WIND-TUNNEL STUDY OF
EXHAUST-INTAKE CROSS CONTAMINATION
AND DISPERSION OF ROOFTOP EMISSIONS,
HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA
(HUP PHASE IV)

by

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FLUID MECHANICS AND
WIND ENGINEERING PROGRAM

COLLEGE OF ENGINEERING

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CSU Project 2-95750

July 1984
Modified March 1985

CER84-85JEC-JAP1

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ABSTRACT

A wind-tunnel study on a 1:250 scale model of a planned Phase IV addition to the Hospital of the University of Pennsylvania complex and the nearby structures was completed in the Fluid Dynamics and Diffusion Laboratory at Colorado State University. The study was accomplished to determine the concentration of effluents, emitted from various exhausts near and on the proposed addition, at various air intakes and other critical locations. Tracers emitted from individually modelled sources were sampled at 47 receptors for each of eight wind directions to measure the extent of exhaust-intake cross-contamination and dispersion of roof-top emissions. Some "follow-on" tests were also performed with a modified model to determine effluent concentrations at the HUP IV penthouse from selected nearby sources.

Additional wind-tunnel testing included velocity measurements to determine mean and gust winds at selected locations in the vicinity of the Hospital. The pedestrian-level wind data were recorded at 18 different locations for each of 16 wind directions. Selected test conditions were identified for inclusion in a visualization study. Visible smoke plumes, generated at locales of special interest, were recorded on VHS format video cassettes.

The concentration data revealed that the complex contains regions where the air is relatively stagnant. Exhaust gases in these regions experience little, if any, sweeping action from the wind, from any direction, to enhance dispersion. Some interaction between area exhausts and intakes situated on the Phase IV addition, was measured. Any adverse contamination of intake air is dependent upon composition of

the exhaust effluents. The velocity measurements indicated that the new structure should not induce any significant wind related problems for pedestrian traffic in the surrounding area.

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LIST OF ABBREVIATIONS AND SYMBOLS

Abbreviations	Definitions
ABL	Atmospheric Boundary Layer
BG	Background
CALFAC	Calibration Factor
calib	calibration
CHOP	Children's Hospital of Pennsylvaina
CSU	Colorado State University
EWT	Environmental Wind Tunnel
FDDL	Fluid Dynamics and Diffusion Laboratory
FID	Flame Ionization Detector
FIGC(GC)	Flame Ionization Gas Chromatograph
GBQC	Geddes-Brecher-Qualls-Cunningham, Architects
HUP IV	Hospital of the University of Pennsylvania, Phase IV
Med Ed	Medical Education Building
NMR	Nuclear Magnetic Resonance
SGP	Scientific Gas Products
SS	Source Strength

Symbols	Definitions	Units
A	equation constant	-
B	building dimension or equation constant	(m), -
D	stack or vent diameter	(m)
E	voltage or exponent ($x10^n$)	volts, -
g	gravitational acceleration	(m/sec^2)
H	stack or vent height	(m)
k	roughness heights for upwind ground surface	(m)

Symbols	Definitions	Units
K	nondimensional concentration	-
n	velocity profile power law exponent, or equation constant	-
Q	volume flow	(gm/sec,m^3/sec)
t	time duration	(sec)
U	characteristic wind velocity	(m/sec)
U_{ref}, U_r	reference velocity	(m/sec)
U_∞	gradient wind speed	(m/sec)
U_s	wind velocity at stack height	(m/sec)
V_s	exit velocity of exhaust gas	(m/sec)
z	height	(m)
z_{ref}	reference height	(m)
z_∞	gradient height	-
Greek		
$\Delta\gamma$	$(\rho_a-\rho_s)g$, specific weight difference	$kg/m^2 \cdot sec^2$)
δ_a	boundary layer thickness	(m)
μ	dynamic viscosity	(kg/m·sec)
ρ	density	(kg/m^3)
χ	concentration ratio	-
Subscripts		
a	ambient	
m	model	
p	prototype	
s	emitted gas	
∞	conditions at gradient level	
rms	root-mean-square about the mean	

1.0 INTRODUCTION

1.1 Background

The Hospital of the University of Pennsylvania plans to erect an addition to their medical complex, which is herein referred to as Hospital of the University of Pennsylvania, Phase IV (HUP IV). The proposed facility was designed by Geddes, Brecher, Qualls, Cunningham, Architects (GBQC). The building site (located in the central part of Philadelphia, PA, west-southwesterly of the intersection formed by Spruce Street and Civic Center Boulevard) is almost completely surrounded by other nearby multi-story structures on the university campus. Prominent among them are the Childrens Hospital of Philadelphia (CHOP), the Medical Education Building (Med Ed), the Silverstein Pavilion, and the Ravdin, White, Agnew, Gates, Maloney and Piersol Buildings.

Project managers, associated with the new addition, expressed concerns over the possibility of exhaust-intake cross-contamination and also questioned the dispersion patterns of emissions from the HUP IV roof-top. Impact of the new construction upon pedestrian-level winds was also a matter of concern. Wind-tunnel modeling provides a reasonable and practical method of obtaining dispersion and wind velocity information at the prototype site.

1.2 Purpose and Scope

The Hospital of the University of Pennsylvania contracted with the Fluid Dynamics and Diffusion Laboratory (FDDL) at Colorado State University to perform wind-tunnel investigations of the planned Phase IV addition.

Through experiments conducted on a HUP IV model, installed in a boundary-layer wind tunnel, the investigators' purpose was to:

(1) Determine the concentration of effluents emitted from various sources near and upon the HUP IV structure at all identified air intakes and other critical locations, for eight wind directions at 45° intervals.

(2) Measure mean and gust winds at locations of heavy pedestrian traffic in the vicinity of HUP IV, for sixteen wind directions, at 22.5° intervals.

(3) Document airflow patterns in regions of special interest by means of a visualization study.

The scope of the described investigations was limited to studies in a thermally neutral boundary-layer flow that simulated atmospheric flow over the modelled HUP IV site.

1.3 Report Organization

The remainder of this report is dedicated to documentation of the experimental configuration, modelling techniques, test methods, test parameters, data analysis, data presentation and conclusions. A generalized format follows:

- Chapter 2.0, EXPERIMENTAL CONFIGURATION, contains descriptions of the model construction, wind-tunnel configuration, model environment, and similar information.

- Chapter 3.0, VELOCITY MEASUREMENTS, provides a record of the modelled atmospheric boundary layer, aerodynamic roughness, and wind-tunnel speed settings. This chapter also contains documentation of the pedestrian-level wind data and its interpretation.

- Chapter 4.0, CONCENTRATION MEASUREMENTS, contains a description of the dispersion tests, data collection-analysis procedures, sample calculations, presentation of the dispersion data in sets of tables and figures and some conclusions.

- Chapter 5.0, VISUALIZATION STUDY, provides some general comments about smoke tracers and a tabulation of airflows around the model which were documented by video cassette recorder.
- The separately bound appendices contain copies of all the concentration data in two different formats: (1) concentration ratios and (2) dimensionless concentration coefficients.

2.0 EXPERIMENTAL CONFIGURATION

2.1 Model Construction

A circular area approximately 1500 ft in radius about the proposed HUP IV addition was modelled for the wind-tunnel studies. The 1:250 scale model of HUP IV was assembled in the Engineering Research Center's Machine Shop, while the surrounding edifices were produced within the FDDL. All structures were modelled in the detail necessary to provide accurate wind flow patterns over the complex.

The HUP IV model was machined from acrylic plastic to obtain significant detail. The remaining structures were fabricated from two classes of styrofoam materials. Buildings included on the model base only for their geometric shapes were cut from lightweight styrofoam blocks. Those structures which included sources and receptors were made from more dense material and affixed to the removable portion of the base for necessary access to modelled source/receptor "plumbing."

Streets, walkways and similar landmarks, were identified and marked on the model base. All model structures, except HUP IV were painted to provide a suitable background for the visualization studies.

2.2 Model Sources and Receptors

All exhaust sources included in the modelling considerations were identified from Caretsky & Associates, or Penjerdel Refrigeration Co., drawings, which were supplied by the sponsors. A total of 368 prototype sources were represented on the scale model by 129 individual ports. Small clusters of sources were modelled by a single port located at their approximate mid-position, in many cases. Individual prototype sources were modelled, in some instances, where level of interest, discharge rate, location, or other considerations dictated.

The 129 model sources were further organized into 24 source groups to facilitate the dispersion testing. This latter action was accomplished by constructing manifolds which supplied selected groupings of the model sources, in most cases. There were some prototype sources on the HUP IV building which were carried through the modelling phase without grouping, or subgrouping.

Volume flow and exit velocity of the prototype sources were modelled by varying the cross-sectional area of the exhaust ports installed in the model, the manifold outlets, and the inter-connecting tubing. The modelled source exits were capped, as appropriate, to influence directional flow of the exhausts.

In addition to the described exhaust sources, two cooling towers on the Children's Hospital and a large cooling tower on the Silverstein Bldg. were modelled with working fans to simulate the prototype circulation of air.

The prototype exhaust sources which were modelled are described in Tables 2-1a through 2-1ℓ. The tabulations include reference numbers from the Caretsky/Penjerdel drawings; the combined exhaust discharges (cfm); a subgroup designation and identification of the test groups. Exhaust sources on the HUP IV Bldg. account for 10 of the 24 test groupings. The HUP IV tests, all identified as Group #3, each possessed an additional identifier. A schematic overview of the general location of each test group (excluding 14 and 15) is contained in Figure 2-1. Groups #14 and 15 are sources of hot exhausts throughout the complex which were grouped together for testing.

The 47 air intakes and ground-level receptors (sampling points) which were incorporated into the model were identified from the previously referenced Caretsky/Penjerdel drawings and guidance from the sponsor. Each of these receptors are described in Table 2-2 which provides a cross-reference model number to prototype drawing number (or alternate description) and the model structure upon which the sampling point was located. Figure 2-2 contains a schematic presentation of all 47 receptor locations on the HUP IV model. Model numbers with an arrow indicate the sampling point was located on a face of the appropriate structure, while all remaining receptors were located on roofs, or at ground-level.

Figures 2-1a through 2-1ℓ are schematic drawings of each of the 24 test groups/sources. In some instances more than one group was included on a single drawing. These schematics provide the location/identification of all sources and receptors within each test group which were modelled. The drawings also depict the approximate location of most prototype sources which were incorporated into the model subgroupings. Circles denote all sources, while a hexagonal symbol identifies each of the receptors. Arrows, again differentiate exhaust/intake ports located on the faces of structures from those located on other surfaces.

2.3 Wind Tunnel

Three large atmospheric boundary layer (ABL) wind tunnels are available in the FDDL at Colorado State University for wind engineering studies. The Environmental Wind Tunnel (EWT), largest of the three tunnels, was used for all tests of the HUP IV model. Selection of the EWT permitted modelling to the largest practicable scale, while including all significant structures in the surrounding area (adjacent structures are an important consideration since they can materially influence airflow patterns). Elevation and plan views of the EWT are contained in Figure 2-3.

The tunnel has a flexible roof which is adjustable in height to maintain a zero pressure gradient along the entire length of the test section. The roof was adjusted after installation of the model, and prior to all testing, to obtain the desired effect.

Thermal stratification in the EWT corresponded to the adiabatic lapse rate in the atmosphere (neutral stratification) since the flow, without boundary heating or cooling, is isothermal.

The HUP IV model and surrounding buildings, affixed to a plywood model base, were installed on the 12 ft diameter EWT downwind turntable and oriented eleven degrees clockwise from true north. Figure 2-4 provides a close-up view of the model, after being situated in the tunnel.

2.4 Model Environment

A large portion of the test section area upstream from the model was covered with uniform roughness constructed from one-inch wooden cubes. The upwind roughness was selected to simulate the proportional roughness associated with the prototype environment.

Spires were installed at the test section entrance to provide a thicker boundary layer than would otherwise be available. The spires were approximately triangular-shaped pieces of 1/2" thick plywood, six inches wide at the base and one inch wide at the top, extending from floor-to-roof of the test section, and positioned broadside to the airflow at 18" intervals. The spires were further modified with cardboard shapes, which extended from 12" to 22" above the floor and one inch on either side of each spire, before the desired boundary layer was obtained. The modelled ABL is further discussed in the following subsection and again in Section 3.0.

Figure 2-5 contains a pictorial presentation of the model on the turntable, the roughness elements installed on the tunnel floor, and the spires at the test section entrance. Figure 2-6 provides further documentation in the form of a scaled drawing of the entire test section length, containing: trip and spire location, floor area covered with roughness, turntable position and pertinent dimensions. (Velocity profile measurement locations, discussed in Section 3.0, are also located on this schematic).

Pertinent theories of ABL and natural wind simulation are contained in references by Cermak (1971, 1982).

2.5 Similarity Criteria for Dispersion and Models

When interest is focused on the behavior of plumes of gases emitted from stacks or vents into a thermally neutral atmosphere the following variables are of primary significance:

δ_a = thickness of planetary boundary layer

ρ_a = density of ambient air

$\Delta\gamma = (\rho_a - \rho_s)g$--difference in specific weight of ambient air and emitted gas

μ_a = dynamic viscosity of ambient air

B = typical dimension of building complex

D = stack or vent diameter

H = stack or vent height

k = roughness heights for upwind ground surface

U_s = mean speed of ambient wind at height of gas emission

U_∞ = gradient wind speed (speed at top of boundary layer)

V_s = speed of gas emission

Grouping the independent variables into dimensionless parameters with ρ_a, U_s and H as reference variables yields the following parameters upon which the dependent quantities of interest must depend (Lord, 1970):

$$\frac{\delta_a}{H}, \frac{k}{H}, \frac{D}{H}, \frac{B}{H}, \frac{U_s \rho_a B}{\mu_a}, \frac{V_s}{U_s}, \frac{\rho_a U_s^2}{\Delta \gamma D}, \frac{\rho_a - \rho_s}{\rho_a}$$

A laboratory boundary-layer thickness of 1.14 meters was achieved, making the model parameter $(\delta_a/H)_{model}$ approximately equal to that for the real atmosphere, $(\delta_a/H)_{prototype}$. Consideration of the surface roughness (the city) surrounding the hospital site dictated that equality of the surface parameter, k/H, for model and prototype would be satisfied with an exponent $n \cong 0.26$ in the equation $U/U_{ref} = (Z/Z_{ref})^n$.

From consideration of winds recorded at Philadelphia International Airport (see Figure 2-7 and Table 3-2), it was determined that a median wind speed of 9.9 miles per hour (14.52 ft/sec), measured at a height of 20 feet, was typical for the Philadelphia area. Using the equation $U/U_\infty = (Z/Z_\infty)^n$, with a value of $n = 0.16$ (typical of the flat terrain near the airport), a value of gradient wind speed U_∞ of 26.8 ft/sec was calculated at a height $Z_\infty = \delta \cong 920$ feet. This would then be the wind speed at Z_∞ above the hospital site also. The value of n at the hospital site was estimated to be $n = 0.26$, because of the greater surrounding surface roughness. On the model, a value of $n = 0.26$ was achieved, with a δ of 45" (corresponding to 940 feet in the real atmosphere) and similarity of approach flow between model and prototype was thus realized.

The parameters D/H and B/H were equal for model and prototype because of undistorted geometric scaling.

Equal Reynolds numbers, $U_s \rho_a B/\mu_a$, for a large real building complex and a model small enough to fit into any existing wind tunnel cannot be achieved. Fortunately, equality of the Reynolds number is not required for similarity of the model and prototype flow fields so long as the model Reynolds number exceeds a minimum value of approximately 11,000 (Halitsky, 1969). A Reynolds number greater than 19,000 was maintained for the flow around the model HUP IV building, ensuring flow field similarity between model and prototype.

Equality of the velocity ratio, $(V_s/U_s)_m = (V_s/U_s)_p$, could be achieved at any combination of tunnel speed and exhaust flows which maintained this equality, but with the constraints that U_s must be great enough to ensure Reynolds number independence and V_s must be small enough to fall within the range of available flowmeter instruments. A satisfactory compromise was obtained with a wind tunnel speed, $(U_\infty)_m$, of 8 ft/sec. Thus a model U_∞ of 8 ft/sec represented an atmospheric U_∞ of 26.8 ft/sec.

The velocity ratio V_s/U_s was set at typical values for the various sources and was maintained constant during the tests.

For HUP emissions, $\Delta\gamma$ was considered to be essentially zero (excepting for incinerator emissions); therefore, the parameters $\rho_a U_s^2 (\Delta\gamma D)^{-1}$ and $(\rho_a - \rho_s)/\rho_a$ are infinity and zero, respectively, for both model and prototype, for most sources.

3.0 VELOCITY MEASUREMENTS

3.1 General

Tall structures have historically produced unpleasant wind and turbulence conditions at their bases. The intensity and frequency of objectionable winds in pedestrian areas is influenced both by the structure shape and by the shape and position of adjacent structures.

Techniques have been developed for wind-tunnel modeling of proposed structures which allow the prediction of wind velocities and gusts in pedestrian areas adjacent to buildings. Information on sidewalk-level gustiness allows plaza areas to be protected by design changes before construction, if necessary.

3.2 Velocity Measurement Instrumentation

All velocity measurements were made with a single hot-wire anemometer mounted with its axis vertical. The instrumentation used was a Thermo-Systems constant temperature anemometer (Model 1050) with a 0.001 in. diameter platinum film sensing element 0.020 in. long. Output was directed to the on-line data acquisition system for analysis.

Calibration of the hot-wire anemometer was performed by comparing output with a pitot-static tube also located in the wind tunnel. The calibration data are fit to a variable exponent King's Law relationship of the form

$$E^2 = A + BU^n$$

where E is the hot-wire output voltage, U the velocity and A, B, and n are coefficients selected to fit the data. The above relationship was used to determine the mean velocity at measurement points using the measured mean voltage. The fluctuating velocity in the form U_{rms} (root-mean-square velocity) was obtained from

$$U_{rms} = \frac{2\ E\ E_{rms}}{B\ n\ U^{n-1}}$$

where E_{rms} is the root-mean-square voltage output from the anemometer.

3.3 Atmospheric Boundary Layer Profiles

The approach mean velocity at the model building site must have a vertical profile shape similar to the full-scale flow. The turbulence characteristics of the flows must also be similar.

Mean velocity and turbulence intensity profiles were measured to determine that an approach boundary-layer flow appropriate to the site had been established. Tests were made at a tunnel wind velocity which was well above that required to produce Reynolds number similarity between the model and the prototype, as discussed elsewhere.

Velocity and turbulence profiles are shown in Figure 3-1. These profiles were obtained upstream from the model which are characteristic of the boundary layer approaching the model and at the building site with building removed. The boundary-layer thickness, δ, is shown in Figure 3-1. The corresponding prototype value of δ for this study is also shown on that figure. This value was established as a reasonable height for the study. The mean velocity profile approaching the modeled area has the form

$$\frac{U}{U_\infty} = \left(\frac{z}{\delta}\right)^n$$

The exponent n for the approach flow established for this study is also shown in Figure 3-1.

Profiles of longitudinal turbulence intensity in the flow approaching the modeled area are shown on the right side of Figure 3-1. The turbulence intensities are appropriate for the approach mean velocity profile selected. For the velocity profiles, turbulence intensity is defined as the root-mean-square about the mean of the longitudinal velocity fluctuations divided by the local mean velocity U,

$$TI = \frac{U_{rms}}{U} .$$

3.4 Pedestrian-Level Wind Velocities

Titanium tetrachloride "smoke," released from sources around the model to make flow lines visible, was used to help identify areas where pedestrian-level winds might be a problem.

Mean velocity and turbulence intensity measurements were made 5 to 7 ft (prototype) above the surface at eighteen locations near the building site, for 16 wind directions. A reference pedestrian position, located a short distance away in a relatively undisturbed locale, was also measured. The surface velocity measurements are indicative of the wind environment to which pedestrians at the measurement location would be subjected.

Measurement locations were chosen to determine the degree of pedestrian comfort, or discomfort, near building corners where relatively severe conditions are frequently found; near building openings and on adjacent walks where pedestrian traffic is heavy; and in open plaza areas. The selected locations are depicted in Figures 3-2a and b. Location 1, southwest of the Childrens' Hospital, served as the reference position. Locations 2, 3, 4, 5, and 6 were spaced along Hamilton Walk, west of the Medical Education Building; locations 7 and 8 were beneath the Medical Education Building; locations 9 through 13 were in the open plaza area; locations 14 and 15 adjacent to the base of the

NMR "pyramid"; and locations 16, 17, 18, and 19 near/beneath the Silverstein Pavilion.

Velocity data obtained at each of the pedestrian measurement locations shown in Figures 3-2a and b are contained in Tables 3-1a through 3-1j as mean velocity U/U_∞, turbulence intensity U_{rms}/U_∞, and largest effective gust

$$U_{pk} = \frac{U + 3U_{rms}}{U_\infty}$$

These data are plotted in polar form on Figures 3-3a through 3-3j.

To enable a quantitative assessment of the wind environment, the wind-tunnel data were combined with wind frequency and direction information obtained at the local airport. Table 3-2 shows wind frequency by direction and magnitude obtained from summaries published by the National Weather Service. These data, obtained at an elevation of 20 ft, were converted to velocities at the reference velocity height for the wind-tunnel measurements and combined with the wind-tunnel data (Tables 3-1) to obtain cumulative probability distributions (percent time a given velocity is exceeded) for wind velocity at each measuring location. The percentage times were summed by wind direction to obtain a percent time exceeded at each measuring position independent of wind direction (but accounting for the fact that the wind blows from different directions with varying frequency). These results are plotted in Figures 3-4a through 3-4d.

Interpretation of the integrated velocity data is aided by a description of the effects of wind of various magnitudes on people. The earliest quantitative description of wind effects was established by Sir Francis Beaufort in 1806 for use at sea and is still in use today.

Several recent investigators have added to the knowledge of wind effects on pedestrians. These investigations along with suggested criteria for acceptance have been summarized by Penwarden and Wise (1975) and Melbourne (1978). The Beaufort scale (from Penwarden), based on mean velocity only, is reproduced as Table 3-3 including qualitative descriptions of wind effects. Table 3-3 suggests that mean wind speeds below 12 mph are of minor concern and that mean speeds above 24 mph are definitely inconvenient. Quantitative criteria for acceptance (from Melbourne) are superimposed as dashed lines on Figures 3-4. The peak gust curves shown on the right in Figures 3-4 are the percent of time during which a short gust of the stated magnitude could occur (say about one of these gusts per hour).

3.5 Data Analysis

Tables 3-1 and Figures 3-3 reveal that the largest values of mean velocity were measured at location 16 where the mean velocity for 11 wind directions were in a 40-55 percent range of the velocity, U_∞, at the boundary-layer height. Mean velocities in excess of 0.4 U_∞ were also recorded for two wind directions at location 18, three directions at location 19, and one wind azimuth at location 8. Maximum U/U_∞ values of 54.8 percent were measured at both locations 16 and 19. The mean velocity values are not overly large compared to an expected value of approximately 45 percent in an open-country environment.

The largest values of fluctuating velocity, $\bar{U}_{rms}$, were 13.2 and 14.9 percent at location 18 and a comparable 14.3 and 14.6 percent at location 19. All other measurements were comparable to, or below, a maximum value of 10 to 12 percent of fluctuating velocity, which is typical of an open-country environment.

The maximum peak gusts, represented by the mean plus 3 rms, were obtained at locations 18 and 19 with values of 85.0 and 86.7 percent of U_∞, respectively. These values are representative of the 80 to 90 percent maximum gust values expected in an open-country environment.

Integration of the velocity data of Table 3-1 with the local wind data of Table 3-2, for presentation in Figures 3-4 was described in the preceding section. The data from these figures also suggest that the windiest places will be near locations 16 and 19.

3.6 Summary and Conclusion

The ten largest values of velocities, turbulence intensities and gustiness and their locations, which were measured for pedestrian level winds, are contained in Table 3-4.

This data reveals that the most adverse pedestrian-level wind conditions may be expected in the plaza area near the NW corner of the Silverstein Pavilion (location 16) and beneath the pavilion near the eastern exit (location 19).

On the basis of the magnitude of the wind-tunnel data at the measured points, no wind problems are expected, as a result of the new building. Pedestrian comfort along Hamilton Walk, in Miller Plaza and beneath the Medical Education Building and Silverstein Pavilion should remain acceptable.

4.0 CONCENTRATION MEASUREMENTS

4.1 General

Diffusion of gases into the atmosphere is influenced by geometric characteristics such as terrain and man-made structures, in addition to the thermal, dynamic and kinematic considerations for the flow field. Satisfactory techniques have been developed for modelling all of these characteristics which result in a model concentration field that is a congruent replica of the prototype field. The techniques used in acquiring the concentration data for this study are well-established in theory and in practice.

Concentration (dispersion) data were collected for all receptors on the HUP IV model for eight different wind directions at 45° intervals. These measurements were all obtained with a tunnel speed of 2.44 m/s (8 fps). (Scaling of the velocity ratio was discussed in Section 2.0.)

Table 4-1 provides for each source group tested: 1) the run number assigned to each test, 2) the wind direction with reference to true north, 3) the wind velocity of the tunnel, 4) the hydrocarbon tracer with its source strength expressed as a percentage of the total gas mixture, and 5) the volume flow rate of the source groups.

4.2 Tracer Gases

During test planning the decision was made to simultaneously sample the exhausts from two source groups, by using separate hydrocarbon tracers. The neutrally buoyant sources were modelled with a nominal 9 percent Methane, or 10 percent Ethane tracer in a mixture which was equivalent to the molecular weight of air.

The buoyant sources (hot exhausts) were modelled using a minimal amount of tracer (4 percent Methane, 3 percent Ethane) in otherwise pure

Helium. This mixture provided a buoyancy comparable to the 300°F exhausts (Group 14, 3-58 and 3-60) and represents the maximum obtainable with this testing procedure. The hotter exhausts (group #15 and 3-59) were also tested with these buoyant tracer gases. While these hotter exhaust discharges could not be accurately scaled, the resultant data is conservative, representing worst case conditions.

The required tracer gas mixtures were supplied by Scientific Gas Products, Inc., Longmont, Colorado. The gases are certified (see Figure 4-1) by SGP to be accurate within ±2 percent.

4.3 Data Collection Procedures

Tracer gas concentrations were measured at each of the receptors for comparison with the various sources.

The 47 model receptors were all connected to a collection system (which was located adjacent to the wind tunnel) with one-sixteenth I.D. Tygon tubes. The collection system ("Sampler"), which was designed and fabricated in the CSU Engineering Research Center, basically consists of a circular array of syringes, a network of check valves and a manifolded vacuum system, all interconnected, and completing a path from sampling port to gas chromatograph. Sampling time and vacuum pressure of the system are adjustable.

The sampler was calibrated both prior to, and immediately following, the concentration test program to insure proper function of each of the assemblies (tubing, check valve, syringe).

The data acquisition consisted of: 1) setting the proper tunnel wind speed, 2) releasing metered mixtures of tracer gases from the model sources, 3) withdrawing samples of air from the model receptors, and 4) analyzing the samples with a Flame Ionization Gas Chromatograph (FIGC).

Tunnel speed was established by integrating the signal from the tunnel-mounted sensor with a digital voltmeter, over a 100-second interval. Speed was adjusted and the integrations repeated until the desired setting was obtained to a ±2 percent tolerance.

The tracer gases released from the source groups were initially routed through ball-type flow meters to control the volume flows prior to routing to the group manifolds, or individual sources. Calibration of the flow-meters, over their operating range with Helium/air (as appropriate), was used to obtain the proper meter setting. The modelled volume flow rates, sometimes reduced from the prototype values by a square of the scaling factor, were additionally reduced by a factor of ~ 0.299 (8 fps/26.8 fps) for this study to maintain equality of the velocity ratio (V_s/U_s), which was described in subsection 2.5. A tabulation of the prototype and model volume flow rates is contained in Table 4-2.

The tracer gas sampling system consists of a series of fifty 30 cc syringes mounted between two circular aluminum plates. A variable-speed motor raises a third plate, which simultaneously lifts all 50 syringe plungers. A set of check valves and tubing are connected such that airflow from each sampling point passes over the tip of each designated syringe. When the syringe plunger is lifted, a sample from the tunnel is drawn into the syringes. The sampling procedure consists of flushing (taking and expending a sample) the syringe several times after which the test sample is taken. The variable draw rate was set to approximately 60 seconds. Two of the sampler syringes are used to monitor background values of tracer gases which are present/accumulate in the wind tunnel. Readings are obtained for each test run from sampling ports positioned upwind from the model. These values were subtracted from concentration values measured at the model receptors, as illustrated in subsection 4.5.

The procedure for analyzing air samples from the tunnel is as follows: 1) a 2 cc sample volume drawn from the wind tunnel is introduced into the Flame Ionization Detector (FID), 2) the output from the electrometer (in microvolts) is sent to the Hewlett-Packard 3380 Integrator, 3) the output signal is analyzed by the HP 3380 to obtain the proportional amount of hydrocarbons present in the sample, 4) the record is integrated, and the Methane and Ethane concentrations, as appropriate, are determined, 5) a summary of the integrator analysis (gas retention time and integrated area (μv-s) is printed out on the integrator at the wind tunnel, 6) the integrated (raw) values for each tracer are entered into a computer along with pertinent run parameters, and 7) the computer programs convert the raw data into dimensionless concentration ratios/coefficients.

Photographs of the sampling system and FIGC are shown in Figure 4-2.

4.4 Data Analysis

A common method of analyzing dispersion data is to compare the concentrations measured at the receptors to the source strengths. When the Gas Chromatograph (GC) calibration values are included, a dimensionless concentration ratio, χ, may be obtained,

$$\chi = \frac{\text{RAW-BG}}{\text{CAL FAC}} \times \frac{\text{S.S.}_{\text{calib gas}}}{\text{S.S.}_{\text{tracer gas}}}$$

where,

RAW = GC integrator value of sample at receptor (μv·s)

BG = background value of tracer gas (μv·s)

CAL FAC = GC integrator value of a calibration gas of known concentration, corrected for differences in molecular weight of the tracer gas, if appropriate (μv·s)

SS = source strength of calibration/tracer gas (ppm).

The concentration ratios (dilution factors) so calculated, at each of the 47 receptors for the various source groups modelled, are contained in the appendix to this report.

Data reduction of the concentration measurements from the HUP IV wind-tunnel study did not include prototype source strengths from any of the modelled source groups. However, a second set of data was generated which will enable the sponsor to evaluate the concentrations at any selected receptor, for any prototype source strength measured at a later date.

These dimensionless concentrations, K, are useful values which are often calculated in the analysis of wind-tunnel dispersion data, since these non-dimensional coefficients can easily be equated to prototype source measurements. A logical extension of the concentration ratios, χ, the non-dimensional concentrations are expressed by,

$$K_m = \left(\frac{\chi u_r H_r^2}{Q}\right)_m = K_p = \left(\frac{\chi u_r H_r^2}{Q}\right)_p$$

where χ = fraction of source strength ($\chi_{receptor}/\chi_{source}$).

u_r = reference velocities (for HUP IV study they are 2.44 m/s for the model and 8.17 m/s for the prototype).

H_r = reference heights (building height of HUP IV from grade line to roof was selected and are 0.2199 m for the model and 54.965 m for the prototype.

Q = total volume flow rate of the source (cfm or m^3/sec).

Rearranging the equation,

$$(\chi_{receptor})_p = K \left(\frac{\chi_{source} \cdot Q_{source}}{u_r H_r^2} \right)_p$$

so that the strength of an effluent at any prototype receptor may be calculated by determining pertinent prototype values and multiplying by the appropriate K value.

These latter values are especially useful when only portions of the total volume flow, Q, from a source are objectionable, since these fractional values do not appear in the concentration ratios.

The dimensionless concentration coefficients, K, which were calculated for each of the 47 receptors at eight wind directions, for all the source groups modelled, are also tabulated in the appendix to this report.

The following table is often useful to convert the values tabulated in the appendices, and contained elsewhere in this report, into more easily recognizable or useful terms. Since the computer uses an E to identify an exponent to the base 10, the relationship to decimals and percentages is simply,

.100E+0	=	0.100	=	10%	(100,000 ppm)
.100E-1	=	0.0100	=	1%	(10,000 ppm)
.100E-2	=	0.00100	=	.1%	(1,000 ppm)
.100E-3	=	0.000100	=	.01%	(100 ppm)
.100E-4	=	0.0000100	=	.001%	(10 ppm)
.100E-5	=	0.00000100	=	.0001%	(1 ppm)*

*Since a value of .100E-5 would indicate the presence of 1 part at the receptor for each million parts exhausted from the source, values in this range, and smaller, are assumed to be zero.

The collected concentration data was analyzed to ascertain which receptors had received the largest amount of concentration from each source group tested. Since the amount of contamination varied extensively between test groups, the resultant concentration ratios were tabulated into groupings which recognized measurements in excess of 10, 2½, 1, 0.2, 0.015 or 0.01 percent of source strength. This analysis is contained in Tables 4-3a through 4-3f, which identify the wind direction and receptors for which concentration ratios exceeded some indicated value, for the various source groups.

Figures 4-3a through 4-3ℓ are presented as an aid to visualizing which intakes/receptors received the greatest amounts of contamination from each source group. Each figure contains a table identifying all measurements in which the concentration ratio exceeded some arbitrary value, specified in Table 4-3, and the wind directions at which they occurred. The maximum values for each receptor listed, are also plotted on the figure at the appropriate geometric location of the receptor.

With the architect's interest focused upon the Phase IV addition to HUP, the concentration measured at the receptors of this model structure, and also the nearby Gates and Maloney buildings, were evaluated for every modeled source. Based upon an assumption that the maximum contaminant strength from any single source would not exceed 1000 ppm, all measured concentration ratios in excess of .100 E-3 (0.1 ppm contaminant at the receptor) were tabulated in Tables 4-4a through 4-4x for the referenced intakes and eight wind directions.

The maximum values (and direction of occurrence) at each intake are contained in Table 4-5 for each modeled source.* This table provides

*Tables 4-4e and 4-4i were omitted from Table 4-5 because the data are neither representative nor predictable. The data is typical of that obtained when an inadvertent leak in the "plumbing" exists somewhere before the desired exhaust exit. In any event, the concentration ratios from these two sources should be similar to other HUP IV rooftop sources, e.g., Source Groups 3-2 and 3-C.)

prompt identification of the relative magnitudes and locations of the selected exhaust-intake cross-contaminations.

Tabulations similar to Tables 4-4 and 4-5 may be prepared for any combination of sources and receptors of interest from the data contained in the appendices to this report.

4.5 Sample Calculations

The dimensionless concentration ratio, χ, is calculated from the equation

$$\chi = \frac{\text{RAW-BG}}{\text{CAL FAC}} \times \frac{\text{S.S.}_{\text{calib gas}}}{\text{S.S.}_{\text{tracer gas}}}$$

Using Run #1, Wind Direction 000°, Sample Point #1, Source Group #13 as an example:

Given:

RAW-GC reading (μv·s) = 1856

BG-GC reading (μv·s) = 375

CAL FAC-GC reading (μv·s) $\times \frac{\text{M.W. (tracer gas)}}{\text{M.W. (calib gas)}}$ = 98,056

$\text{S.S.}_{\text{calib gas}}$ - 201 ppm C_2H_6

$\text{S.S.}_{\text{tracer gas}}$ - 100,000 ppm C_2H_6

so that

$$\chi = \frac{1856 - 375}{98{,}056 \times \frac{30}{30}} \times \frac{201}{100{,}000} = .304\text{E-}04$$

The dimensionless concentration coefficient, K, follows from the preceding calculation of χ, so that using the same example,

$$K_m = \left(\frac{\chi u_r H_r^{\,2}}{Q}\right)_m$$

χ_m - preceding calculation = .304E-04

$(u_r)_m$ - Table 4-1 $= 2.44$ m/s

$(H_r^2)_m$ - assigned constant $= .048356\ m^2$

Q_m - Table 4-1 $= .00019498\ m^3/s$

so that

$$K_m = \frac{.304E-04 \times 2.44 \times .048356}{.19498E-03} = .184E-01$$

As a further example, if it is known that source group #13, or a certain exhaust within that group; emits effluvium containing .2E-04 (2×10^{-5}) grams of lead per cubic meter (i.e. total grams per second of lead divided by total volume flow rate in cubic meters per second for source group #13 equals .2E-04), the concentration of lead at any given intake may be calculated. Again, using the cited example for Run #1, W.D. 000°, Sample Point #1, and Source Group #13:

$$(\chi_{receptor})_p = K \left(\frac{\chi_{source} \times Q_{source}}{u_r \times H_r^2} \right)_p$$

$(X_{source})_p$ - given to be $= .2E-04\ gms/m^3$

$(Q_{source})_p$ - Table 4-2 $= 40.82\ m^3/s$

*$(u_r)_p$ - reference velocity $= 8.17$ m/s

$(H_r^2)_p$ - assigned constant $= 3021.15\ m^2$ ($= .0484 \times 250^2$)

so that

$$\chi_{receptor} = .184E-01\ \frac{.2E-04 \times 40.82}{8.17 \times 3021.15} = .609E-9\ gm/m^3$$

4.6 HUP IV Penthouse Tests

During a 28 August 1984 meeting of HUP, GBQC, Caretsky and CSU representatives, a decision was made to perform additional wind-tunnel tests on a penthouse not originally included on the HUP IV drawings, or model. Subsequent to receipt of updated drawings, and after consultation

*Or approximate velocity at which χ_{source} was determined.

with Caretsky & Associates personnel, the HUP IV model was modified to facilitate completion of the additional concentration and visualization tests.

Alterations to the model included the addition of a mechanical room penthouse, relocation of cooling towers and minor changes to rooftop sources. Configurations of the HUP IV rooftop, prior to and after the remodeling, are provided in Figures 4-4a and 4-4b.

The mechanical room penthouse (block E on Figure 4-4b) design included two large air intakes on the west face. An alternate air intake (block F on Figure 4-4b) located atop the penthouse, and containing a large opening to the east and smaller north-south openings, was also modeled.

The five individual cooling towers (1-5 of Figure 4-4a) originally modeled were modified to the two-group (A-B and C-D) configuration depicted on Figure 4-4b. Rooftop sources directly in front of the west-facing penthouse intakes were also relocated.

Exhausts from Source Groups 3-1, 3-2 and 3-Q, all located atop HUP IV, and Source Groups 1, 2, 4 and 5 (Med. Ed., Gates and Maloney buildings) were measured at the two penthouse intake locations. Penthouse intakes, west set (8,9) or east set (5,6), were operated at rated capacity and the intake air was sampled for concentration. Model approach wind velocity was the same as in previous tests.

The basic concentration data representing 10 runs of data are tabulated in Appendix C in a form similar to that for previous data. Identification of run numbers and their associated model test parameters are shown in Table 4-6.

Results of the penthouse concentration measurements are summarized in Table 4-7. Concentration ratios of air inlet to source outlet are listed for both east intakes (labeled E) and west intakes (labeled W) for each source group and wind direction tested. On the basis of the data presented in Table 4-7, it can be concluded that the east intakes provide the smallest concentrations for HUP IV rooftop emissions. An east intake should provide a more satisfactory intake location from the standpoint of minimizing intake concentrations from the measured sources.

4.7 Cross-Contamination Analyses

Examples of the use of cross-contamination data contained in this report are presented in this chapter. Data on actual emission data from some sources in the hospital complex were received on 6 November 1984. These data reported 8-hr, daily or weekly volumes of various chemicals released from specific sources within the complex. The sources listed were within Source Groups 4 and 5 of the tests reported earlier in this report. Emissions from 2 (sources 116 and 121) of the 13 sources in Group 4 (see Table A-2-1c) and 7 (sources 124, 144, 156, 158, 159, 162, 173) of the 50 sources in Group 5 (see Table A-2-1d) were provided. These source locations are shown in Figures 4-5a and 4-5b.

A series of tables have been prepared which show how specific solvent evaporation rates can be combined with cross-contamination concentration measurements of this report to obtain predicted inlet concentrations in parts per million. Table 4-8a shows the six solvents which were reported to be emitted from the two exhaust locations 116 and 121 of Source Group 4. The liquid solvent evaporation rate provided to us is listed along with the liquid-to-vapor volume ratio for the solvent. Multiplication of the two factors gives the solvent vapor creation (emission) rate. Division of the solvent creation rate by the total exhaust discharge rate gives the exhaust concentration of each solvent. Table 4-8a gives the exhaust concentration in ppm. Table 4-8b shows the same calculations for the solvent evaporation rates provided to us for 7 exhaust locations of Source Group 5.

