

RESEARCH TRIANGLE INSTITUTE

QUANTIFICATION OF BENZENE IN 150 AMBIENT AIR SAMPLES

P. O. NO. DA-7-4320J

RTI Project No. 31U-1479

Final Report

Period: June 16, - August 15, 1977

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Date: August 26, 1977

Prepared for the Environmental Protection Agency, Office of Air  
Quality Planning and Standards, Strategies and Air Standards Division,  
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## INTRODUCTION AND OBJECTIVES

The Research Triangle Institute (RTI) over the past few years has collected many ambient air samples in the vicinity of industrial sources and other environments at various geographical areas within the Continental U.S. Under the sponsorship of contracts from EPA, these samples have been characterized by gas chromatography/mass spectrometry/computer and data have been stored on computer tapes.

The methodology which has been developed and applied during the past few years for the characterization of ambient organic vapors utilizes a polypollutant concept whereby as many pollutants as possible are collected and analyzed. In this manner, a considerable amount of data is generated and selected portions are subjected to characterization and quantification. These data which have been placed in archival storage also contains information about pollutants which have not been interpreted. An example is benzene in ambient air.

The prime objective of the service provided under this contract was to process information contained on these tapes and to determine the concentration of benzene in ambient air samples. A minimum of 150 previously collected samples were quantitated which had not been previously reported. Furthermore, a compilation has been prepared of the concentration of benzene in all the samples that have been analyzed to date.

### Experimental Methods

The techniques used for the collection of ambient air organic vapors has been previously described.<sup>(1,2)</sup> Table A1-A18 and Figures A1-A31 in Appendix A present the sampling protocols and the corresponding locations for the samples which were acquired and analyzed over the

past two years under several EPA contracts. The methods for qualitative and quantitative analysis of these samples has also been previously described.<sup>(1,2)</sup>

### Results and Discussion

Tables 1 through 15 present the concentrations of benzene which were measured at several locations within the industrial and non-industrialized areas in the Continental U.S. The concentrations of benzene measured in the ambient air for nonurbanized areas (El Dorado and Magnolia, Ark) were very low relative to urbanized sites. The highest concentrations were associated with areas containing high petrochemical industry.

### References

1. Pellizzari, E. D. "The Measurement of Carcinogenic Vapors in Ambient Atmospheres", EPA-600/7-77-055, June, 1977, 288 pp.
2. Pellizzari, E. D. "Analysis of Organic Air Pollutants by Gas Chromatography and Mass Spectroscopy", EPA-600/2-77-100, June, 1977, 103 pp.

### Acknowledgements

The collection and instrumental analysis of ambient air samples was supported by EPA Contract Nos. 68-02-1228, 68-02-2262 and 68-01-1978.

Table 1. BENZENE LEVELS IN AMBIENT AIR IN LINDEN AND  
DEEPWATER, NJ<sup>a</sup>

| Period/Location | ng/m <sup>3</sup>            | Period/Location | ng/m <sup>3</sup> |
|-----------------|------------------------------|-----------------|-------------------|
|                 | 3190 ng/m <sup>3</sup> 1 ppb |                 |                   |
| P1/L1           | 750                          | P4/L5           | 250               |
| P1/L2           | 1975                         | P4/L6           | 375               |
| P1/L3           | 3000                         | P4/L7           | 158               |
| P1/L4           | 1375                         | P4/L8           | 395               |
| P2/L1           | 400                          | P5/L5           | 368               |
| P2/L2           | 100                          | P5/L6           | 632               |
| P2/L3           | 11875                        | P5/L7           | 895               |
| P2/L4           | 4600                         | P5/L8           | 394               |
| P3/L1           | -                            | P6/L5           | 275               |
| P3/L2           | 525                          | P6/L6           | 250               |
| P3/L3           | 2868                         | P6/L7           | 225               |
| P3/L4           | 3158                         | P6/L8           | 263               |

<sup>a</sup> See Table A1 and Fig. A1-A3 for protocol and locations, respectively.

Table 2. BENZENE LEVELS IN AMBIENT AIR IN MAGNOLIA, AK AND VICINITY<sup>a</sup>

| Site/Period |     |  | ng/m <sup>3</sup> | Site/Period |     |  | ng/m <sup>3</sup>  | Site/Period |     |  | ng/m <sup>3</sup> |
|-------------|-----|--|-------------------|-------------|-----|--|--------------------|-------------|-----|--|-------------------|
| Near Ethyl  | P1  |  | 800               | Near Dow    | P1  |  | 300                | Magnolia    | P1  |  | 400               |
|             | P2  |  | 1900              |             | P2  |  | 700                |             | P2  |  | 2100              |
|             | P3  |  | 800               |             | P3  |  | 300                |             | P3  |  | 500               |
|             | P4  |  | 700               |             | P4  |  | 400                |             | P4  |  | 300               |
|             | P5  |  | 200               |             | P5  |  | 10910 <sup>-</sup> |             | P5  |  | 1200              |
|             | P6  |  | 500               |             | P6  |  | 450                |             | P6  |  | 900               |
|             | P7  |  | -                 |             | P7  |  | 300                |             | P7  |  | 250               |
|             | P8  |  | 2200              |             | P8  |  | 200                |             | P8  |  | 1000              |
|             | P9  |  | 900               |             | P9  |  | 500                |             | P9  |  | 1100              |
|             | P10 |  | 200               |             | P10 |  | 500                |             | P10 |  | 1200              |
|             | P11 |  | 600               |             | P11 |  | 300                |             | P11 |  | -                 |
|             | P12 |  | 500               |             | P12 |  | 700                |             | P12 |  | 1200              |
|             |     |  |                   |             | P13 |  | 140                |             | P13 |  | 4800              |

<sup>a</sup>See Tables A4-A6 and Fig. A5-A7 for protocol and locations, respectively.

Table 3. BENZENE LEVELS IN AMBIENT AIR IN ELDORADO, AK  
AND VICINITY<sup>a</sup>

| Site/Period      | ng/m <sup>3</sup> | Site/Period           | ng/m <sup>3</sup> |
|------------------|-------------------|-----------------------|-------------------|
| El Dorado, AK/P1 | 130               | Parkers Chapel, AK/P1 | 130               |
| P2               | 260               | P2                    | 100               |
| P3               | 140               | P3                    | -                 |
| P4               | 190               | P4                    | 300               |
| P5               | 130               | P5                    | 200               |
| P6               | 140               | P6                    | 120               |
| P7               | 270               | P7                    | 360               |
| P8               | 340               | P8                    | 510               |
| P9               | 120               | P9                    | 80                |
| P10              | 110               | P10                   | 110               |
| P11              | 220               | P11                   | 120               |
| P12              | -                 | P12                   | 160               |
| P13              | 390               | P13                   | 80                |
| P14              | 430               | P14                   | 410               |
| P15              | 280               | P15                   | 200               |
| P16              | 280               | P16                   | 390               |
| P17              | 250               | P17                   | 170               |
| P18              | 340               | P18                   | 170               |
| P19              | 110               | P19                   | 90                |
| P20              | 65                | P20                   | 65                |
| P21              | 210               | P21                   | 110               |
| P22              | -                 | P22                   | 30                |
| P23              | 170               | P23                   | 80                |
| P24              | 270               | P24                   | 110               |
| P25              | 145               | P25                   | 60                |
| P26              | 120               | P26                   | 70                |
| P27              | 170               | P27                   | 60                |
| P28              | 120               | P28                   | 100               |
| P29              | 170               | P29                   | 300               |
| P30              | 510               | P30                   | 3210              |
| P31              | 110               | P31                   | 70                |
| P32              | 20                | P32                   | 100               |
| P33              | 180               | P33                   | 100               |
| P34              | 5                 |                       |                   |

<sup>a</sup>See Tables A2 and A3, and Fig. A4 for protocol and locations, respectively.

Table 4. ESTIMATED BENZENE LEVELS IN AMBIENT AIR  
IN BATON ROUGE, LA AND VICINITY<sup>a</sup>

| Site/Location        | ng/m <sup>3</sup> | Site/Location        | ng/m <sup>3</sup> |
|----------------------|-------------------|----------------------|-------------------|
| Baton Rouge, LA /L12 | 364               | Baton Rouge, LA /L24 | 1456              |
| L13                  | 3861              | L25                  | 676               |
| L14(1)               | 390               | L26                  | 650               |
| L14(2)               | 624               | L27                  | 533               |
| L15                  | 1417              | L28                  | 2665              |
| L16                  | 4108              | L29                  | 1273              |
| L17                  | 11050             | L30                  | 1326              |
| L18                  | 2678              |                      | 1248              |
| L19                  | 2535              |                      | 3796              |
| L20(1)               | 80                |                      | 325               |
| L20(2)               | 9217              |                      | 1040              |
| L21                  | 1220              |                      |                   |
| L22                  | 8099              |                      |                   |
| L23                  | 2132              |                      |                   |

<sup>a</sup> See Table A7 and Fig. A8 and A9 for protocol and locations, respectively.

Table 5. BENZENE LEVELS IN AMBIENT AIR IN IBERVILLE  
PARISH, LA<sup>a</sup>

| Site/Location            | ng/m <sup>3</sup> | Site/Location            | ng/m <sup>3</sup>   |
|--------------------------|-------------------|--------------------------|---------------------|
| Iberville Parish, LA/ L1 | 1808 <u>±</u> 163 | Iberville Parish, LA/ L7 | 1905 <u>±</u> 86    |
| L2                       | 1727              | L8                       | 16077 <u>±</u> 3714 |
| L3                       | 1990 <u>±</u> 436 | L9                       | 6181 <u>±</u> 2480  |
| L4                       | 586 <u>±</u> 23   | L10                      | 1668 <u>±</u> 188   |
| L5                       | 1423 <u>±</u> 41  | L11                      | 421 <u>±</u> 71     |
| L6                       | 1904 <u>±</u> 86  |                          |                     |

<sup>a</sup> See Table A8 and Fig. A10 and A11 for protocol and locations, respectively.

Table 6. CONCENTRATION OF BENZENE IN AMBIENT  
AIR OF HOUSTON, PASADENA, DEER PARK,  
FREEPORT, AND LA PORTE, TX AREAS<sup>3</sup>

| Site/Location  | ng/m <sup>3</sup> | Site/Location | ng/m <sup>3</sup> |
|----------------|-------------------|---------------|-------------------|
| Houston/ HL1   | 17269             | DTL2          | 3700              |
| HL2            | 3923              | DTL3          | 3885              |
| HL3            | 4209              | DTL4          | 39230             |
| Pasadena/ PL2  | 1539              | Freeport/ FL1 | 32160             |
| PL3            | 7808              | FL2           | 9200              |
|                |                   | FL3           | 3320              |
| Deer Park/DSL1 | 8889              | La Porte/ LL1 | 1880              |
| DSL2           | 2769              | LL2           | 1680              |
| DDL1           | 27080             | LL3           | 4280              |
| DTL1           | 3885              |               |                   |

<sup>a</sup> See Table A9 and Fig. A12-A14 for protocol and locations, respectively.

Table 7. ESTIMATED LEVELS OF BENZENE IN AMBIENT AIR  
SURROUNDING KIN-BUC DISPOSAL SITE, EDISON, NJ<sup>a</sup>

| Site/Period/Location | ng/m <sup>3</sup> | Site/Period/Location | ng/m <sup>3</sup> |
|----------------------|-------------------|----------------------|-------------------|
| Kin-Buc/ P1/L1       | 20,343            | Kin-Buc/ P4/L1       | trace             |
| P1/L2                | 93,750            | P4/L2                | 24,718            |
| P1/L3                | 9,687             | P4/L3                | 5,375             |
| P1/L4                | 13,406            | P4/L4                | 10,031            |
| P2/L1                | 7,718             | P5/L1                | 15,969            |
| P2/L2                | 14,093            | P5/L2                | 7,343             |
| P2/L3                | 10,656            | P5/L3                | trace             |
| P2/L4                | 11,343            | P5/L4                | 2,888             |
| P3/L1                | 8,687             | P6/L1                | 10,156            |
| P3/L2                | 6,875             | P6/L2                | 6,875             |
| P3/L3                | 5,906             | P6/L3                | 191,000           |
| P3/L4                | 8,968             | P6/L4                | 27,343            |

<sup>a</sup>See Table A10 and Fig. A15-A20 for protocol and locations, respectively.

Table 8. ESTIMATED LEVES OF BENZENE IN AMBIENT AIR  
SURROUNDING KIN-BUC DISPOSAL SITE<sup>a</sup>

| Location/Sampling Period | ng/m <sup>3</sup> | Location/Sampling Period | ng/m <sup>3</sup> |
|--------------------------|-------------------|--------------------------|-------------------|
| TM/2(UW)                 | 200,000           | M/4                      | 900,000           |
| TM/3(UW)                 | trace             | PL/1(DW)                 | 1,550,000         |
| TM/4(UW)                 | 900               | SA/5(DW)                 | 10,000            |
| TP/5(UW)                 | trace             | PL/2(DW)                 | 1,210,000         |
| ST/5(UW)                 | 15,000            |                          |                   |

<sup>a</sup> See Table A11 and Fig. A21 for protocol and locations, respectively.

Table 9. CONCENTRATIONS OF BENZENE IN SELECTED  
LOCATIONS IN LOS ANGELES AND DOMINQUEZ, CA<sup>a</sup>

| Site/Location <sup>b</sup> | ng/m <sup>3</sup> | Site/Location | ng/m <sup>3</sup> |
|----------------------------|-------------------|---------------|-------------------|
| Los Angeles/ L1            | 16,720            | Dominquez/ L2 | 37,140            |
| Los Angeles/ L1            | 18,421            | Dominquez/ L2 | 34,210            |

<sup>a</sup> See Table A12 and Fig. A22-A24 for protocol and locations, respectively.

<sup>b</sup> Two different sampling rates were employed, first listing for each site represents 0.1 of the second rate.

Table 10. CONCENTRATION OF BENZENE IN AMBIENT AIR  
IN THE NEW JERSEY AREA<sup>a</sup>

| Area/Period/Site |    |  | ng/m <sup>3</sup> | Area/Location |    |  | ng/m <sup>3</sup> |
|------------------|----|--|-------------------|---------------|----|--|-------------------|
| New Jersey /     | S1 |  | 2160              | New Jersey /  | S6 |  | 2270              |
|                  | S2 |  | trace             |               | S7 |  | 3299              |
|                  | S3 |  | 2045              |               | S8 |  | 3068              |
|                  | S4 |  | trace             |               | S9 |  | 9000              |
|                  | S5 |  | 300,000           |               |    |  |                   |

<sup>a</sup>See Table A13 for protocol and locations, respectively.

Table 11. AMBIENT AIR LEVELS OF BENZENE IN THE  
KANAWHA VALLEY, WV<sup>a</sup>

| Site/Location      | ng/m <sup>3</sup> | Site/Location      | ng/m <sup>3</sup> |
|--------------------|-------------------|--------------------|-------------------|
| Belle /L1          | 15,000            | S. Charleston /L14 | 78,000            |
| Belle /L2          | 1,000             | Belle /L6          | 37,000            |
| Belle /L4          | 69,000            | Belle /L8          | 20,000            |
| S. Charleston /L9  | 187,000           | Belle /L8          | 400,000           |
| S. Charleston /L10 | 62,000            | Nitro /L15         | 150,000           |

<sup>a</sup>

See Table A14 and Fig. A25 and A26 for protocol and locations, respectively.

Table 12. AMBIENT AIR LEVELS OF BENZENE IN EAST  
BROOKLYN, BALTIMORE, MD<sup>a</sup>

| Site/Location                    | ng/m <sup>3</sup> | Site/Location | ng/m <sup>3</sup> |
|----------------------------------|-------------------|---------------|-------------------|
| East Brooklyn, Baltimore, MD/L1A | 500               | L1C           | 1700              |
| L1B                              | 1150              | L1D           | 2360              |
| L2                               | 14,000            | L1E           | 690               |

<sup>a</sup>

See Table A15 and Fig. A27 for protocol and locations, respectively.

Table 13. BENZENE CONCENTRATIONS IN AMBIENT AIR  
IN THE GEISMAR, LA AREA<sup>a</sup>

| Sampling Location | ng/m <sup>3</sup> | Sampling Location | ng/m <sup>3</sup> |
|-------------------|-------------------|-------------------|-------------------|
| L12               | 364               | L15               | 1417              |
| L13               | 3861              | L14-2             | 624               |
| L14-1             | 390               | L16               | 4108              |

<sup>a</sup>  
See Table A16 and Fig. A28 for protocol and locations, respectively.

Table 14. CONCENTRATIONS OF BENZENE IN AMBIENT  
AIR IN LOS ANGELES, CA BASIN AREA<sup>a</sup>

| Site | ng/m <sup>3</sup> | Site | ng/m <sup>3</sup> |
|------|-------------------|------|-------------------|
| S1   | 826,700           | S3   | 17,250            |
| S2   | 476,500           | S4   | 22,760            |

<sup>a</sup> See Table A17 and Fig. A29-A31 for protocol and locations, respectively.

Table 15. AMBIENT AIR LEVELS OF BENZENE  
IN ST. LOUIS, MO AND VICINITY<sup>a</sup>

| Site | ng/m <sup>3</sup> | Site | ng/m <sup>3</sup> |
|------|-------------------|------|-------------------|
| S1   | 7856              | S4   | 26,110            |
| S2   | 229,700           | S5   | 56,000            |
| S3   | 42,700            | S6   | 660               |

<sup>a</sup> See Table A18 for protocol and locations, respectively.

APPENDIX A  
SAMPLING PROTOCOLS, SITES AND LOCATIONS

Table A1. AMBIENT AIR SAMPLING PROTOCOL FOR LINDEN AND DEEPWATER, NJ

| Sampling Site/Period/Location | Sampling Time<br>(min) | Volume Sampled<br>(ℓ) | Remarks                                      |
|-------------------------------|------------------------|-----------------------|----------------------------------------------|
| American Cyanamid/P1/L1       | 140                    | 267                   | 6/21/77 1225-1445<br>24.4°C 48%RH 0/10 kts   |
| P1/L2                         | 137                    | 194                   | 6/21/77 1228-1445                            |
| P1/L3                         | 139                    | 228                   | 6/21/77 1226-1445                            |
| P1/L4                         | 138                    | 205                   | 6/21/77 1227-1445                            |
| P2/L1                         | 1122                   | 101                   | 6/21-22/77 1603-1045<br>20°C 40%RG 0/5-7 kts |
| P2/L2                         | 1150                   | 62                    | 6/21-22/77 1535-1045                         |
| P3/L3                         | 1145                   | 103                   | 6/21-22/77 1540-1045                         |
| P2/L4                         | 1145                   | 103                   | 6/21-22/77 1530-1045                         |
| P3/L1                         | 150                    | 236                   | 6/22/77 1150-1420<br>27°C 515%RH 0/5-7 kts   |
| P3/L2                         | 150                    | 164                   | 6/22/77 1150-1420                            |
| P3/L3                         | 150                    | 222                   | 6/22/77 1150-1420                            |
| P3/L4                         | 150                    | 202                   | 6/22/77 1150-1420                            |

Table A1. AMBIENT AIR SAMPLING PROTOCOL FOR LINDEN AND DEEPWATER,

| Sampling Site/Period/Location | Sampling Time<br>(min) | Volume Sampled<br>(ℓ) | Remarks                                          |
|-------------------------------|------------------------|-----------------------|--------------------------------------------------|
| E. I. DuPont de Nemours/P4/L5 | 141                    | 222                   | 6/23/77 1612-1833<br>24°C 48%RH 220°/~5 kts      |
| P4/L6                         | 136                    | 147                   | 6/23/77 1602-1818                                |
| P4/L7                         | 127                    | 192                   | 6/23/77 1600-1807                                |
| P4/L8                         | 120                    | 188                   | 6/23/77 1554-1754                                |
| P5/L5                         | 973                    | 88                    | 6/23-24/77 1837-1050<br>22°C 56%RH 220°/~3-8 kts |
| P5/L6                         | 1000                   | 90                    | 6/23-24/77 1823-1103                             |
| P5/L7                         | 1018                   | 55                    | 6/23-24/77 1812-1110                             |
| P5/L8                         | 1040                   | 92                    | 6/23-24/77 1800-1120                             |
| P6/L5                         |                        |                       | 6/24/77 1055-1255<br>24°C 57%RH 220°/8-10 kts    |
| P6/L6                         | 120                    | 128                   | 6/24/77 1107-1307                                |
| P6/L7                         | 120                    | 172                   | 6/24/77 1115-1315                                |
| P6/L8                         | 120                    | 183                   | 6/24/77 1125-1325                                |

