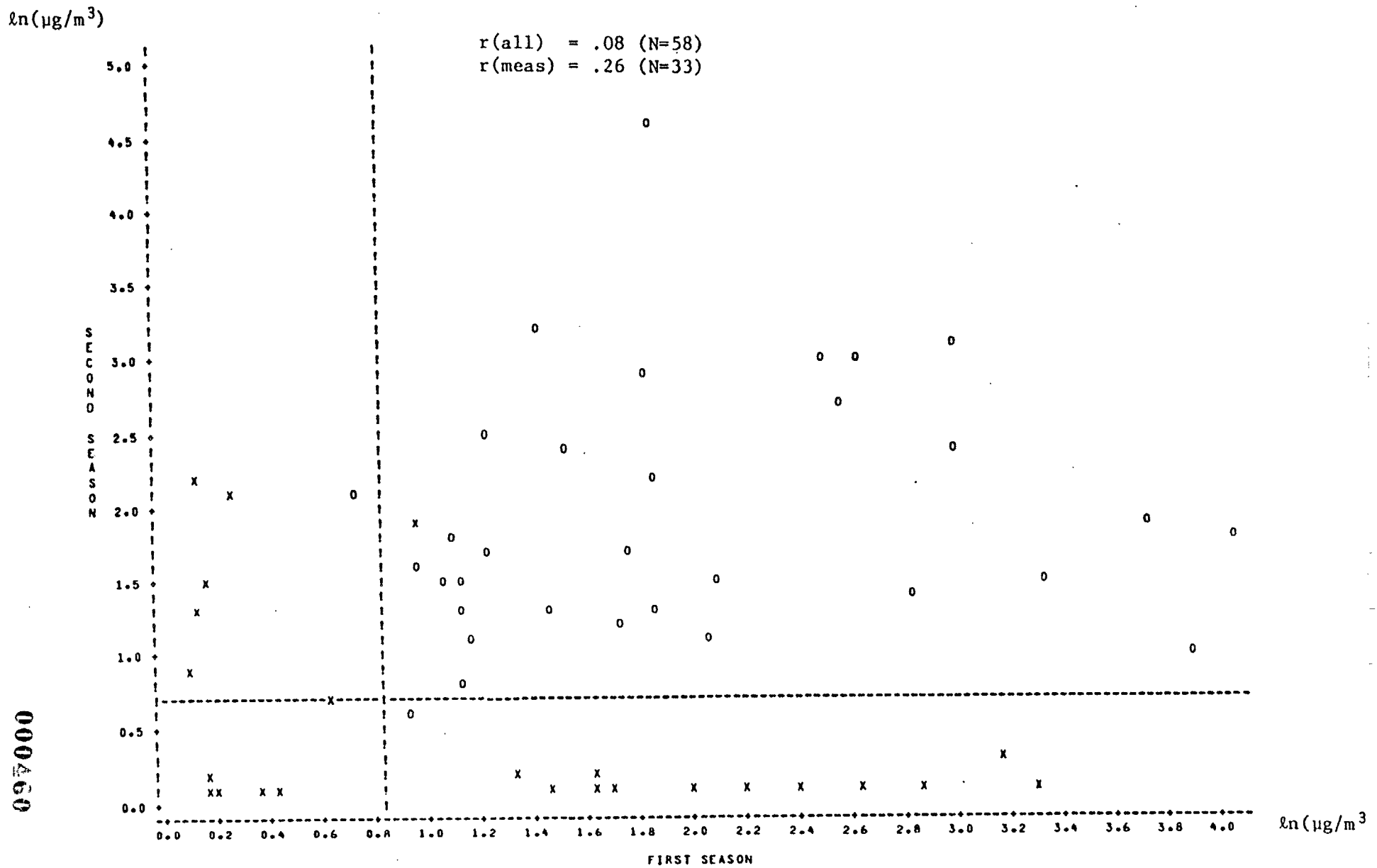

Figure 109. Tetrachloroethylene for daytime outdoor air - New Jersey.

000460

Table 412. WEIGHTED SUMMARY STATISTICS FOR 24-HOUR EXPOSURE AVERAGED OVER FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

PERSONAL AIR
Population Estimate: 109,438
Sample Size Range: 134-140

Compounds	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentile 75th	90th	95th	99th	Range
Chloroform	7.20	1.50	4.04	1.15	4.46	8.38	14.3	18.0	78.0	0.22 - 78.0
1,1,1-Trichloroethane	418.	388.	21.2	1.11	18.4	36.2	85.2	147.	2350	2.49 - 94,900
Carbon Tetrachloride	2.46	0.52	1.43	1.08	1.25	1.72	3.04	6.06	17.3	0.30 - 226.
Trichloroethylene	5.15	0.78	3.56	1.12	3.17	5.84	10.4	14.2	34.5	0.31 - 34.5
Tetrachloroethylene	13.8	1.54	9.46	1.09	9.08	17.0	24.3	39.6	61.5	1.68 - 407.
Styrene	9.02	4.41	2.20	1.08	2.10	2.80	4.30	6.80	206.	0.19 - 1660
m,p-Dichlorobenzene	44.5	11.2	6.73	1.20	4.24	14.6	105.	358.	654.	0.42 - 654.
Ethylbenzene	12.6	1.70	8.09	1.09	8.00	12.0	17.8	23.9	173.	0.61 - 299.
o-Xylene	11.1	1.75	7.19	1.08	6.98	9.90	16.5	25.2	150.	0.44 - 326.
m,p-Xylene	33.0	6.67	19.8	1.07	18.6	25.4	40.8	67.2	367.	2.28 - 2640

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).

000651

Table 413. WEIGHTED SUMMARY STATISTICS FOR 24-HOUR EXPOSURE AVERAGED OVER FIRST AND SECOND SEASON ($\mu g/m^3$) - NEW JERSEY

OUTDOOR AIR
Population Estimate: 109,438
Sample Size Range: 40-56

Compounds	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentile 75th	90th	95th	Range
Chloroform	7.17	2.09	1.58	1.27	1.41	5.59	20.6	38.0	0.06 - 69.2
1,1,1-Trichloroethane	9.02	1.15	6.30	1.15	6.35	11.3	20.9	29.4	0.56 - 32.0
Carbon Tetrachloride	1.13	0.11	0.96	1.09	0.92	1.24	1.88	2.49	0.22 - 5.11
Trichloroethylene	5.06	1.25	2.53	1.26	2.10	5.78	13.5	23.5	0.13 - 27.7
Tetrachloroethylene	5.63	1.10	3.82	1.15	3.59	6.77	12.2	17.4	0.30 - 29.0
Styrene	0.71	0.08	0.58	1.11	0.59	0.88	1.42	1.93	0.09 - 3.13
m,p-Dichlorobenzene	1.24	0.14	1.03	1.11	0.96	1.52	2.44	3.85	0.31 - 6.21
Ethylbenzene	3.39	0.26	2.99	1.08	3.15	4.02	4.72	6.77	0.65 - 13.0
o-Xylene	3.70	0.35	3.27	1.10	3.45	4.25	7.10	7.45	0.70 - 10.0
m,p-Xylene	10.2	0.62	9.50	1.07	10.3	12.2	14.2	16.6	2.50 - 23.1

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).

000462

for 1,1,1-trichloroethane was 21.2 for personal air and 6.30 for outdoor air).

Tables 414 and 415 give the weighted summary statistics for averaged 24-hour exposure over the two seasons for personal air and outdoor air by city. Overall, the statistics for personal air were higher for Elizabeth. The exception was carbon tetrachloride which was consistantly higher for Bayonne. For outdoor air the statistics tended to be higher for Bayonne.

COMPARISON OF FIRST, SECOND AND THIRD SEASONS

The quantifiable limits for those people having all three seasons of data for breath and the airs by compound is given in Tables 416 through 420. The quantifiable limits for water were constant for each compound. For breath and the personal airs the unweighted median, ninetieth percentile and range are given. For the outdoor airs only the unweighted median and range are given due to small sample sizes. Overall, the values for first season were highest, followed by second season with third season lowest. Vinylidene chloride and dibromochloropropane had particularly high quantifiable limits over breath and the airs.

To further examine the relationship of quantifiable limits among the seasons Tables 421 through 423 give the ratios of median quantifiable limits between seasons. The ratios confirm the previous observation that the first season medians were generally highest followed by second season medians with third season lowest.

The weighted percentage above the maximum quantifiable limit by season, media and compound is given in Table 424. Due to small sample sizes, caution should be used in interpreting the results for outdoor air. Pairwise t-tests were performed to test differences between seasons. If any of the pairs proved significantly different, then an asterisk was placed by the highest percentage. Generally, there were few significant differences between percentages for the seasons. Breath had the most significant differences with seven, five of which were highest in the first season (fall). Daytime personal air was next with four significant differences, three of which were highest in the third season (winter).

Table 414. WEIGHTED SUMMARY STATISTICS FOR 24-HOUR EXPOSURE AVERAGED OVER FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

Compounds	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentile 75th	90th	95th	Range
PERSONAL AIR - BAYONNE									
Population Estimate: 49,542									
Sample Size Range: 51-56									
Chloroform	4.23	0.58	2.61	1.17	3.03	5.26	13.2	15.0	0.22 - 18.0
1,1,1-Trichloroethane	33.6	8.33	13.6	1.10	10.0	22.2	40.2	139.	2.49 - 1140
Carbon Tetrachloride	3.53	1.15	1.75	1.13	1.34	2.65	5.07	10.6	0.60 - 226.
Trichloroethylene	4.62	1.15	3.32	1.23	3.17	5.32	8.41	13.2	0.70 - 27.0
Tetrachloroethylene	12.7	1.86	9.20	1.17	7.41	17.0	26.3	35.5	1.68 - 61.5
Styrene	2.09	0.24	1.70	1.15	1.61	2.59	3.96	4.84	0.19 - 6.80
m,p-Dichlorobenzene	42.9	19.6	6.91	1.34	4.24	17.1	68.8	407.	0.85 - 562.
Ethylbenzene	9.80	1.44	6.50	1.14	5.99	9.05	16.2	28.0	0.61 - 252.
o-Xylene	9.07	1.21	6.41	1.12	6.32	8.35	15.2	28.2	0.44 - 202.
m,p-Xylene	23.0	2.28	17.9	1.09	18.0	24.6	44.6	54.0	2.28 - 367.
PERSONAL AIR - ELIZABETH									
Population Estimate: 59,896									
Sample Size Range: 81-84									
Chloroform	9.66	2.67	5.78	1.23	6.34	9.32	15.6	20.6	0.46 - 78.0
1,1,1-Trichloroethane	736.	726.	30.7	1.16	27.2	54.4	104.	147.	3.87 - 94,900
Carbon Tetrachloride	1.57	0.22	1.22	1.09	1.16	1.58	2.19	3.07	0.30 - 21.8
Trichloroethylene	5.60	1.08	3.76	1.14	3.49	6.61	10.4	15.2	0.31 - 34.5
Tetrachloroethylene	14.7	2.40	9.68	1.10	9.26	17.1	24.3	44.4	1.75 - 407.
Styrene	14.7	8.51	2.74	1.05	2.36	2.99	4.38	32.5	0.51 - 1660
m,p-Dichlorobenzene	45.9	12.6	6.59	1.25	3.98	9.78	148.	218.	0.42 - 654.
Ethylbenzene	14.9	2.91	9.70	1.08	8.86	13.0	18.7	23.9	2.57 - 299.
o-Xylene	12.8	3.03	7.90	1.10	7.62	10.9	16.5	25.2	2.53 - 326.
m,p-Xylene	41.3	12.1	21.6	1.09	20.0	25.4	40.8	108.	6.20 - 2640

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).

004464

Table 415. WEIGHTED SUMMARY STATISTICS FOR 24-HOUR EXPOSURE AVERAGED OVER FIRST AND SECOND SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OUTDOOR AIR - BAYONNE
Population Estimate: 49,542
Sample Size Range: 27-37

Compounds	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentile 75th	90th	95th	Range
Chloroform	8.52	2.47	2.05	1.49	1.57	15.6	20.6	24.0	0.18 - 54.8
1,1,1-Trichloroethane	10.6	1.94	6.83	1.30	8.05	15.6	24.8	29.4	0.59 - 29.4
Carbon Tetrachloride	1.46	0.22	1.26	1.15	1.08	1.71	3.11	3.11	0.68 - 5.11
Trichloroethylene	6.02	2.48	2.87	1.46	2.10	7.35	23.5	27.7	0.60 - 27.7
Tetrachloroethylene	7.56	2.45	4.87	1.35	4.32	8.05	17.4	29.0	0.77 - 29.0
Styrene	0.71	0.11	0.62	1.15	0.60	0.85	0.92	1.93	0.16 - 1.93
m,p-Dichlorobenzene	1.39	0.27	1.14	1.21	0.98	1.52	2.51	3.85	0.34 - 3.85
Ethylbenzene	3.20	0.31	3.03	1.10	3.16	3.79	4.67	5.18	1.47 - 5.18
o-Xylene	3.75	0.60	3.42	1.17	3.54	4.31	7.10	7.10	1.07 - 7.10
m,p-Xylene	10.2	0.82	9.91	1.09	10.4	12.1	14.2	14.3	6.98 - 14.3

OUTDOOR AIR - ELIZABETH
Population Estimate: 59,896
Sample Size Range: 29-37

Compounds	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentile 75th	90th	95th	Range
Chloroform	6.05	3.23	1.28	1.36	1.27	5.46	7.20	38.0	0.06 - 69.2
1,1,1-Trichloroethane	7.69	1.46	5.89	1.16	5.38	9.45	15.1	20.9	0.56 - 32.0
Carbon Tetrachloride	0.86	0.09	0.77	1.12	0.75	1.02	1.38	1.80	0.22 - 2.25
Trichloroethylene	4.26	1.13	2.28	1.33	2.27	5.46	13.4	13.4	0.13 - 19.6
Tetrachloroethylene	4.04	0.49	3.12	1.13	2.87	5.50	7.01	12.2	0.30 - 13.4
Styrene	0.71	0.12	0.55	1.16	0.49	0.90	1.71	1.71	0.09 - 3.13
m,p-Dichlorobenzene	1.12	0.10	0.95	1.08	0.93	1.23	1.42	2.44	0.31 - 6.21
Ethylbenzene	3.55	0.38	2.96	1.11	3.15	4.35	6.02	8.73	0.65 - 13.0
o-Xylene	3.66	0.40	3.14	1.11	3.32	4.25	6.25	9.45	0.70 - 10.0
m,p-Xylene	10.1	0.91	9.18	1.10	9.80	12.3	14.8	18.1	2.50 - 23.1

a/ Arith. S.E. = Standard Error of Arith. Mean
b/ Geo. Mean = Geometric Mean
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).

000465

Table 416. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

BREATH

Compound	First Season Median Q.L.	First Season 90th Percentile	First Season Range	Second Season Median Q.L.	Second Season 90th Percentile	Second Season Range
Vinylidene Chloride	1.52	38.1	4.80 - 50.0	13.0	17.9	7.60 - 22.4
Chloroform	1.44	2.20	0.48 - 2.20	0.64	1.28	0.60 - 1.28
1,2-Dichloroethane	1.44	4.40	0.56 - 6.00	0.52	1.22	0.39 - 2.04
1,1,1-Trichloroethane	0.80	6.40	0.48 - 6.40	0.98	2.51	0.68 - 2.56
Benzene	*			0.22	0.48	0.20 - 0.48
Carbon Tetrachloride	1.96	4.46	0.38 - 6.00	1.00	1.58	0.64 - 2.16
Trichloroethylene	1.75	8.44	0.63 - 9.90	0.76	1.46	0.56 - 1.60
Bromodichloromethane	1.57	10.3	0.80 - 13.2	0.76	1.05	0.56 - 1.96
Dibromochloromethane	1.88	5.28	1.32 - 6.80	1.48	1.81	0.60 - 2.18
Toluene	---	---	---	---	---	---
Tetrachloroethylene	2.60	3.20	1.30 - 3.20	0.70	1.96	0.44 - 1.96
Chlorobenzene	1.12	1.84	0.39 - 2.04	0.68	2.37	0.20 - 2.52
Bromoform	2.40	7.72	1.56 - 10.8	1.94	2.33	0.76 - 2.62
Dibromochloropropane	9.00	85.2	1.56 - 108.	3.92	4.80	1.76 - 5.20
Styrene	1.80	8.36	0.40 - 8.90	0.40	0.47	0.22 - 0.48
m,p-Dichlorobenzene	1.70	5.84	0.69 - 8.80	0.70	0.80	0.56 - 0.80
o-Dichlorobenzene	1.32	5.76	0.60 - 7.60	0.64	0.76	0.39 - 0.80
Ethylbenzene	0.35	2.20	0.24 - 2.20	0.22	0.25	0.20 - 0.25
o-Xylene	1.30	2.49	0.40 - 2.50	0.42	0.54	0.22 - 0.56
m,p-Xylene	1.10	1.80	0.40 - 1.80	0.44	0.54	0.23 - 0.56

Compound	Third Season Median Q.L.	Third Season 90th Percentile	Third Season Range
Vinylidene Chloride	8.40	9.60	6.60 - 9.60
Chloroform	0.50	0.63	0.39 - 0.64
1,2-Dichloroethane	0.72	0.89	0.60 - 0.96
1,1,1-Trichloroethane	1.70	2.20	1.40 - 2.20
Benzene	0.31	0.31	0.31 - 0.31
Carbon Tetrachloride	1.20	1.45	0.96 - 1.56
Trichloroethylene	0.64	0.88	0.40 - 0.96
Bromodichloromethane	0.96	1.18	0.78 - 1.24
Dibromochloromethane	1.45	1.74	1.16 - 1.88
Toluene	---	---	---
Tetrachloroethylene	*		
Chlorobenzene	0.25	0.29	0.20 - 0.31
Bromoform	1.20	1.46	0.96 - 1.56
Dibromochloropropane	1.20	1.46	0.96 - 1.56
Styrene	0.25	0.31	0.20 - 0.31
m,p-Dichlorobenzene	0.24	0.28	0.21 - 0.28
o-Dichlorobenzene	0.24	0.30	0.15 - 0.31
Ethylbenzene	*		
o-Xylene	*		
m,p-Xylene	*		

* 100% measurable.

000466

Table 417. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OVERNIGHT PERSONAL AIR

Compound	First Season Median Q.L.	First Season 90th Percentile	First Season Range	Second Season Median Q.L.	Second Season 90th Percentile	Second Season Range
Vinylidene Chloride	56.0	200.	5.20 - 216.	22.6	44.0	6.00 - 44.0
Chloroform	2.90	8.40	1.90 - 9.00	1.14	1.66	0.48 - 1.80
1,2-Dichloroethane	6.40	7.86	0.29 - 9.00	0.84	1.43	0.60 - 1.80
1,1,1-Trichloroethane	23.6	28.0	4.70 - 28.0	2.16	2.44	0.72 - 2.44
Benzene	0.72	0.76	0.61 - 0.76	0.36	0.92	0.20 - 0.92
Carbon Tetrachloride	2.40	3.80	1.10 - 4.50	1.90	2.70	0.89 - 3.00
Trichloroethylene	2.58	4.35	1.20 - 4.70	1.16	3.30	0.80 - 3.92
Bromodichloromethane	2.88	5.60	0.48 - 7.20	0.92	1.88	0.48 - 3.00
Dibromochloromethane	1.60	3.32	0.72 - 4.80	1.52	4.80	0.72 - 6.40
Toluene	---	---	---	---	---	---
Tetrachloroethylene	2.70	3.00	2.40 - 3.00	2.31	3.30	0.60 - 3.30
Chlorobenzene	1.48	2.48	0.37 - 2.96	1.31	2.62	0.39 - 3.08
Bromoform	2.40	5.60	1.12 - 10.8	2.07	3.34	0.96 - 4.80
Dibromochloropropane	1.76	72.4	1.24 - 108.	3.36	5.24	0.80 - 7.60
Styrene	0.66	3.00	0.44 - 3.00	1.10	1.61	0.20 - 1.64
m,p-Dichlorobenzene	1.20	7.72	0.79 - 8.60	0.97	1.00	0.94 - 1.00
o-Dichlorobenzene	0.96	2.11	0.37 - 7.60	0.71	1.39	0.31 - 1.92
Ethylbenzene	0.77	0.77	0.77 - 0.77	0.80	1.10	0.21 - 1.10
o-Xylene	4.15	5.30	0.92 - 5.30	0.21	0.21	0.21 - 0.21
m,p-Xylene	*			0.41	0.62	0.21 - 0.62

	Third Season Median Q.L.	Third Season 90th Percentile	Third Season Range
Vinylidene Chloride	13.0	14.5	8.44 - 17.2
Chloroform	0.38	0.38	0.36 - 0.38
1,2-Dichloroethane	0.56	0.68	0.33 - 1.66
1,1,1-Trichloroethane	0.58	0.61	0.55 - 0.61
Benzene	0.20	0.20	0.20 - 0.20
Carbon Tetrachloride	0.84	0.99	0.52 - 1.15
Trichloroethylene	0.68	0.92	0.56 - 0.92
Bromodichloromethane	0.92	1.15	0.60 - 1.82
Dibromochloromethane	0.76	1.12	0.60 - 1.48
Toluene	---	---	---
Tetrachloroethylene	0.93	1.10	0.87 - 1.10
Chlorobenzene	0.37	0.48	0.30 - 0.90
Bromoform	0.92	1.12	0.76 - 1.20
Dibromochloropropane	1.12	1.36	0.76 - 2.94
Styrene	0.40	0.48	0.35 - 0.48
m,p-Dichlorobenzene	0.35	0.35	0.35 - 0.35
o-Dichlorobenzene	0.37	0.46	0.19 - 0.48
Ethylbenzene	•		
o-Xylene	*		
m,p-Xylene	*		

* 100% measurable.

000467

Table 418. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

DAYTIME PERSONAL AIR

Compound	First Season Median Q.L.	First Season 90th Percentile	First Season Range	Second Season Median Q.L.	Second Season 90th Percentile	Second Season Range
Vinylidene Chloride	52.0	180.	5.20 - 192.	27.1	44.0	6.00 - 44.0
Chloroform	4.10	11.5	0.60 - 17.0	1.20	1.65	0.68 - 1.68
1,2-Dichloroethane	7.80	12.4	0.52 - 14.8	1.28	1.84	0.59 - 2.04
1,1,1-Trichloroethane	13.4	32.4	1.60 - 33.0	2.26	2.56	0.68 - 2.56
Benzene	0.54	0.84	0.20 - 0.84	0.61	1.00	0.23 - 1.00
Carbon Tetrachloride	3.31	5.20	1.25 - 6.40	1.53	3.04	0.91 - 3.34
Trichloroethylene	3.38	6.40	1.20 - 6.40	2.03	3.91	0.92 - 4.00
Bromodichloromethane	3.88	7.50	0.80 - 10.4	1.34	2.32	0.78 - 2.68
Dibromochloromethane	2.20	4.40	1.24 - 6.80	2.00	6.72	1.08 - 8.00
Toluene	---	---	---	---	---	---
Tetrachloroethylene	1.96	3.30	0.62 - 3.30	2.32	3.40	0.80 - 3.40
Chlorobenzene	2.02	3.77	0.51 - 4.00	2.35	3.79	0.56 - 4.80
Bromoform	3.37	7.56	1.80 - 14.4	2.93	4.76	1.36 - 5.60
Dibromochloropropane	2.59	121.	1.40 - 144.	4.48	7.92	1.08 - 9.20
Styrene	1.00	4.10	0.64 - 4.10	1.23	1.98	0.27 - 2.00
m,p-Dichlorobenzene	1.70	11.2	0.99 - 11.6	0.97	1.20	0.27 - 1.20
o-Dichlorobenzene	1.50	3.60	0.59 - 11.0	1.05	2.02	0.42 - 2.32
Ethylbenzene	2.40	3.00	1.80 - 3.00	0.31	1.20	0.27 - 1.20
o-Xylene	2.60	3.50	1.20 - 3.50	0.64	1.00	0.27 - 1.00
m,p-Xylene	2.10	2.10	2.10 - 2.10	0.27	0.27	0.27 - 0.27

	Third Season Median Q.L.	Third Season 90th Percentile	Third Season Range
Vinylidene Chloride	13.2	15.4	8.40 - 25.0
Chloroform	0.56	0.80	0.47 - 0.80
1,2-Dichloroethane	0.78	0.96	0.40 - 1.20
1,1,1-Trichloroethane	1.74	2.80	0.68 - 2.80
Benzene	*		
Carbon Tetrachloride	1.10	1.40	0.60 - 1.40
Trichloroethylene	1.10	1.40	0.83 - 1.40
Bromodichloromethane	1.26	1.56	0.84 - 1.80
Dibromochloromethane	1.08	1.64	0.88 - 2.40
Toluene	---	---	---
Tetrachloroethylene	1.28	1.36	1.20 - 1.36
Chlorobenzene	0.49	0.60	0.21 - 0.72
Bromoform	1.32	1.68	0.91 - 2.08
Dibromochloropropane	1.52	1.99	0.91 - 2.48
Styrene	0.56	0.57	0.54 - 0.57
m,p-Dichlorobenzene	0.54	0.72	0.43 - 0.72
o-Dichlorobenzene	0.50	0.60	0.21 - 0.72
Ethylbenzene	*		
o-Xylene	*		
m,p-Xylene	*		

* 100% measureable.

000468

Table 419. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OVERNIGHT OUTDOOR AIR

Compound	First Season		Second Season		Third Season	
	Med. Q.L.	Range	Med. Q.L.	Range	Med. Q.L.	Range
Vinylidene Chloride	10.0	2.88 - 17.2	8.80	5.60 - 38.4	4.80	4.40 - 5.00
Chloroform	1.90	0.38 - 2.20	0.60	0.39 - 1.12	0.33	0.22 - 0.44
1,2-Dichloroethane	1.48	0.56 - 14.8	0.76	0.29 - 1.36	0.56	0.48 - 0.76
1,1,1-Trichloroethane	3.00	3.00 - 3.00	2.16	2.16 - 2.16	1.16	1.10 - 1.30
Benzene	*		0.44	0.44 - 0.44	*	
Carbon Tetrachloride	1.30	1.20 - 1.50	1.52	0.66 - 2.30	0.82	0.58 - 1.28
Trichloroethylene	3.30	0.66 - 6.40	0.80	0.73 - 1.36	0.52	0.48 - 0.77
Bromodichloromethane	6.40	0.96 - 36.8	0.80	0.50 - 1.60	0.76	0.60 - 1.04
Dibromochloromethane	3.36	1.32 - 15.2	0.72	0.52 - 5.60	1.14	0.92 - 1.52
Toluene	---	---	---	---	---	---
Tetrachloroethylene	0.99	0.99 - 0.99	1.56	0.40 - 2.72	0.31	0.31 - 0.32
Chlorobenzene	1.04	0.60 - 6.00	0.72	0.20 - 1.36	0.16	0.16 - 0.26
Bromoform	4.00	1.88 - 18.4	0.92	0.70 - 3.88	0.94	0.76 - 1.28
Dibromochloropropane	13.6	3.12 - 60.0	1.76	0.66 - 35.6	0.94	0.76 - 1.28
Styrene	4.80	0.56 - 6.00	1.00	0.20 - 1.40	*	
m,p-Dichlorobenzene	2.60	0.76 - 3.20	0.97	0.84 - 1.10	*	
o-Dichlorobenzene	3.00	0.76 - 3.92	0.96	0.37 - 1.60	0.18	0.15 - 0.26
Ethylbenzene	2.70	2.70 - 2.70	0.20	0.20 - 0.20	*	
o-Xylene	2.70	1.70 - 3.70	0.20	0.20 - 0.20	*	
m,p-Xylene	*		0.20	0.20 - 0.20	*	

* 100% Measurable.

000469

Table 420. UNWEIGHTED SUMMARY STATISTICS FOR QUANTIFIABLE LIMITS FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

DAYTIME OUTDOOR AIR

Compound	First Season		Second Season		Third Season	
	Med. Q.L.	Range	Med. Q.L.	Range	Med. Q.L.	Range
Vinylidene Chloride	11.0	3.72 - 20.4	12.8	8.00 - 56.0	5.90	5.60 - 6.00
Chloroform	3.04	0.35 - 3.80	0.96	0.92 - 1.64	0.44	0.40 - 0.68
1,2-Dichloroethane	2.48	0.52 - 4.40	1.03	0.70 - 1.68	0.68	0.48 - 1.00
1,1,1-Trichloroethane	*		0.92	0.88 - 3.30	1.45	1.10 - 2.40
Benzene	2.00	2.00 - 2.00	0.36	0.36 - 0.36	*	
Carbon Tetrachloride	1.85	0.41 - 2.32	0.96	0.94 - 3.36	1.12	0.81 - 1.70
Trichloroethylene	3.10	0.62 - 11.0	0.96	0.80 - 1.08	0.62	0.41 - 1.00
Bromodichloromethane	6.74	0.88 - 14.4	1.20	0.66 - 1.88	0.91	0.64 - 1.36
Dibromochloromethane	5.20	1.24 - 7.60	1.22	0.72 - 4.40	1.36	0.96 - 2.04
Toluene	---	---	---	---	---	---
Tetrachloroethylene	0.88	0.88 - 0.88	1.66	1.12 - 2.20	*	
Chlorobenzene	1.45	0.73 - 2.32	1.10	1.08 - 1.24	0.21	0.14 - 0.34
Bromoform	5.80	1.76 - 9.20	1.78	0.96 - 5.20	1.13	0.80 - 1.68
Dibromochloropropane	47.0	3.84 - 100.	3.18	0.88 - 64.0	1.13	0.80 - 1.68
Styrene	4.35	0.53 - 9.60	0.94	0.80 - 1.10	0.20	0.20 - 0.20
m,p-Dichlorobenzene	2.87	0.88 - 5.60	1.40	0.91 - 1.90	0.25	0.20 - 0.29
o-Dichlorobenzene	3.32	0.92 - 6.80	1.06	0.44 - 1.88	0.22	0.14 - 0.34
Ethylbenzene	2.35	2.10 - 2.60	*		*	
o-Xylene	2.30	2.30 - 2.90	*		*	
m,p-Xylene	2.90	2.90 - 2.90	*		*	

* 100% Measurable.

000470

Table 421. RATIO OF MEDIAN QUANTIFIABLE LIMIT FOR FIRST SEASON TO MEDIAN QUANTIFIABLE LIMIT FOR SECOND SEASON BY MEDIA AND COMPOUND - NEW JERSEY

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air
Vinylidene Chloride	1.17	2.48	1.92	1.14	0.86
Chloroform	2.25	2.54	3.42	3.17	3.17
1,2-Dichloroethane	2.77	7.62	6.09	1.95	2.41
1,1,1-Trichloroethane	0.82	10.9	5.93	1.39	*
Benzene	*	2.00	0.89	*	5.56
Carbon Tetrachloride	1.96	1.26	2.16	0.86	1.93
Trichloroethylene	2.30	2.22	1.66	4.12	3.23
Bromodichloromethane	2.06	3.13	2.90	8.00	5.62
Dibromochloromethane	1.27	1.05	1.10	4.67	4.26
Toluene	---	---	---	---	---
Tetrachloroethylene	3.71	1.17	0.84	0.63	0.53
Chlorobenzene	1.65	1.13	0.86	1.44	1.32
Bromoform	1.24	1.16	1.15	4.35	3.26
Dibromochloropropane	2.30	0.52	0.58	7.73	14.8
Styrene	4.50	0.60	0.81	4.80	4.63
m,p-Dichlorobenzene	2.43	1.24	1.75	2.68	2.05
o-Dichlorobenzene	2.06	1.35	1.43	3.12	3.13
Ethylbenzene	1.59	0.96	7.74	13.5	*
o-Xylene	3.10	19.8	4.06	13.5	*
m,p-Xylene	2.50	*	7.78	*	*

* At least one season 100% measurable.

000471

Table 422. RATIO OF MEDIAN QUANTIFIABLE LIMIT FOR FIRST SEASON TO MEDIAN QUANTIFIABLE LIMIT FOR THIRD SEASON BY MEDIA AND COMPOUND - NEW JERSEY

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air
Vinylidene Chloride	1.81	4.31	3.94	2.08	1.86
Chloroform	2.88	7.63	7.32	5.76	6.91
1,2-Dichloroethane	2.00	11.4	10.0	2.64	3.65
1,1,1-Trichloroethane	0.47	40.7	7.70	2.59	*
Benzene	*	3.60	*	*	*
Carbon Tetrachloride	1.63	2.86	3.01	1.59	1.65
Trichloroethylene	2.73	3.79	3.07	6.35	5.00
Bromodichloromethane	1.64	3.13	3.08	8.42	7.41
Dibromochloromethane	1.30	2.11	2.04	2.95	3.82
Toluene	---	---	---	---	---
Tetrachloroethylene	*	2.90	1.53	3.19	*
Chlorobenzene	4.48	4.00	4.12	6.50	6.90
Bromoform	2.00	2.61	2.55	4.26	5.13
Dibromochloropropane	7.50	1.57	1.70	14.5	41.6
Styrene	7.20	1.65	1.79	*	21.8
m,p-Dichlorobenzene	7.08	3.43	3.15	*	11.5
o-Dichlorobenzene	5.50	2.59	3.00	16.7	15.1
Ethylbenzene	*	*	*	*	*
o-Xylene	*	*	*	*	*
m,p-Xylene	*	*	*	*	*

* At least one season 100% measurable.

000472

Table 423. RATIO OF MEDIAN QUANTIFIABLE LIMIT FOR SECOND SEASON TO MEDIAN QUANTIFIABLE LIMIT FOR THIRD SEASON BY MEDIA AND COMPOUND - NEW JERSEY

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air
Vinylidene Chloride	1.55	1.74	2.05	1.83	2.17
Chloroform	1.28	3.00	2.14	1.82	2.18
1,2-Dichloroethane	0.72	1.50	1.64	1.36	1.51
1,1,1-Trichloroethane	0.58	3.72	1.30	1.86	0.63
Benzene	0.71	1.80	*	*	*
Carbon Tetrachloride	0.83	2.26	1.39	1.85	0.86
Trichloroethylene	1.19	1.71	1.85	1.54	1.55
Bromodichloromethane	0.79	1.00	1.06	1.05	1.32
Dibromochloromethane	1.02	2.00	1.85	0.63	0.90
Toluene	---	---	---	---	---
Tetrachloroethylene	*	2.48	1.81	5.03	*
Chlorobenzene	2.72	3.54	4.80	4.50	5.24
Bromoform	1.62	2.25	2.22	0.98	1.58
Dibromochloropropane	3.27	3.00	2.95	1.87	2.81
Styrene	1.60	2.75	2.20	*	4.70
m,p-Dichlorobenzene	2.92	2.77	1.80	*	5.60
o-Dichlorobenzene	2.67	1.92	2.10	5.33	4.82
Ethylbenzene	*	*	*	*	*
o-Xylene	*	*	*	*	*
m,p-Xylene	*	*	*	*	*

* At least one season 100% measurable.

000473

Table 424. PERCENTAGE ABOVE THE MAXIMUM QUANTIFIABLE LIMIT FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES - NEW JERSEY

Sample Size:	14-44			46-49			38-40		
	Breath			Overnight Personal Air			Daytime Personal Air		
Compound	First Season	Second Season	Third Season	First Season	Second Season	Third Season	First Season	Second Season	Third Season
Vinylidene Chloride	0.19	0.10	27.9 *	0.00	0.00	0.00	0.82	0.00	0.46
Chloroform	75.6 *	42.0	0.00	26.9	28.2	14.8	4.47	0.42	0.73
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	5.01	0.00	0.00	0.00
1,1,1-Trichloroethane	63.2 *	41.8	14.4	21.8	37.3	31.8	22.0	14.9	38.4
Benzene	100. *	51.6	99.7	98.7	88.0	92.3	96.1	72.9	100. *
Carbon Tetrachloride	0.39	0.00	0.00	19.0 *	0.00	0.00	1.47	0.00	0.00
Trichloroethylene	0.00	24.2 *	0.00	22.2	44.1 *	15.5	20.5	55.8 *	32.2
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	---	---	---	---	---	---	---	---	---
Tetrachloroethylene	85.1	63.3	74.5	59.4	85.2 *	69.5	72.6	84.6	59.0
Chlorobenzene	0.00	4.83	0.19	0.39	6.39	0.00	0.00	1.08	0.00
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	0.94	2.87	0.00	20.2	20.2	16.3	27.3	16.8	9.59
m,p-Dichlorobenzene	16.9	27.6	29.7	27.6	33.5	35.8	12.4	28.1	37.5*
o-Dichlorobenzene	0.00	0.00	0.00	0.47	0.19	0.00	5.64	0.00	0.00
Ethylbenzene	66.6 *	57.5	14.0	99.6	95.1	88.7	87.8	69.2	89.7*
o-Xylene	58.2	35.3	17.1	48.1	49.8	65.0	85.5	74.8	89.8
m,p-Xylene	91.8 *	61.3	87.4	100.	99.1	100.	91.7	88.6	100.

continued

000474

Table 424. continued

Sample Size	6-9			6-8		
	Overnight Outdoor Air			Daytime Outdoor Air		
	First Season	Second Season	Third Season	First Season	Second Season	Third Season
Vinylidene Chloride	0.00	0.00	0.00	0.00	0.00	0.00
Chloroform	0.00	14.3	0.00	0.00	39.3	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	85.1 *	72.6	6.40	67.6	41.2	34.6
Benzene	100.	96.7	100.	98.9	96.7	85.7
Carbon Tetrachloride	0.00	0.00	0.00	0.00	1.91	0.00
Trichloroethylene	0.00	13.8	0.00	23.1	26.1	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	---	---	---	---	---	---
Tetrachloroethylene	83.2	38.2	25.0	74.5	97.6	85.1
Chlorobenzene	0.00	0.00	0.00	0.00	24.2	0.00
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	0.00	0.00	0.00	0.00	0.00	0.00
m,p-Dichlorobenzene	0.00	0.00	23.1	0.00	1.91	0.00
o-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	52.9	62.8	54.0	48.4	68.6	86.2
o-Xylene	36.5	92.8 *	49.5	48.4	44.4	83.0
m,p-Xylene	100.	98.1	100.	74.7	100.	100.

* Percentages significantly different between seasons at .05 level (pairwise tests).