It is not known if the emission rates provided represent average evaporation rates to be expected typically every day or a peak emission rate expected say once per year. During any 8-hr period over which the emissions were quoted, it is possible that surges in emission rate would cause concentrations at one exhaust location to be several times the average rate. The above calculations can be modified to examine peak emission rates by multiplying the exhaust solvent vapor concentrations of Tables 4-8a and 4-8b by the ratio of the peak evaporation rate to the quoted rate given in the tables.

Table 4-8c shows the total vapor concentration of various solvents for Source Group 5, accounting for the multiple release locations within the group. The total vapor concentration shown at the right is a weighted average of the individual exhaust concentrations using the individual exhaust discharges as the weight factors. (The value is also found by dividing the total solvent vapor creation rate of Table 4-8b for each solvent by the total discharge rate of the exhausts with that solvent.) The total vapor concentration for Source Groups 4 and 5 accounts only for the 9 exhausts for which concentrations are known. The concentrations have not been assumed to be diluted by the exhausts within a source group for which we do not have emission information.

Tables 4-8d and 4-8e show the conversion of exhaust vapor concentrations just calculated into vapor concentrations at each of the HUP IV rooftop intakes discussed in Section 4.6. Table 4-7 shows that the concentration ratio for the East inlets for a wind direction of 315 degrees was 0.0026; that for the West inlets was 0.0029. Multiplication of exhaust vapor concentrations by the concentration ratio gives the vapor concentration in ppm at the intake vents for various solvents in the source group. The intake concentrations for this case are quite small.

The ppm intake concentrations for a particular solvent are additive in ppm for Source Groups 4 and 5 (and for any other source groups simultaneously emitting the same solvent vapor. This summed concentration level can then be compared to standards of acceptable levels of concentration on a solvent-by-solvent basis. This comparison cannot be performed with the limited solvent emission data provided to us, unless these represent the only sources of emission of these solvents in the hospital complex.

The analysis performed above can be performed for any combinations of source and receptors that might be desired. In the performance of such calculations, several factors need to be kept in mind. First, individual sources were combined into source groups to obtain concentration ratios. This was done to permit the several hundred sources to be modeled at reasonable cost. Concentration ratios obtained in this way work well for receptors at a distance sufficient for the various emission sources to have been well mixed. For receptors located close to the source group, or even within it, concentration ratios applicable to individual sources could be somewhat different than that for the source group as a whole.

Second, concentration ratios were obtained for a single wind speed representative of average conditions. For other than average winds, concentration ratios will vary somewhat from average ratios. For higher wind speeds, ratios will typically decrease with increasing wind speeds and can be estimated using K values as discussed in Sections 4.4 and 4.5. For lower wind speeds, concentration ratios could increase or decrease depending on wind speed and atmospheric stability. These variations in concentration ratio were not modeled since the addition of various stabilities and wind speeds to the modeling would have multiplied the cost of the study. Thus, while the concentration ratios are accurate to perhaps 10-15 percent for the conditions modeled, the overall accuracy of concentration predictions will vary by perhaps a factor of 2 or 3 when the atmosphere variabilities are included.

Thirdly, solvent emission rates may vary with peak concentrations substantially higher than average rates. Acceptable levels of concentrations are often specified as an average over a specified time to partially account for these variations.

4.8 Summary and Conclusions

A review of all the concentration data indicated measurements at several receptors which did not vary significantly with wind direction. This implies that regions of relatively stagnant air exist within the complex. In these instances source exhausts are not being swept away, but rather linger in these areas where some portion is eventually drawn into any air intakes in the proximity. The stagnant air regions are caused by the taller buildings which block air flow at lower levels, especially when the taller buildings encircle the region on two or three sides.

Four principle regions of stagnation were identified from the data analysis:

1) SW corner of Gates Building, where receptors 13, 14, 15, 16 were located (see Test Group #4).

2) SE corner of Gates Building, where receptor 36 was located (see Test Group #10).

3) Receptors 37, 38 and 39, located on the west face of the Ravdin Building (see Test Group #11).

4) The Ravdin Courtyard, where receptors 42, 43, 44 and 45 were located (see Test Group #11).

Maximum concentration values were observed with a wind direction of 180° for regions (1) and (2) (Gates Building), as might be expected, with the south face of the Gates Building providing a significant impediment to effluent dispersion. However, effluent concentrations measured at most of the other seven wind directions were also of significant size.

The concentration values measured for all wind directions, for regions (3) and (4) (Ravdin Building and Courtyard), were all of comparable size to one another.

An example of an exhaust feeding into a stagnation region can be seen by examining the effluent from Source Group 15. Maximum concentrations recorded from Source Group #15 (which included the pathology exhaust atop the Medical Education Building, along with Emergency Generator exhausts) occurred at receptors 17 and 18, located atop the Maloney Building. The maximum values were recorded with winds from 180 and 225 degrees azimuth, as expected from the relative positions of source and receptor, and suggest that the new facility might increase existing concentrations. The values were approximately one percent of the source strength.

Table 4-5 summarizes the wind-tunnel study results for the HUP IV, Gates and Maloney structures. The heavily outlined portion identifies the HUP IV sources and receptors, since special interest was expressed in the proposed new facility.

The second- and third-level intakes (sampling points 4, 5, 6, 7, 8 and 9), located on the west side of the HUP IV structure, are nearly free of cross-contamination from HUP IV exhausts with the largest receptor concentration measured was less than 0.03 percent of source strength. Some low levels of concentration (~.01 percent to ~.2 percent) were measured at the HUP IV second- and third-level air intakes from other sources in the complex. Most noteworthy, was the contamination from the nearby exhausts of Source Group 5 (Maloney, etc.) buildings. On the whole, the concentration ratios for the HUP IV second- and third-floor air intakes were quite low. Intake concentrations will be low unless the source concentrations of sources with nonzero concentration ratios as measured at intakes 4-9 are very high.

Cross-contamination of the HUP IV rooftop intakes (sample points 10, 11 and 12) appeared to be significantly greater. The largest values measured for the entire study were recorded at these receptors for exhausts from some HUP IV rooftop sources. Measured concentration values approached 45 percent of the source strength. These particular data were obtained at three inlets, each located inside a model cooling tower for sources located immediately adjacent to or within the tower.

Sources 3-58, 3-59 and 3-60 (emergency generator exhaust, incinerator exhaust and kitchen exhaust) on the HUP IV roof were modeled individually as buoyant plumes because of their importance so that their individual effluent cross-contamination to receptors would be determined. No measurable contamination was noted from these three sources at any HUP intakes. It is possible that small but nonzero concentrations might be measured for very high wind conditions. It is not anticipated that these exhausts will cause problems.

Tests on the modified roof air intakes on the HUP IV indicated that measurable concentrations from some sources would occur at either of the two intakes. However, the east intake provided a better performance overall.

Prediction of concentrations of a specific chemical at any receptor location in the hospital requires more than concentration ratios as measured in this wind-tunnel measurement program. It also required a knowledge of the strength of emissions from the various hospital exhausts and some calculations. Examples of the calculation method were applied in Section 4.7 to emissions from some of the exhausts in Source Groups 4 and 5 to predict their impact on the modified rooftop air intakes on the HUP IV. If the known sources in Groups 4 and 5 are the only significant emissions in the hospital complex, then it can be concluded that intake concentrations will be quite low. However, as discussed in Chapter 7, intake concentrations are additive from all emitting sources at a particular wind direction. Additional calculations following the models of Section 4.5 and Chapter 7 can be readily performed with any desired combination of sources and receptors.

5.0 AIRFLOW VISUALIZATION

5.1 General

Making the airflow visible can be helpful in understanding flow patterns over, around and in the wakes of buildings and other structures. Visualization is often helpful in identifying areas of stagnation, vortices, and related flow characteristics which can influence diffusion rates and wind speeds.

Titanium tetrachloride ($TiCl_4$), which readily reacts with water vapor (H_2O) in the air to produce titanium dioxide (TiO_2) and hydrochloric acid (HCl), was used for these studies. The titanium dioxide appears as a white "smoke" discernible to the eye and easily photographed, when properly illuminated with tungsten arc-lamps.

5.2 Visualization Tests

Cotton swabs saturated with $TiCl_4$ were used during the visualization study to reveal airflow patterns in the vicinity of the HUP IV addition and other model structures. In particular, video documentation was focused upon those sources and receptors which, preceding tests revealed, should be further evaluated.

Table 5-1 contains descriptions of all sources and receptors for which flow patterns were recorded on VHS video cassettes. The table also contains a record of the wind azimuth and run number of each tape segment.

The videotapes reveal some of the effects wind direction, source location, and adjacent structures had upon exhaust gas transport and dispersion in the area around the HUP IV addition. Any assessment of airflow derived from the visualization should be treated as qualitative in nature and further substantiation of the concentration data.

NOTE: Videotapes are furnished to the sponsor separately from the test report.

6.0 REFERENCES

1. Cermak, J. E., "Laboratory Simulation of the Atmospheric Boundary Layer," AIAA Journal, Vol. 9, No. 9, September 1971, pp. 1746-1754.

2. Cermak, J. E., "Simulation of the Natural Wind," Preprint 82-518, ASCE Convention and Exhibit, New Orleans, Louisiana, 25-29 October 1982.

3. Lord, G. R. and Leutheusser, H. J., "Wind-Tunnel Modeling of Stack-Gas Discharge," in Man and His Environment, Vol. 1 (M.A. Ward, ed.), Pergamon Press, 1970.

4. Halitsky, J., "Validation of Scaling Procedures for Wind-Tunnel Model Testing of Diffusion Near Buildings," Report No. TR-69-8, Geophysical Sciences Laboratory, New York University, 1969, p. 90.

5. Penwarden, A. D., and Wise, A. F. E., "Wind Environment Around Buildings," Building Research Establishment Report, HMSO, 1975.

6. Melbourne, W. H., "Criteria for Environmental Wind Conditions," Jl. Industrial Aerodynamics, Vol. 3, pp. 241-247, 1978.

FIGURES

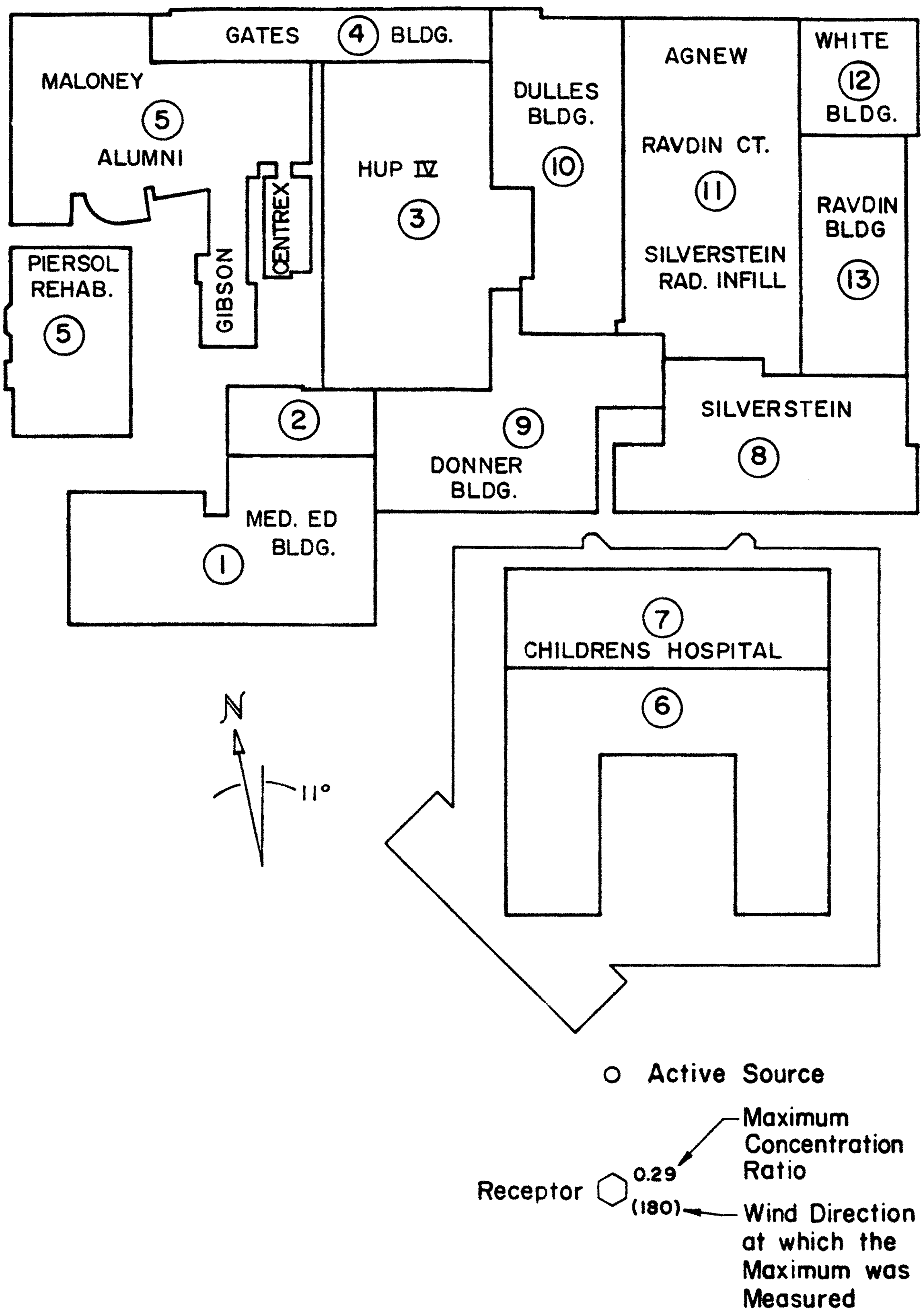


Figure 2-1. Schematic Overview of Source Groupings which were Modeled in HUP IV Wind-Tunnel Tests

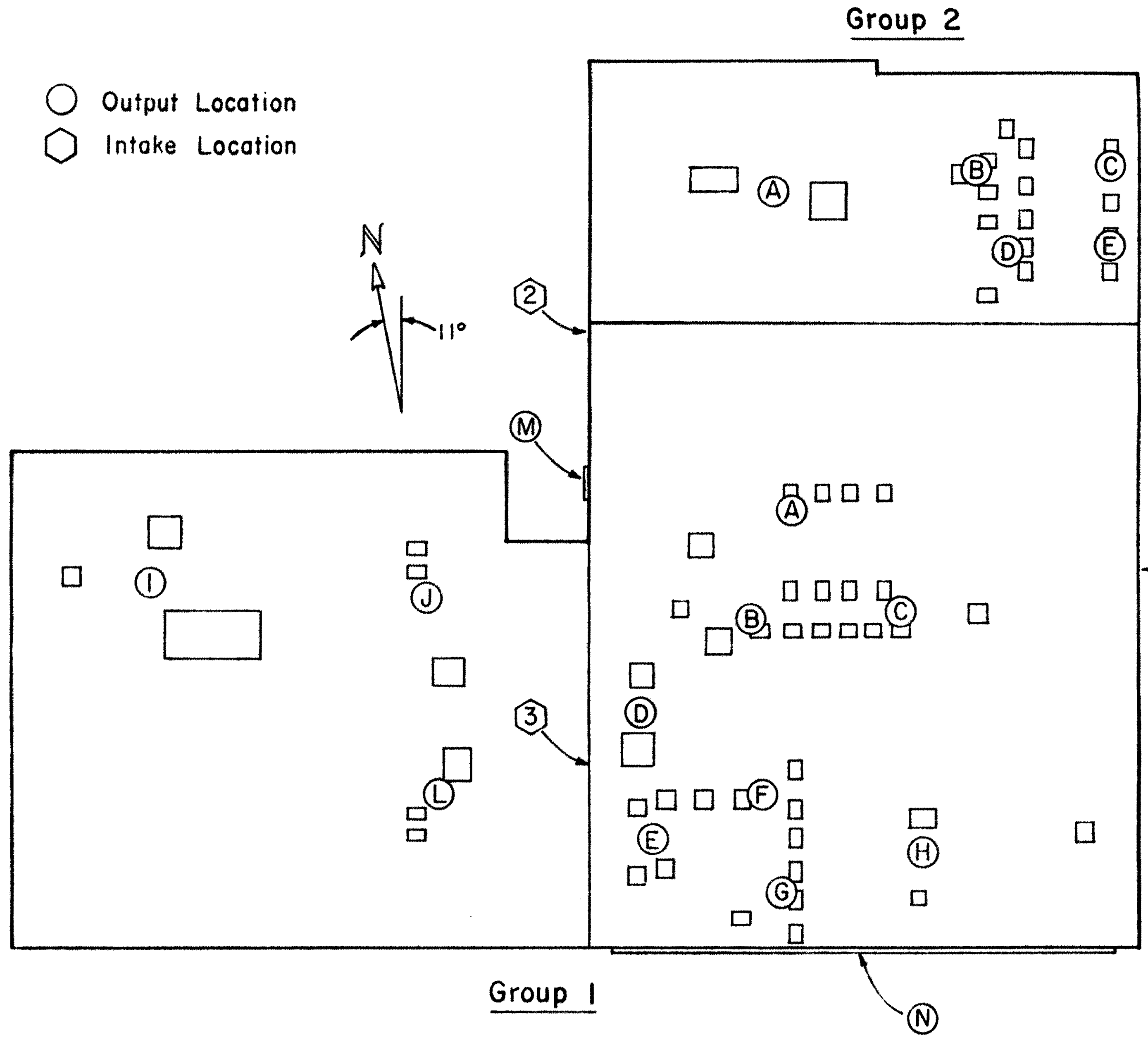


Figure 2-1a. Source and Receptor Location/Identification for Groups 1 and 2

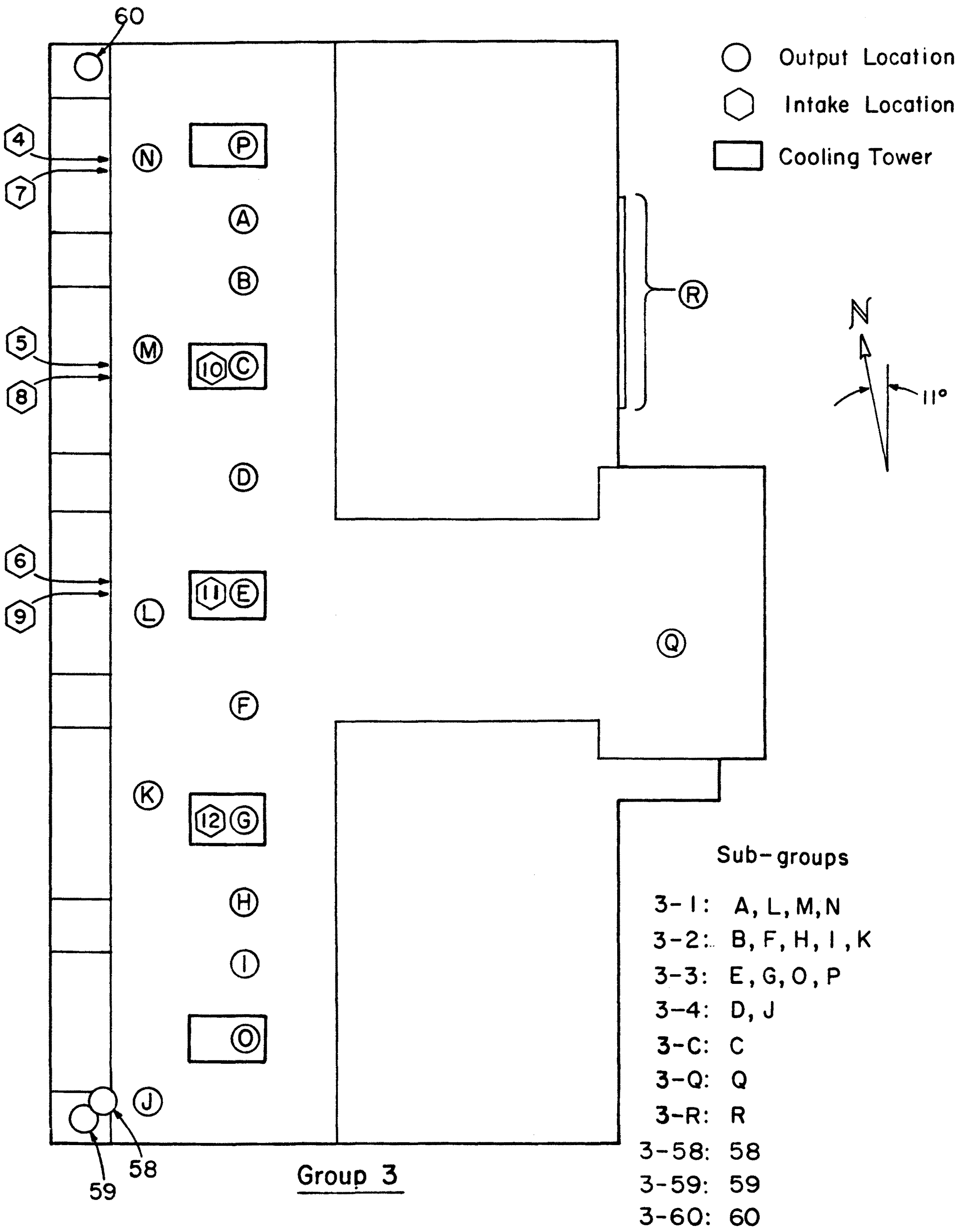


Figure 2-1b. Source and Receptor Location/Identification for Group 3 (HUP IV Addition)