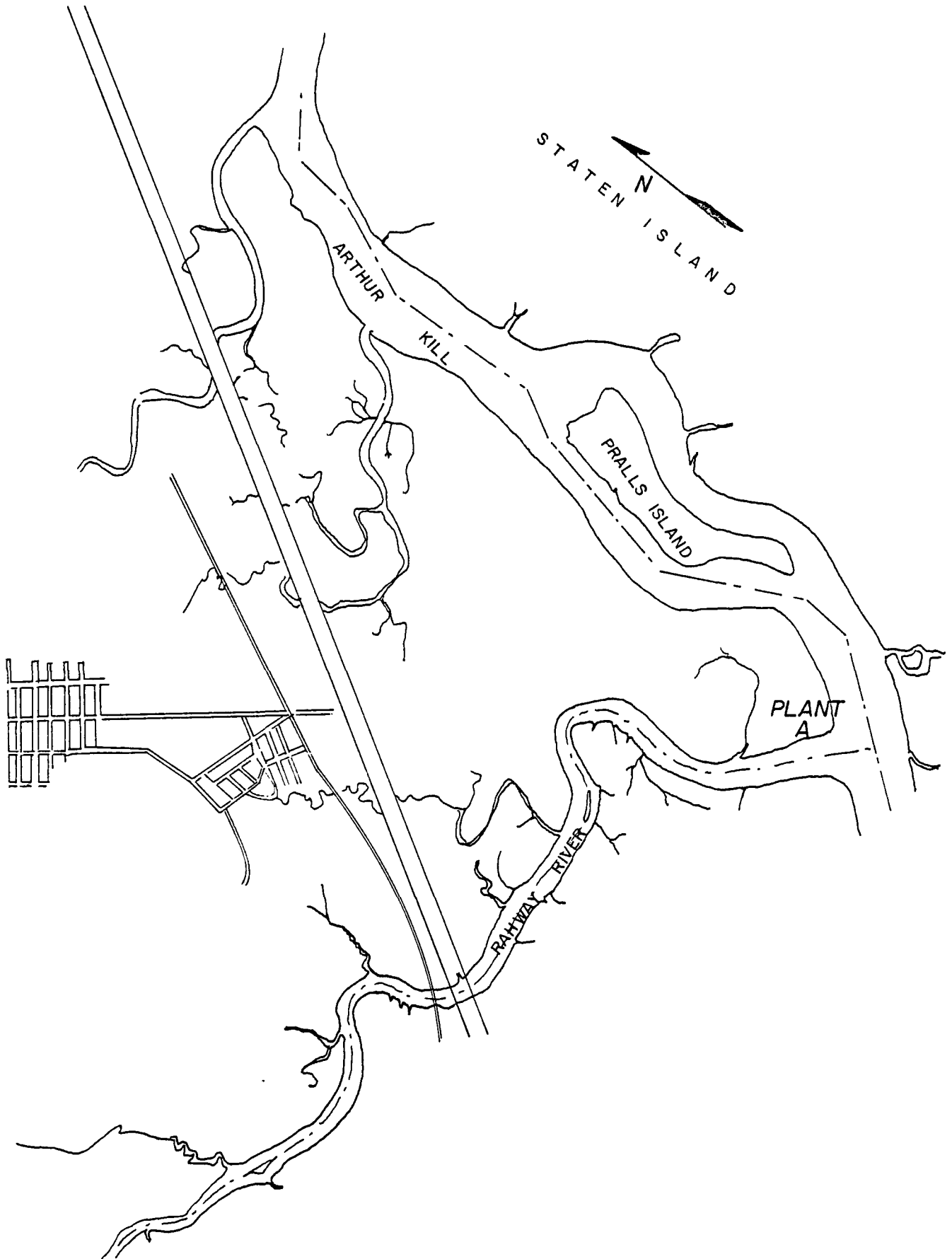


Figure A1. Sampling area in Linden, NJ

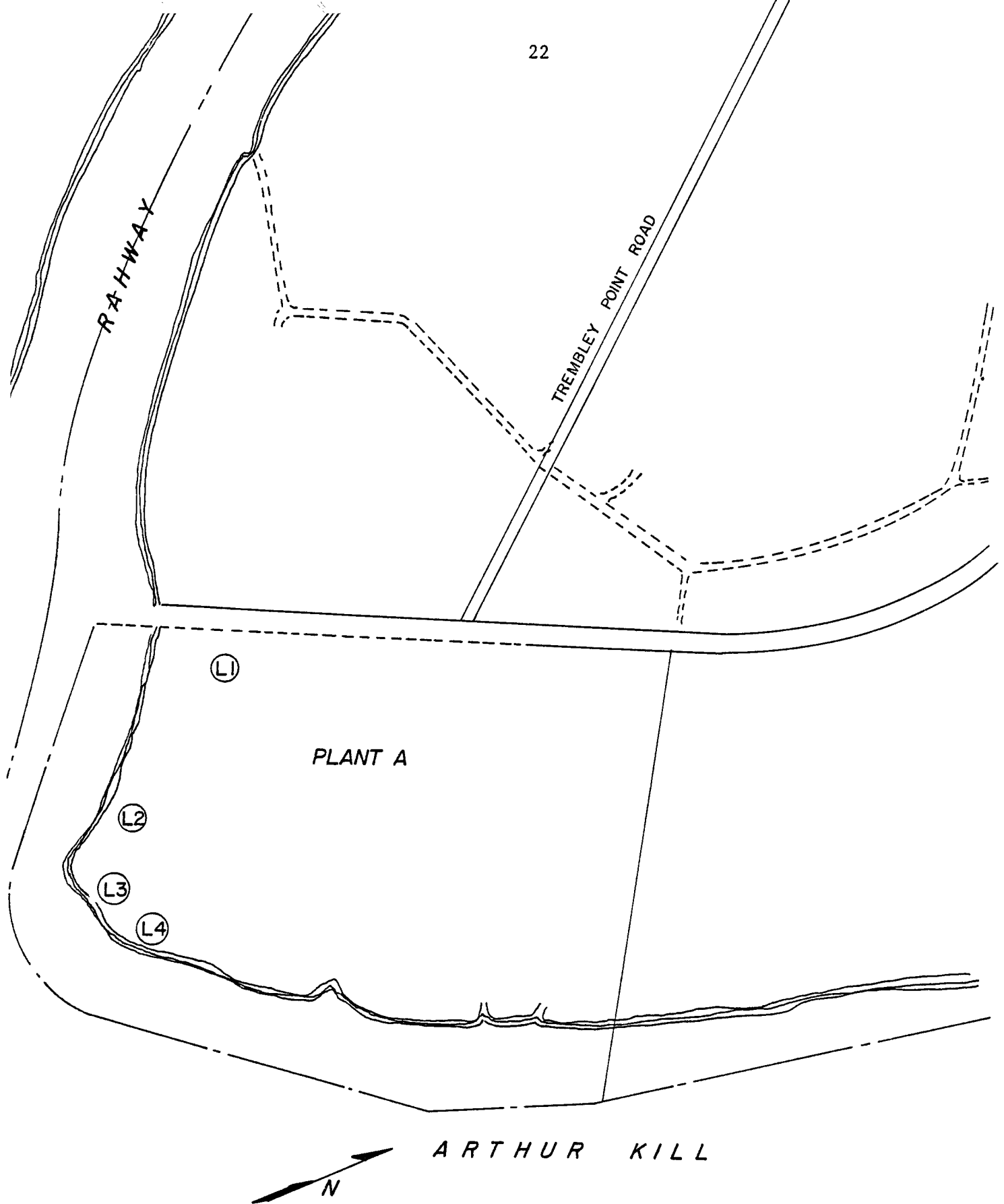


Figure A2. Sampling locations on American Cyanamid Co. plant site.

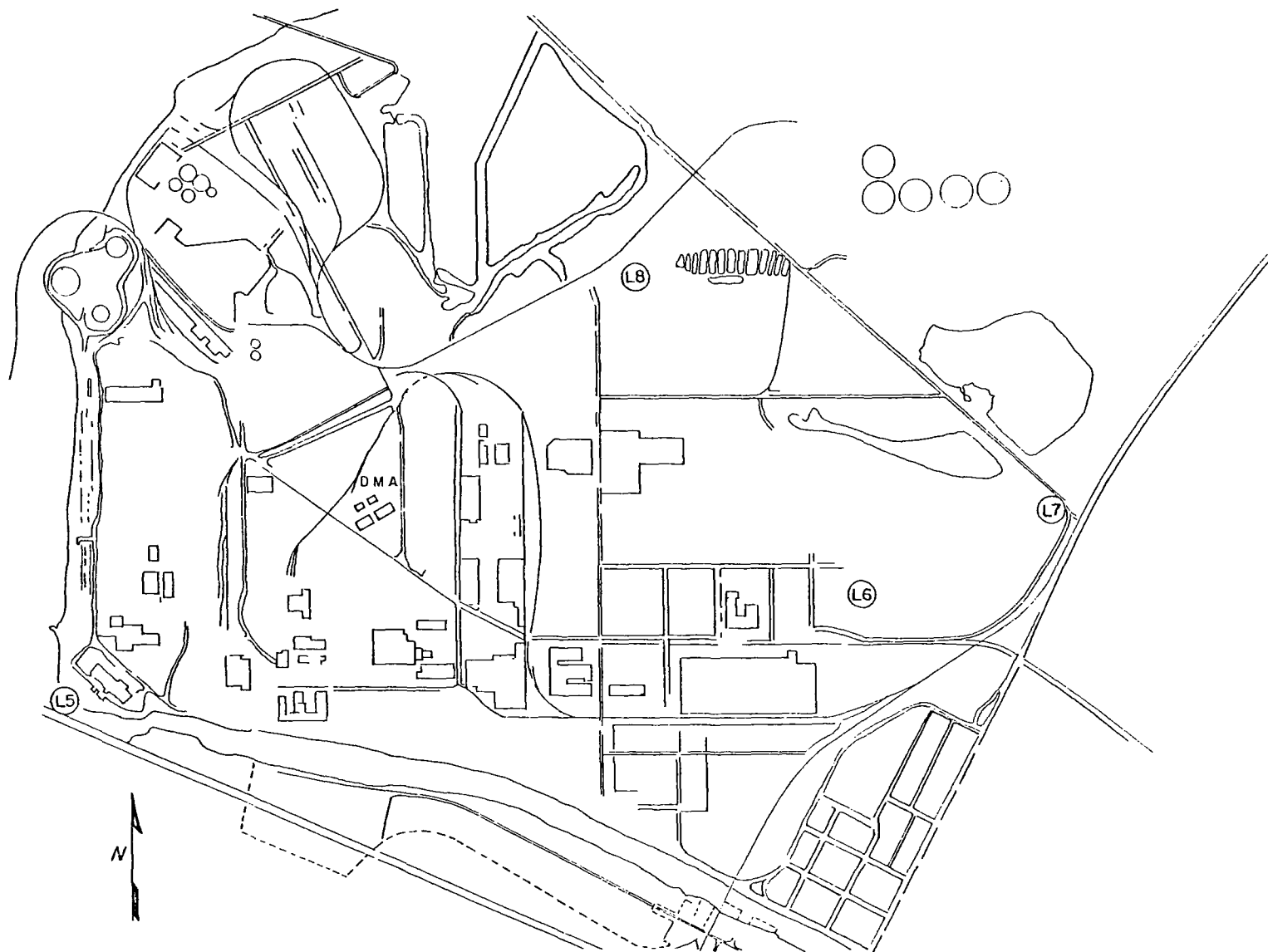


Figure A3. Sampling locations on Chambers Work site of E. I. DuPont de Nemours and Co., Deepwater, NJ.

Table A2. SAMPLING PROTOCOL FOR CONTINUOUS AIR MONITORING IN THE  
EL DORADO, ARKANSAS VICINITY - LOCATION 1:  
PARKERS CHAPEL WATER TOWER

| Period | Cycle | Time/Date                       | Volume<br>(m <sup>3</sup> ) | Meteorology          |              |                   | Comments                                   |
|--------|-------|---------------------------------|-----------------------------|----------------------|--------------|-------------------|--------------------------------------------|
|        |       |                                 |                             | Temp °C <sup>a</sup> | Wind Dir.    | Wind speed (Knts) | Precipitation                              |
| P1     | C1    | 1425, 3/5/77-<br>1625, 3/6/77   | 0.131                       | 17/1°                | NE-NW        | 0-10              |                                            |
| P2     | C1    | 1635, 3/6/77-<br>1706, 3/7/77   | 0.147                       | 20/-2                | NW-SW calm   | 0-10              |                                            |
| P3     | C1    | 1706, 3/7/77-<br>1550, 3/8/77   | 0.136                       | 23/1                 | calm NW,SW   | 0-15              |                                            |
| P4     | C1    | 1550, 3/8/77-<br>1725, 3/9/77   | 0.153                       | 21/5                 | calm SW,S,SE | 0-15              |                                            |
| P5     | C1    | 1725, 3/9/77-<br>1555, 3/10/77  | 0.134                       | 24/4                 | SE           | 5-10              |                                            |
| P6     | C1    | 1555, 3/10/77<br>1715, 3/12/77  | 0.152                       | 23/12                | SE,W         | 10-15             | 2.06 cm                                    |
| P7     | C1    | 1715, 3/11/77-<br>1700, 3/12/77 | 0.142                       | 23/10                | SE,SW,W      | 5-15              | Rain. Wind and water<br>damage to sampler. |
| P8     | C1    | 1700, 3/12/77-<br>1655, 3/13/77 | 0.143                       | 27/10                | SW,W         | 5-10              | Various malodors present                   |
| P9     | C1    | 1655, 3/13/77-<br>1718, 3/14/77 | 0.146                       | 29/6                 | calm S,SW    | 0-15              | Dust storm coming into area                |
| P10    | C1    | 1718, 3/14/77                   | 0.138                       | 30/17                | SW,W         | 0-10              |                                            |

<sup>a</sup> High/low

Table A2 (cont'd)

| Period | Cycle | Time/Date                       | Volume<br>(m <sup>3</sup> ) | Meteorology          |                 |                   | Precipitation | Comments                                 |
|--------|-------|---------------------------------|-----------------------------|----------------------|-----------------|-------------------|---------------|------------------------------------------|
|        |       |                                 |                             | Temp °C <sup>a</sup> | Wind Dir.       | Wind speed (Knts) |               |                                          |
| P11    | C1    | 1615, 3/15/77-<br>1830, 3/16/77 | 0.158                       | 30/12                | N,NE            | 5-15              |               |                                          |
| P12    | C1    | 1830, 3/16/77-<br>1600, 3/17/77 | 0.129                       | 25/14                | NE,E,SE,S       | 5-10              |               |                                          |
| P13    | C1    | 1600, 3/17/77-<br>1708, 3/18/77 | 0.151                       | 26/16                | S,SW,NW         | 5-15              |               |                                          |
| P14    | C1    | 1708, 3/18/77<br>1705, 3/19/77  | 0.144                       | 21/14                | NE,E,SE         | 0-10              |               |                                          |
| P15    | C1    | 1705, 3/19/77-<br>1750, 3/20/77 | 0.148                       | 20/-1                | calm NW,E<br>SE | 0-10              |               |                                          |
| P16    | C1    | 1750, 3/20/77-<br>1535, 3/21/77 | 0.130                       | 26/9                 | calm SE,E,W     | 0-15              |               |                                          |
| P17    | C1    | 1535, 3/21/77-<br>1530, 3/22/77 | 0.144                       | 26/1                 | NW,NE           | 0-10              |               |                                          |
| P18    | C1    | 1530, 3/22/77-<br>0900, 3/23/77 | 0.105                       | 18/1                 | calm            | -                 |               | Strong odor, not H <sub>2</sub> S.       |
| P19    | C1    | 0900, 3/23/77-<br>1555, 3/24/22 | 0.186                       | 23/8                 | S calm          | 0-5               | 0.56 cm       |                                          |
| P20    | C1    | 1555, 3/24/77-                  | --.                         |                      |                 |                   |               | Pump was not running at<br>1425, 3/25/77 |

Table A2 (cont'd)

| Period | Cycle | Time/Date                       | Volume<br>(m <sup>3</sup> ) | Meteorology          |              |                   | Precipitation | Comments |
|--------|-------|---------------------------------|-----------------------------|----------------------|--------------|-------------------|---------------|----------|
|        |       |                                 |                             | Temp °C <sup>a</sup> | Wind Dir.    | Wind speed (Knts) |               |          |
| P21    | C1    | 1635, 3/25/77-<br>1855, 3/26/77 | 0.158                       | 25/16                | SE           | 5-10              |               |          |
| P22    | C1    | 1855, 3/26/77-<br>1614, 3/27/77 | 0.128                       | 25/18                | SE,S         | 5-15              | 2.67 cm       |          |
| P23    | C1    | 1614, 3/27/77-<br>1706, 3/28/77 | 0.149                       | 27/13                | S,SE<br>W-SW | -20 G             | 2.08 cm       |          |
| P24    | C1    | 1706, 3/28/77-<br>1600, 3/29/77 | 0.144                       | 24/14                | S,SW,SE      | 5-10              |               |          |
| P25    | C1    | 1600, 3/29/77-<br>1850, 3/30/77 | 0.161                       | 29/17                | calm S,SW,W  | 5-10              |               |          |
| P26    | C1    | 1850, 3/30/77-<br>1353, 3/31/77 | 0.114                       | 23/17                | NW,N,NE      | 5-10              |               |          |
| P27    | C1    | 1353, 3/31/77-<br>1200, 4/1/77  | 0.190                       | 23/11                | NE,E         | 5-10              | 0.08 cm       |          |
| P28    | C1    | 1200, 4/1/77<br>1515, 4/2/77    | 0.245                       | 24/15                | SE,S,SW      | 5-10              | 0.79 cm       |          |
| P29    | C1    | 1515, 4/2/77-<br>1655, 4/3/77   | 0.205                       | 22/13                | calm SW,S,NE | 0-15              | 1.40 cm       |          |
| P30    | C1    | 1655, 4/3/77-                   | 0.164                       | 18/15                | E,NE,calm W  | 0-15 (G 22)       | 0.56 cm       |          |

Table A2 (cont'd)

| Period | Cycle | Time/Date                     | Volume<br>(m <sup>3</sup> ) | Meteorology          |              |                                 | Comments |
|--------|-------|-------------------------------|-----------------------------|----------------------|--------------|---------------------------------|----------|
|        |       |                               |                             | Temp °C <sup>a</sup> | Wind Dir.    | Wind speed (Knts) Precipitation |          |
| P31    | C1    | 1752, 4/4/77-<br>1615, 4/5/77 | 0.146                       | 18/6                 | W,NW         | 0-15 (G 23)                     |          |
| P32    | C1    | 1615, 4/5/77-<br>1825, 4/6/77 | 0.156                       | 18/4                 | calm NW,W,SW | 0-10                            |          |
| P33    | C1    | 1825, 4/6/77-                 | ~0.135                      | 29/9                 | calm W       | 0-14                            |          |

Table A3. SAMPLING PROTOCOL FOR CONTINUOUS AIR MONITORING IN THE  
EL DORADO, ARKANSAS VICINITY - LOCATION 2;  
EL DORADO WATER TOWER

| Period | Cycle | Time/Date                       | Volume<br>(m <sup>3</sup> ) | Meteorology          |              |                   | Comments      |
|--------|-------|---------------------------------|-----------------------------|----------------------|--------------|-------------------|---------------|
|        |       |                                 |                             | Temp °C <sup>a</sup> | Wind Dir.    | Wind speed (Knts) | Precipitation |
| P1     | C1    | 1650, 3/5/77-<br>1700, 3/6/77   | 0.145                       | 17/1                 | NE-NW        | 0-10              |               |
| P2     | C1    | 1700, 3/6/77-<br>1840, 3/7/77   | 0.134                       | 20/-2                | NW-SW calm   | 0-10              |               |
| P3     | C1    | 1840, 3/7/77-<br>1615, 3/8/77   | 0.129                       | 23/1                 | calm NW,SW   | 0-15              |               |
| P4     | C1    | 1615, 3/8/77-<br>1802, 3/9/77   | 0.170                       | 21/5                 | calm SW,S,SE | 0-15              |               |
| P5     | C1    | 1802, 3/9/77-<br>1620, 3/10/77  | 0.120                       | 24/4                 | SE           | 5-10              |               |
| P6     | C1    | 1620, 3/10/77-<br>1746, 3/11/77 | 0.129                       | 23/12                | SE,W         | 10-15             | 2.06 cm       |
| P7     | C1    | 1746, 3/11/77-<br>1725, 3/12/77 | 0.142                       | 23/10                | SE,SW,W      | 5-15              |               |
| P8     | C1    | 1725, 3/12/77-<br>1725, 3/13/77 | 0.144                       | 27/10                | SW,W         | 5-10              |               |
| P9     | C1    | 1725, 3/13/77-<br>1816, 3/14/77 | 0.149                       | 29/6                 | calm S,SW    | 0-15              |               |
| P10    | C1    | 1816, 3/14/77-<br>1645, 3/15/77 | 0.135                       | 30/17                | SW,W         | 0-10              |               |

Table A3 (cont'd)

| Period | Cycle | Time/Date                       | Volume<br>(m <sup>3</sup> ) | Meteorology          |                  |                   | Comments                                 |
|--------|-------|---------------------------------|-----------------------------|----------------------|------------------|-------------------|------------------------------------------|
|        |       |                                 |                             | Temp °C <sup>a</sup> | Wind Dir.        | Wind speed (Knts) | Precipitation                            |
| P11    | C1    | 1645, 3/15/77-<br>1855, 3/16/77 | 0.157                       | 30/12                | N,NE             | 5-15              |                                          |
| P12    | C1    | 1855, 3/16/77-<br>1630, 3/17/77 | 0.129                       | 25/14                | NE,E,SE,S        | 5-10              |                                          |
| P13    | C1    | 1630, 3/17/77-<br>1745, 3/18/77 | 0.152                       | 26/16                | S,SW,NW          | 5-15              |                                          |
| P14    | C1    | 1745, 3/18/77-<br>1730, 3/19/77 | 0.142                       | 21/14                | NE,E,SE          | 0-10              |                                          |
| P15    | C1    | 1730, 3/19/77-<br>1810, 3/20/77 | 0.148                       | 20/-1                | calm NW,E,<br>SE | 0-10              |                                          |
| P16    | C1    | 1810, 3/20/77-<br>1600, 3/21/77 | 0.157                       | 26/9                 | calm SE,S,W      | 0-15              |                                          |
| P17    | C1    | 1600, 3/21/77-<br>1455, 3/22/77 | 0.183                       | 26/1                 | NW,NE            | 0-10              |                                          |
| P18    | C1    | 1455, 3/22/77-<br>0925, 3/23/77 | 0.116                       | 18/1                 | calm             | -                 |                                          |
| P19    | C1    | 0925, 3/23/77-<br>1625, 3/24/77 | 0.203                       | 23/8                 | S calm           | 0-5               | 0.56 cm                                  |
| P20    | C1    | 1625, 3/24/77<br>--             | --                          | --                   | --               | --                | --<br>Pump was not running on<br>3/25/77 |

Table A3 (cont'd)

| Period | Cycle | Time/Date                       | Volume<br>(m <sup>3</sup> ) | Meteorology          |              |                   |               | Comments                                 |
|--------|-------|---------------------------------|-----------------------------|----------------------|--------------|-------------------|---------------|------------------------------------------|
|        |       |                                 |                             | Temp °C <sup>a</sup> | Wind Dir.    | Wind speed (Knts) | Precipitation |                                          |
| P21    | C1    | 1600, 3/25/77-<br>1925, 3/26/77 | 0.164                       | 25/16                | SE           | 5-10              |               | Raining                                  |
| P22    | C1    | 1925, 3/26/77-<br>1652, 3/27/77 | 0.129                       | 25/18                | SE,S         | 5-15              | 2.67 cm       | Raining                                  |
| P23    | C1    | 1652, 3/27/77-<br>1735, 3/28/77 | 0.148                       | 27/13                | S,SE,W-SW    | 5-20 (G)          | 2.08 cm       |                                          |
| P24    | C1    | 1735, 3/28/77-<br>1625, 3/29/77 | 0.137                       | 24/14                | S,SW,SE      | 5-10              |               |                                          |
| P25    | C1    | 1625, 3/29/77-<br>1922, 3/30/77 | 0.162                       | 29/17                | calm,S,SW,W  | 5-10              |               |                                          |
| P26    | C1    | 1922, 3/30/77-<br>1415, 3/31/77 | 0.113                       | 23/17                | NW,N,NE      | 5-10              |               |                                          |
| P27    | C1    | 1415, 3/31/77-<br>1220, 4/1/77  | 0.132                       | 23/11                | NE,E         | 5-10              | 0.08 cm       |                                          |
| P28    | C1    | 1220, 4/1/77-<br>1450, 4/2/77   | --                          | 24/15                | SE,S,SW      | 5-10              | 0.79 cm       | Pump stopped during<br>sampling interval |
| P29    | C1    | 1450, 4/2/77-<br>1720, 4/3/77   | 0.136                       | 22/13                | calm,SW,S,NE | 0-15              | 1.40 cm       |                                          |
| P30    | C1    | 1720, 4/3/77-                   | 0.180                       | 18/15                | E,NE,calm,W  | 0-15 (G 22)       | 0.56 cm       |                                          |

Table A3 (cont'd)

| Period | Cycle | Time/Date                     | Volume<br>(m <sup>3</sup> ) | Meteorology          |              |                   | Comments                                 |
|--------|-------|-------------------------------|-----------------------------|----------------------|--------------|-------------------|------------------------------------------|
|        |       |                               |                             | Temp °C <sup>a</sup> | Wind Dir.    | Wind speed (Knts) |                                          |
| P31    | C1    | 1824, 4/4/77-<br>1740, 4/5/77 | 0.152                       | 18/6                 | W,NW         | 0-15 (G 23)       |                                          |
| P32    | C1    | 1740, 4/5/77-<br>--           | --                          | 18/4                 | calm,NW,W,SW | 0-10              | Pump stopped during<br>sampling interval |
| P33    | C1    | 1856, 4/6/77-                 | ~0.135                      | 29/9                 | calm W       | 0-14              |                                          |