000475

Tables 425 through 427 give the ratios of percentages above the maximum quantifiable limit between seasons. The ratio is given only if both percentages were above ten. In comparing first season (fall) to second season (summer) for breath, daytime personal air and overnight outdoor air, the percentages for first season were generally higher. While for overnight personal air, second season tended to be higher. First and third season percentages above the maximum quantifiable limit were compared in Table 426. For breath and overnight personal air the percentages for first season tended to be higher while for daytime personal air and daytime outdoor air third season (winter) was usually higher. In comparing second and third seasons (see Table 427) overnight personal air and daytime outdoor air tended to have the higher percentages in the second season while daytime personal air was generally higher in the third season.

The percentages measurable for the three seasons by season, media and compound are given in Table X-106 of the appendix. For breath, water and the personal airs, third season tended to have the highest percentages.

The weighted summary statistics for those with all three seasons of data are given in Tables 428 through 433. The arithmetic and geometric means were tested overall using a program SURREGR [8-1] especially designed to analyze weighted survey data. An asterisk was placed by the highest mean if a significant difference was found between seasons. For breath and water there was a tendency for the statistics to be highest in the first season (fall) and lowest in the third (winter). For overnight personal air, there was also a slight tendency for first season to be highest and third season to be lowest. For daytime personal air, third season showed some inclination to be highest with second season (summer) lowest.

Figures 110 through 113 show box plots by season for breath and daytime personal air for 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene and m,p-xylene. These plots show the variation between seasons among the different compounds. For daytime personal air there was some tendency to have the highest values in the third season while for breath no overall trend appeared.

Table 425. RATIO[a/] OF FIRST TO SECOND SEASON PERCENTAGES ABOVE THE MAXIMUM QUANTIFIABLE LIMIT FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES - NEW JERSEY

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air
Vinylidene Chloride	-	-	-	-	-
Chloroform	1.80	0.96	-	-	-
1,2-Dichloroethane	-	-	-	-	-
1,1,1-Trichloroethane	1.51	0.58	1.48	1.17	1.64
Benzene	1.94*	1.12	1.32*	1.03	1.02
Carbon Tetrachloride	-	-	-	-	-
Trichloroethylene	-	0.50	0.37*	-	0.89
Bromodichloromethane	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-
Toluene	-	-	-	-	-
Tetrachloroethylene	1.34	0.70*	0.86	2.18	0.76
Chlorobenzene	-	-	-	-	-
Bromoform	-	-	-	-	-
Dibromochloropropane	-	-	-	-	-
Styrene	-	1.01	1.63	-	-
m,p-Dichlorobenzene	0.61	0.83	0.44	-	-
o-Dichlorobenzene	-	-	-	-	-
Ethylbenzene	1.16	1.05	1.27	0.84	0.71
o-Xylene	1.65	0.97	1.14	0.39*	1.09
m,p-Xylene	1.50*	1.01	1.04	1.02	0.75

a/ Ratio not given if one or both percentages less than 10%.
* T-test for difference between seasons significant at .05 level.

000477

Table 426. RATIO[a/] OF FIRST TO THIRD SEASON PERCENTAGES ABOVE THE MAXIMUM QUANTIFIABLE LIMIT FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES - NEW JERSEY

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air
Vinylidene Chloride	-	-	-	-	-
Chloroform	-	1.81	-	-	-
1,2-Dichloroethane	-	-	-	-	-
1,1,1-Trichloroethane	4.41*	0.69	0.57	-	1.95
Benzene	1.00	1.07	0.96	1.00	1.15
Carbon Tetrachloride	-	-	-	-	-
Trichloroethylene	-	1.43	0.64	-	-
Bromodichloromethane	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-
Toluene	-	-	-	-	-
Tetrachloroethylene	1.14	0.85	1.23	3.33	0.88
Chlorobenzene	-	-	-	-	-
Bromoform	-	-	-	-	-
Dibromochloropropane	-	-	-	-	-
Styrene	-	1.24	-	-	-
m,p-Dichlorobenzene	0.57	0.77	0.33*	-	-
o-Dichlorobenzene	-	-	-	-	-
Ethylbenzene	4.75*	1.12	0.98	0.98	0.56
o-Xylene	3.40	0.74	0.95	0.74	0.58
m,p-Xylene	1.05	1.00	0.92	1.00	0.75

a/ Ratio not given if one or both percentages less than 10%.
* T-test for difference between seasons significant at .05 level.

000428

Table 427. RATIO[a/] OF SECOND TO THIRD SEASON PERCENTAGES ABOVE THE MAXIMUM QUANTIFIABLE LIMIT FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES - NEW JERSEY

Compound	Breath	Overnight Personal Air	Daytime Personal Air	Overnight Outdoor Air	Daytime Outdoor Air
Vinylidene Chloride	-	-	-	-	-
Chloroform	-	1.90	-	-	-
1,2-Dichloroethane	-	-	-	-	-
1,1,1-Trichloroethane	2.91*	1.17	0.39	-	1.19
Benzene	0.52*	0.95	0.73*	0.97	1.13
Carbon Tetrachloride	-	-	-	-	-
Trichloroethylene	-	2.84*	1.74	-	-
Bromodichloromethane	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-
Toluene	-	-	-	-	-
Tetrachloroethylene	0.85	1.23	1.43	1.53	1.15
Chlorobenzene	-	-	-	-	-
Bromoform	-	-	-	-	-
Dibromochloropropane	-	-	-	-	-
Styrene	-	1.23	-	-	-
m,p-Dichlorobenzene	0.93	0.94	0.75	-	-
o-Dichlorobenzene	-	-	-	-	-
Ethylbenzene	4.11*	1.07	0.77*	1.16	0.80
o-Xylene	2.07	0.77	0.83	1.87	0.54
m,p-Xylene	0.70	0.99	0.89	0.98	1.00

a/ Ratio not given if one or both percentages less than 10%.
* T-test for difference between seasons significant at .05 level.

000479

Table 428. WEIGHTED SUMMARY STATISTICS BY SEASON FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

BREATH - FIRST SEASON
Population Estimate: 94,044
Sample Size Range: 14-44

Compound	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	Range
Chloroform	1.44	4.43	1.45	3.31*	1.44	4.00	4.40	11.0	11.0	0.06 - 15.0
1,1,1-Trichloroethane	0.80	12.5 *	2.20	5.62	1.79	10.9	17.0	25.0	33.0	0.06 - 360.
Carbon Tetrachloride	1.96	0.93*	0.29	0.58*	1.24	0.69	0.99	1.06	2.81	0.14 - 48.0
Trichloroethylene	1.75	1.91	0.43	1.20*	1.21	1.20	1.70	5.80	5.80	0.09 - 7.30
Tetrachloroethylene	2.60	11.3	2.77	7.50	1.25	6.65	13.0	31.0	33.0	0.81 - 81.0
Styrene	1.80	1.52	0.28	0.76	1.12	1.00	1.30	5.25	5.25	0.07 - 14.0
m,p-Dichlorobenzene	1.70	6.30	2.45	2.97	1.31	2.40	4.50	26.0	26.0	0.17 - 79.0
Ethylbenzene	0.35	6.60	2.23	3.01*	1.20	4.10	5.70	8.60	8.60	0.03 - 290.
o-Xylene	1.30	5.42	1.93	2.50*	1.30	3.10	4.10	11.0	11.0	0.05 - 220.
m,p-Xylene	1.10	11.8	3.05	6.38*	1.20	8.00	11.0	21.0	21.0	0.18 - 350.
BREATH - SECOND SEASON										
Chloroform	0.64	4.71*	1.87	1.08	2.47	1.80	6.20	16.0	16.0	0.08 - 38.0
1,1,1-Trichloroethane	0.98	8.56	2.19	1.54	1.50	3.40	11.0	27.0	36.0	0.09 - 71.0
Carbon Tetrachloride	1.00	0.28	0.10	0.18	1.24	0.13	0.25	0.88	1.40	0.08 - 2.80
Trichloroethylene	0.76	8.32*	3.23	0.63	1.78	0.19	8.60	20.0	38.0	0.07 - 110.
Tetrachloroethylene	0.70	8.00	1.97	3.27	1.48	4.10	12.0	18.0	25.0	0.06 - 330.
Styrene	0.40	1.77*	0.61	0.58	1.52	1.10	1.70	7.40	7.40	0.03 - 14.0
m,p-Dichlorobenzene	0.70	10.6	2.86	2.50	1.67	2.50	11.0	36.0	63.0	0.07 - 190.
Ethylbenzene	0.22	5.17	1.48	0.85	1.73	2.90	5.30	15.0	30.0	0.03 - 37.0
o-Xylene	0.42	6.27	2.54	0.91	1.61	2.10	5.70	12.0	59.0	0.03 - 59.0
m,p-Xylene	0.44	11.3	3.41	1.58	1.66	3.60	14.0	26.0	81.0	0.03 - 81.0

continued

000480

Table 428. (continued)

BREATH - THIRD SEASON

Compound	Mid Q.L.	Arith. Mean	Arith. S.E.	Geo. Mean	Geo. S.E.	Median	Percentile 75th	Percentile 90th	Percentile 95th	Range
Chloroform	0.50	0.32	0.11	0.19	1.61	0.29	0.57	0.67	0.67	0.05 - 1.20
1,1,1-Trichloroethane	1.70	3.80	0.96	1.84	1.30	2.30	3.90	6.85	12.0	0.19 - 300.
Carbon Tetrachloride	1.20	0.15	0.01	0.15	1.04	0.15	0.16	0.18	0.20	0.12 - 0.20
Trichloroethylene	0.64	0.50	0.13	0.26	1.32	0.25	0.78	1.50	1.80	0.08 - 5.50
Tetrachloroethylene	--- e/	8.37	2.58	5.27	1.34	4.20	9.60	23.0	27.0	1.20 - 170.
Styrene	0.25	0.83	0.27	0.41	1.33	0.28	0.88	3.50	3.50	0.13 - 3.50
m,p-Dichlorobenzene	0.24	8.02	2.83	2.36	1.38	2.30	13.0	17.0	43.0	0.13 - 43.0
Ethylbenzene	--- e/	2.16	0.72	1.44	1.23	1.30	1.80	4.70	11.0	0.36 - 24.0
o-Xylene	--- e/	1.64	0.44	1.18	1.20	0.98	1.60	2.50	6.90	0.31 - 25.0
m,p-Xylene	--- e/	4.68	1.37	3.41	1.21	3.00	4.20	8.10	21.0	0.85 - 53.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standand Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standand Error - exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between seasons significant at .05 level.

004481

Table 429. WEIGHTED SUMMARY STATISTICS BY SEASON FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OVERNIGHT PERSONAL AIR - FIRST SEASON
Population Estimate: 94,044
Sample Size Range: 46-49

Compound	Mid Q.L. a/	Arith. Mean	Arith. S.E. b/	Geo. Mean c/	Geo. S.E. d/	Median	Percentile 75th	90th	95th	Range
Chloroform	2.90	7.68	1.21	4.19	1.25	5.13	14.5	18.5	28.0	0.27 - 42.0
1,1,1-Trichloroethane	23.6	33.3	7.80	14.4	1.17	15.0	26.0	61.0	260.	2.94 - 290.
Carbon Tetrachloride	2.40	5.37*	2.45	2.10*	1.22	1.94	2.38	8.50	38.5	0.30 - 69.0
Trichloroethylene	2.58	3.86	1.04	2.07	1.22	1.94	3.90	8.20	18.0	0.24 - 50.0
Tetrachloroethylene	2.70	9.64	2.24	5.46	1.22	4.20	12.0	32.0	32.0	1.38 - 110.
Styrene	0.66	4.68	2.61	1.55	1.22	1.80	2.20	3.85	6.00	0.08 - 76.0
m,p-Dichlorobenzene	1.20	18.4	8.82	2.97	1.41	1.60	9.60	39.0	39.0	0.49 - 750.
Ethylbenzene	0.77	9.25	0.91	6.19	1.13	7.20	8.30	20.0	27.0	0.48 - 320.
o-Xylene	4.15	6.26	0.51	4.75	1.11	5.05	6.90	12.0	14.0	0.58 - 43.0
m,p-Xylene	--- e/	17.8	1.96	13.8	1.13	14.0	20.0	37.0	44.0	1.40 - 140.

OVERNIGHT PERSONAL AIR - SECOND SEASON

Chloroform	1.14	7.50	1.39	2.84	1.35	4.80	13.7	20.0	28.0	0.06 - 28.0
1,1,1-Trichloroethane	2.16	24.7	4.48	13.4	1.24	15.5	43.0	58.0	60.0	0.09 - 60.0
Carbon Tetrachloride	1.90	1.06	0.13	0.89	1.15	1.06	1.60	1.90	1.90	0.13 - 3.60
Trichloroethylene	1.16	5.12	1.04	1.76	1.45	4.30	9.60	12.0	13.0	0.10 - 53.0
Tetrachloroethylene	2.31	11.5	2.44	7.22	1.14	7.55	11.0	34.0	46.0	0.08 - 98.0
Styrene	1.10	2.29	0.52	1.51	1.24	2.00	2.40	4.70	10.0	0.02 - 10.0
m,p-Dichlorobenzene	0.97	22.1	3.86	5.20	1.25	4.25	10.0	60.0	120.	0.48 - 430.
Ethylbenzene	0.80	16.2	9.60	5.26	1.33	5.60	9.85	13.0	180.	0.03 - 180.
o-Xylene	0.21	11.3	5.27	5.27	1.29	5.10	8.80	14.0	100.	0.13 - 100.
m,p-Xylene	0.41	22.2	7.76	1.25	1.26	11.0	23.5	27.5	150.	0.03 - 150.

continued

000482

Table 429. (continued)

OVERNIGHT PERSONAL AIR - THIRD SEASON

Compound	Mid Q.L.	Arith. Mean	Arith. S.E.	Geo. Mean	Geo. S.E.	Median	Percentile 75th	Percentile 90th	Percentile 95th	Range
Chloroform	0.38	4.02	0.96	1.97	1.39	2.20	6.15	12.0	15.5	0.23 - 15.5
1,1,1-Trichloroethane	0.58	30.1	8.03	13.6	1.49	17.5	32.0	86.0	120.	0.34 - 200.
Carbon Tetrachloride	0.84	0.85	0.14	0.64	1.15	0.51	0.70	2.40	3.00	0.10 - 3.50
Trichloroethylene	0.68	3.05	0.89	1.34	1.39	1.50	3.20	5.40	7.10	0.07 - 41.0
Tetrachloroethylene	0.93	13.3	4.84	6.38	1.44	6.60	20.0	36.0	72.0	0.54 - 72.0
Styrene	0.40	2.16	0.52	1.25	1.23	1.30	2.80	4.50	11.0	0.22 - 11.0
m,p-Dichlorobenzene	0.35	53.3	25.3	5.47	1.60	4.20	12.0	140.	220.	0.22 - 570.
Ethylbenzene	--- e/	11.0	2.14	6.28	1.32	5.30	20.0	27.0	30.0	0.37 - 30.0
o-Xylene	--- e/	9.77	1.53	6.53	1.28	6.00	16.0	22.0	23.5	0.47 - 27.0
m,p-Xylene	--- e/	29.1	5.29	18.7 *	1.32	19.0	57.0	63.0	67.0	1.10 - 67.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standand Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standand Error - exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between seasons significant at .05 level.

000483

Table 430. WEIGHTED SUMMARY STATISTICS BY SEASON FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

DAYTIME PERSONAL AIR - FIRST SEASON
Population Estimate: 94,044
Sample Size Range: 38-40

Compound	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	Range
Chloroform	4.10	4.10	1.24	1.89	1.40	1.88	3.70	10.6	15.0	0.08 - 73.0
1,1,1-Trichloroethane	13.4	54.3	22.7	15.9	1.33	18.5	24.0	46.0	71.0	0.85 - 4200
Carbon Tetrachloride	3.31	1.60	0.32	1.08*	1.08	1.05	1.60	2.06	2.38	0.17 - 83.0
Trichloroethylene	3.38	3.95	0.78	2.51	1.30	2.38	5.60	8.60	9.30	0.29 - 45.0
Tetrachloroethylene	1.96	16.5	3.00	8.63	1.18	11.0	25.0	36.0	68.0	0.39 - 68.0
Styrene	1.00	4.80	1.64	2.65	1.16	2.50	4.75	6.00	12.0	0.08 - 45.0
m,p-Dichlorobenzene	1.70	8.53	3.91	2.84	1.43	2.10	5.50	36.0	47.0	0.62 - 190.
Ethylbenzene	2.40	15.0	3.49	6.42	1.35	8.38	15.0	23.0	23.0	0.23 - 1100
o-Xylene	2.60	12.6	3.59	5.50	1.30	6.40	11.0	16.0	16.0	0.27 - 770.
m,p-Xylene	2.10	31.7	6.11	17.1	1.26	18.5	31.0	43.0	45.0	1.31 - 1400

DAYTIME PERSONAL AIR - SECOND SEASON

Compound	a/ Mid Q.L.	Arith. Mean	b/ Arith. S.E.	c/ Geo. Mean	d/ Geo. S.E.	Median	Percentile 75th	90th	95th	Range
Chloroform	1.20	2.98	0.67	1.16	1.59	1.94	4.30	6.30	8.40	0.09 - 31.0
1,1,1-Trichloroethane	2.26	17.7	3.89	7.32	1.45	10.0	28.0	36.0	59.0	0.09 - 82.0
Carbon Tetrachloride	1.53	0.81	0.12	0.67	1.19	0.69	1.31	1.44	1.63	0.17 - 3.40
Trichloroethylene	2.03	8.47	2.55	3.40	1.76	7.40	14.2	22.0	22.0	0.12 - 29.0
Tetrachloroethylene	2.32	13.8	2.95	7.40	1.54	8.45	20.0	30.0	30.0	0.10 - 75.0
Styrene	1.23	2.04	0.34	1.16	1.41	1.47	2.80	5.10	5.10	0.03 - 10.0
m,p-Dichlorobenzene	0.97	173. *	158.	4.40	1.86	2.40	19.0	110.	2600	0.03 - 2600
Ethylbenzene	0.31	0.64	1.77	4.18	1.56	6.25	15.0	21.0	26.0	0.03 - 110.
o-Xylene	0.64	12.2	3.23	4.75	1.57	6.40	16.0	23.0	30.0	0.03 - 640.
m,p-Xylene	0.27	56.6	36.7	10.1	1.65	14.8	41.0	45.0	46.0	0.03 - 10,000

continued

000484

Table 430. (continued)

DAYTIME PERSONAL AIR - THIRD SEASON

Compound	Mid Q.L.	Arith. Mean	Arith. S.E.	Geo. Mean	Geo. S.E.	Median	Percentile 75th	90th	95th	Range
Chloroform	0.56	4.28	0.95	2.29	1.29	2.35	5.40	10.0	16.6	0.07 - 40.0
1,1,1-Trichloroethane	1.74	73.2	27.2	21.3 *	1.47	20.0	53.0	75.0	310.	0.09 - 8400
Carbon Tetrachloride	1.10	0.87	0.07	0.80	1.07	0.69	0.88	1.58	1.58	0.37 - 4.40
Trichloroethylene	1.10	6.96	2.58	2.29	1.58	2.30	7.10	29.0	29.0	0.14 - 53.0
Tetrachloroethylene	1.28	40.7	17.9	8.20	1.71	6.50	22.0	164.	230.	0.17 - 1800
Styrene	0.56	2.81	0.55	1.72	1.17	1.70	3.80	4.00	5.40	0.34 - 130.
m,p-Dichlorobenzene	0.54	54.7	21.0	10.3	1.74	5.80	75.0	200.	200.	0.27 - 320.
Ethylbenzene	--- e/	14.9	3.54	8.59*	1.26	9.60	17.0	39.0	47.5	0.95 - 310.
o-Xylene	--- e/	17.9 *	4.30	10.0 *	1.26	11.0	18.0	38.0	42.0	1.10 - 720.
m,p-Xylene	--- e/	46.9	10.1	26.7 *	1.27	29.0	54.0	100.	122.	2.60 - 1400

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standand Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standand Error - exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between seasons significant at .05 level.

000435

Table 431. WEIGHTED SUMMARY STATISTICS BY SEASON FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OVERNIGHT OUTDOOR AIR - FIRST SEASON
Population Estimate: 94,044
Sample Size Range: 6-9

Compound	Mid Q.L. a/	Arith. Mean	Arith. S.E. b/	Geo. Mean c/	Geo. S.E. d/	Median	75th Percentile	Range
Chloroform	1.90	0.69	0.25	0.30	1.97	1.19	1.31	0.05 - 1.50
1,1,1-Trichloroethane	3.00	8.11	3.02	6.10	1.37	5.90	13.0	1.88 - 19.0
Carbon Tetrachloride	1.30	1.41	0.19	1.33	1.14	1.20	1.60	0.75 - 2.10
Trichloroethylene	3.30	1.98	0.58	1.37	1.53	3.00	3.31	0.41 - 3.38
Tetrachloroethylene	0.99	3.97	0.70	3.72	1.18	3.80	5.00	0.62 - 6.20
Styrene	4.80	0.52	0.18	0.34	1.78	0.60	0.75	0.07 - 1.70
m,p-Dichlorobenzene	2.60	1.38	0.52	0.87	1.83	1.69	2.50	0.10 - 2.50
Ethylbenzene	2.70	5.13	2.10	3.69	1.49	2.70	11.0	1.60 - 11.0
o-Xylene	2.70	3.98	1.27	3.24	1.38	2.80	7.40	1.06 - 7.80
m,p-Xylene	--- e/	12.2	5.20	8.94	1.53	5.70	26.0	3.30 - 26.0

OVERNIGHT OUTDOOR AIR - SECOND SEASON

Compound	Mid Q.L. a/	Arith. Mean	Arith. S.E. b/	Geo. Mean c/	Geo. S.E. d/	Median	75th Percentile	Range
Chloroform	0.60	1.92	2.02	0.15	2.25	0.08	0.08	0.05 - 13.0
1,1,1-Trichloroethane	2.16	9.20	2.51	5.83	1.68	8.60	12.0	0.27 - 21.5
Carbon Tetrachloride	1.52	0.94	0.27	0.79	1.35	0.69	1.38	0.11 - 1.70
Trichloroethylene	0.80	7.15	6.10	1.62	1.72	1.40	1.90	0.10 - 44.0
Tetrachloroethylene	1.56	3.86	2.03	2.29	1.70	1.30	6.30	0.05 - 9.40
Styrene	1.00	0.71	0.16	0.60	1.23	0.50	1.20	0.02 - 1.35
m,p-Dichlorobenzene	0.97	1.31	0.18	1.24	1.12	1.10	1.30	0.53 - 2.35
Ethylbenzene	0.20	4.25	1.18	3.40	1.30	3.10	7.65	0.02 - 8.80
o-Xylene	0.20	5.13	0.98	4.39	1.21	4.20	5.50	0.02 - 10.8
m,p-Xylene	0.20	16.0	4.14	12.9	1.31	11.0	26.5	0.02 - 27.5

continued

000486

Table 431. (continued)

OVERNIGHT OUTDOOR AIR - THIRD SEASON

Compound	Mid Q.L.	Arith. Mean	Arith. S.E.	Geo. Mean	Geo. S.E.	Median	75th Percentile	Range
Chloroform	0.33	0.07	0.03	0.05	1.16	0.04	0.06	0.04 - 0.67
1,1,1-Trichloroethane	1.16	1.46	0.62	0.75	1.80	1.40	1.90	0.15 - 10.0
Carbon Tetrachloride	0.82	0.55	0.04	0.54	1.07	0.52	0.61	0.16 - 0.69
Trichloroethylene	0.52	0.25	0.15	0.13	1.75	0.06	0.52	0.06 - 0.74
Tetrachloroethylene	0.31	1.30	0.72	0.56	2.58	0.74	1.95	0.04 - 3.30
Styrene	--- e/	0.64	0.12	0.55	1.22	0.53	1.00	0.24 - 1.00
m,p-Dichlorobenzene	--- e/	1.37	0.89	0.59	1.75	0.65	1.50	0.16 - 4.60
Ethylbenzene	--- e/	3.40	0.59	2.97	1.21	4.00	5.20	1.40 - 5.30
o-Xylene	--- e/	3.08	0.52	2.71	1.20	3.20	4.30	1.30 - 5.20
m,p-Xylene	--- e/	8.51	1.67	7.44	1.23	11.0	11.0	3.60 - 14.0

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standand Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standand Error - exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between seasons significant at .05 level.

000487

Table 432. WEIGHTED SUMMARY STATISTICS BY SEASON FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

DAYTIME OUTDOOR AIR - FIRST SEASON
Population Estimate: 94,044
Sample Size Range: 6-8

Compound	Mid Q.L. [a]	Arith. Mean	Arith. S.E. [b]	Geo. Mean [c]	Geo. S.E. [d]	Median	75th Percentile	Range
Chloroform	3.04	0.92	0.46	0.58	1.68	0.38	1.70	0.04 - 2.06
1,1,1-Trichloroethane	--- [e]	5.36	2.51	3.59	1.62	3.60	4.50	1.20 - 14.0
Carbon Tetrachloride	1.85	0.89	0.23	0.71	1.45	1.13	1.25	0.26 - 3.00
Trichloroethylene	3.10	3.27	2.18	1.47	1.84	1.10	1.94	0.39 - 11.0
Tetrachloroethylene	0.88	3.92	0.75	3.50	1.23	3.30	5.50	0.11 - 11.0
Styrene	4.35	1.66	0.95	0.94	1.59	0.95	0.95	0.33 - 5.13
m,p-Dichlorobenzene	2.87	0.67	0.28	0.44	1.64	0.60	0.60	0.11 - 2.69
Ethylbenzene	2.35	2.64	0.37	2.44	1.18	2.40	3.00	1.31 - 4.50
o-Xylene	2.30	2.80	0.40	2.61	1.19	2.70	3.70	1.44 - 3.70
m,p-Xylene	2.90	7.49	1.73	6.51	1.31	6.40	12.0	1.81 - 12.0

DAYTIME OUTDOOR AIR - SECOND SEASON

Compound	Mid Q.L. [a]	Arith. Mean	Arith. S.E. [b]	Geo. Mean [c]	Geo. S.E. [d]	Median	75th Percentile	Range
Chloroform	0.96	16.3	13.3	1.03	4.85	0.12	7.54	0.12 - 95.0
1,1,1-Trichloroethane	0.92	21.0	16.3	1.40	5.03	0.12	17.5	0.11 - 76.0
Carbon Tetrachloride	0.96	1.06	0.29	0.90	1.30	0.60	1.80	0.42 - 4.30
Trichloroethylene	0.96	20.2	17.1	1.08	4.70	0.12	28.0	0.10 - 79.0
Tetrachloroethylene	1.66	25.2	19.9	7.31	2.20	2.70	19.0	0.14 - 95.0
Styrene	0.94	0.84	0.32	0.51	1.71	0.59	1.50	0.10 - 6.30
m,p-Dichlorobenzene	1.40	1.61	0.36	1.30	1.26	1.80	1.80	0.38 - 13.0
Ethylbenzene	--- [e]	5.38	2.46	3.31	1.61	2.80	12.0	1.10 - 39.0
o-Xylene	--- [e]	5.47	2.40	3.87	1.51	2.80	13.0	1.70 - 19.0
m,p-Xylene	--- [e]	13.4	6.58	8.51	1.64	5.80	34.0	3.10 - 47.0

continued

000488

Table 432. (continued)

DAYTIME OUTDOOR AIR - THIRD SEASON

Compound	Mid Q.L.	Arith. Mean	Arith. S.E.	Geo. Mean	Geo. S.E.	Median	75th Percentile	Range
Chloroform	0.44	0.45	0.29	0.18	2.14	0.09	1.20	0.05 - 1.20
1,1,1-Trichloroethane	1.45	2.23	0.77	1.41	1.71	1.50	3.90	0.18 - 11.0
Carbon Tetrachloride	1.12	0.79	0.08	0.77	1.10	0.75	0.94	0.51 - 1.06
Trichloroethylene	0.62	0.45	0.17	0.29	1.77	0.63	0.78	0.06 - 0.97
Tetrachloroethylene	--- e/	7.58	1.80	6.00	1.32	8.00	14.0	1.30 - 14.0
Styrene	0.20	0.69	0.13	0.58	1.30	0.61	0.91	0.13 - 1.10
m,p-Dichlorobenzene	0.25	1.86	1.05	0.72	2.45	0.48	3.80	0.13 - 3.80
Ethylbenzene	--- e/	4.24	0.64	3.77	1.22	4.10	5.60	1.20 - 6.30
o-Xylene	--- e/	4.08	0.75	3.54	1.24	3.60	5.00	1.10 - 6.70
m,p-Xylene	--- e/	10.3	1.47	9.22	1.20	10.0	14.0	3.10 - 20.5

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standand Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standand Error - exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between seasons significant at .05 level.

000489

Table 433. WEIGHTED SUMMARY STATISTICS BY SEASON FOR THOSE WITH FIRST, SECOND AND THIRD SEASON SAMPLES (ng/mL) - NEW JERSEY

Compound	Mid Q.L. a/	Arith. Mean	Arith. S.E. b/	Geo. Mean c/	Geo. S.E. d/	Median	Percentile 75th	90th	95th	Range
WATER - FIRST SEASON										
Population Estimate: 94,044										
Sample Size Range: 49										
Vinylidene Chloride	0.05	0.18	0.06	0.07	1.35	0.03	0.37	0.62	0.64	0.03 - 1.22
Chloroform	--- e/	71.1 *	5.49	68.0 *	1.08	65.0	83.9	95.0	128.	33.0 - 128.
1,1,1-Trichloroethane	0.05	0.37	0.10	0.11	1.42	0.03	0.75	1.09	1.20	0.03 - 2.44
Trichloroethylene	0.05	0.46	0.12	0.12	1.39	0.03	0.73	1.63	1.63	0.03 - 3.42
Bromodichloromethane	--- e/	13.6 *	0.43	13.4 *	1.03	13.1	14.8	16.8	16.8	7.48 - 19.0
Dibromochloromethane	--- e/	2.49*	0.12	2.43*	1.05	2.41	2.61	3.34	3.34	0.99 - 4.64
Tetrachloroethylene	0.05	0.35	0.12	0.11	1.34	0.05	0.43	1.45	1.93	0.03 - 1.93
WATER - SECOND SEASON										
Vinylidene Chloride	0.05	0.17	0.05	0.06	1.27	0.03	0.08	0.44	1.11	0.03 - 2.48
Chloroform	--- e/	56.8	2.39	54.2	1.04	54.4	71.6	78.8	80.0	18.0 - 114.
1,1,1-Trichloroethane	0.05	0.26	0.07	0.10	1.31	0.05	0.26	0.91	1.32	0.03 - 2.57
Trichloroethylene	0.05	0.53	0.22	0.11	1.46	0.03	0.46	1.73	3.26	0.03 - 4.43
Bromodichloromethane	--- e/	12.9	0.49	12.4	1.04	12.0	14.9	16.5	18.2	5.78 - 41.0
Dibromochloromethane	--- e/	2.30	0.17	2.15	1.07	2.04	2.74	3.81	3.81	0.73 - 7.19
Tetrachloroethylene	0.05	0.48	0.24	0.11	1.46	0.03	0.45	1.88	3.53	0.03 - 3.53
WATER - THIRD SEASON										
Vinylidene Chloride	0.05	0.20	0.07	0.08	1.35	0.03	0.35	0.72	0.87	0.03 - 0.91
Chloroform	--- e/	17.2	1.76	13.8	1.24	16.0	24.4	26.4	29.6	0.75 - 32.7
1,1,1-Trichloroethane	0.05	0.21	0.05	0.09	1.19	0.03	0.32	0.76	0.80	0.03 - 1.64
Trichloroethylene	0.05	0.38	0.09	0.11	1.25	0.03	0.66	1.25	1.50	0.03 - 3.45
Bromodichloromethane	--- e/	5.40	0.72	4.39	1.24	5.80	7.06	8.34	8.34	0.35 - 16.1
Dibromochloromethane	0.10	1.38	0.13	1.11	1.24	1.55	1.82	1.99	2.06	0.06 - 3.02
Tetrachloroethylene	0.05	0.39	0.09	0.11	1.26	0.03	0.55	1.31	1.37	0.03 - 4.97

a/ Mid Q.L. = Median Quantifiable Limit
b/ Arith. S.E. = Standand Error of Arith. Mean
c/ Geo. Mean = Geometric Mean
d/ Geo. S.E. = Geometric Standand Error - exp(s) where s is the standard error of the weighted mean of LN(x).
e/ 100% measurable.
* T-test for difference in means between seasons significant at .05 level.

000490

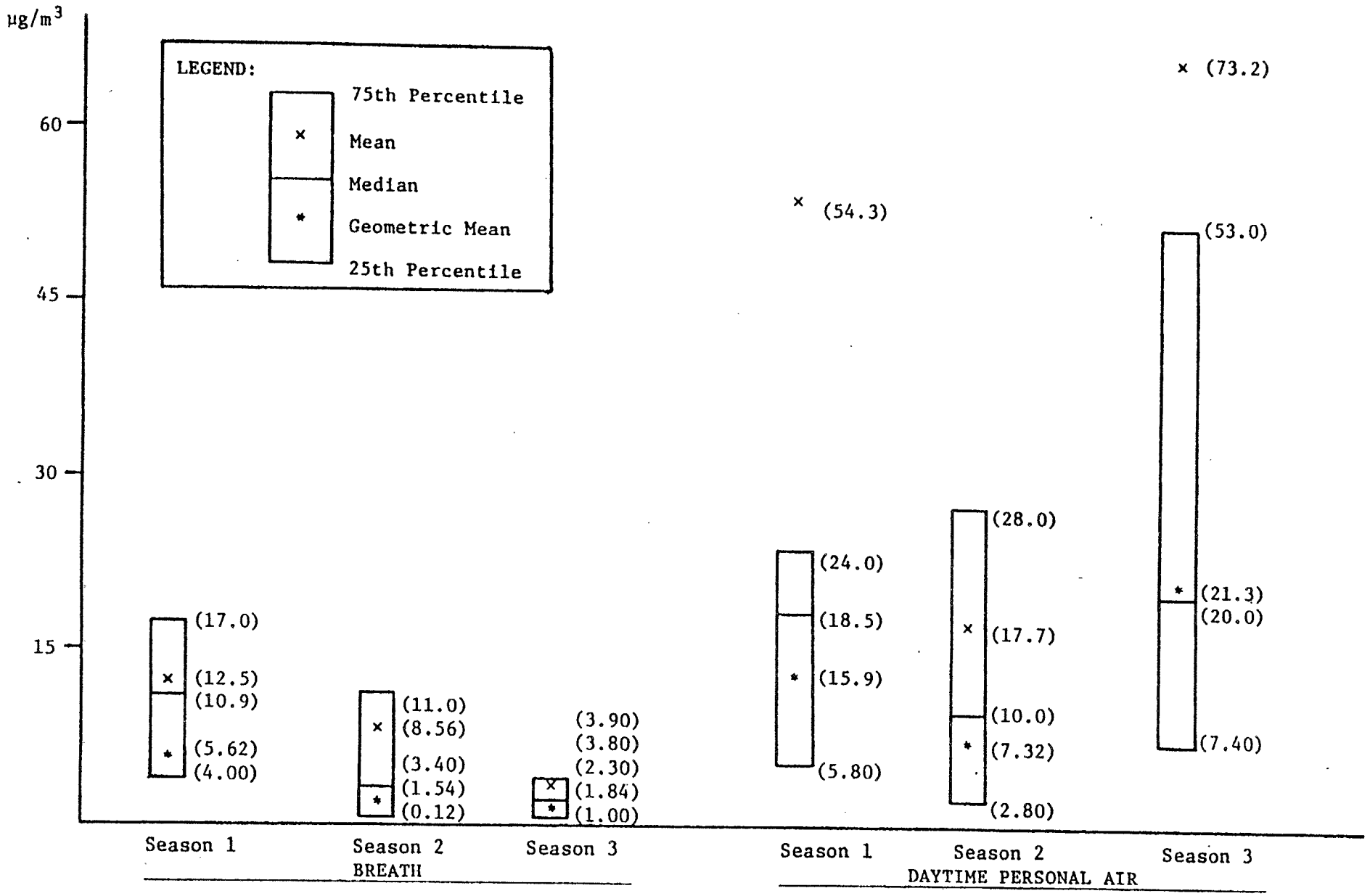

Figure 110. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for 1,1,1-trichloroethane for breath and daytime personal air by season - New Jersey.

000491

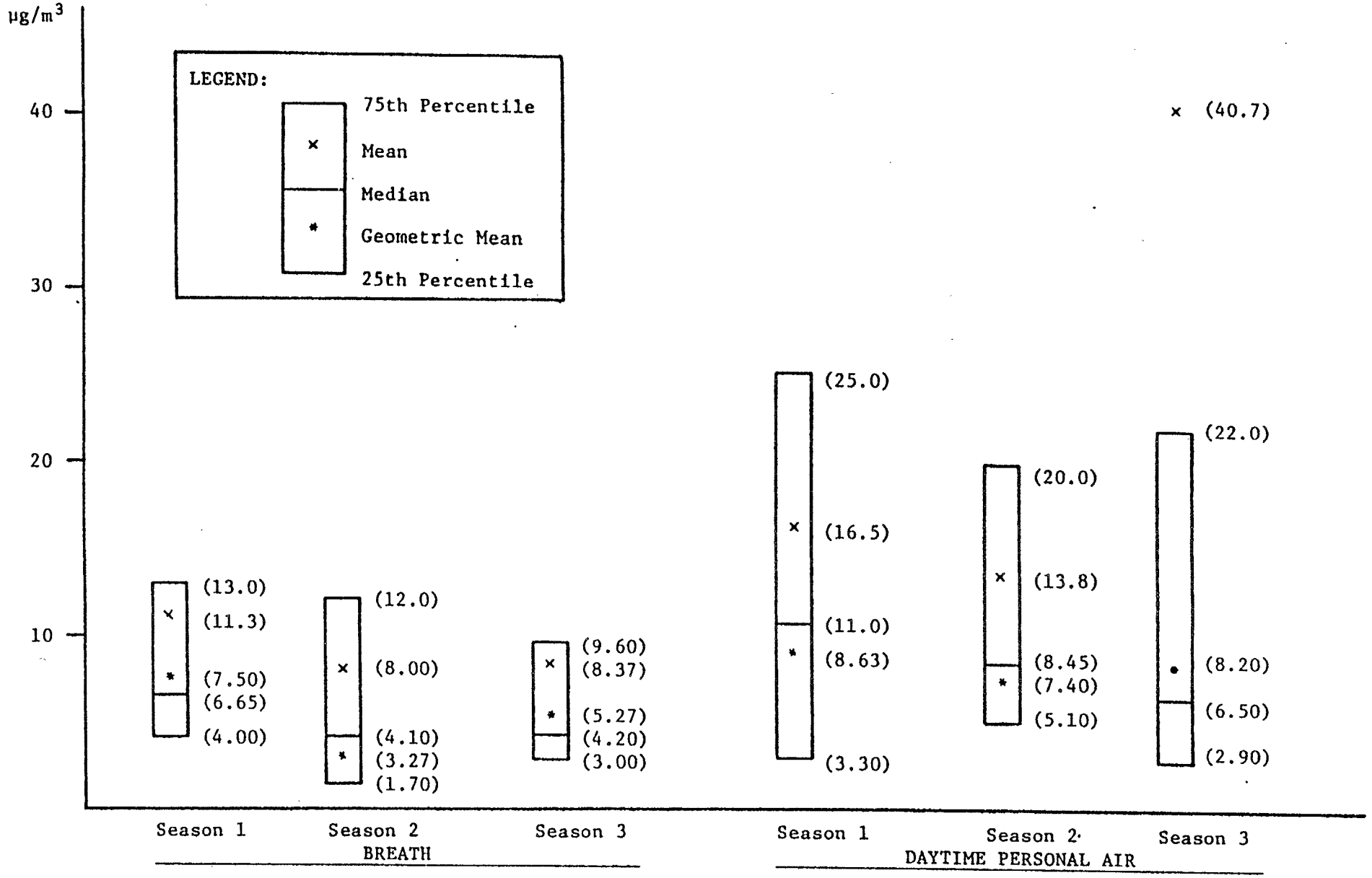

Figure 111. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for tetrachloroethylene for breath and daytime personal air by season - New Jersey.