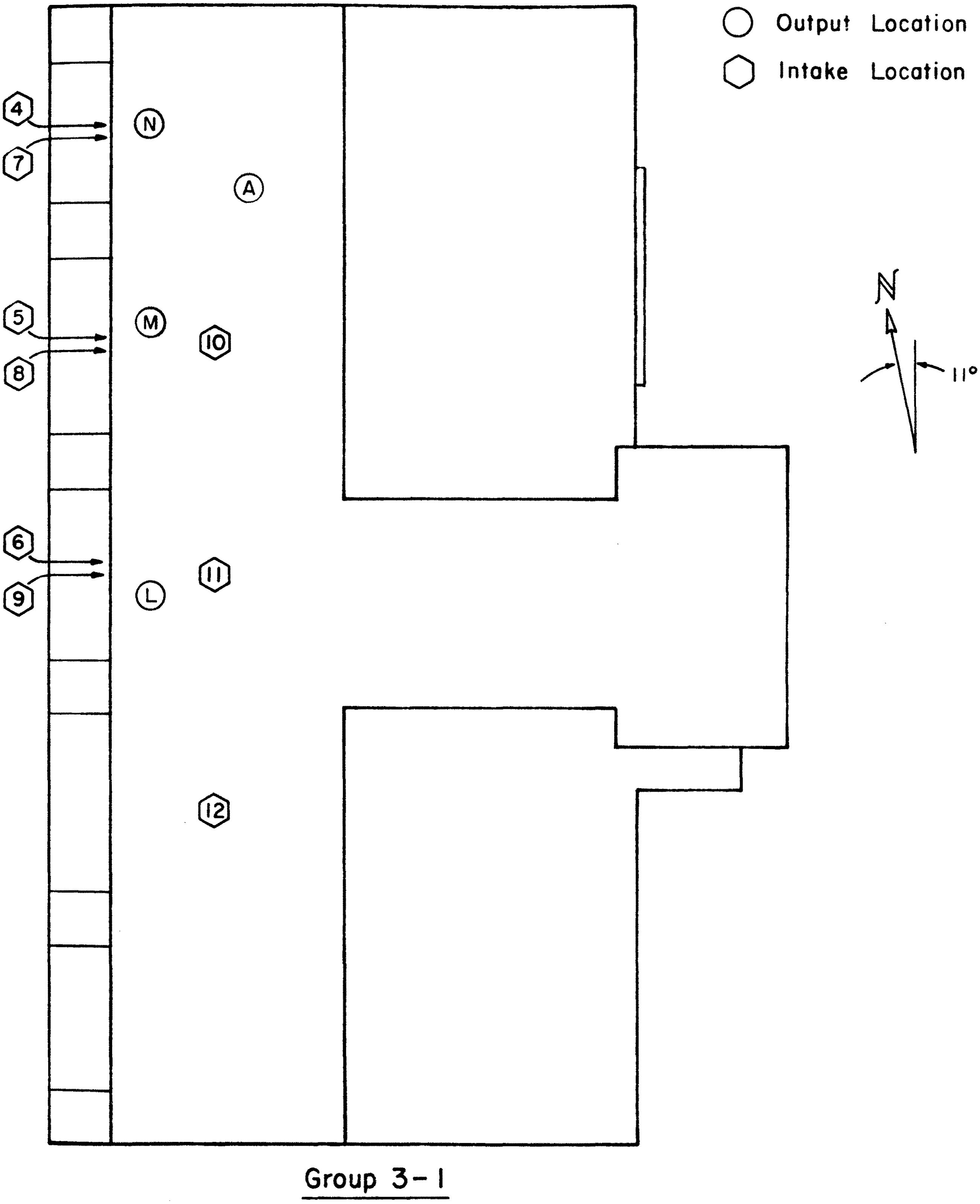


Figure 2-1b(1). Source and Receptor Location/Identification for Group 3-1

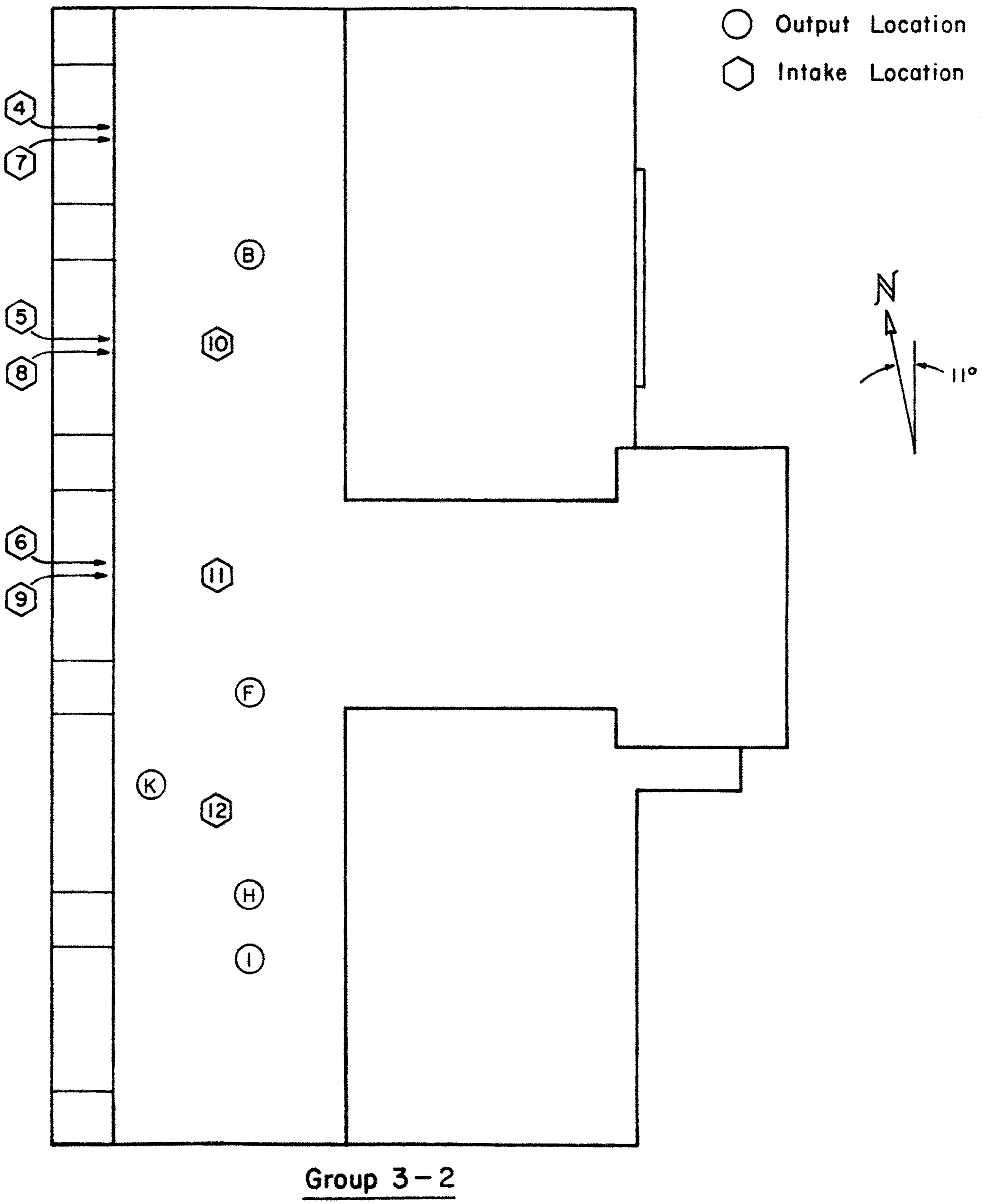


Figure 2-1b(2). Source and Receptor Location/Identification for Group 3-2

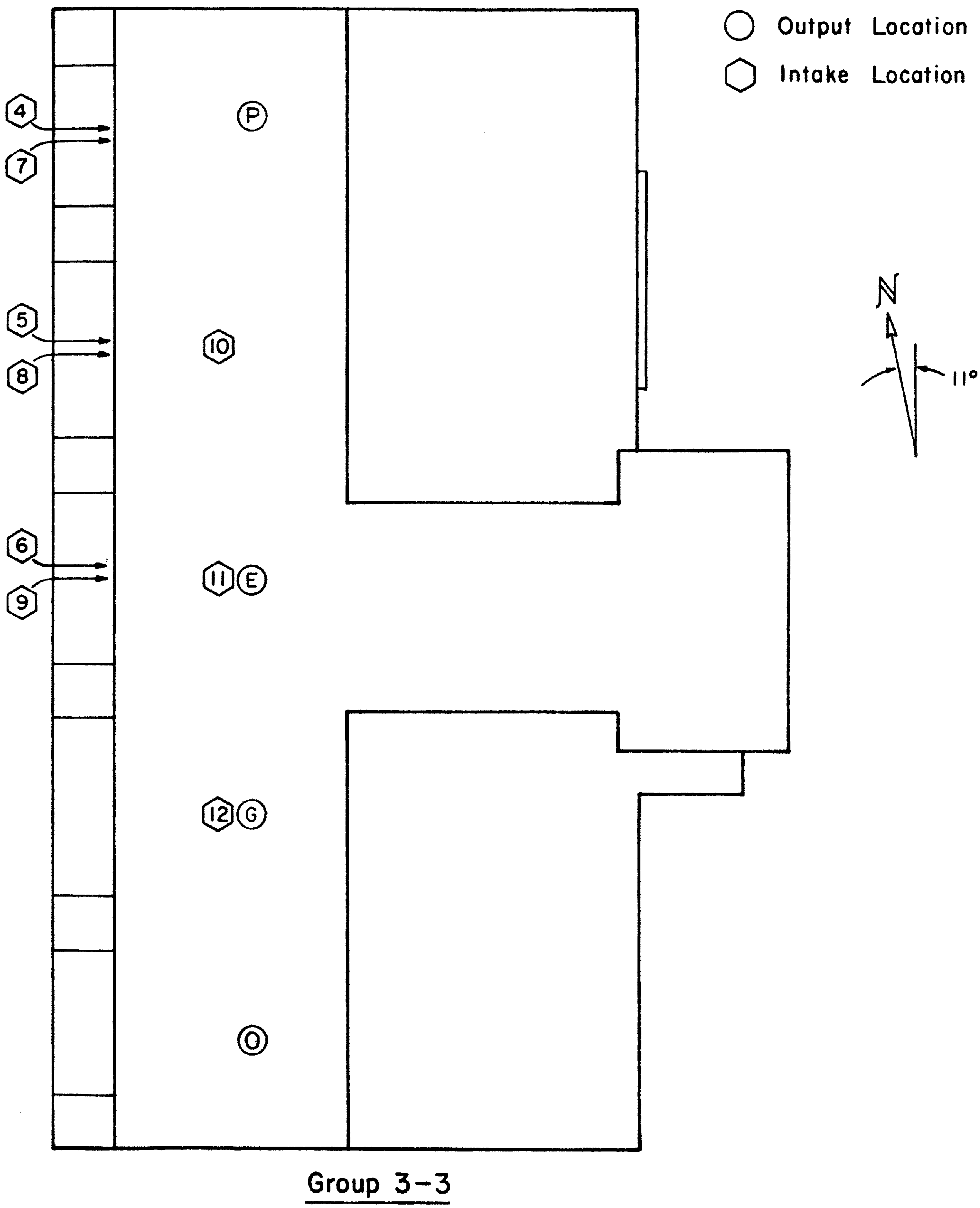


Figure 2-1b(3). Source and Receptor Location/Identification for Group 3-3

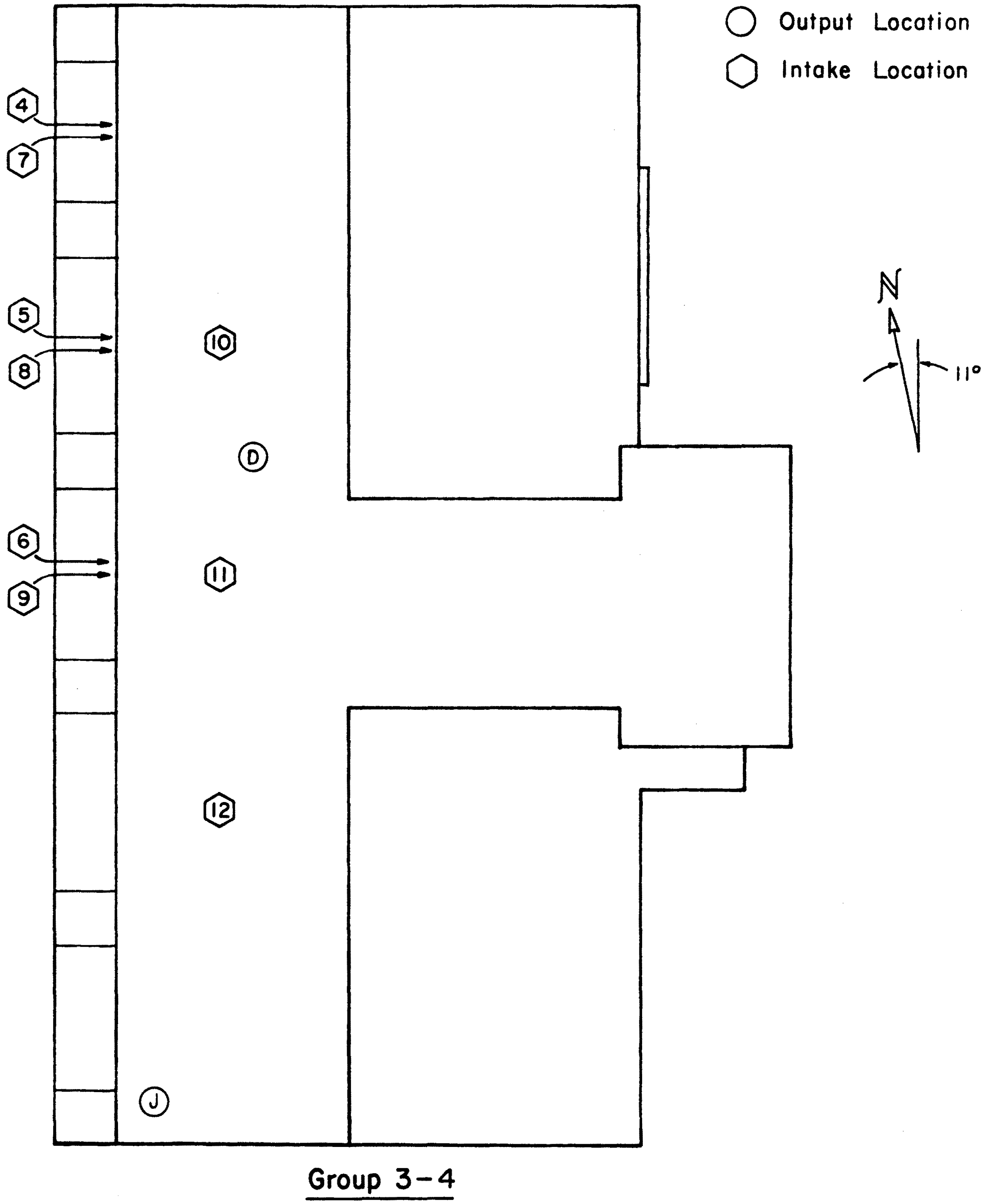


Figure 2-1b(4). Source and Receptor Location/Identification for Group 3-4

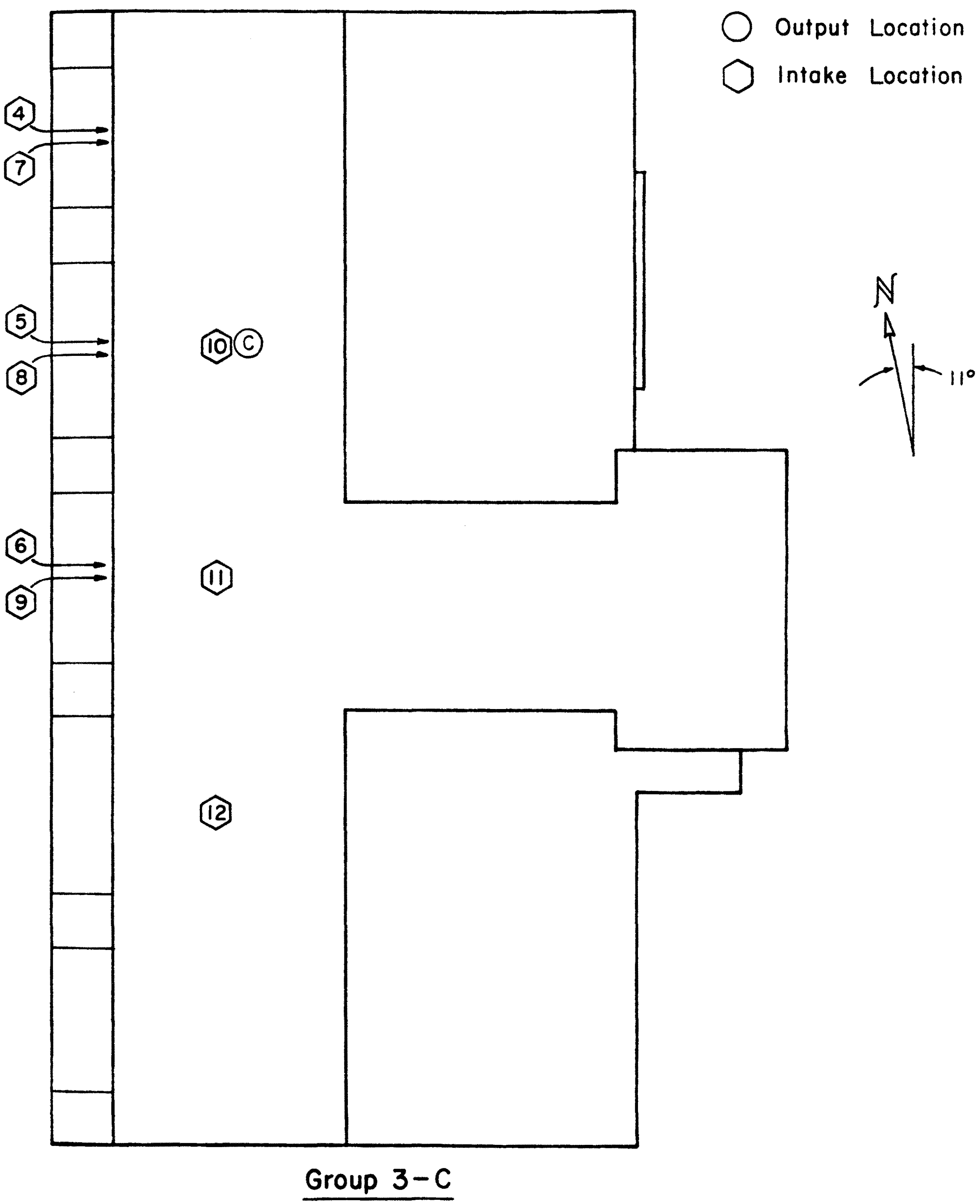


Figure 2-1b(5). Source and Receptor Location/Identification for Source 3-C

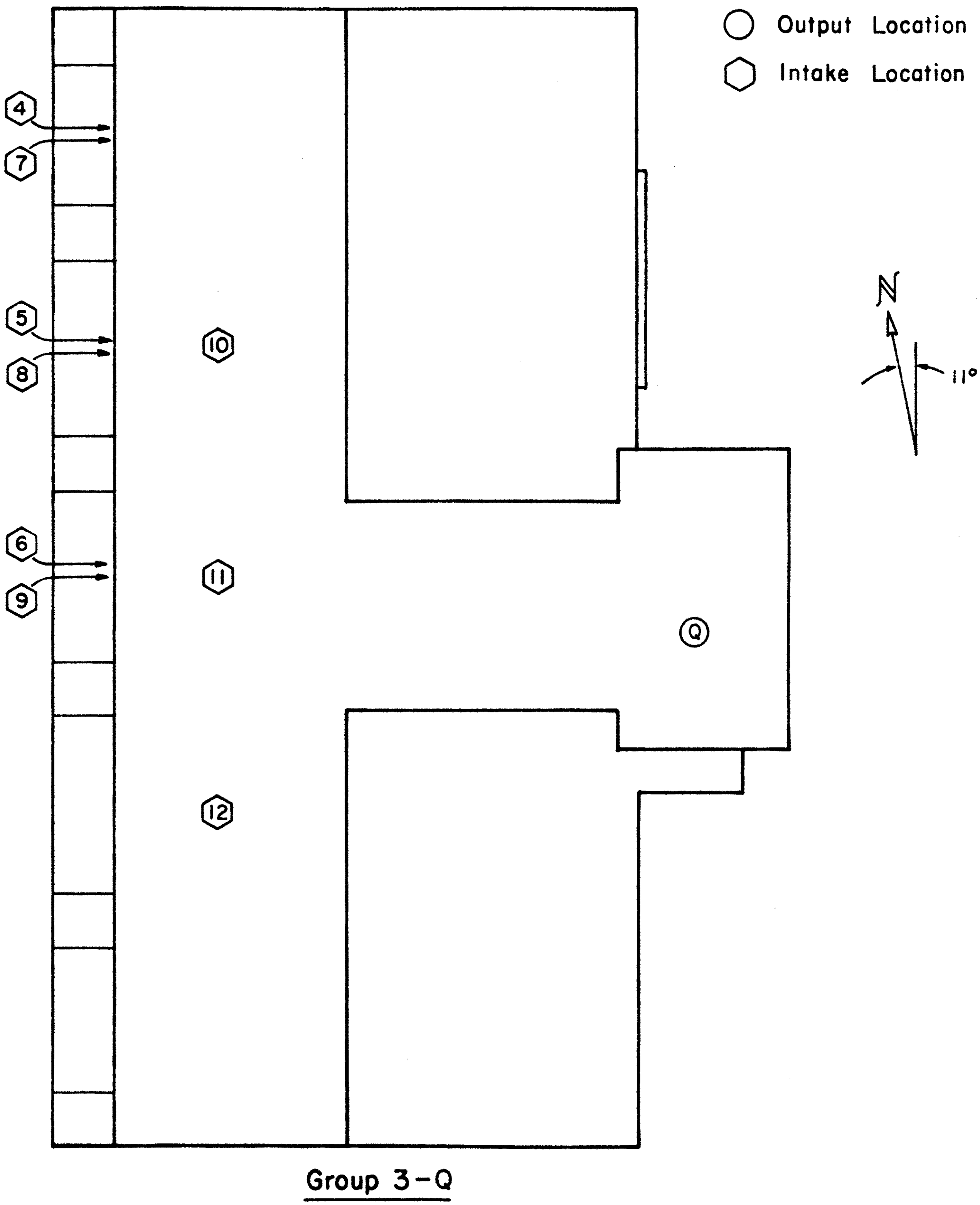


Figure 2-1b(6). Source and Receptor Location/Identification for Source 3-Q

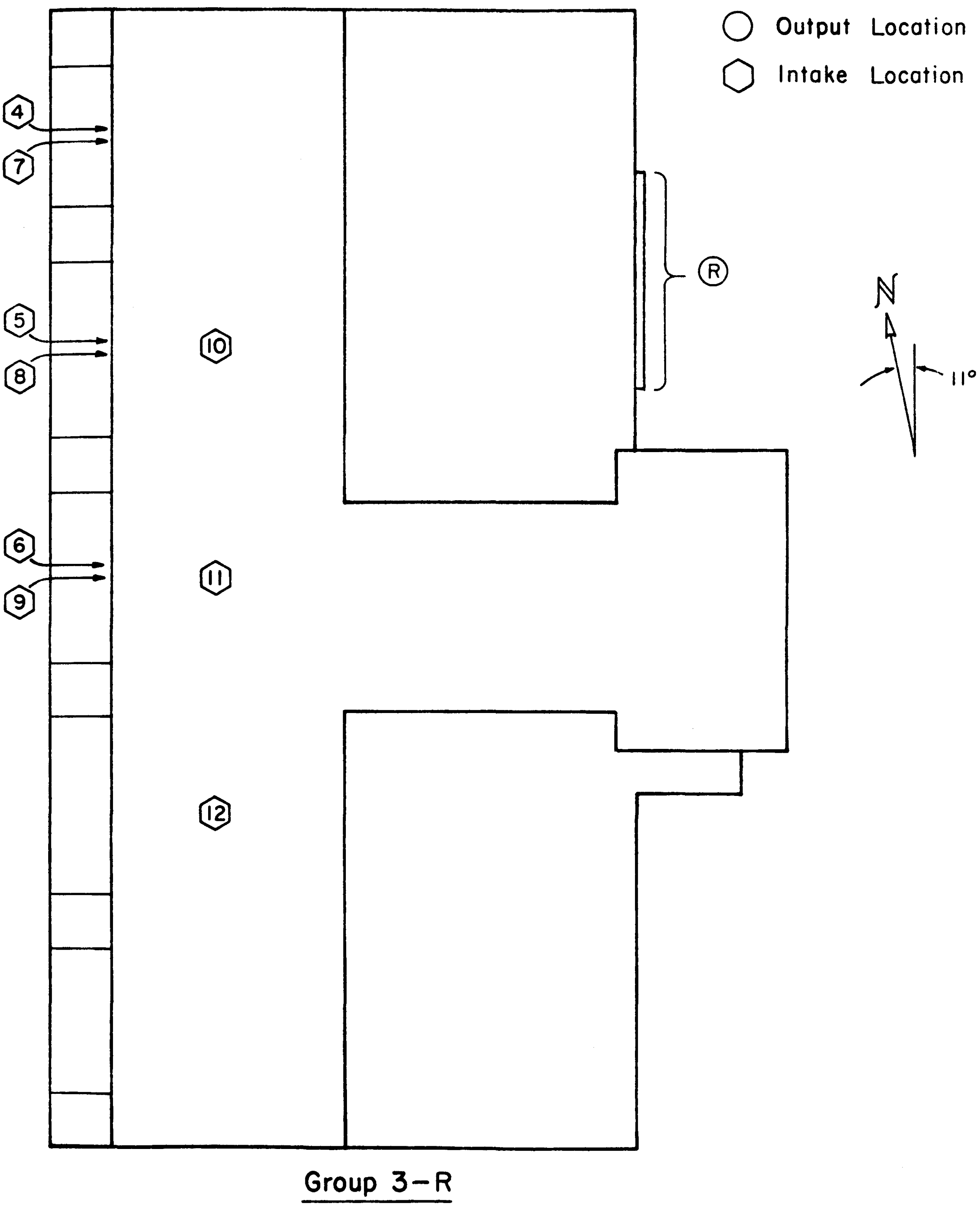


Figure 2-1b(7). Source and Receptor Location/Identification for Source 3-R

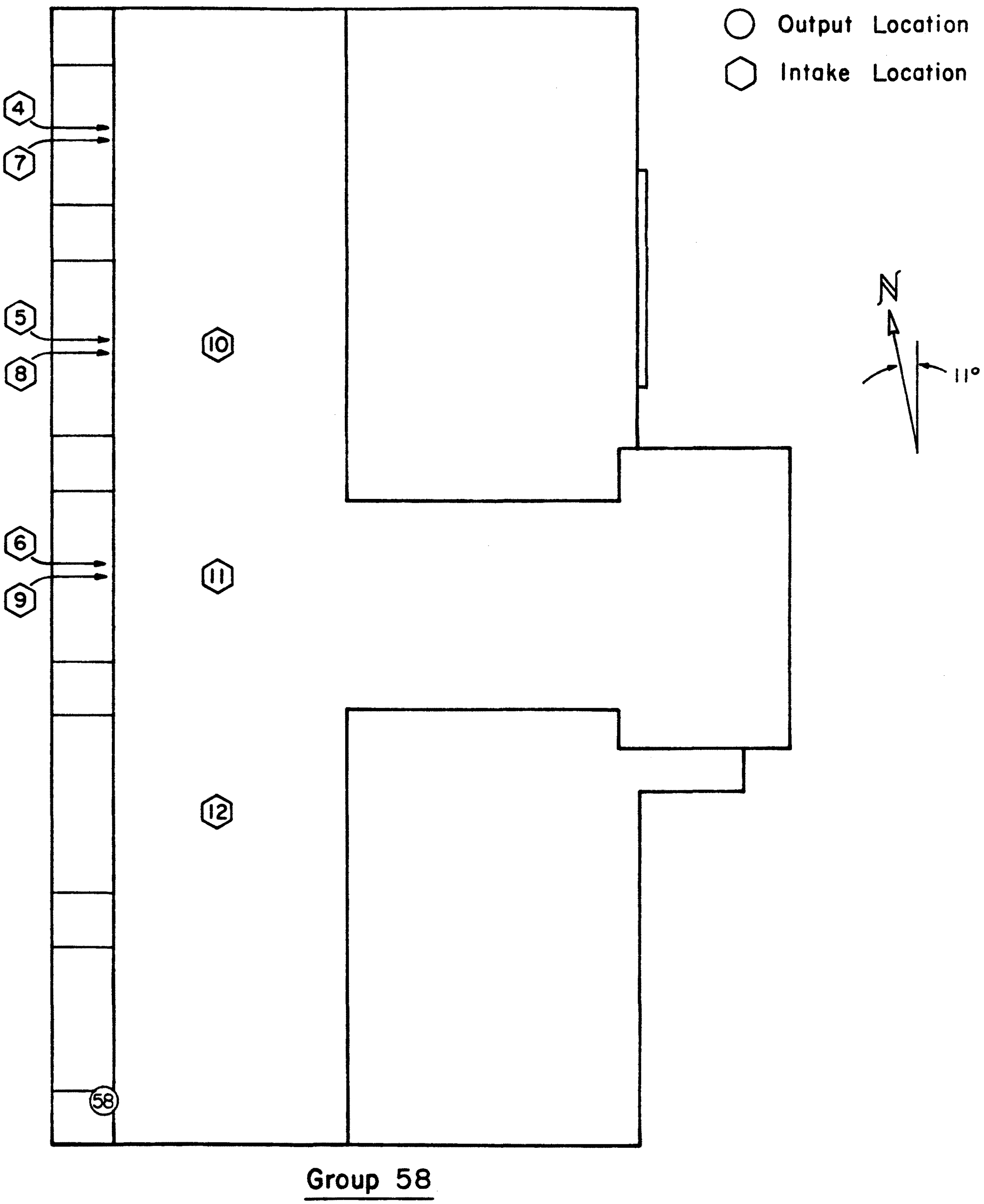


Figure 2-1b(8). Source and Receptor Location/Identification for Source 58

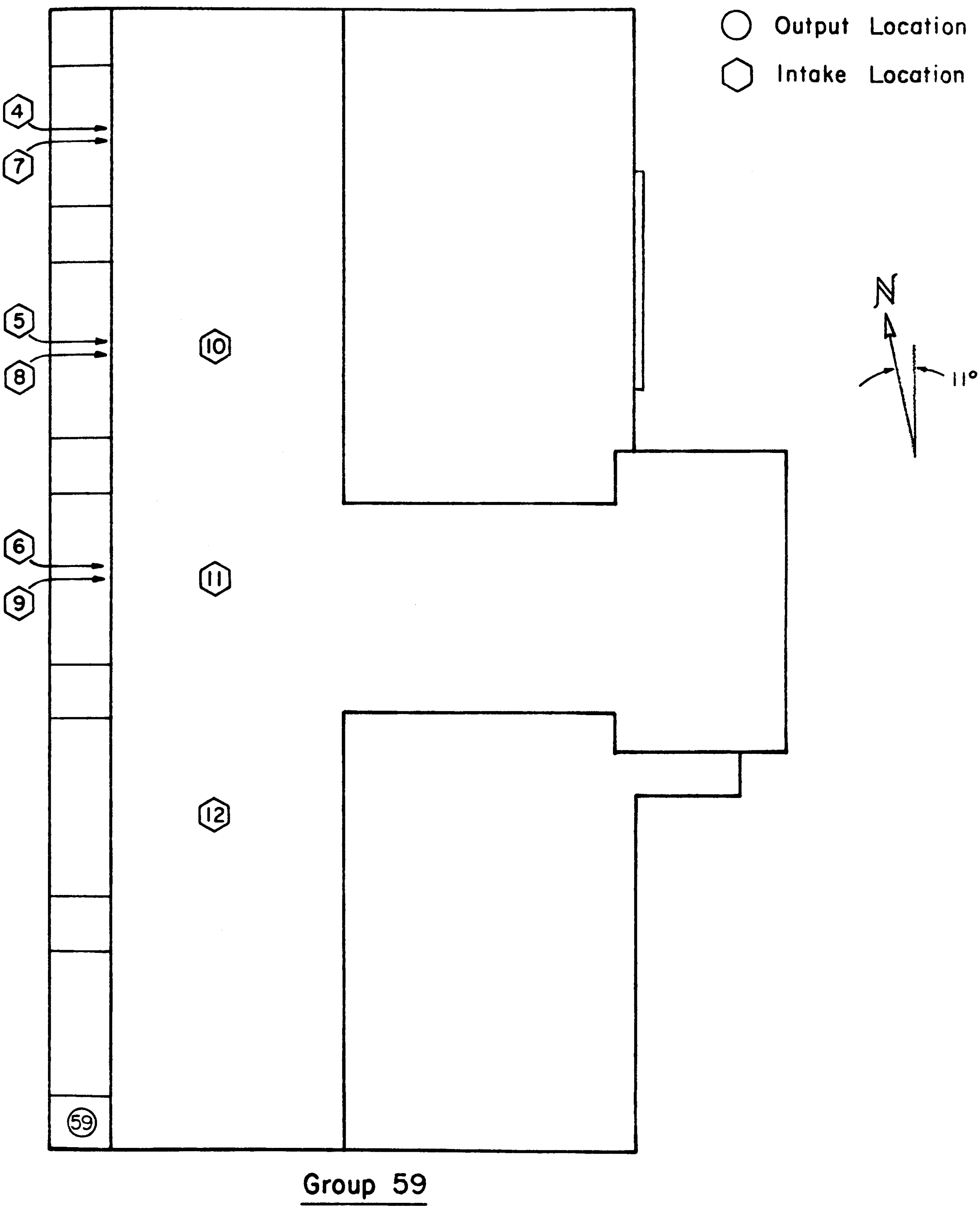


Figure 2-1b(9). Source and Receptor Location/Identification for Source 59

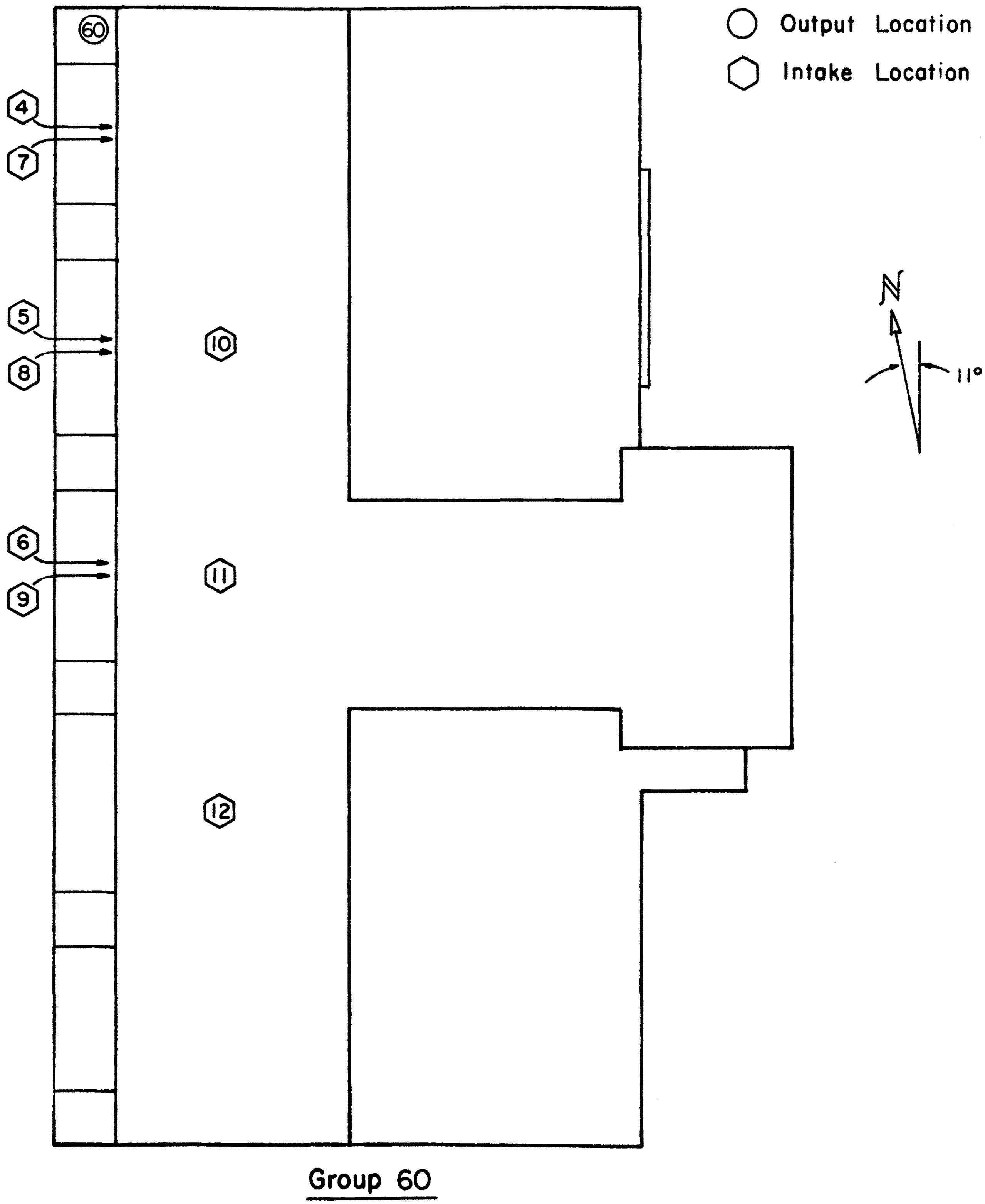


Figure 2-1b(10). Source and Receptor Location/Identification for Source 60

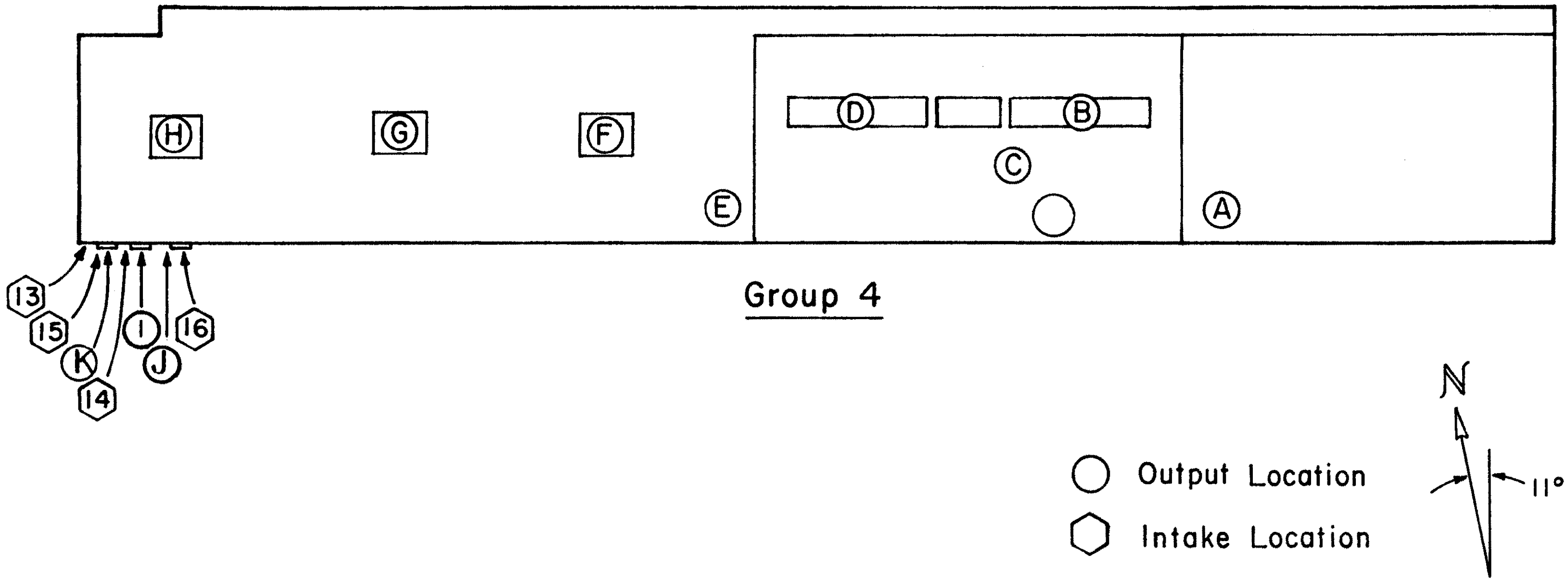


Figure 2-1c. Source and Receptor Location/Identification for Group 4

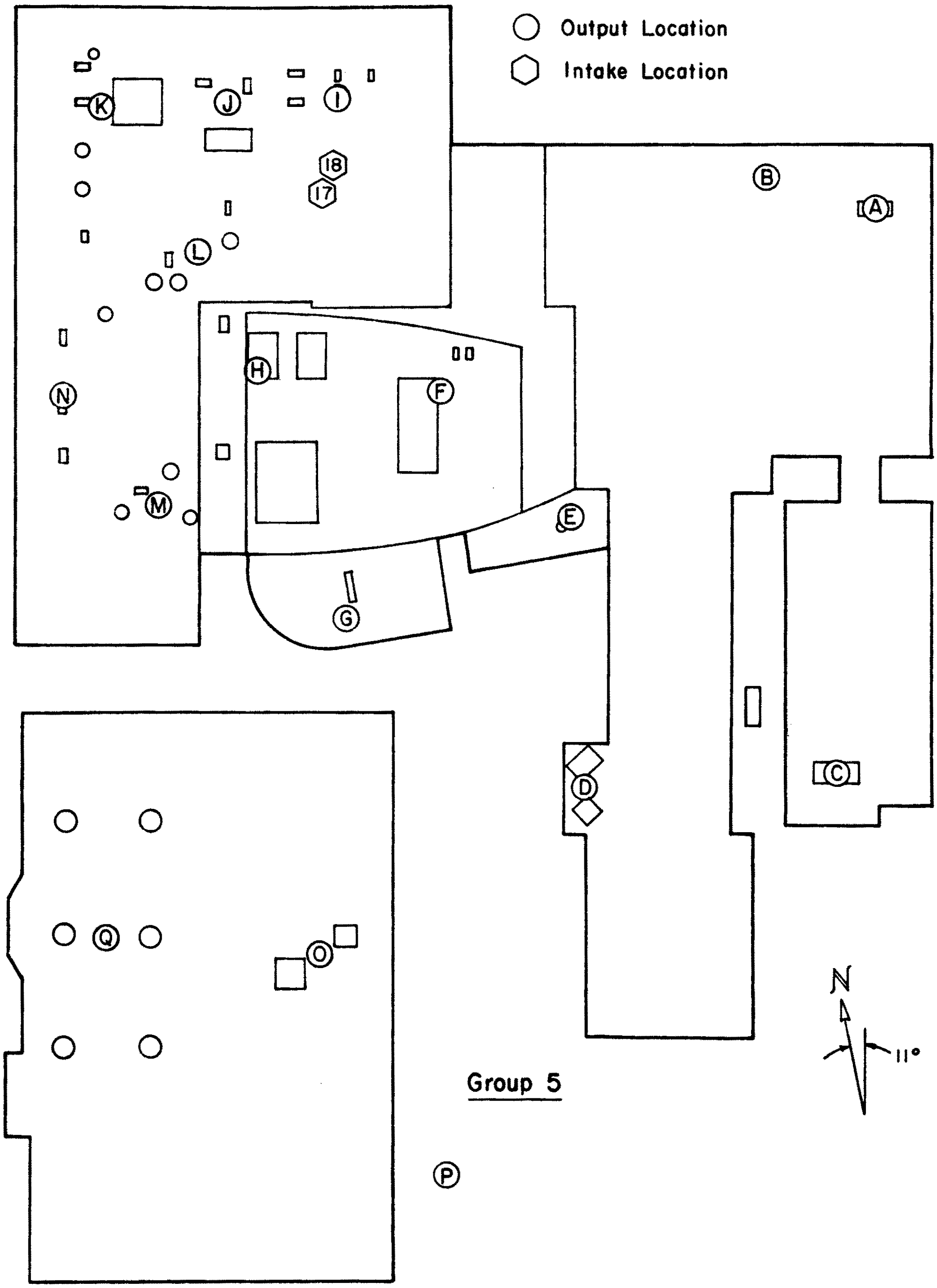


Figure 2-1d. Source and Receptor Location/Identification for Group 5

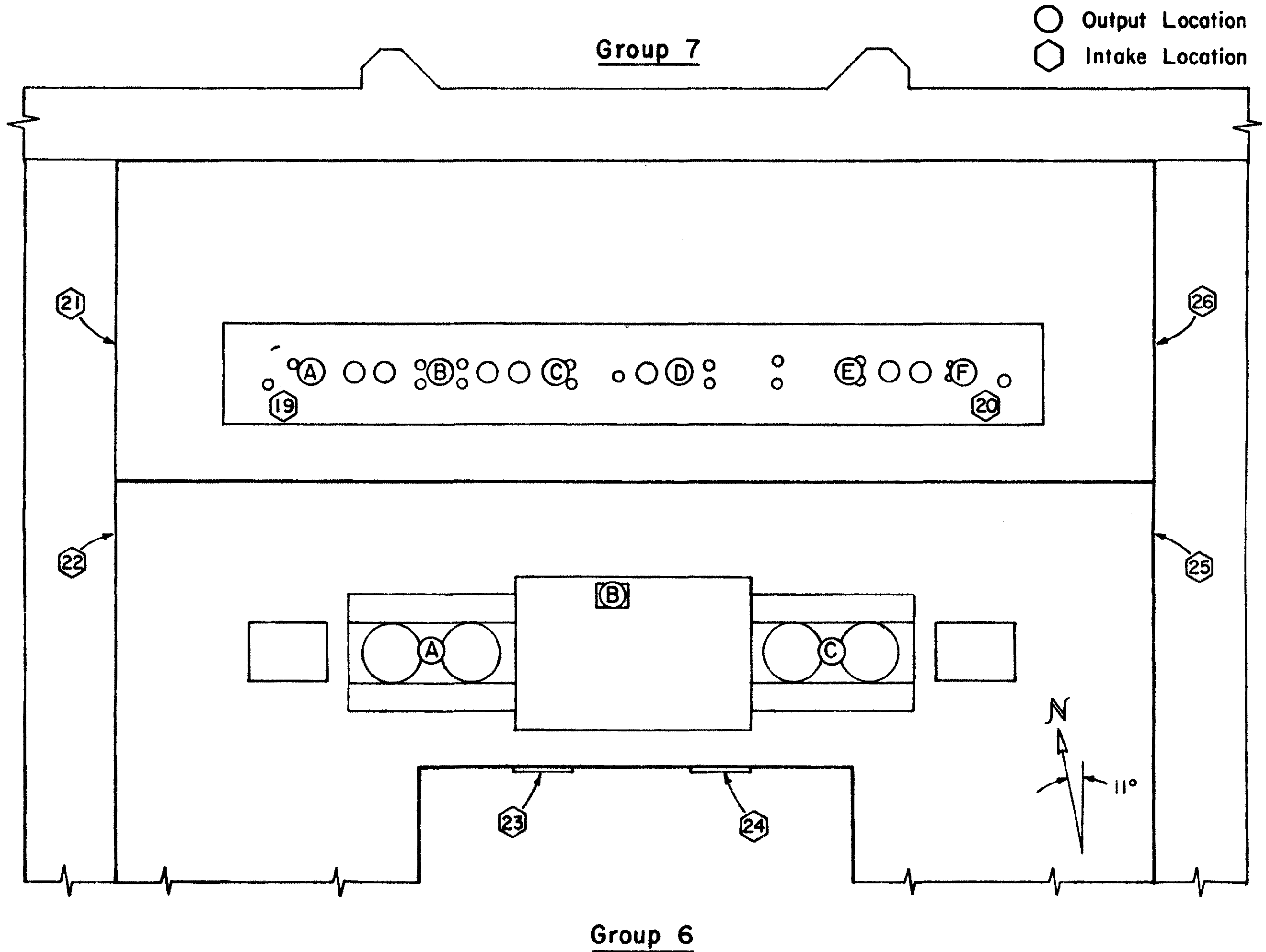


Figure 2-1e. Source and Receptor Location/Identification for Groups 6 and 7

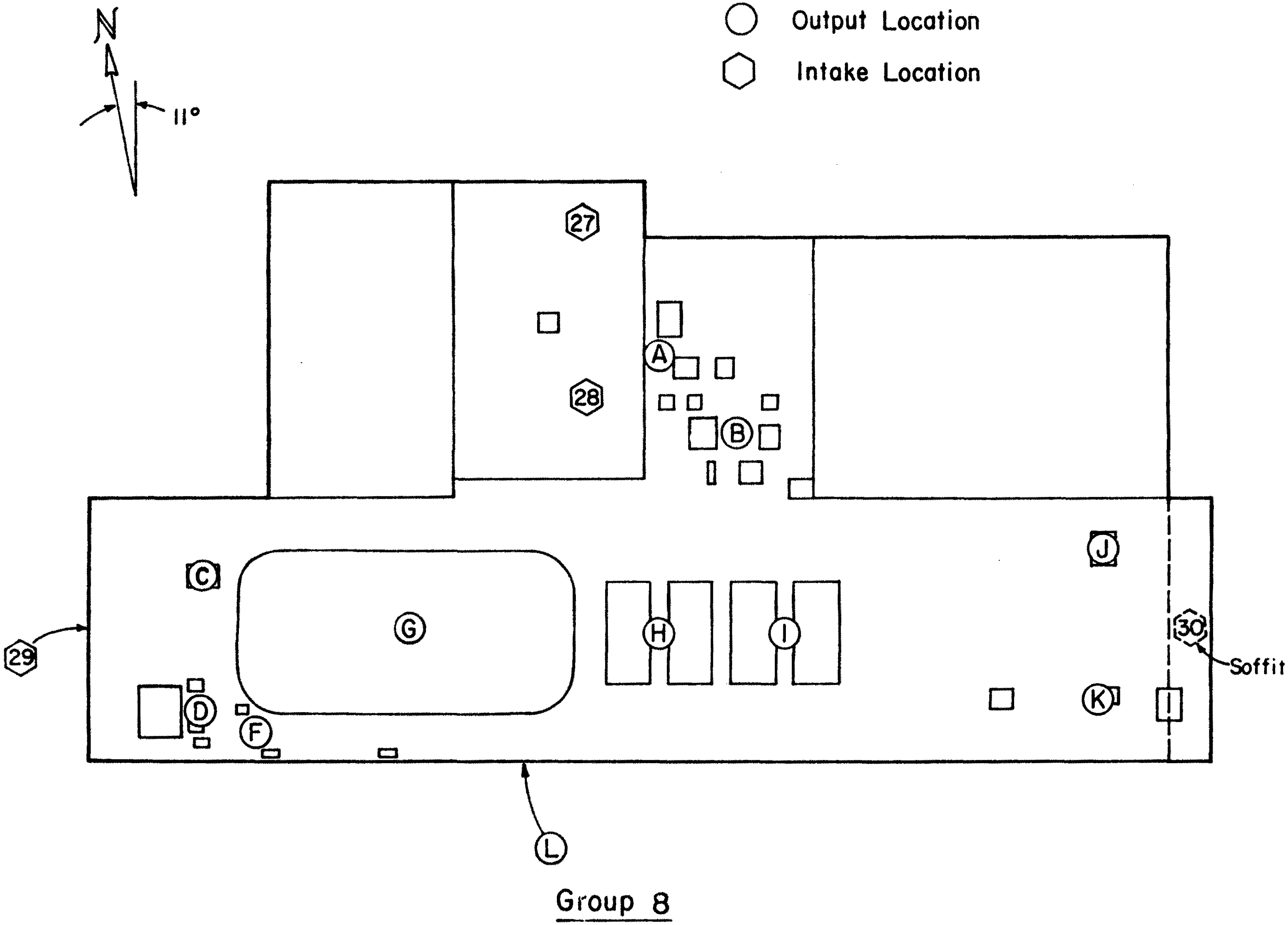


Figure 2-1f. Source and Receptor Location/Identification for Group 8