Table A4. PROTOCOL FOR CONTINUOUS AIR MONITORING,  
MAGNOLIA, ARKANSAS

| Period | Cycle | Time/Date                       | Volume<br>(m <sup>3</sup> ) | Meteorology                  |                   |                   |               | Comments |
|--------|-------|---------------------------------|-----------------------------|------------------------------|-------------------|-------------------|---------------|----------|
|        |       |                                 |                             | Temp °C <sup>a</sup>         | Wind Dir.         | Wind speed (Knts) | Precipitation |          |
| P1     | C1    | 1740, 4/9/77-<br>1900, 4/11/77  | 0.148                       | 29/10                        | calm S,SW,SE      | 0-10              |               |          |
| P2     | C1    | 1900, 4/11/77-<br>1150, 4/13/77 | 0.123                       | 29/11                        | calm S,SE         | 0-10 (G 16)       |               |          |
| P3     | C1    | 1150, 4/13/77-<br>1605, 4/15/77 | 0.157                       | 29/11                        | calm SE           | 0-10 (G 19)       |               |          |
| P4     | C1    | 1605, 4/15/77-<br>1705, 4/17/77 | 0.147                       | 29/14                        | calm SE           | 0-15              |               |          |
| P5     | C1    | 1705, 4/17/77-<br>1700, 4/19/77 | 0.144                       | 28/14                        | SE,S              | 5-10              | 4.98 cm       |          |
| P6     | C1    | 1700, 4/19/77-<br>1750, 4/21/77 | 0.146                       | 28/18                        | calm SE           | 0-10              | 0.30 cm       |          |
| P7     | C1    | 1750, 4/21/77-<br>2025, 4/23/77 | 0.152                       | 26/11                        | E,SE,SW,W<br>calm | 0-10              | 1.37 cm       |          |
| P8     | C1    | 2025, 4/23/77-<br>1130, 4/25/77 | 0.116                       | 26/9                         | N,NW calm         | 0-10              | trace         |          |
| P9     | C1    | 1130, 4/25/77-<br>1450, 4/28/77 | 0.137                       | 29/7                         | calm, NW<br>S,SW  | 0-15              |               |          |
| P10    | C1    | 1450, 4/28/77-<br>1700, 5/1/77  | 0.150                       | Data not currently available |                   |                   |               |          |
| P11    | C1    | 1700, 5/1/77-<br>2220, 5/8/77   | 0.488                       | Data not currently available |                   |                   |               |          |

Table A5. PROTOCOL FOR CONTINUOUS AIR MONITORING NEAR DOW CHEMICAL COMPANY,  
MAGNOLIA, ARKANSAS

| Period | Cycle | Time/Date                       | Volume<br>(m <sup>3</sup> ) | Meteorology          |                      |                   | Precipitation | Comments                                                                                                |
|--------|-------|---------------------------------|-----------------------------|----------------------|----------------------|-------------------|---------------|---------------------------------------------------------------------------------------------------------|
|        |       |                                 |                             | Temp °C <sup>a</sup> | Wind Dir.            | Wind speed (Knts) |               |                                                                                                         |
| P1     | C1    | 1315, 4/9/77-<br>1825, 4/11/77  | 0.012                       | 29/10                | calm, S, SW, SE      | 0-10              |               |                                                                                                         |
| P2     | C1    | 1825, 4/11/77-<br>1120, 4/13/77 | 0.123                       | 29/11                | calm, S, SE          | 0-10 (G 16)       |               |                                                                                                         |
| P3     | C1    | 1120, 4/13/77-<br>1935, 4/15/77 | 0.078                       | 29/11                | calm, SE             | 0-10 (G 19)       |               | Sharp odor in air<br>4/15/77                                                                            |
| P4     | C1    | 1935, 4/15/77-<br>1540, 4/17/77 | 0.127                       | 29/14                | calm, SE             | 0-15              |               | Flare at Dow emitting grey<br>smoke which was drifting<br>northeast of sampler. Wind<br>from southeast. |
| P5     | C1    | 1540, 4/17/77-<br>1620, 4/19/77 | 0.146                       | 28/14                | SE, S                | 5-10              |               |                                                                                                         |
| P6     | C1    | 1620, 4/19/77-<br>1925, 4/2/77  | <0.153 <sup>a</sup>         | 28/18                | calm, SE             | 0-10              | 4.98 cm       |                                                                                                         |
| P7     | C1    | 1925, 4/2/77-<br>1905, 4/23/77  | 0.145                       | 26/11                | E, SE, SW, W<br>calm | 0-10              | 0.30 cm       | Plume seen over plant site<br>with very weak wind blowing<br>in direction of sampler.                   |
| P8     | C1    | 1905, 4/23/77-<br>1100, 4/25/77 | 0.120                       | 26/9                 | N, NW, calm          | 0-10              | 1.37 cm       |                                                                                                         |
| P9     | C1    | 1130, 4/25/77-<br>2010, 4/28/77 | 0.209                       | 29/7                 | calm, NW, S, SW      | 0-15              | trace         |                                                                                                         |
| P10    | C1    | 2010, 4/28/77-<br>1740, 4/30/77 | 0.167                       | 29/13                | calm, SW, SE         | 0-10              |               | Odor in air, wind from<br>plant direction.                                                              |

Table A6, PROTOCOL FOR CONTINUOUS AIR MONITORING NEAR ETHYL CORPORATION,  
MAGNOLIA, ARKANSAS

| Period | Cycle | Time/Date                       | Volume<br>(m <sup>3</sup> ) | Meteorology          |                              |                                   | Comments                    |
|--------|-------|---------------------------------|-----------------------------|----------------------|------------------------------|-----------------------------------|-----------------------------|
|        |       |                                 |                             | Temp °C <sup>a</sup> | Wind Dir.                    | Wind speed (Knts) , Precipitation |                             |
| P1     | C1    | 1130, 4/9/77-<br>1130, 4/11/77  | <0.144 <sup>a</sup>         | 29/10                | calm S,SW,SE                 | 0-10                              |                             |
| P2     | C1    | 1800, 4/11/77-<br>1050, 4/13/77 | 0.122                       | 29/11                | calm S,SE                    | 0-10 (G 16)                       |                             |
| P3     | C1    | 1050, 4/13/77-<br>1900, 4/15/77 | 0.202                       | 29/11                | calm SE                      | 0-10 (G 19)                       |                             |
| P4     | C1    | 1900, 4/15/77-<br>1425, 4/17/77 | 0.130                       | 29/14                | calm SE                      | 0-15                              |                             |
| P5     | C1    | 1435, 4/17/77<br>1535, 4/19/77  | 0.147                       | 28/14                | SE,S                         | 5-10                              |                             |
| P6     | C1    | 1535, 4/19/77-<br>1845, 4/21/77 | 0.134                       | 28/18                | calm,SE                      | 0-10                              | 4.98 cm<br>Odor of bromine. |
| P7     | C1    | 1845, 4/21/77-<br>1750, 4/23/77 | 0.141                       | 26/11                | E,SE,SW,W                    | 0-10                              | 0.3 cm                      |
| P8     | C1    | 1750, 4/23/77-<br>1100, 4/23/77 | 0.123                       | 26/9                 | N,MW,calm                    | 0-10                              | 1.37 cm                     |
| P9     | C1    | 1100, 4/25/77-<br>1905, 4/28/77 | <0.120 <sup>a</sup>         | 29/7                 | calm,NW<br>SW,S              | 0-15                              | trace                       |
| P10    | C1    | 1905, 4/28/77-<br>1625, 4/30/77 | 0.130                       | 29/13                | calm,SW<br>SE                | 0-10                              |                             |
| P11    | C1    | 1625, 4/30/77<br>--             | --                          |                      | Data not currently available |                                   |                             |

<sup>a</sup>Mechanical failure of pump during sampling period.

Table A6(cont'd)

| Period | Cycle | Time/Date                      | Volume<br>(m <sup>3</sup> ) | Meteorology          |           |                              | Precipitation | Comments                                              |
|--------|-------|--------------------------------|-----------------------------|----------------------|-----------|------------------------------|---------------|-------------------------------------------------------|
|        |       |                                |                             | Temp °C <sup>a</sup> | Wind Dir. | Wind speed (Knts)            |               |                                                       |
| P11    | C1    | 1740, 4/30/77-<br>1130, 5/2/77 | 0.097                       |                      |           | Data not currently available |               | Faint odor from plant, winds<br>from plant direction. |
| P12    | C1    | 1130, 5/2/77-<br>1200, 5/4/77  | 0.146                       |                      |           | Data not currently available |               |                                                       |

<sup>a</sup>Mechanical failure of pump during sampling period.

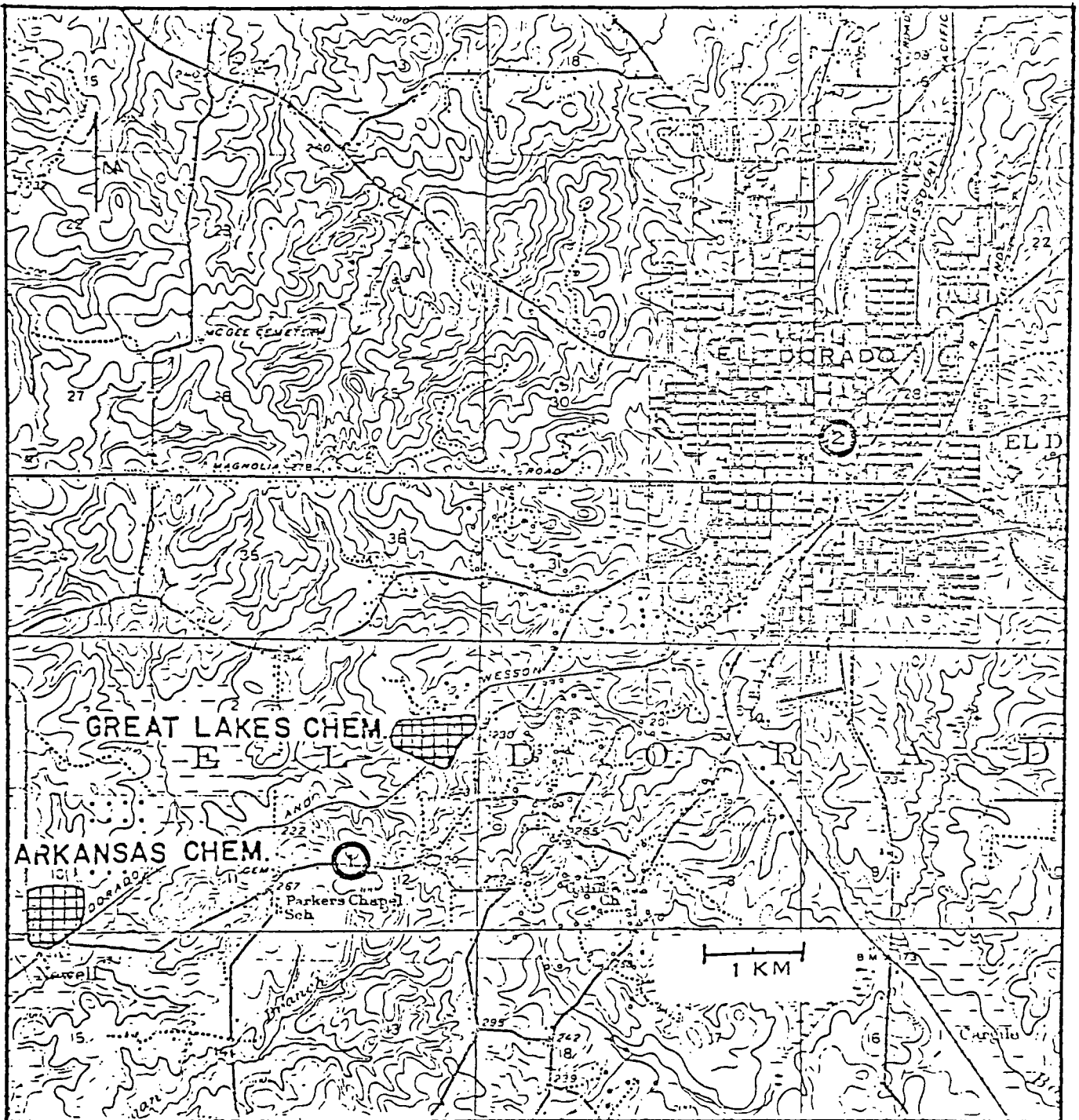


Figure A4. Map of El Dorado area - sampling locations for continuous air monitoring.

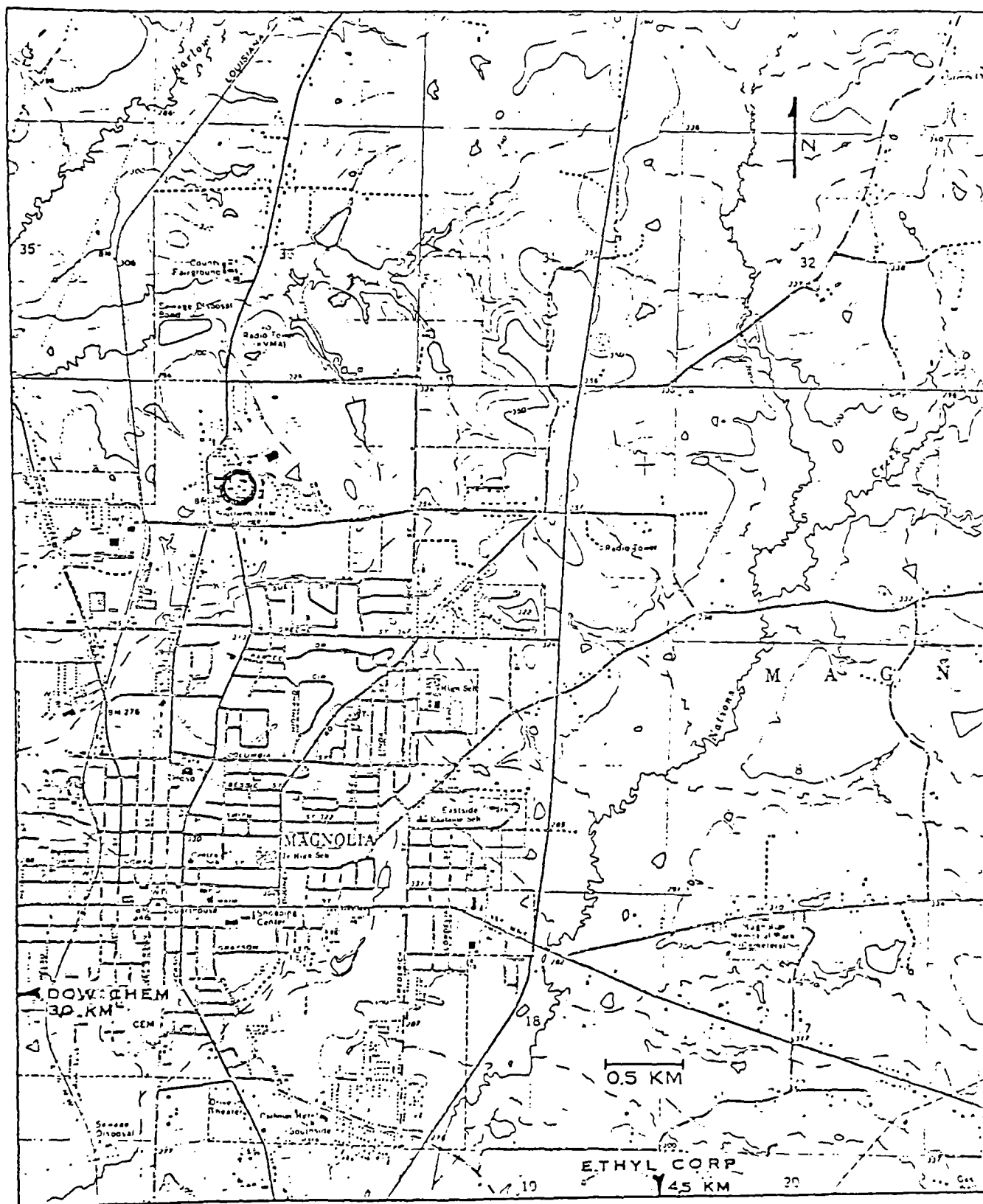


Figure A5. Map of Magnolia area - sampling location for continuous air monitoring.

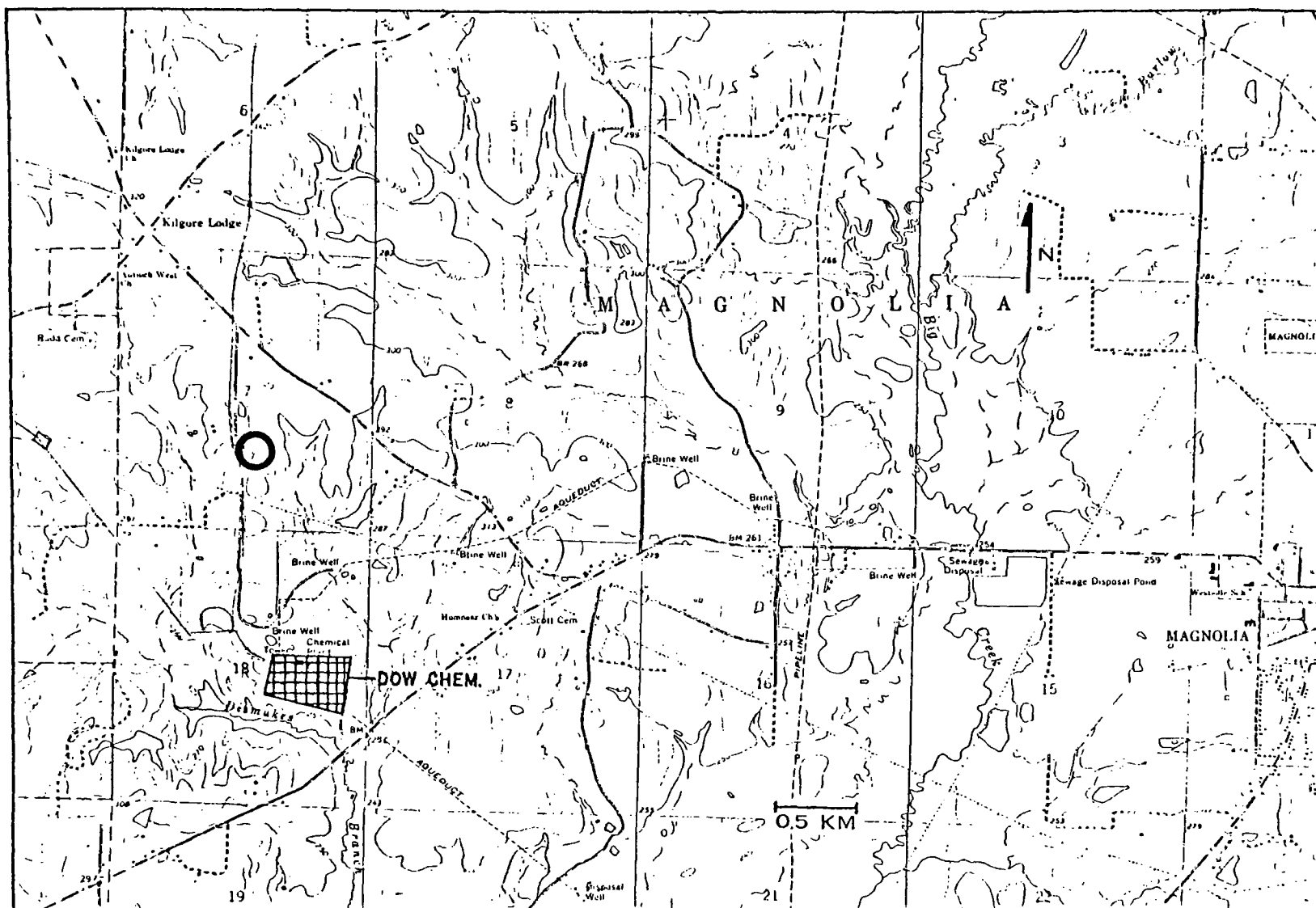


Figure A6. Map of area in vicinity of Dow Chemical Corporation Magnolia, Arkansas - sampling location for continuous air monitoring.

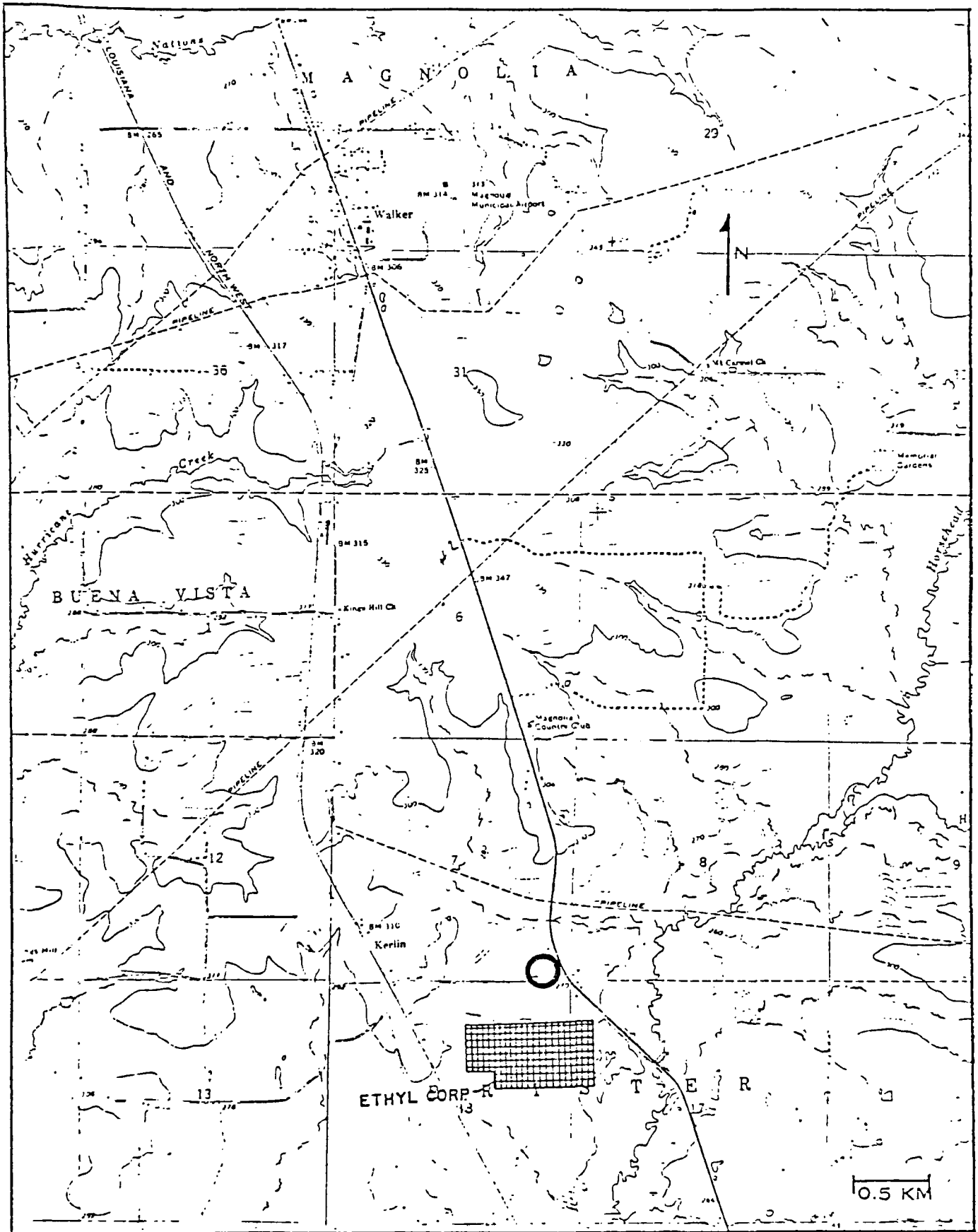


Figure A7. Map of area in the vicinity of Ethyl Corporation Magnolia, Arkansas - sampling location for continuous air monitoring.