000432

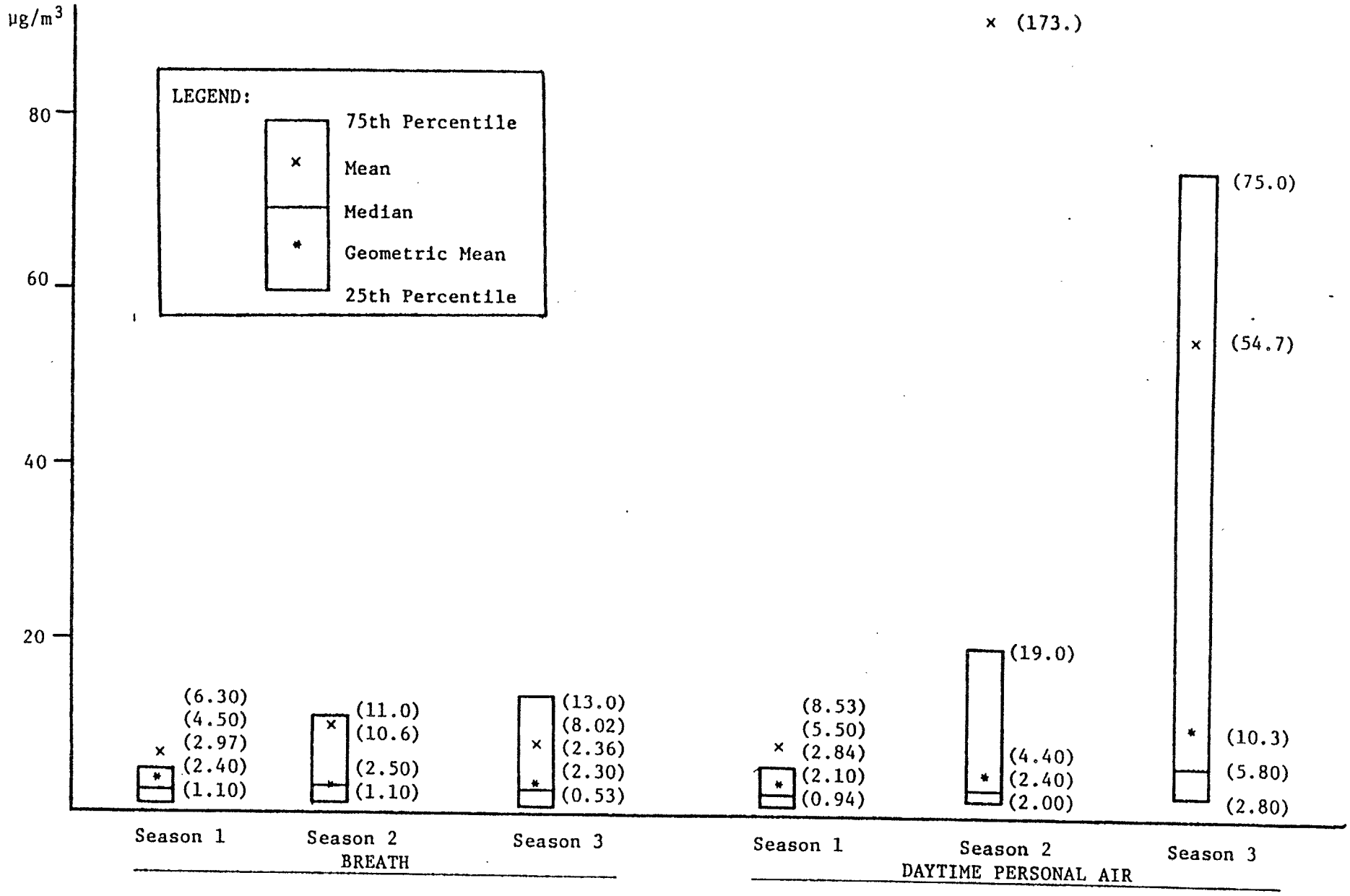

Figure 112. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for m,p-dichlorobenzene for breath and daytime personal air by season - New Jersey.

000493

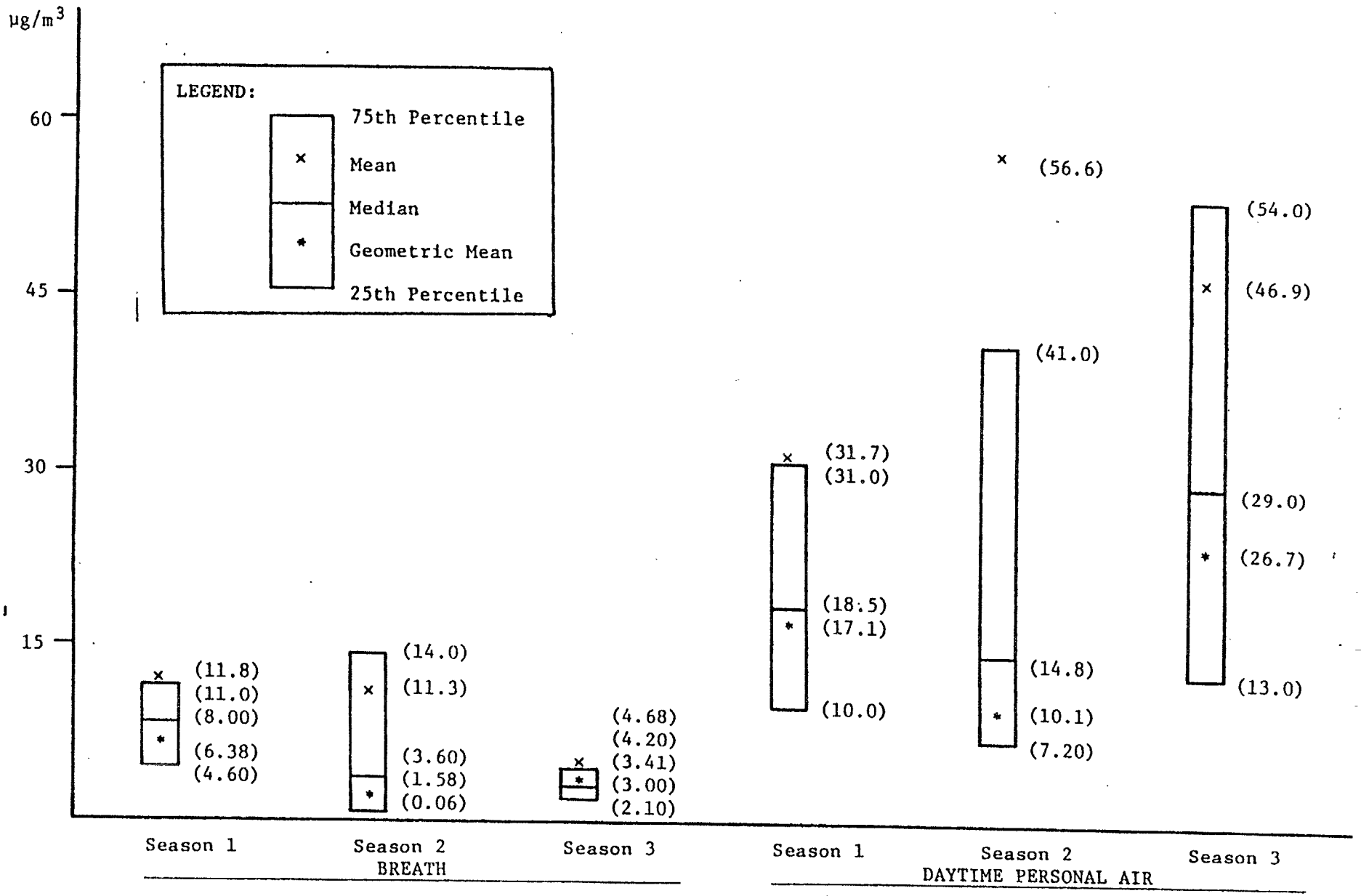

Figure 113. Box plots for weighted means, geometric means, medians, 25th and 75th percentiles for m,p-xylene for breath and daytime personal air by season - New Jersey.

000234

Figures 114 through 118 show the medians by season and media for chloroform, trichloroethylene, styrene, ethylbenzene and o-xylene. While breath showed a tendency to have the highest medians in the first season followed by the second season with the lowest medians in the third season, no other media exhibited any type of overall trend.

Figures 119 through 139 give scatter plots between seasons of the natural logarithms of the concentrations for 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene, ethylbenzene and m,p-xylene for breath and tetrachloroethylene for overnight and daytime personal airs. As previously, one was added to each number before the log was taken so each plot starts at 0. The lines represent the mid QL values for the compound for the two seasons. An "O" represents both measurable and an "X" represents one or both not measurable. These plots show the lack of correlation between the seasons.

Tables 434 and 435 give the weighted summary statistics for personal air and outdoor air exposures averaged over the 24-hour period and over the three seasons. In comparing personal to outdoor air, the summary statistics were generally higher for personal air. Most notable were 1,1,1-trichloroethane and m,p-dichlorobenzene.

REFERENCES

8-1 Shah, B.V. [1982]. SURREGR: STANDARD ERRORS OF REGRESSION COEFFICIENTS FROM SAMPLE SURVEY DATA.

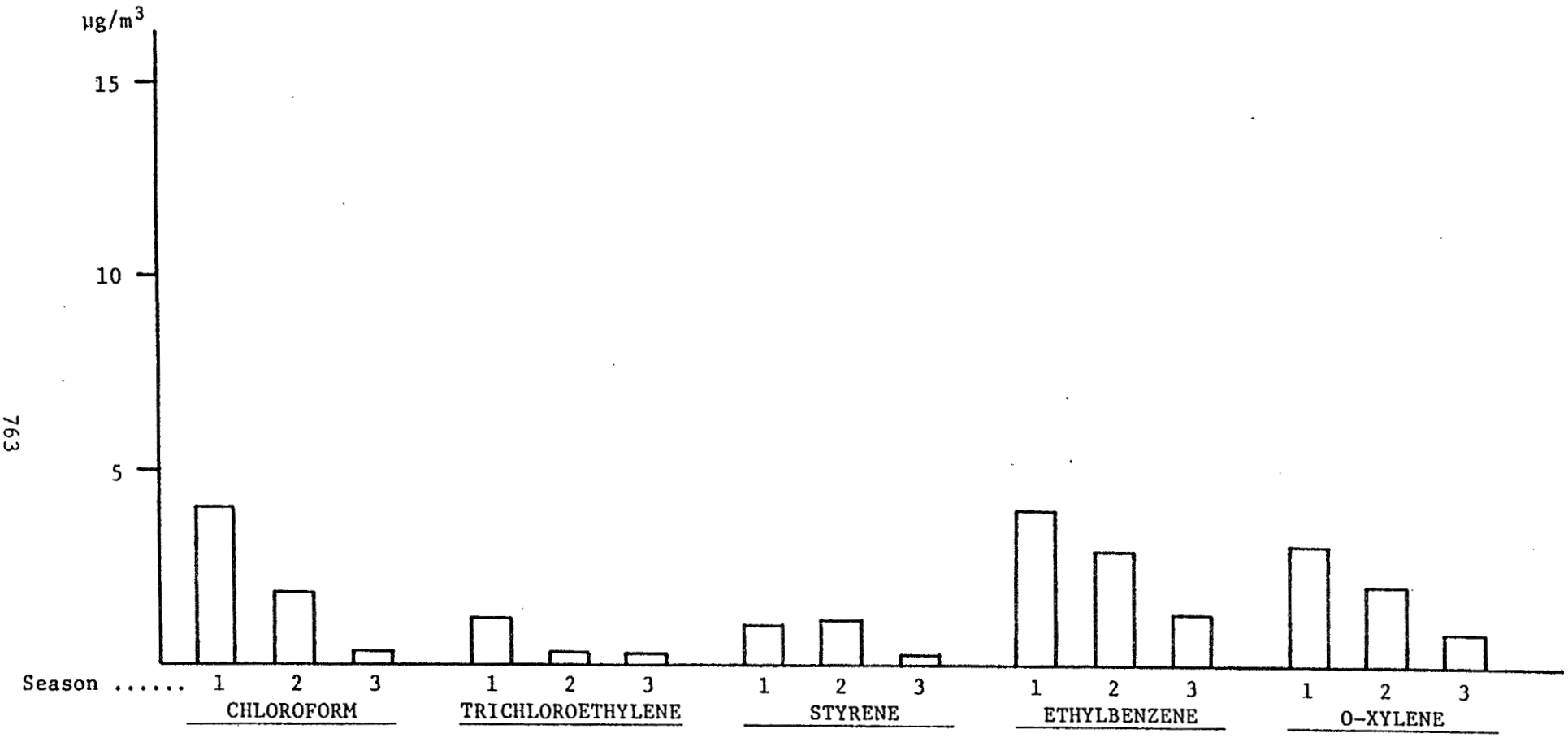

Figure 114. Medians by compound and season for breath - New Jersey.

000436

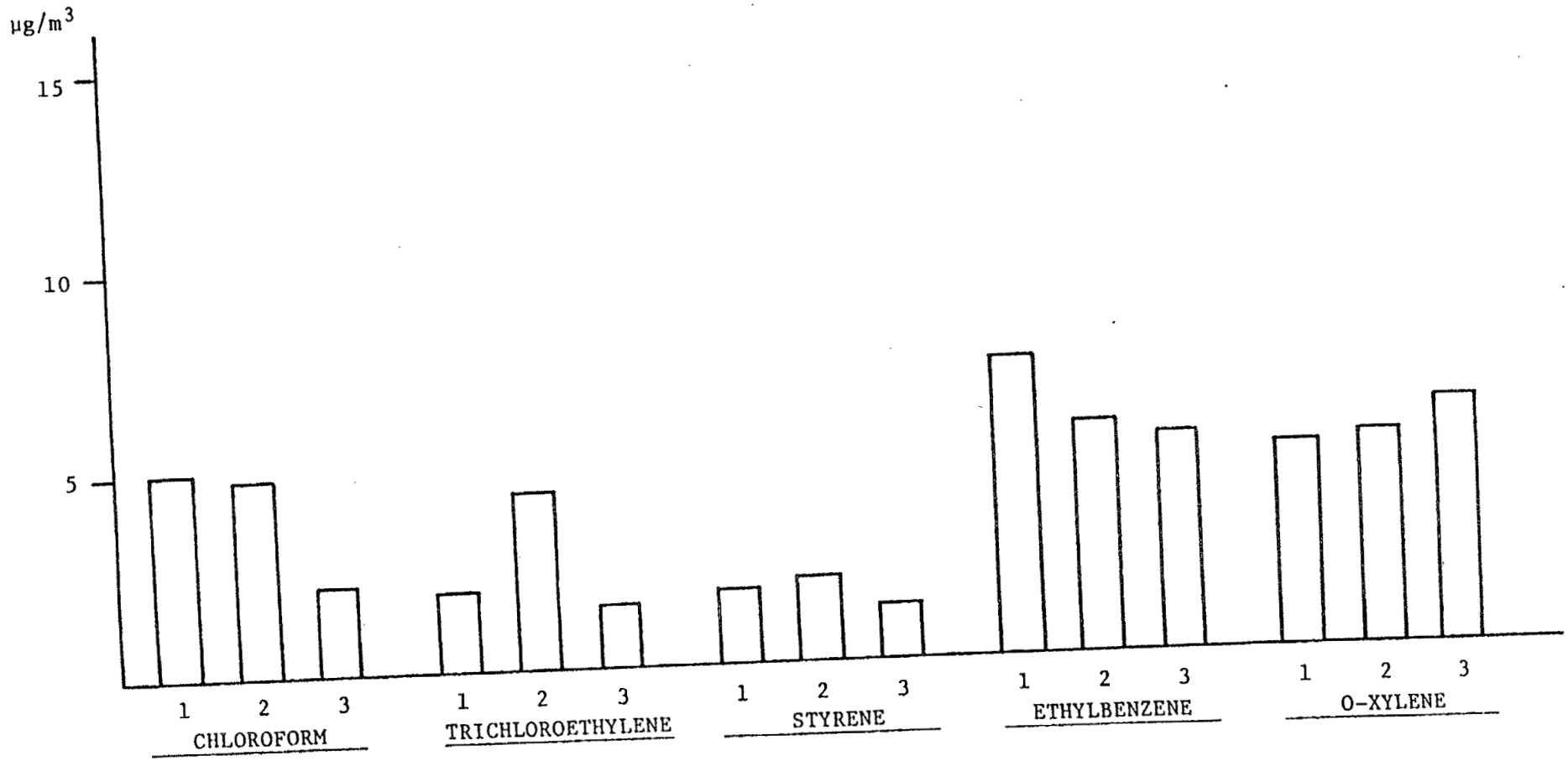

Figure 115. Medians by compound and season for overnight personal air - New Jersey.

000437

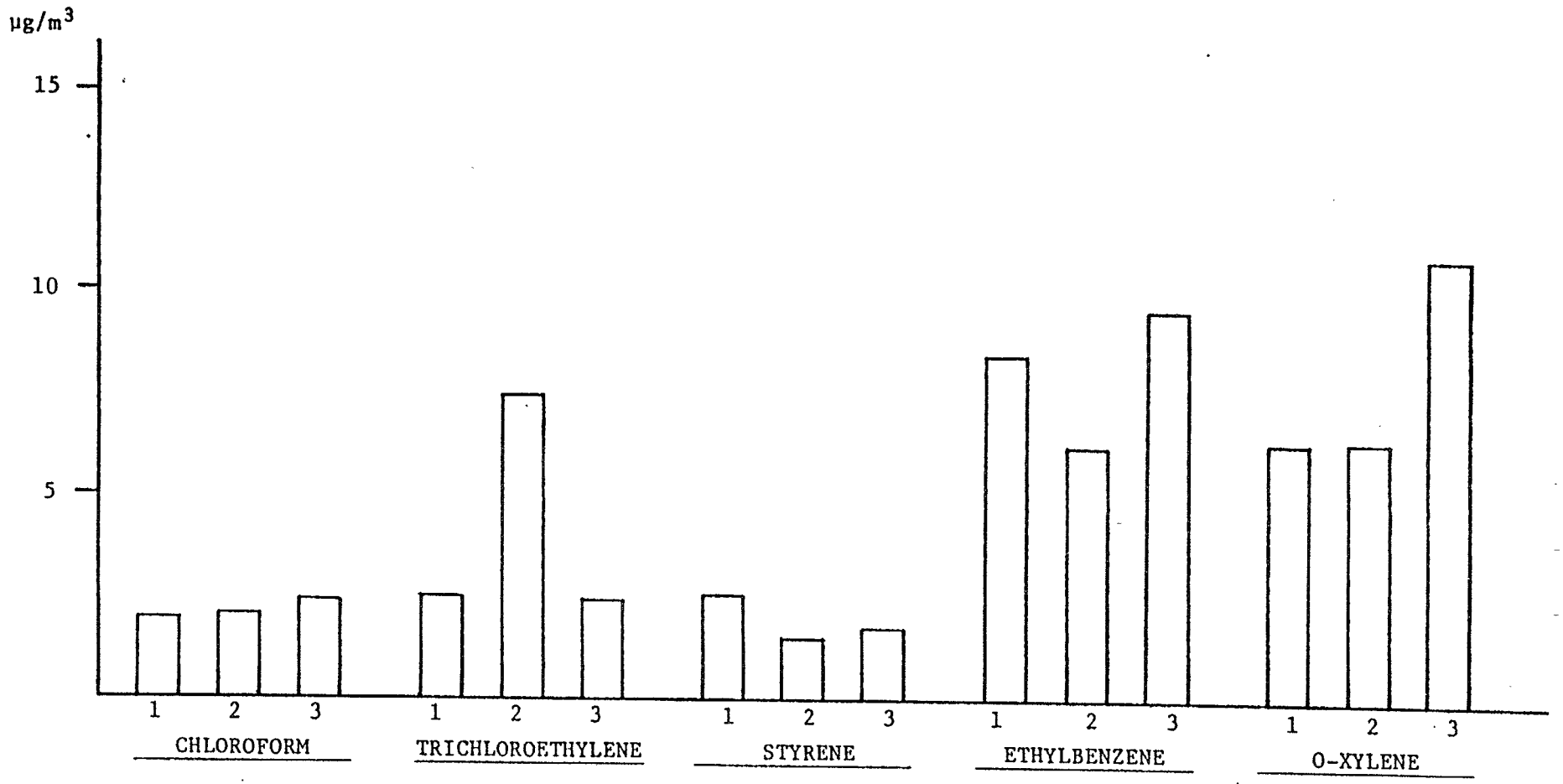

Figure 116. Medians by compound and season for daytime personal air - New Jersey.

000438

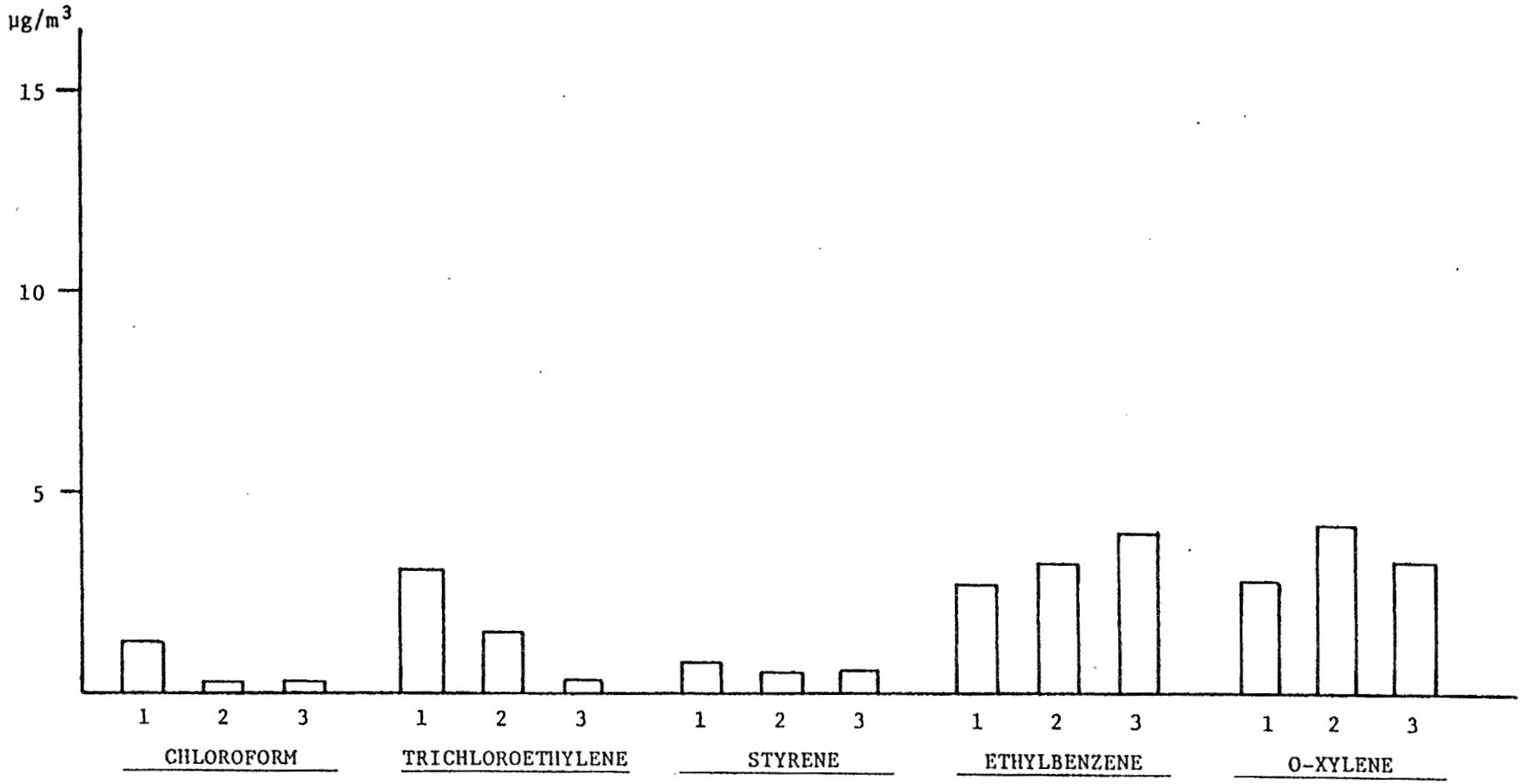

Figure 117. Medians by compound and season for overnight outdoor air - New Jersey.

000439

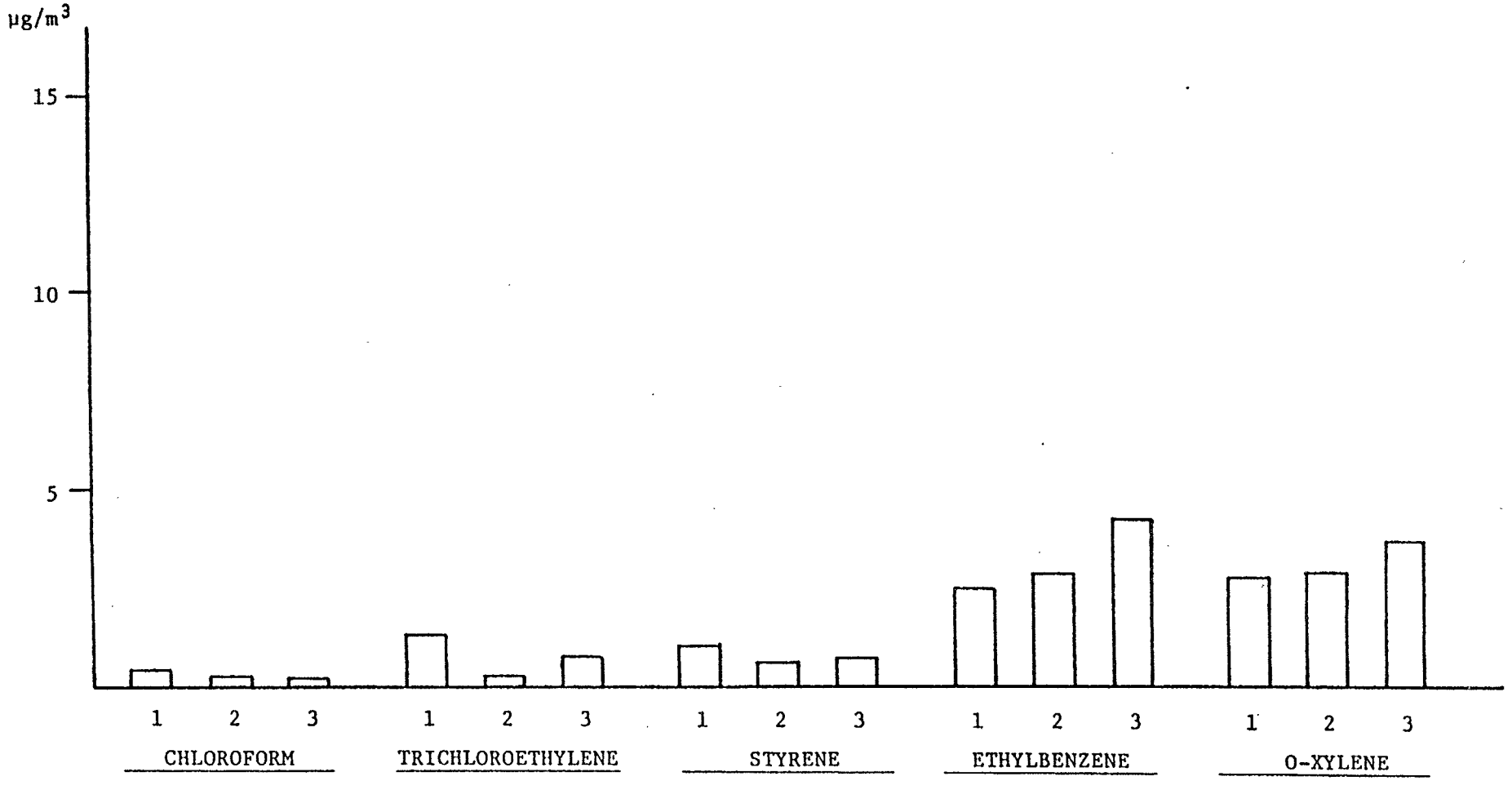

Figure 118. Medians by compound and season for daytime outdoor air - New Jersey.

000500

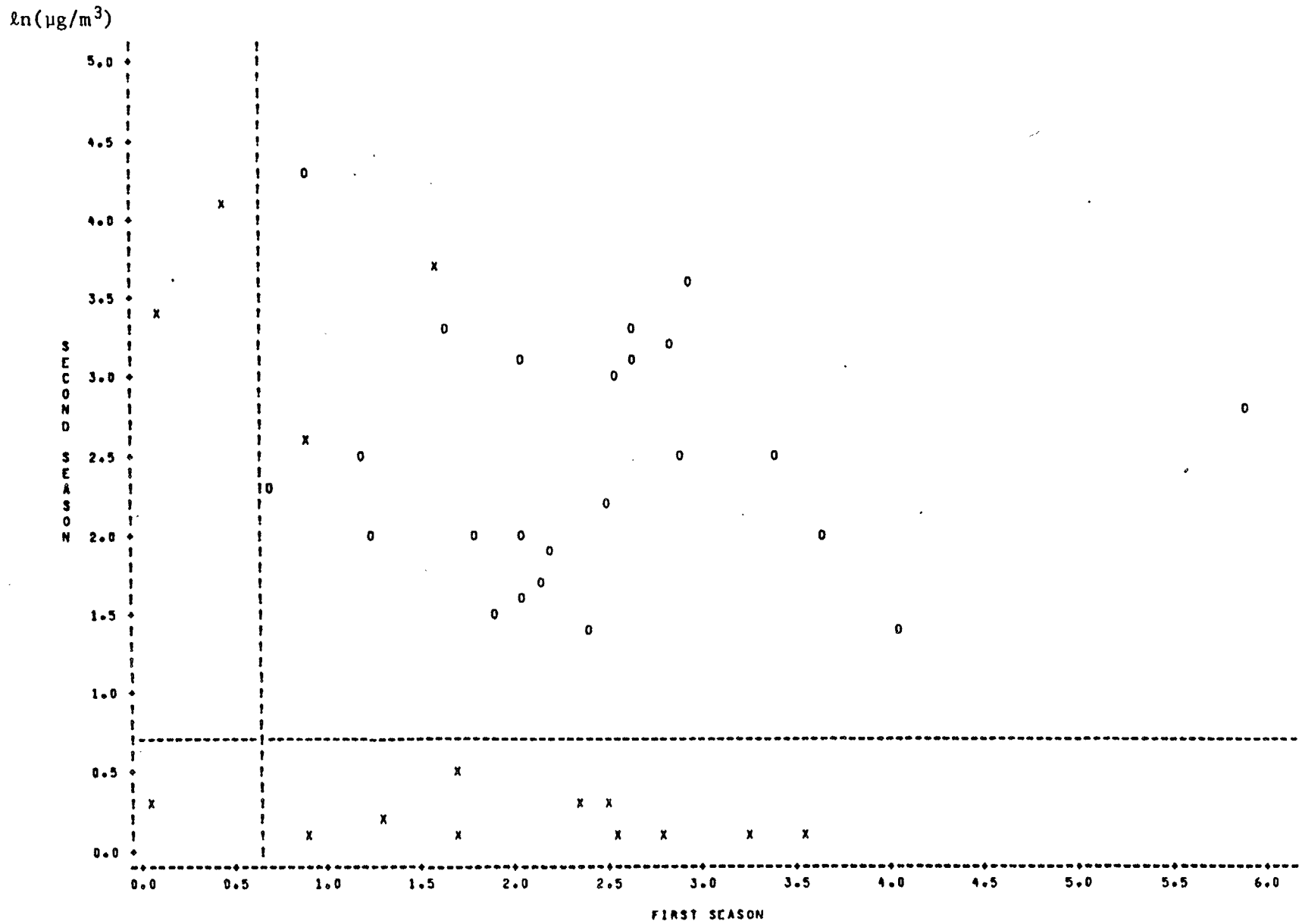

Figure 119. 1,1,1-trichloroethane for breath - New Jersey.

000501

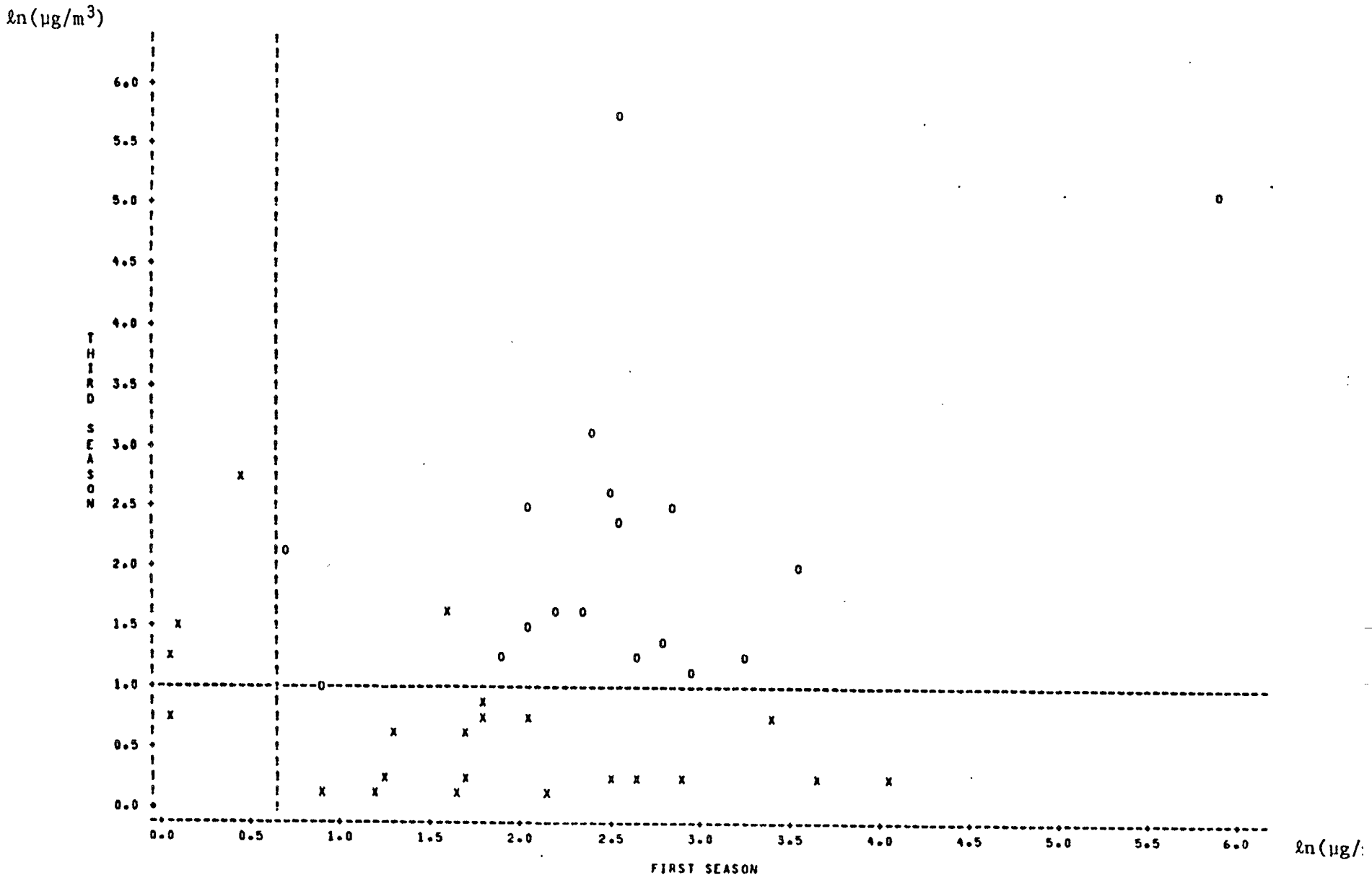

Figure 120. 1,1,1-trichloroethane for breath - New Jersey.