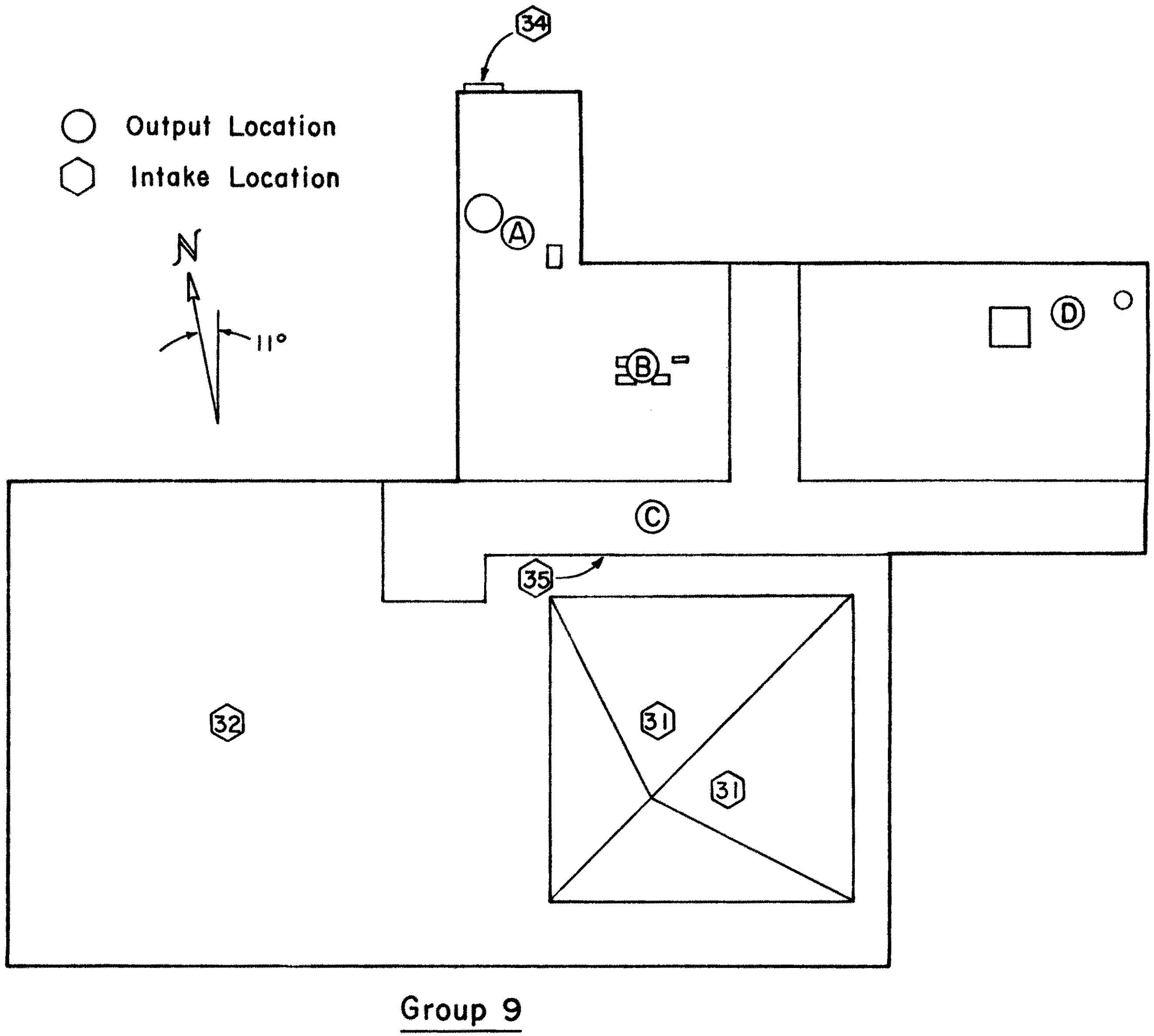


Figure 2-1g. Source and Receptor Location/Identification for Group 9

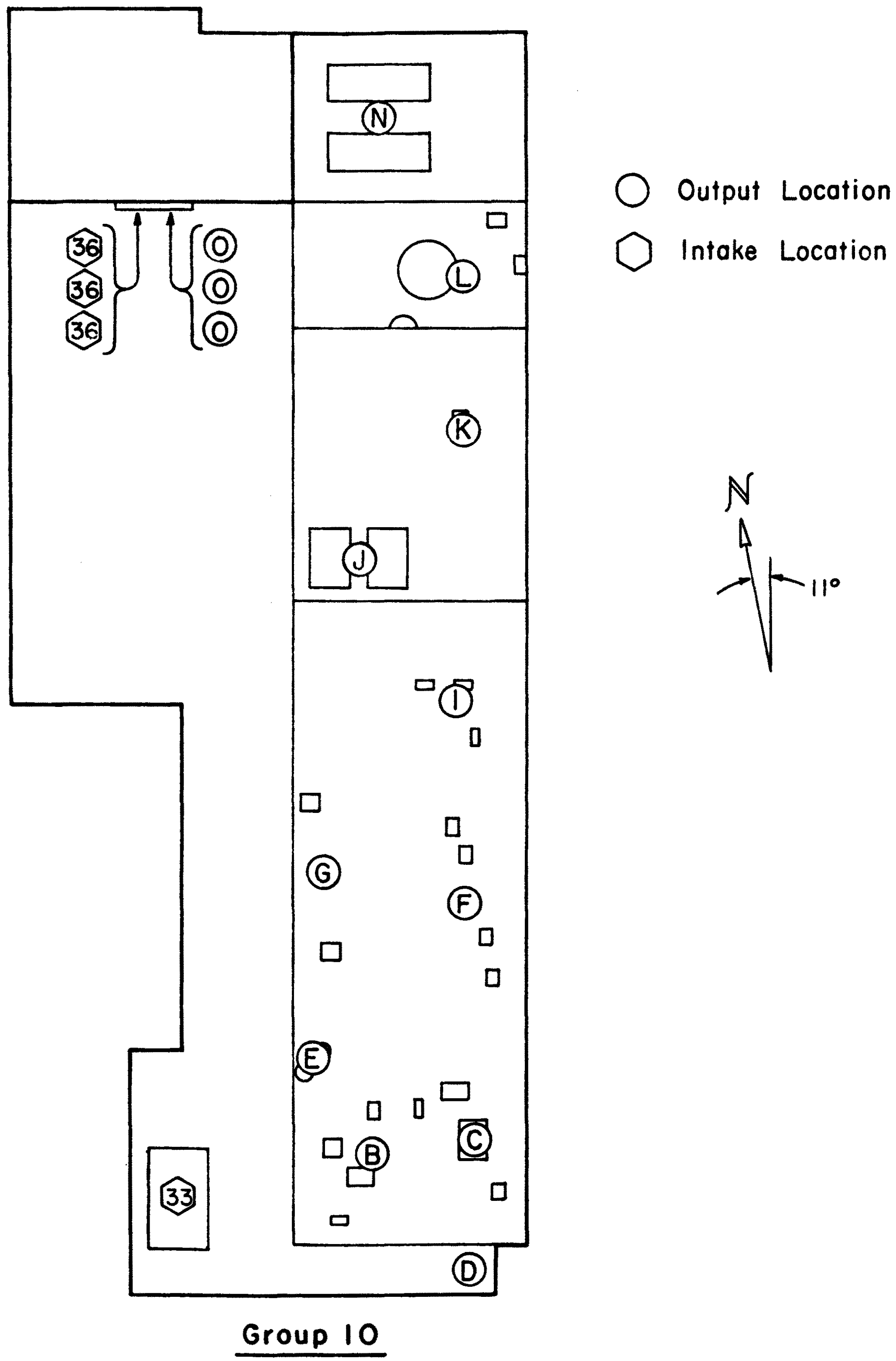


Figure 2-1h. Source and Receptor Location/Identification for Group 10

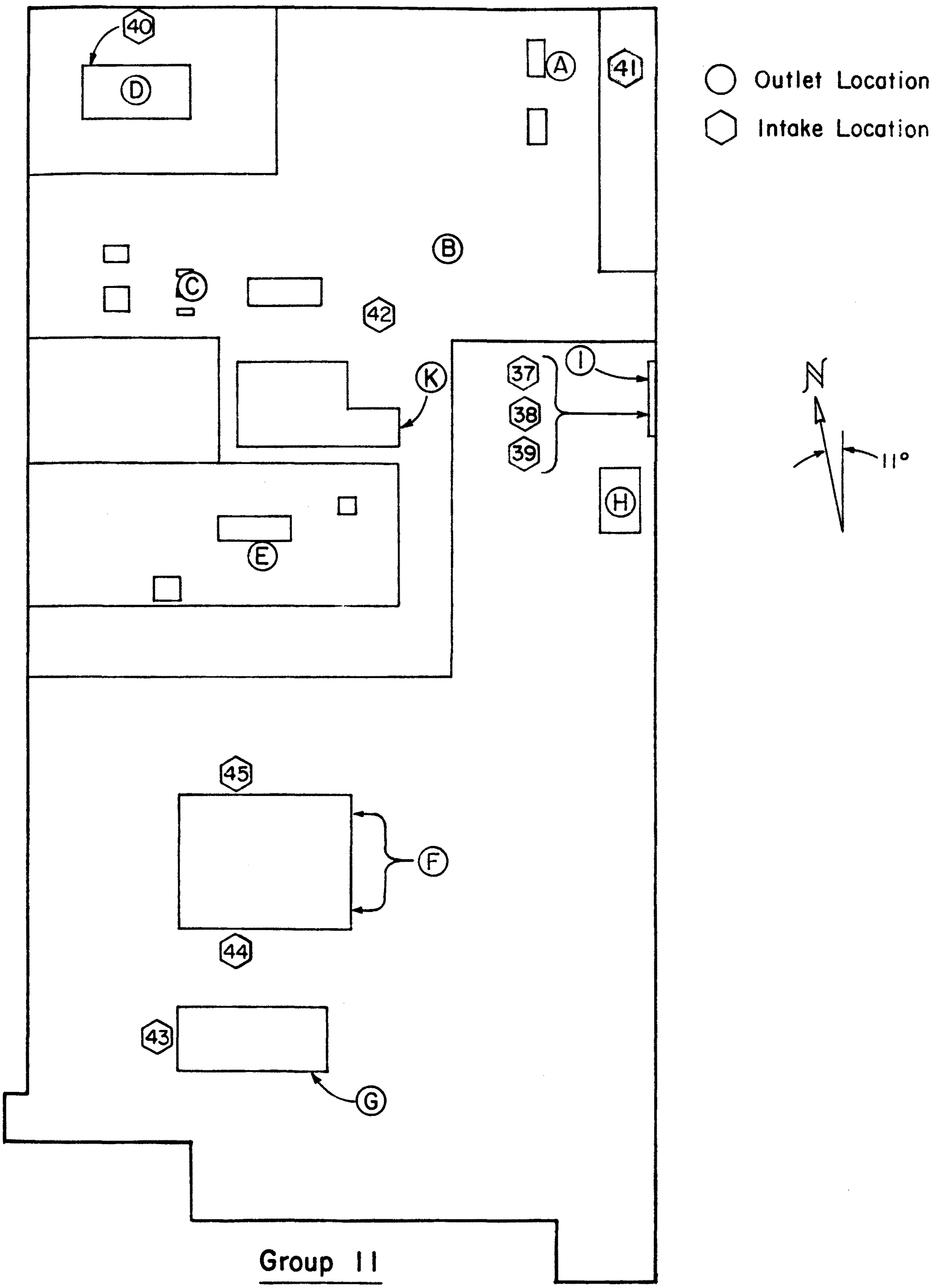


Figure 2-1i. Source and Receptor Location/Identification for Group 11

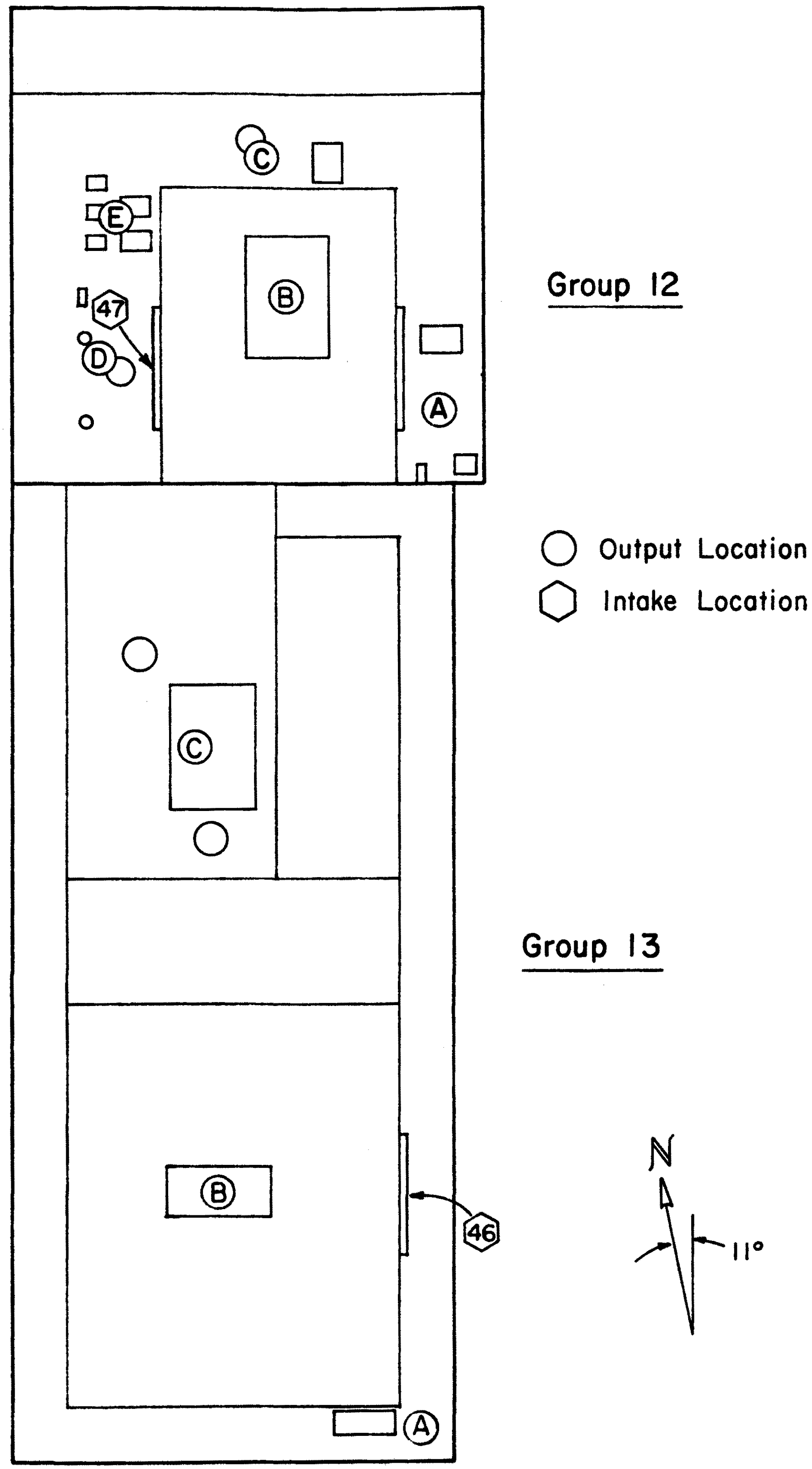


Figure 2-1j. Source and Receptor Location/Identification for Groups 12 and 13

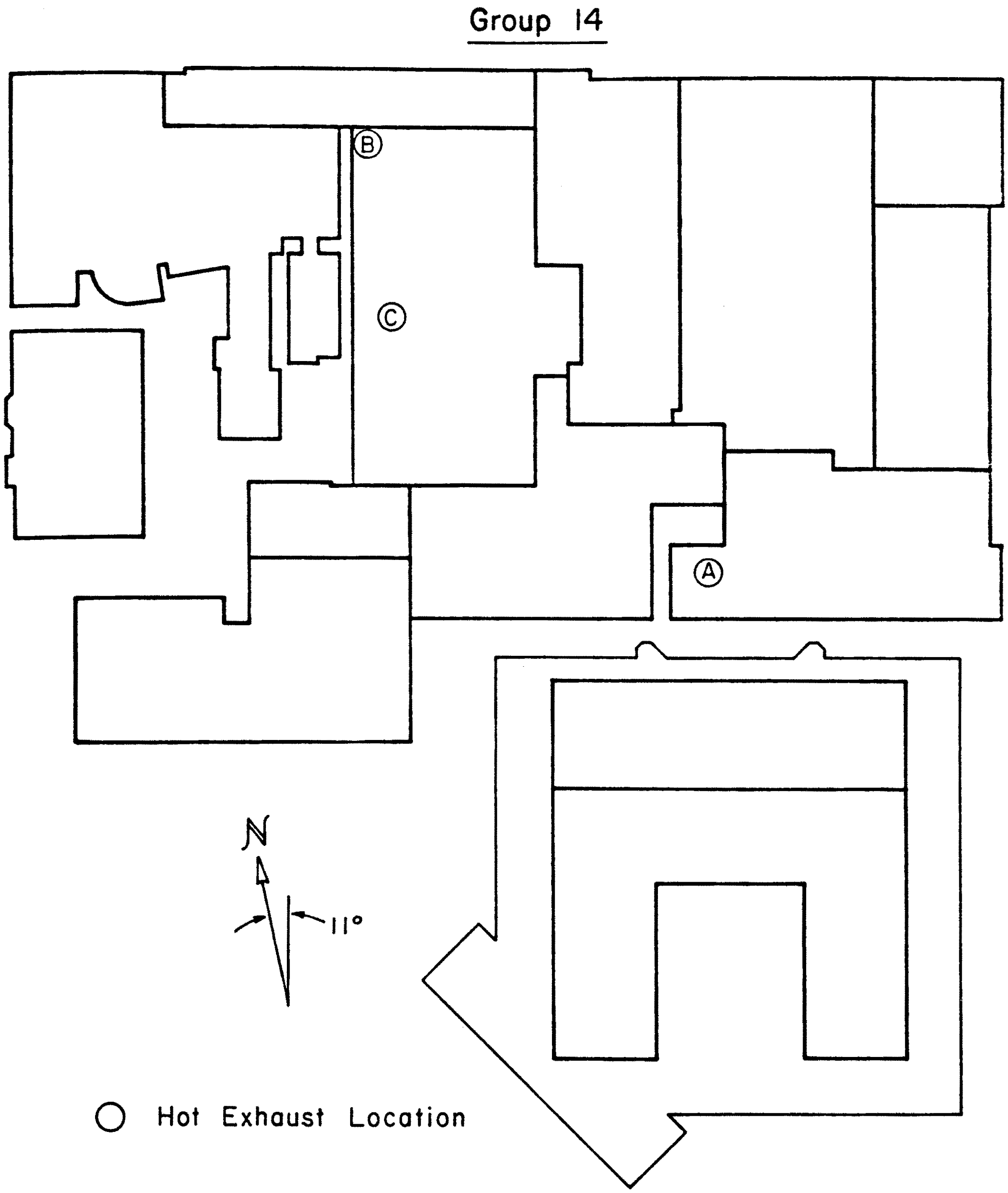


Figure 2-1k. Source and Receptor Location/Identification for Group 14

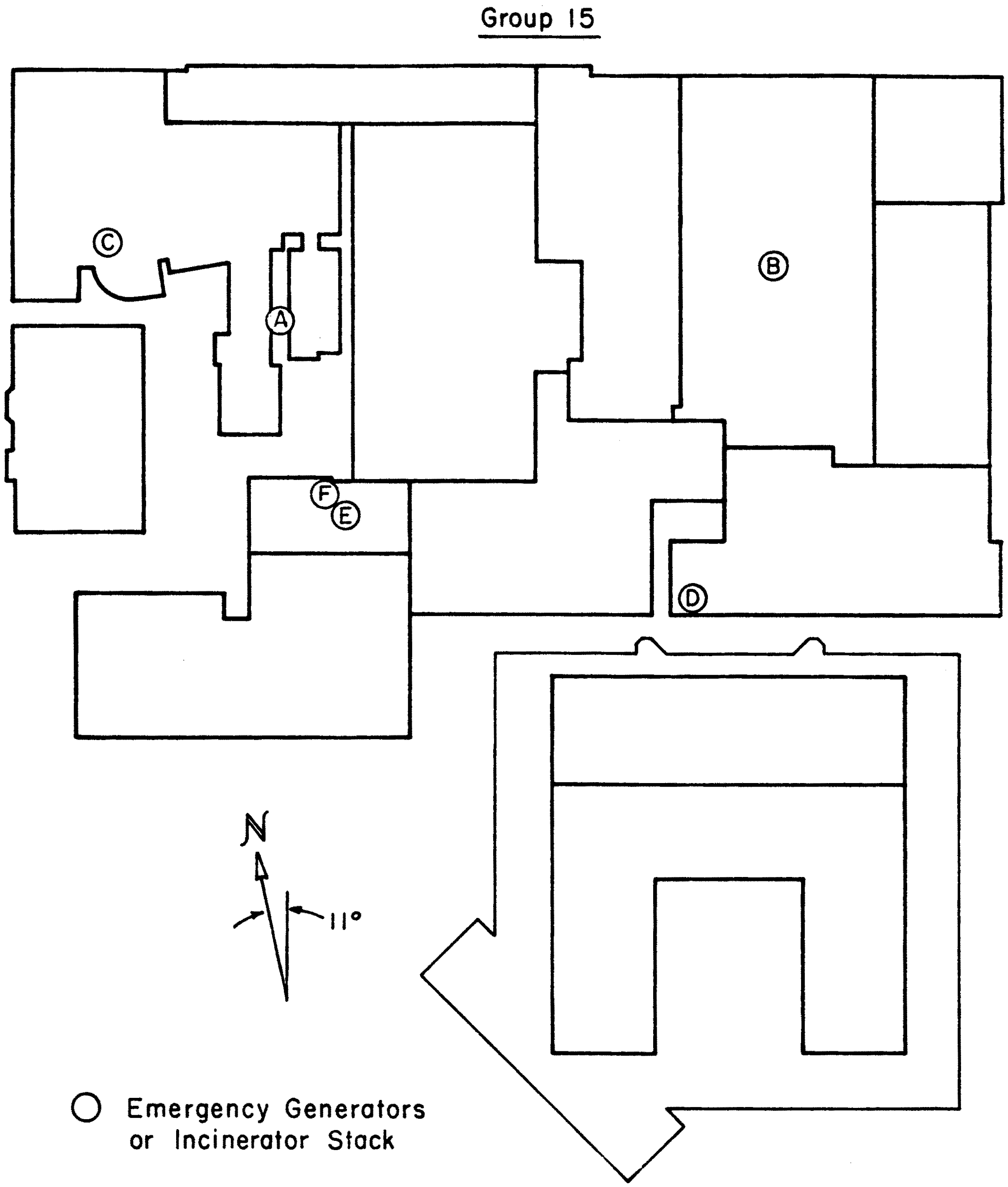


Figure 2-1ℓ. Source and Receptor Location/Identification for Group 15

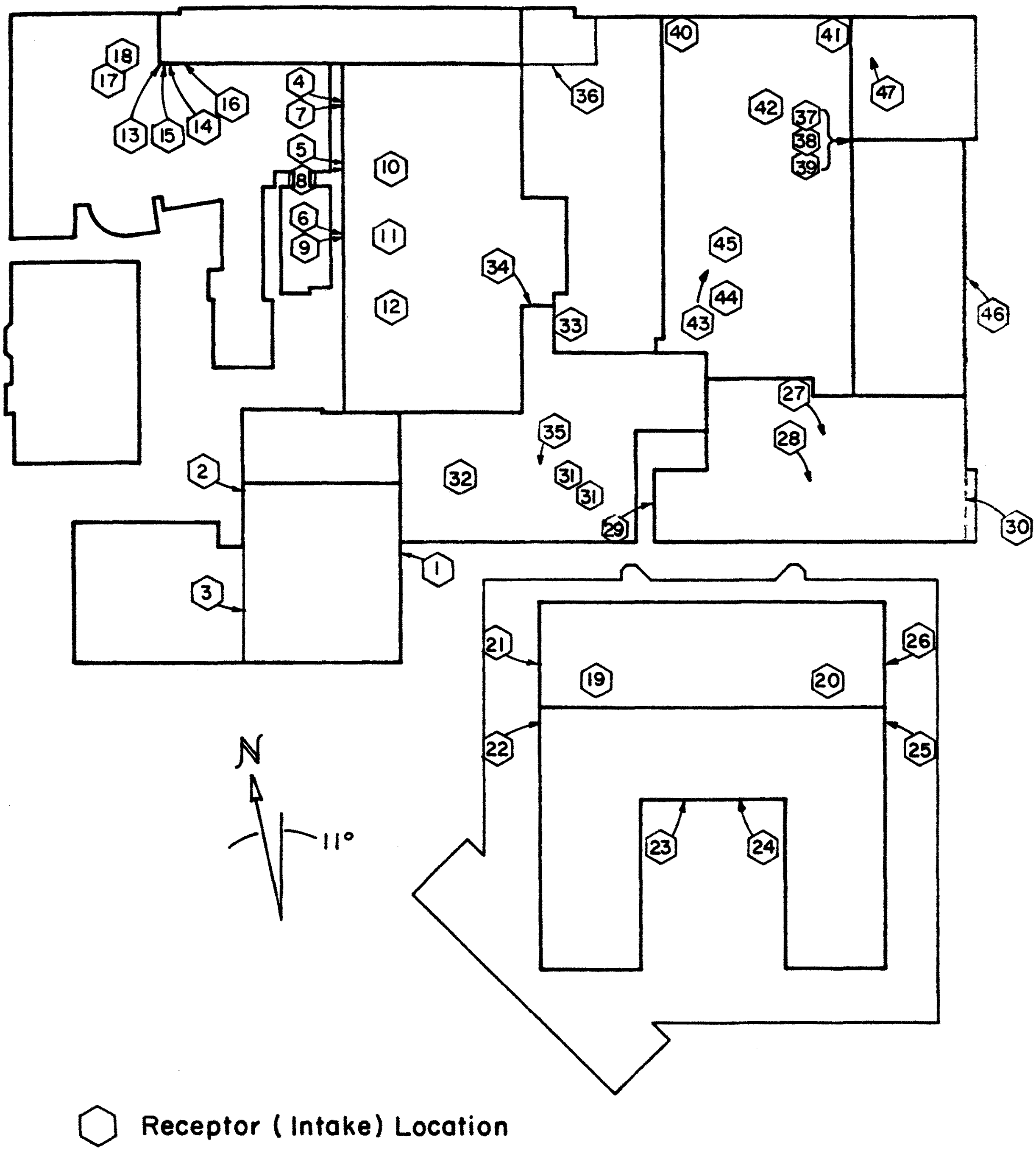


Figure 2-2. Schematic Overview of Receptors (Intakes) which were Modeled in HUP IV Wind-Tunnel Tests

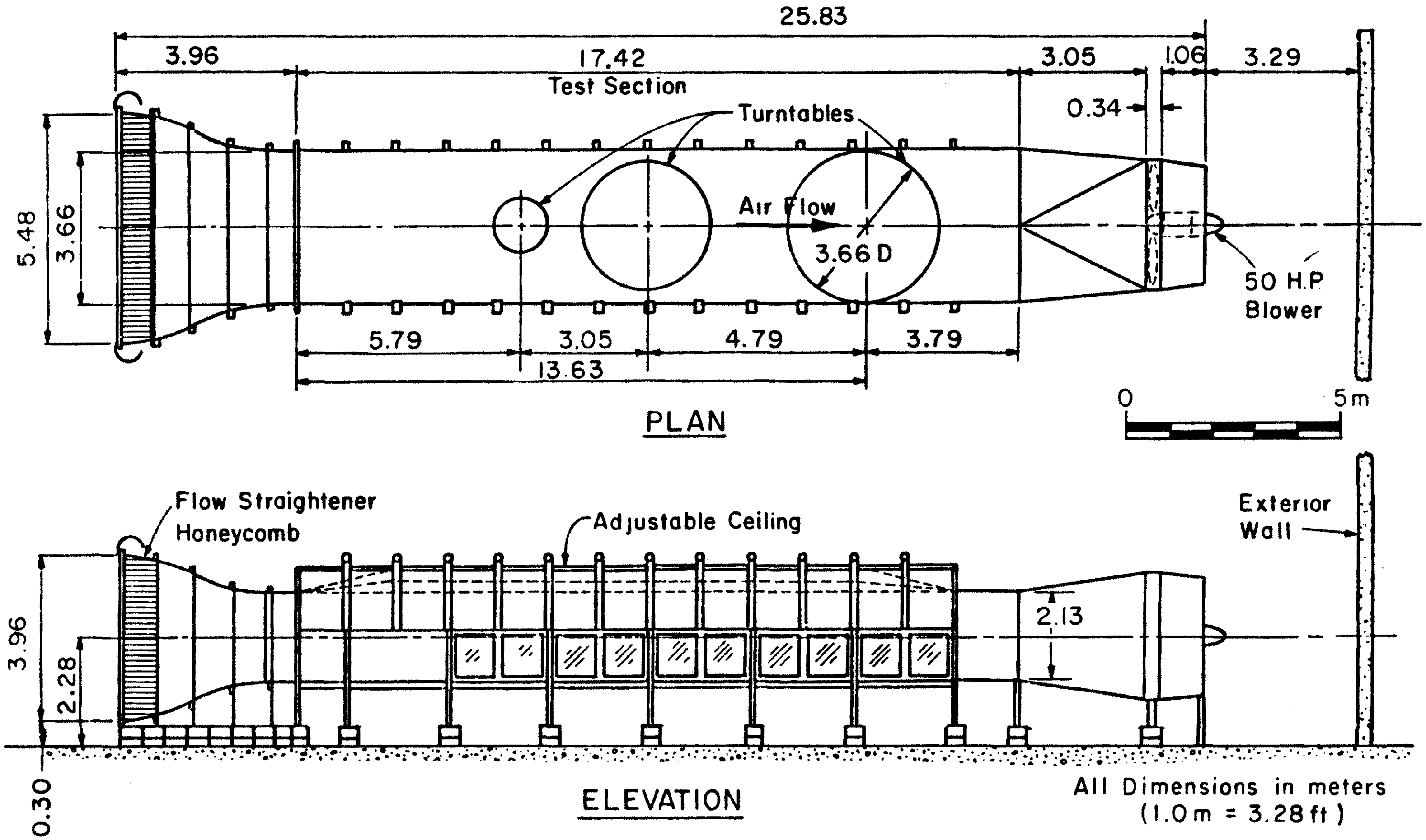


Figure 2-3. Environmental Wind Tunnel, Fluid Dynamics and Diffusion Laboratory, Colorado State University

Figure 2-4. Close-up Photograph of HUP IV Model and Surrounding Building Complex.

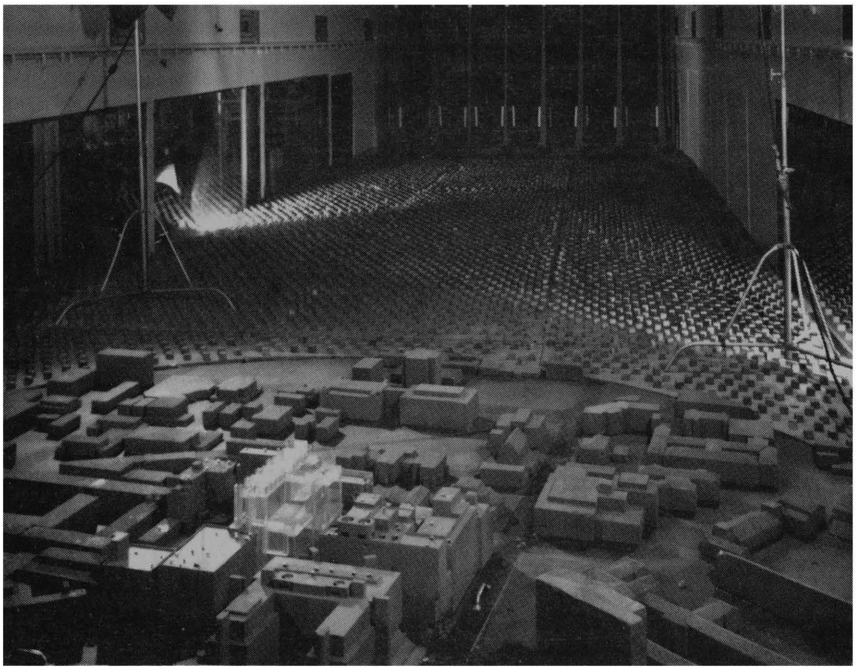


Figure 2-5. Upwind View of HUP IV Model Installed in Environmental Wind Tunnel.

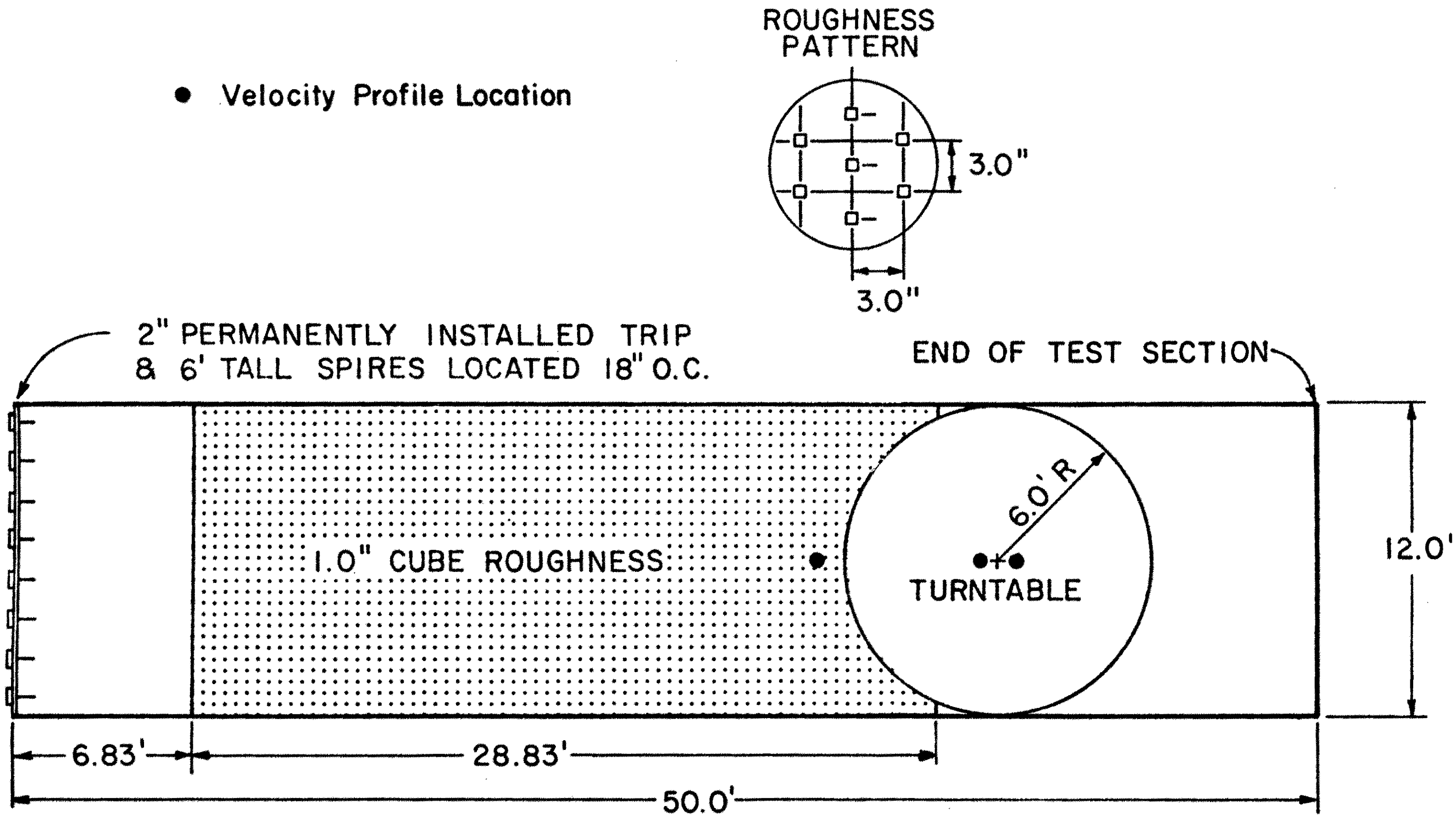


Figure 2-6. Schematic of the EWT Test Section

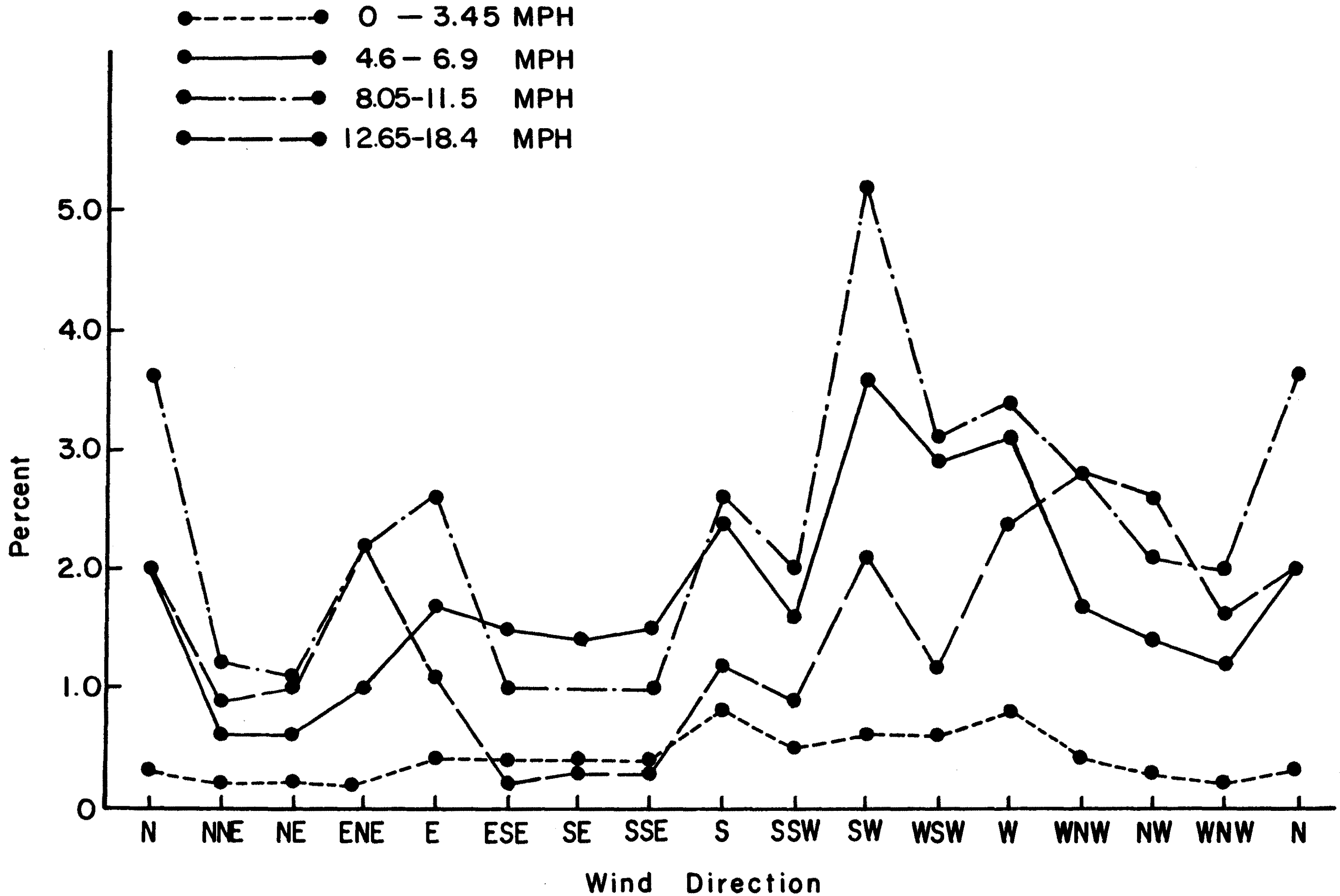


Figure 2-7. Depiction of Prevailing Wind Speeds at Philadelphia Airport by Percentage of Total Time and Wind Direction

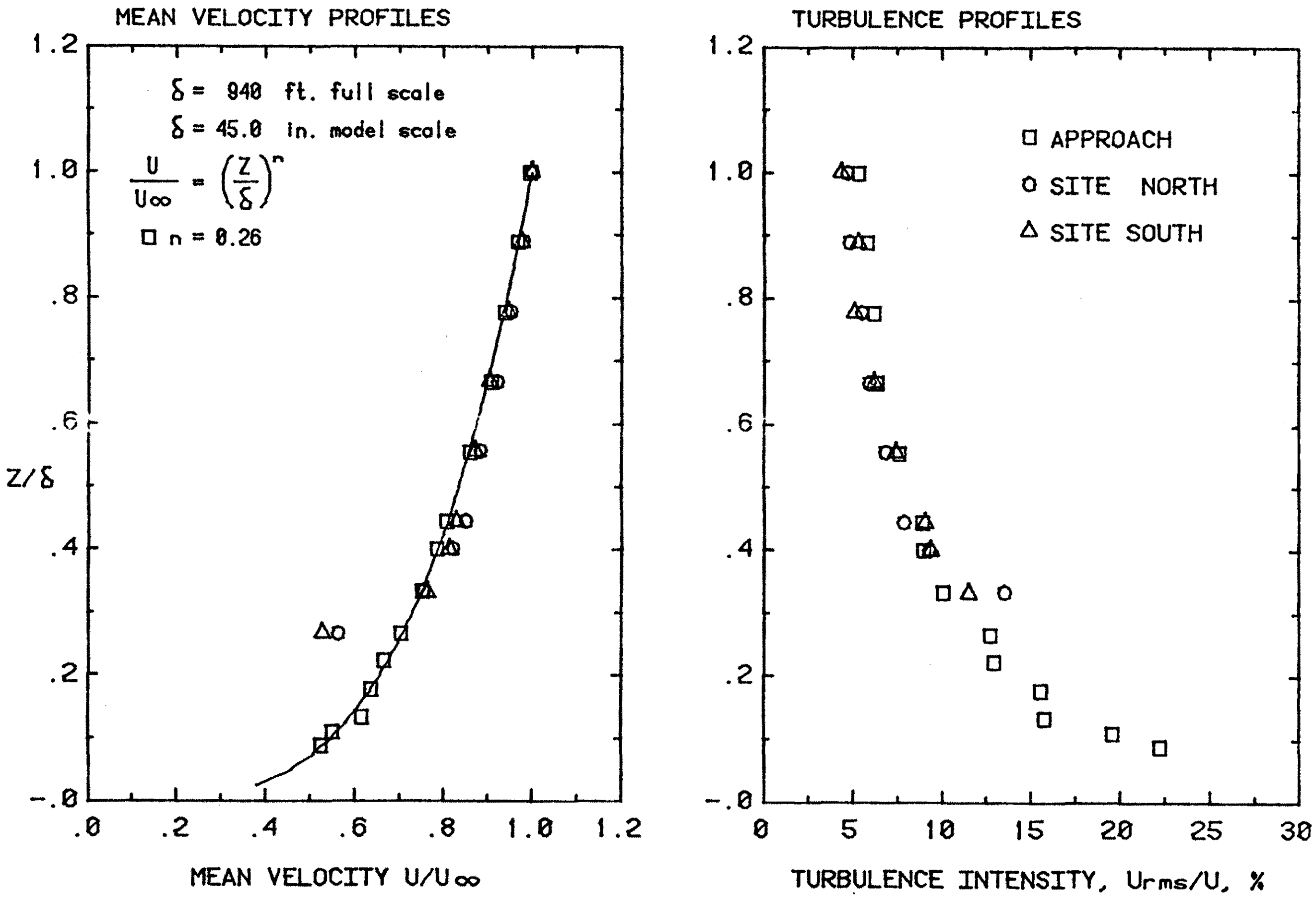


Figure 3-1. Mean Velocity and Turbulence Profiles Approaching the Model

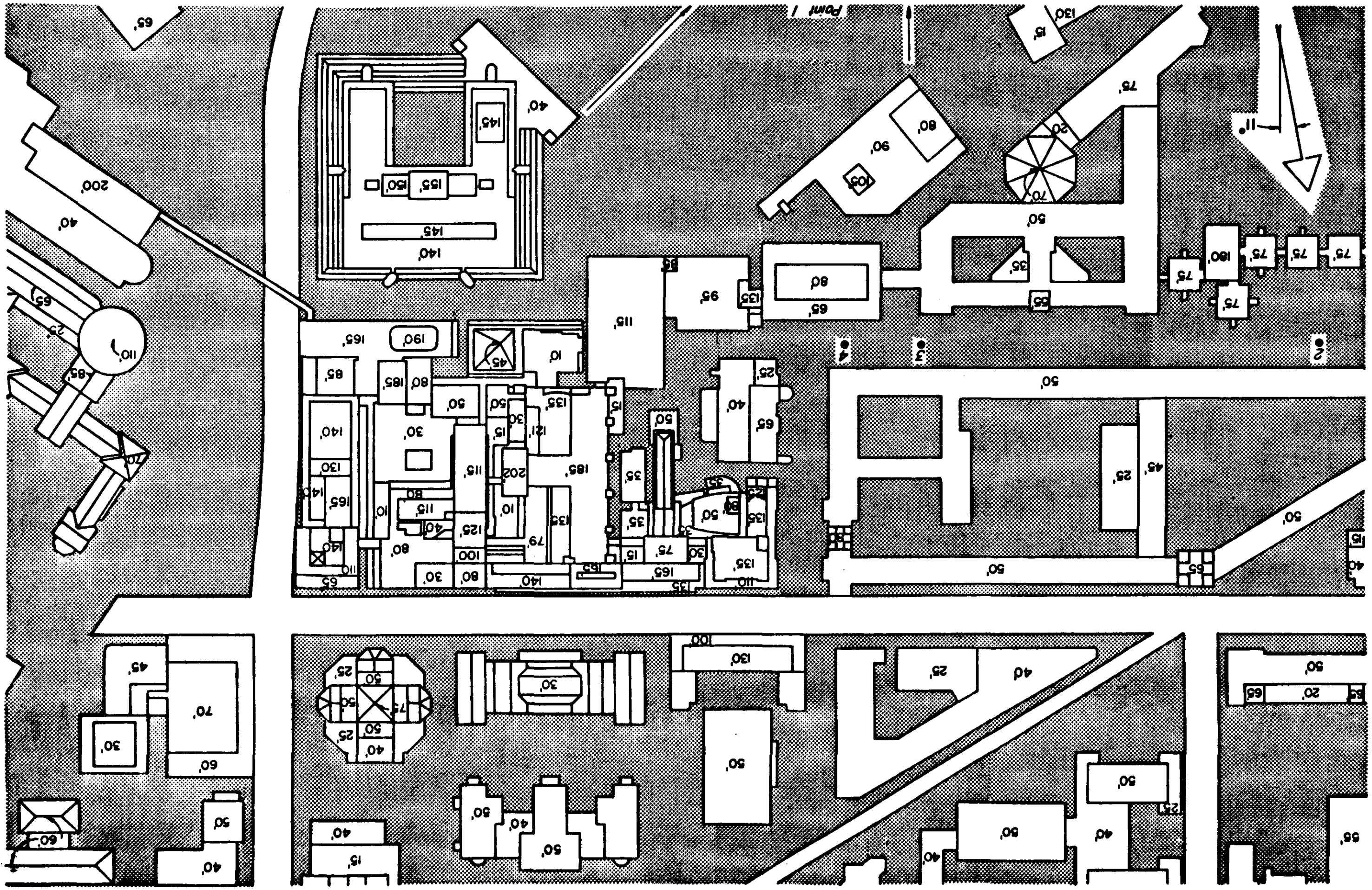


Figure 3-2a. Pedestrian Wind Velocity Measurement Locations (No. 1 through 4)