Table A7, AMBIENT AIR SAMPLING PROTOCOL FOR BATON ROUGE, LA AREA

| Sampling Location                                     | Sampling Time<br>(min) | Sampling Volume<br>(ℓ) | Remarks                                          |
|-------------------------------------------------------|------------------------|------------------------|--------------------------------------------------|
| Off U.S. 61 North of<br>Plant A<br>(L17)              | 1400                   | 140                    | 3/3-3/4/77<br>~99% RH<br>1150-1110<br>120°/light |
| Off unpaved, unmarked rd.<br>(L18)                    | 1435                   | 143                    | 3/3-3/4/77<br>~99% RH<br>1135-1130<br>120°/light |
| Northwest of Plant A on<br>Mr. Ewell's ranch<br>(L19) | 235                    | 156                    | 3/3/77<br>rain<br>1220-1615<br>120°/light        |
| Northwest of Plant A on<br>Mr. Ewell's ranch<br>(L20) | 260                    | 184                    | 3/4/77<br>93% RH<br>1125-1545<br>90→120°/4 mph   |
| Off unpaved, unmarked rd.<br>(L21)                    | 30                     | 195                    | 3/4/77<br>93% RH<br>1207-1237<br>90°/4 mph       |
| Eastside of LA 61<br>(L22)                            | 265                    | 146                    | 3/8/77<br>49% RH<br>1205-1630<br>180°/4 mph      |
| Northwest of Plant A on<br>Mr. Ewell's ranch<br>(L20) | 195                    | 129                    | 3/8/77<br>49% RH<br>1235-1550<br>180°/4 mph      |
| Off of Turning Basin Rd.<br>(L23)                     | 1190                   | 119                    | 3/8-3/9/77<br>50% RH<br>1625-1215<br>180°/5 mph  |
| Graveyard Area<br>(L24)                               | 1070                   | 107                    | 3/8-3/9/77<br>50% RH<br>1640-1030<br>180°/5 mph  |

Table A7 (cont'd)

| Sampling Location       | Sampling Time<br>(min) | Sampling Volume<br>(l) | Remarks               |                           |
|-------------------------|------------------------|------------------------|-----------------------|---------------------------|
| Mengel Rd.<br>(L25)     | 190                    | 124                    | 3/9/77<br>54% RH      | 1330-1640<br>180°/7 mph   |
| Off LA 61<br>(L26)      | 180                    | 121                    | 3/9/77<br>54% RH      | 1400-1700<br>100°/7 mph   |
| Off Mengel Rd.<br>(L27) | 1090                   | 109                    | 3/9-3/10/77<br>54% RH | 1650-1100<br>180°/8-9 mph |
| Off LA 190<br>(L28)     | 1080                   | 108                    | 3/9-3/10/77<br>54% RH | 1715-1115<br>180°/8-9 mph |
| Off Mengel Rd.<br>(L25) | 190                    | 124                    | 3/9/77<br>54% RH      | 1330-1650<br>100°/7 mph   |
| Off LA 61<br>(L26)      | 180                    | 121                    | 3/9/77<br>54% RH      | 1400-1700<br>100°/7 mph   |
| Off Mengel Rd.<br>(L27) | 1090                   | 109                    | 3/9-3/10/77<br>78% RH | 1650-1100<br>180°/8-9 mph |
| Off LA 61<br>(L28)      | 1080                   | 108                    | 3/9-3/10/77<br>78% RH | 1715-1115<br>180°/8-9 mph |
| Off Mengel Rd.<br>(L25) | 240                    | 162                    | 3/10/77<br>54% RH     | 1105-1505<br>180°/7 mph   |
| Off LA 61<br>(L26)      | 250                    | 152                    | 3/10/77<br>54% RH     | 1140-1550<br>180°/7 mph   |

Table A7 (cont'd)

| Sampling Location                   | Sampling Time<br>(min) | Sampling Volume<br>(l) | Remarks                |                         |
|-------------------------------------|------------------------|------------------------|------------------------|-------------------------|
| Choctow Rd. and Pholox St.<br>(L29) | 235                    | 173                    | 3/10/77<br>54% RH      | 1215-1610<br>180°/7 mph |
| LA 1 and LA 190<br>(L30)            | 960                    | 96                     | 3/10-3/11/77<br>75% RH | 1700-0900<br>100°/6 mph |

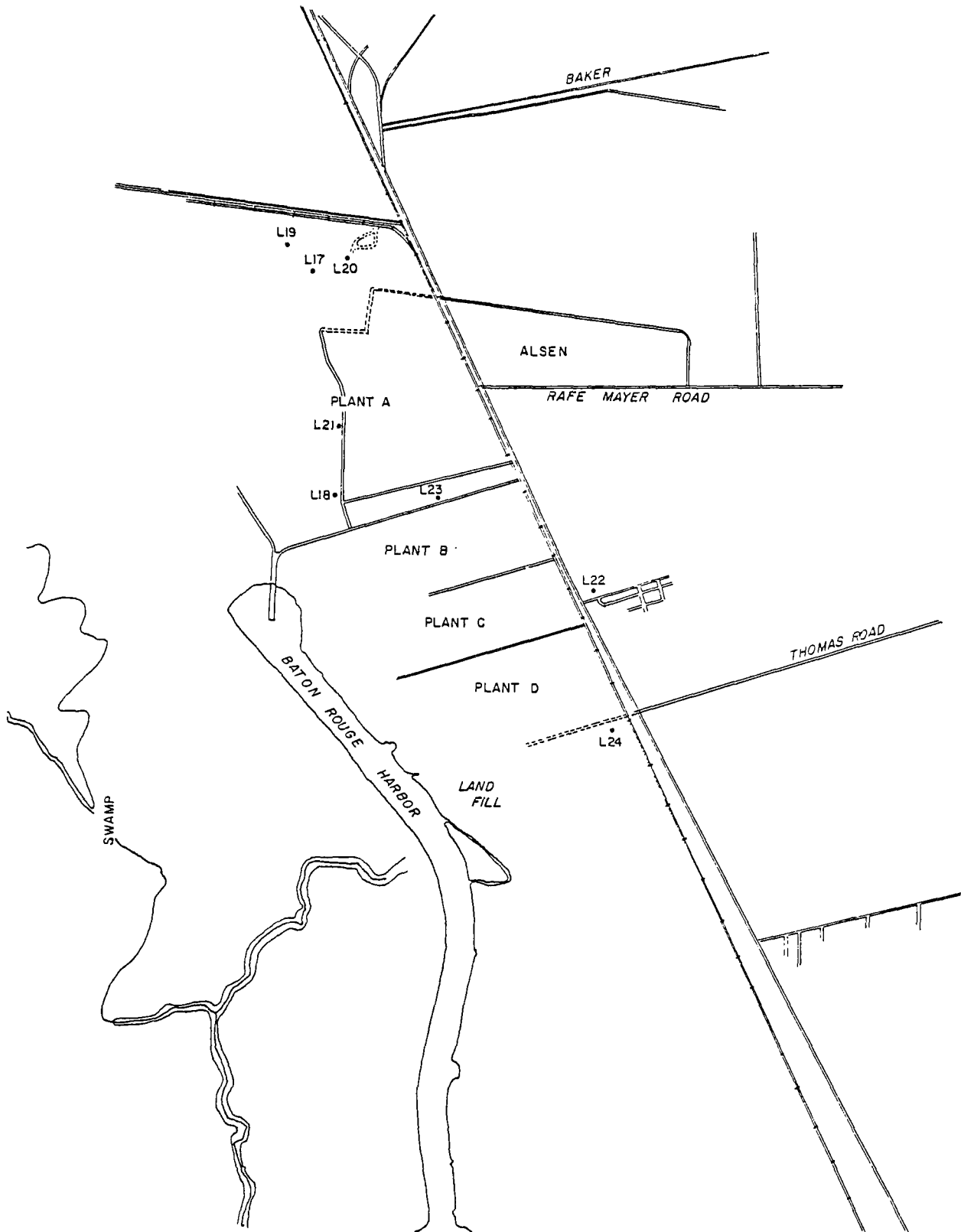


Figure A8. Sampling site and locations for Baton Rouge, LA Area.

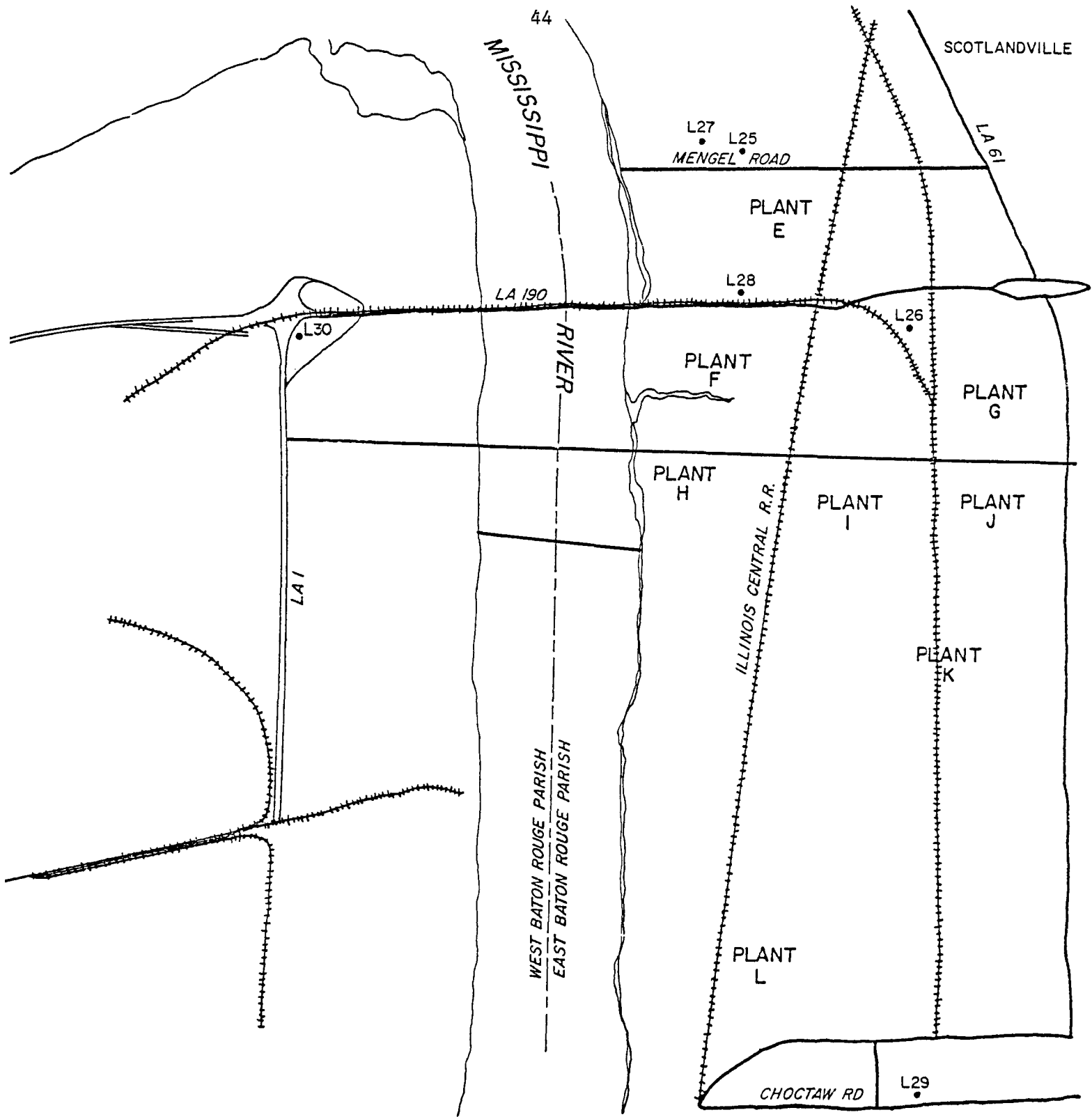


Figure A9. Sampling site and locations in Baton Rouge, LA.

Table A8. AMBIENT AIR SAMPLING PROTOCOL FOR PLAQUEMINE, LA AREA

| Sampling Locations                                                  | Sampling Time<br>(min) | Volume Sampled<br>(ℓ) | Remarks                                          |
|---------------------------------------------------------------------|------------------------|-----------------------|--------------------------------------------------|
| Plaquemine, LA<br>City Water Tower,<br>Bayou Rd (L1)                | 1363                   | 136                   | 1/31-2/1/77 1437-1320<br>44°F-49% RH 0°/1-12 mph |
| St. John Evangelist<br>Church Tower,<br>Church and Main St.<br>(L2) | 1330                   | 133                   | 1/31-2/1/77 1540-1350<br>44°F-49%RH 0°/1-12 mph  |
| LA 988 & Davis St.<br>(L3)                                          | 250                    | 439                   | 2/1/77 1255-1705<br>44°F-47% RH 70°/1-12 mph     |
| 50 yd East off<br>LA 1N (L4)                                        | 190                    | 289                   | 2/1/77 1430-1740<br>44°F-47% RH 70°/1-12 mph     |
| East off LA 1 (L5)                                                  | 190                    | 129                   | 2/1/77 1445-1755<br>44°F-36% RH 70°/1-12 mph     |
| Off LA 1 (L6)                                                       | 1095                   | 109                   | 2/1-2/2/77 1600-1015<br>44°F-36% RH 90°/1-12 mph |
| Off LA 1 on Ms.<br>Armalline Caillouet<br>Property (L7)             | 990                    | 99                    | 2/1-2/2/77 1745-1015<br>43°F-36% RH 90°/1-12 mph |
| Plaquemine Evergreen<br>Plantation (L8)                             | 275                    | 191                   | 2/2/77 1250-1725<br>57°F-55% RH 80°/1-3 mph      |
| Plaquemine Evergreen<br>Plantation (L9)                             | 230                    | 202                   | 2/2/77 1325-1715<br>57°F-61% RH Variable Winds   |

Table A8 (cont'd)

| Sampling Locations                       | Sampling Time<br>(min) | Volume Sampled<br>(ℓ) | Remarks                                          |
|------------------------------------------|------------------------|-----------------------|--------------------------------------------------|
| Plaquemine Evergreen<br>Plantation (L10) | 150                    | 100                   | 2/2/77 1400-1630<br>56°F-55% RH 90°/variable     |
| Plaquemine Evergreen<br>Plantation (L11) | 1035                   | 103                   | 2/2-2/3/77 1705-1020<br>45°F-99% RH 90°/variable |

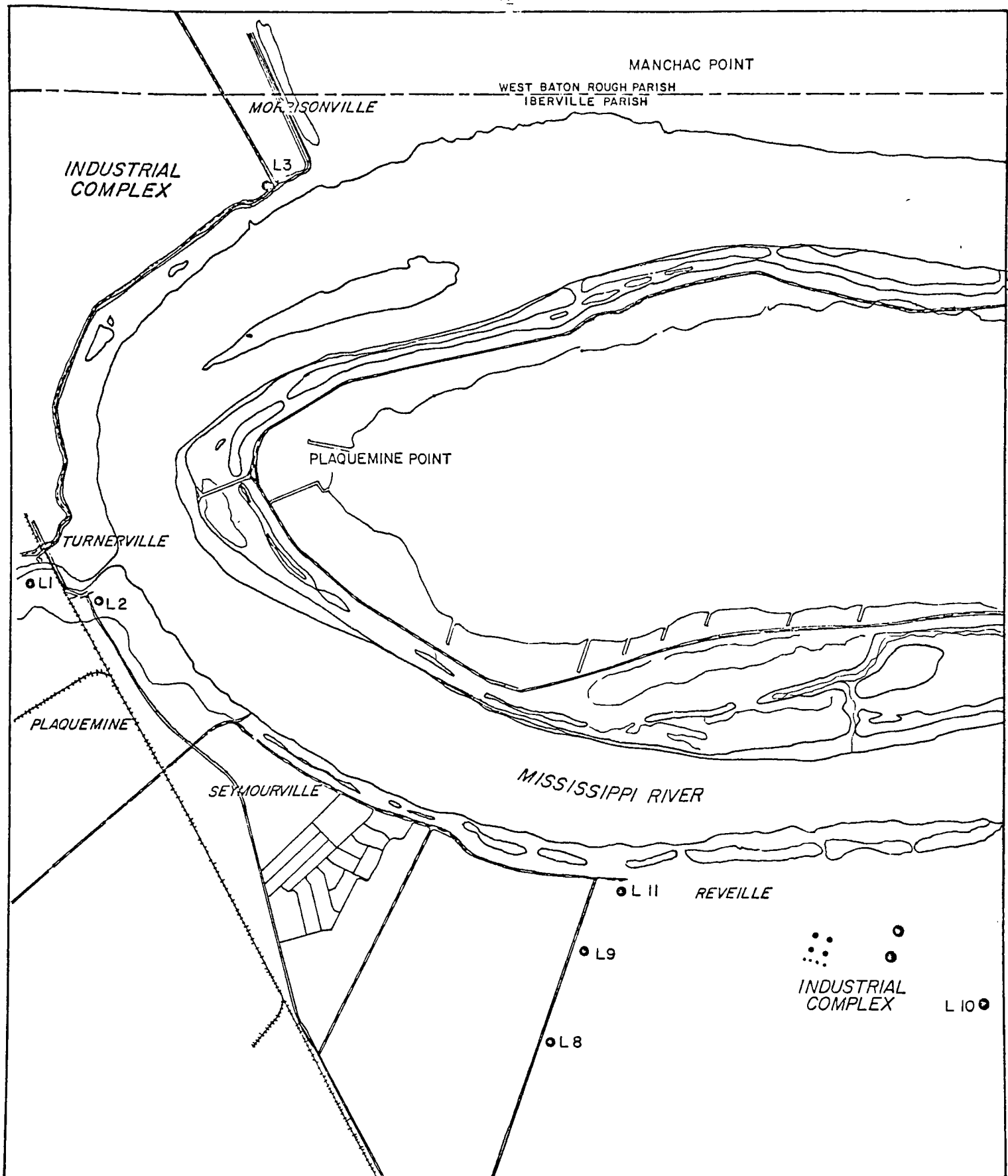


Figure A10. Map depicting locations of ambient air sampling network in Iberville Parish, LA.

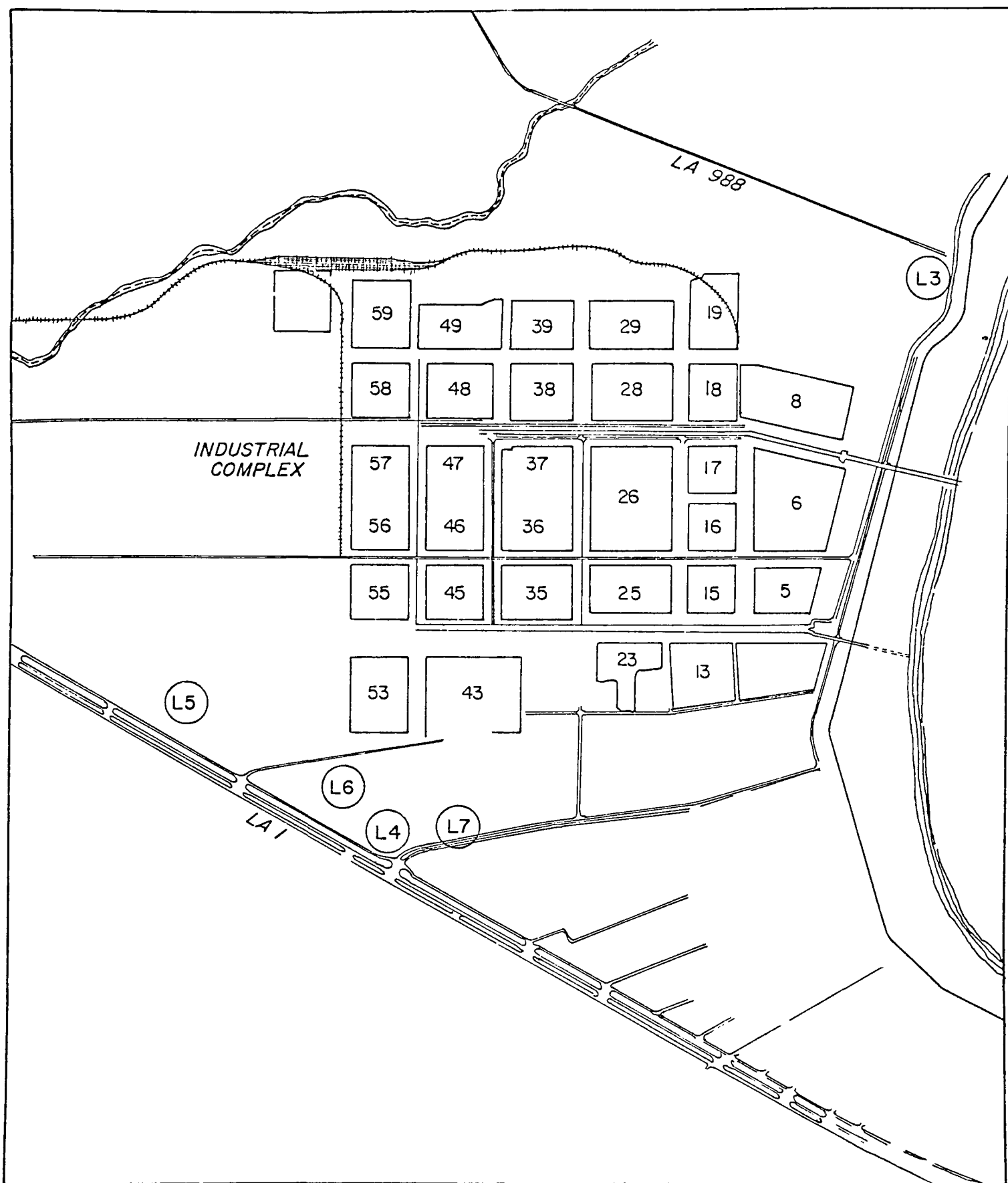


Figure A11. Map depicting sampling locations near industrial complex in Iberville Parish, LA.