000502

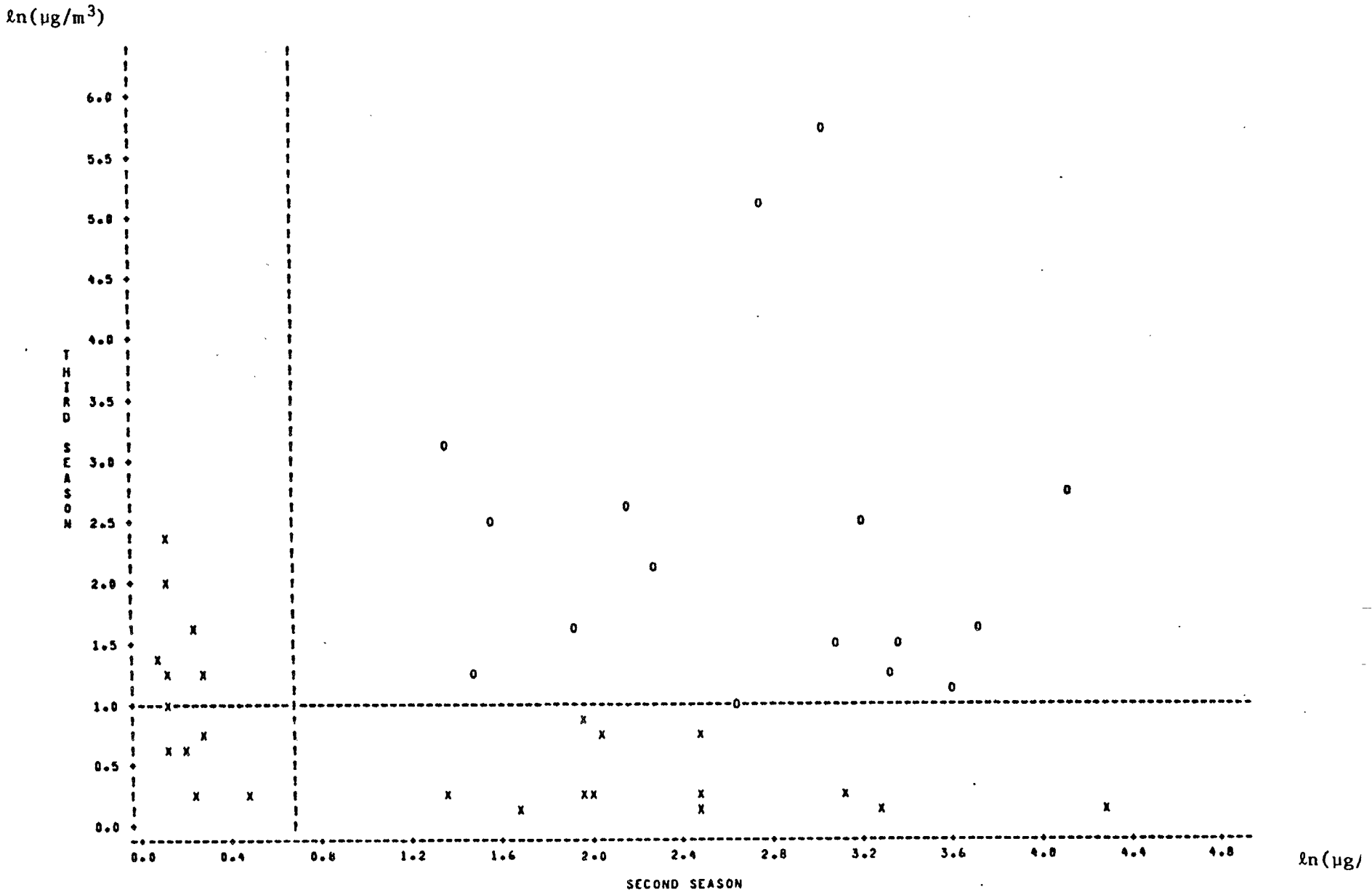

Figure 121. 1,1,1-trichloroethane for breath - New Jersey.

000503

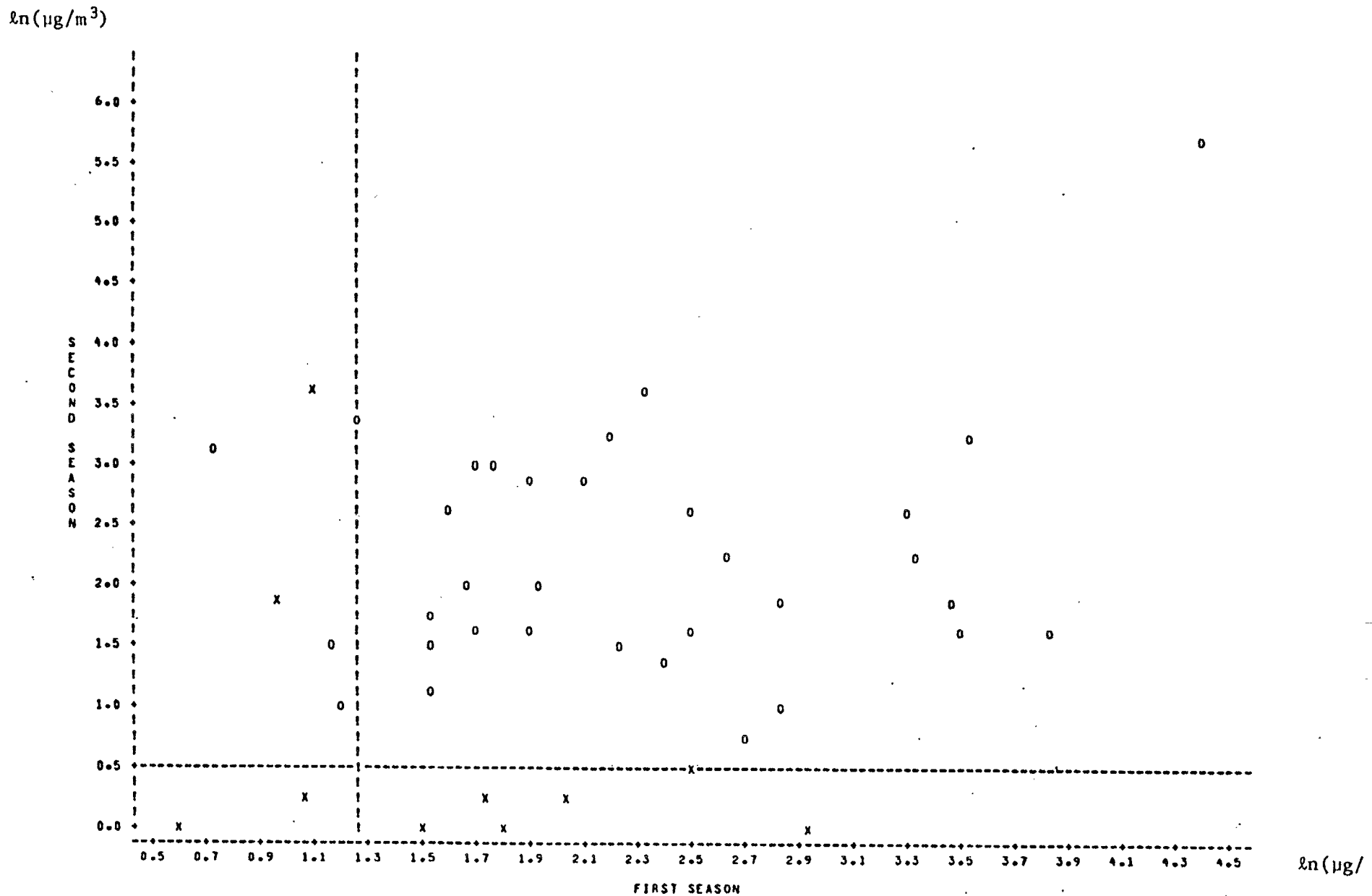

Figure 122. Tetrachloroethylene for breath - New Jersey.

000504

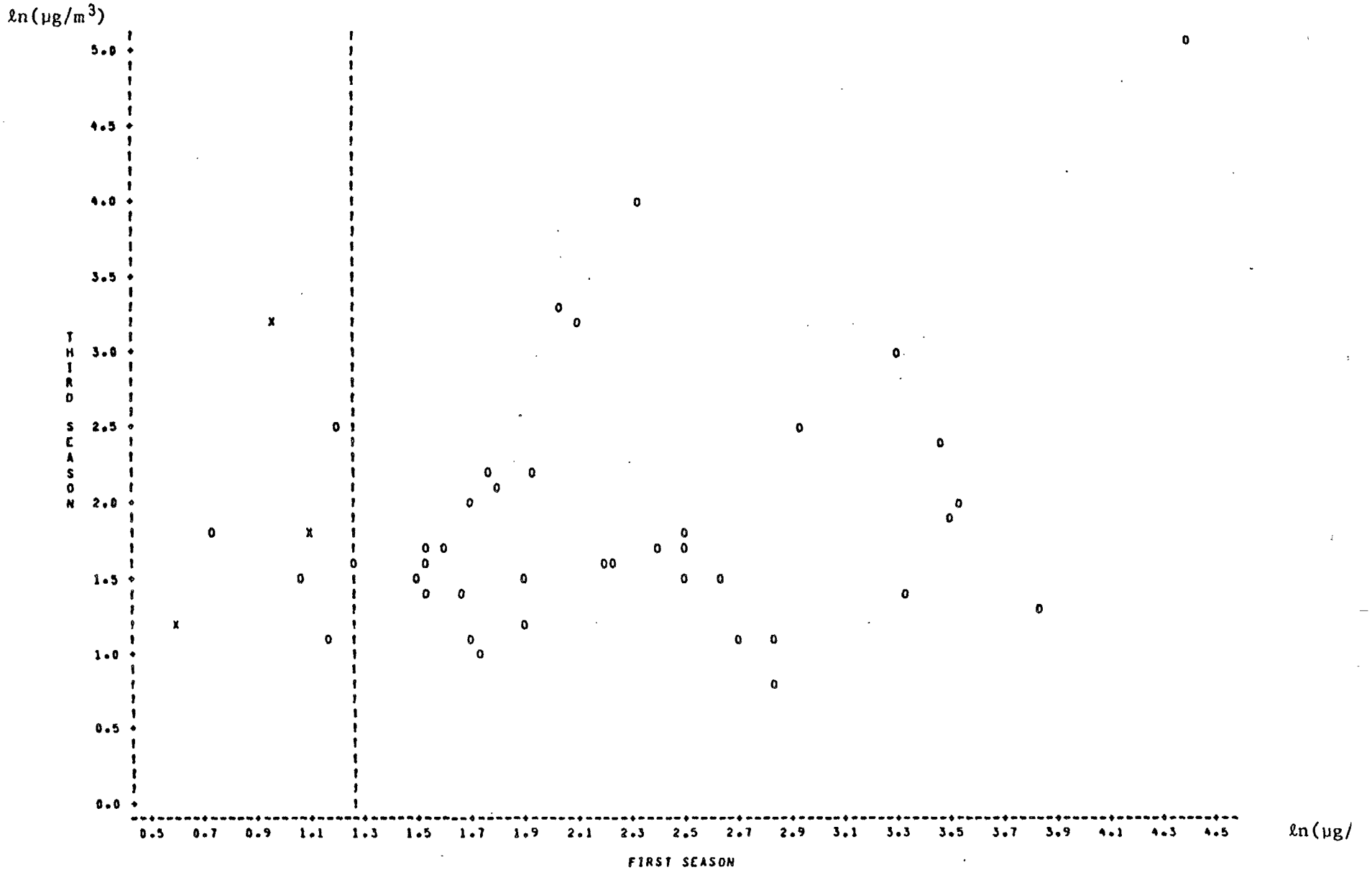

Figure 123. Tetrachloroethylene for breath - New Jersey.

000505

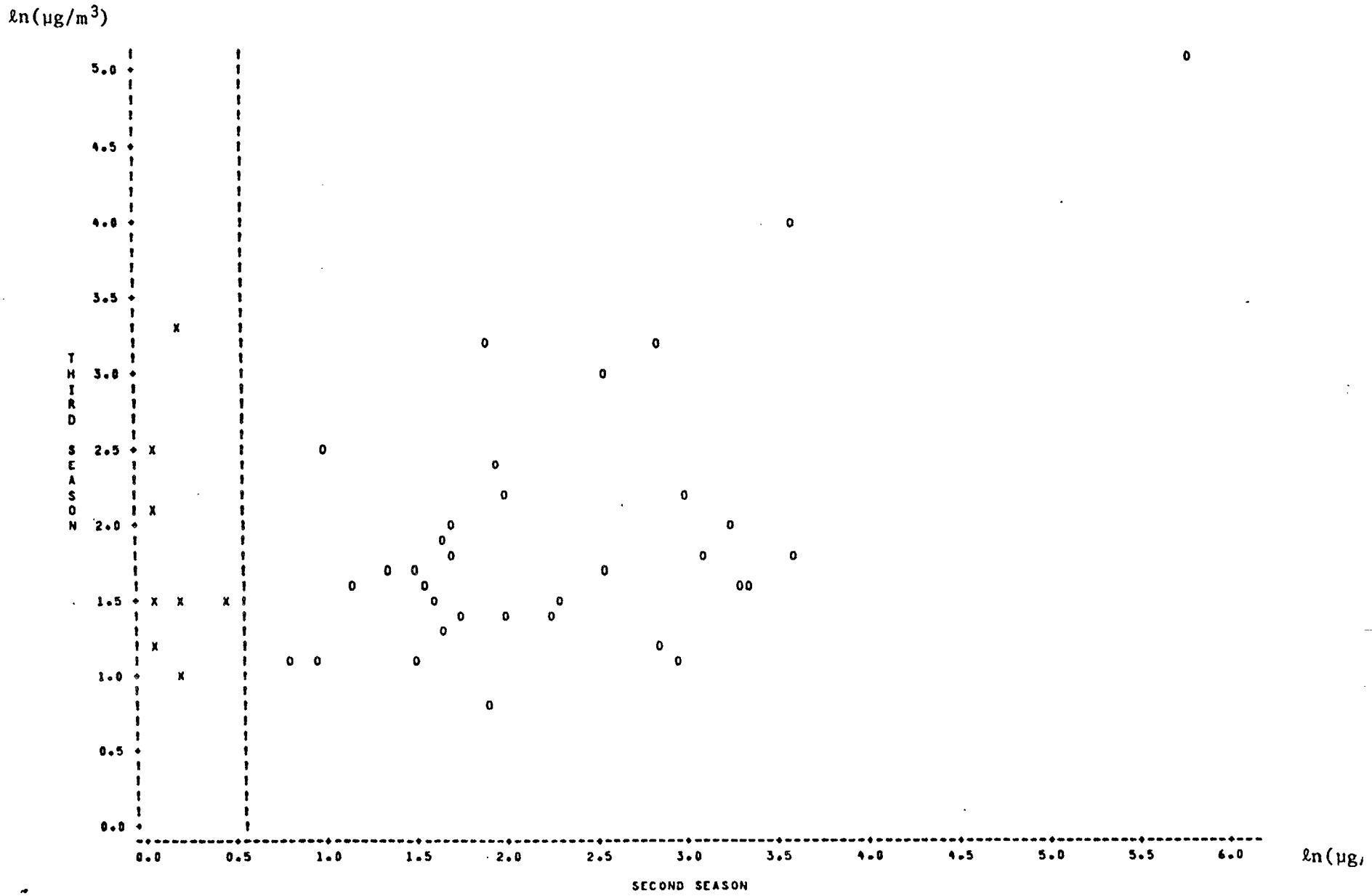

Figure 124. Tetrachloroethylene for breath - New Jersey.

000506

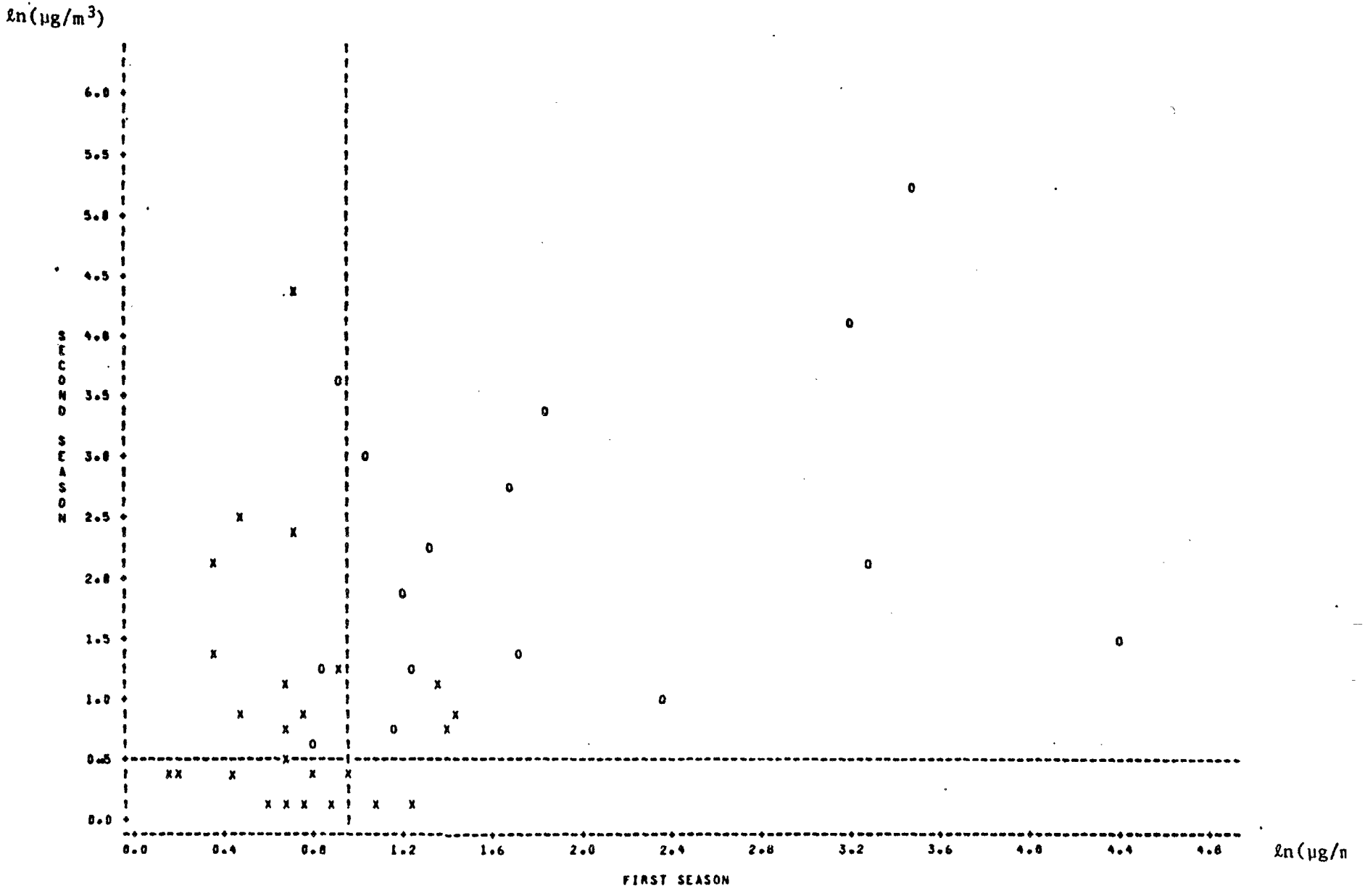

Figure 125. m,p-dichlorobenzene for breath - New Jersey.

000509

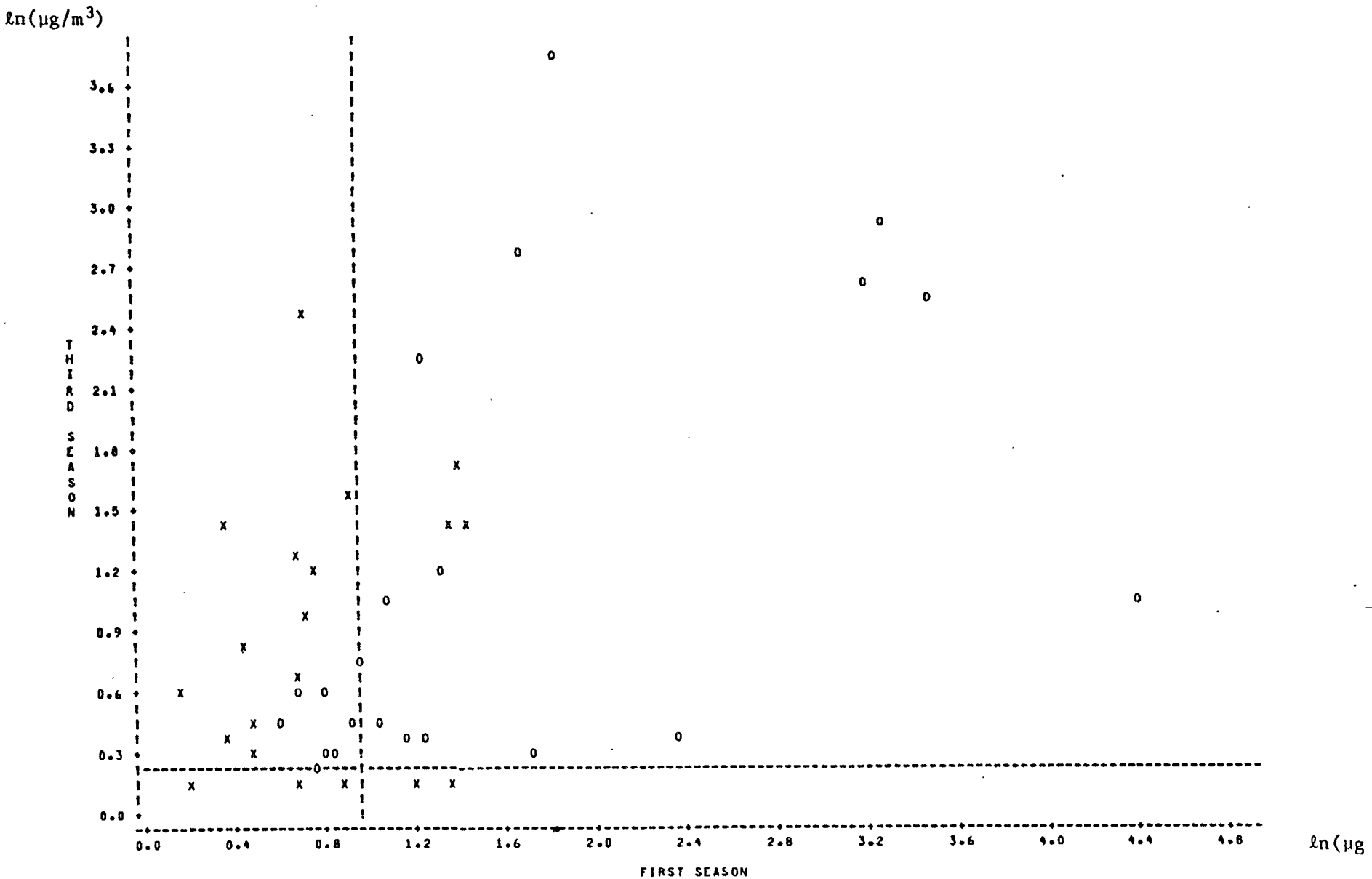

Figure 126. m,p-dichlorobenzene for breath - New Jersey.

000568

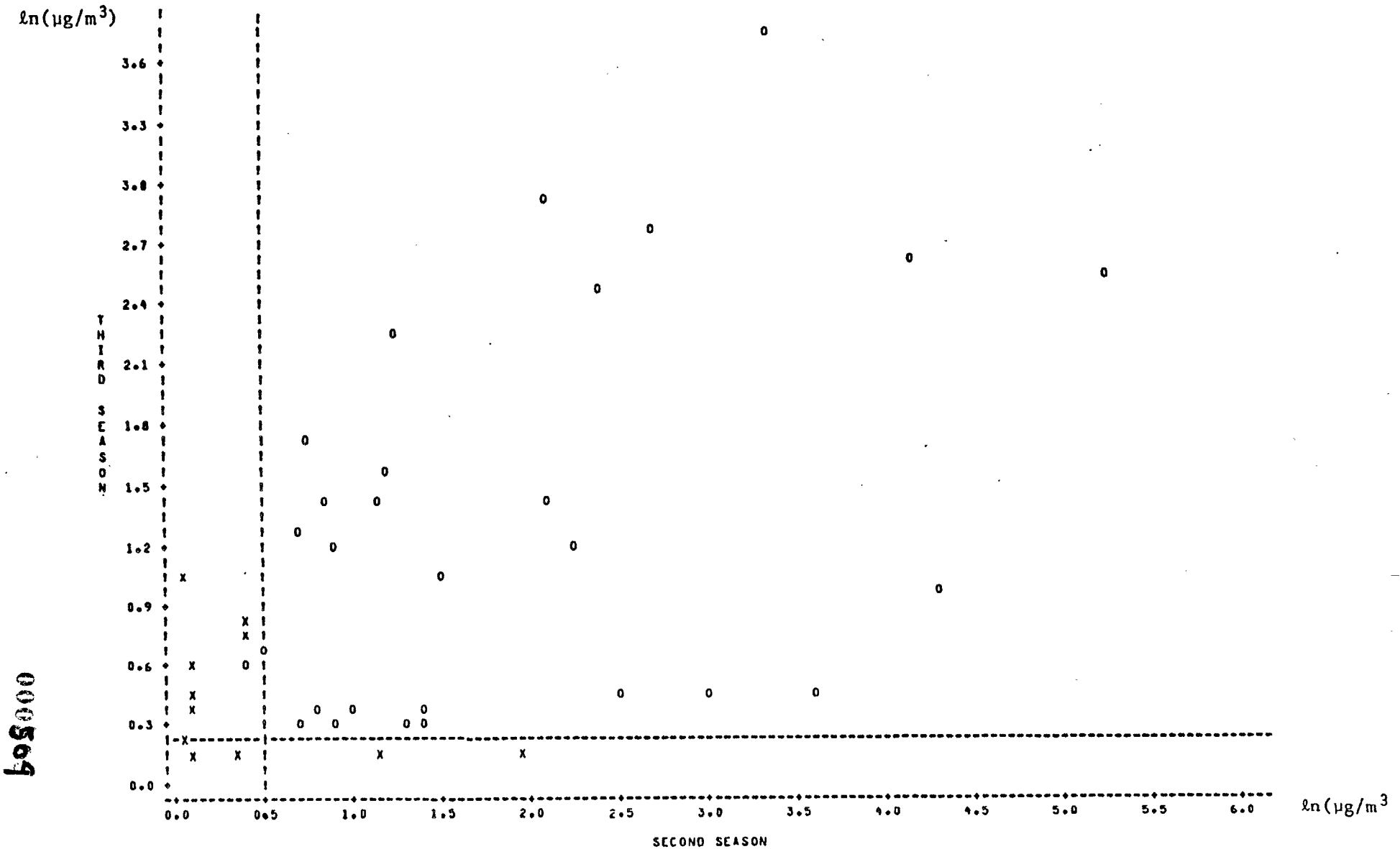

Figure 127. m,p-dichlorobenzene for breath - New Jersey.

006569

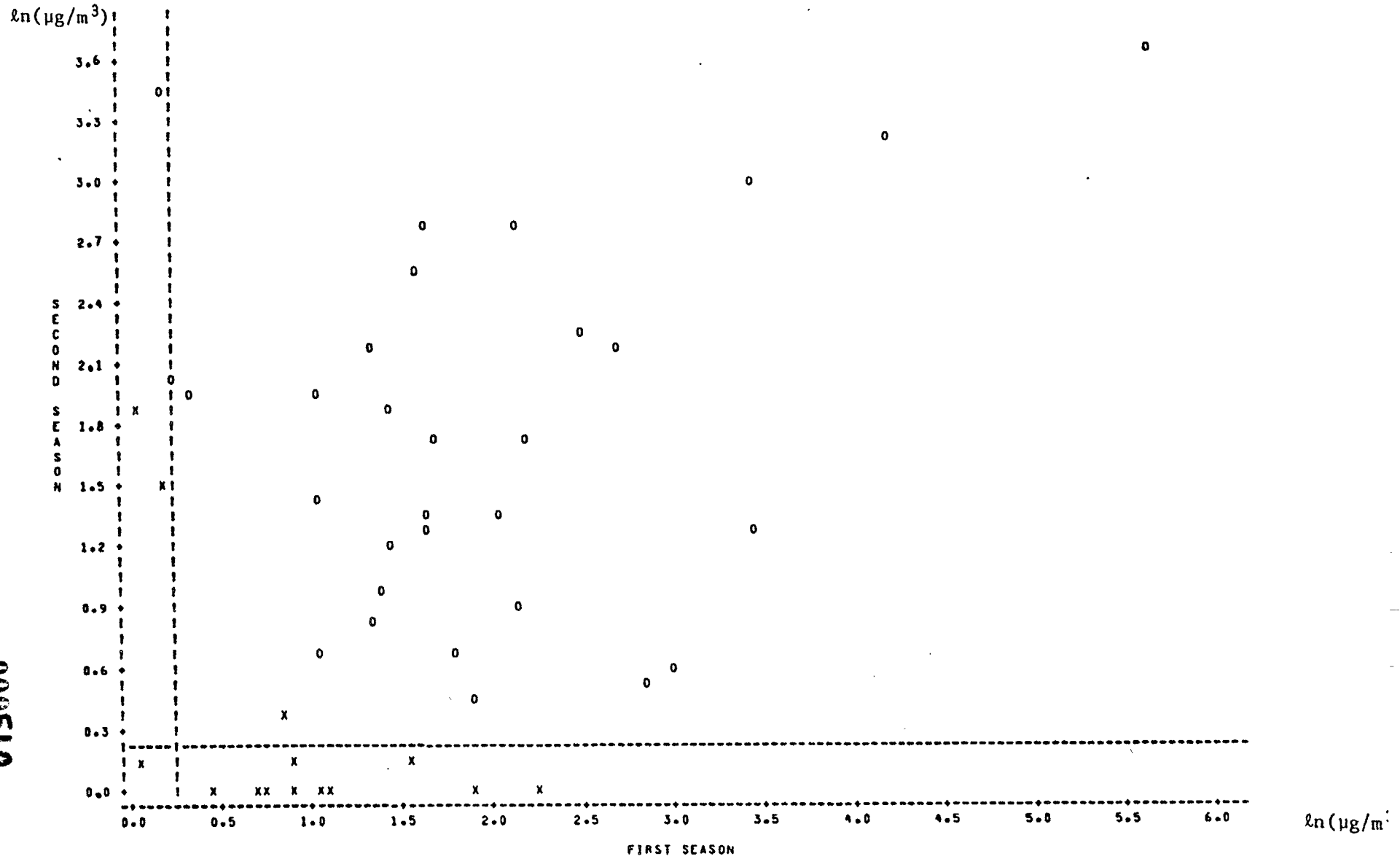

Figure 128. Ethylbenzene for breath - New Jersey.

000510

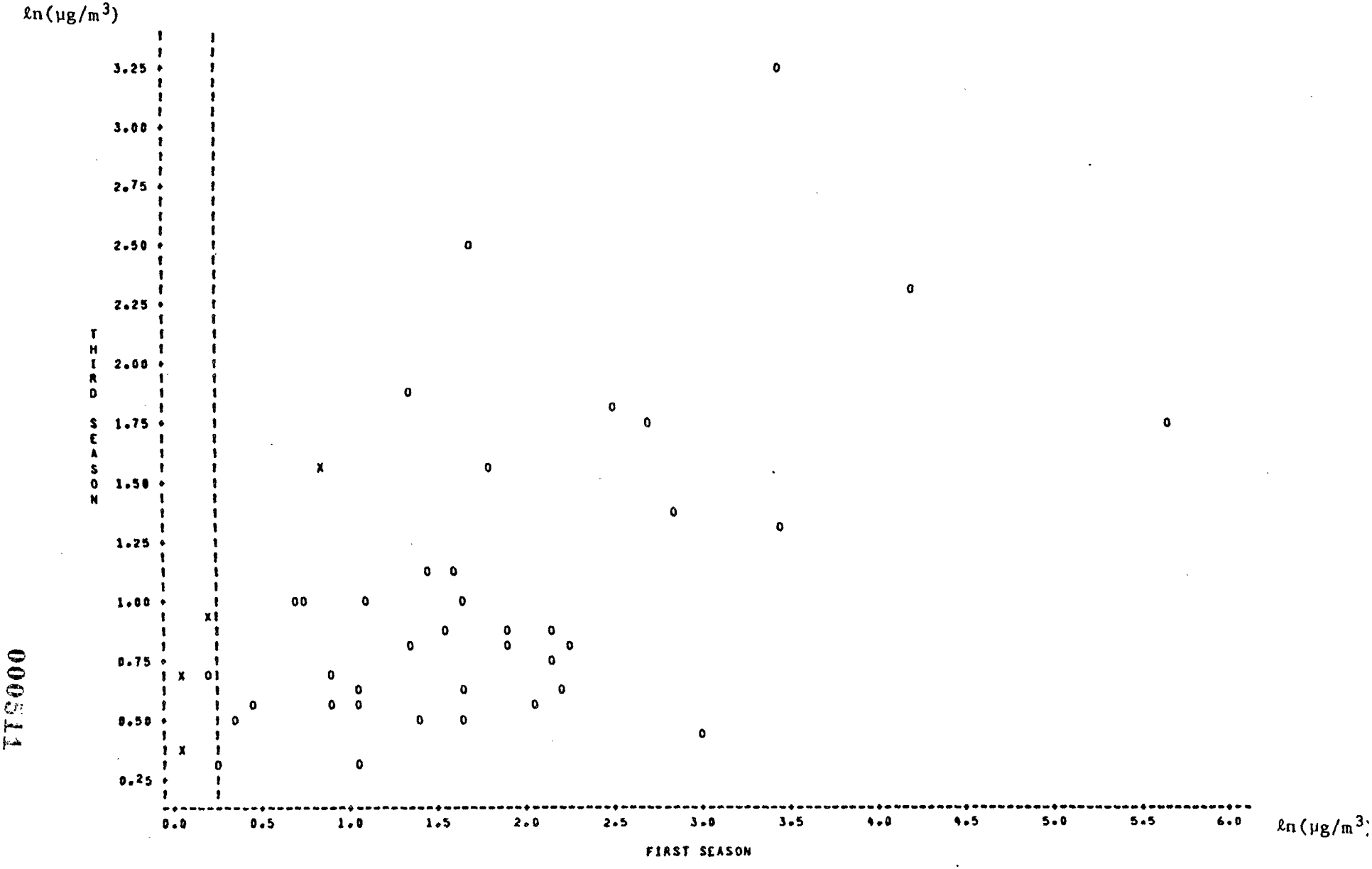

Figure 129. Ethylbenzene for breath - New Jersey.

000511

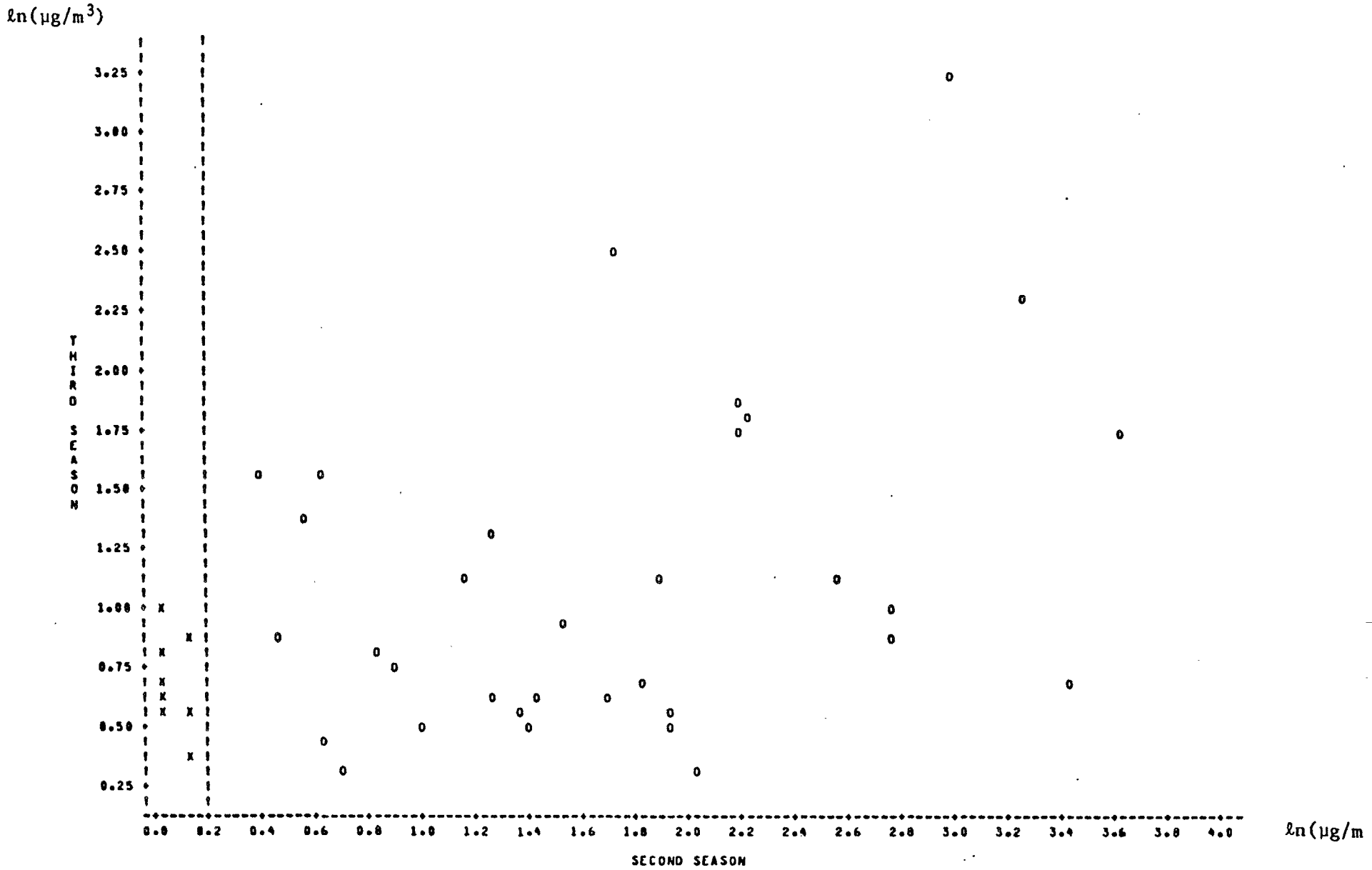

Figure 130. Ethylbenzene for breath - New Jersey.