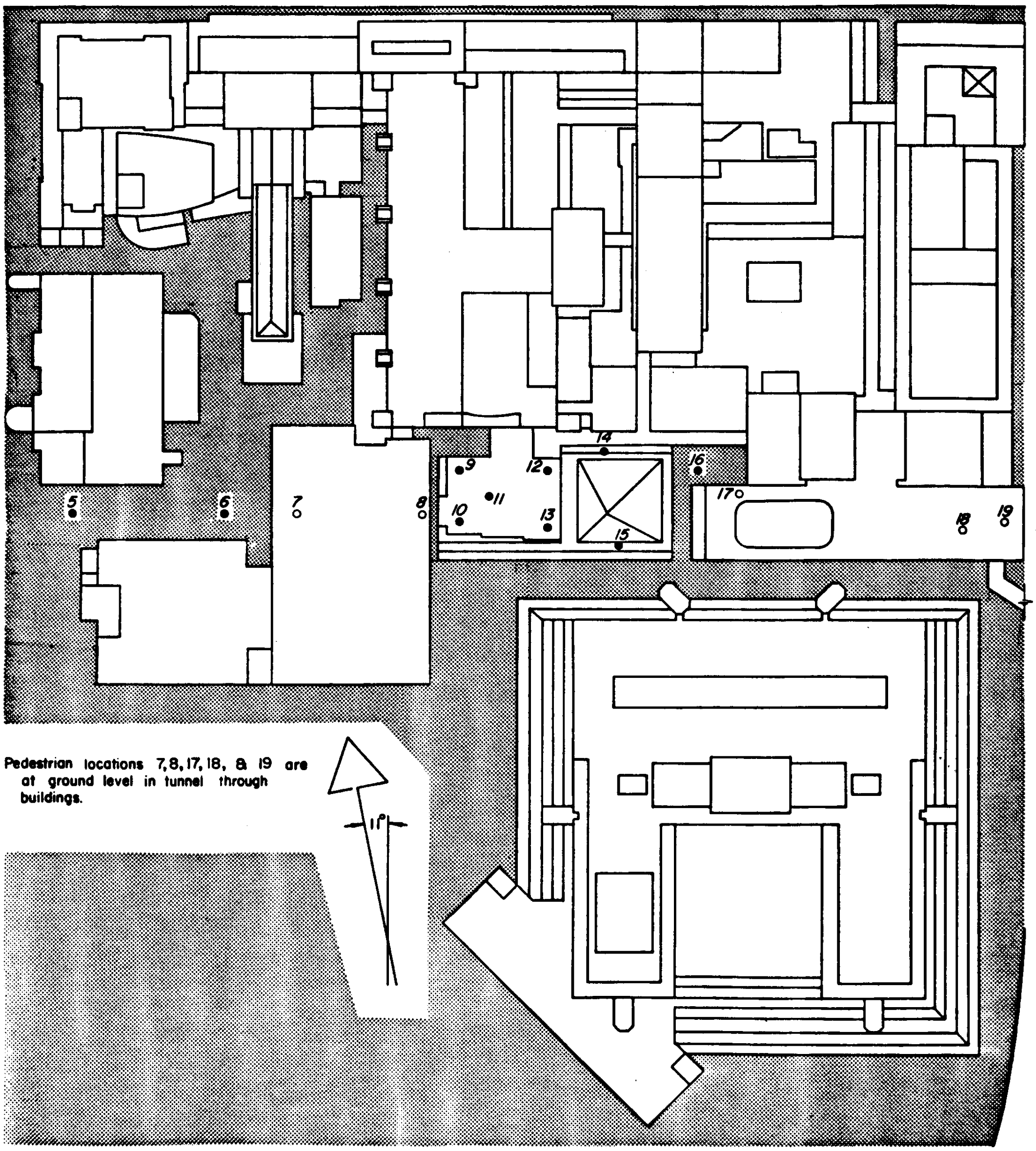


Figure 3-2b. Pedestrian Wind Velocity Measurement Locations (No. 5 through 19)

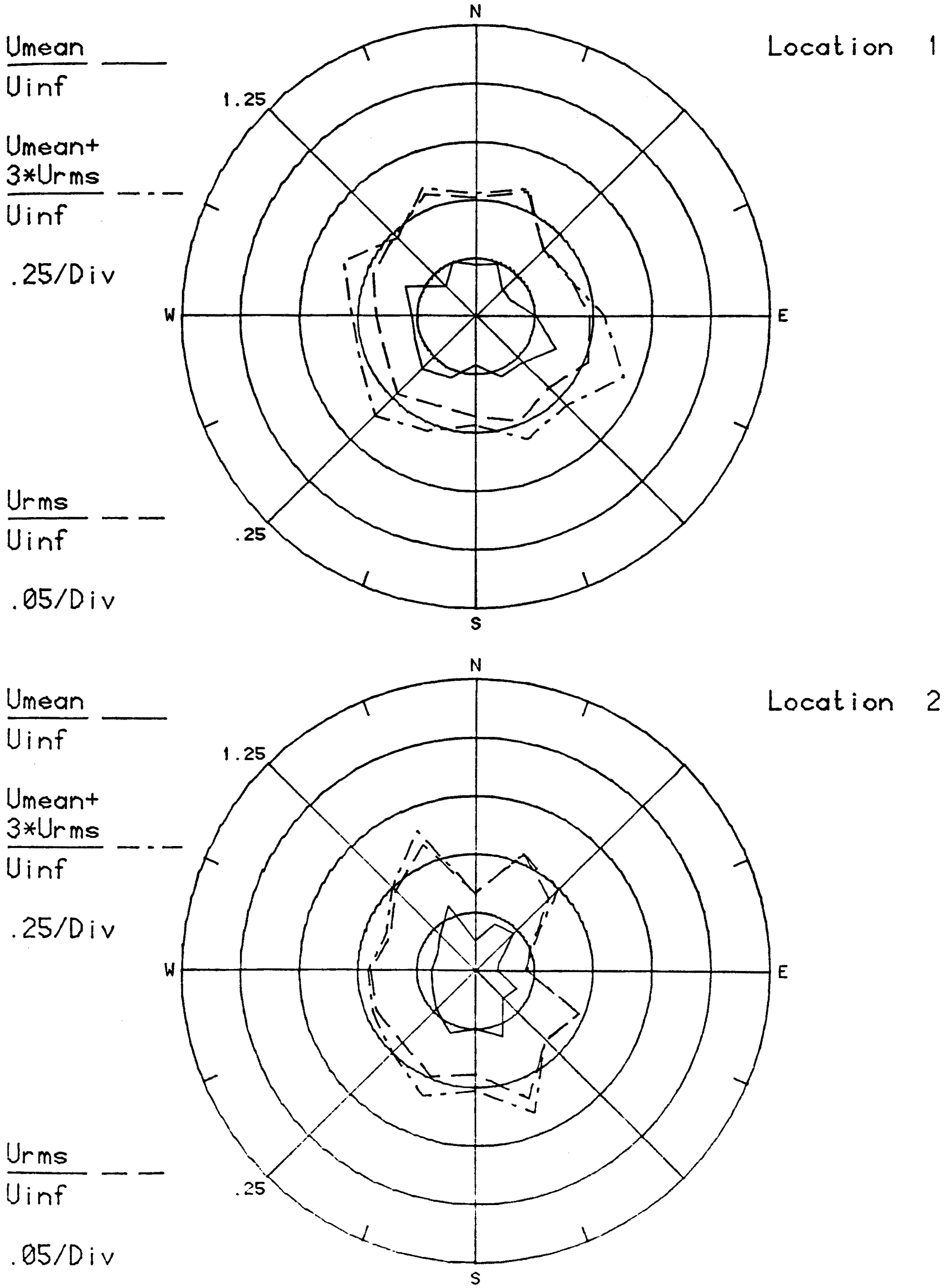
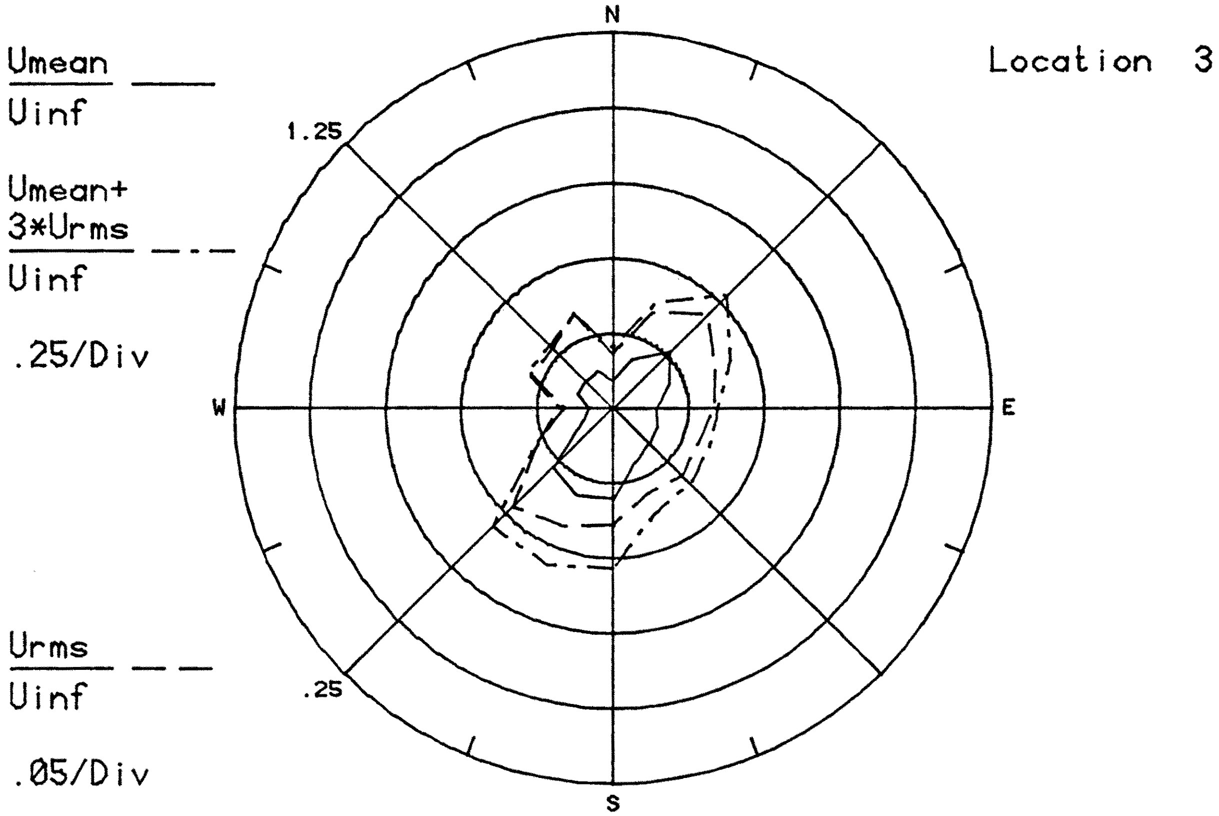


Figure 3-3a. Mean Velocities and Turbulence Intensities at Pedestrian Locations 1 and 2



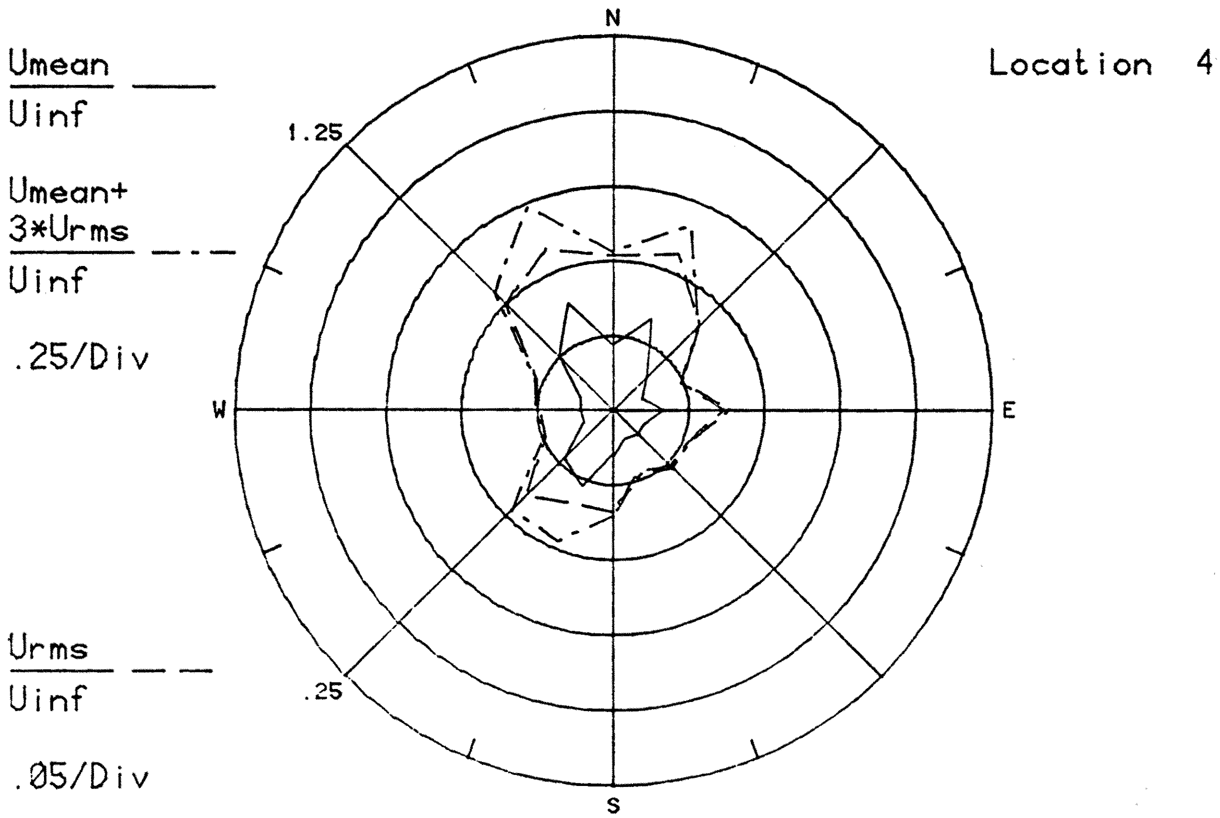
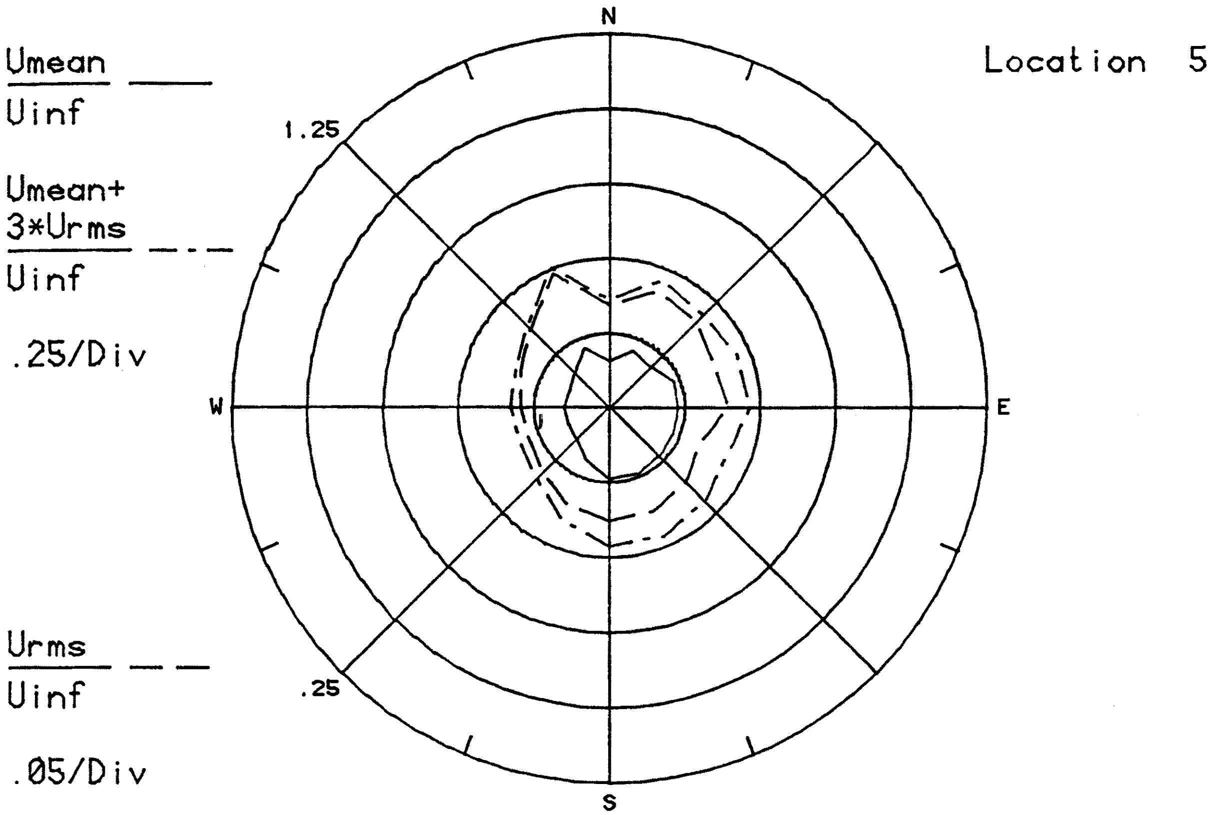


Figure 3-3b. Mean Velocities and Turbulence Intensities at Pedestrian Locations 3 and 4



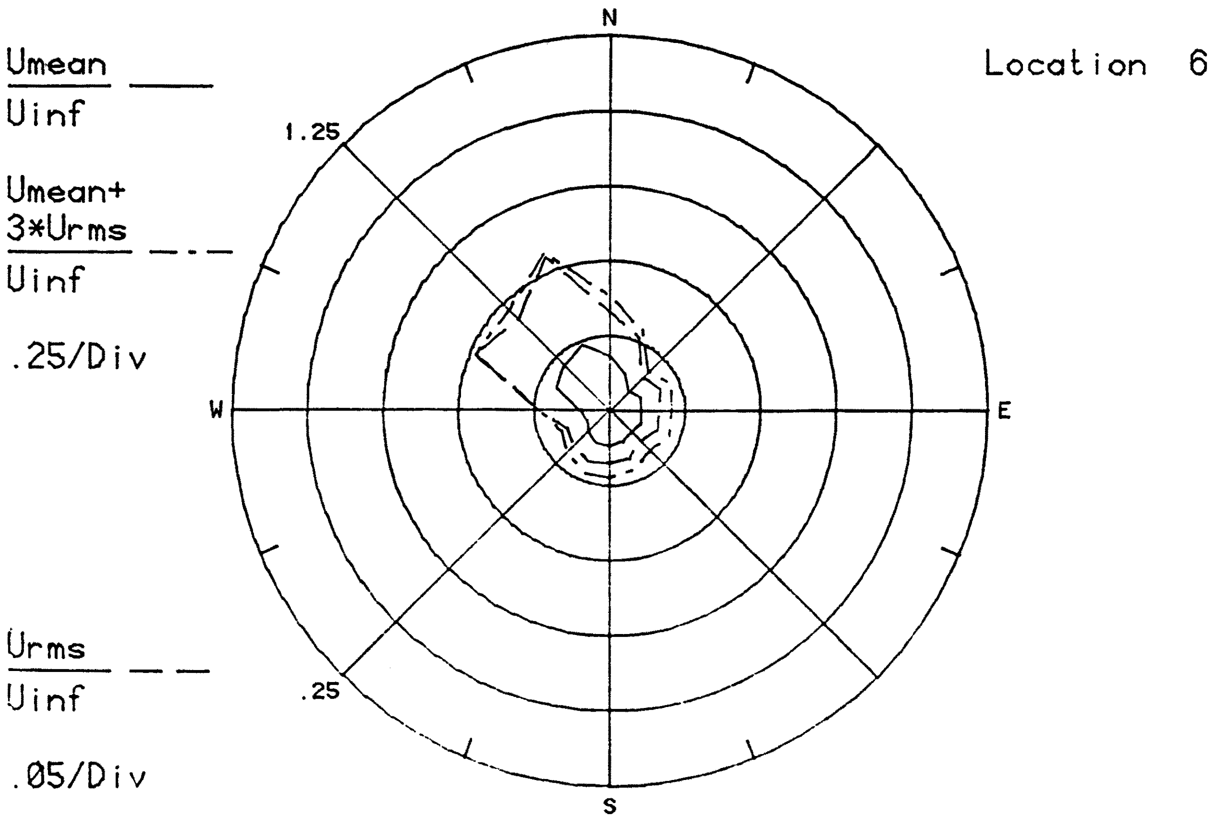
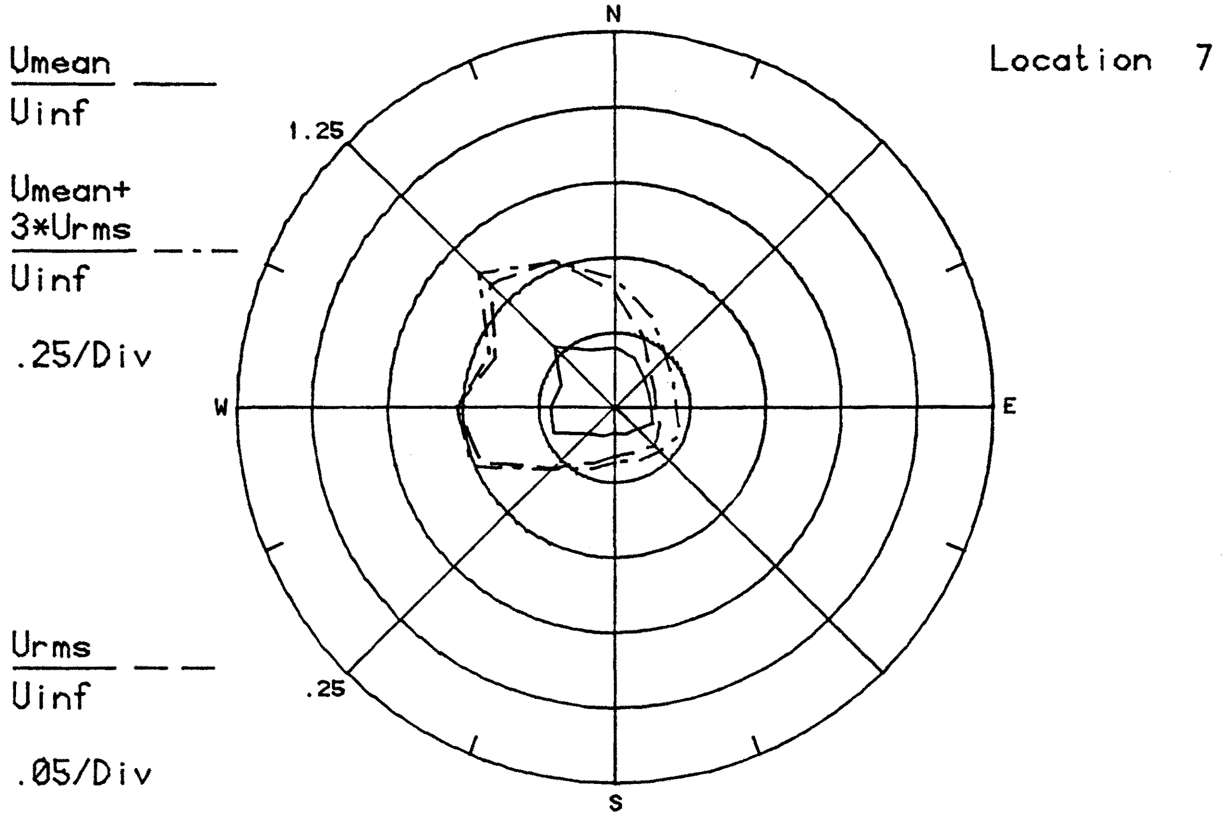


Figure 3-3c. Mean Velocities and Turbulence Intensities at Pedestrian Locations 5 and 6



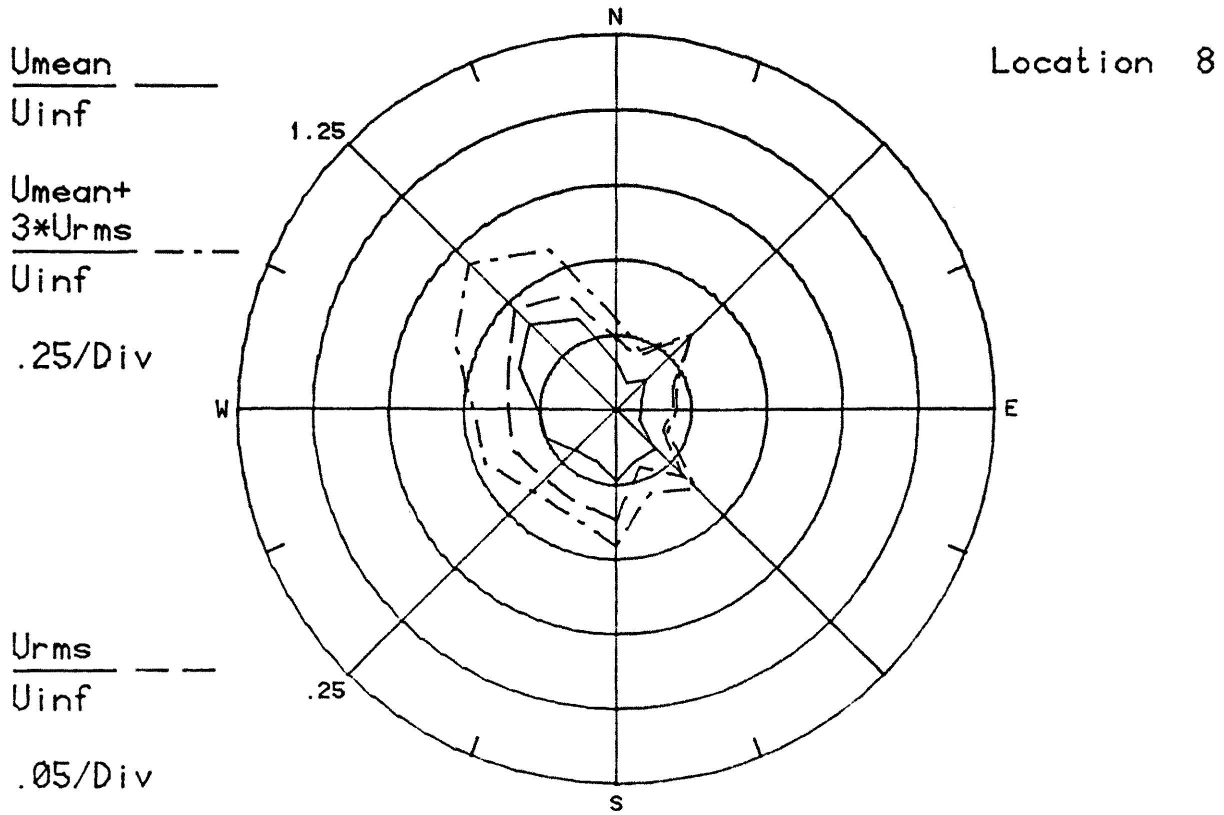


Figure 3-3d. Mean Velocities and Turbulence Intensities at Pedestrian Locations 7 and 8

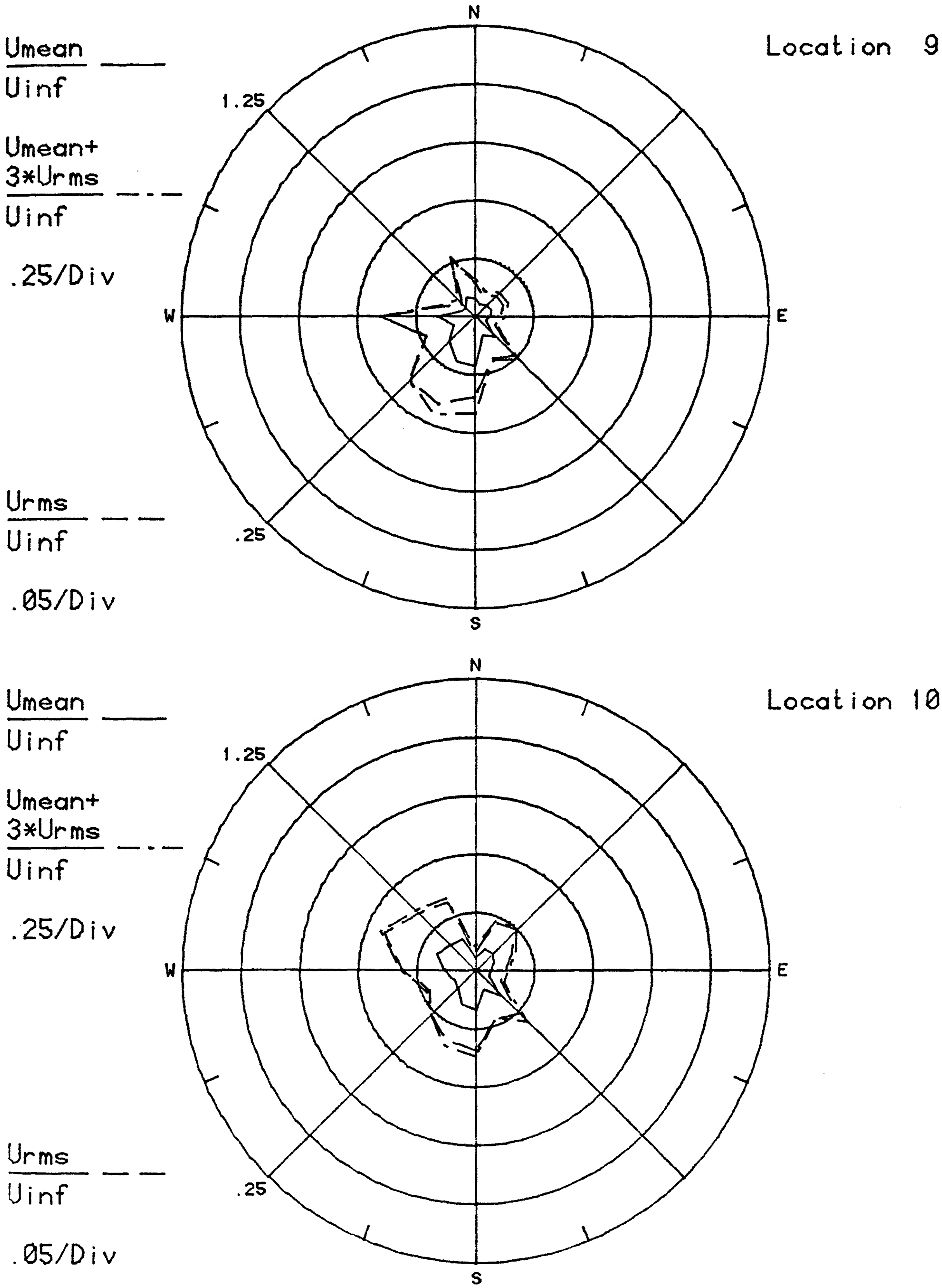


Figure 3-3e. Mean Velocities and Turbulence Intensities at Pedestrian Locations 9 and 10

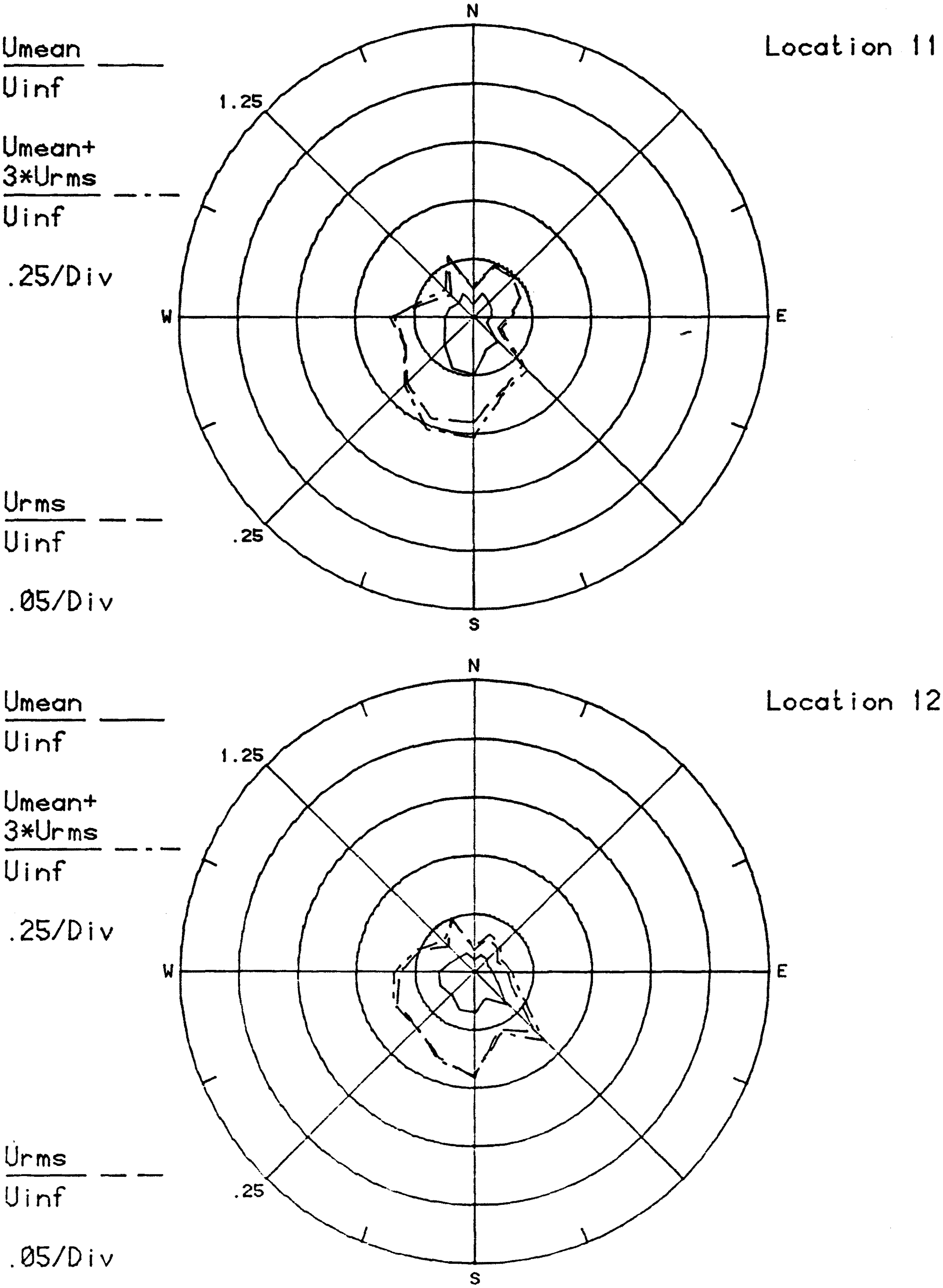
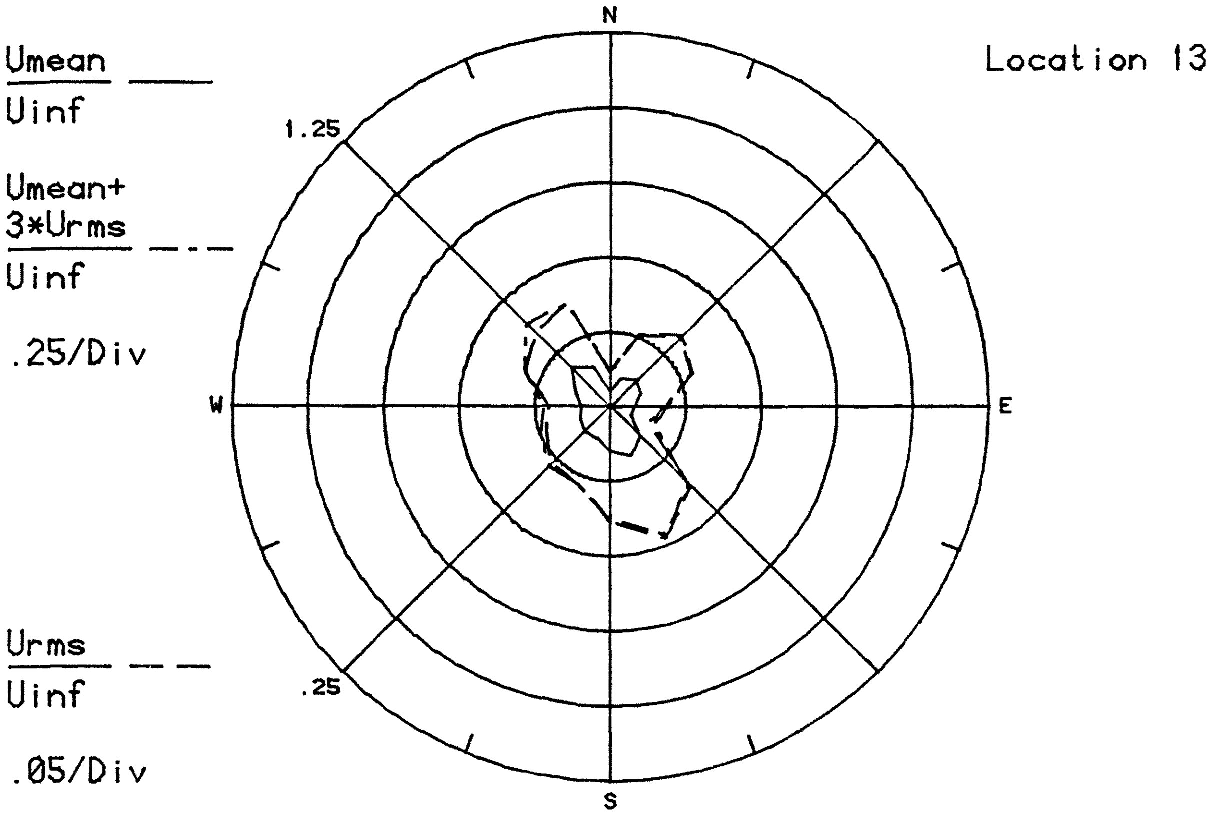


Figure 3-3f. Mean Velocities and Turbulence Intensities at Pedestrian Locations 11 and 12



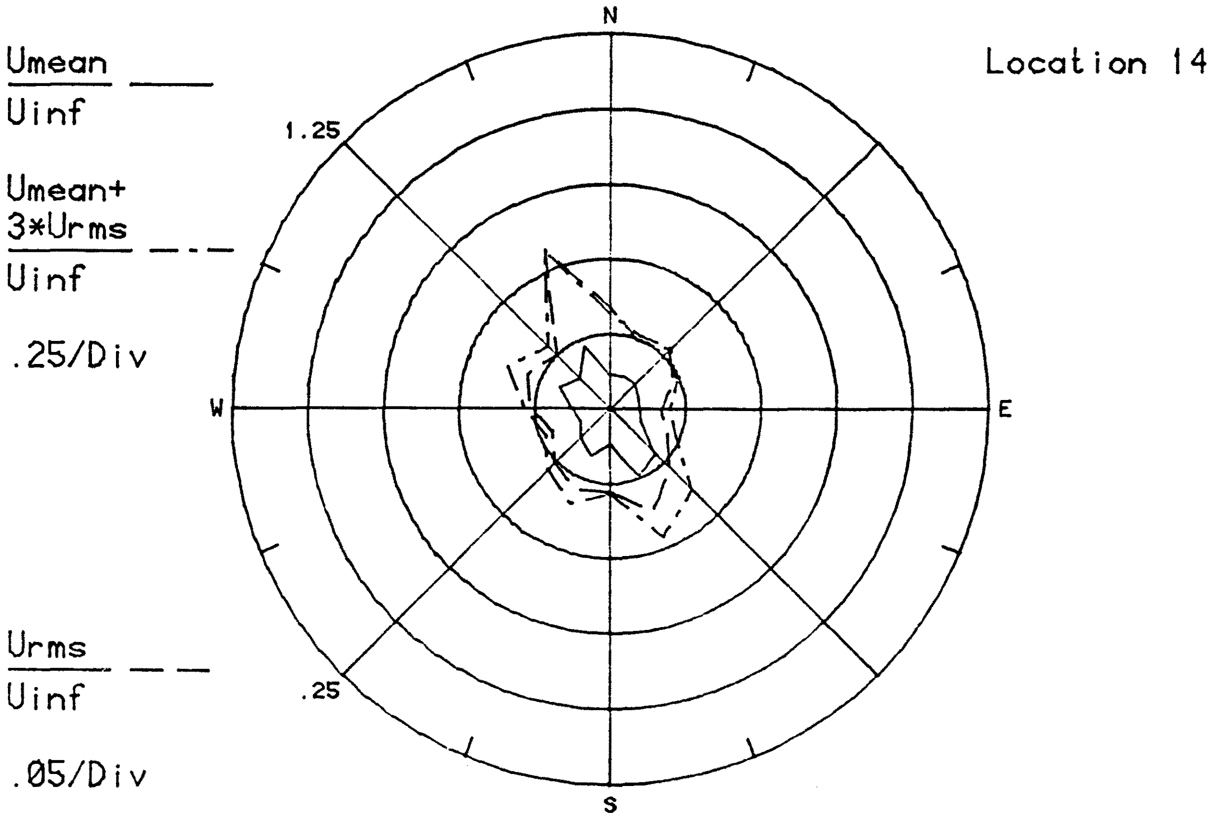


Figure 3-3g. Mean Velocities and Turbulence Intensities at Pedestrian Locations 13 and 14