Table A9. AMBIENT AIR SAMPLING PROTOCOL FOR HOUSTON, TX AND VICINITY

| Site          | Sampling Location                                 | Sampling Time<br>(min) | Volume Sampled<br>(ℓ) | Remarks                              |
|---------------|---------------------------------------------------|------------------------|-----------------------|--------------------------------------|
| Houston, TX   | Milby Park (HL1)                                  | 1670-1750              | 188                   | 7/27/76 93°F<br>60% RH 160°/3 mph    |
| Houston, TX   | Off Goodyear Rd.,<br>on unpaved St. (HL2)         | 1510-1515              | 37                    | 7/27/76 93°F<br>60% RH 160°/3 mph    |
| Houston, TX   | Steelman Ave. & El<br>Buey Way (HL3)              | 1620-1750              | 229                   | 7/27/76 93°F<br>60% RH 160°/3 mph    |
| Pasadena, TX  | Between Industrial Site<br>and Ship Channel (HL3) | 1430-1600              | 185                   | 7/28/76 89°F<br>65% RH 160°/5-10 mph |
| Pasadena, TX  | Tenneco Property<br>(PL2)                         | 1430-1600              | 237                   | 7/28/76 89°F<br>65% RH 160°/5-10 mph |
| Pasadena, TX  | Tenneco Property<br>(PL3)                         | 1430-1600              | 191                   | 7/28/76 89°F<br>65% RH 160°/5-10 mph |
| Deer Park, TX | Shell Property<br>(DSL1)                          | 1100-1200              | 122                   | 7/29/76 87°F<br>66% RH 180°/4-9 mph  |
| Deer Park, TX | Shell Property<br>(DSL2)                          | 1100-1200              | 136                   | 7/29/76 87°F<br>66% RH 180°/4-9 mph  |
| Deer Park, TX | Diamond Shamrock<br>Property (DDL1)               | 1455-1555              | 137                   | 7/29/76 94°F<br>54% RH 130°/4-7 mph  |
| Deer Park, TX | Off Tidal Road<br>(DTL1)                          | 1020-1035              | 113                   | 7/30/76 90°F<br>50% RH 210°/6 mph    |
| Deer Park, TX | Off Tidal Road<br>(DTL2)                          | 1115-1215              | 147                   | 7/30/76 90°F<br>60% RH 200°/6-8 mph  |

Table A9 (cont'd)

| Site          | Sampling Location                                     | Sampling Time<br>(min) | Volume Sampled<br>(ℓ) | Remarks           |                          |
|---------------|-------------------------------------------------------|------------------------|-----------------------|-------------------|--------------------------|
| Deer Park, TX | Off Tidal Road<br>(DTL3)                              | 1455-1555              | 162                   | 7/29/76<br>66% RH | 87°F<br>180°/4-9 mph     |
| Deer Park, TX | Off Tidal Road<br>(DTL4)                              | 1115-1215              | 165                   | 7/30/76<br>60% RH | 90°F<br>200°/6-8 mph     |
| Freeport, TX  | On Dow Chem. Property<br>(FL1)                        | 1342-1543              | 116                   | 8/9/76<br>65% RH  | 90°F<br>145°/5-10 mph    |
| Freeport, TX  | On Dow Chem. Property<br>(FL2)                        | 1348-1555              | 85                    | 8/9/76<br>65% RH  | 90°F<br>145°/5-10 mph    |
| Freeport, TX  | On Dow Chem. Property<br>(FL3)                        | 1425-1508              | 79                    | 8/9/76<br>65% RH  | 90°F<br>145°/5-10 mph    |
| La Porte, TX  | On E. I. DuPont<br>de Nemours & Co.<br>Property (LL1) | 1645-1833              | 110                   | 8/12/76<br>62% RH | 90°F<br>130-150°/2-6 mph |
| La Porte, TX  | On E. I. DuPont<br>de Nemours & Co.<br>Property (LL2) | 1641-1824              | 82                    | 8/12/76<br>62% RH | 90°F<br>130-150°/2-6 mph |
| La Porte, TX  | On E. I. DuPont<br>de Nemours & Co.<br>Property (LL3) | 1114-1252              | 87                    | 8/13/76<br>53% RH | 92°F<br>240°/0-4 mph     |

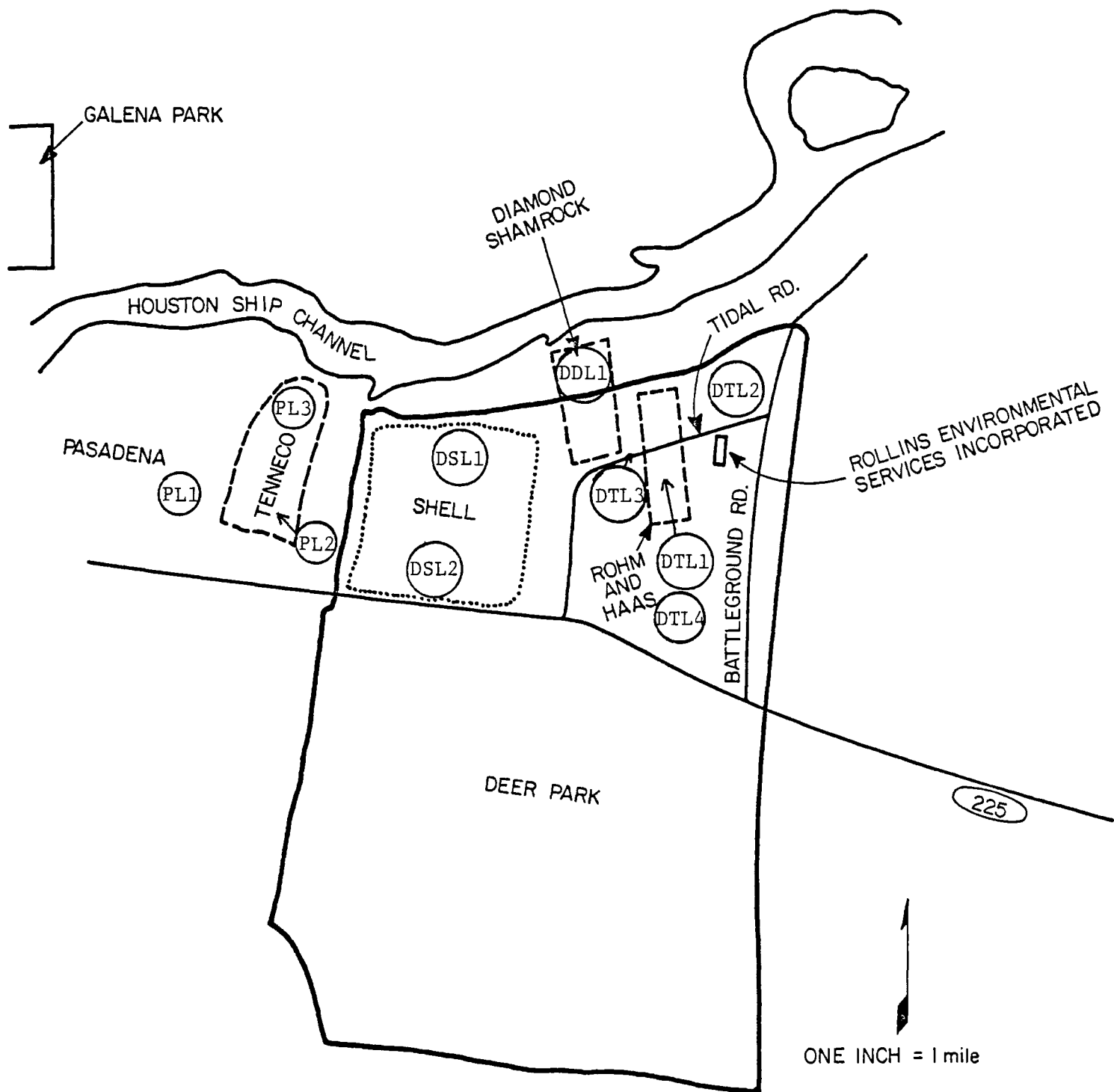


Figure A12. Sampling locations for Deer Park and Pasadena, TX sites.

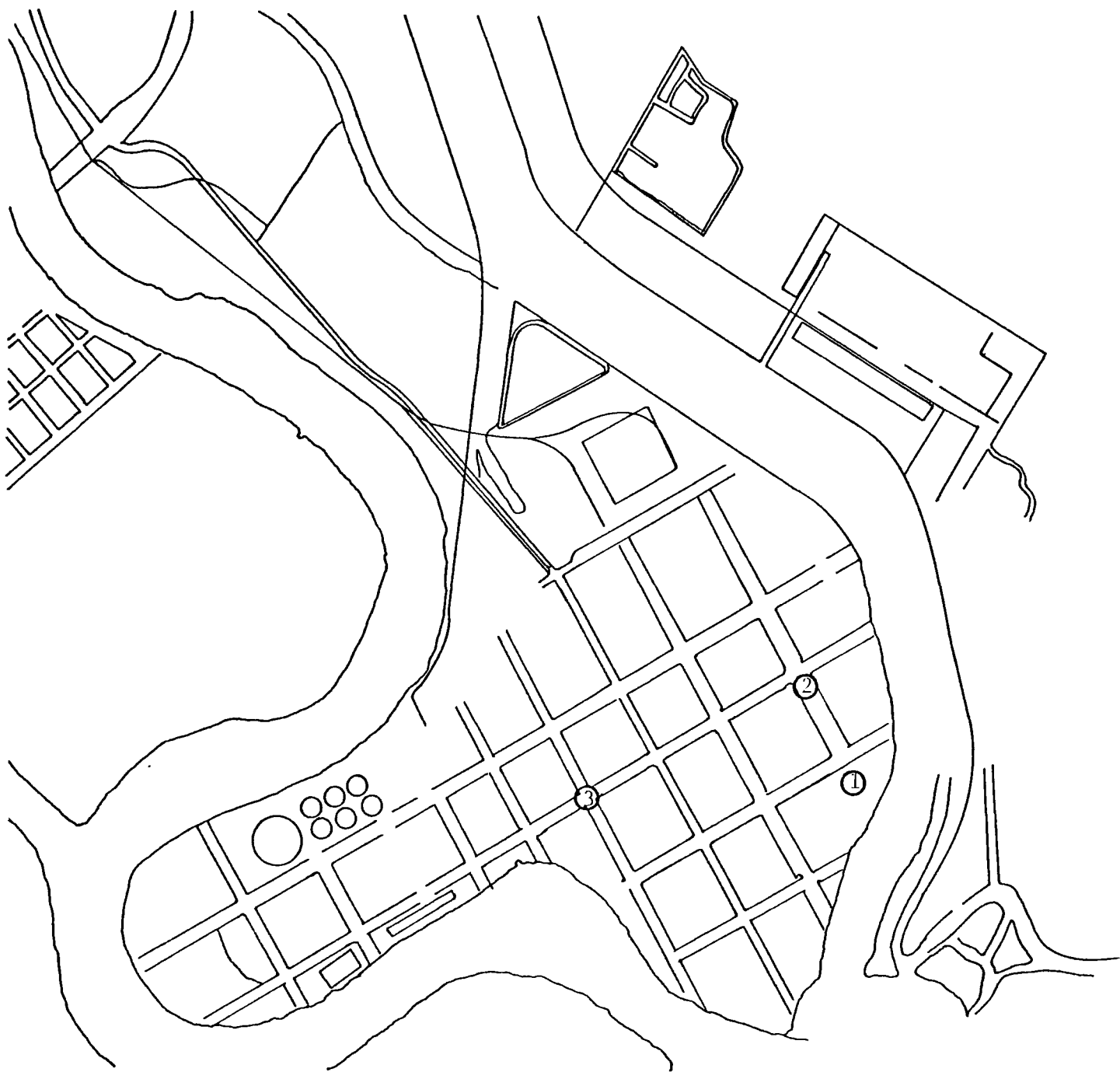


Figure A13. Sampling locations in Freeport, TX (Dow 'A')

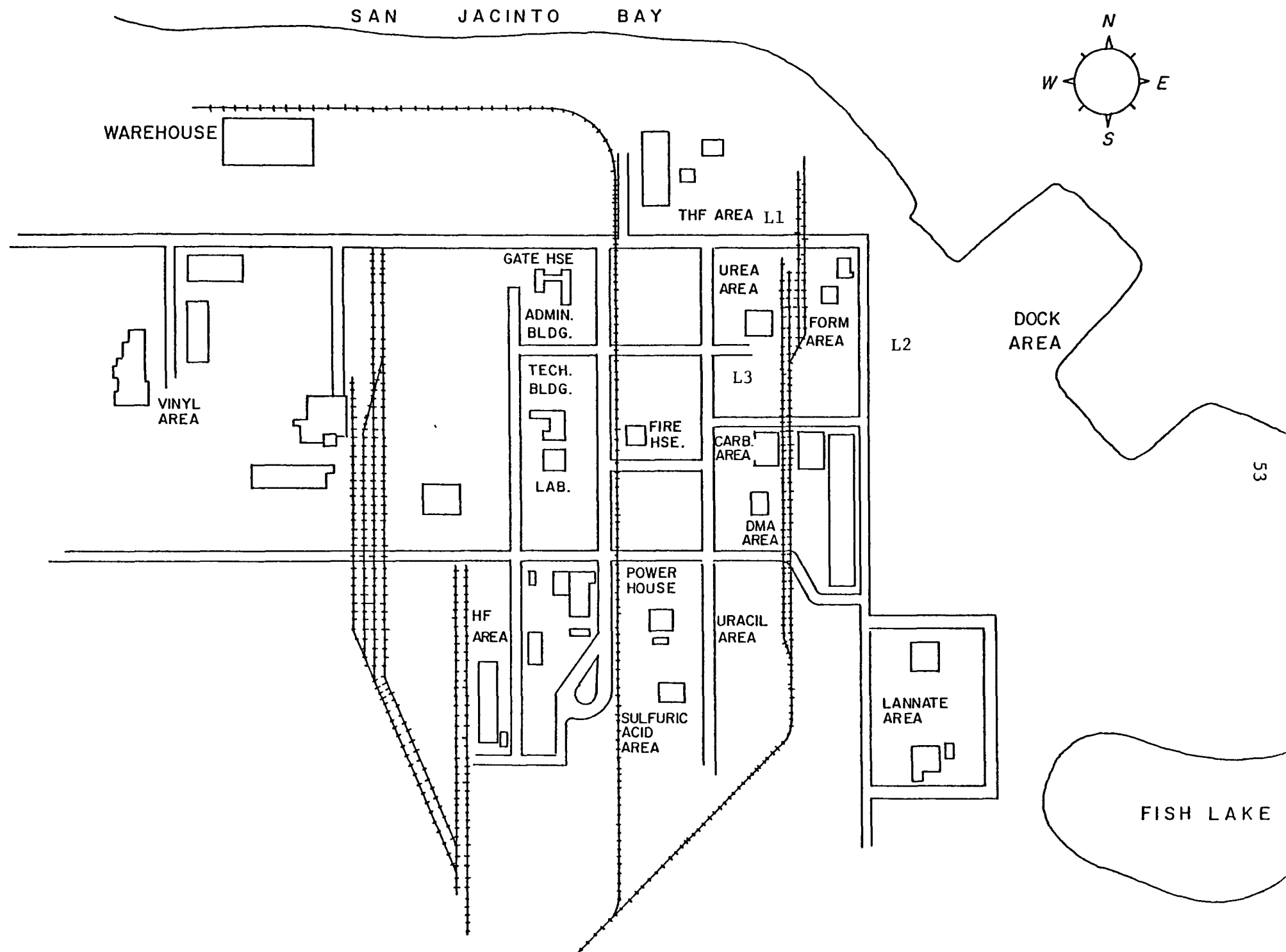


Figure A14. Sampling site and locations in La Porte, TX (E. I. DuPont de Nemours & Co.)

Table A10. SAMPLING PROTOCOL FOR KIN-BUC DISPOSAL SITE

| Period       | Location               | Distance from Site <sup>a</sup> | Sampling Time | Sampling Volume <sup>b</sup> | Meteorological Conditions |     |                  |       |
|--------------|------------------------|---------------------------------|---------------|------------------------------|---------------------------|-----|------------------|-------|
|              |                        |                                 |               |                              | T(°F)                     | %RH | Wind Dir./Speed  | in Hg |
| 6/29/76 (P1) | L1 (Tower Marina)      | 255°/1.65 km                    | 1207-1359     | 112.5                        | 82                        | 69  | 255°/2-7 mph     | 30.19 |
|              | L2 (Meadow Rd.)        | ~345°/0.4 km                    | 1206-1355     | 134                          | 82                        | 69  | 240°/3-7 mph     | 30.19 |
|              | L3 (N of Site)         | 25°/0.41 km                     | 1207-1359     | 156                          | 82                        | 69  | 240°/3-7 mph     | 30.19 |
|              | L4 (N of Site)         | 35°/0.29 km                     | 1207-1359     | 140                          | 82                        | 69  | 210-255°/2-8 mph | 30.19 |
|              | (P2) L1 (Tower Marina) | 255°/1.65 km                    | 1607-1737     | 111.4                        | 86                        | 57  | 270°/2-7 mph     | 30.18 |
|              | L2 (Meadow Rd.)        | ~345°/0.36 km                   | 1607-1737     | 175                          | 86                        | 57  | 220-240°/0-3 mph | 30.18 |
|              | L3 (E of Site)         | 40°/0.18 km                     | 1607-1737     | 183.4                        | 86                        | 57  | -                | 30.18 |
|              | L4 (E of Site)         | 35°/0.22 km                     | 1607-1737     | 187.2                        | 86                        | 57  | 245°/0-2 mph     | 30.18 |
| 6/30/76 (P3) | L1 (Sayreville)        | 2.01 km ESE from site           | 1029-1229     | 138.5                        | 82                        | 76  | 70°/2-7 mph      | 30.12 |
|              | L2 (Meadow Rd.)        | 45 m downwind of chemical plant | 1030-1230     | 187.5                        | 82                        | 76  | 100→140°/2-7 mph | 30.12 |
|              | L3 (Meadow Rd.)        | 350°/0.46 km                    | 1029-1229     | 175.9                        | 82                        | 76  | -                | 30.12 |
|              | L4 (W of Site)         | 305°/0.34 km                    | 1029-1229     | 191.2                        | 82                        | 76  | 95→120°/5-9 mph  | 30.12 |

Table A10 (cont'd)

| Period      | Location                             | Distance from Site <sup>a</sup> | Sampling Time          | Sampling Volume <sup>b</sup> | Meteorological Conditions |     |                                 |       |   |
|-------------|--------------------------------------|---------------------------------|------------------------|------------------------------|---------------------------|-----|---------------------------------|-------|---|
|             |                                      |                                 |                        |                              | T (°F)                    | %RH | Wind Dir./Speed                 | in Hg |   |
| (P4)        | L1 (Tower Marina)                    | 255°/1.65 km                    | 1457-1646              | 117.7                        | 88                        | 57  | 180→200°/<br>5-12, 20-35, 10-20 | 30.07 | 5 |
|             | L2 (Meadow Rd.)                      | 21 m from chemical plant        | 1458-1646              | 248                          | 88                        | 57  | 190°/5-15 mph                   | 30.07 |   |
|             | L3 (N of Site)                       | 0°/0.73                         | 1457-1646              | 200.3                        | 88                        | 57  | 190°/5-20 mph                   | 30.07 |   |
|             | L4 (NE, then N of site) <sup>c</sup> | 25°/0.41 km<br>345°/0.91 km     | 1457-1528<br>1537-1648 | 0.104<br>0.269               | 88                        | 57  | 180→200°/<br>5-35 mph           | 30.07 |   |
| 7/1/76 (P5) | L1 (Tower Marina)                    | 255°/1.65 km                    | 1006-1206              | 114.4                        | 79                        | 57  | 270°/5-9 mph                    | 30.10 |   |
|             | L2 (Meadow Rd.)                      | ~76 m from chemical plant       | 1006-1206              | 204.2                        | 79                        | 57  | 230-260°/<br>4-12 mph           | 30.10 |   |
|             | L3 (On-Site)                         | -                               | 1015-1038              | 19.8                         | 79                        | 57  | 260°/4-9 mph                    | 30.10 |   |
|             | L4 (E of Site)                       | 40°/0.18 km                     | 1006-1206              | 230                          | 79                        | 57  | 230-250°/<br>4-12 mph           | 30.10 |   |
| (P6)        | L1 (Tower Marina)                    | 255°/1.65 km                    | 1425-1625              | 120                          | 84                        | 43  | 270°/2-5 mph                    | 30.12 |   |
|             | L2 (Meadow Rd.)                      | 345°/0.36 km                    | 1425-1625              | 181                          | 84                        | 43  | 230-260°/<br>2-5 mph            | 30.12 |   |
|             | L3 (On-Site)                         | -                               | 1444-1458              | 19.8                         | 84                        | 43  | 230-260°/<br>2-5 mph            | 30.12 |   |

Table A10 (cont'd)

| Period | Location       | Distance from Site <sup>a</sup> | Sampling Time | Sampling Volume <sup>b</sup> | Meteorological Conditions |     |                      |       |
|--------|----------------|---------------------------------|---------------|------------------------------|---------------------------|-----|----------------------|-------|
|        |                |                                 |               |                              | T (°F)                    | %RH | Wind Dir./Speed      | in Hg |
|        | L4 (E of Site) | 40°/0.18 km                     | 1425-1625     | 208.4                        | 84                        | 43  | 230-260°/<br>2-8 mph | 30.12 |

<sup>a</sup> Approximate magnetic bearing and distances relative to Kin-Buc.

<sup>b</sup> Volume in liters.

<sup>c</sup> Sampler was moved to new site during sampling period.