000512

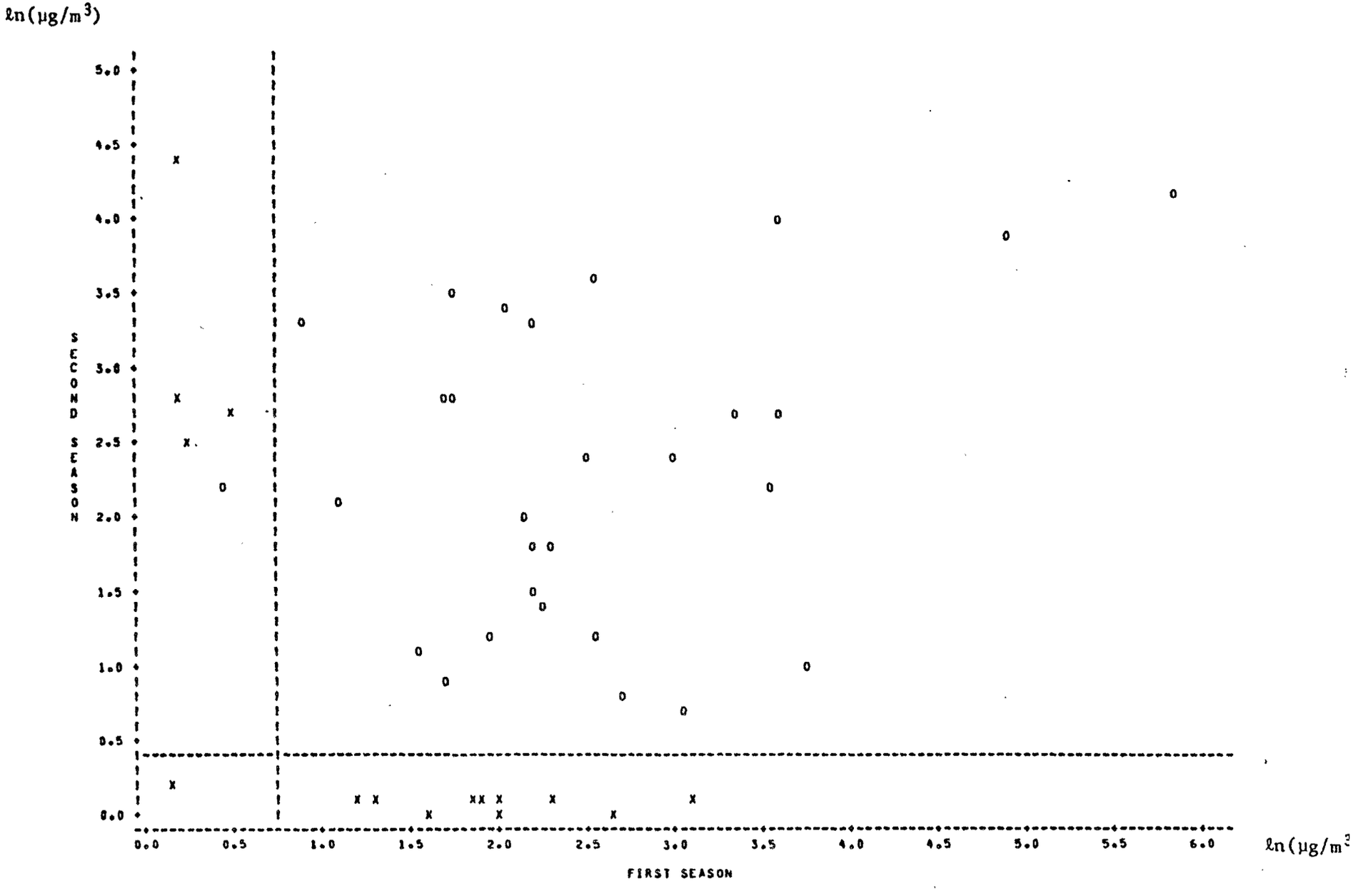

Figure 131. m,p-xylene for breath - New Jersey.

000512

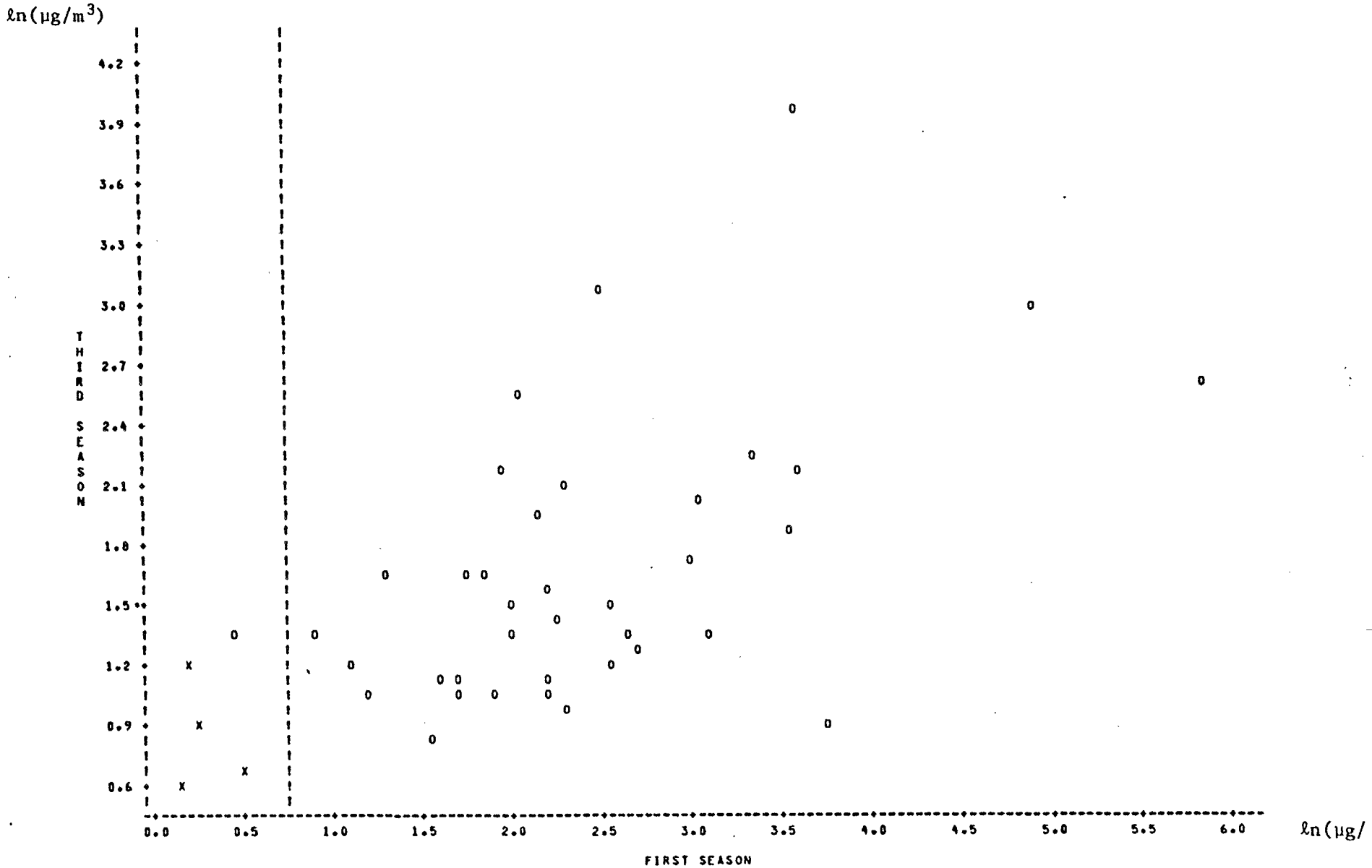

Figure 132. m,p-xylene for breath - New Jersey.

000514

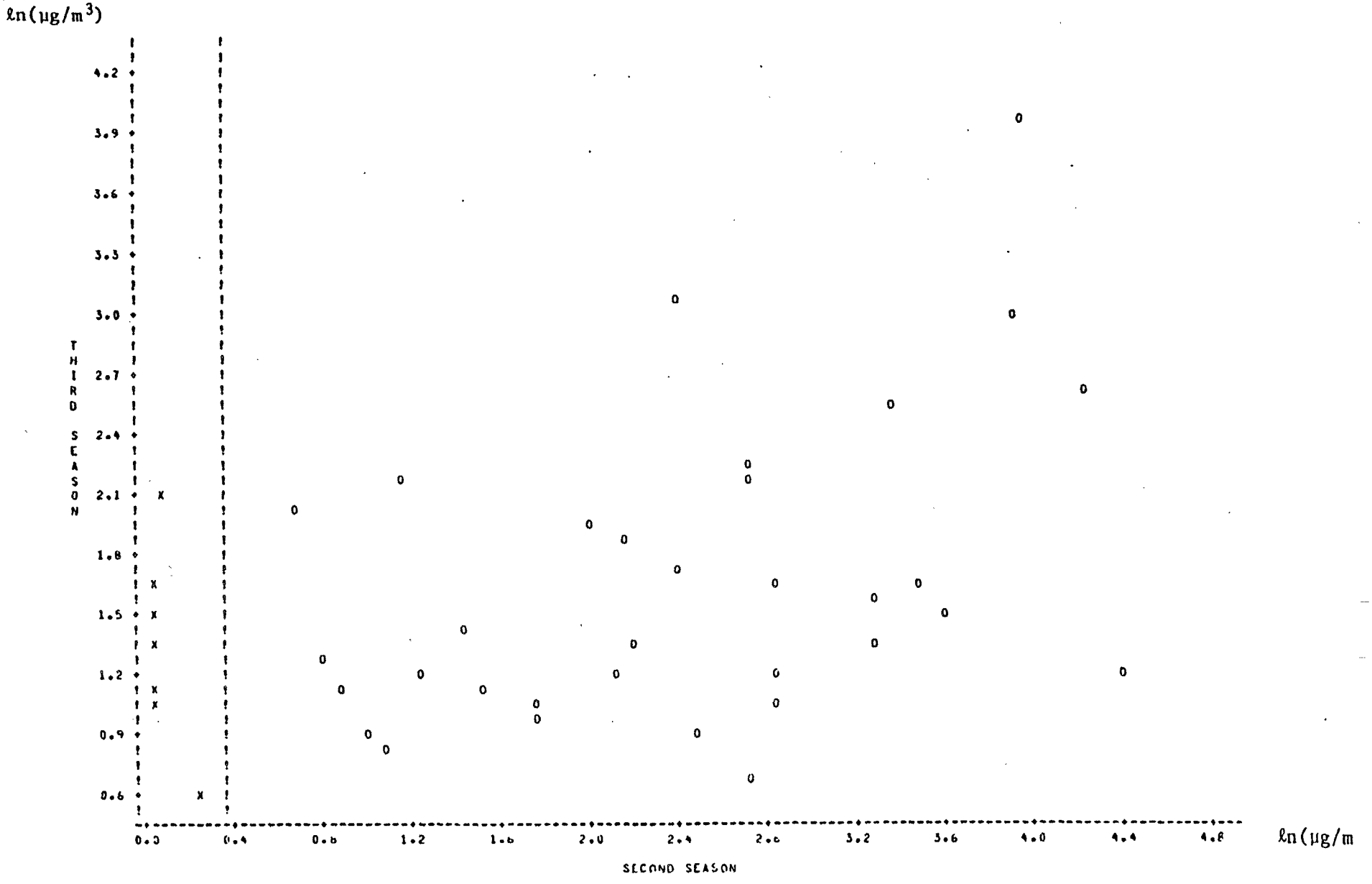

Figure 133. m,p-xylene for breath - New Jersey.

000515

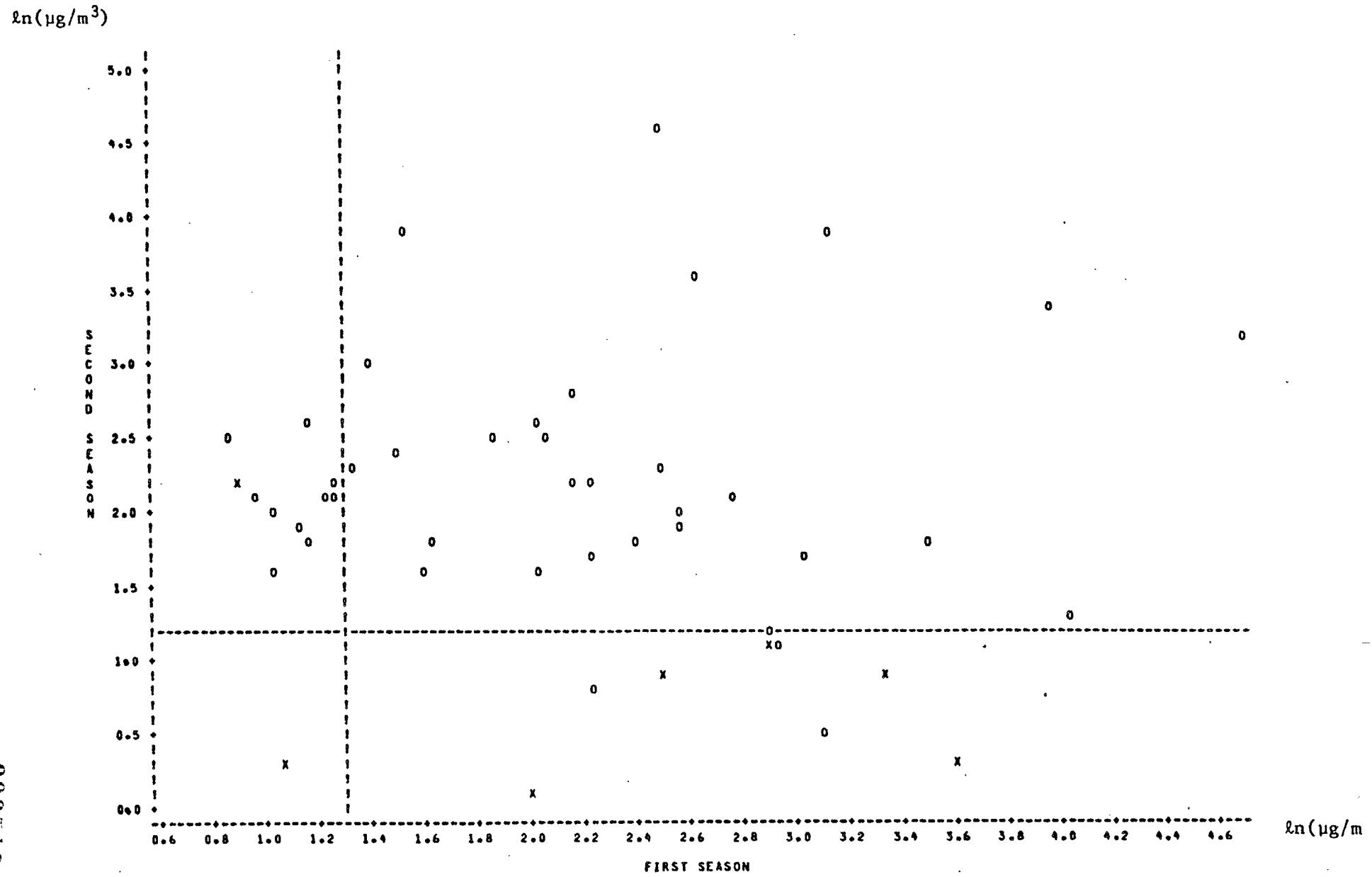

Figure 134. Tetrachloroethylene for overnight personal air - New Jersey.

000516

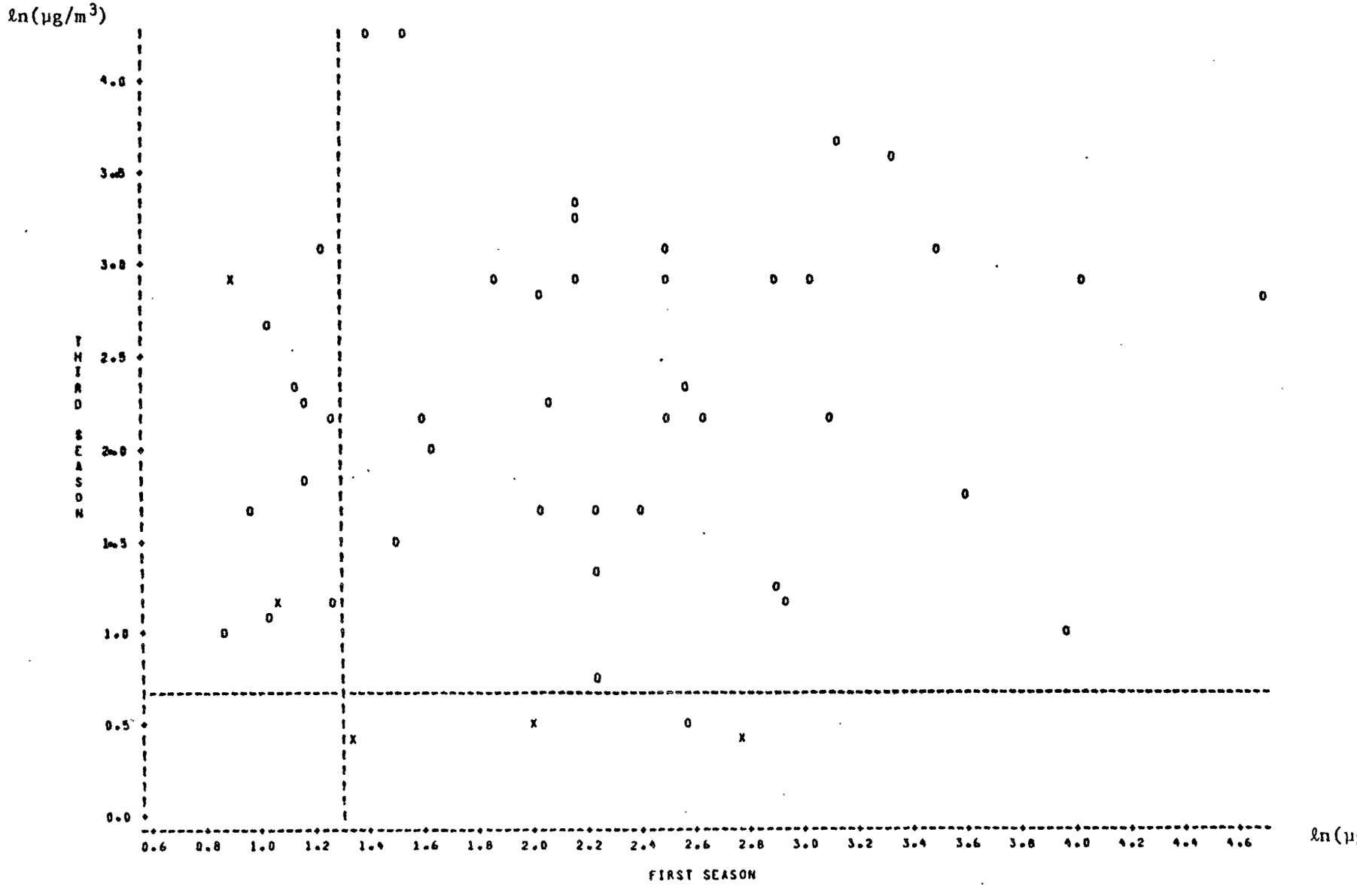

Figure 135. Tetrachloroethylene for overnight personal air - New Jersey.

000517

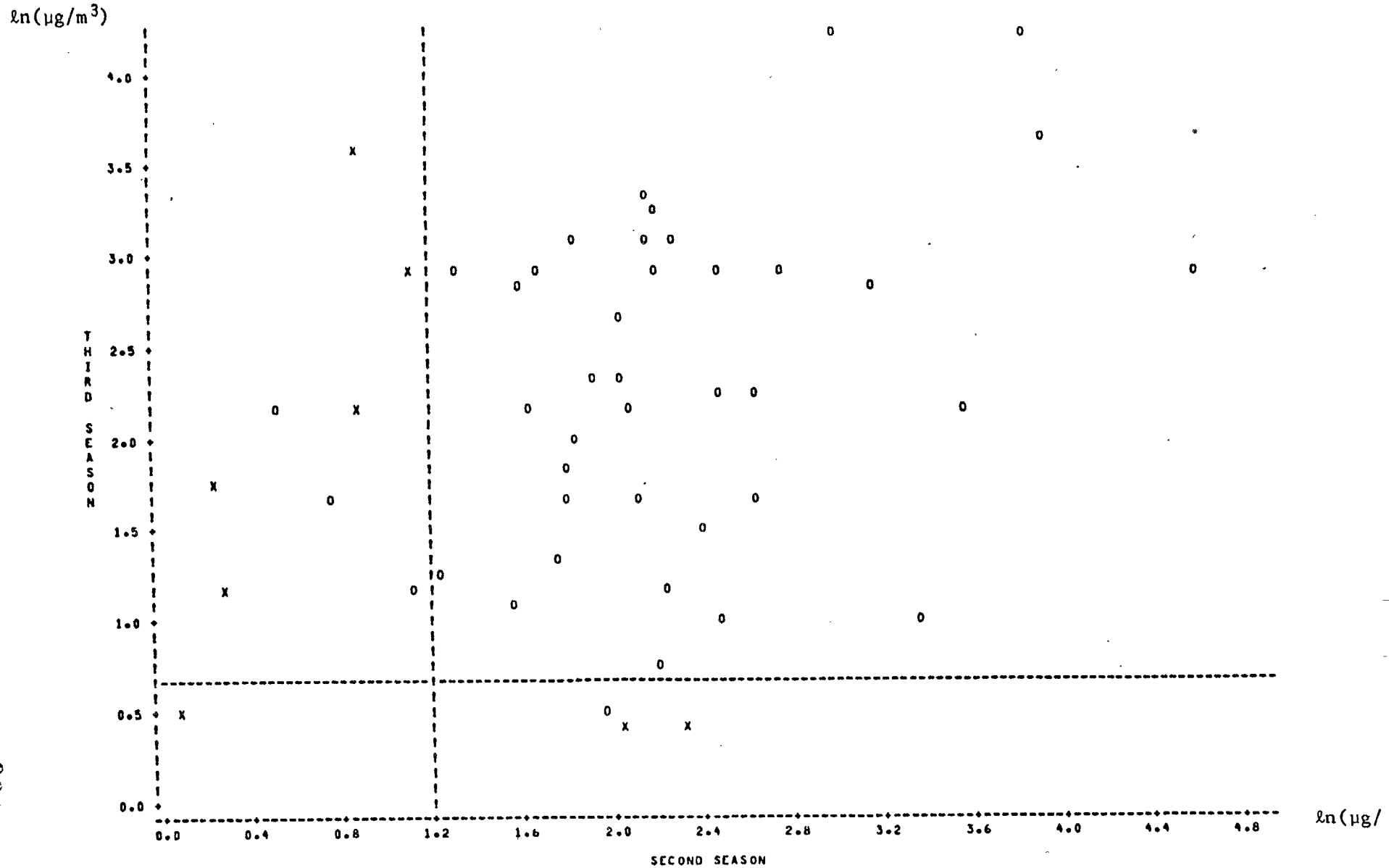

Figure 136. Tetrachloroethylene for overnight personal air - New Jersey.

000518

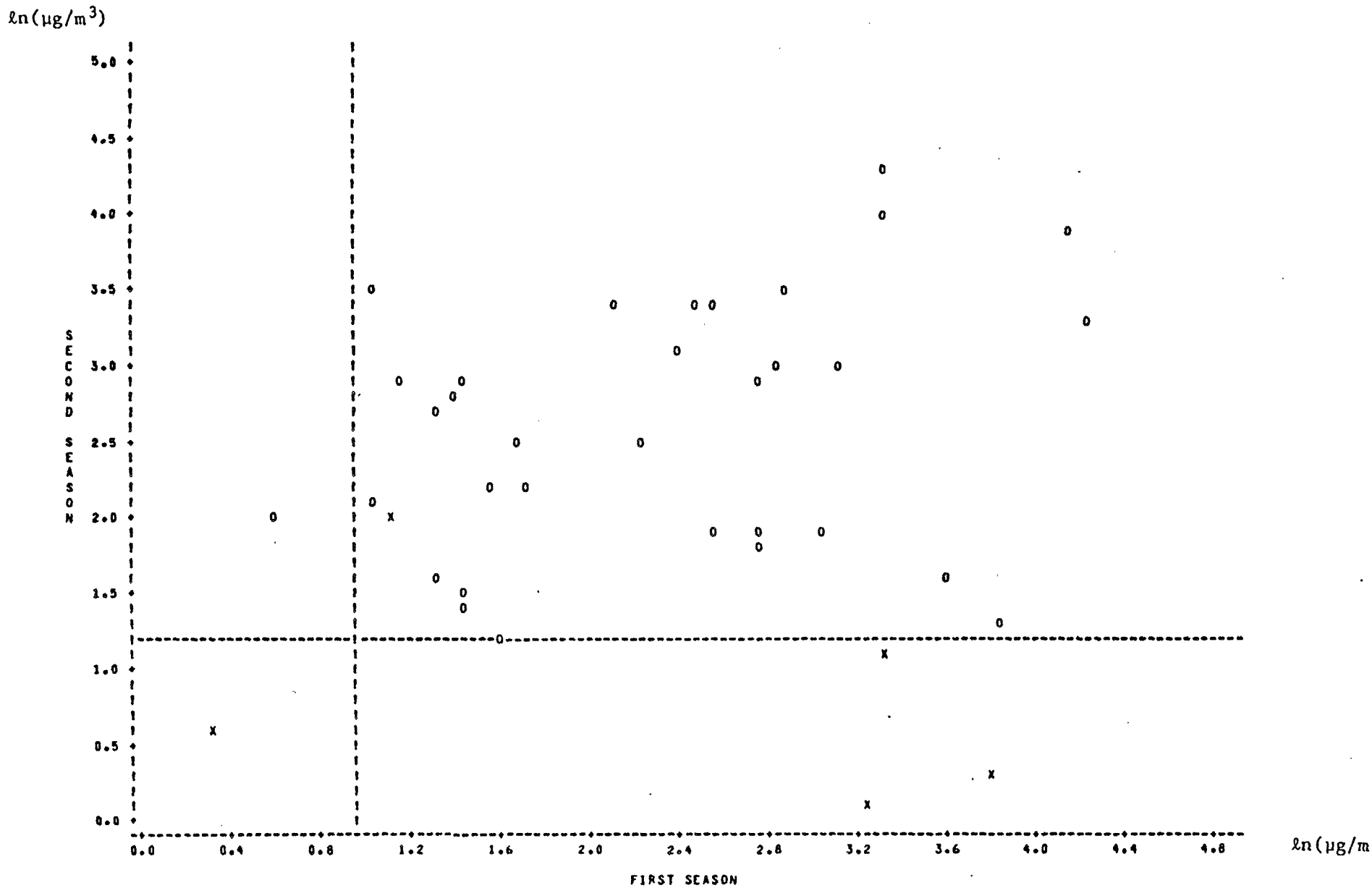

Figure 137. Tetrachloroethylene for daytime personal air - New Jersey.

005519

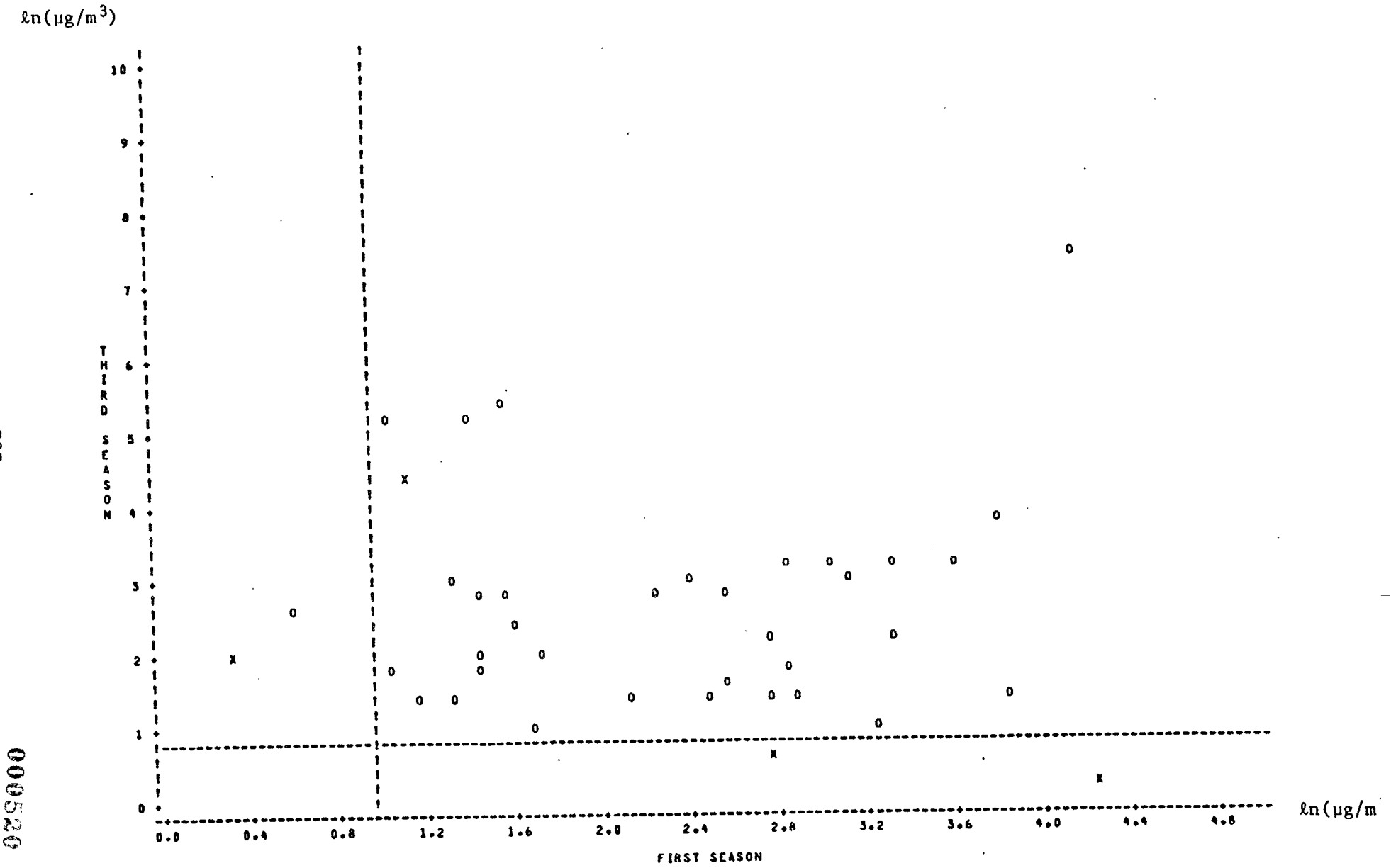

Figure 138. Tetrachloroethylene for daytime personal air - New Jersey.

0005220

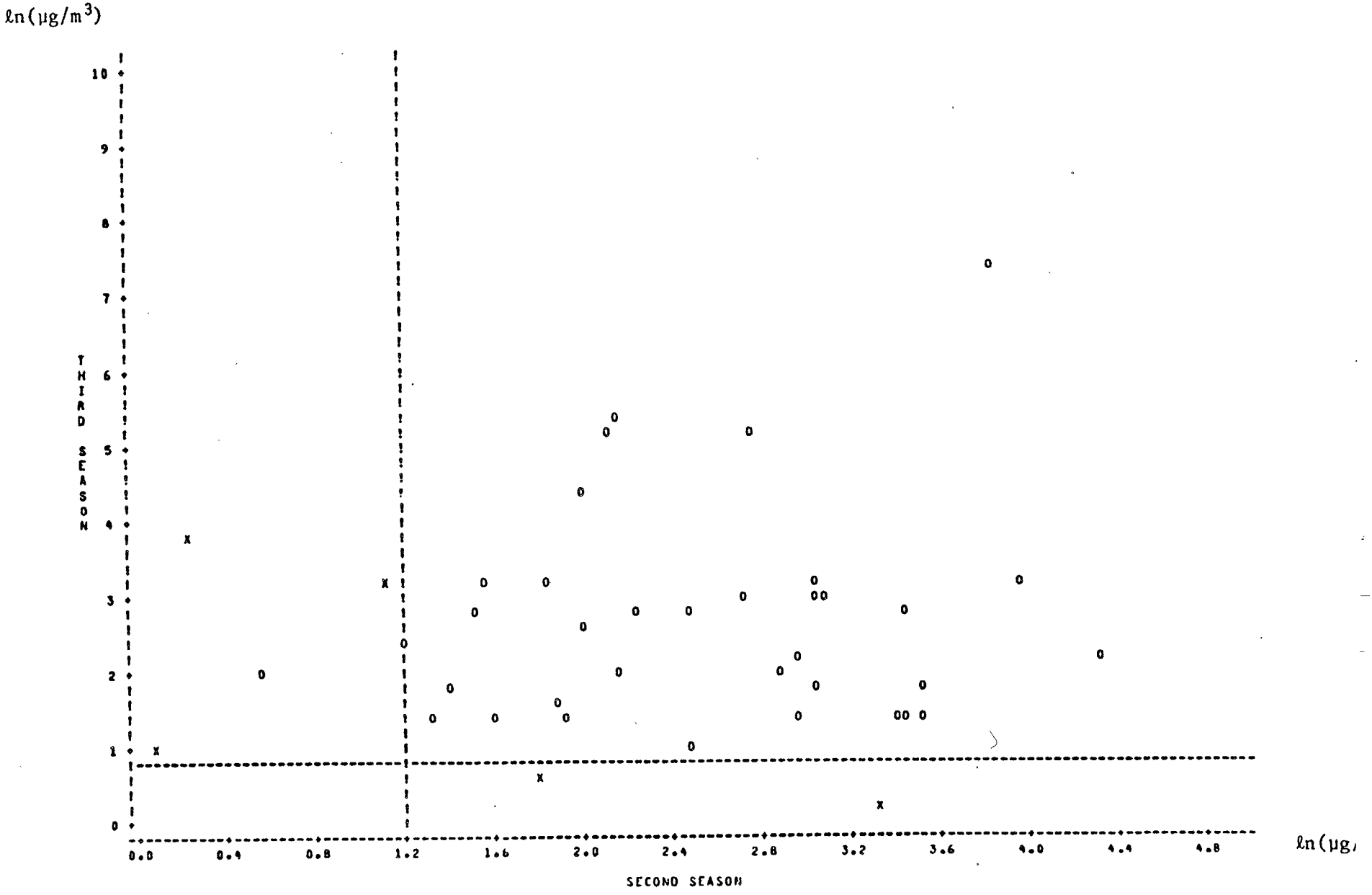

Figure 139. Tetrachloroethylene for daytime personal air - New Jersey.

000521

Table 434. WEIGHTED SUMMARY STATISTICS FOR 24-HOUR EXPOSURE AVERAGED OVER FIRST, SECOND, AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

PERSONAL AIR
Population Estimate: 94,044
Sample Size Range: 37-40

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	Percentiles 75th	90th	95th	Range
Chloroform	5.17	0.27	4.69	1.05	5.15	6.16	8.02	8.71	1.20 - 14.0
1,1,1-Trichloroethane	39.7	7.10	23.1	1.24	24.9	40.7	91.0	91.0	2.75 - 1440
Carbon Tetrachloride	1.79	0.53	1.32	1.20	1.14	1.51	2.74	7.43	0.39 - 14.9
Trichloroethylene	5.22	0.94	4.17	1.20	4.24	5.13	12.5	12.5	1.33 - 23.7
Tetrachloroethylene	17.8	4.37	13.2	1.29	14.0	25.4	35.5	44.2	2.52 - 339.
Styrene	3.22	0.82	2.20	1.11	1.92	3.30	4.90	7.23	0.23 - 30.0
m,p-Dichlorobenzene	49.0	27.0	11.2	1.55	6.57	57.4	91.9	438.	1.10 - 438.
Ethylbenzene	13.0	1.82	9.66	1.09	9.88	14.3	18.2	40.7	2.99 - 222.
o-Xylene	11.8	1.71	8.77	1.11	8.20	16.0	16.9	27.5	2.13 - 304.
m,p-Xylene	34.4	8.13	23.4	1.10	25.0	38.2	45.8	55.0	5.67 - 1990

a/ Arith. S.E. = Standard Error of Arithmetic Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error - exp(s) where s is the standard error of the weighted mean of LN(x).

000522

Table 435. WEIGHTED SUMMARY STATISTICS FOR 24-HOUR EXPOSURE AVERAGED OVER FIRST, SECOND, AND THIRD SEASON SAMPLES ($\mu g/m^3$) - NEW JERSEY

OUTDOOR AIR
Population Estimate: 94,044
Sample Size Range: 6-8

Compound	Arith. Mean	a/ Arith. S.E.	b/ Geo. Mean	c/ Geo. S.E.	Median	75th Percentile	Range
Chloroform	3.39	2.36	1.07	2.49	0.32	3.74	0.29 - 16.1
1,1,1-Trichloroethane	7.90	3.72	5.63	1.56	3.59	7.71	2.37 - 20.0
Carbon Tetrachloride	0.94	0.14	0.90	1.16	0.95	1.34	0.62 - 1.74
Trichloroethylene	5.55	3.38	2.39	2.08	1.21	8.97	0.43 - 15.7
Tetrachloroethylene	7.69	3.90	5.34	1.51	4.42	6.65	1.88 - 20.7
Styrene	0.82	0.24	0.70	1.31	0.67	1.64	0.40 - 1.68
m,p-Dichlorobenzene	1.46	0.33	1.33	1.27	1.39	2.04	0.56 - 2.67
Ethylbenzene	4.08	0.41	3.97	1.10	3.73	5.20	3.34 - 10.1
o-Xylene	4.03	0.52	3.92	1.13	3.60	5.65	3.14 - 6.30
m,p-Xylene	11.9	0.98	11.8	1.09	11.2	13.7	9.24 - 15.3

a/ Arith. S.E. = Standard Error of Arithmetic Mean.
b/ Geo. Mean = Geometric Mean.
c/ Geo. S.E. = Geometric Standard Error = exp(s) where s is the standard error of the weighted mean of LN(x).

000523

GREENSBORO, NORTH CAROLINA AND DEVILS LAKE, NORTH DAKOTA COMPARED

Introduction

Twenty-four respondents in Greensboro, North Carolina were surveyed during May 1982 and twenty-four in Devils Lake, North Dakota during October 1982. Samples were collected for breath, water, overnight personal air and daytime personal air. Five fixed site outdoor air samples were collected from Devils Lake and six from Greensboro. These sample sizes are too small to have any meaningful analysis. Therefore, fixed site outdoor air is not included in this report. Samples were collected and chemically analyzed for twenty-two different volatile compounds.