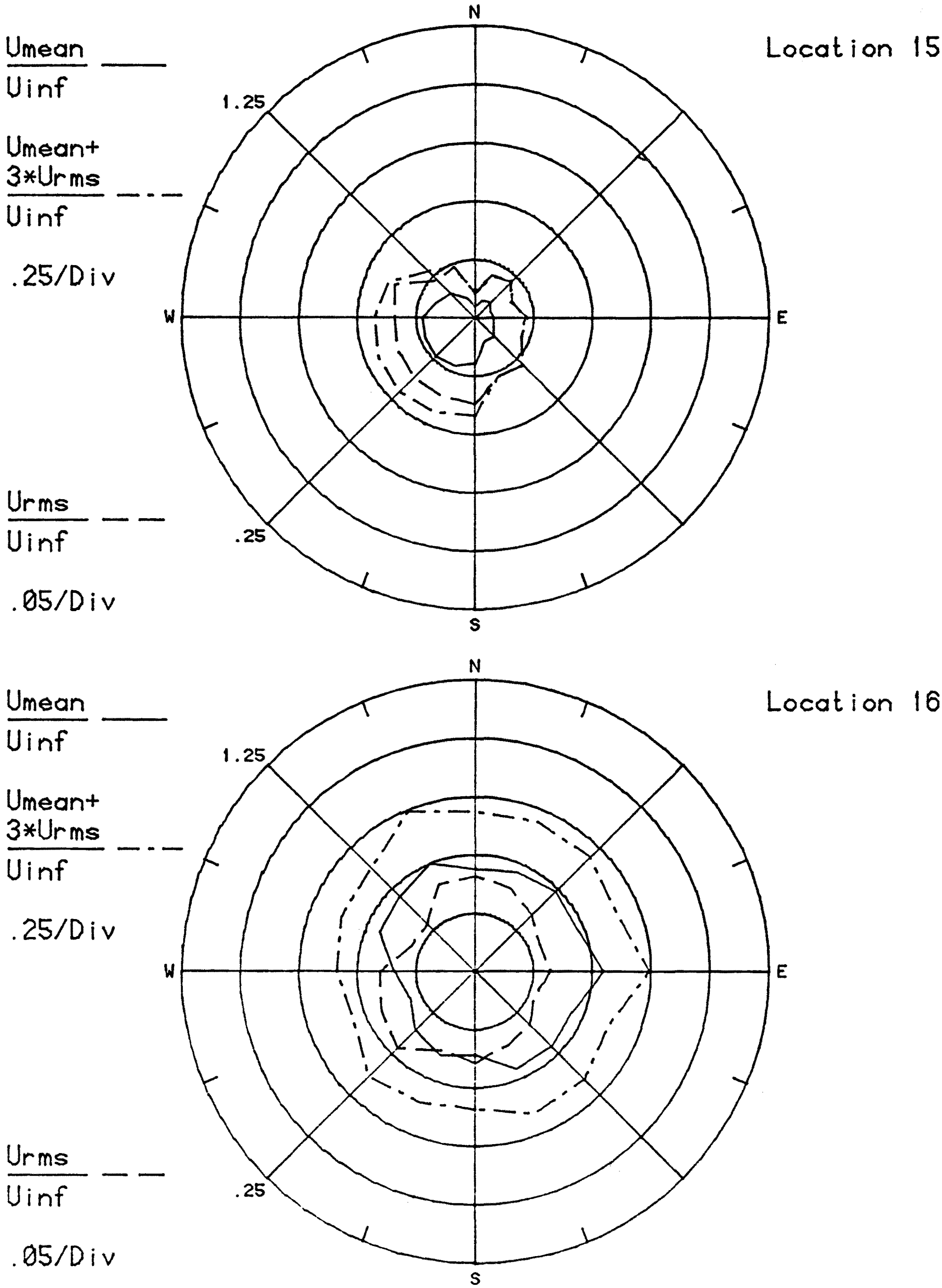
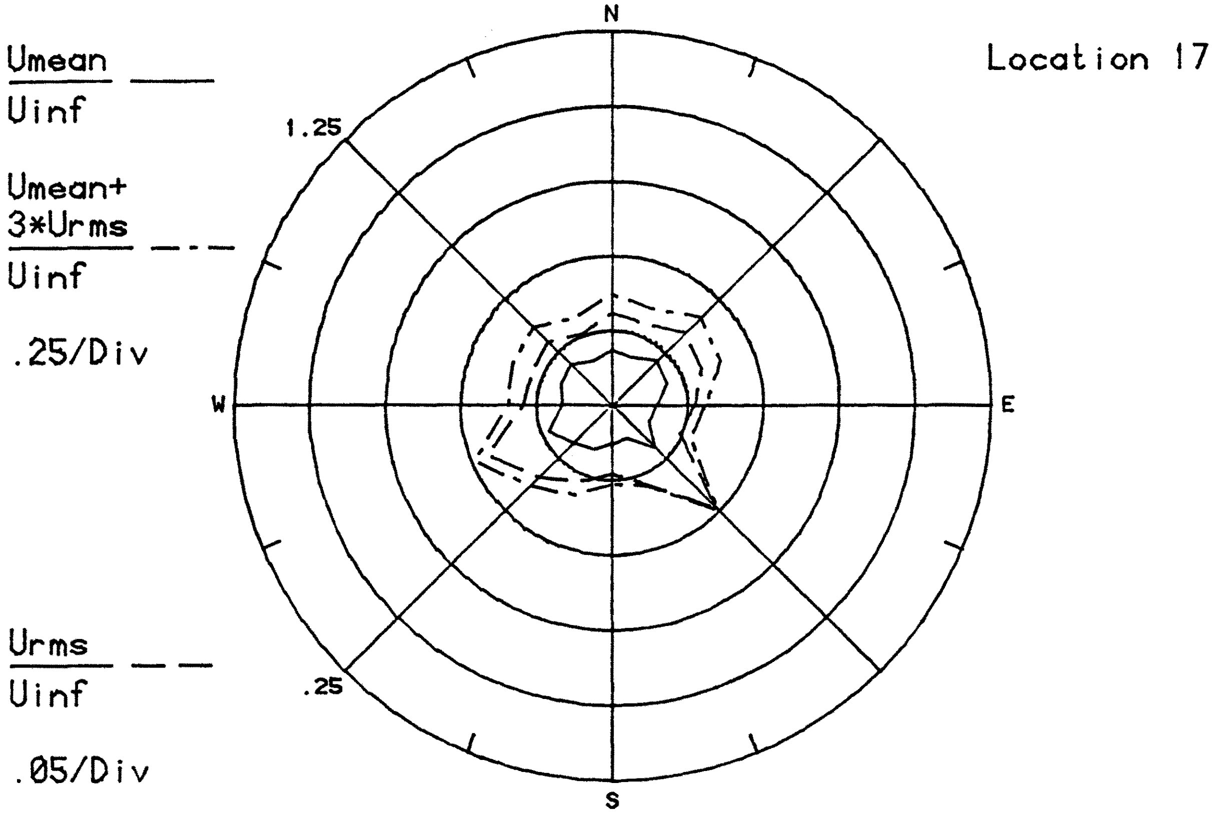


Figure 3-3h. Mean Velocities and Turbulence Intensities at Pedestrian Locations 15 and 16



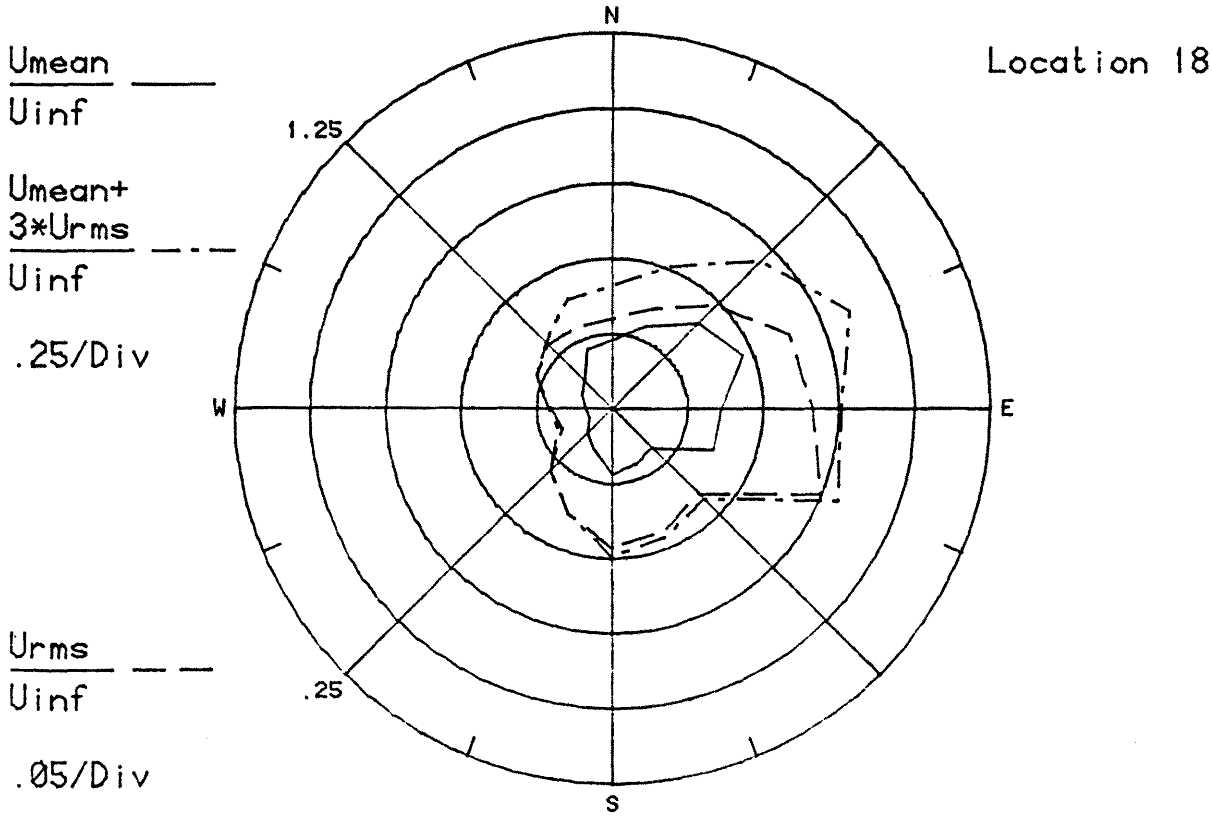


Figure 3-3i. Mean Velocities and Turbulence Intensities at Pedestrian Locations 17 and 18

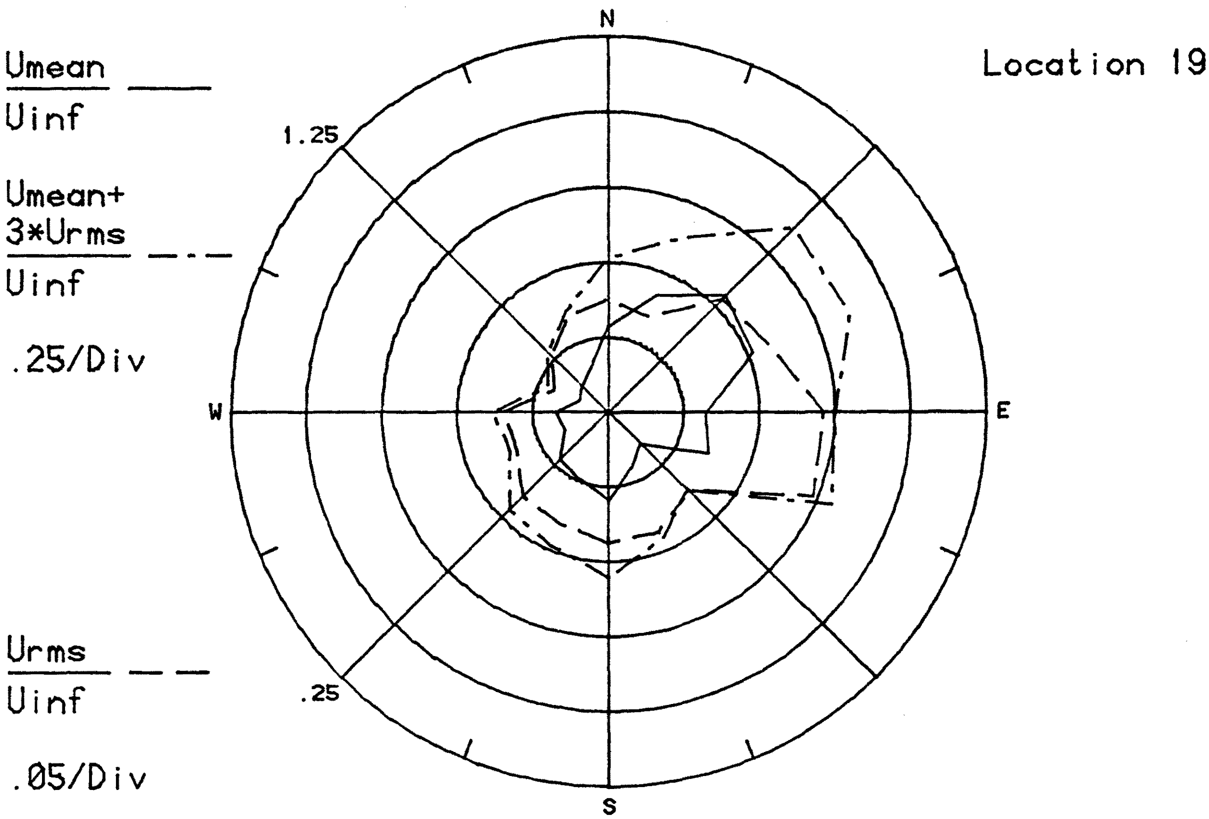


Figure 3-3j. Mean Velocities and Turbulence Intensities at Pedestrian Location 19

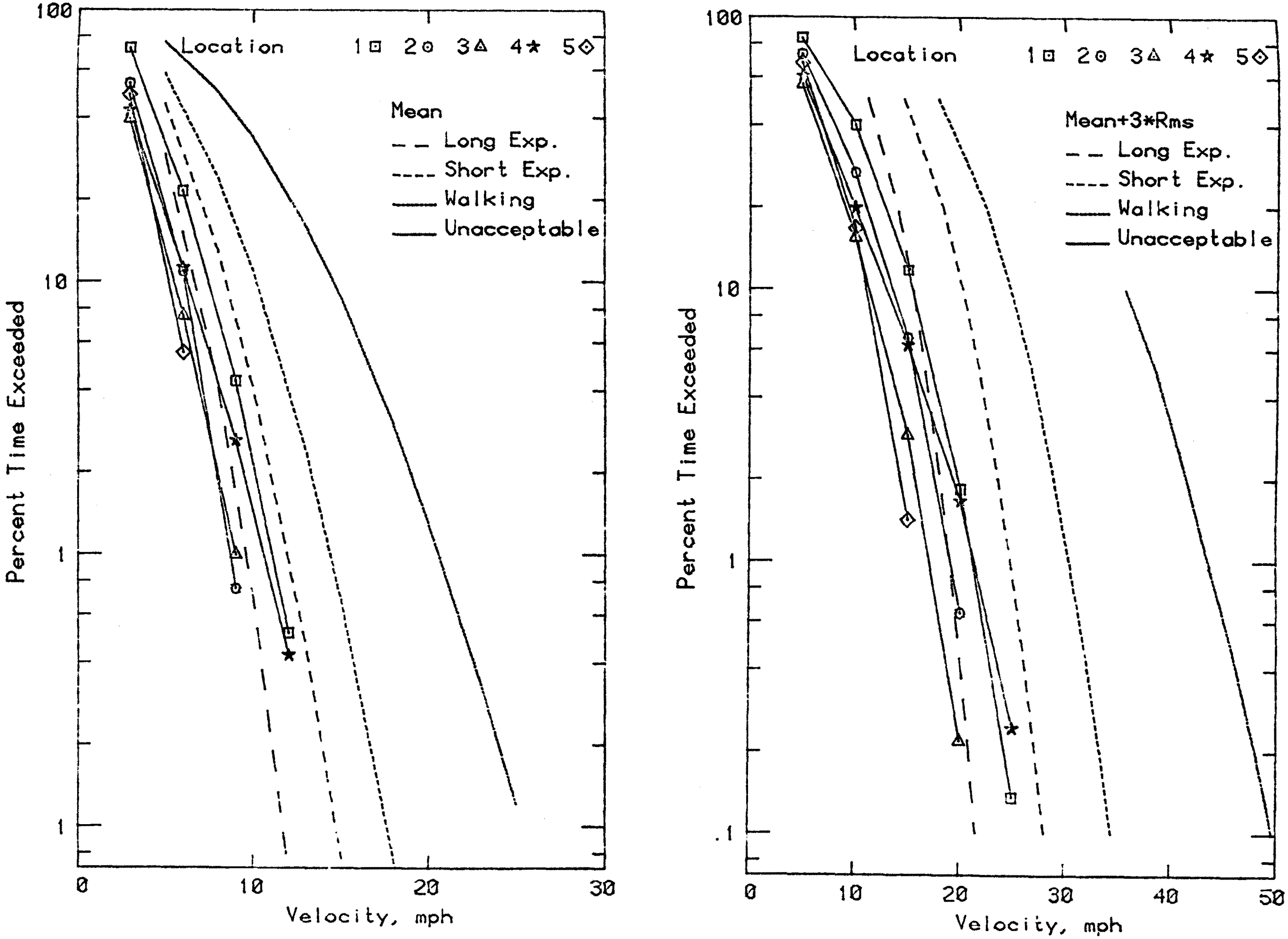


Figure 3-4a. Wind Velocity Probabilities for Pedestrian Locations No. 1 through 5

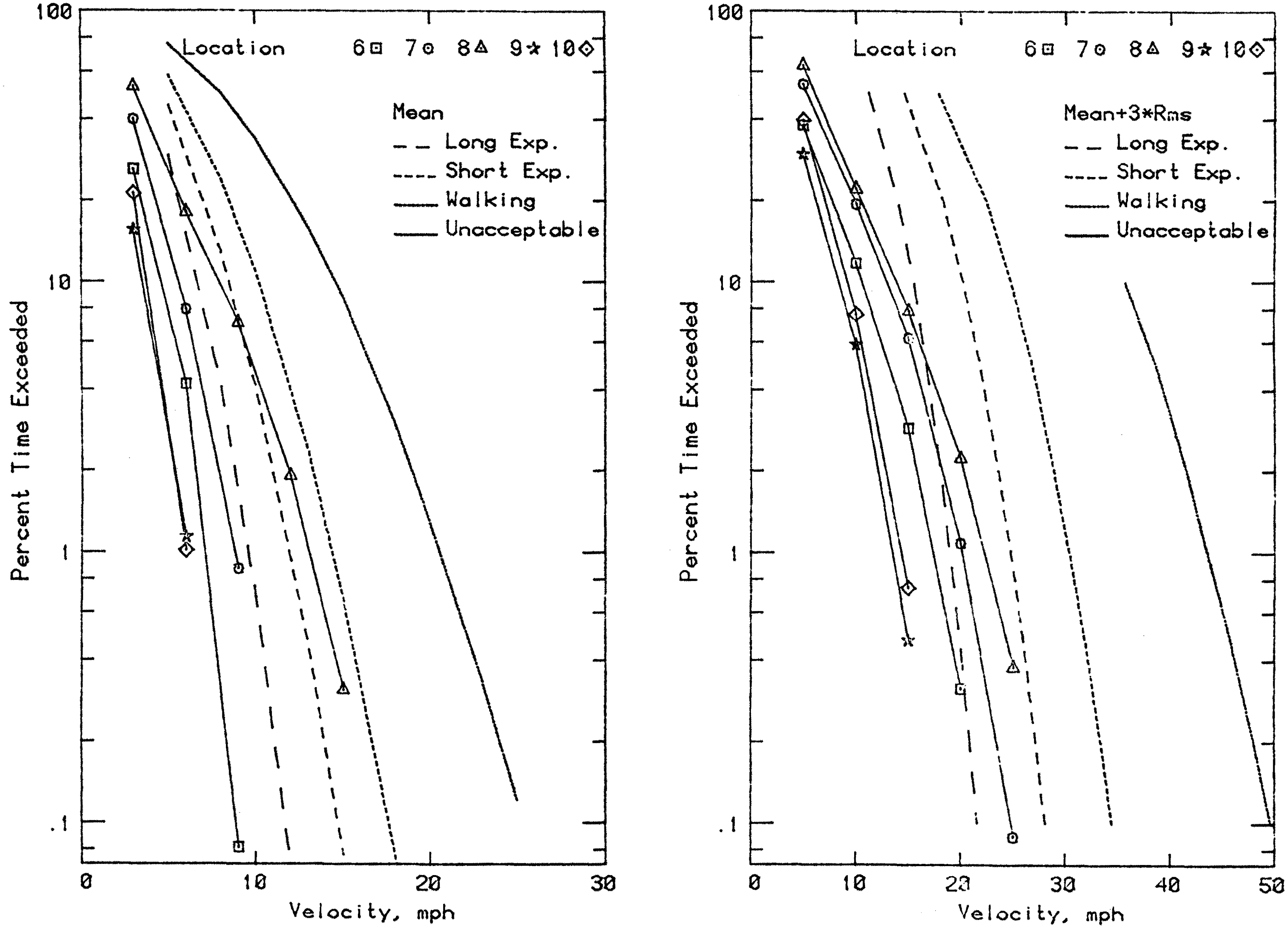


Figure 3-4b. Wind Velocity Probabilities for Pedestrian Locations No. 6 through 10

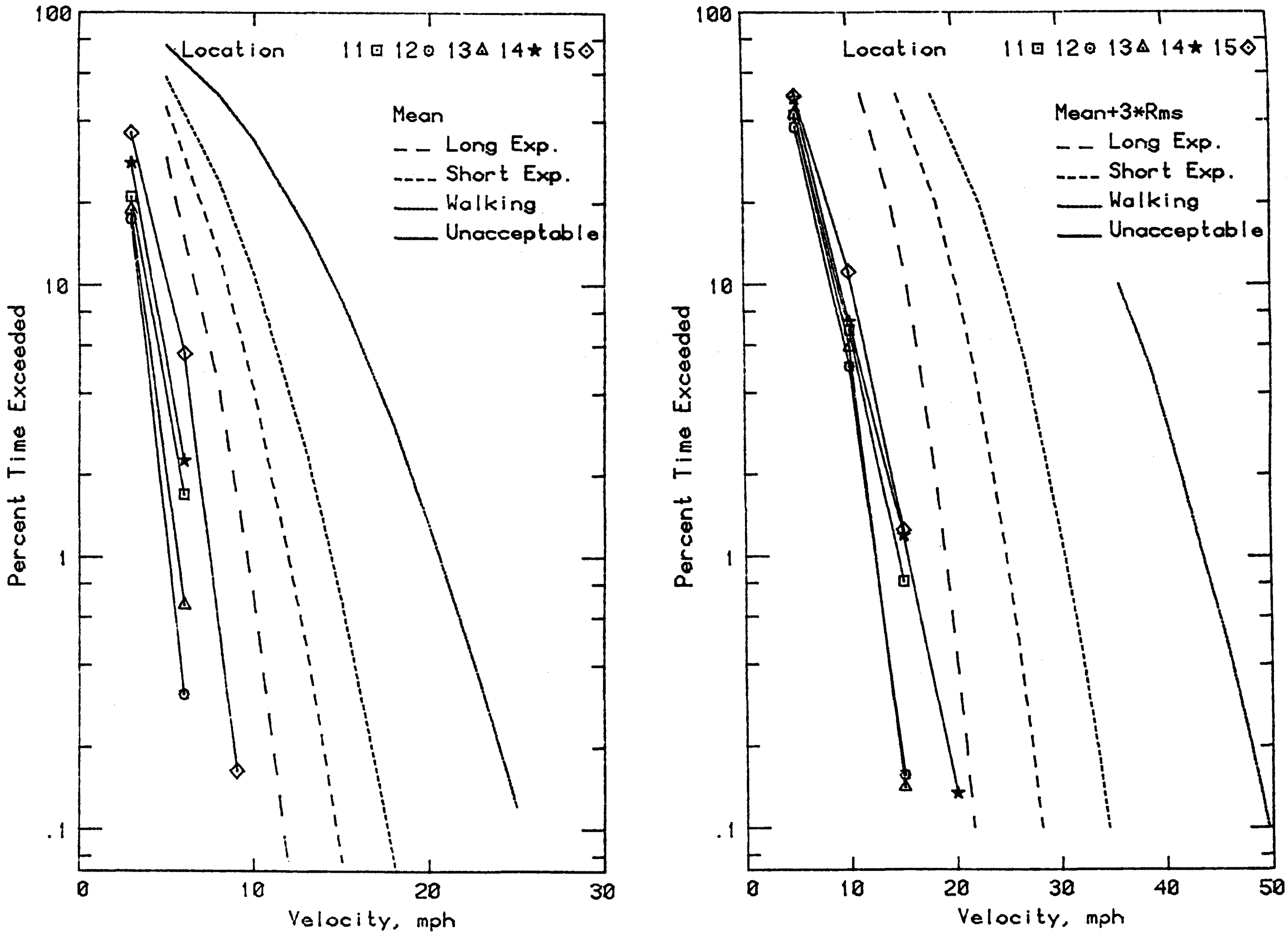


Figure 3-4c. Wind Velocity Probabilities for Pedestrian Locations No. 11 through 15

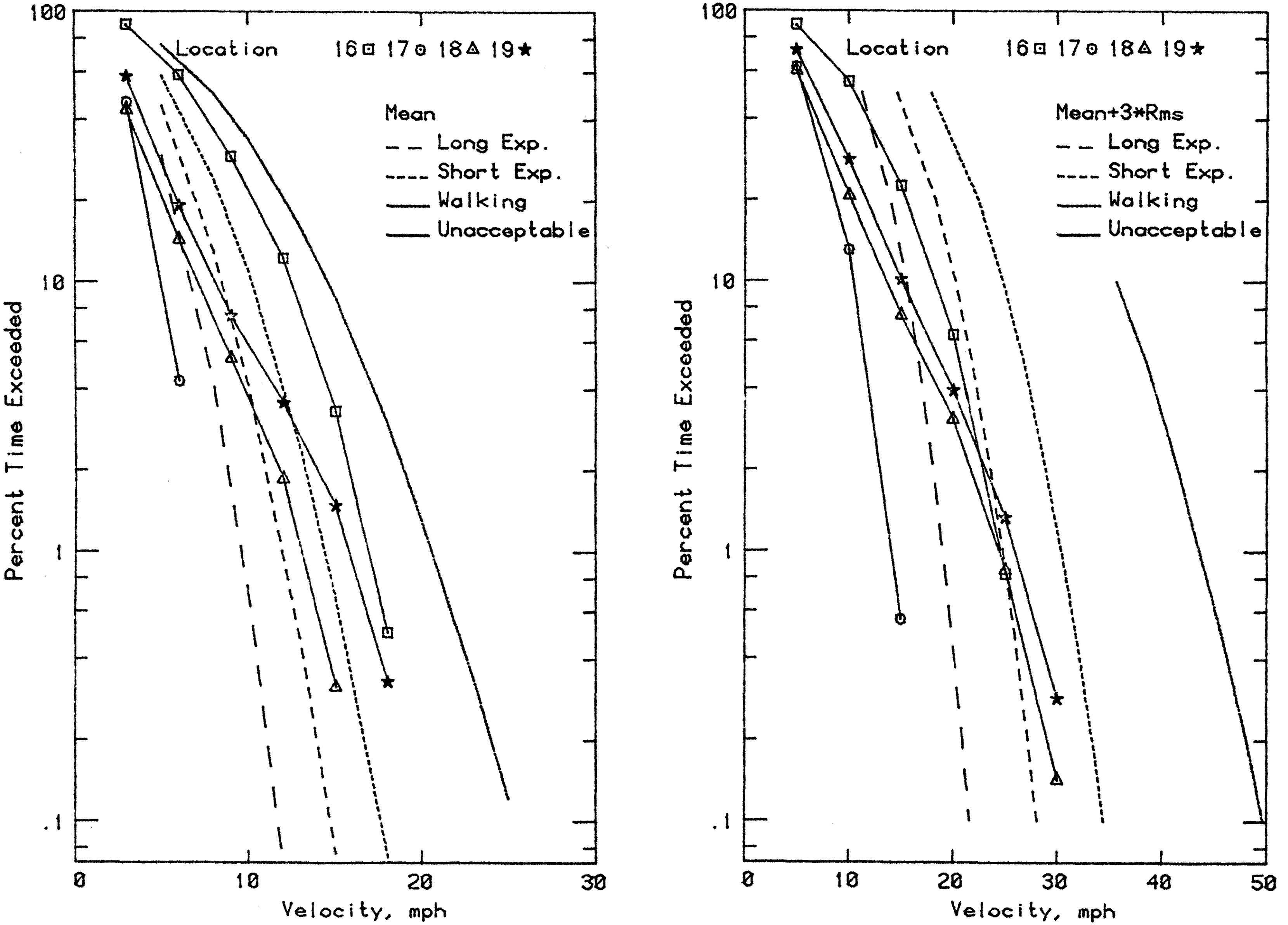


Figure 3-4d. Wind Velocity Probabilities for Pedestrian Locations No. 16 through 19

SCIENTIFIC GAS PRODUCTS INC.

2330 HAMILTON BLVD., SOUTH PLAINFIELD, NJ 07080 (201) 754-7700
3325 WESTSIDE DRIVE, PASADENA, TX 77504 (713) 947-2222
LAKESIDE OFFICE BLDG., NORTH AVE., WAKEFIELD, MA 01880 (617) 245-8707
500 WEAVER PARK RD., LONGMONT, CO 80501 (303) 442-4700
3395 DE LA CRUZ BLVD., SANTA CLARA, CA 95050 (408) 988-3600

COLORADO STATE UNIVERSITY
ATTN: JIM GARRISON
FT. COLLINS, CO 80521

Date 4-3-84
Cust. P.O. P 25362 A/1
Inv. No. 409996
Q.C. No.

CERTIFICATION

CYLINDER NO	COMPONENT	REQUESTED	ACTUAL
1A-12974	CARBON DIOXIDE	12.75%	12.76%
	METHANE	9%	9.04%
	NITROGEN	BALANCE	BALANCE
1A-15346	CARBON DIOXIDE	12.75%	12.76%
	METHANE	9%	9.00%
	NITROGEN	BALANCE	BALANCE
1A-9187	CARBON DIOXIDE	4.5%	4.48%
	ETHANE	10%	10.0%
	NITROGEN	BALANCE	BALANCE
1A-15159	CARBON DIOXIDE	4.5%	4.49%
	ETHANE	10%	9.98%
	NITROGEN	BALANCE	BALANCE

All values reported in Mole percent unless otherwise noted.

Accuracy tolerance on all values greater than 100 ppm within ± 2% unless otherwise stated.

RIC SCHMELTEKOPF ANALYST   DON FRED SUPERVISOR

SCIENTIFIC GAS PRODUCTS INC.

2330 HAMILTON BLVD., SOUTH PLAINFIELD, NJ 07080 (201) 754-7700
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3395 DE LA CRUZ BLVD., SANTA CLARA, CA 95050 (408) 988-3600

COLORADO STATE UNIVERSITY
ATTN: JIM GARRISON
FT. COLLINS, CO 80521

Date 2-22-84
Cust. P.O. P-24009
Inv. No. 409753
Q.C. No.

CERTIFICATION

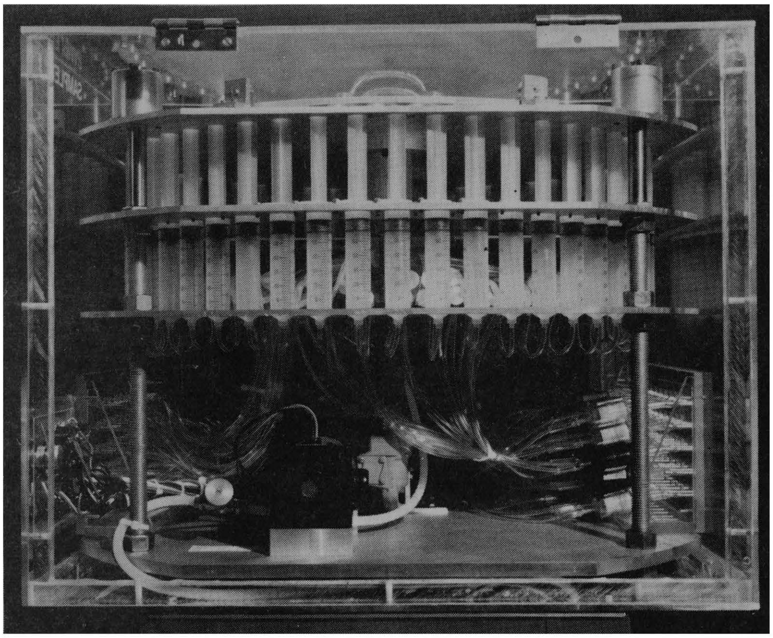
CYLINDER NO	COMPONENT	REQUESTED	ACTUAL
1C-2354	METHANE	4%	4.02%
	HELIUM	BALANCE	BALANCE
1A-22050	ETHANE	3%	2.98%
	HELIUM	BALANCE	BALANCE
1A-6751	PROPANE	2%	2.01%
	HELIUM	BALANCE	BALANCE

All values reported in Mole percent unless otherwise noted.

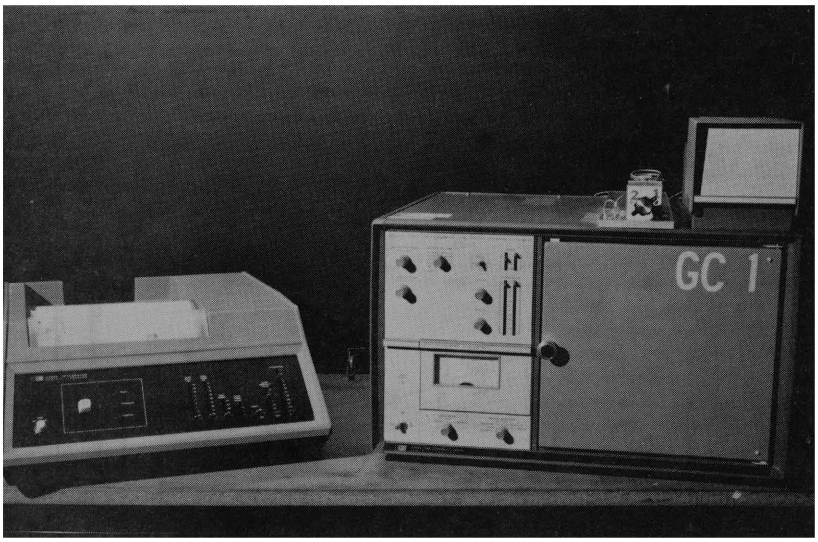
Accuracy tolerance on all values greater than 100 ppm within ± 2% unless otherwise stated.

RIC SCHMELTEKOPF ANALYST   DON FRED SUPERVISOR

Figure 4-1. Tracer Gas Certifications



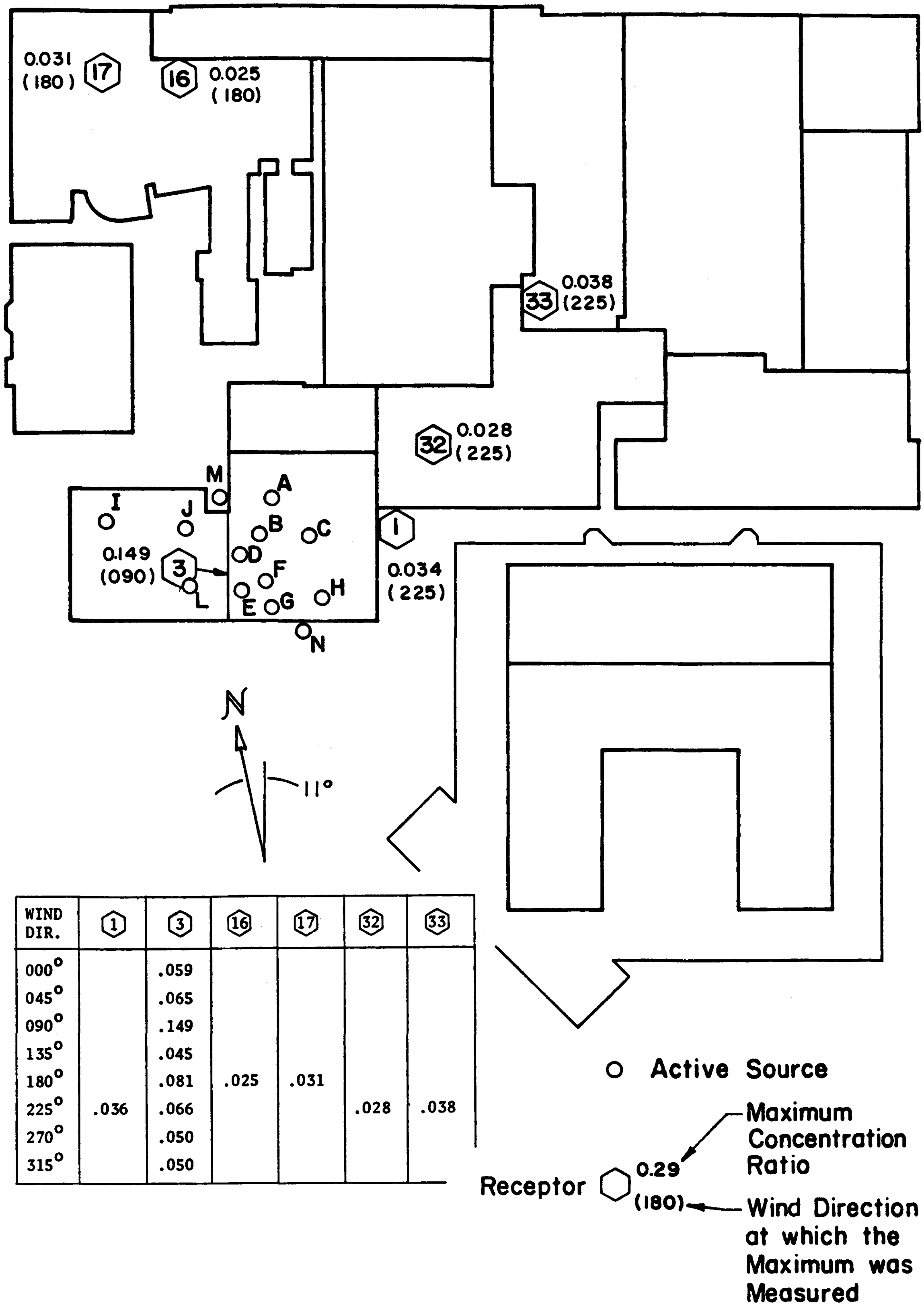
(a)



(b)

Figure 4-2. Photographs of (a) the Gas Sampling System, and (b) the HP Integrator and Chromatograph.