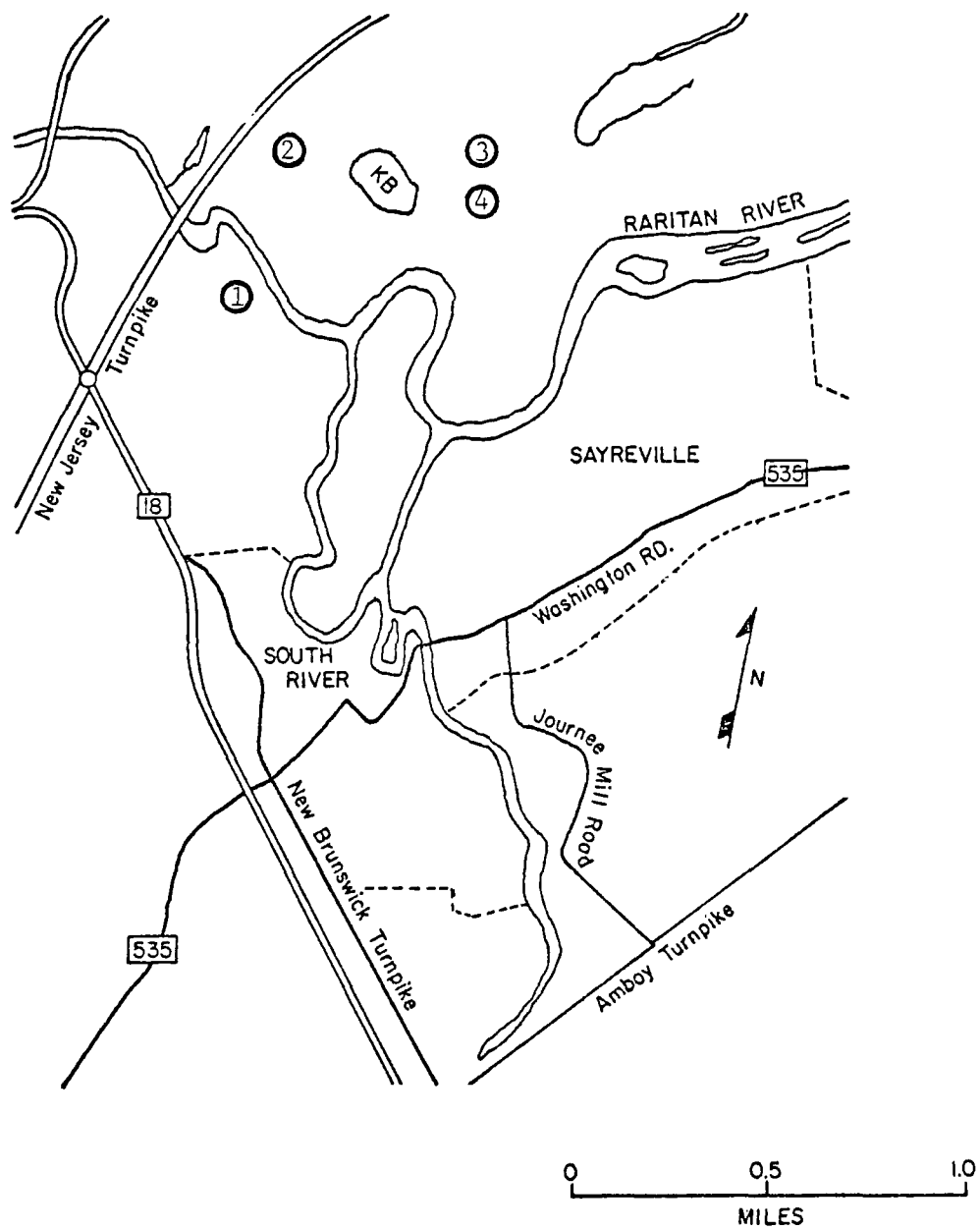


Figure A15. Sampling locations surrounding Kin-Buc Land-fill, Edison, NJ (P1).

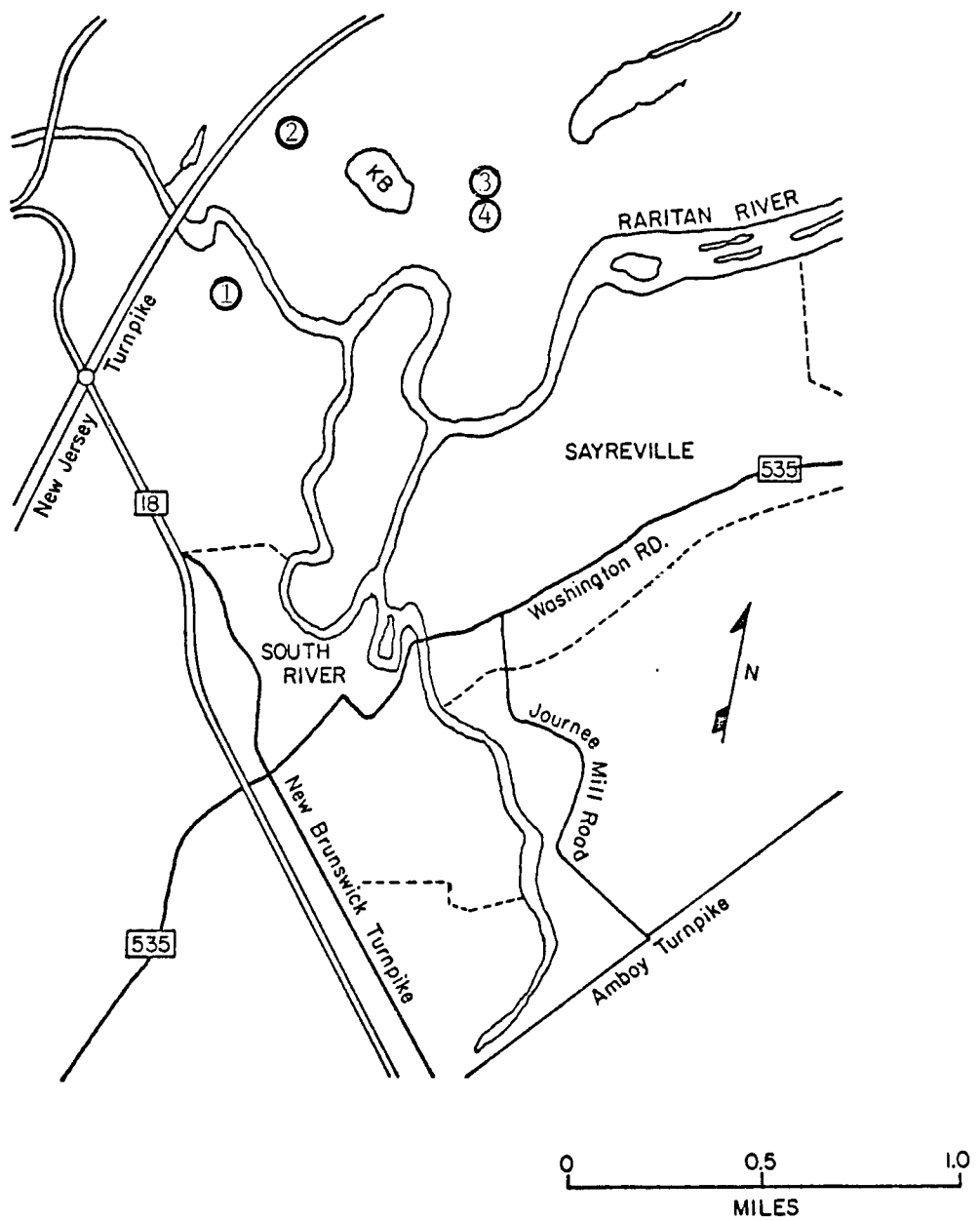


Figure A16. Sampling locations surrounding Kin-Buc Land-fill, Edison, NJ (P2).

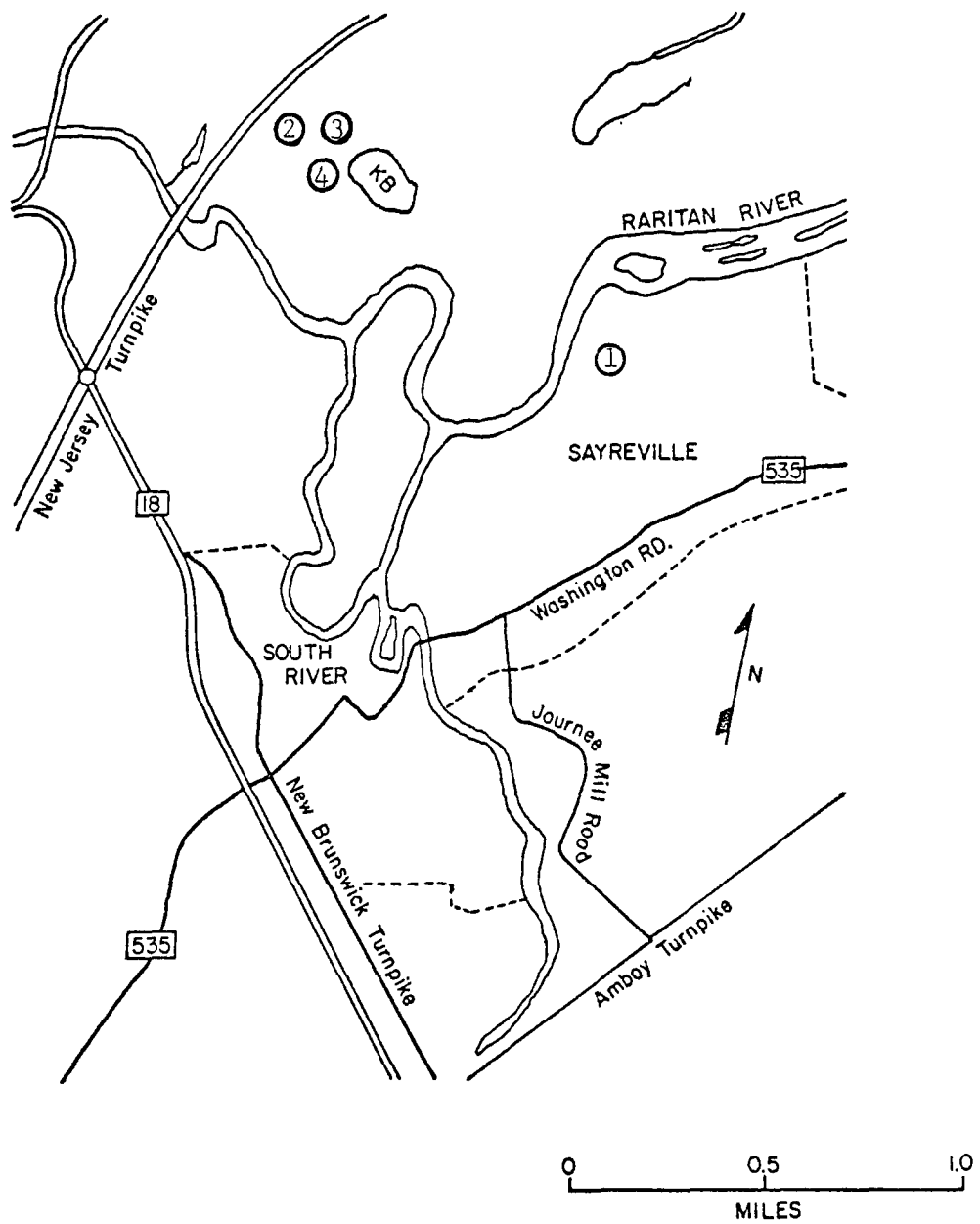


Figure A17. Sampling locations surrounding Kin-Buc Land-fill, Edison, NJ (P3),

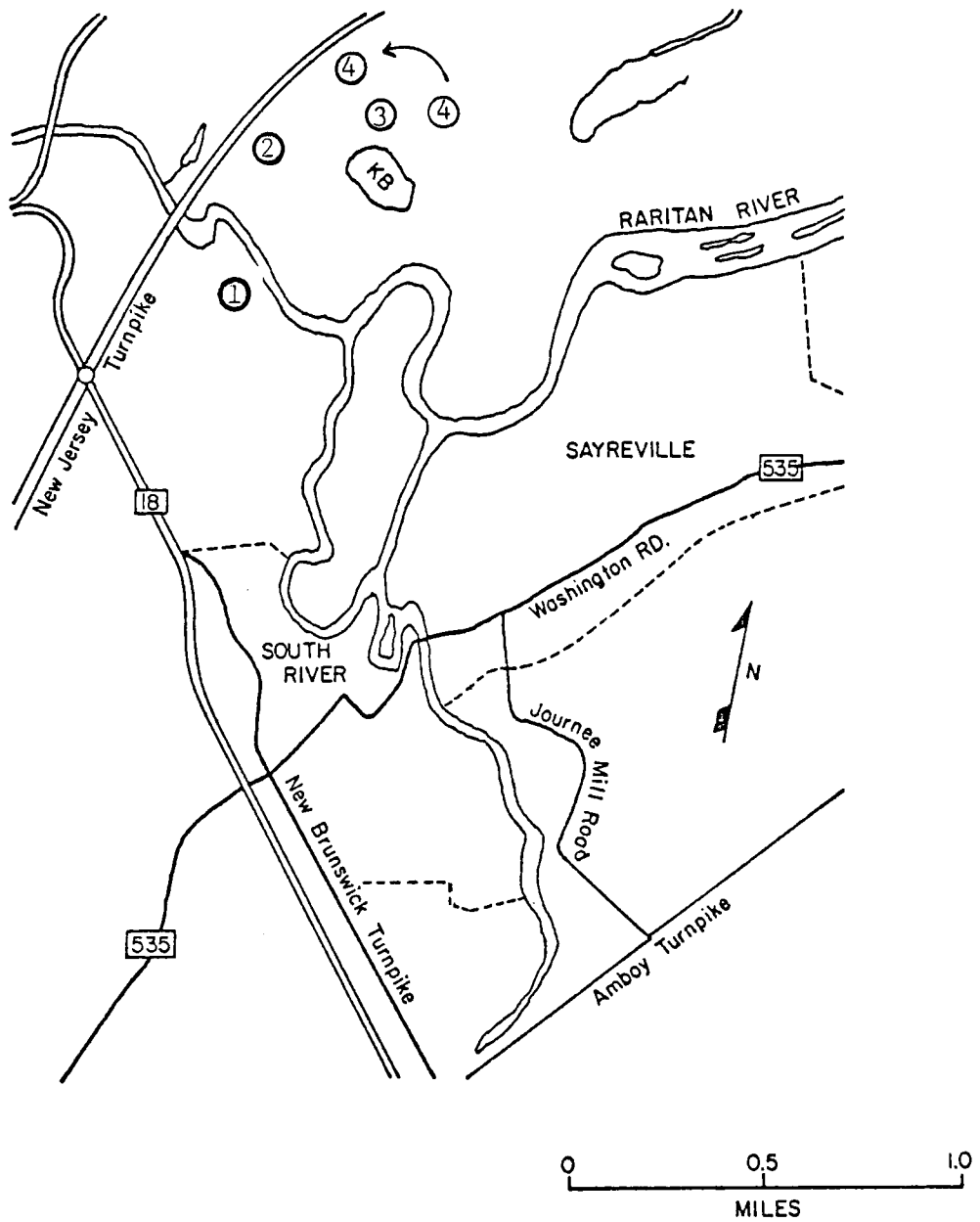


Figure A18. Sampling locations surrounding Kin-Buc Land-fill, Edison, NJ (P4).

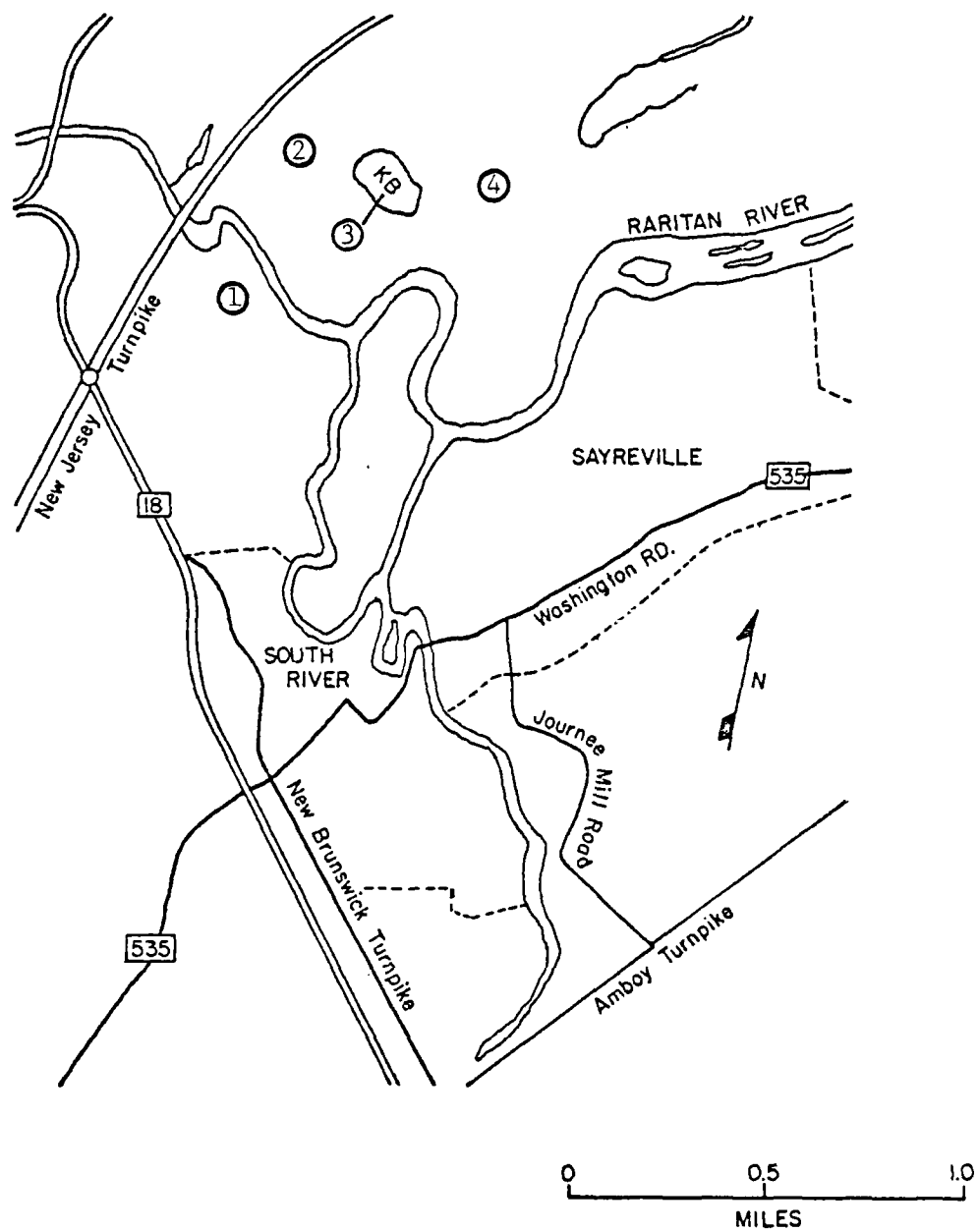


Figure A19. Sampling locations surrounding Kin-Buc Land-fill, Edison, NJ (P5)

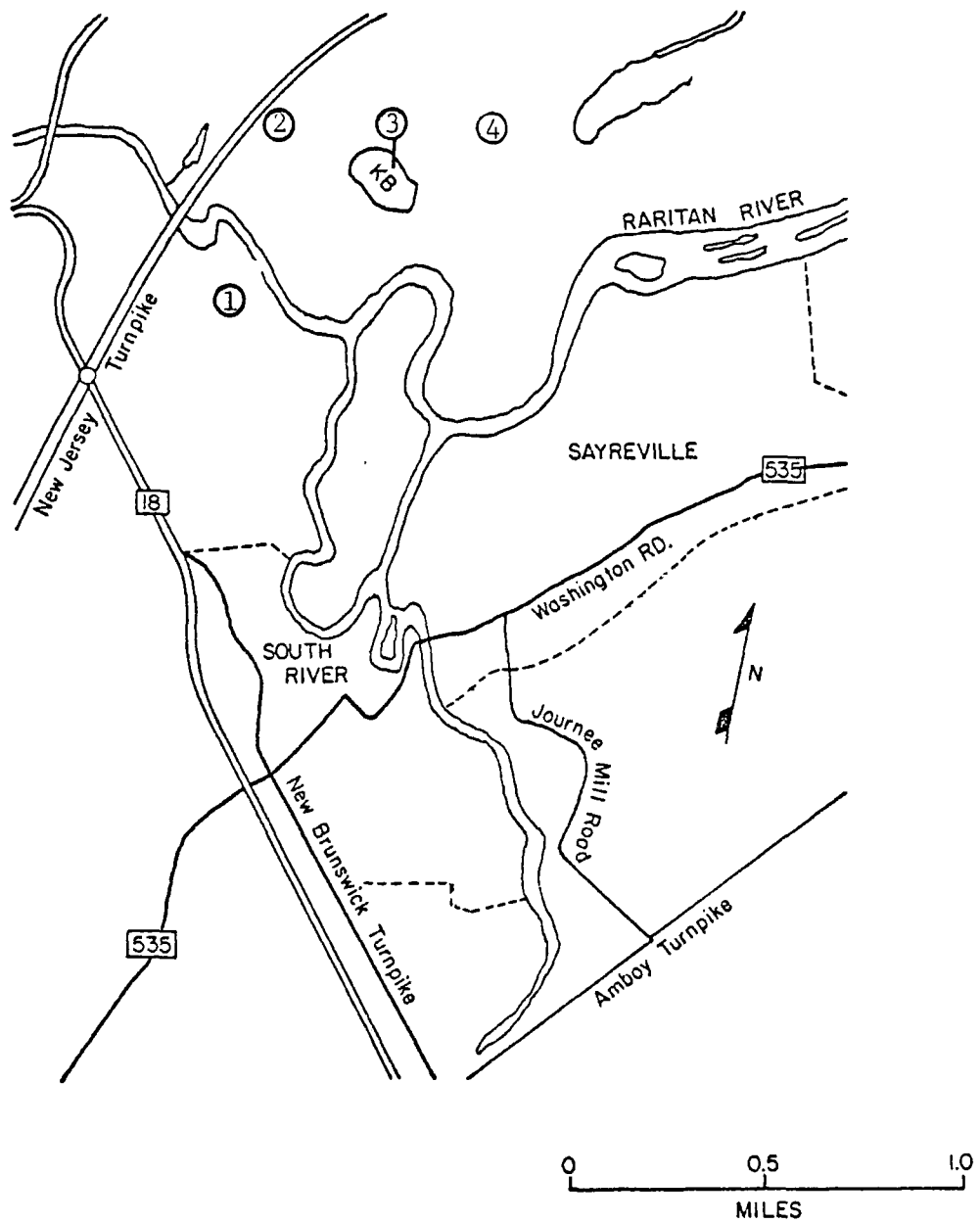


Figure A20. Sampling locations surrounding Kin-Buc Land-fill, Edison, NJ (P6).