Percent Detected

The volatiles chloroform, benzene, trichloroethylene, tetrachloroethylene, styrene, m,p-dichlorobenzene, o-xylene and m,p-xylene all showed over fifty percent measurable in breath samples for both sites as shown in Table 436. In addition, 1,1,1-trichloroethane for Devils Lake was over fifty percent measurable. In water samples chloroform and bromodichloromethane showed over fifty percent measurable for both sites. In addition, dibromochloromethane and tetrachloroethylene were over fifty percent for Greensboro. Common to both sites showing over fifty percent for overnight personal air were 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene, ethybenzene, o-xylene, and m,p-xylene. Greensboro also had chloroform, styrene, and benzene showing over fifty percent measurable. Both sites had six common compounds for daytime personal air. They were 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene, ethylbenzene, o-xylene, and m,p-xylene. In addition, benzene was over fifty percent measurable for Greensboro. Over all media, Devils Lake had a total of 25 volatile compounds in excess of fifty percent measurable; while Greensboro had a total of 29.

Toluene, bromoform, 1,2-dichloroethane, carbon tetrachloride, o-dichlorobenzene, and dibromochloropropane showed less than twenty percent measurable over all four media.

Generally, for volatiles, breath, overnight personal air, and daytime personal air showed similar patterns in percentages measurable. Water had its own distinct pattern.

Table 436. WEIGHTED PERCENTAGES OF INDIVIDUALS WITH CONCENTRATIONS MEASURABLE (% above quantifiable limit -- i.e., % measurable)

Volatile	Breath (%) Greensboro (23)[1]	Breath (%) Devils Lake (23)	Water (%) Greensboro (24)	Water (%) Devils Lake (24)
Vinylidene Chloride[2]				
Chloroform	68.4	65.3	92.6	100.
1,2-Dichloroethane	4.37	5.47	0.00	2.29
1,1,1-Trichloroethane	---	84.7	24.0	42.3
Benzene	80.4	96.6	---	0.00
Carbon Tetrachloride	5.38	10.9	3.25	0.00
Trichloroethylene	68.3	51.8	5.21	5.29
Bromodichloromethane	0.00	0.00	92.6	73.1
Dibromochloromethane	0.00	0.00	92.6	18.5 *
Toluene	---	---	---	29.7
Tetrachloroethylene	100.	95.3	74.7	0.00
Chlorobenzene	16.5	44.0 *	0.00	2.29
Bromoform	4.37	0.00	0.00	7.58
Dibromochloropropane	0.00	0.00	---	---
Styrene	63.5	57.0	---	0.00
m,p-Dichlorobenzene	71.5	59.3	0.00	2.29
o-Dichlorobenzene	2.25	7.39	---	---
Ethylbenzene	90.3	80.0	---	0.00
o-Xylene	90.3	65.8	---	---
m,p-Xylene	84.9	80.0	---	0.00

Volatile	Overnight Personal Air (%) Greensboro (24)	Overnight Personal Air (%) Devils Lake (23)	Daytime Personal Air (%) Greensboro (24)	Daytime Personal Air (%) Devils Lake (24)
Vinylidene Chloride				
Chloroform	65.2	22.0	46.8	24.1
1,2-Dichloroethane	13.5	17.3	10.2	8.59
1,1,1-Trichloroethane	72.6	90.6	76.4	79.7
Benzene	65.0	---	55.6	---
Carbon Tetrachloride	6.41	14.0	4.29	7.58
Trichloroethylene	8.46	39.2	37.6	32.7
Bromodichloromethane	0.00	14.0	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00
Toluene	---	---	---	---
Tetrachloroethylene	66.4	73.0	50.0	74.1
Chlorobenzene	0.00	14.0	0.00	7.15
Bromoform	0.00	0.00	0.00	0.00
Dibromochloropropane	0.00	0.00	0.00	0.00
Styrene	57.1	---	41.0	---
m,p-Dichlorobenzene	1.21	0.00	0.90	1.30
o-Dichlorobenzene	0.00	0.00	0.00	10.6
Ethylbenzene	100.	60.1 *	95.0	66.5 *
o-Xylene	100.	90.6 *	95.0	85.0
m,p-Xylene	100.	96.6	95.0	90.8

continued

Table 436. (continued)

Volatile	Ratios (Greensboro/Devils Lake) Breath	Water	Overnight Personal Air	Daytime Personal Air
Vinylidene Chloride		---		
Chloroform	1.05	0.93	2.96	1.94
1,2-Dichloroethane	0.80	0.00	0.78	1.19
1,1,1-Trichloroethane	---	0.57	0.80	0.96
Benzene	0.83	---	---	---
Carbon Tetrachloride	0.49	---	0.46	0.57
Trichloroethylene	1.32	0.98	0.22	1.15
Bromodichloromethane	---	1.27	0.00	---
Dibromochloromethane	---	5.01	---	---
Toluene	---	---	---	---
Tetrachloroethylene	1.05	---	0.91	0.68
Chlorobenzene	0.37	0.00	0.00	0.00
Bromoform	---	0.00	---	---
Dibromochloropropane	---	---	---	---
Styrene	1.08	---	---	---
m,p-Dichlorobenzene	1.21	0.00	0.90	1.30
o-Dichlorobenzene	0.30	---	---	0.00
Ethylbenzene	1.13	---	1.66	1.43
o-Xylene	1.37	---	1.10	1.12
m,p-Xylene	1.06	---	1.03	1.05

1/ Sample Size.
2/ Vinylidene Chloride is not reported for air and breath due to low breakthrough volume.
* T-test for difference in % detected significant at .05 level or less.
--- Indicates compound was missing for this media and site.

000526

The ratios in Table 436 were obtained by dividing the Greensboro value by the Devils Lake value. Of the 13 values computed for breath, 8 were greater than one. Of the five obtained for water, 2 were greater than one, but of the remaining three, 2 were greater than 0.90. Of the ten ratios calculated for overnight personal air, 4 were greater than one. Ten ratios were obtained for daytime personal air. Eight were greater than one. Excluding water, 4 volatile ratios were greater than one for the 3 remaining media. The volatiles were chloroform, ethylbenzene, o-xylene and m-p-xylene.

There was a significant difference between percent detected at the p = .05 level for chlorobenzene for breath. The same was true for dibromochloromethane for water; ethylbenzene and o-xylene for overnight personal air and ethylbenzene for daytime personal air.

Summary Statistics

Tables 437 through 440 give the weighted summary statistics for those volatile compounds whose weighted percentages with measurable concentrations were greater than twenty percent. The tables were organized by media with both sites on the same page for easier comparisons.

Figures 140 through 146 show the 75th percentiles and the medians for both Devils Lake and Greensboro for the various volatile compounds by media.

Table 437 contains the statistics for breath for Greensboro and Devils Lake. Benzene, tetrachloroethylene, m,p-dichlorobenzene, and m,p-xylene showed relatively large arithmetic means, ranges, and geometric means. Ethylbenzene showed a relatively large geometric mean also. The largest arithmetic means, medians, geometric means, and ranges for breath for Devils Lake were 1,1,1-trichloroethane, benzene, tetrachloroethylene, ethylbenzene, and m,p-xylene. Of the above, m,p-dichlorobenzene was unique to Greensboro; and 1,1,1-trichloroethane and ethylbenzene were unique to Devils Lake.

For Greensboro the three highest medians were benzene, tetrachloroethylene, and m,p-xylene. For Devils Lake the top three were benzene, 1,1,1-trichloroethane, and tetrachloroethylene. The top two geometric means for Greensboro were tetrachloroethylene and benzene. The top four geometric means for Devils Lake were the same as the arithmetic means.

Table 437. WEIGHTED SUMMARY STATISTICS FOR BREATH SAMPLES FOR GREENSBORO ($\mu g/m^3$)

Sample Size = 23
Estimated Population = 130,901

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	0.36	2.58	1.67	0.67	1.22	0.48	0.04- 35.0
Benzene	0.28	19.3 *	2.72	15.0	24.0	5.27	0.03- 96.0
Trichloroethylene	0.48	1.67	0.78	0.54	1.20	0.50	0.05- 11.1
Tetrachloroethylene	--- 1/	9.87	1.51	3.90	18.0	5.92	1.10- 39.0
Chlorobenzene	0.24	0.45	0.37	0.04	0.13	0.07*	0.02- 8.01
Styrene	0.26	0.72	0.10	0.40	1.40	0.33	0.03- 2.90
m,p-Dichlorobenzene	0.28	5.74	3.62	1.25	4.80	1.12	0.04- 54.0
Ethylbenzene	0.29	2.47	0.39	1.50	3.18	1.50*	0.16- 13.0
o-Xylene	0.28	2.69	0.68	1.20	2.40	1.14	0.03- 14.4
m,p-Xylene	0.26	5.88	1.28	3.80	6.20	2.42	0.03- 35.0

WEIGHTED SUMMARY STATISTICS FOR BREATH SAMPLES FOR DEVILS LAKE ($\mu g/m^3$)

Sample Size = 23
Estimated Population = 6,163

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	0.48	3.45	0.57	2.90	4.40	0.91	0.05- 19.0
1,1,1-Trichloroethane	0.48	30.4	3.62	9.30	28.0	5.73	0.06-680.
Benzene	0.22	60.1 *	1.84	55.5	82.0	22.3	0.03-230.
Trichloroethylene	0.68	2.52	1.47	0.89	4.80	0.61	0.08- 16.0
Tetrachloroethylene	2.04	16.6	3.06	8.00	20.0	8.92	0.26-170.
Chlorobenzene	0.68	2.54	1.60	0.48	3.00	0.55*	0.08- 27.0
Styrene	0.48	2.05	1.13	0.52	3.50	0.75	0.06- 11.0
m,p-Dichlorobenzene	0.74	2.09	0.72	0.82	1.80	0.86	0.10- 27.0
Ethylbenzene	0.25	8.44	4.39	1.40	9.90	1.68*	0.03- 62.0
o-Xylene	0.44	6.80	2.87	2.70	7.60	1.42	0.05- 42.0
m,p-Xylene	0.49	13.8	6.00	4.50	17.0	3.08	0.05- 84.0

1/ Indicates all values are measurable.
* T-test for difference in means significant at .05 level.

000528

Table 440 shows the ratios (Greensboro/Devils Lake) for all media for means, median, geometric means, and the maximum value. For breath only m,p-dichlorobenzene was greater than one for all four cases.

The only significant difference between the arithmetic means was for benzene and for the geometric means were for chlorobenzene and ethylbenzene.

Figures 140 and 141 for breath clearly show the values for almost all compounds for both the 75th percentiles and the medians to be higher for Devils Lake than for Greensboro. The only exceptions were the medians for m,p-dichlofobenzene and ethylbenzene. Even here the difference was slight.

Table 438 contains the weighted summary statistics for water for both Greensboro and Devils Lake. All statistics except for median QL for Greensboro were largest for chloroform and dibromochloromethane. The largest for Devils Lake were chloroform and toluene. Tetrachloroethylene was unique to Greensboro and toluene is unique to Devils Lake.

Of the volatiles common to both sites, chloroform, 1,1,1-trichloroethane, bromodichloromethane, and dibromochloromethane, Greensboro's arithmetic mean, median, geometric mean, and range was as large, if not larger, than Devils Lake. All the ratios for chloroform, bromodichloromethane, and dibromochloromethane for water were much larger than one as shown in Table 441. Their range was from 4.13 to a high of 92.5.

Figure 142 shows the 75th percentiles and medians for both sites for water. Of the four chemicals shown, Greensboro had much higher concentrations for chloroform and bromodichloromethane. The remaining two chemicals were about equal.

Both chloroform and bromochloromethane showed a significant difference between the arithmetic means and the geometric means.

Table 439 shows the weighted summary statistics for overnight personal air for both sites. The four highest arithmetic means, ranges, and geometric means for Greensboro were 1,1,1-trichloroethane, benzene, m,p-dichlorobenzene, and m,p-xylene. Tetrachloroethylene and o-xylene also had fairly large arithmetic means, geometric means, and medians. Benzene and styrene were unique to Greensboro. Devils Lake highest arithmetic means, medians, geometric means, and ranges were 1,1,1-trichloroethane, tetrachloroethylene, m,p-dichlorobenzene, and m,p-xylene.

000529

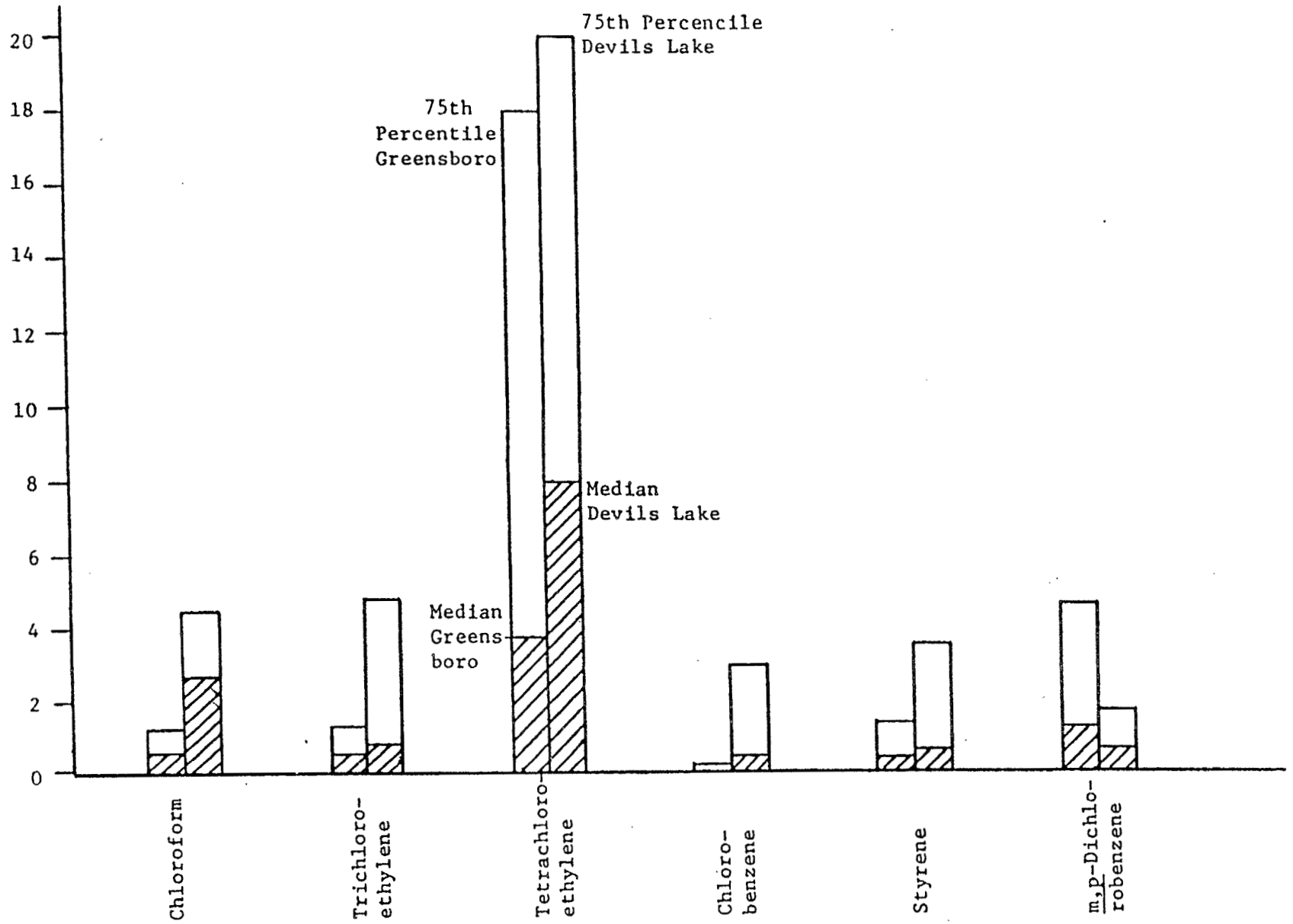

Figure 140. 75th percentiles and medians compared for Devils Lake and Greensboro for breath.

000530

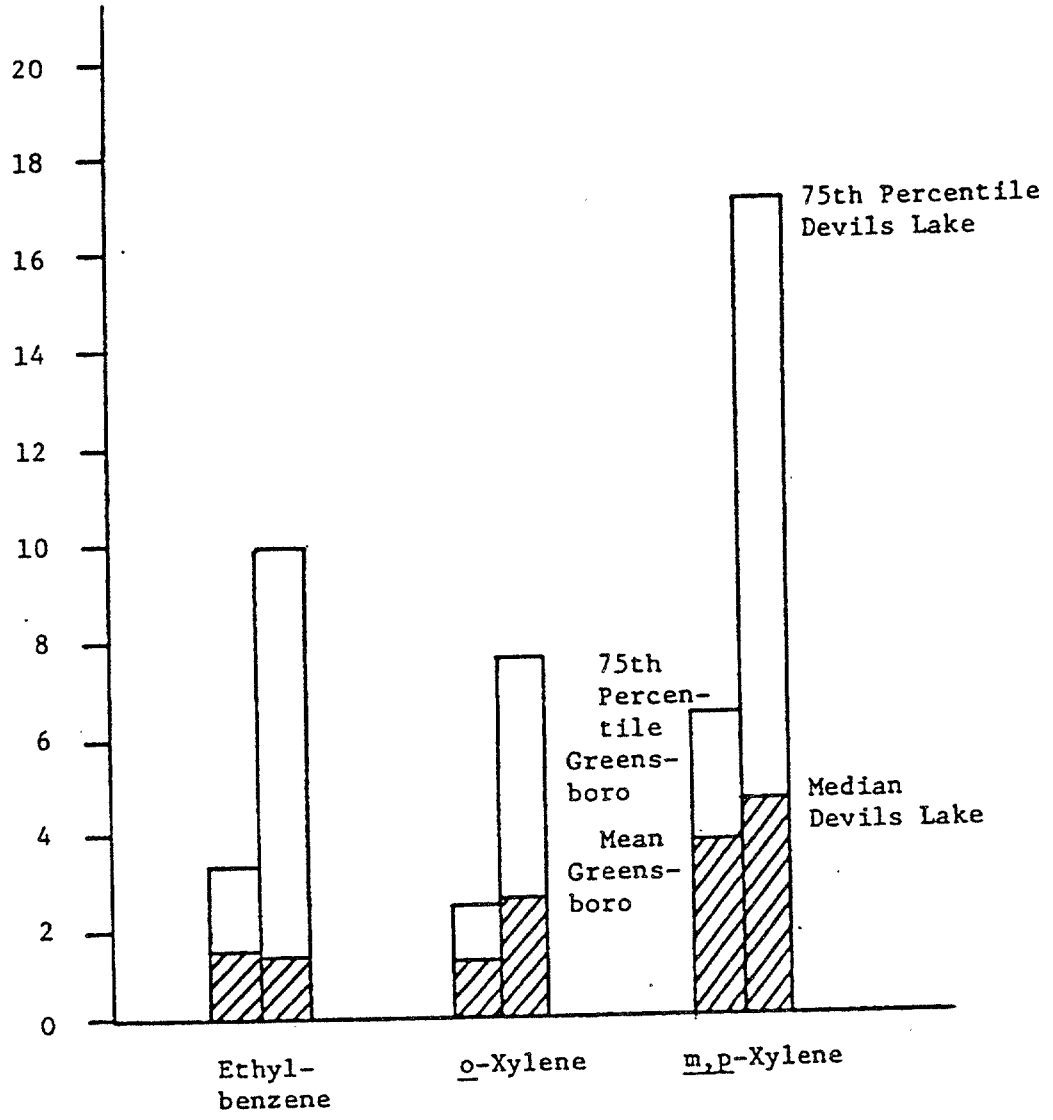

Figure 141. Percentiles and medians compared for Devils Lake and Greensboro for breath.

000531

Table 438. WEIGHTED SUMMARY STATISTICS FOR WATER SAMPLES FOR GREENSBORO (μg/mL)

Sample Size = 24
Estimated Population = 130,901

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	0.05	42.6 *	6.10	43.8	55.6	24.6 *	0.03- 90.6
1,1,1-Trichloroethane	0.05	0.03	0.01	0.03	0.03	0.03	0.03- 0.05
Bromodichloromethane	0.10	7.11*	0.62	7.81	9.16	5.18*	0.06- 11.4
Dibromochloromethane	0.10	1.19*	0.12	1.21	1.51	1.00	0.06- 1.86
Tetrachloroethylene	0.05	0.13	0.06	0.07	0.17	0.08	0.03- 0.64

WEIGHTED SUMMARY STATISTICS FOR WATER SAMPLES FOR DEVILS LAKE (μg/mL)

Sample Size = 24
Estimated Population = 6,163

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	--- 1/	0.46*	0.06	0.38	0.51	0.38*	0.12- 1.39
1,1,1-Trichloroethane	0.05	0.04	0.01	0.03	0.04	0.04	0.03- 0.07
Bromodichloromethane	0.10	0.21*	0.03	0.18	0.25	0.16*	0.06- 1.02
Dibromochloromethane	0.10	0.09*	0.01	0.06	0.06	0.08	0.06- 0.45
Toulene	0.50	0.59	0.14	0.31	0.40	0.44	0.31- 3.16

1/ Indicates all values are measurable (100% above Max QL).
* T-test for difference in means significant at .05 level.

000532

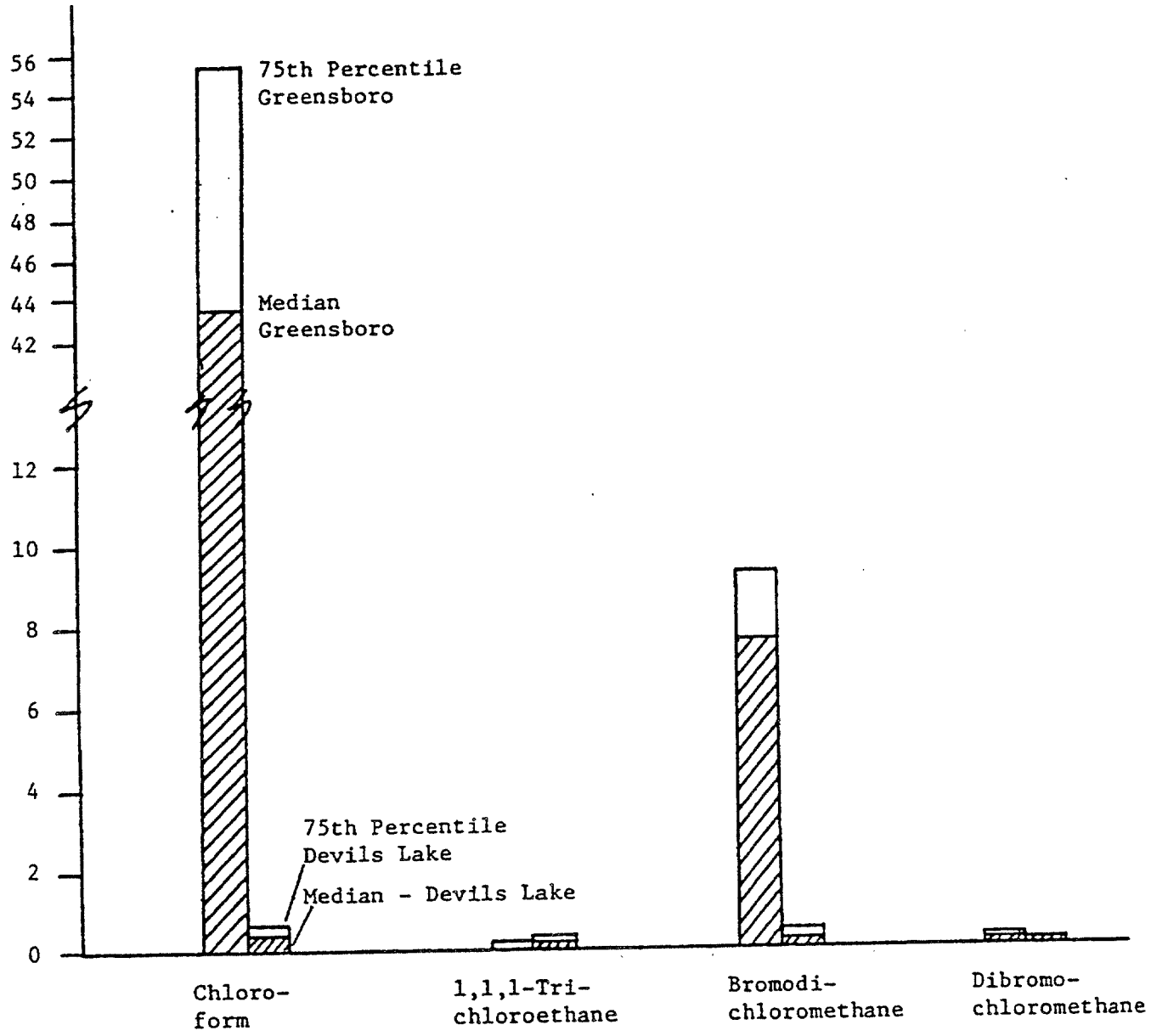

Figure 142. 75th percentiles and medians compared for Greensboro and Devils Lake for water.

000533

Table 439. WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR SAMPLES FOR GREENSBORO ($\mu g/m^3$)

Sample Size = 24
Estimated Population = 130,901

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	1.16	2.35*	0.47	2.60	3.30	1.35*	0.13- 5.50
1,1,1-Trichloroethane	2.88	38.7	13.1	24.0	75.0	10.2	0.29-110.
Benzene	0.64	10.2	1.87	12.0	16.0	2.23	0.06- 43.0
Trichloroethylene	2.20	1.32	0.41	0.99	1.63	0.76	0.21- 8.70
Tetrachloroethylene	2.10	6.24	2.42	2.50	5.10	3.28	1.13- 57.0
Chlorobenzene	1.20	0.28	0.05	0.17	0.20	0.21	0.12- 1.13
Styrene	0.55	1.18	0.27	0.55	2.35	0.69	0.06- 3.10
m,p-Dichlorobenzene	0.96	11.9	6.18	2.90	7.50	3.61	0.12- 72.0
Ethylbenzene	--- 1/	4.93	1.02	2.10	7.40	3.03*	0.68- 20.0
o-Xylene	---	6.83	1.11	3.60	10.0	4.35	0.82- 26.0
m,p-Xylene	---	13.2	3.04	6.30	18.0	8.24	1.80- 62.0

WEIGHTED SUMMARY STATISTICS FOR OVERNIGHT PERSONAL AIR SAMPLES FOR DEVILS LAKE ($\mu g/m^3$)

Sample Size = 23
Estimated Population = 6,163

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	0.94	0.76*	0.28	0.56	0.75	0.38*	0.11- 2.80
1,1,1-Trichloroethane	2.00	117.	87.9	37.0	82.0	25.5	0.25-1100.
Trichloroethylene	1.08	5.52	4.78	0.75	3.50	0.86	0.12- 32.0
Tetrachloroethylene	2.00	11.9	8.60	4.70	20.0	5.02	0.25- 45.0
Chlorobenzene	1.10	1.48	0.99	0.63	0.75	0.52	0.12- 7.90
m,p-Dichlorobenzene	0.79	10.6	7.70	1.30	5.20	2.28	0.49-230.
Ethylbenzene	0.66	2.83	0.28	2.75	4.50	1.22*	0.08- 11.0
o-Xylene	0.48	4.32	0.04	2.90	5.80	2.63	0.07- 19.0
m,p-Xylene	0.56	10.5	0.32	6.00	15.0	5.83	0.07- 40.0

1/ Indicates all values are measurable (100% above Max QL).
* T-test for difference in means significant at .05 level.

000534

O-xylene also had a relatively large value for arithmetic mean, median, and geometric mean.

The ratio for the arithmetic mean, median, geometric mean, and the maximum values were greater than one for chloroform, m,p-dichlorobenzene, o-xylene, m,p-xylene, and ethylbenzene as shown in Table 441.

The only significant difference between arithmetic means was for chloroform and for the geometric means was for chloroform and ethylbenzene.

Figures 143 and 144 give the 75th percentiles and medians for both sites for overnight personal air. Of the nine chemicals reported, Greensboro was higher for chloroform, m,p-dichlorobenzene, ethylbenzene, o-xylene, and m,p-xylene.

So far, for both sites from all three media, breath, water and overnight personal air, the levels of the compounds have been similar for each media, i.e., if a volatile was high for one site it tended to be high for both sites.

Daytime personal air weighted summary statistics for both sites were given in Table 440. For Greensboro 1,1,1-trichloroethane had by far the largest values for arithmetic mean, standard error, median, 75th percentile, geometric mean, and range. M,p-xylene showed a fairly large median and geometric mean. The largest arithmetic means, geometric means, and ranges for Devils Lake were for 1,1,1-trichloroethane, tetrachoroethylene, o-xylene and m,p-xylene. Benzene and styrene were unique to Greensboro while chlorobenzene was unique to Devils Lake. The two sites were not quite as similar for daytime personal air as they were for the other three media.

There are no significant differences between the means.

Figures 145 and 146 show the 75th percentiles and medians for both sites for daytime personal air. Greensboro was higher for all chemicals except for the median for tetrachloroethylene and the 75th percentile for ethylbenzene.

Table 441 shows the ratios between sites for the arithmetic mean, median, geometric mean and the maximum value were greater than one for 1,1,1-trichloroethane and trichloroethylene.

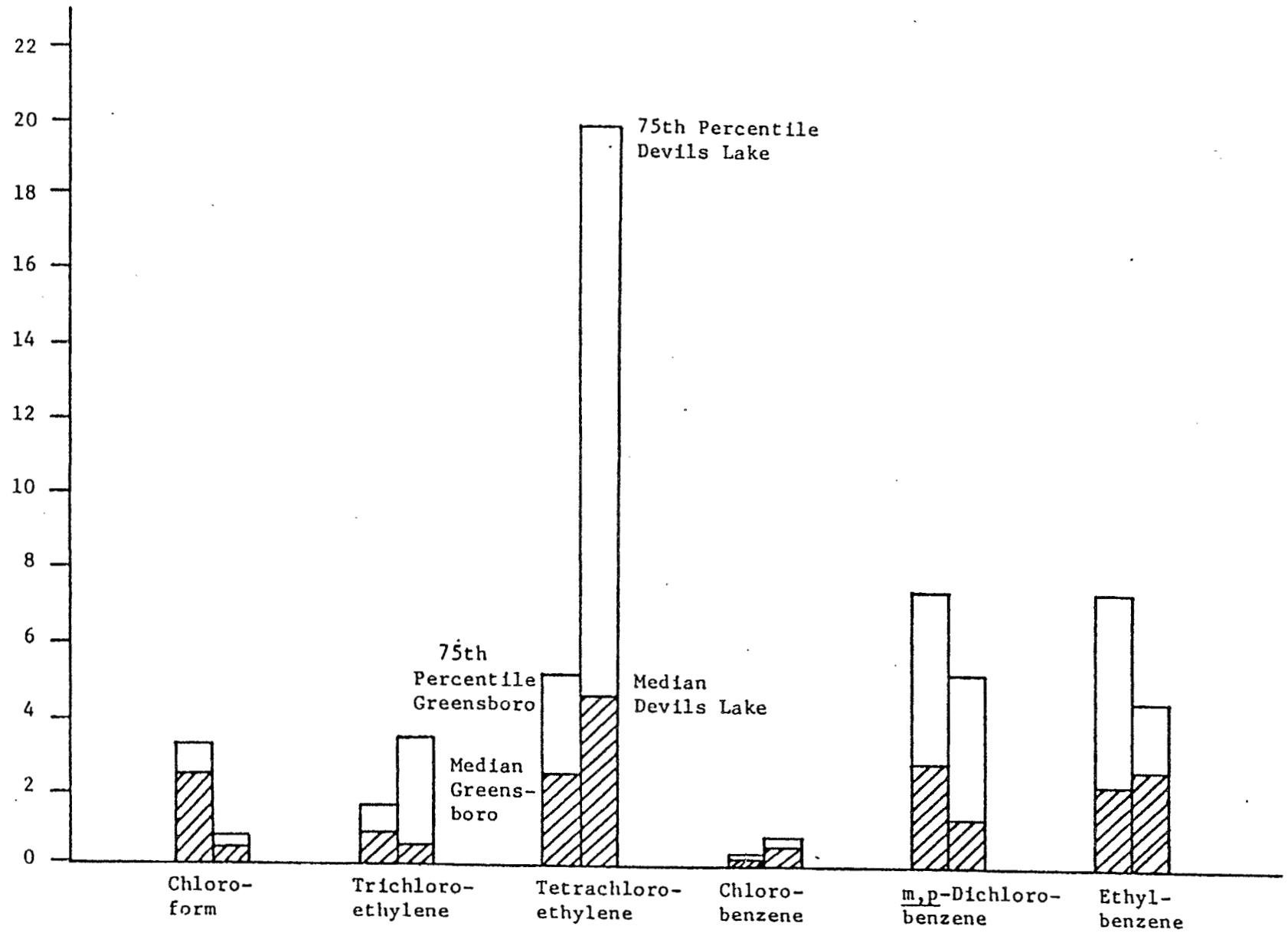

Figure 143. 75th percentiles and medians compared for Greensboro and Devils Lake for overnight personal air.

000536

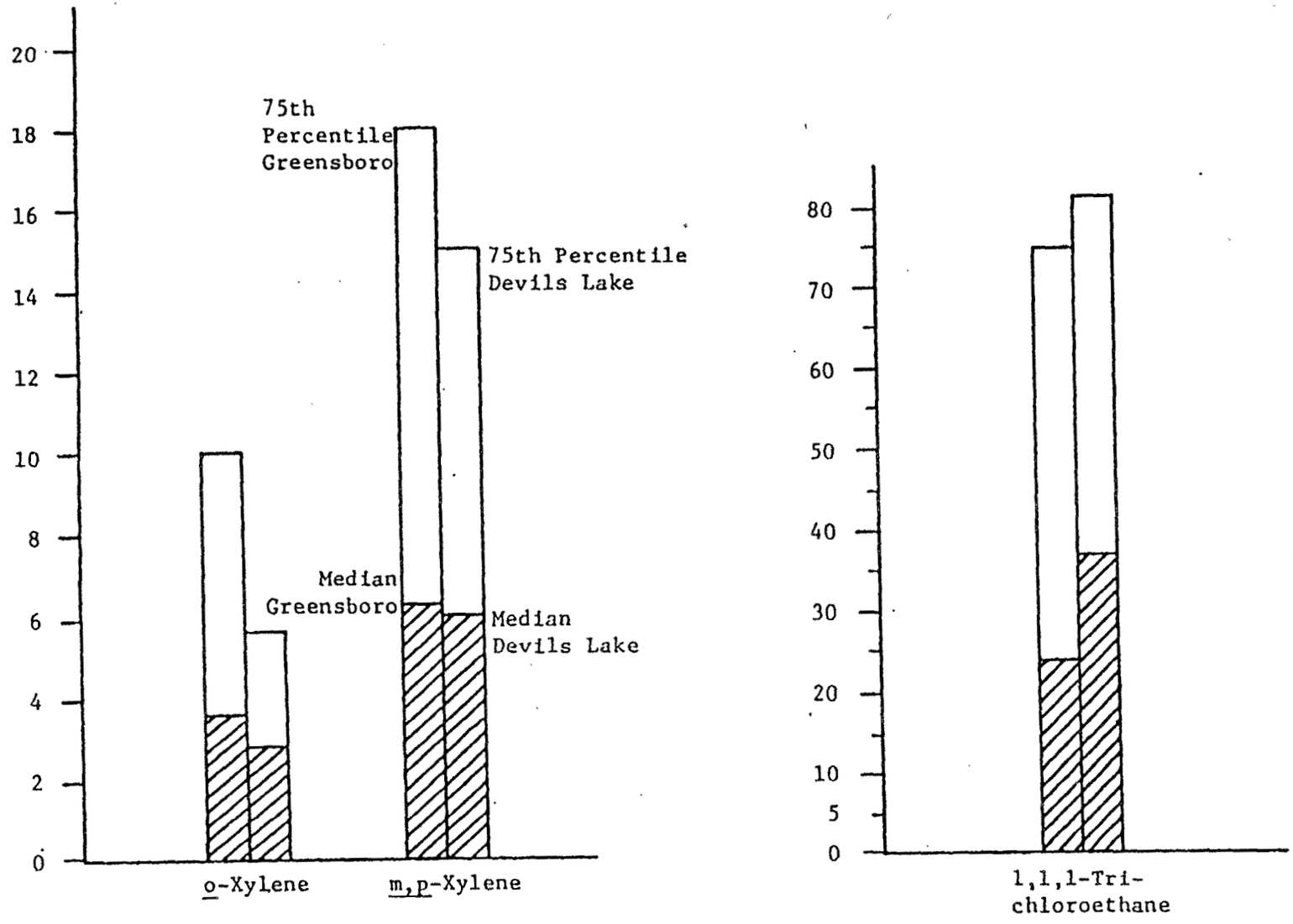

Figure 144. 75th percentiles and medians compared for Greensboro and Devils Lake for overnight personal air.

000537

Table 440. WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR SAMPLES FOR GREENSBORO ($\mu g/m^3$)

Sample Size = 24
Estimated Population = 130,901

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	1.30	2.02	0.40	0.81	3.00	1.07	0.15- 7.50
1,1,1-Trichloroethane	3.04	67.7	20.1	39.5	120.	19.0	0.31-310.
Benzene	0.84	7.93	1.55	7.60	13.0	1.55	0.09- 35.5
Trichloroethylene	3.30	6.84	4.20	2.06	3.90	1.75	0.32- 76.0
Tetrachloroethylene	3.04	7.59	1.40	4.10	10.5	3.60	0.35- 47.0
Styrene	0.77	2.48	1.08	0.75	1.03	0.90	0.09- 22.0
m,p-Dichlorobenzene	1.50	10.6	5.52	2.30	9.40	3.70	0.81- 65.0
Ethylbenzene	0.56	5.15	1.41	2.90	5.00	3.15	0.35- 32.0
o-Xylene	0.68	5.74	1.38	3.50	8.50	3.73	0.43- 24.0
m,p-Xylene	0.68	12.8	2.89	7.45	14.0	7.85	0.43- 66.0

WEIGHTED SUMMARY STATISTICS FOR DAYTIME PERSONAL AIR SAMPLES FOR DEVILS LAKE ($\mu g/m^3$)

Sample Size = 23
Estimated Population = 6,163

Volatiles	Median QL	Mean	Standard Error	Median	75th Percentile	Geometric Mean	Range
Chloroform	1.44	3.26	2.32	0.19	0.78	0.43	0.14- 50.0
1,1,1-Trichloroethane	2.32	45.1	25.2	13.0	36.0	10.6	0.15-300.
Trichloroethylene	1.68	4.30	3.41	0.26	3.20	0.81	0.17- 47.0
Tetrachloroethylene	3.44	36.1	28.7	5.40	10.0	4.98	0.43-1600.
Chlorobenzene	1.70	3.90	3.28	0.24	1.13	0.50	0.17- 64.0
m,p-Dichlorobenzene	1.50	15.0	9.56	2.10	4.20	2.65	0.23-320.
Ethylbenzene	1.12	17.7	10.7	1.40	6.00	1.59	0.12-260.
o-Xylene	0.84	30.1	23.0	2.50	5.30	2.78	0.11-490.
m,p-Xylene	0.84	49.2	32.8	6.30	13.0	6.87	0.11-730.