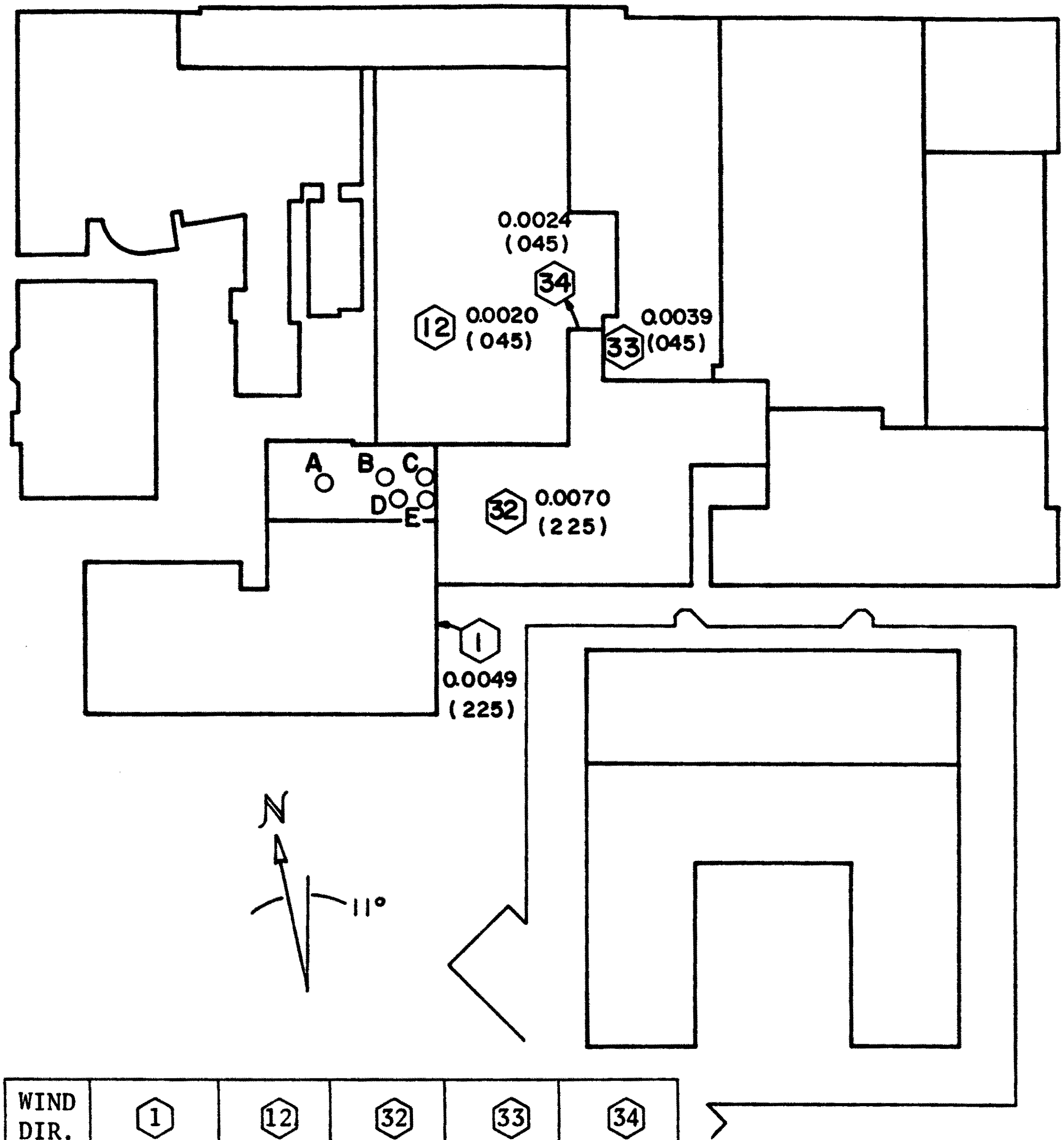
SOURCE GROUP 1



WIND DIR.	①	③	⑯	⑰	㉜	㉝
000°		.059				
045°		.065				
090°		.149				
135°		.045				
180°		.081	.025	.031		
225°	.036	.066			.028	.038
270°		.050				
315°		.050				

Figure 4-3a(1). Location and Identification of Receptors with Concentration Ratios ≧ .025 (2.5%) of Source Group 1

SOURCE GROUP 2



WIND DIR.	①	⑫	㉜	㉝	㉞
045°		.0020			
225°	.0049		.0070	.0039	.0024

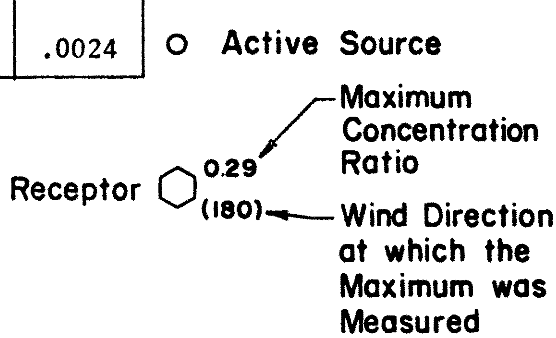
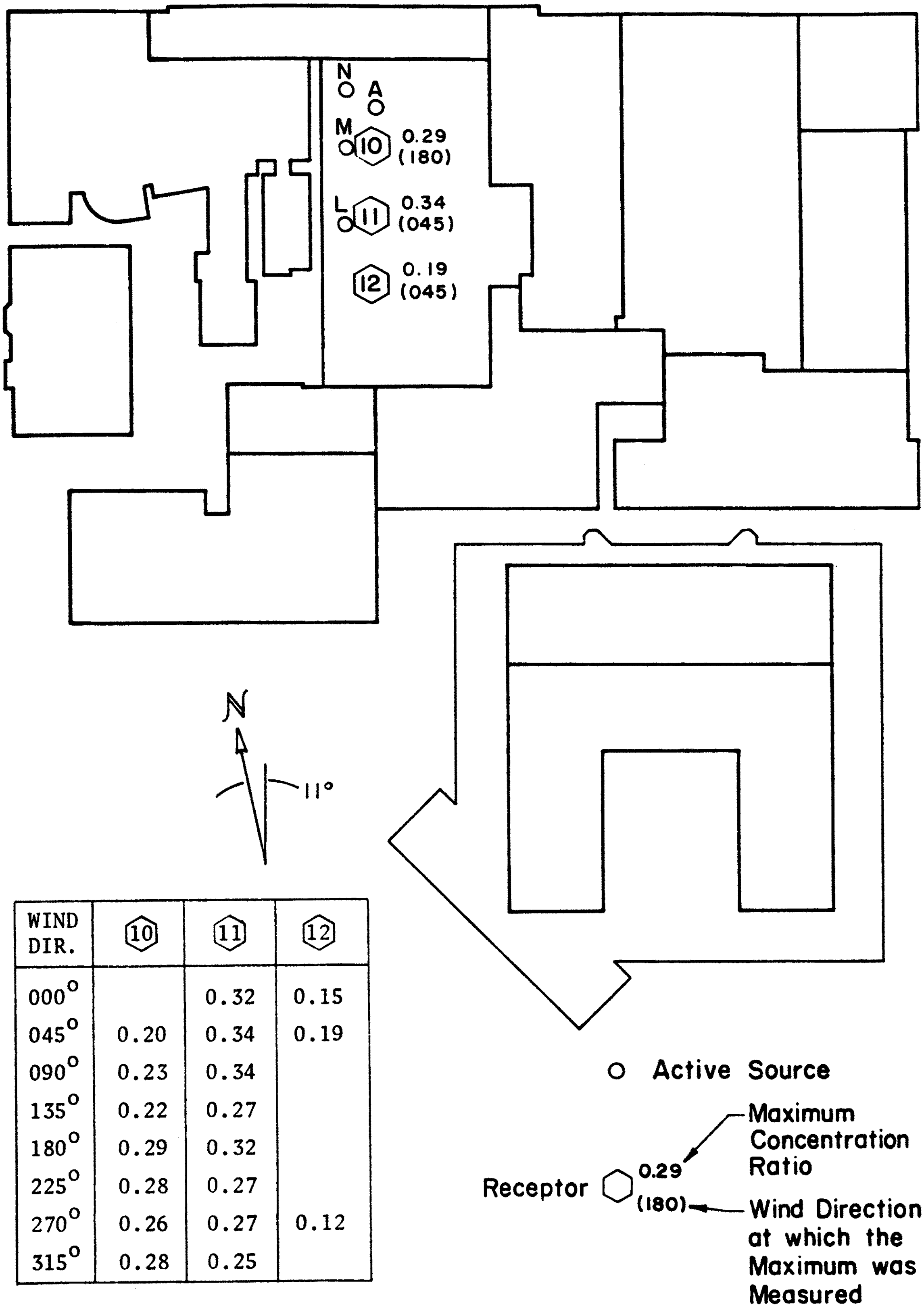


Figure 4-3a(2). Location and Identification of Receptors with Concentration Ratios ≧ 0.002 (.2%) of Source Group 2

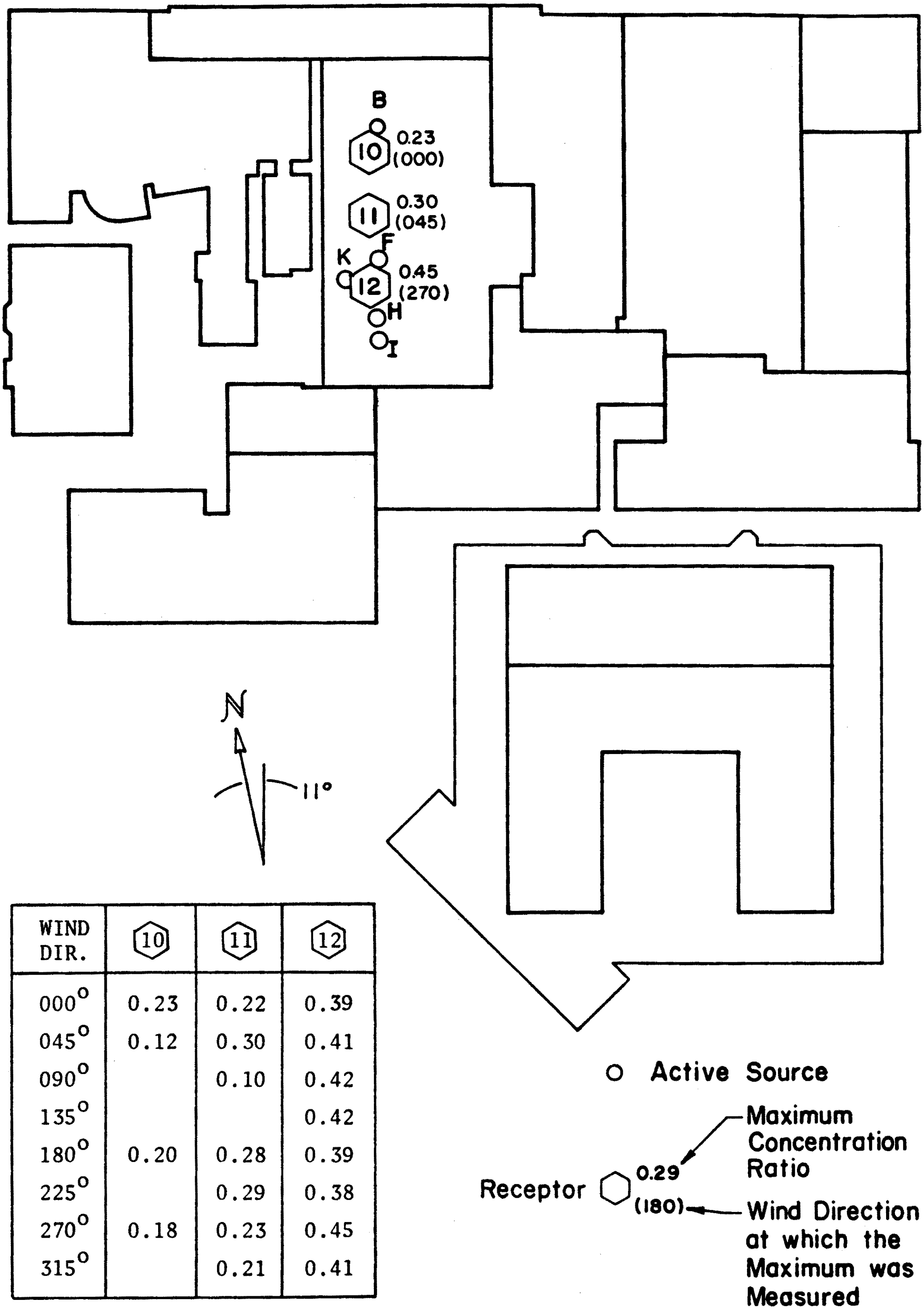
SOURCE GROUP 3-1



WIND DIR.	10	11	12
000°		0.32	0.15
045°	0.20	0.34	0.19
090°	0.23	0.34	
135°	0.22	0.27	
180°	0.29	0.32	
225°	0.28	0.27	
270°	0.26	0.27	0.12
315°	0.28	0.25	

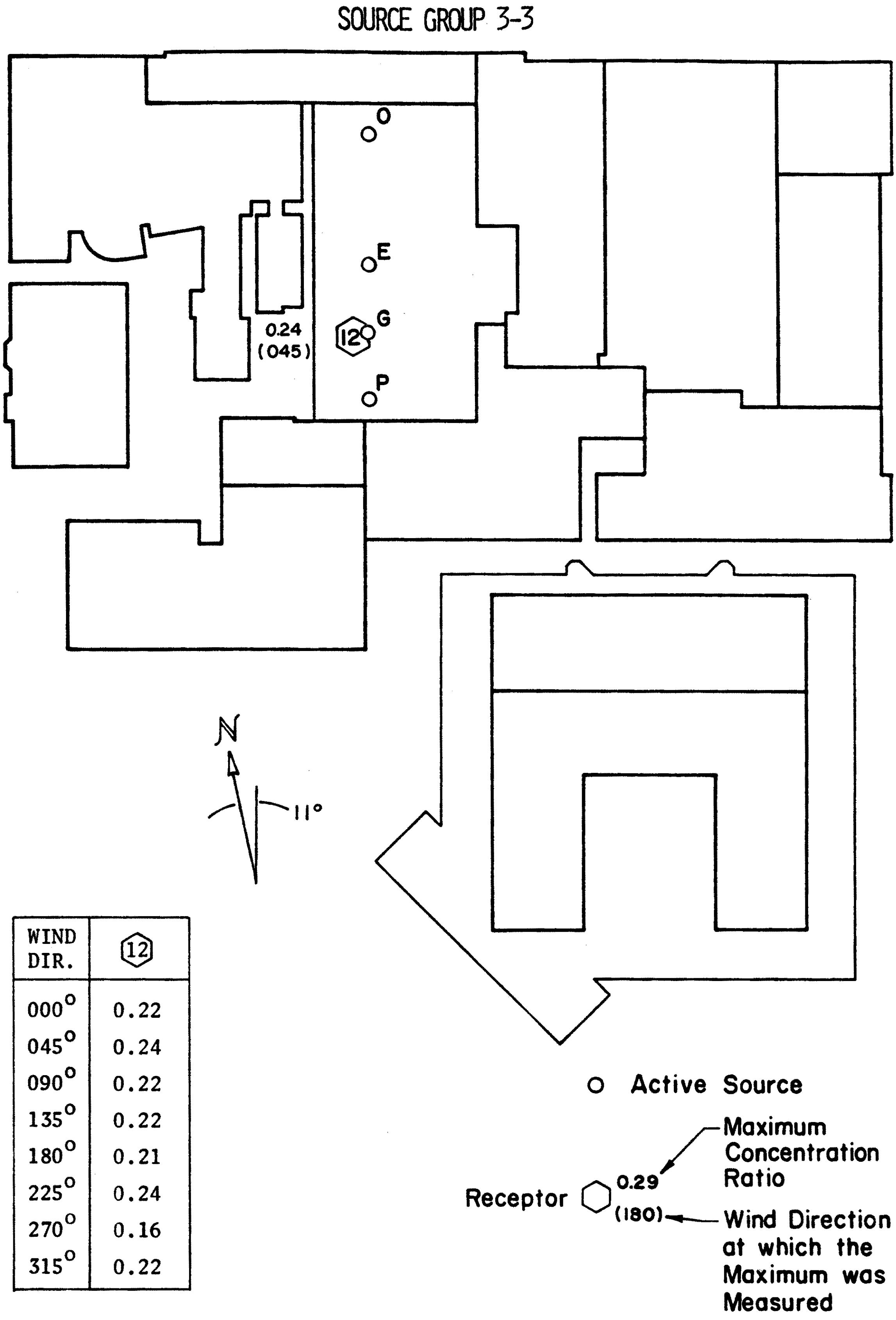
Figure 4-3b(1). Location and Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 3-1

SOURCE GROUP 3-2



WIND DIR.	10	11	12
000°	0.23	0.22	0.39
045°	0.12	0.30	0.41
090°		0.10	0.42
135°			0.42
180°	0.20	0.28	0.39
225°		0.29	0.38
270°	0.18	0.23	0.45
315°		0.21	0.41

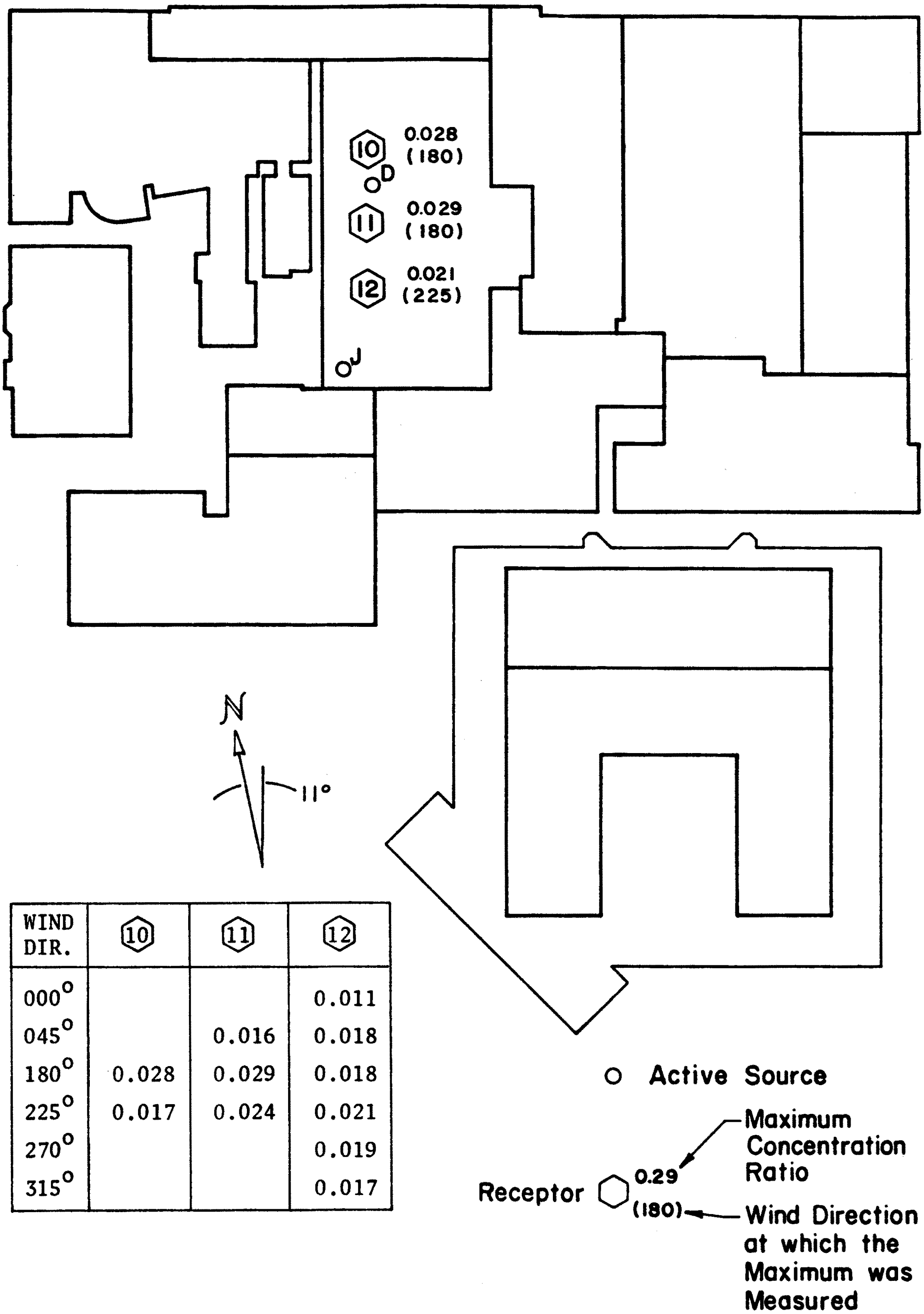
Figure 4-3b(2). Location and Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 3-2



WIND DIR.	12
000°	0.22
045°	0.24
090°	0.22
135°	0.22
180°	0.21
225°	0.24
270°	0.16
315°	0.22

Figure 4-3b(3). Location and Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 3-3

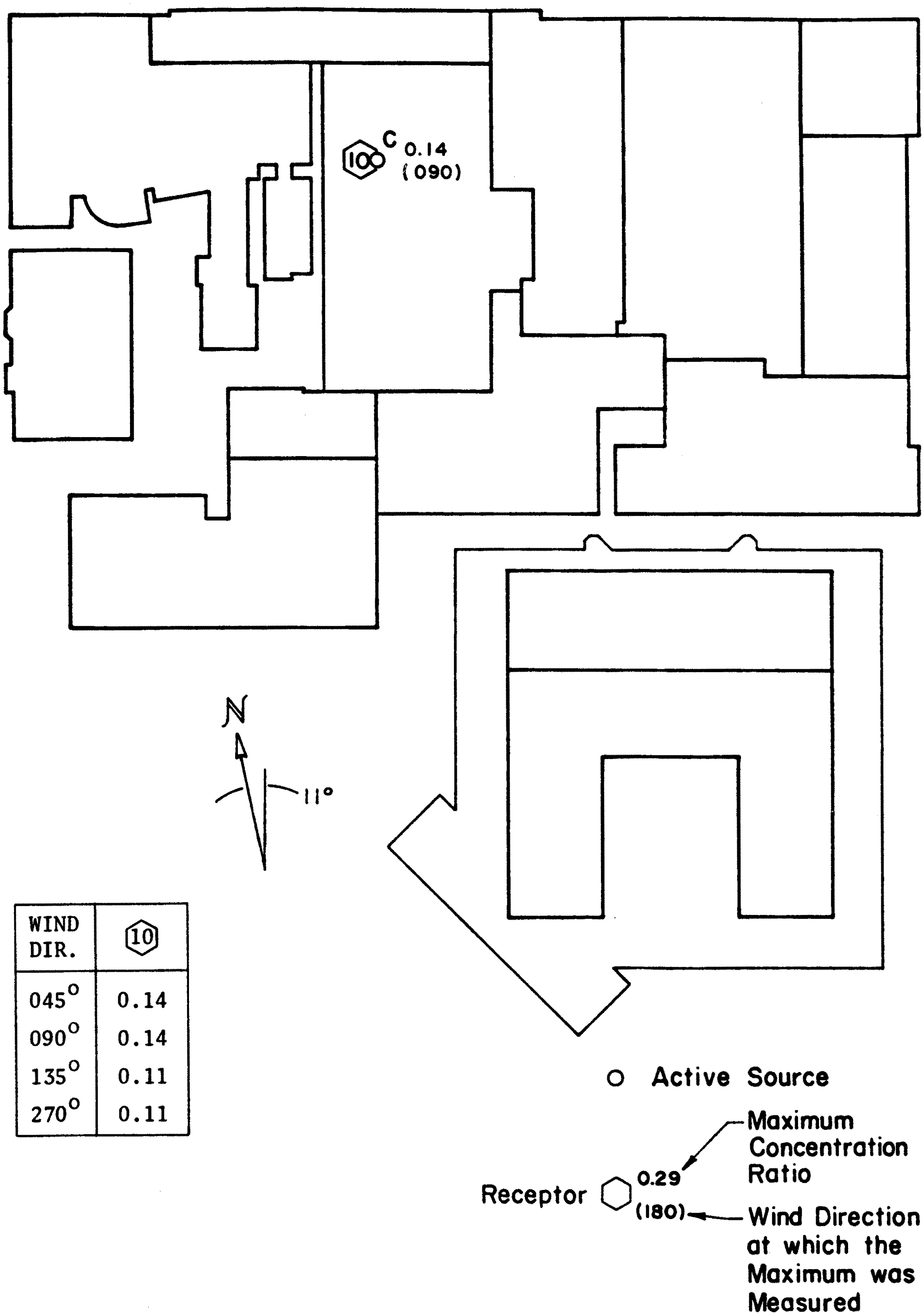
SOURCE GROUP 3-4



WIND DIR.	10	11	12
000°			0.011
045°		0.016	0.018
180°	0.028	0.029	0.018
225°	0.017	0.024	0.021
270°			0.019
315°			0.017

Figure 4-3b(4). Location and Identification of Receptors with Concentration Ratios ≧ 0.01 (1%) of Source Group 3-4

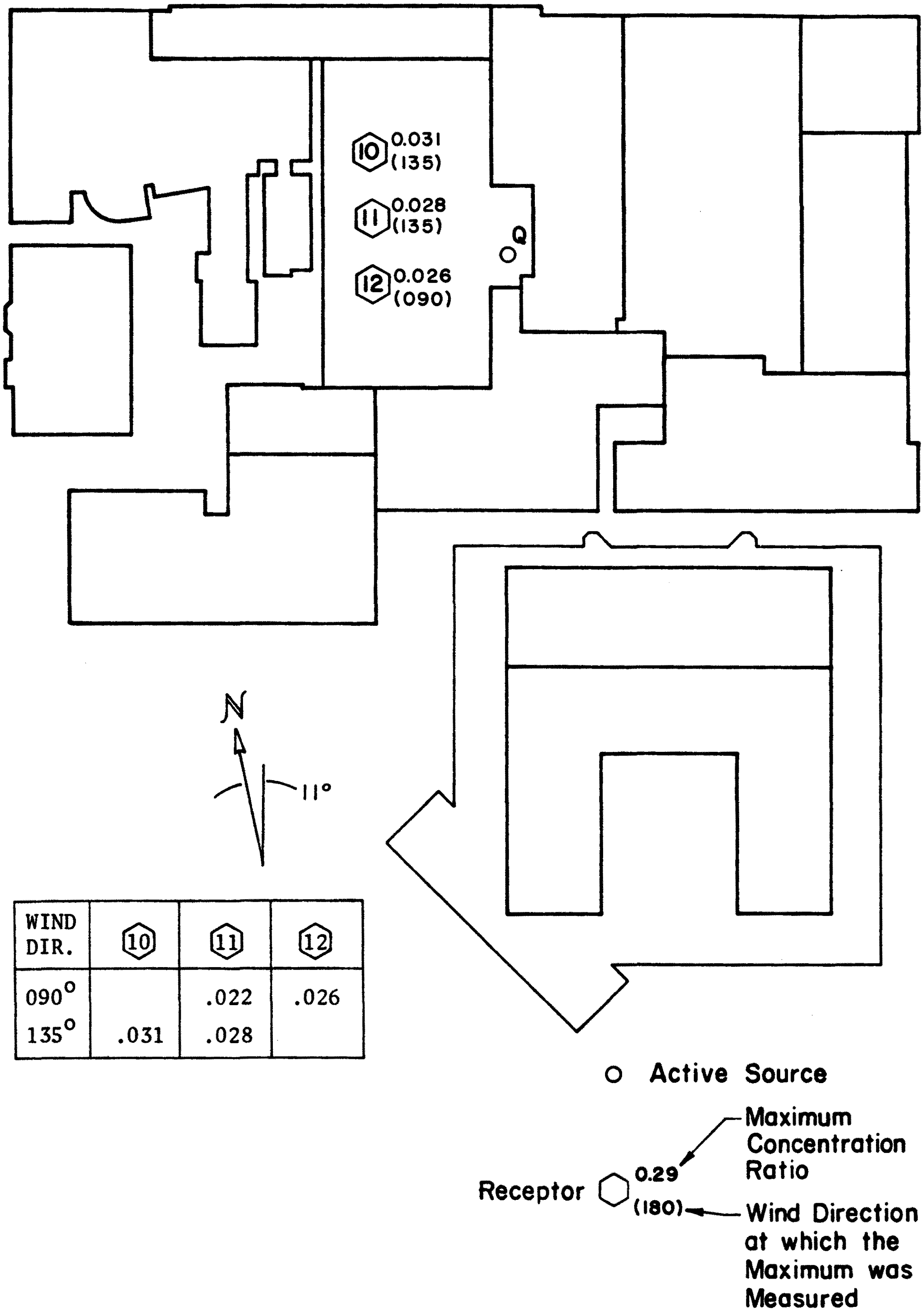
SOURCE GROUP 3-C



WIND DIR.	10
045°	0.14
090°	0.14
135°	0.11
270°	0.11

Figure 4-3b(5). Location and Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 3-C

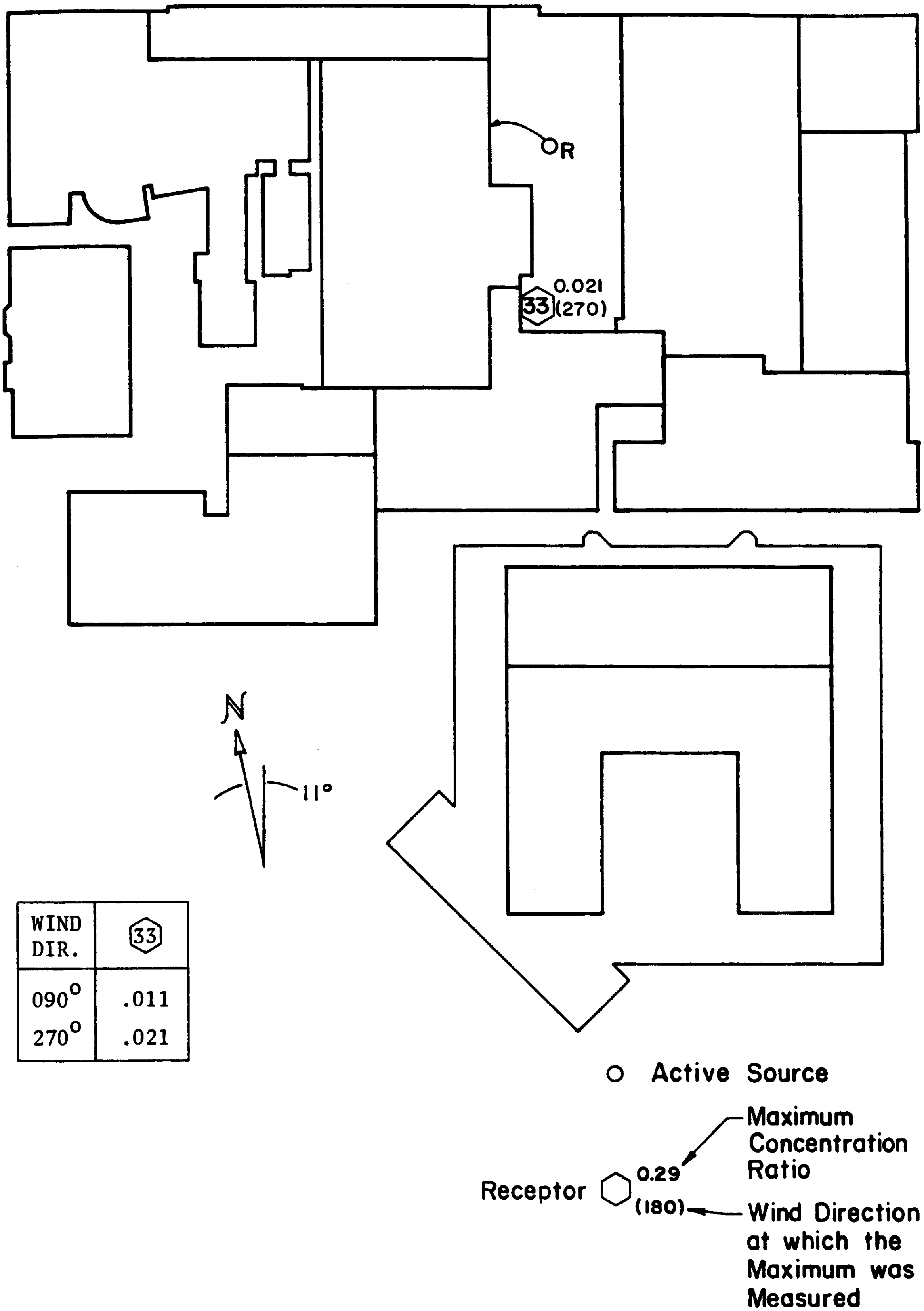
SOURCE GROUP 3-Q



WIND DIR.	10	11	12
090°		.022	.026
135°	.031	.028	

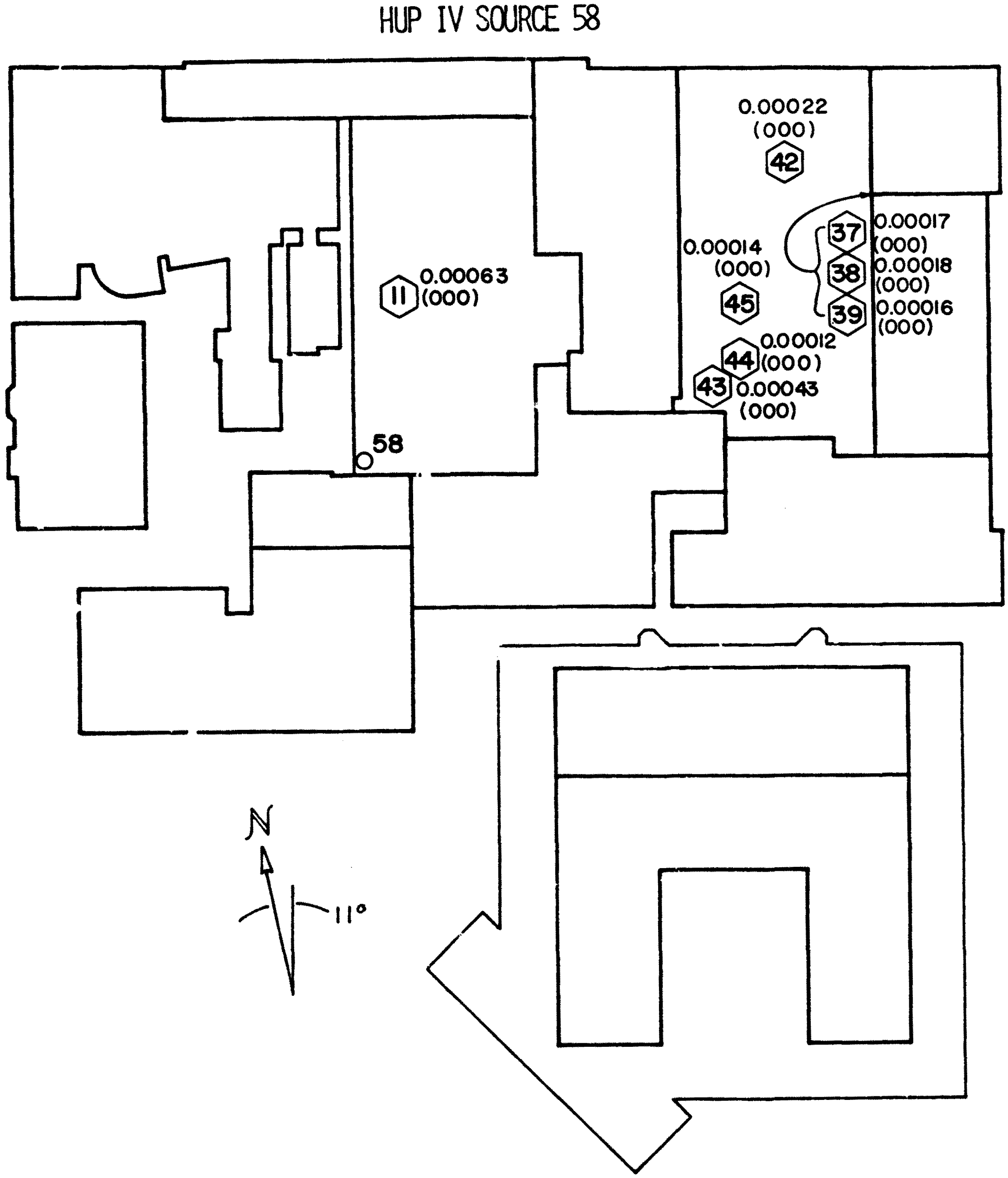
Figure 4-3b(6). Location and Identification of Receptors with Concentration Ratios ≧ 0.01 (1%) of Source Group 3-Q

SOURCE GROUP 3-R



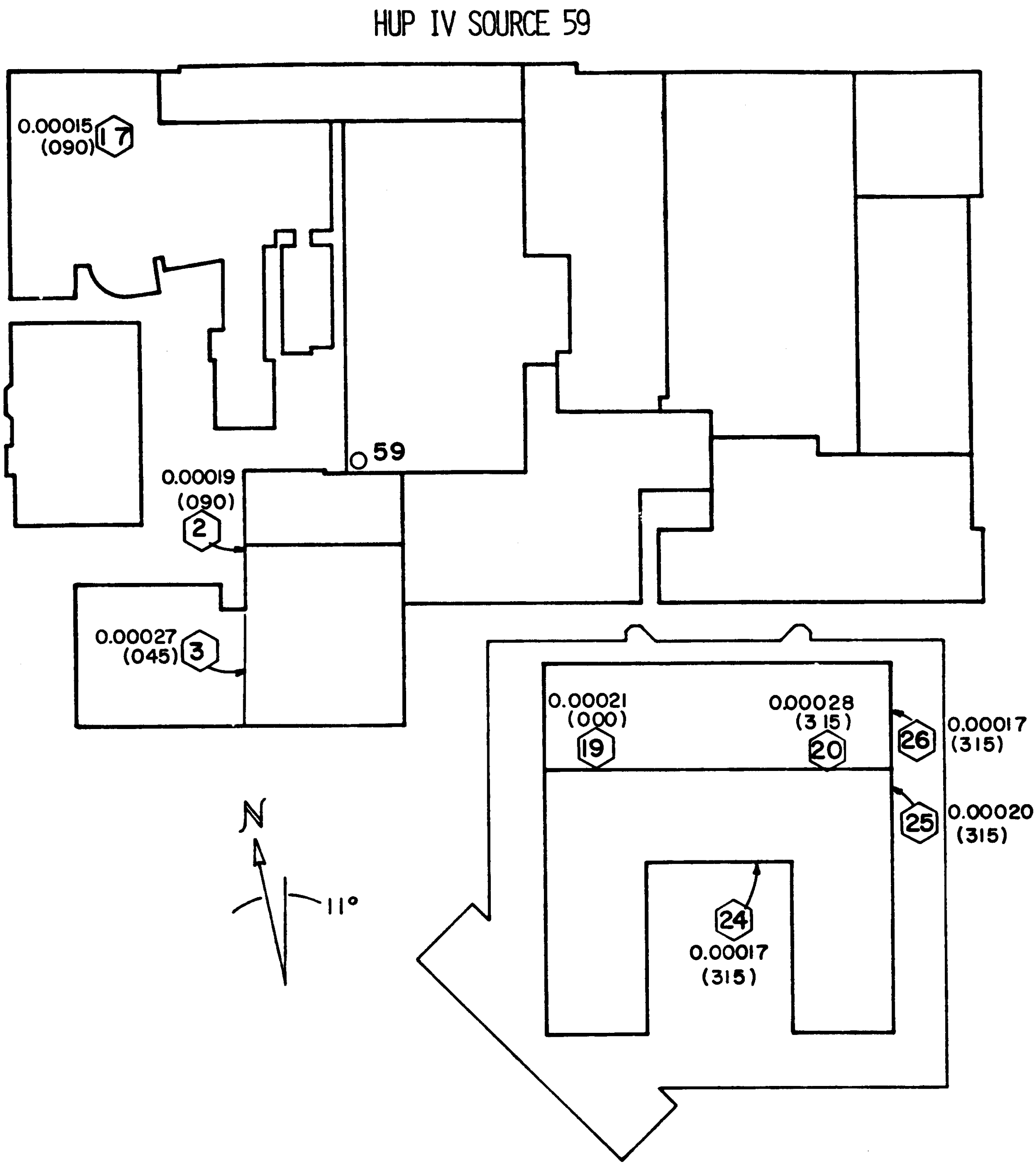
WIND DIR.	33
090°	.011
270°	.021

Figure 4-3b(7). Location and Identification of Receptors with Concentration Ratios ≧ 0.01 (1%) of Source Group 3-R