Table A11. AMBIENT AIR SAMPLING PROTOCOL FOR INVESTIGATING CHEMICAL DUMP/LANDFILL IN EDISON, NJ

| Sampling<br>Period | Location (No.) <sup>a</sup>                               | Bearing°/distance <sup>b</sup><br>(mi) | Sampling Time<br>(min) | m <sup>3</sup> /cartridge | Remarks                                                                                                    |
|--------------------|-----------------------------------------------------------|----------------------------------------|------------------------|---------------------------|------------------------------------------------------------------------------------------------------------|
| 1                  | Parkland (1)                                              | 180-260/0.25                           | 36                     | 0.317                     | 3/24/76 - 12:47 pm-1:23 pm<br>65°F 35% RH<br>Clear 30.48" Hg<br>Wind ~230°, 3-8 mph                        |
| 2                  | Tower Marina (2)<br>Schoolhouse Rd.<br>East Brunswick, NJ | 065-909/~1                             | 38                     | 0.300                     | 3/24/76 - 4:47 pm-5:25 pm<br>64°F 38% RH<br>Clear 30.42" Hg<br>Wind 200-230°, 5-13 mph<br>(upwind sample)  |
|                    | Parkland (1)                                              | 180-260/0.25                           | 38                     | 0.290<br>0.032            | As above<br>(downwind samples)                                                                             |
| 3                  | Tower Marina (2)                                          | 065-090/~1                             | 40                     | 0.300                     | 3/25/76 - 11:15 am-11:55 am<br>60°F 43% RH<br>3/4 Cloud 30.22" Hg<br>Wind 225°, 3-8 mph<br>(upwind sample) |
|                    | Parkland (1)                                              | 180-260/0.25                           | 39                     | 0.300                     | As above<br>(downwind sample)                                                                              |
| 4                  | Tower Marina (2)                                          | 065-090/~1                             | 45                     | 0.300                     | 3/25/76 - 3:08 pm-3:53 pm<br>As above<br>(upwind sample)                                                   |
|                    | Parkland (1)                                              | 160-275/~0.06                          | 41                     | 0.300                     | 3/25/76 - 3:05 pm-3:46 pm<br>As above<br>(downwind sample)                                                 |

(continued)

Table A11 (cont'd)

| Sampling<br>Period | Location (No.) <sup>a</sup>                           | Bearing°/distance <sup>b</sup><br>(mi) | Sampling Time<br>(min) | m <sup>3</sup> /cartridge | Remarks                                                                                                                                      |
|--------------------|-------------------------------------------------------|----------------------------------------|------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                    | Top of KB Mound                                       | --                                     | 11                     | 0.060<br>0.060            | 3/25/76 - 3:06 pm-3:17 pm<br>64°F 38% RH<br>Overcast 30.11" Hg<br>Wind 265-285°, 5-10 mph                                                    |
|                    | Meadow Rd. (5)<br>(between Stauffer<br>and KB)        | 145°/0.5                               | 42                     | 0.300                     | 3/25/76 - 4:20 pm-5:02 pm<br>63°F 45% RH<br>9/10 Cloudy 30.14" Hg<br>Wind 245°, 2-8 mph<br>(upwind sample)                                   |
| 5                  | NJ Turnpike (3)<br>at Mill Rd.                        | 140°/~0.75                             | 130                    | 0.914                     | 3/26/76 - 10:48 am-12:59 pm<br>60°F 34% RH<br>Clear 30.41" Hg<br>Wind 300-320°, 0-10 mph<br>Shifting to 230° at 12:45 pm<br>(upfield sample) |
|                    | Sayreville, NJ (4)<br>at St. Stanislaus<br>School Rd. | 315-325/1.25                           | 130                    | 0.958<br>0.117            | 3/26/76 - 10:49 am-12:59 pm<br>As above<br>(downwind sample)                                                                                 |

<sup>a</sup>See map (Fig. 6) for location number.<sup>b</sup>Relative to dump site.

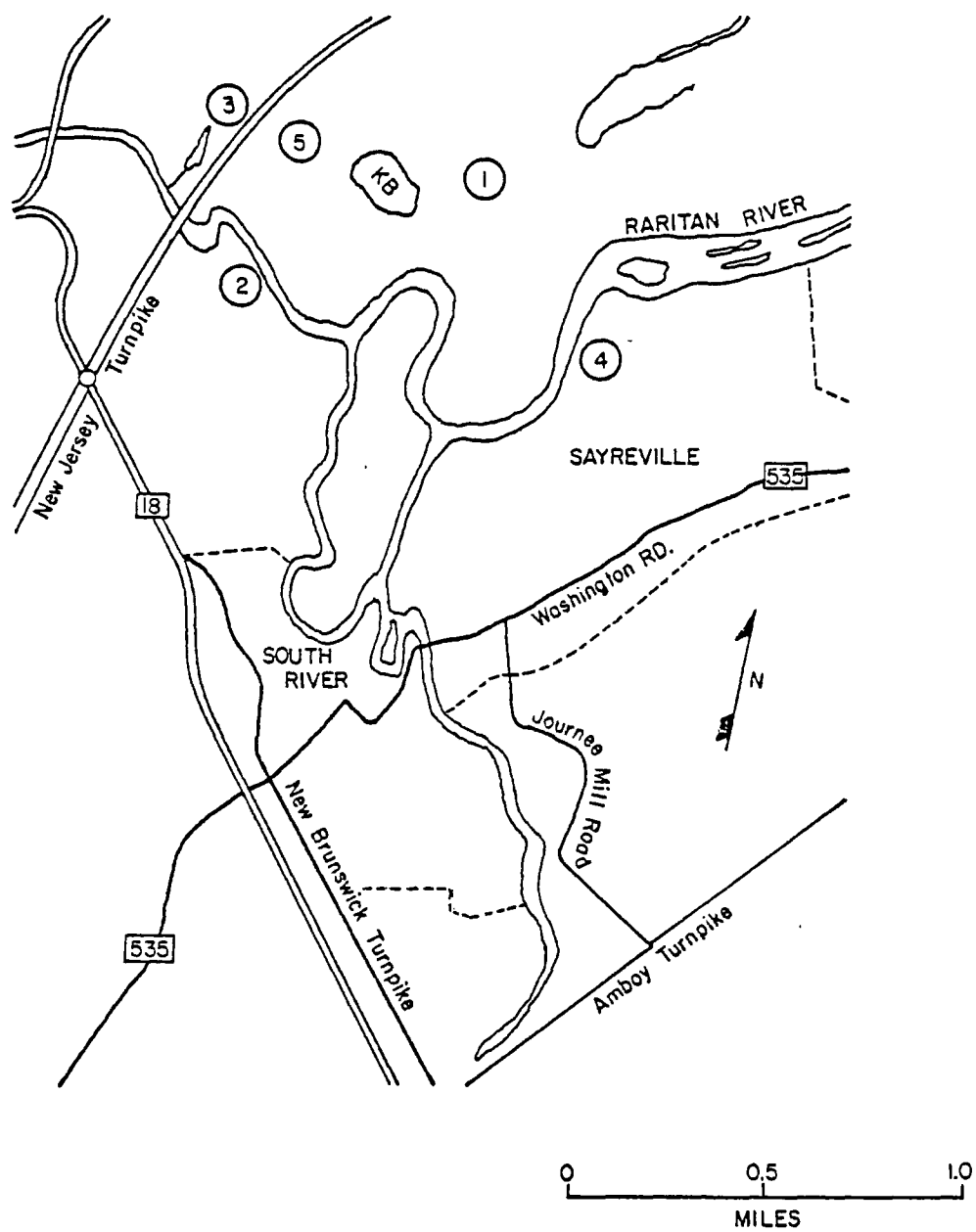


Figure A21. Sampling locations surrounding Kin-Buc Land-fill, Edison, NJ

Table A12. AMBIENT AIR SAMPLING PROTOCOL FOR LOS ANGELES, CA BASIN AREA

| Sampling Location                   | Bearing°/distance<br>(yd)                          | Sampling Time<br>(min) | m <sup>3</sup> /cartridge | Remarks                                                                                 |
|-------------------------------------|----------------------------------------------------|------------------------|---------------------------|-----------------------------------------------------------------------------------------|
| 15th & Emery St.<br>Los Angeles, CA | 215-240°/~350                                      | 52                     | 0.300                     | 5/14/76 - 3:34 pm - 4:24 pm<br>83°F 42% RH<br>Clear 29.92" Hg<br>Wind-215° @ 0-7 mph    |
| 2055 223 St.<br>Dominquez, CA       | 090-140°/~350<br>(Stauffer)<br>170°/165<br>(Witco) | 54                     | 0.300                     | 5/14/76 - 1:22 pm - 2:16 pm<br>78° 49% RH<br>Clear 30.11" Hg<br>Wind-110-140° @ 0-7 mph |



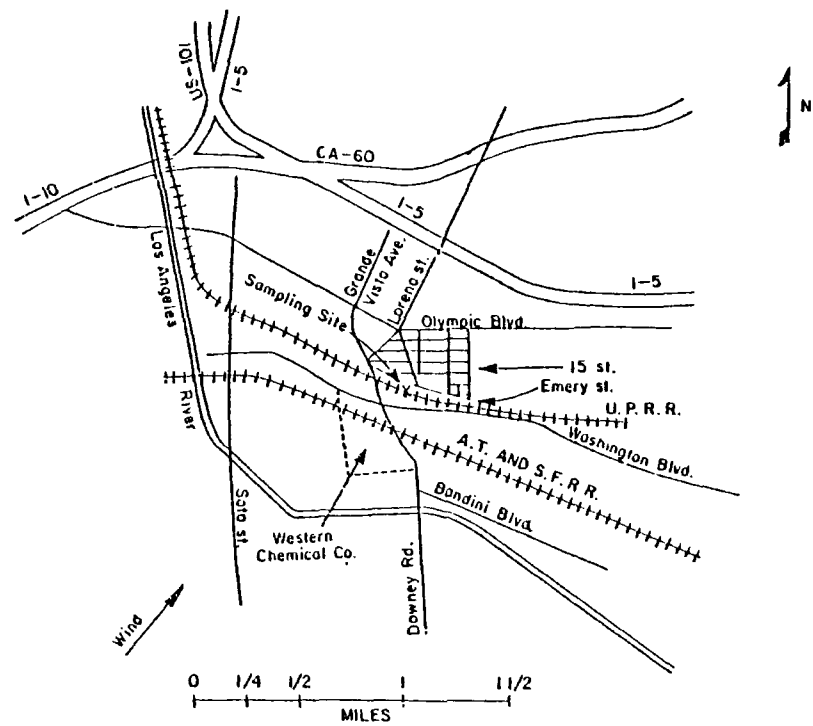


Figure A23. Map depicting sampling site in Los Angeles, CA

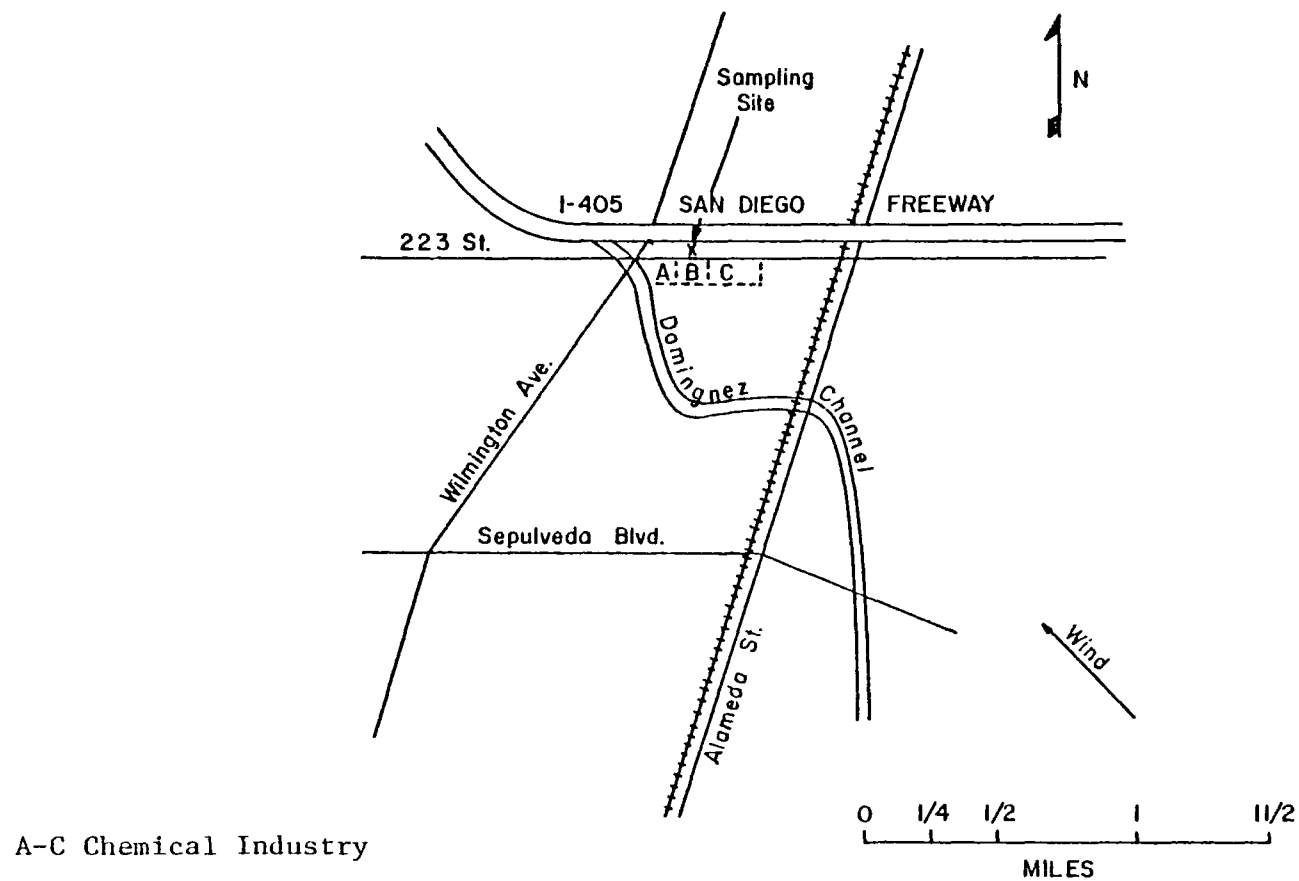


Figure A24. Map depicting sampling location in Dominquez, CA

Table A13. SAMPLING PROTOCOL FOR CENTRAL AND NORTHERN NEW JERSEY

| Site                                         | Sampling Location                                     | Sampling Time<br>(min) | Sampling Volume<br>(ℓ) | Remarks         |                                  |
|----------------------------------------------|-------------------------------------------------------|------------------------|------------------------|-----------------|----------------------------------|
| Paterson, NJ<br>(S1)                         | 12th St. & 4th Ave.                                   | 42                     | 300                    | 3/22/76<br>40°F | 1231-1313 hr<br>300-360°/3 mph   |
| Clifton, NJ<br>(S2)                          | Dyer Ave. &<br>Wheeler St.                            | 39                     | 300                    | 3/22/76<br>45°F | 1528-1607 hr<br>320°/2 mph       |
| Passaic, NJ<br>(S3)                          | First St. &<br>Essex St.                              | 39                     | 300                    | 3/22/76<br>40°F | 1715-1754 hr<br>320°/5 mph       |
| Hoboken, NJ<br>(S4)                          | New County Rd.<br>U. S. Post Office<br>Depot          | 39                     | 300                    | 3/23/76<br>51°F | 1223-1302 hr<br>280°/0-10 mph    |
| Newark, NJ<br>(S5)                           | 552 Doremus Ave.                                      | 38                     | 300                    | 3/23/76<br>53°F | 1400-1438 hr<br>270°/0-10 mph    |
| New York City, NY<br>(Staten Island)<br>(S6) | Chelsea Rd. at<br>Bloomfield Ave.                     | 37                     | 300                    | 3/23/76<br>54°F | 1702-1739 hr<br>280°/0-5 mph     |
| Edison, NJ<br>(S7)                           | Meadow Rd., directly<br>across from Stauffer<br>plant | 42                     | 300                    | 3/25/76<br>62°F | 1720-1802 hr<br>225-240°/3-8 mph |
| Fords, NJ<br>(S8)                            | North of Tenneco<br>plant                             | 44                     | 300                    | 3/26/76<br>72°F | 1559-1643 hr<br>200°/0-2 mph     |

(continued)

Table A13 (cont'd)

| Site                    | Sampling Location                                              | Sampling Time<br>(min) | Sampling Volume<br>(l) |                 | Remarks                          |
|-------------------------|----------------------------------------------------------------|------------------------|------------------------|-----------------|----------------------------------|
| Bound Brook, NJ<br>(S9) | Eastern Turnpike<br>directly north of<br>American Cyanamid Co. | 44                     | 300                    | 3/26/76<br>68°F | 1732-1816 hr<br>200°/0-7 mph     |
| El Segundo, CA<br>(S1)  | Illinois St.<br>(See Fig. 30)                                  | 54                     | 300                    | 5/12/76<br>76°F | 1329-1423 hr<br>220-240°/2-8 mph |
| Torrance, CA<br>(S2)    | 19146 Van Ness Blvd.                                           | 55                     | 300                    | 5/13/76<br>76°F | 1307-1412 hr<br>230-250°/2-7 mph |
| Los Angeles, CA<br>(S3) | 20100 Normandie Ave.                                           | 54                     | 300                    | 5/13/76<br>78°F | 1357-1451 hr<br>270°/0-7 mph     |
| Long Beach, CA<br>(S4)  | 63rd Avenue &<br>Paramount Blvd.                               | 52                     | 300                    | 5/13/76<br>80°F | 1707-1759 hr<br>250°/3-8 mph     |

Table A14. AMBIENT AIR SAMPLING PROTOCOL FOR SELECTED AREAS IN THE KANAWHA VALLEY, WV

| Site              | Location | Sampling Period  | m <sup>3</sup> /cartridge | Remarks                                |
|-------------------|----------|------------------|---------------------------|----------------------------------------|
| Belle, WV         | 1        | 9:30 pm-2:17 am  | 0.247                     | 12/1/75 - 30°F - Wind NW - 5 mph       |
| Belle, WV         | 2        | 9:30 pm-2:19 am  | 0.275                     | 12/1/75 - 30°F - Wind NW - 5 mph       |
| Belle, WV         | 4        | 10:05 pm-3:00 am | 0.406                     | 12/2/75 - ~40°F - Wind SE - 0-5 mph    |
| S. Charleston, WV | 9        | 2:41 pm-4:00 pm  | 0.248                     | 12/3/75 - 55°F - Wind WSW→NW - 0-3 mph |
| S. Charleston, WV | 10       | 3:12 pm-5:12 pm  | 0.350                     | 12/3/75 - 55°F - Wind WSW→NW - 0-3 mph |
| S. Charleston, WV | 14       | 8:47 pm-10:44 pm | 0.324                     | 12/3/75 - 44°F - Wind N→NNE - 3 mph    |
| Belle, WV         | 6        | 3:26 pm-5:24 pm  | 0.256                     | 12/4/75 - 66°F - Wind NE - 2 mph       |
| Belle, WV         | 7        | 4:00 pm-6:05 pm  | 0.280                     | 12/4/75 - 65°F - No wind               |
| Belle, WV         | 8        | 7:06 pm-9:06 pm  | 0.348                     | 12/4/75 - 65°F - Wind NE - 0-3 mph     |
| Nitro, WV         | 15       | 11:58 am-3:48 pm | 1.593                     | 12/5/75 - 65°F - Wind S - 10 mph       |

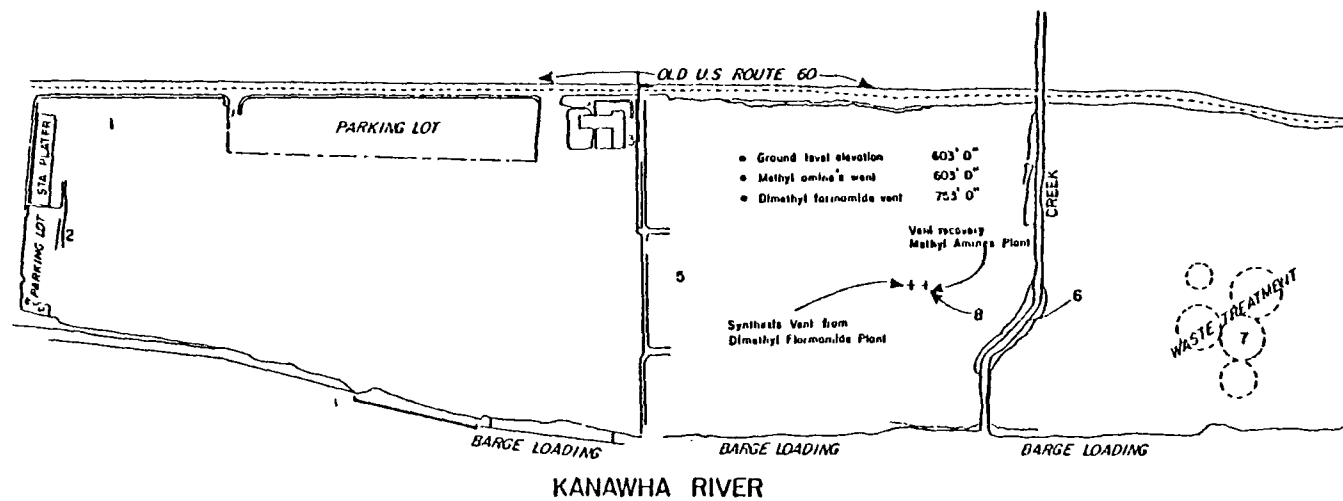


Figure A25. Plant map of DuPont in Belle, WV depicting sampling locations.

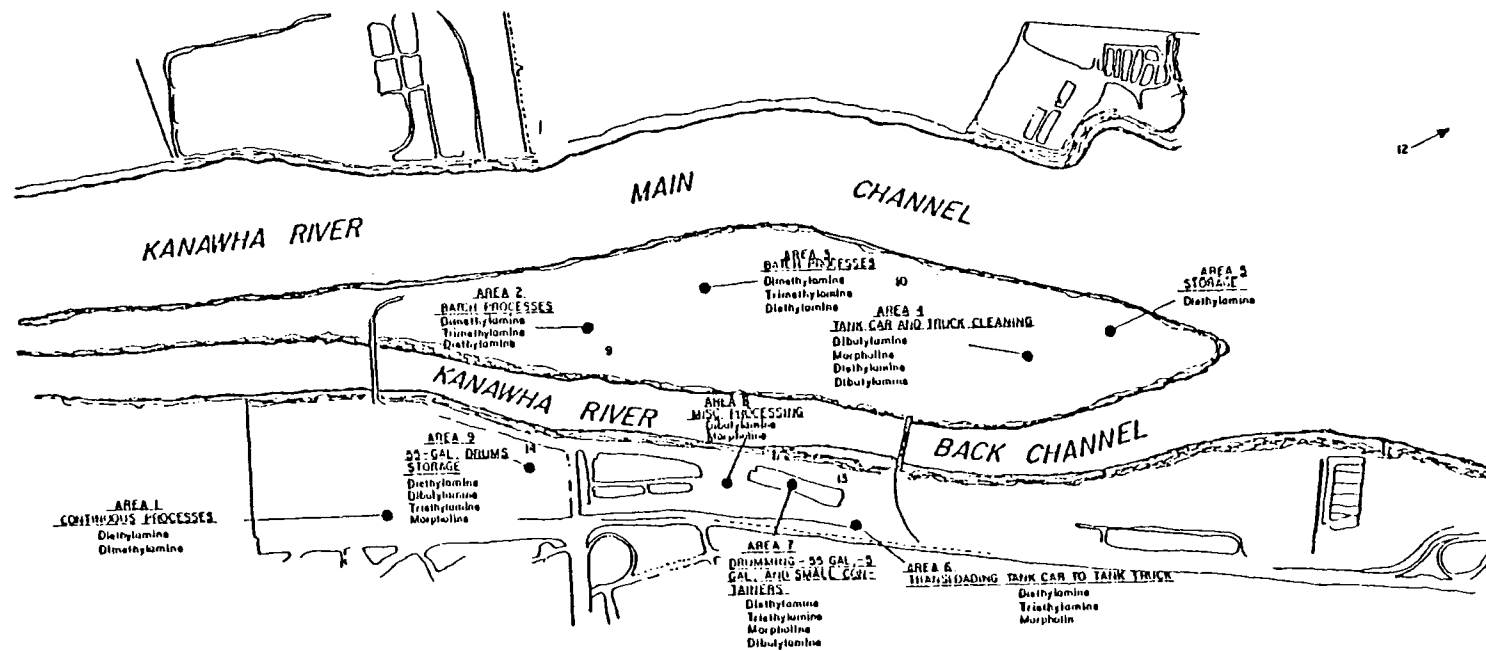
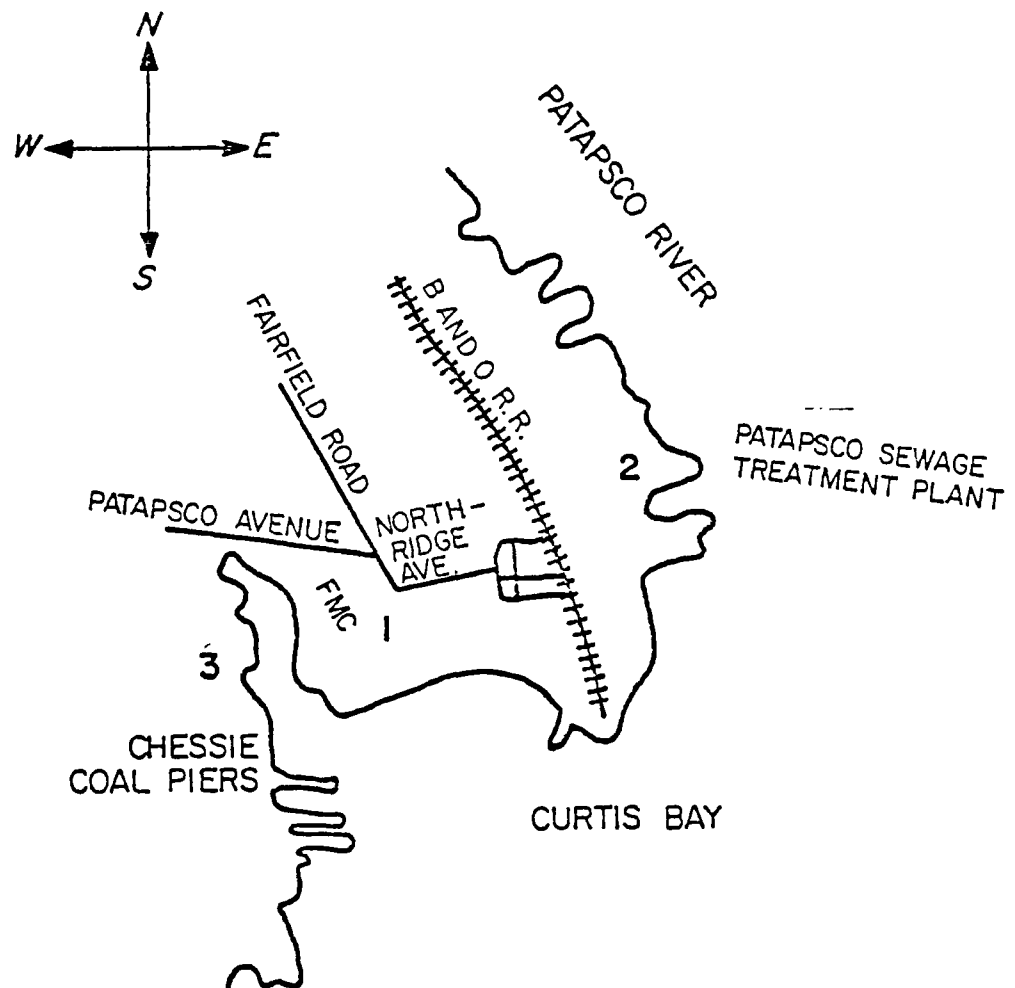


Figure A26 . Plant map of Union Carbide in South Charleston, WV depicting sampling locations.