000538

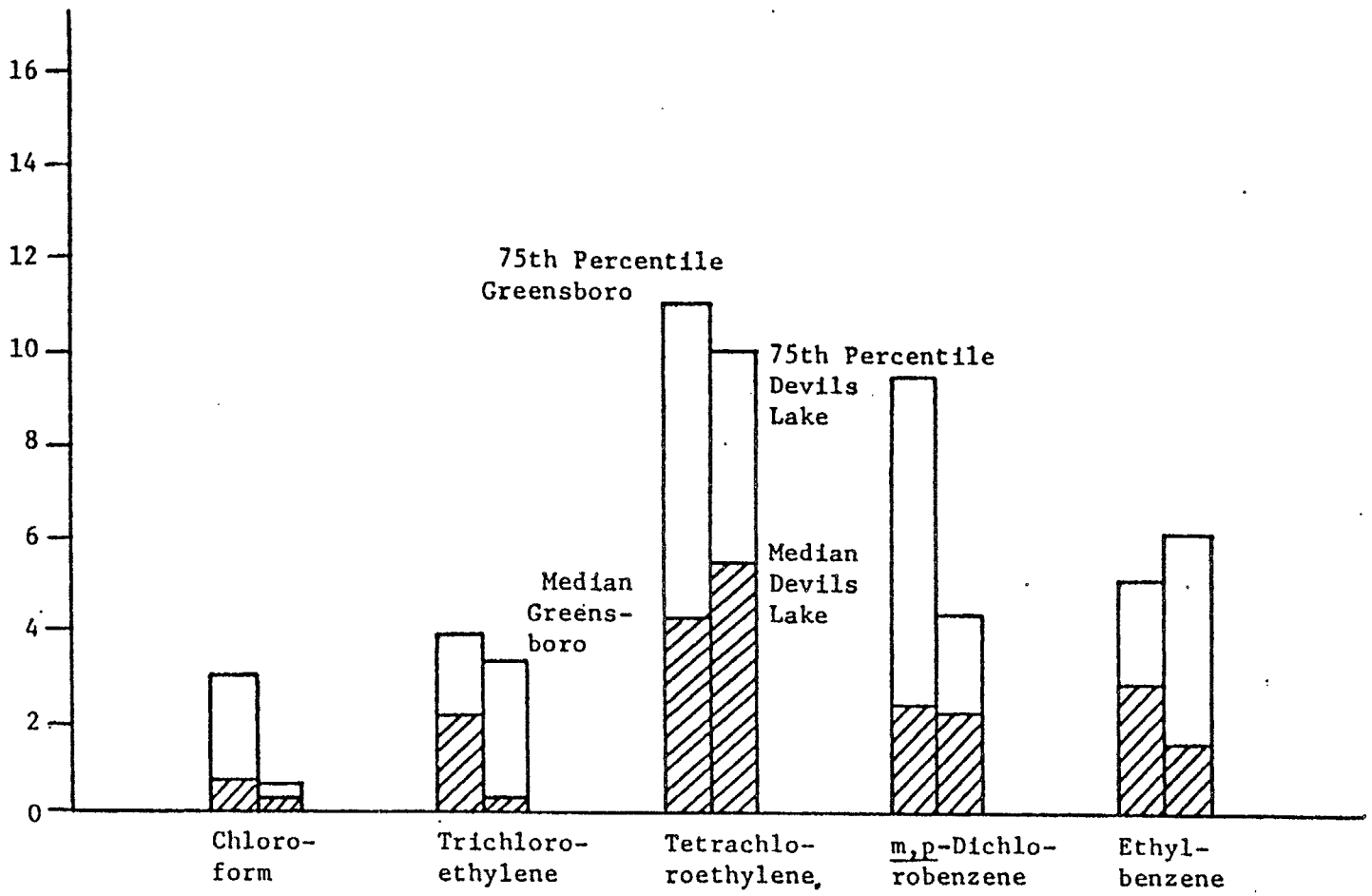

Figure 145. 75th percentiles and medians compared for Greensboro and Devils Lake for daytime personal air.

000539

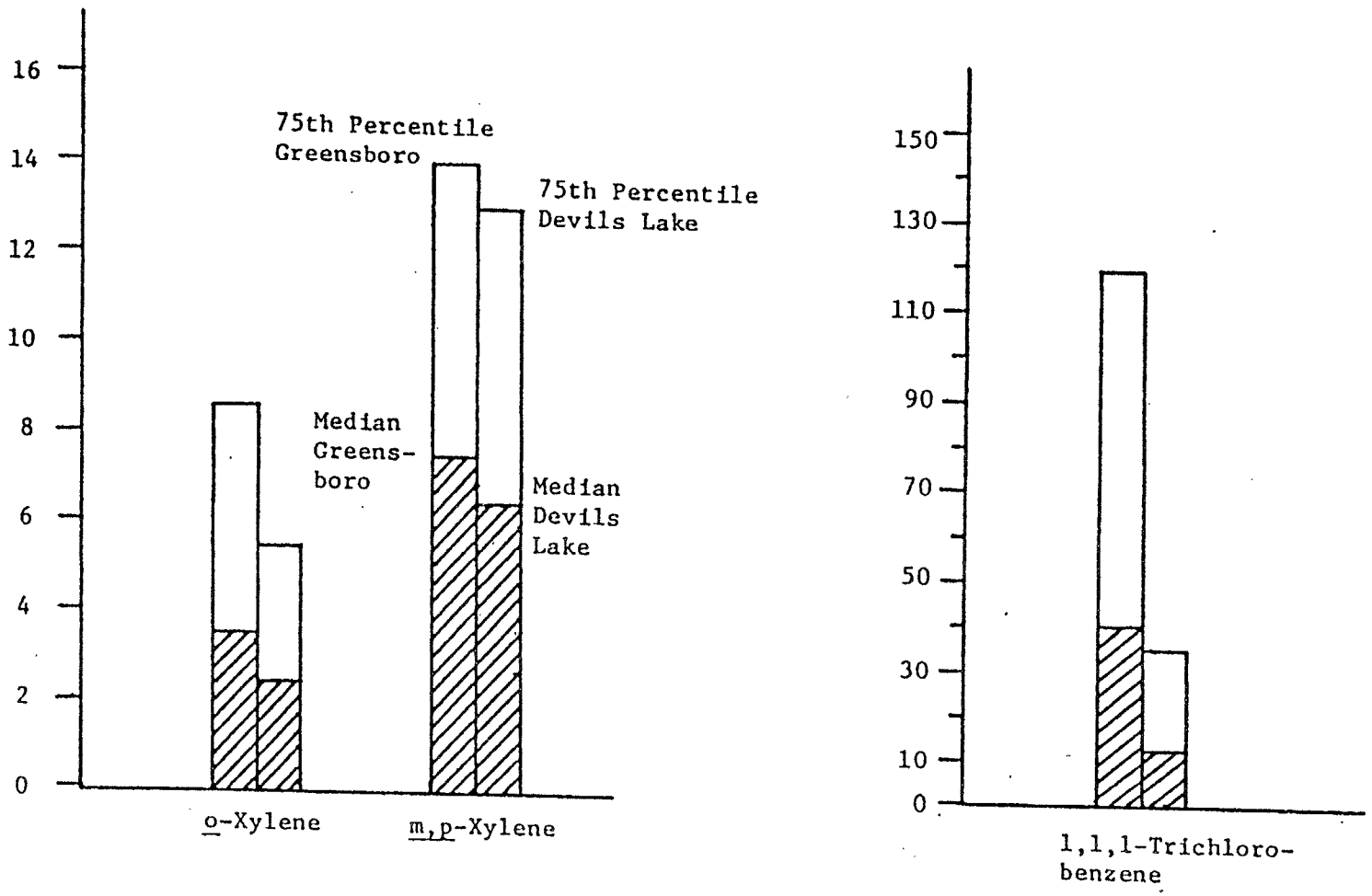

Figure 146. 75th percentiles and medians compared for Greensboro and Devils Lake for daytime personal air.

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Table 441. RATIOS OF WEIGHTED SUMMARY STATISTICS (GREENSBORO/DEVILS LAKE)

Volatiles	Mean	Median	Geometric Mean	Max
RATIOS FOR BREATH SAMPLES				
Chloroform	0.75	0.23	0.53	1.84
Benzene	0.32	0.27	0.24	0.42
Trichloroethylene	0.66	0.61	0.82	0.70
Tetrachloroethylene	0.59	0.49	0.66	0.23
Chlorobenzene	0.18	0.08	0.13	0.30
Styrene	0.35	0.77	0.44	0.26
m,p-Dichlorobenzene	2.75	1.52	1.30	2.00
Ethylbenzene	0.29	1.07	0.89	0.21
o-Xylene	0.40	0.44	0.80	0.34
m,p-Xylene	0.43	0.84	0.79	0.42
RATIOS FOR WATER SAMPLES				
Chloroform	92.5	115.	64.6	65.2
1,1,1-Trichloroethane	0.75	1.00	0.75	0.71
Bromodichloromethane	33.9	43.4	32.4	11.2
Dibromochloromethane	13.2	20.2	12.5	4.13
RATIOS FOR OVERNIGHT PERSONAL AIR				
Chloroform	3.09	4.64	3.55	1.96
1,1,1-Trichloroethane	0.33	0.65	0.40	0.10
Trichloroethylene	0.30	1.32	0.88	0.27
Tetrachloroethylene	0.52	0.53	0.65	1.27
Chlorobenzene	0.19	0.27	0.40	0.14
m,p-Dichlorobenzene	1.12	2.23	1.58	0.31
o-Xylene	1.58	1.24	1.65	1.37
m,p-Xylene	1.26	1.05	1.41	1.55
Ethylbenzene	1.74	0.76	2.48	1.82
RATIOS FOR DAYTIME PERSONAL AIR				
Chloroform	0.62	4.26	2.49	0.15
1,1,1-Trichloroethane	1.50	3.04	1.80	1.03
Trichloroethylene	1.59	7.92	1.22	1.62
Tetrachloroethylene	0.21	0.76	0.72	0.03
m,p-Dichlorobenzene	0.71	1.10	1.40	0.20
Ethylbenzene	0.29	2.07	1.98	0.12
o-Xylene	0.19	1.40	1.34	0.05
m,p-Xylene	0.26	1.18	1.14	0.09

Correlations Between Media

Table 442 contains Spearman correlations for breath, overnight personal air, daytime personal air, by site. Significant correlations among all combinations of media for both sites were found for tetrachloroethylene and m,p-dichlorobenzene. All three combinations for Devils Lake for 1,1,1-trichloroethane were also found to be significant. The highest number of significant correlations across all volatiles was eight and this was for Devils Lake between overnight personal air and daytime personal air.

Summary

Table 443 is a summary of the magnitude of compound levels by media. A compound was reported as high if the % detected was greater than 50%, otherwise as low. Mostly when a compound was reported as high in one site, it was also high in the second site. The only exception for breath was for chlorobenzene where Devils Lake was high and Greensboro was low. For water, Greensboro was high for dibromochloromethane and Devils Lake was low. The same was true for tetrachloroethylene. The only non-agreement for overnight personal air was for chloroform and was high for Greensboro and low for Devils Lake. All componds agreed for daytime personal air.

From looking at the median in Table 441, the ratios seemed to indicate the values for breath generally were higher for Devils Lake than for Greensboro. However, the opposite was true for the rest of the media. The four ratios for water ranged from 1 to 115. For overnight person air 5 of the 9 were greater than one. Six of the 8 for daytime personal air were greater than one.

Table 442. GREENSBORO AND DEVILS LAKE SPEARMAN CORRELATIONS

Volatiles	GREENSBORO			DEVILS LAKE		
	Breath & Overnight Personal Air (23)[1/]	Breath & Daytime Personal Air (23)	Overnight and Daytime Personal Air (24)	Breath & Overnight Personal Air (22)	Breath & Daytime Personal Air (23)	Overnight and Daytime Personal Air (23)
Chloroform	.03	.45	.35	-.14	-.01	.14
1,2-Dichloroethane	-.23	-.33	.69*	-.04	.18	-.02
1,1,1-Trichloroethane	0	0	.05	.60*	.71*	.73*
Benzene	.53*	.22	.59*	---	---	---
Carbon Tetrachloride	.10	-.53*	-.01	-.02	-.23	.32
Trichloroethylene	.29	.38	.28	.18	.26	.52*
Bromodichloromethane	.26	.24	.29	-.10	.31	-.06
Dibromochloromethane	.24	.11	.28	-.04	.34	.45*
Tetrachloroethylene	.42*	.58*	.41*	.53*	.53*	.60*
Chlorobenzene	-.05	-.20	.49*	.44*	.37	.30
Bromoform	.24	.11	.28	-.06	.29	-.45*
Dibromochloropropane	.35	.06	-.20	-.15	.36	-.43*
Styrene	.36	.32	.27	---	---	---
m,p-Dichlorobenzene	.56*	.68*	.65*	.45*	.63*	.54*
o-Dichlorobenzene	.43*	.02	.21	.07	.01	.35
Ethylbenzene	.45*	-.01	.26	-.02	.12	.01
o-Xylene	.37	.28	.29	-.09	.21	.33
m,p-Xylene	.45*	.08	.21	-.03	.19	.60*

1/ Sample Size
* Significant at .05 level.

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Table 443. SUMMARY OF THE MAGNITUDE OF COMPOUND LEVELS BY MEDIA 1/

Volatiles	Breath		Water		Overnight Personal Air		Daytime Personal Air	
	Greensboro	Devils Lake	Greensboro	Devils Lake	Greensboro	Devils Lake	Greensboro	Devils Lake
Vinylidene Chloride 2/			low	low				
Chloroform	high	high	high	high	high	low	low	low
1,2-Dichloroethane	low	low	low	low	low	low	low	low
1,1,1-Trichloroethane	----	high	low	low	high	high	high	high
Benzene	high	high	----	low	high	----	high	----
Carbon Tetrachloride	low	low	low	low	low	low	low	low
Trichloroethylene	high	high	low	low	low	low	low	low
Bromodichloromethane	low	low	high	high	low	low	low	low
Dibromochloromethane	low	low	high	low	low	low	low	low
Toluene	----	----	----	low	----	----	----	----
Tetrachloroethylene	high	high	high	low	high	high	high	high
Chlorobenzene	low	high	low	low	low	low	low	low
Bromoform	low	low	low	low	low	low	low	low
Dibromochloropropane	low	low	----	----	low	low	low	low
Styrene	high	high	----	low	high	----	low	----
m,p-Dichlorobenzene	high	high	low	low	high	high	high	high
o-Dichlorobenzene	low	low	----	----	low	low	low	low
Ethylbenzene	high	high	----	low	high	high	high	high
o-Xylene	high	high	----	----	high	high	high	high
m,p-Xylene	high	high	----	low	high	high	high	high

1/ A compound was reported as high if the % detected was greater than 50%.
2/ Vinylidene Chloride is not reported for air and breath due to low breakthrough volume.
-- indicates compound was missing.

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Appendices

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APPENDIX A

FIRST STAGE SOCIOECONOMIC AND PROXIMITY STRATA FOR THE NORTHERN NEW JERSEY SAMPLE

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FIRST STAGE SOCIOECONOMIC AND PROXIMITY STRATA

Socioeconomic status and proximity to a potential point source of air emissions were used to stratify the first stage sample of area segments as shown in Table 8. The purpose of this stratification was to represent population segments expected to have differing levels of risk for exposure to toxic substances.

The point sources listed in Tables A-1 and A-2 were used to define the proximity strata. High potential exposure strata were defined to be those areas within 1.5 kilometers of at least one point source. In Bayonne and Elizabeth, New Jersey, the residential areas included in the high exposure strata were primarily upwind* of the point sources. If there were residential areas downwind* of the point sources, these would have been included by using a slighly wider downwind proximity range (between 1.5 and 2.0 kilometers). Areas bordering high exposure strata were designed to be moderate exposure strata when they were intersected by major thoroughfares. All other areas were designated to be low potential exposure strata.

Socioeconomic stratification was the second dimension of the first stage stratification. The concept underlying this dimension of stratification was that social and economic characteristics of individuals may be related to their potential exposure to the monitored organic chemicals. Hence, a measure of socioeconomic status was defined and used as the second dimension of stratification. The socioeconomic index was defined at the Census Tract level based upon 1970 Decennial Census data. The socioeconomic index was computed as a function of the value of owner-occupied dwelling units, the monthly rent of renter-occupied dwelling units, and family income of the families living n the Census Tract. The 1980 Census data were used because it was necessary to complete identification of the strata prior to availability of comparable 1980 Census data.

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*Upwind and downwind are based upon prevailing wind directions as determined from "wind roses" obtained form the National Climatic Data Center of the National Oceanic and Atmospheric Administration.

Table A.1: POTENTIAL POINT SOURCES USED IN MAPPING PROXIMITY STRATA IN BAYONNE, NEW JERSEY

Exxon Corporation, Exxon Chemical Company Division
Location: Foot of East 22nd St.
Bayonne, NJ 07002

ICI Americas Inc., Plastics Division
Location: E. 22nd St. and Ave. J.
Bayonne, NJ 07002

Kenrich Petrochemicals, Inc.
Location:
Bayonne, NJ 07002

Mobay Chemical Corporation, Dyestuff Division
Location: 169 W. 52nd St. and Hobart Ave. and 2nd St.
Bayonne, NJ 07002

N L Industries, Inc., N L Chemicals Division
Location:
Bayonne, NJ 07002

Rona Pearl Inc.
Location: E. 21st and E. 22nd St.
Bayonne, NJ 07002

Southern California Chemical Co., Inc.
Location: Foot of East 22nd St.
Bayonne, NJ 07002

Texaco, Inc.
Location: Constable Hook
Bayonne, NJ 07002

White Chemical Corporation
Location: Foot of East 22nd St. (closed September 30, 1981)
Bayonne, NJ 07002

Table A.2: POTENTIAL POINT SOURCES USED IN MAPPING PROXIMITY STRATA IN ELIZABETH, NEW JERSEY

Allied Chemical Corporation, Chemicals Company
Location: 100 N. Ave. East
Elizabeth, NJ 07201

American Can Company, Metals Recovery Division
Location: 700 Kaplowski Rd.
Elizabeth, NJ 07201

American Cyanamid Company, Industrial Chemicals Division
Location:
Linden, NJ 07037

Chevron, U.S.A., Inc., N. E. Division
Location: 330 S. Front St.
Elizabeth, NJ 07202

Emkay Chemical Company
Location: 319-325 Second St.
Elizabeth, NJ 07206

Reichhold Chemicals, Inc.
Location: 726 Rockefeller St.
Elizabeth, NJ 07202

Tenneco Inc., Tenneco Chemicals, Inc.
Location: 830 Magnolia Ave.
Elizabeth, NJ 07201

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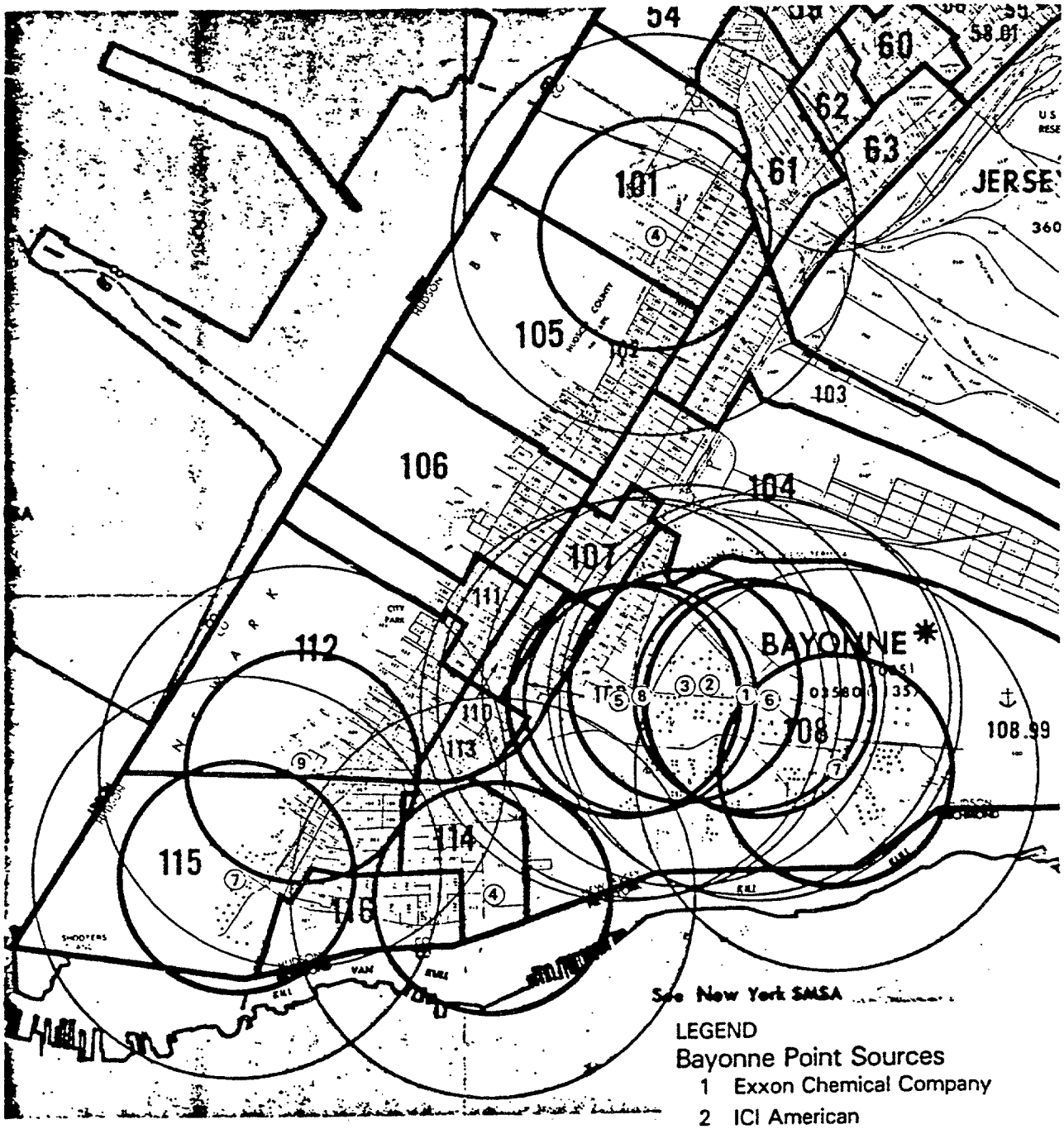
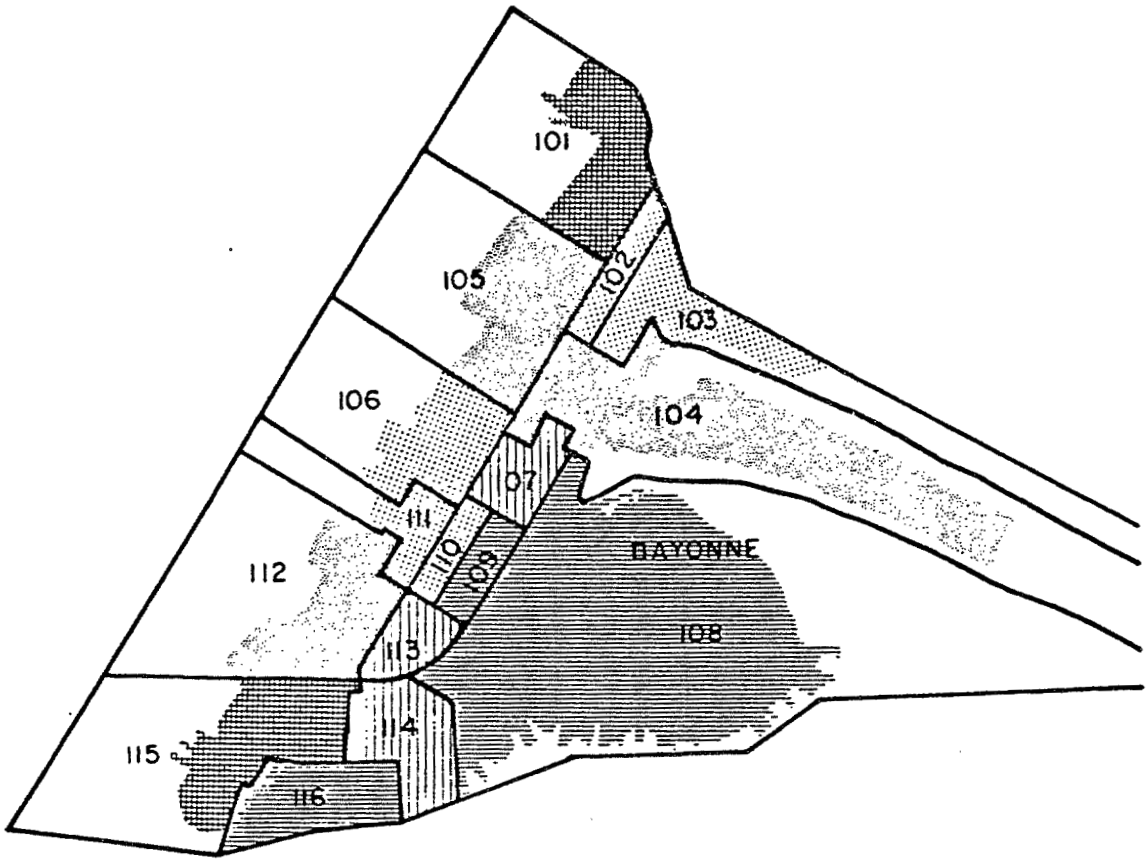


LEGEND

Bayonne Point Sources

1 Exxon Chemical Company
2 ICI American
3 Kenrich Petrochemicals
4 Mobay Chemical Corp.
5 Rona Pearl, Inc.
6 Southern California Chemical Co.
7 Texaco, Inc.
8 White Chemical
9 Efkay Plastics

Potential Point Sources Used in Mapping Proximity Strata in Bayonne



LEGEND
Bayonne

Stratum	Description	Census Tracts
1	Low exposure proximity, higher socioeconomic status	104, 105, 112
2	High exposure proximity, higher socioeconomic status	101, 115
3	High exposure proximity, lower socioeconomic status	108, 109, 116
4	Moderate exposure proximity, lower socioeconomic status	107, 113, 114
5	Low exposure proximity, lower socioeconomic status	102, 103, 106, 110, 111

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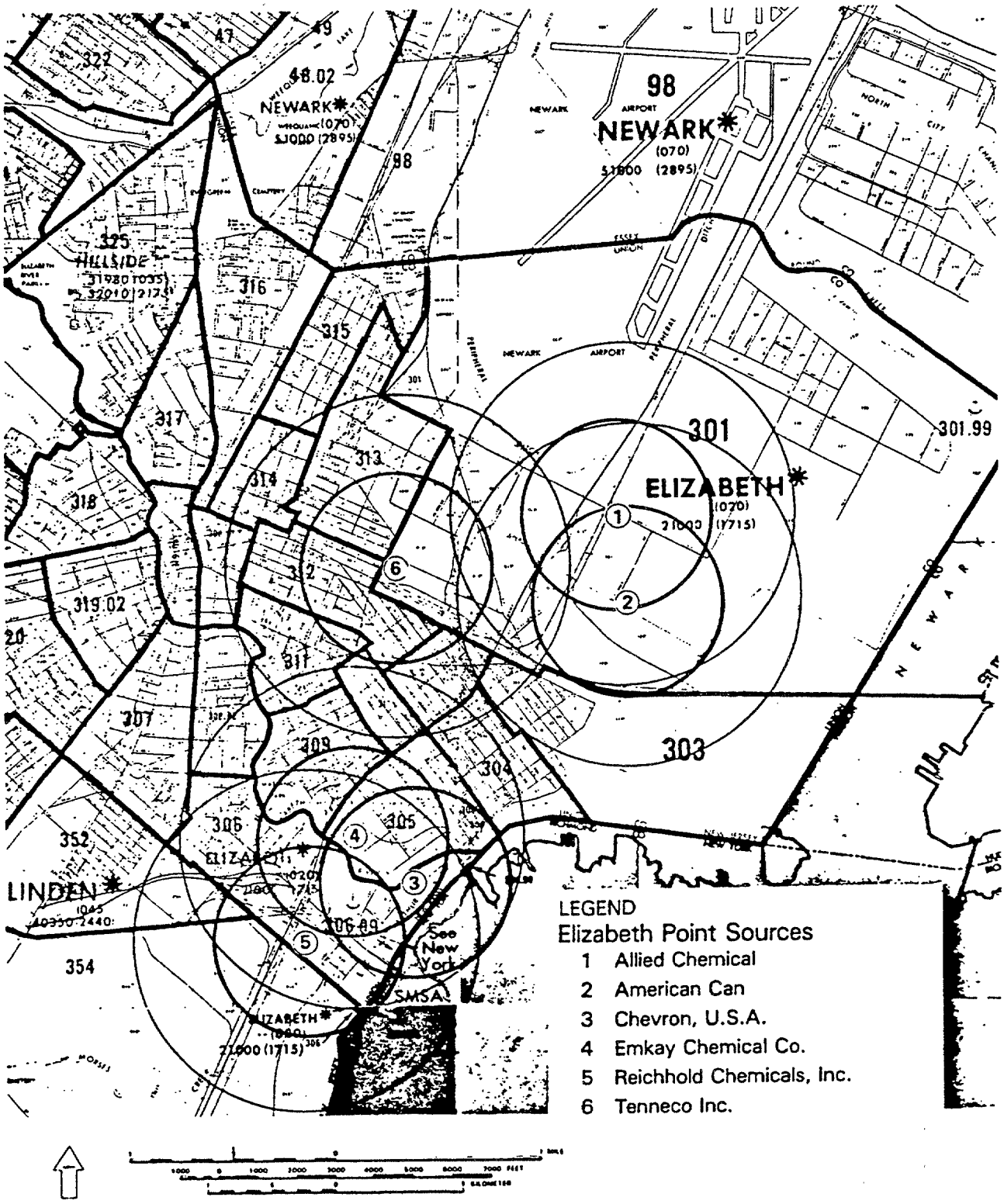
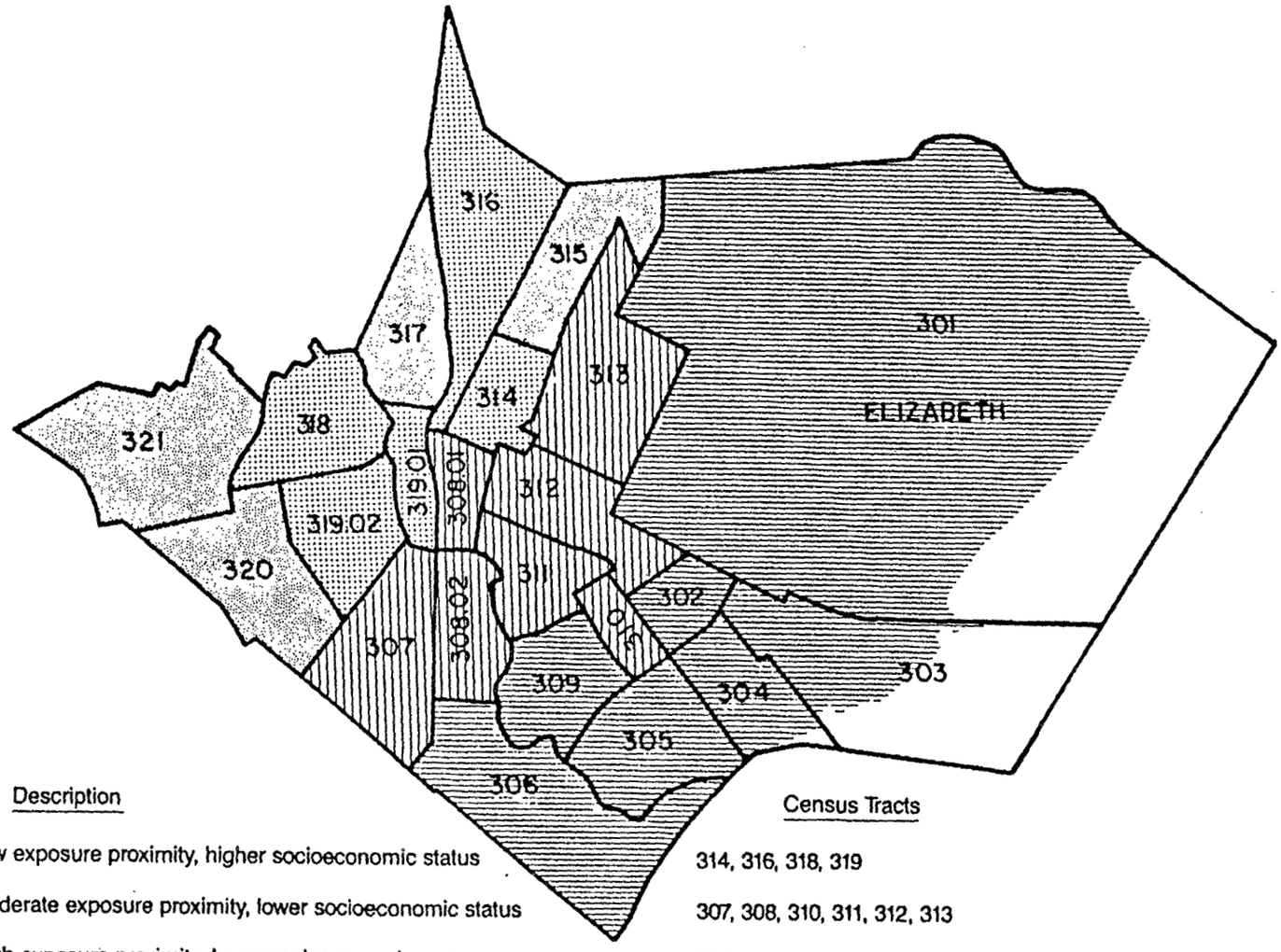


Potential Point Sources Used in Mapping Proximity Strata in Elizabeth



LEGEND
Elizabeth

Stratum	Description	Census Tracts
6	Low exposure proximity, higher socioeconomic status	314, 316, 318, 319
7	Moderate exposure proximity, lower socioeconomic status	307, 308, 310, 311, 312, 313
8	High exposure proximity, lower socioeconomic status	301, 302, 303, 304, 305, 306, 309
9	Low exposure proximity, higher socioeconomic status	315, 317, 320, 321

000556

LEGEND

Socioeconomic status* and proximity to potential sources in Bayonne and Elizabeth, New Jersey

Strata	Description
1, 9	Low exposure proximity, higher socioeconomic status
2	High exposure proximity, higher socioeconomic status
3, 8	High exposure proximity, lower socioeconomic status
4, 7	Moderate exposure proximity, lower socioeconomic status
5, 6	Low exposure proximity, lower socioeconomic status

Bayonne Census Tracts by Strata

Census Tracts	Stratum
104, 105, 112	1
101, 115	2
108, 109, 116	3
107, 113, 114	4
102, 103, 106, 110, 111	5

Elizabeth Census Tracts by Strata

Census Tracts	Stratum
314, 316, 318, 319	6
307, 308, 310, 311, 312, 313	7
301, 302, 303, 304, 305, 306, 309	8
315, 317, 320, 321	9

*Based on 1970 Census data.

APPENDIX B

MAPS SHOWING THE LOCATIONS OF NORTHERN NEW JERSEY SAMPLE SEGMENTS

000558

MAPS SHOWING THE LOCATIONS OF NORTHERN NEW JERSEY SAMPLE SEGMENTS

The locations of the Northern New Jersey sample segments are shown on the maps in this appendix. The sample segments are outlined with heavy black lines and marked with their sample segment numbers. The Bayonne sample segment numbers are from 01 to 44, inclusive. However, segment number 09 does not appear on the Bayonne map. This segment was Bayonne Ocean Terminal, a military reservation; it was dropped from the sample as an ineligible first stage unit.

The sample segment numbers for the Elizabeth sample are from 02 to 66, inclusive. Again, one segment was dropped due to ineligibility. Segment number 01 was dropped from the sample because this sample first stage unit represented a ship at dock at the time of the 1980 Decennial Census.