Table A15. SAMPLING PROTOCOL FOR BALTIMORE AREA

| Date     | Time      | Location                                                     | Temperature<br>(°F) | RH<br>(%) | Wind      |                |
|----------|-----------|--------------------------------------------------------------|---------------------|-----------|-----------|----------------|
|          |           |                                                              |                     |           | Direction | Speed<br>(KTS) |
| 10/14/75 | 1100-1450 | FMC (Parking Lot) (L1A)                                      | 83                  | 40-50     | WNW       | 10             |
| 10/15/75 | 2300-0250 | FMC (Parking Lot) (L1B)                                      | 65                  | 90-97     | Calm      | -              |
| 10/16/75 | 1000-1350 | Sewage Plant (L2)                                            | 72                  | 45-57     | NNW       | 9-11           |
| 11/19/75 | 1400-1600 | FMC, 200 yd W-NW of<br>diamazine thermal<br>destructor (L1C) | 65                  | 56        | E         | 3              |
| 11/24/75 | 1150-1350 | FMC, SW of dia-<br>mazine thermal<br>destructor (L1D)        | -                   | -         | -         | -              |
| 11/24/75 | 1355-1555 | FMC, SW of dia-<br>mazine thermal<br>destructor (L1E)        | -                   | -         | -         | -              |



SCALE: ONE INCH = 0.5 miles

Figure A27. Map of sampling area in East Brooklyn, Baltimore, Maryland

Table A16. AMBIENT AIR SAMPLING PROTOCOL FOR GEISMAR, LA AREA

| Sampling Location                          | Sampling Time<br>(min) | Volume Sampled<br>(ℓ) | Remarks                                      |
|--------------------------------------------|------------------------|-----------------------|----------------------------------------------|
| Corner of highway 73 and 75<br>(L12)       | 1398                   | 140                   | 2/28-3/1/77 62°F<br>28→85% RH 290→240°/9 kts |
| Southeast of Plant R<br>(L13)              | 1400                   | 140                   | 2/28-3/1/77 62°F<br>28→85% RH 290→240°/9 kts |
| North of Plant M<br>(L14) ~1               | 260                    | 180                   | 3/1/77 63°F<br>85% RH 180°/light             |
| Northeast of Plant M and N<br>(L15)        | 25                     | 142                   | 3/1/77 63°F<br>85% RH 180°/light             |
| Northwest of Plant M off<br>LA 73 (L14) ~2 | 1205                   | 120                   | 3/1-3/2/77 65°F<br>52% RH 120°/light         |
| Southwest of Plant M off<br>LA 73 (L16)    | 135                    | 91                    | 3/2/77 65°F<br>52% RH 120°/light             |

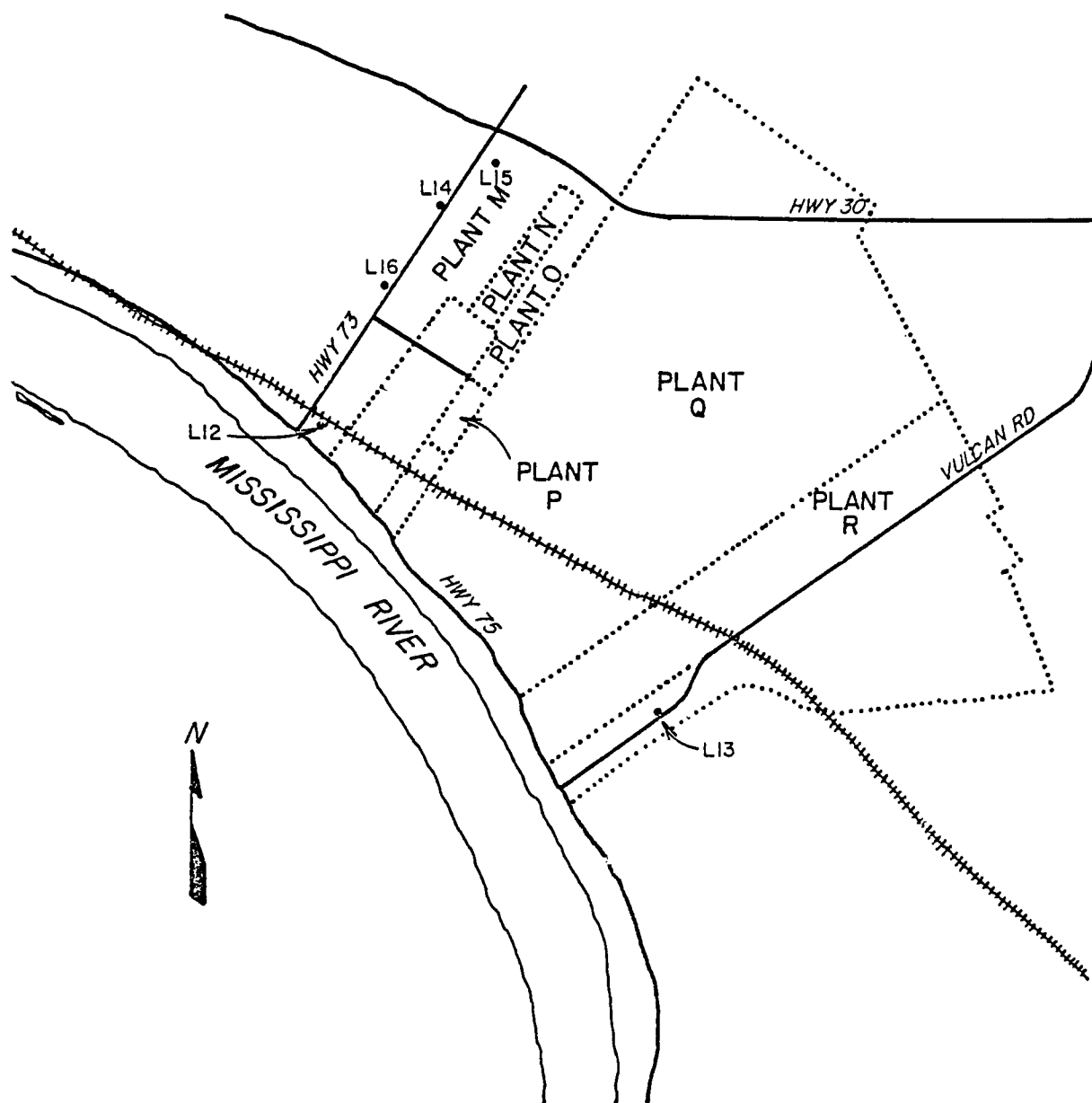


Figure A28. Sampling site and locations in Geismar, LA area

Table A17. AMBIENT AIR SAMPLING PROTOCOL FOR LOS ANGELES, CA BASIN AREA

| Site<br>County/<br>Municipality | Sampling Location               | Proximity                         | Sampling<br>Time<br>(min) | m <sup>3</sup> /cartridge | Remarks                      |                                              |
|---------------------------------|---------------------------------|-----------------------------------|---------------------------|---------------------------|------------------------------|----------------------------------------------|
| El Segundo<br>(S1)              | Illinois St.                    | Standard<br>(Chevron)<br>Refinery | 54                        | 0.300                     | 5/12/76<br>76°F<br>30.15" Hg | 1:29 pm-2:23 pm<br>69%RH<br>220-240°/2-8 mph |
| Torrance<br>(S2)                | 19146 Van Ness Blvd.            | Dow, Mobil,<br>Union Car-<br>bide | 55                        | 0.300                     | 5/13/76<br>76°F<br>30.20" Hg | 1:07 pm-2:12 pm<br>59%RH<br>230-250/2-7 mph  |
| Los Angeles<br>(S3)             | 20100 Normandie                 | Montrose<br>Chem.                 | 54                        | 0.300                     | 5/13/76<br>78°F<br>30.18" Hg | 1:57 pm-2:51 pm<br>53%RH<br>270/0-7 mph      |
| Long Beach<br>(S4)              | 63rd Avenue &<br>Parmount Blvd. | Monsanto                          | 52                        | 0.300                     | 5/13/76<br>80°F<br>30.16" Hg | 5:07 pm-5:59 pm<br>50%RH<br>250°/3-8 mph     |

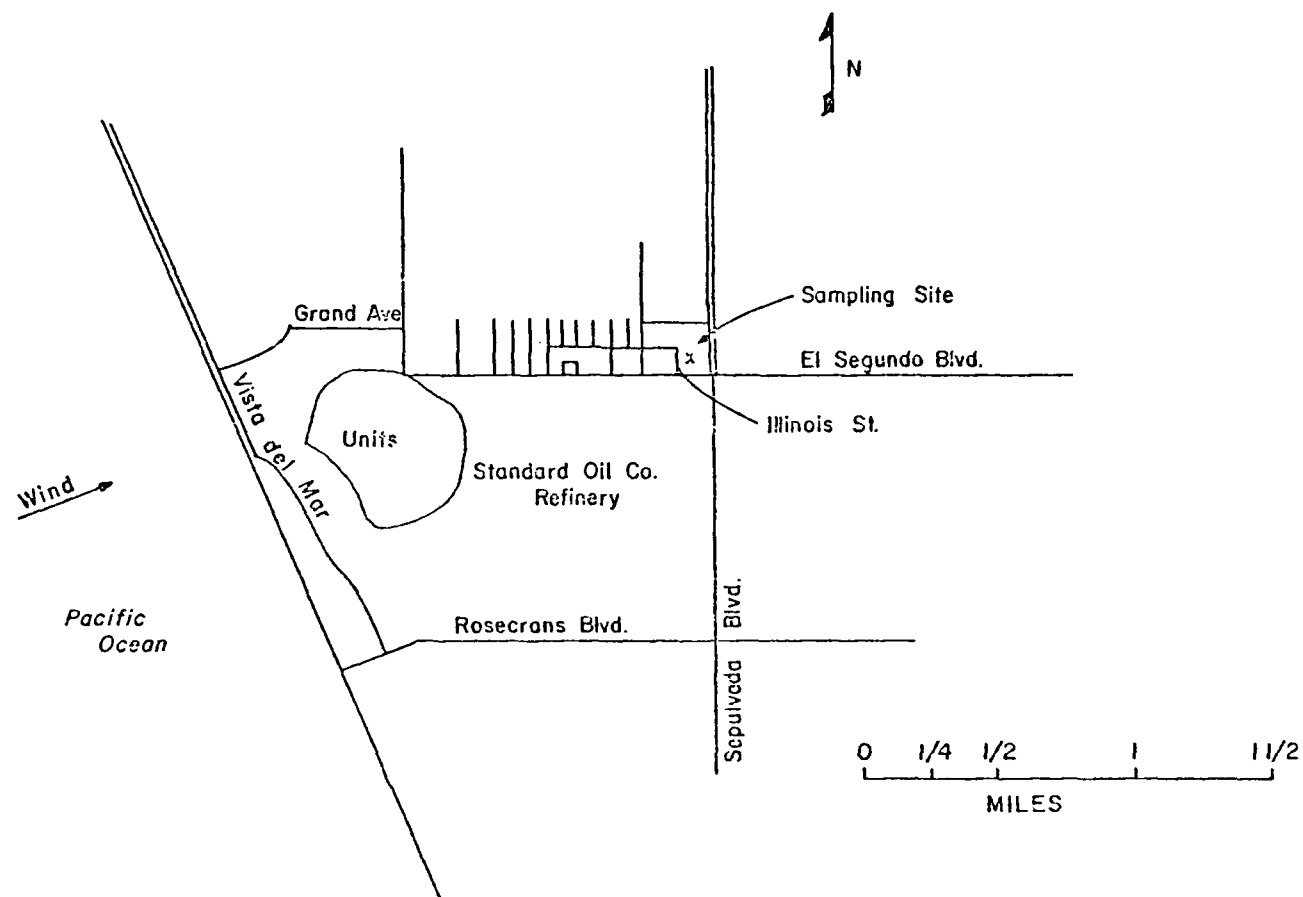


Figure A29. Map depicting sampling site in El Segundo, CA

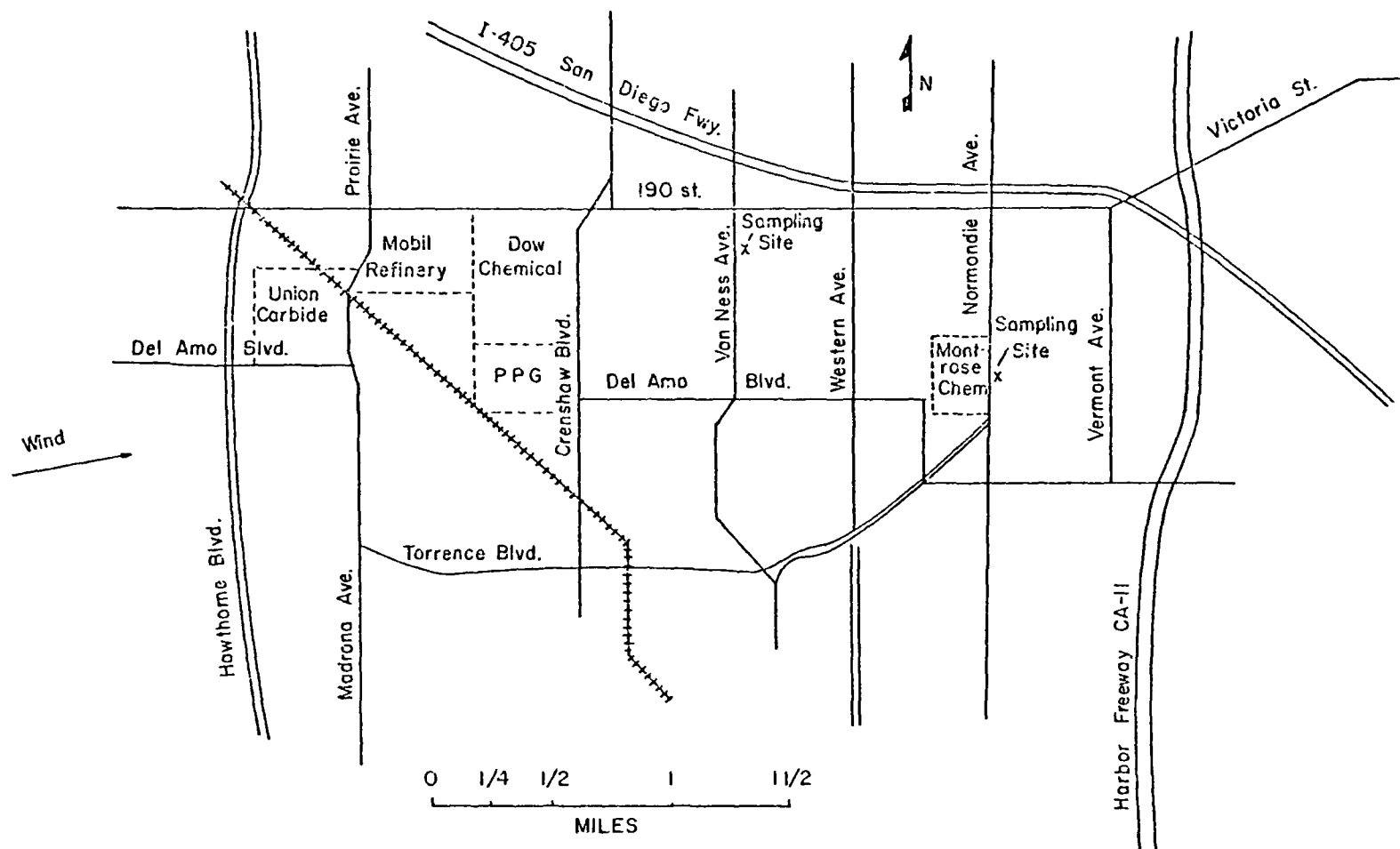


Figure A30. Map depicting sampling site in Torrance, CA

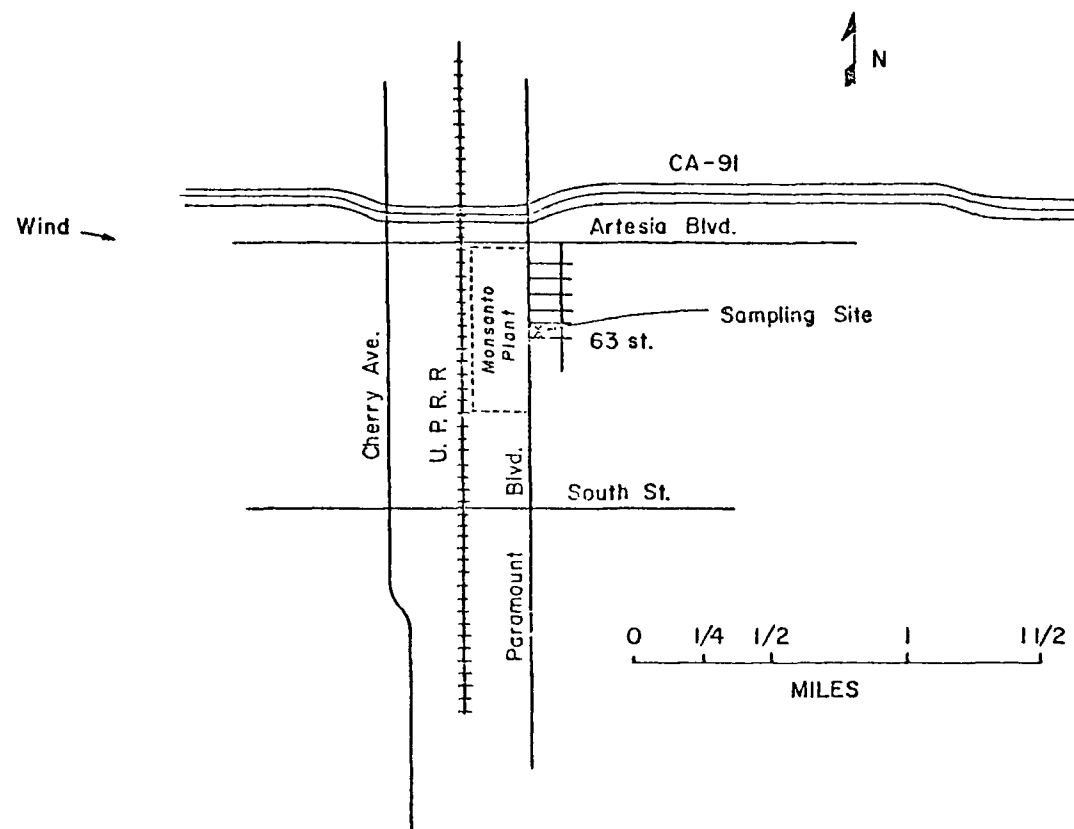


Figure A31. Map depicting sampling site in Long Beach, CA

Table A18. AMBIENT AIR SAMPLING PROTOCOL FOR ST. LOUIS, MO AND VICINITY

| Site                      | Sampling Location                       | Sampling Time<br>(min) | Sampling Volume<br>(ℓ) | Remarks         |                          |
|---------------------------|-----------------------------------------|------------------------|------------------------|-----------------|--------------------------|
| Alton, IL<br>(S1)         | 2421 Chris Lisa St.                     | 540                    | 1,898                  | 9/11/75<br>69°F | 2250-0750<br>NW/7-10 mph |
| Wood River, IL<br>(S2)    | 2 mi East of Shell Refinery             | 300                    | 966                    | 9/11/75<br>79°F | 1256-1756<br>W/10-20 mph |
| Arvado, MO<br>(S3)        | 4400 Lindell                            | 360                    | 1,130                  | 9/10/75<br>81°F | 0650-1250<br>calm        |
| Arvado, MO<br>(S4)        | 4400 Lindell                            | 527                    | 1,582                  | 9/9/75<br>82°F  | 2212-0635<br>calm        |
| St. Ann<br>(S5)           | St. Charles Rd. and<br>Industrial Blvd. | 415                    | 2,028                  | 9/8/75<br>88°F  | 2035-0525<br>WS/2 mph    |
| Webster Grove, MO<br>(S6) | Mary St.                                | 360                    | 1,000                  | 9/9/75<br>93°F  | 1114-1604<br>W/0-5 mph   |