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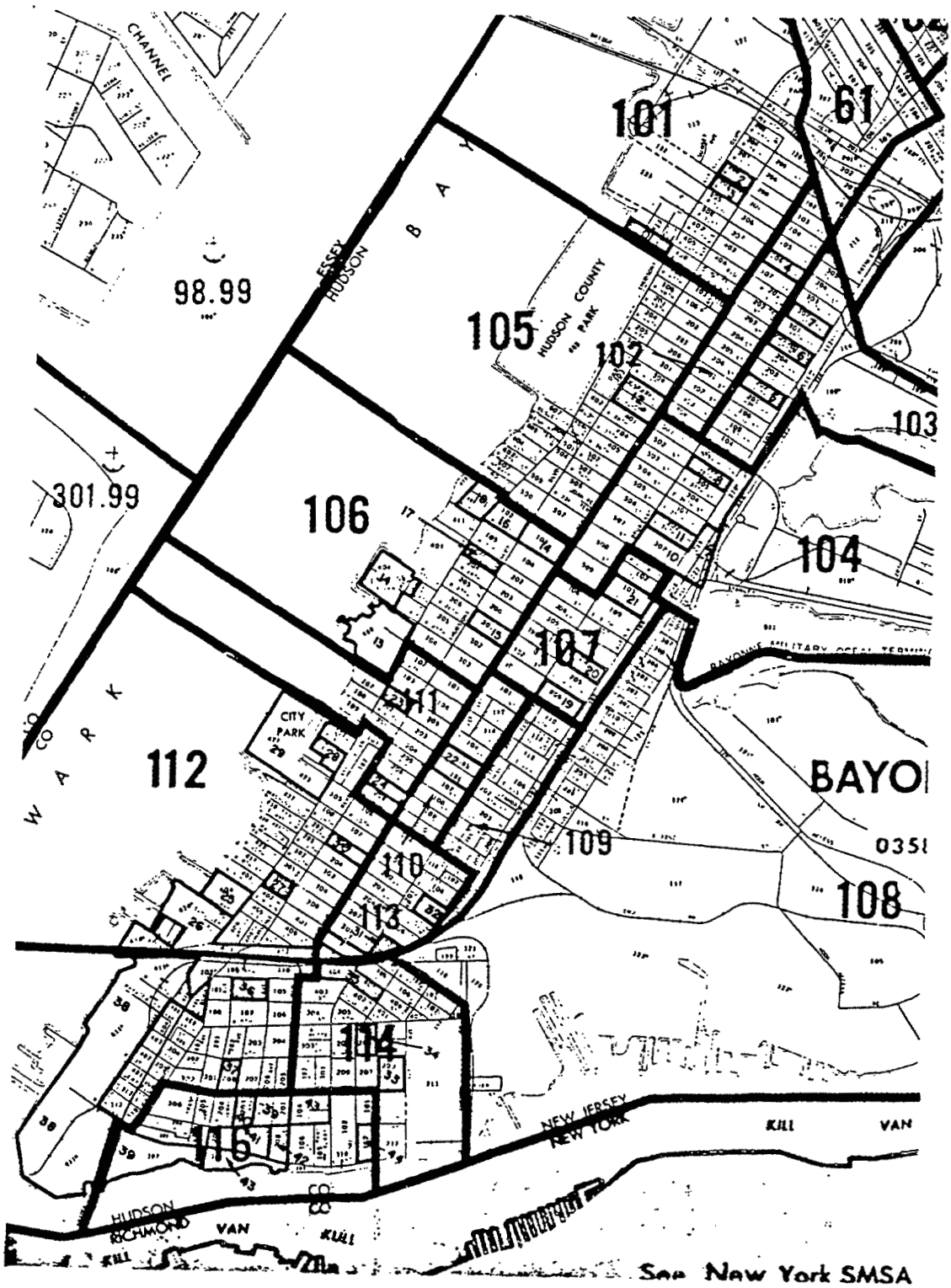

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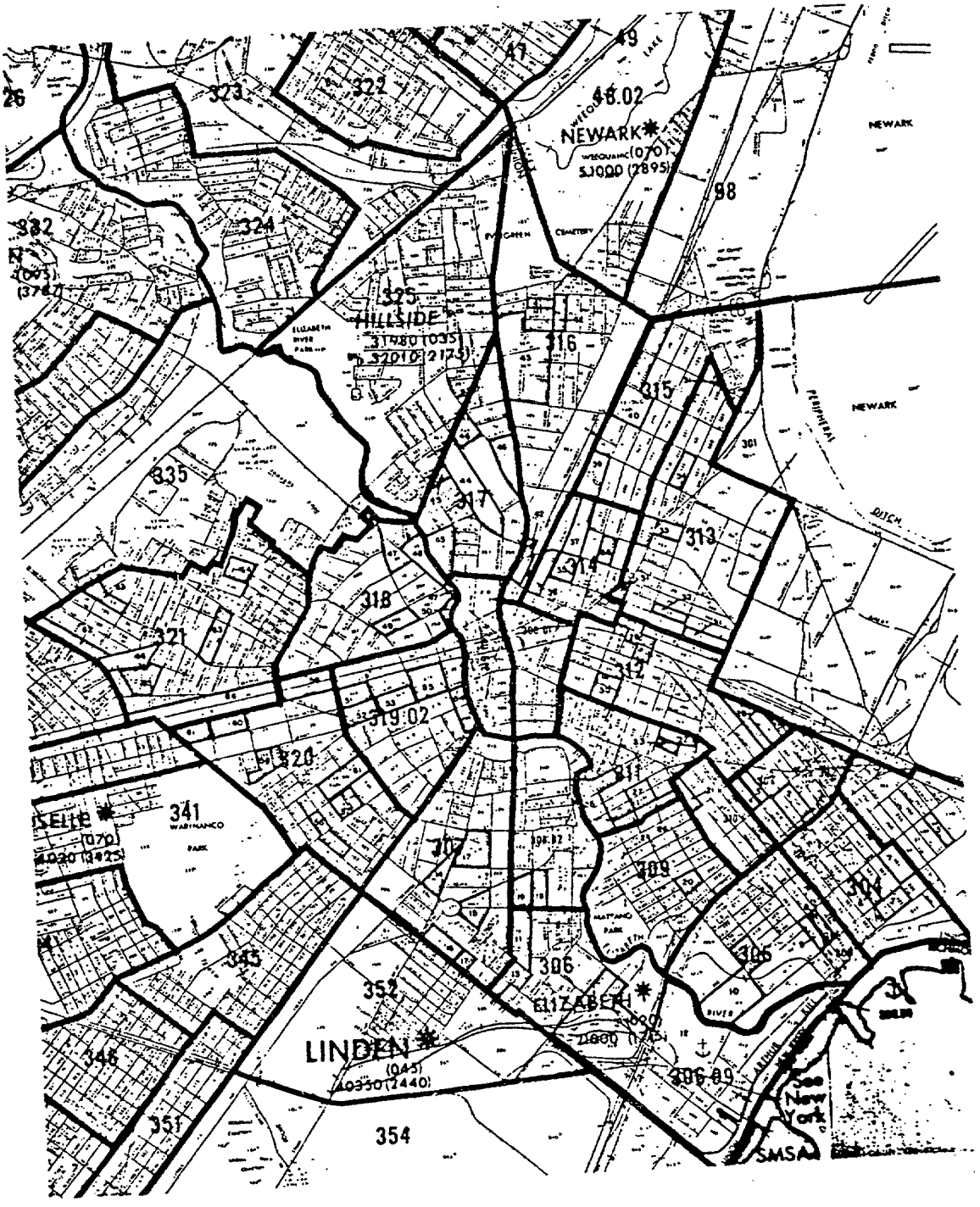
NEWARK
HILLSIDE
LINDEN
ELIZABETH
See New York
SMSA
NEWARK
NEWARK
PERIPHERAL
DITCH
WARINANCO
PARK
MATTANO
PARK
323
322
47
49
48.02
98
324
325
316
315
335
317
313
314
318
321
312
319.02
320
311
341
307
309
304
345
306
305
352
346
306.09
351
354

000561

APPENDIX C

MAP SHOWING THE LOCATIONS OF THE DEVILS LAKE

SAMPLE SEGMENTS

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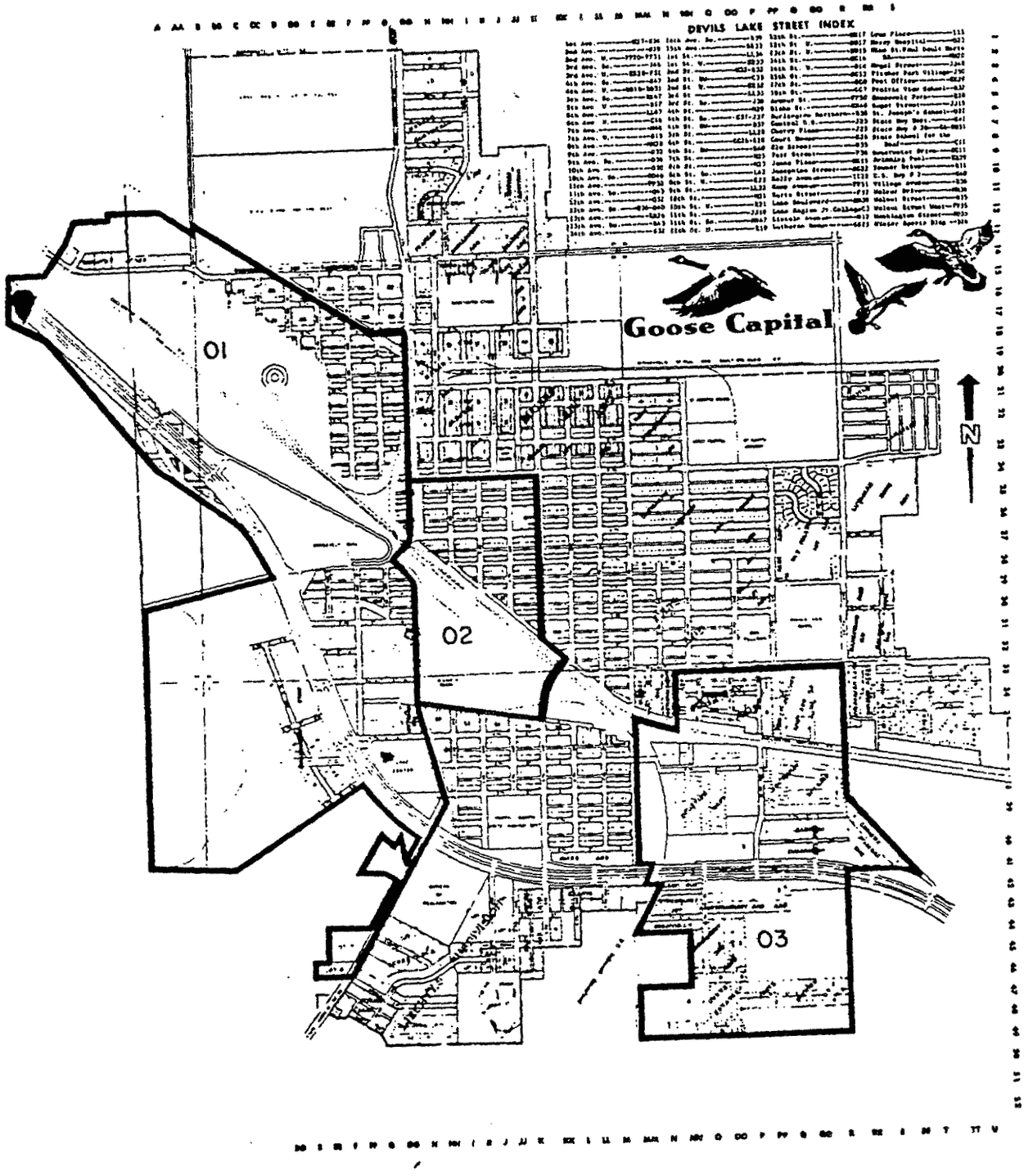

First Stage Sampling Units for Devils Lake, North Dakota, Fall 1982.

000563

APPENDIX D

MAP SHOWING THE LOCATIONS OF THE GREENSBORO SAMPLE SEGMENTS

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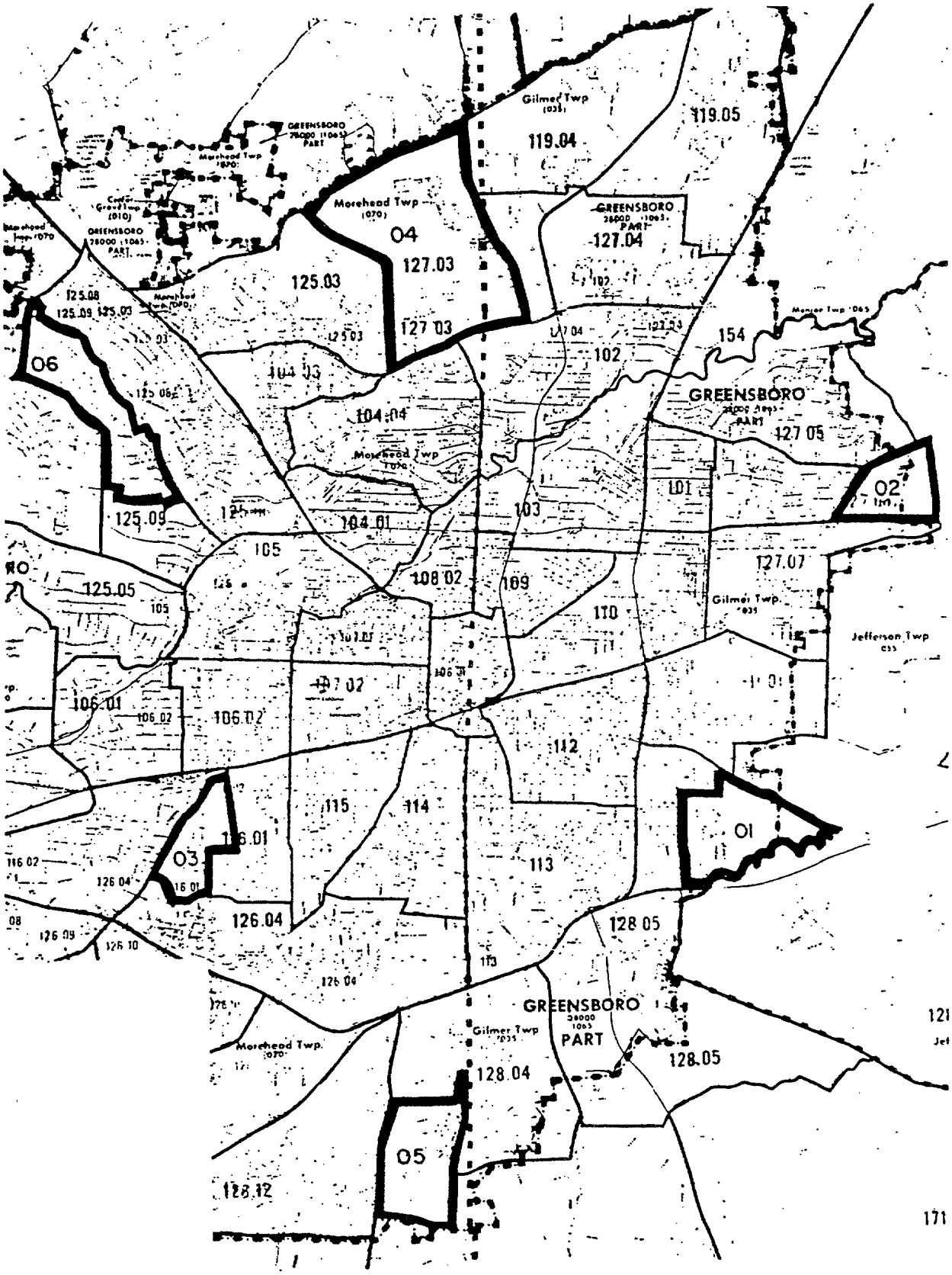

First Stage Sampling Units for Greensboro, North Carolina, Spring 1982.

000565

APPENDIX E

DATA COLLECTION INSTRUMENTS

(a) Household Screening Questionnaire

(b) Study Questionnaire

(c) 24-Hour Exposure and Activity Screener

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RESEARCH TRIANGLE INSTITUTE

Form Approved
O.M.B. No 2000-0364
Expires 7/31/83

STUDY ON TOXIC CHEMICALS IN ENVIRONMENTAL AND HUMAN SAMPLES

NOTICE The information recorded on this questionnaire will be held in strict confidence, and will be used solely for research into the effects of environmental factors on public health All results will be summarized for groups of people no information about individual persons will be released without the consent of the individual This questionnaire is authorized by law (P.L.94-469) While you are not required to respond, your cooperation is needed to make the results of the survey comprehensive, accurate, and timely.

HOUSEHOLD SCREENING QUESTIONNAIRE

1. Area number [ ] 2. Site number. [ ] 3 Segment number [ ]

4 Household/housing unit number [ ] 5 Interviewer number [ ] 6 Date [ ] – [ ] – [ ] (Month) (Day) (Year)

7. a What is the exact address (or description) of this housing unit?

(Street Number and Name) (Apartment Number)

(City) (State) (Zip Code)

b Is this an eligible housing unit? [1] Yes (Go to Question 8) [2] No (Go to Question 7c)

c If no, indicate reason and STOP! [1] Vacant [2] Nonexistent [3] Business [4] Group quarters [5] Vacation quarters [6] Other (Specify) _____

8 a Do you have a responsible screening respondent? [1] Yes (Go to Question 8b) [2] No (Go to Question 8c)

b If yes, indicate whether respondent is [1] Household respondent [2] Neighbor respondent

c If no, indicate reason and STOP! [1] Refusal [2] No response after [ ] calls [3] Other (Specify) _____

9 How many persons reside in this household? [ ]

10 For each person in your household, including yourself, please indicate by entering the appropriate codes or responses in matrix below

a Age (in years as of last birthday) (begin with oldest household member and work down).
b Sex (M for male, F for female).
c Length of residence at this address (indicate in days, months, or years).
d Whether or not each person presently smokes.
e. The name of the company where the individual works.
f. The nature of the business where each person works (such as home, school, service station, bank, chemical plant, textile mill, etc.), and
g Relationship to you, respondent (indicate with 'R'), beginning with the oldest and proceeding to the youngest

Household Member Number	a. Age (Years)	b. Sex (M or F)	c. Time at This Address D, M, Y	d. Smoker Y/N	e. Name of Employer	f. Nature of Business	g. Relationship to Respondent	Eligible Y/N	Participant Number
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									

000567

11. Indicate the household member number *(from Question 10)* for anyone working as or employed in any of the following occupations. Enter the number(s) on the line next to the appropriate occupation. If no one is employed in any of these occupations, place an 'X' next to the entry 'None'.

1 painter _____	7 dry cleaners _____	13 landscaping _____
2 service station _____	8 plastics plant _____	14 gardening _____
3 garage _____	9 textile mill _____	15 taxi/bus/truck driver _____
4 furniture repair _____	10 wood processing _____	16 none _____
5 chemical plant _____	11 household cleaning _____	
6 petroleum plant _____	12 photo developing _____	

12. a. Do you have a telephone? [1] Yes *(Go to Question 12b)* [2] No *(Go to Question 12c)*

b. If yes, what is the number? [1] Unlisted [ ][ ][ ] – [ ][ ][ ] – [ ][ ][ ][ ] *(Go to Question 13)*
(Area Code)
[2] Refused

c. If no, what is the number of the nearest telephone? [ ][ ][ ] – [ ][ ][ ] – [ ][ ][ ][ ] [1] Do not know
(Area Code)
[2] Refused

13. Is any woman in the household currently breastfeeding a child or planning to do so in the next six months?

[1] Yes *(Go to Question 13a)* [2] No *(Stop, thank respondent, proceed to next household)*

a. If currently breastfeeding, when does she plan to stop? _____

If pregnant, what is anticipated due date? _____

Interviewer Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

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OMB Approval No. 2000-0304
Expiration Date 7/31/83

STUDY ON TOXIC CHEMICALS IN
ENVIRONMENTAL AND HUMAN SAMPLES

Conducted by:
Research Triangle Institute
P.O. Box 12194
Research Triangle Park, North Carolina 27709

QUESTIONNAIRE

THE RESEARCH TRIANGLE INSTITUTE OF RESEARCH TRIANGLE PARK, NORTH CAROLINA, IS UNDERTAKING A RESEARCH STUDY FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY TO ASSESS LEVELS AND RELATIONSHIPS OF SELECTED TOXIC COMPOUNDS IN MAN AND ENVIRONMENTAL MEDIA. THE INFORMATION RECORDED IN THIS QUESTIONNAIRE WILL BE HELD IN STRICT CONFIDENCE AND WILL BE USED SOLELY FOR RESEARCH INTO THE EFFECTS OF ENVIRONMENTAL FACTORS ON PUBLIC HEALTH. ALL RESULTS WILL BE SUMMARIZED FOR GROUPS OF PEOPLE; NO INFORMATION ABOUT INDIVIDUAL PERSONS WILL BE RELEASED WITHOUT THE CONSENT OF THE INDIVIDUAL. WHILE YOU ARE NOT REQUIRED TO RESPOND, YOUR COOPERATION IS NEEDED TO MAKE THE RESULTS OF THIS SURVEY COMPREHENSIVE, ACCURATE, AND TIMELY.

Study number: [ ][ ][ ][ ][ ][ ]

Area number: [ ] Site number: [ ] Segment number: [ ][ ] Household number: [ ][ ][ ]

Participant number: [ ][ ]

000569

First, I would like to ask some general questions about you.

1. Sex *(by observation)*: [1] Male [2] Female

2. Race *(by observation)*: [1] Hispanic [2] American Indian/Alaskan Native [3] Black, not of Hispanic origin [4] Asian/Pacific Islander [5] White, not of Hispanic origin [6] Other *(Specify)* _____

3. What was your age in years at last birthday? [ ][ ] Years

4. What is your birthdate?
(Month) [ ][ ] - *(Day)* [ ][ ] - *(Year)* [ ][ ]

5. What is your approximate weight in pounds?
[ ][ ][ ] lbs. [1] Do not know

6. What is you approximate height in feet and inches?
[ ] Feet [ ][ ] Inches

Next, I would like to ask some questions about your occupation.

7. Are you presently employed in any capacity? [1] Yes *(Continue)* [2] No *(Go to Q. 12)*

8. How long have you been employed by your present employer? [ ][ ] [1] Days [2] Months [3] Years

9. What percent of the time does your employment put you in close contact with smokers? [ ][ ] %

10. Does your occupation usually take you away from home? [1] Yes *(Continue)* [2] No *(Go to Q. 13)*

11. What is the name and location (street address) of the company for which you work?
_____ [ ][ ][ ][ ][ ] *(Zip Code)* *(Go to Q. 13)*

12. If not presently employed, which of the following best describes your status?
[1] Housewife [2] Student *(Go to Q. 16)*
[3] Unemployed [4] Retired [5] Disabled *(Continue)*

13. What is/was your usual occupation? *(Specify)* _____

(Questions 14 and 15 may be skipped for unemployed, retired, and disabled persons.)

14. Are you presently employed in this occupation? [1] Yes *(Continue)* [2] No *(Go to Q. 16)*

15. If yes to above question, how long have you been employed in that occupation?
[ ][ ] Units [1] Days [2] Months [3] Years

16. Do you work at or in any of the following occupations or establishments? *(Check all that apply.)*

[1] Painting
[2] Dry cleaning
[3] Chemical plant
[4] Petroleum plant
[5] Service station/garage-engine repair
[6] Furniture repair or refinishing
[7] Plastics manufacture, or formulation
[8] Textile mill
[9] Wood processing plant
[10] Printing
[11] Scientific laboratory
[12] Dye plant
[13] Hospital
[14] Metal products (casting, smelting)
[15] Battery or electrical components manufacture
[16] Refrigerator/air conditioning repair or manufacture
[17] Taxi/bus/truck driver
[18] Pest control
[19] Drug manufacturing or formulating
[20] Photo developing
[21] Landscaping/gardening
[22] None of the above

000570

17. Does anyone else in your household work at or in any of the following occupations or establishments? *(Check all that apply.)*

- [1] Painting
- [2] Dry cleaning
- [3] Chemical plant
- [4] Petroleum plant
- [5] Service station/garage-engine repair
- [6] Furniture repair or refinishing
- [7] Plastics manufacture or formulation
- [8] Textile mill
- [9] Wood processing plant
- [10] Printing
- [11] Scientific laboratory
- [12] Dye plant
- [13] Hospital
- [14] Metal products (casting, smelting)
- [15] Battery or electrical components manufacture
- [16] Refrigerator/air conditioning repair or manufacture
- [17] Taxi/bus/truck driver
- [18] Pest control
- [19] Drug manufacturing or formulating
- [20] Photo developing
- [21] Landscaping/gardening
- [22] None of the above

18. How many hours of the day, on the average, do you normally spend away from home? *(Average separately for weekdays and weekend days).*

Weekdays [ ][ ] Hours Weekend days [ ][ ] Hours

19. On the average, for each category of season or day of the week, how many hours do you spend out of doors, for leisure activities, for job related activities, or in a motor vehicle?

		Out of Doors Leisure	Out of Doors Job Related	In Motor Vehicle
WINTER	Weekday	01	02	03
	Weekend day	04	05	06
SPRING	Weekday	07	08	09
	Weekend day	10	11	12
SUMMER	Weekday	13	14	15
	Weekend day	16	17	18
FALL	Weekday	19	20	21
	Weekend day	22	23	24

Next, I would like to ask some questions regarding your personal habits.

20. Do you now or have you ever smoked cigarettes? [1] Yes *(Continue)* [2] No *(Go to Q. 24)*

21. How old were you when you first started smoking? [ ][ ] Years

22. If you no longer smoke, how old were you when you last gave up smoking? [ ][ ] Years

23. On the average, how many cigarettes do (did) you smoke per day?

- [1] Less than ½ pack (1-4 cigarettes)
- [2] About ½ pack (5-14 cigarettes)
- [3] About 1 pack (15-24 cigarettes)
- [4] About 1½ packs (25-34 cigarettes)
- [5] About 2 packs (35-49 cigarettes)
- [6] More than 2 packs (50 or more cigarettes)

000571

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24. Do you use tobacco in any other form (e.g., cigars, pipe, snuff, chewing tobacco)? [1] Yes [2] No

If yes, indicate form: [1] Cigars [2] Snuff [3] Chewing tobacco [4] Pipe [5] Other *(Specify)* _____

25. Does anyone else in your household smoke? [1] Yes (How many others? [ ]) [2] No

If yes, check all that apply: [1] Cigarettes [2] Cigars [3] Pipe

26. Do you pump your own gas? [1] Yes [2] No

27. Do you do your own dry cleaning? [1] Yes [2] No

28. Do you pursue any of the following hobbies? *(Check all that apply.)*

[1] Furniture refinishing [2] Painting [3] Scale models [4] Gardening [5] None of these

29. Does anyone else in your household pursue any of the following hobbies? *(Check all that apply.)*

[1] Painting [2] Furniture refinishing [3] Scale models [4] Gardening [5] None of these

30. Do you work with or use insecticides, pesticides, or herbicides, as in farming, gardening, or extermination?

[1] Yes *(Go to 30a.)* [2] No *(Go to 30b.)*

a. How often would you say that you work with or use such substances? [1] Rarely [2] Occasionally [3] Often

b. How often do you have your house treated for pests? [1] Never [2] Weekly [3] Monthly [4] Yearly

---

Next, I would like to ask some questions regarding your general physical status.

31. What do you consider your current physical condition? *(Check one.)*

[1] Excellent [2] Good [3] Fair [4] Poor

32. Are you currently taking any prescription medication(s) on a regular daily basis? [1] Yes [2] No

If yes, specify: _____

33. Have you taken any non-prescription medications (aspirin, vitamins, etc.) in the past 48 hours? [1] Yes [2] No

If yes, specify: _____

34. Are you presently under a doctor's care? [1] Yes [2] No

If yes, specify reason(s): _____

35. Are you presently suffering from any respiratory problems *(such as cold, cough, sore throat, flu, asthma, bronchitis, shortness of breath, laryngitis, pleurisy, etc.)*?

[1] Yes [2] No *If yes, specify:* _____

36. Which of the following conditions have you ever been treated for? [1] Anemia [2] Liver disease [3] Kidney disease [4] None

37. How would you rate your general recreational/exercise activity pattern? [1] Heavy [2] Light [3] Sedentary

38. How would you rate your activity on the job?

[1] Heavy physical activity [2] Light physical activity [3] Sedentary [4] Not applicable *(Retired, unemployed, or disabled)*

000572

Next, I would like to ask some questions regarding your diet.

39 Which meal(s) do you usually eat at home? *(Check all that apply.)*

- [1] Breakfast
- [2] Lunch
- [3] Dinner
- [4] None

40 When you do not eat at home, where do you eat? *(Check all that apply.)*

- [1] Meal prepared at home but eaten elsewhere
- [2] School
- [3] Work
- [4] Restaurant
- [5] Almost never eat anywhere but at home
- [6] Other *(Specify)* _____

41 Are you presently following any of the following dietary regiments? *(Check all that apply.)*

- [1] Bland food ulcer diet
- [2] Diabetic diet
- [3] Reducing diet
- [4] Organic foods
- [5] Vegetarian
- [6] None of these
- [7] Other *(Specify)* _____

42. On the average, how often do you eat the following foods? *(Check all that apply.)*

Foodstuff	Daily*	More than 3 times per week	Less than 3 times per week	Once per week	Once every 2 weeks	Once per month	Less than once per month	Never
a Beef		a	b	c	d	e	f	g
b Fish		h	k	l	m	n	p	q
c Pork		r	s	t	v	w	x	y
d Poultry		a	b	c	d	e	f	g
e Fresh fruit		h	k	l	m	n	p	q
f. Frozen fruit		r	s	t	v	w	x	y
g Canned fruit		a	b	c	d	e	f	g
h Fresh vegetables		h	k	l	m	n	p	q
i. Frozen vegetables		r	s	t	v	w	x	y
j Canned vegetables		a	b	c	d	e	f	g
k. Eggs		h	k	l	m	n	p	q
l. Cereals, rice, breads		r	s	t	v	w	x	y
m Cheese		a	b	c	d	e	f	g
n. Cola soft drinks		h	k	l	m	n	p	q
o Non-cola soft drinks		r	s	t	v	w	x	y
p Canned juices		a	b	c	d	e	f	g
q Milk		h	k	l	m	n	p	q
r Beer		r	s	t	v	w	x	y
s Wine		a	b	c	d	e	f	g
t Coffee, tea (cooked water)		h	k	l	m	n	p	q
u Tap water and tap water drinks		r	s	t	v	w	x	y

*Indicate number of servings per day

000573

Lastly, I would like to ask some questions about your residence and household.

43. How many years have you lived in this area? [ ][ ] Years

44. How long have you lived at your current address? [ ][ ] [1] Days [2] Months [3] Years

45. Do you cool your home with any of the following appliances? *(Check all that apply.)*

[1] Central air conditioning [4] Window fan(s) [7] None of these

[2] Window air conditioner(s) [5] Ceiling exhaust fan(s) [8] Do not know

[3] Evaporative cooler(s) [6] Circulating fan(s) [9] Other *(Specify)* _____

46. Do you have any of the following appliances? *(Check all that apply.)*

[1] Gas stove [2] Electric oven [3] Gas furnace [4] Oil heat

47. Does your household grow any of its own food in a home garden? [1] Yes [2] No [3] Do not know

If yes, specify location of garden: _____

48. Where does your household generally obtain fresh fruit and/or vegetables? What percentage is locally grown?

(Specify) _____ [ ][ ][ ] Percent

49. Where do you purchase other grocery items? *(Specify main source(s))* _____

_____

50. What is the primary source of your water for drinking?

[1] Bottled water [3] Tap—community well [5] Tap—cistern

[2] Tap—municipal supply [4] Tap—private well [6] Do not know

[7] Other *(Specify)* _____

51. Is that the same primary source of water for drink mixes such as coffee, tea, Kool-Aid, etc.?

[1] Yes [2] No If no, how does it differ? *(Specify)* _____

_____

INTERVIEWER INFORMATION

Interviewer number: [ ][ ][ ] Date of interview: *(Month)* [ ][ ] – *(Day)* [ ][ ] – *(Year)* [ ][ ]

COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

_____

000574

OMB Approval No. 2000-0364
Expiration Date 7/31/83

STUDY NUMBER _____

Date: ___/___/___

TEAM Study

24-Hour Exposure and Activity Screener

1. Have you pumped your own gas in the past 24 hours? [1] YES *(Go to 1a.)* [2] NO *(Go to Q. 2)*

   (a) How many hours has it been since you last pumped gas? [ ][ ] Hours

2. Have you been to a dry cleaning establishment in the past 24 hours? [1] YES *(Go to 2a.)* [2] NO *(Go to Q. 3)*

   (a) How many hours ago was that? [ ][ ] Hours

3. Have you done your own dry cleaning in the past 24 hours? [1] YES *(Go to 3a.)* [2] NO *(Go to Q. 4)*

   (a) How many hours ago was that? [ ][ ] Hours

4. Have you used tobacco in any form in the past 24 hours? [1] YES *(Go to Q. 4a)* [2] NO *(Go to Q. 5)*

   (a) How many hours ago did you last use tobacco? [ ][ ] Hours

   (b) Which of the following forms of tobacco did you use? *(Check all that apply.)*

   [1] Cigarettes [2] Cigars [3] Snuff [4] Chewing Tobacco [5] Pipe

5. Have you remained in close contact with smokers for extended periods? [1] YES *(Go to Q. 6)* [2] NO *(Go to Q. 6)*

6. Have you used or worked with insecticides, pesticides, or herbicides in any way including farming, gardening, and extermination in the past 24 hours? [1] YES *(Go to Q. 7)* [2] NO *(Go to Q. 7)*

7. Which of the following food items or beverages have you consumed in the past 24 hours? *(Check all that apply and for each item consumed, indicate the number of times you ate this item.)*

	Item	Number of Times Eaten		Item	Number of Times Eaten
1	Beef	_____	12	Cereals, rice, bread	_____
2	Fish	_____	13	Cheese	_____
3	Pork	_____	14	Cola soft drinks	_____
4	Poultry	_____	15	Non-cola soft drinks	_____
5	Fresh fruit	_____	16	Canned juices, etc.	_____
6	Frozen fruit	_____	17	Milk	_____
7	Canned fruit	_____	18	Beer	_____
8	Fresh vegetables	_____	19	Wine	_____
9	Frozen vegetables	_____	20	Coffee, tea, and beverages using 'cooked water'	_____
10	Canned vegetables	_____	21	Tap water and drinks using tap water	_____
11	Eggs	_____			

8. Have you been swimming in the past 24 hours? [1] YES *(Go to Q. 8a)* [2] NO *(Go to Q. 9)*

   a. In which of the following did you swim? [ ] Outdoor [ ] Indoor [ ] [ ] [ ]

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9. Have you worked at any of the following occupations or been in any of the following businesses during the past week? *(Check all that apply and also indicate any contact in the past 24 hours.)*

		Past Week	Past 24 Hours
☐	Painting	01	02
☐	Dry cleaning	03	04
☐	Chemical plant	05	06
☐	Petroleum plant	07	08
☐	Service station/garage/engine repair	09	10
☐	Furniture refinishing or repair	11	12
☐	Plastics manufacture or formulation	13	14
☐	Textile mill	15	16
☐	Wood processing plant	17	18
☐	Printing	19	20
☐	Scientific laboratory	21	22
☐	Dye plant	23	24
☐	Hospital	25	26
☐	Metal work/smelters	27	28
☐	None	29	30

10. Have you been exposed to any of the following during the past week? *(Check all that apply, and indicate any to which you have been exposed in the last 24 hours.)*

		Past Week	Past 24 Hours
☐	Solvents *(e.g., toluene, acetone, chloroform)*	01	02
☐	Odorous chemicals *(e.g., gasoline, sulfur, mothballs)*	03	04
☐	Toxic or hazardous chemicals *(e.g., pesticides)*	05	06
☐	High dust or particulate levels	07	08
☐	Auto/truck exhausts (heavy or long exposure, i.e. tunnel or expressway)	09	10
☐	Cleaning solutions (including household chemicals)	11	12
☐	Degreasing compounds	13	14
☐	Other *(Probe)* _____	15	16

a. Please list the specific name of any chemical or hazardous substance to which you have been exposed.

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

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TEAM Study

24-Hour Exposure Screener – Activity Pattern

11. a For the first time period during which you wore an air pump (Time on _____, Time off _____), please indicate your major activity. In addition, please indicate any other activities which lasted for more than one hour.

Activity	Location: Indoor/Outdoor	Location: Urban/Suburban/Rural	Level of Physical Activity: Strenuous/Light
1. (Major) _____	01 02	03 04 05	06 07
2. _____	08 09	10 11 12	13 14
3 _____	15 16	17 18 19	20 21
4 _____	22 23	24 25 26	27 28

b. Please provide the following information for each trip during this time period

Trip	Time (minutes)	Mode of Transport	Traffic Heavy/Light	Ventilation Windows Open/Closed
1		_____	1 2	1 2
2		_____	1 2	1 2
3		_____	1 2	1 2
4		_____	1 2	1 2

c. Please indicate any unusual events which happened during this time period which might have any effect on your exposure to environmental chemicals

_____

_____

_____

12 a For the second time period during which you wore an air pump (Time on _____, Time off _____), please indicate your major activity. In addition, please indicate any other activities which lasted for more than one hour.

Activity	Location: Indoor/Outdoor	Location: Urban/Suburban/Rural	Level of Physical Activity: Strenuous/Light
1. (Major) _____	01 02	03 04 05	06 07
2. _____	08 09	10 11 12	13 14
3 _____	15 16	17 18 19	20 21
4. _____	22 23	24 25 26	27 28

b. Please provide the following information for each trip during this time period.

Trip	Time (minutes)	Mode of Transport	Traffic Heavy/Light	Ventilation Windows Open/Closed
1		_____	1 2	1 2
2		_____	1 2	1 2
3		_____	1 2	1 2
4		_____	1 2	1 2

c. Please indicate any unusual events which happened during this time period which might have any effect on your exposure to environmental chemicals.

_____

APPENDIX F

RECOVERY OF DEUTERATED VOLATILE ORGANICS FROM SPIKED TENAX GC SAMPLING CARTRIDGES USED IN FIELD SAMPLING

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TABLE F-1. RECOVERY OF BENZENE-d_6 IN FIELD SAMPLES[a]
- GREENSBORO, NC -

Medium	N	% Recovery ± S.D. (%RSD)
All	6	80 ± 22 (28)

[a]Benzene-d_6 was added to sampling cartridge prior to sampling, sampling and analysis conducted and amount determined by GC/MS.

TABLE F-2. RECOVERY OF BENZENE-d_6 IN FIELD SAMPLES[a]
- SECOND SEASON NEW JERSEY -

Medium	T	% Recovery ± S.D. (%RSD)
Personal	16	100 ± 37 (37)
Breath	5	70 ± 14 (20)

[a]Deuterated benzene (benzene-d_6) was added to sampling cartridge prior to sampling, sampling and analysis conducted and amount recovered determined by GC/MS.

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TABLE F-3. RECOVERY OF BENZENE-d_6 IN FIELD SAMPLES
- FIRST SEASON NEW JERSEY -

Median of Instrument	N	% Recovery ± S.D. (%RSD)
Breath	15	77 ± 23 (29)
Fixed-site	5	96 ± 18 (19)
Personal	28	83 ± 21 (25)
LKB-2091	16	86 ± 22 (26)
Varian CH-7	10	80 ± 26 (32)
Finnigan 3300	22	85 ± 22 (26)
All Media/All Instruments	48	82 ± 22 (26)

[a]Deuterated benzene (benzene-d_6) was added to sampling cartridge prior to sampling (known amount), sampling and analysis conducted and amount recovered determined by GC/MS.

TABLE F-4. RECOVERY OF BENZENE-d_6 IN FIELD SAMPLES[a]
- DEVILS LAKE, ND -

Medium	N	% Recovery ± S.D. (%RSD)
All	6	87 ± 23 (27)

[a]Benzene-d_6 was added to sampling cartridge prior to sampling, sampling and analysis conducted and amount determined by GC/MS.

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