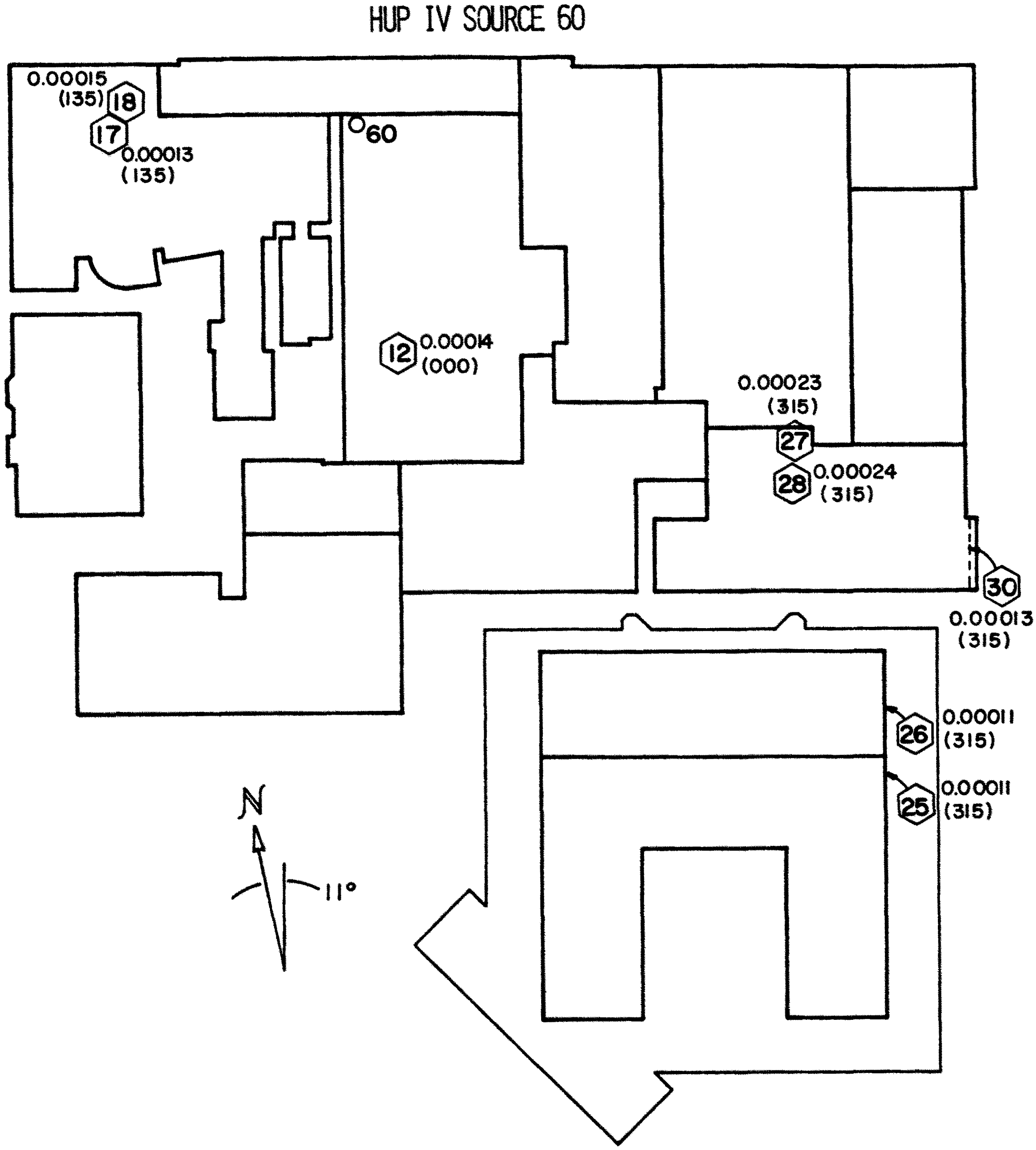
WIND DIR.	11	37	38	39	42	43	44	45
000^{o}	.00063	.00017	.00018	.00016	.00022	.00043	.00012	.00014

Figure 4-3b(8). Location and Identification of Receptors with Concentration Ratios ≧ 0.0001 (.01%) of Source Group 3-58



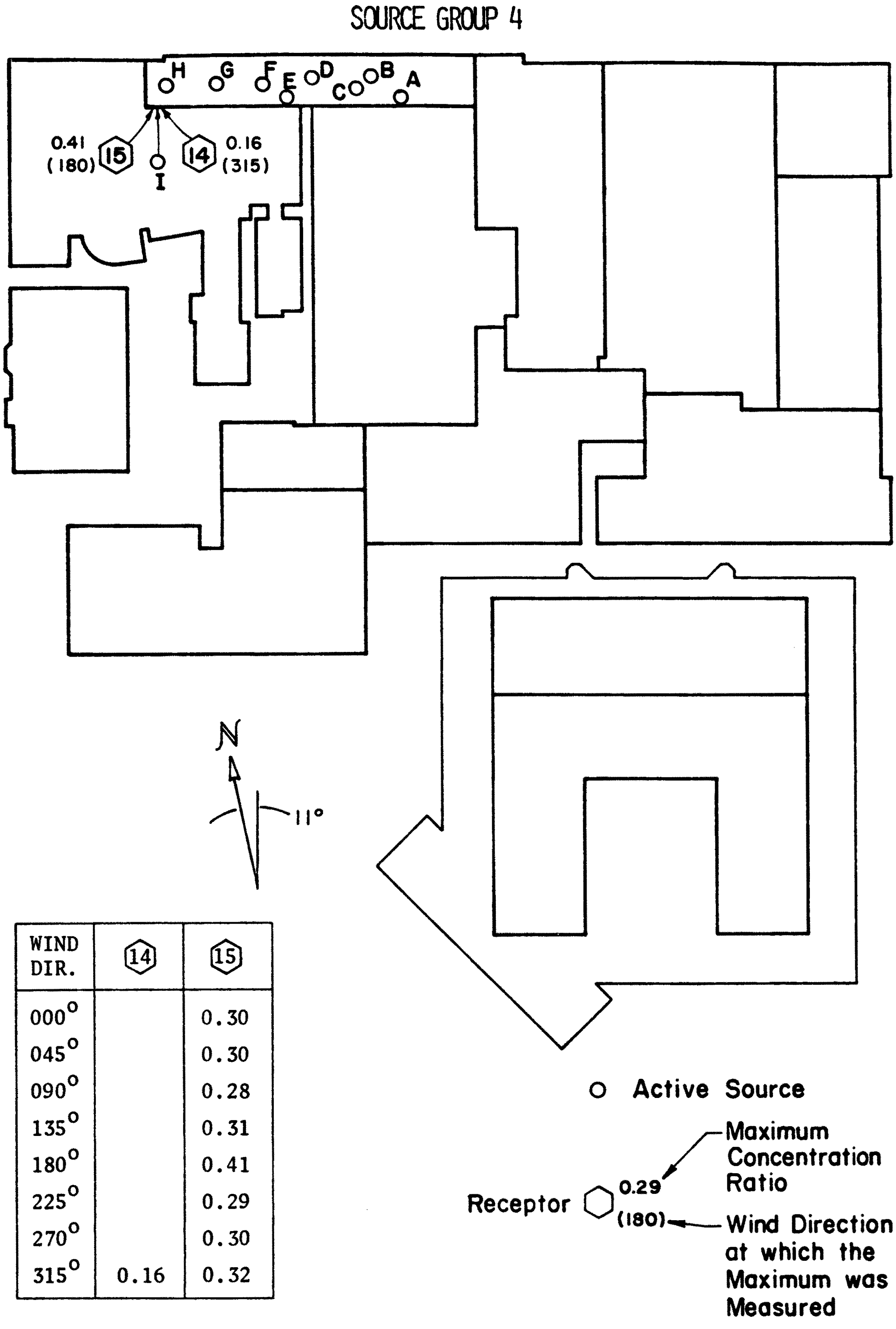
WIND DIR.	2	3	17	19	20	24	25	26
000°				.00021	.00023			
045°		.00027						
090°	.00019		.00015					
315°					.00028	.00017	.00020	.00017

Figure 4-3b(9). Location and Identification of Receptors with Concentration Ratios ≧ 0.00015 (.015%) of Source Group 3-59



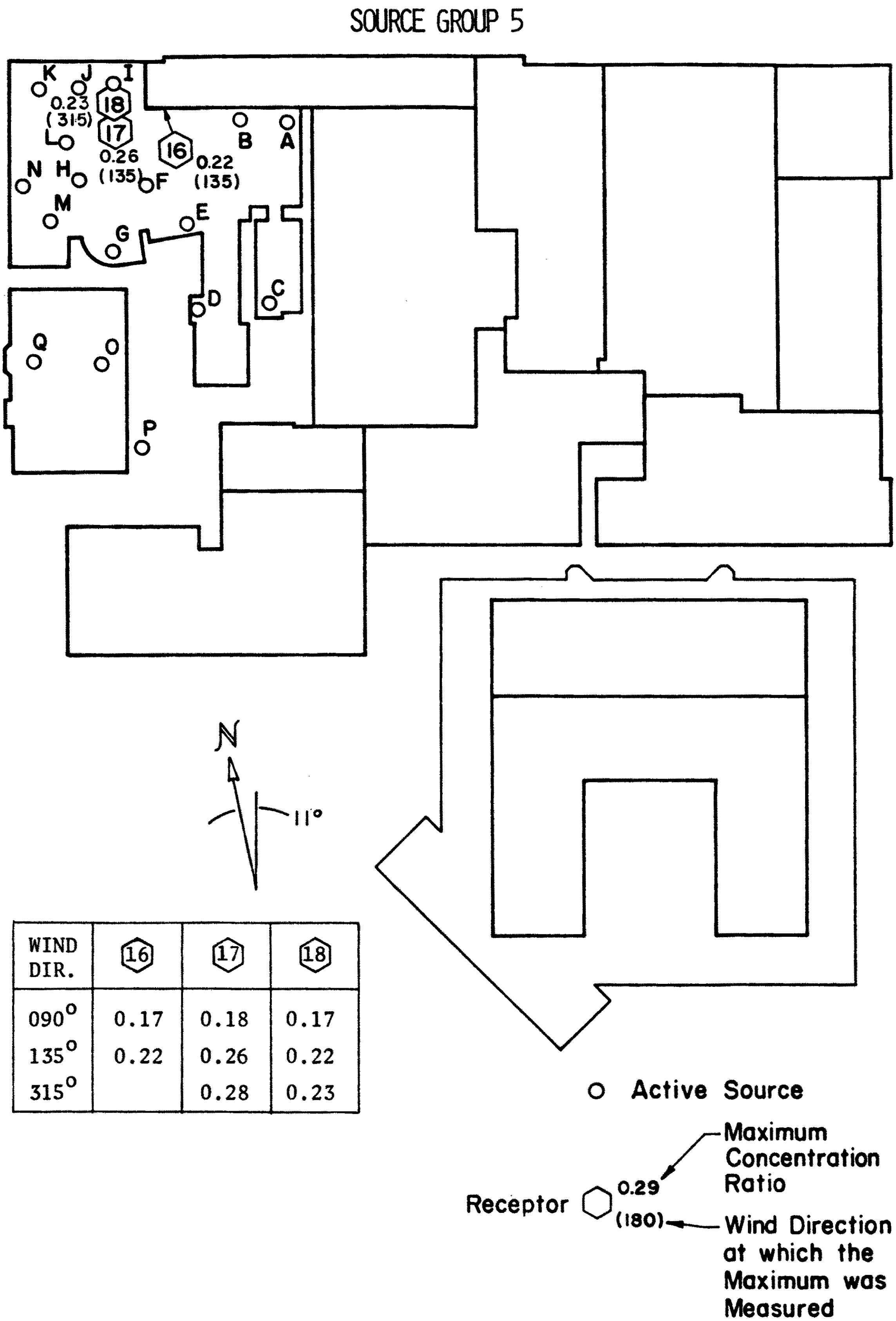
WIND DIR.	12	17	18	25	26	27	28	30
000°	.00014							
090°		.00011						
135°		.00013	.00015					
315°				.00011	.00011	.00023	.00024	.00013

Figure 4-3b(10). Location and Identification of Receptors with Concentration Ratios ≧ 0.0001 (.01%) of Source Group 3-60



WIND DIR.	(14)	(15)
000°		0.30
045°		0.30
090°		0.28
135°		0.31
180°		0.41
225°		0.29
270°		0.30
315°	0.16	0.32

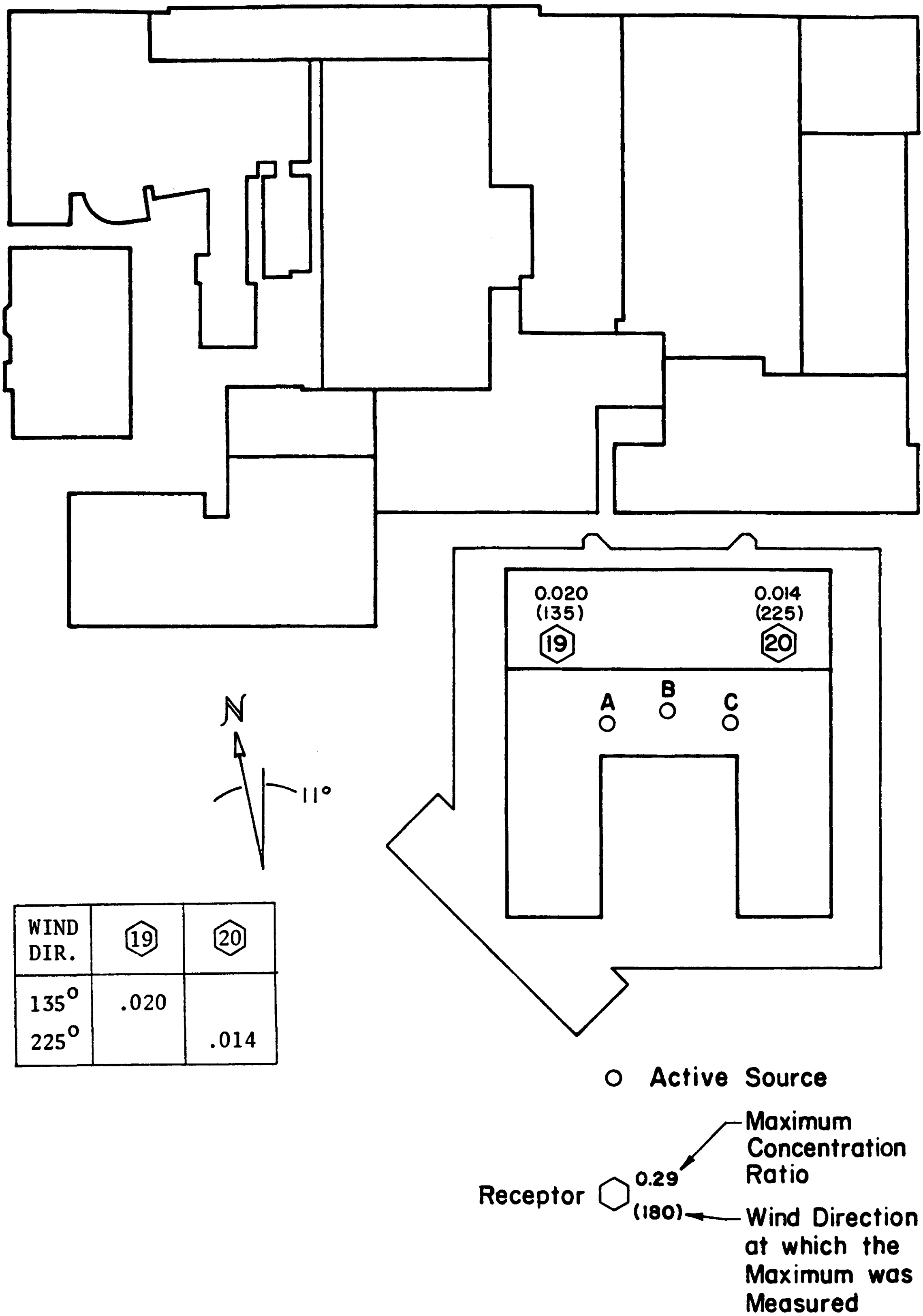
Figure 4-3c. Location/Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 4



WIND DIR.	16	17	18
090°	0.17	0.18	0.17
135°	0.22	0.26	0.22
315°		0.28	0.23

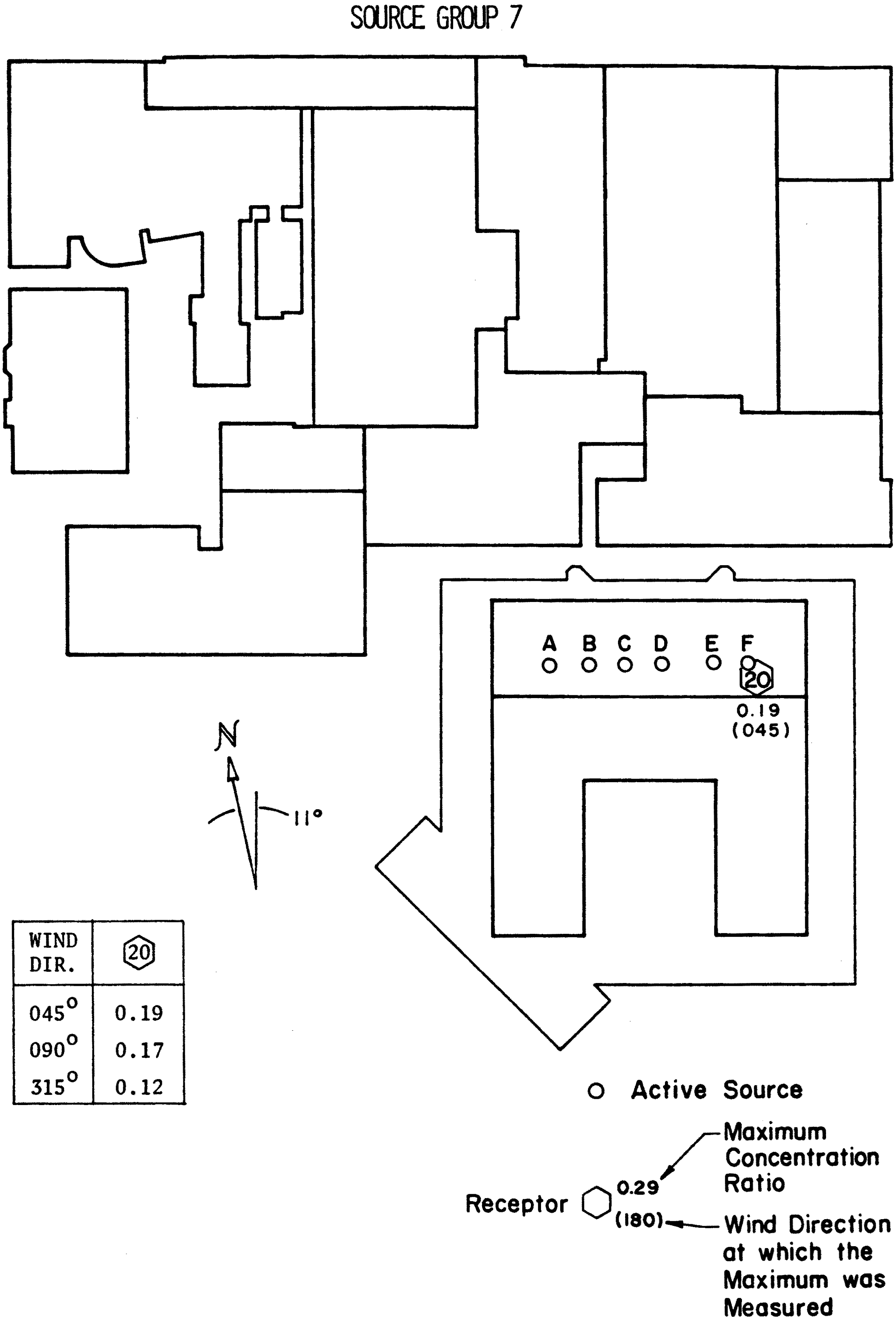
Figure 4-3d. Location/Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 5

SOURCE GROUP 6



WIND DIR.	19	20
135°	.020	
225°		.014

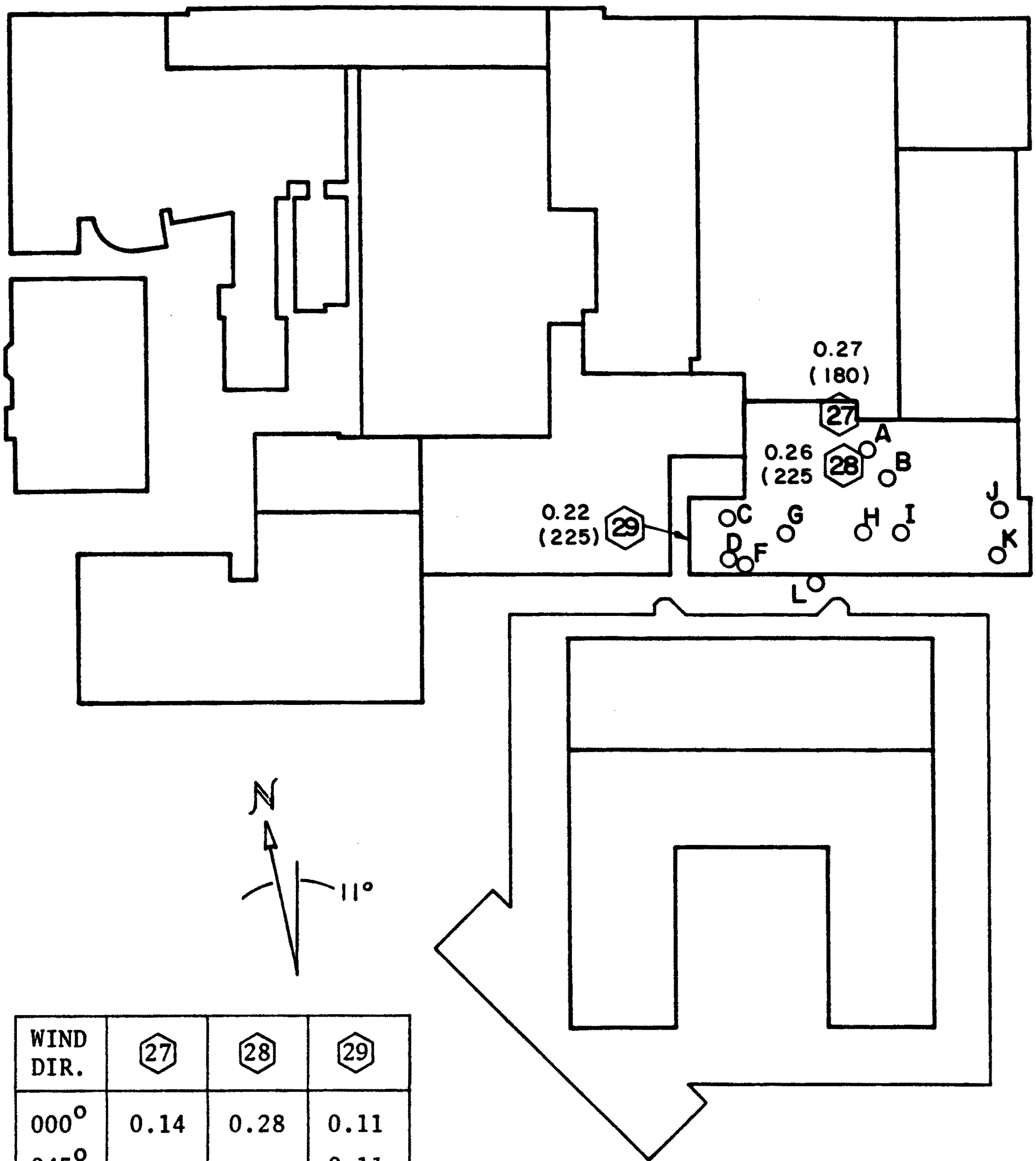
Figure 4-3e(1). Location/Identification of Receptors with Concentration Ratios ≧ 0.01 (1%) of Source Group 6



WIND DIR.	20
045°	0.19
090°	0.17
315°	0.12

Figure 4-3e(2). Location/Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 7

SOURCE GROUP 8



WIND DIR.	27	28	29
000°	0.14	0.28	0.11
045°			0.11
090°	0.16	0.20	
135°	0.23	0.24	0.11
180°	0.27	0.25	0.11
225°	0.23	0.26	0.22
270°	0.27	0.25	
315°	0.22	0.21	

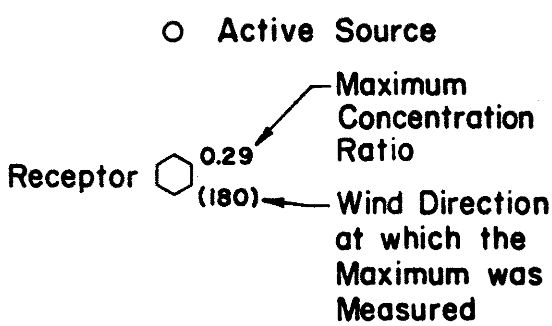
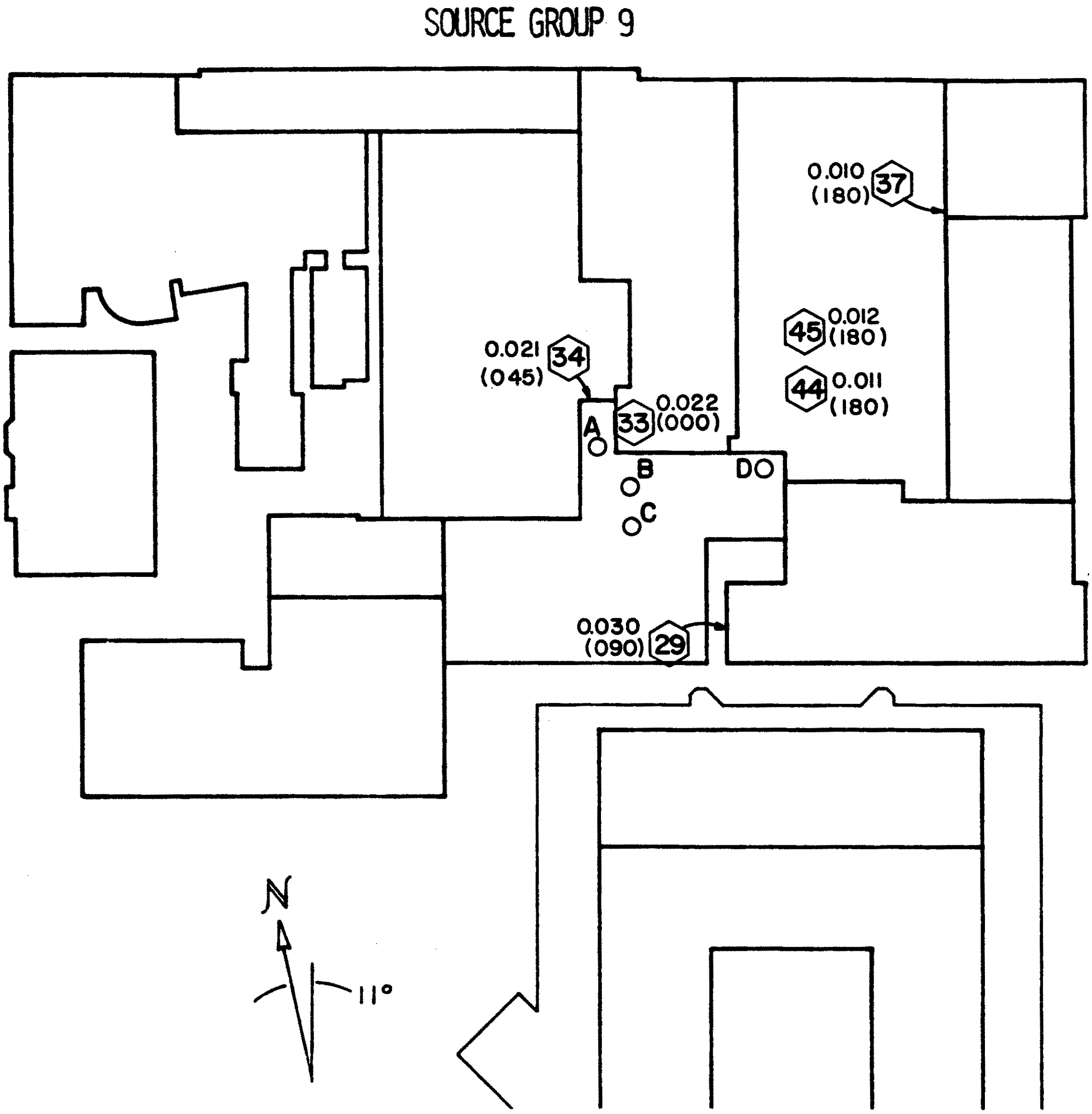


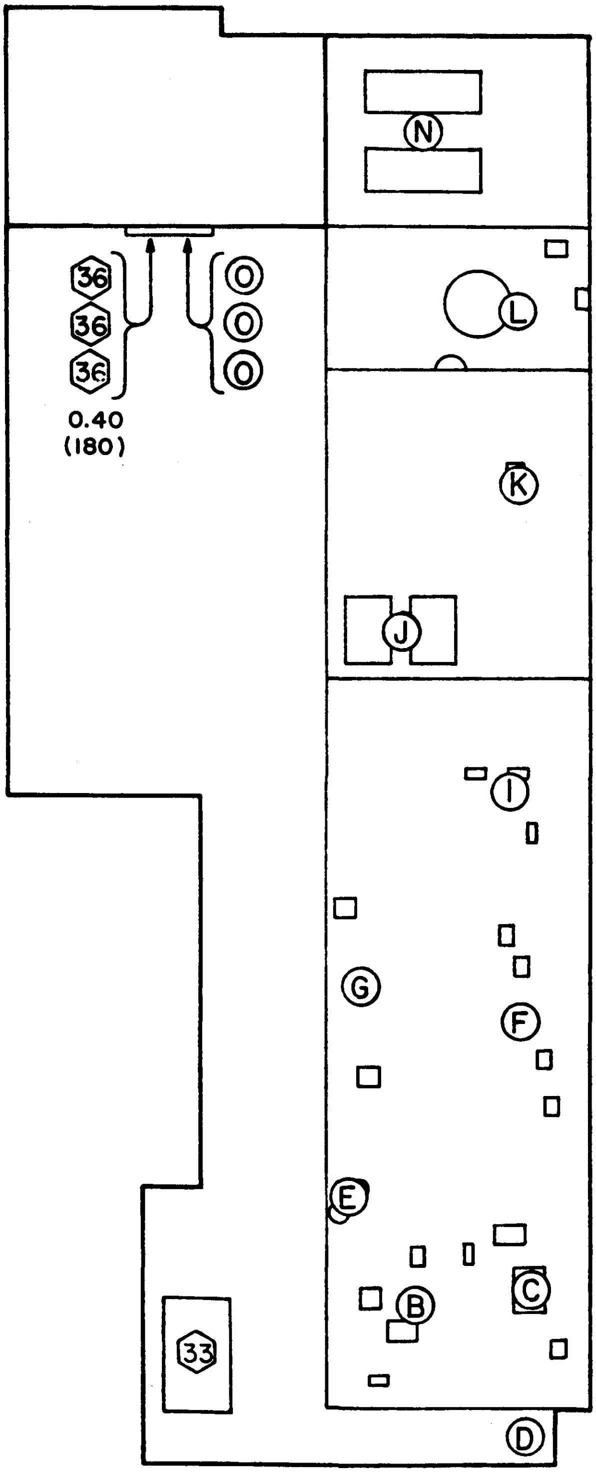
Figure 4-3f. Location/Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 8

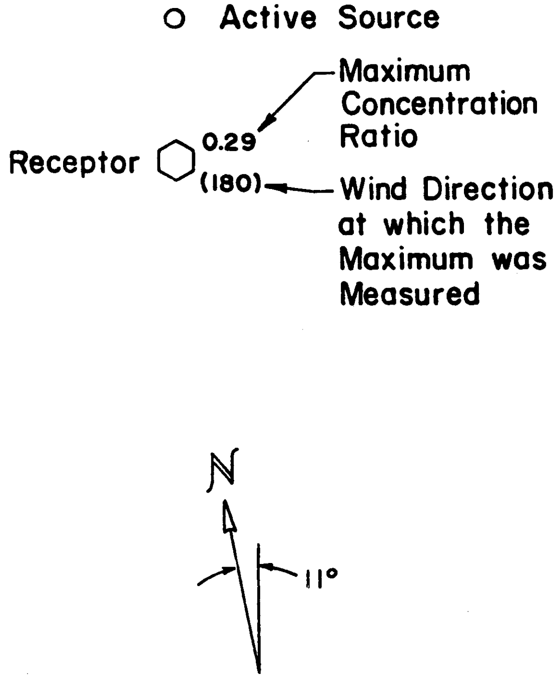


WIND DIR.	29	33	34	37	44	45
000°	.013	.022	.015			
045°	.013	.019	.021			
090°	.030					
135°						.011
180°				.010	.011	.012
225°		.011				
270°			.019			
315°		.017				

Figure 4-3g. Location/Identification of Receptors with Concentration Ratios ≧ 0.01 (1%) of Source Group 9

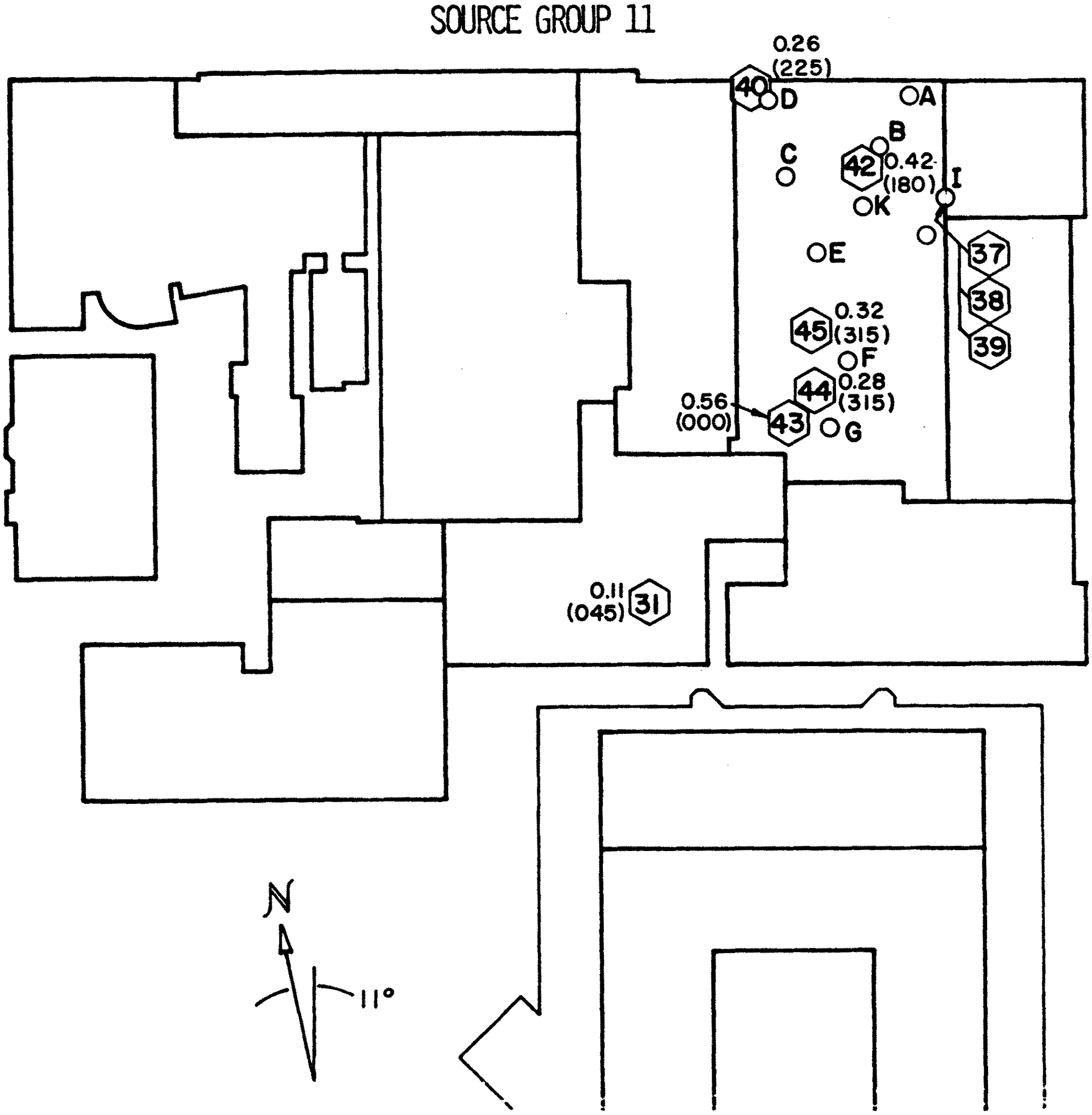
SOURCE GROUP 10





WIND DIR.	36
045°	0.10
090°	0.34
180°	0.40
225°	0.26
270°	0.30
315°	0.33

Figure 4-3h. Location/Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 10



WIND DIR.	31	37	38	39	40	42	43	44	45
000°		0.22	0.28	0.26		0.40	0.56	0.25	0.30
045°	0.11	0.26	0.33	0.32		0.37	0.52	0.18	0.20
090°		0.28	0.32	0.28	0.13	0.38	0.53	0.12	0.13
135°		0.21	0.33	0.30	0.11	0.41	0.55	0.16	
180°		0.23	0.26	0.25	0.17	0.42	0.55	0.23	0.22
225°		0.25	0.27	0.25	0.26	0.37	0.56	0.18	0.19
270°		0.26	0.28	0.27	0.17	0.35	0.55	0.22	0.23
315°		0.17	0.23	0.27	0.15	0.39	0.55	0.28	0.32

Figure 4-3i(1). Location/Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 11

SOURCE GROUP 11

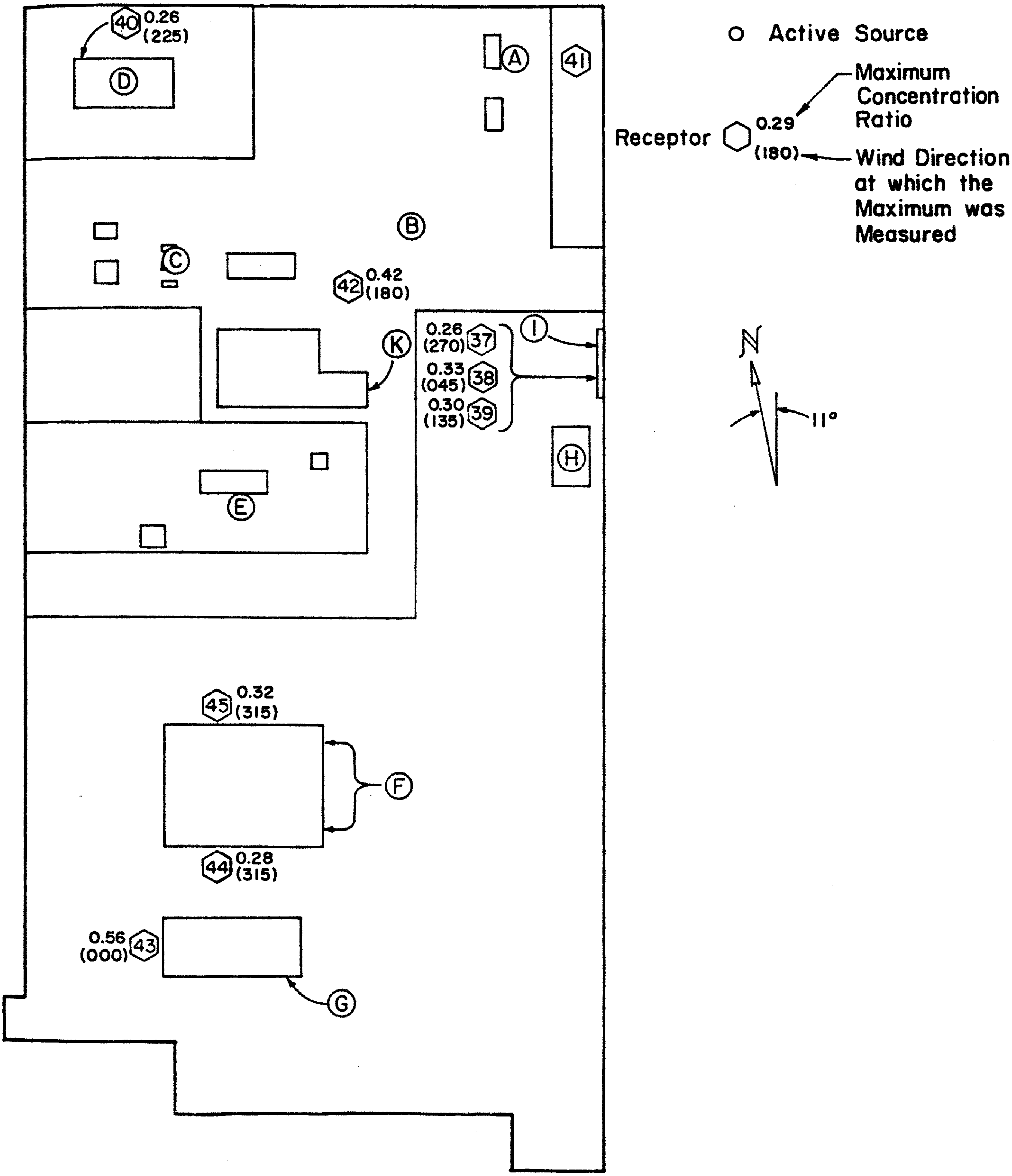
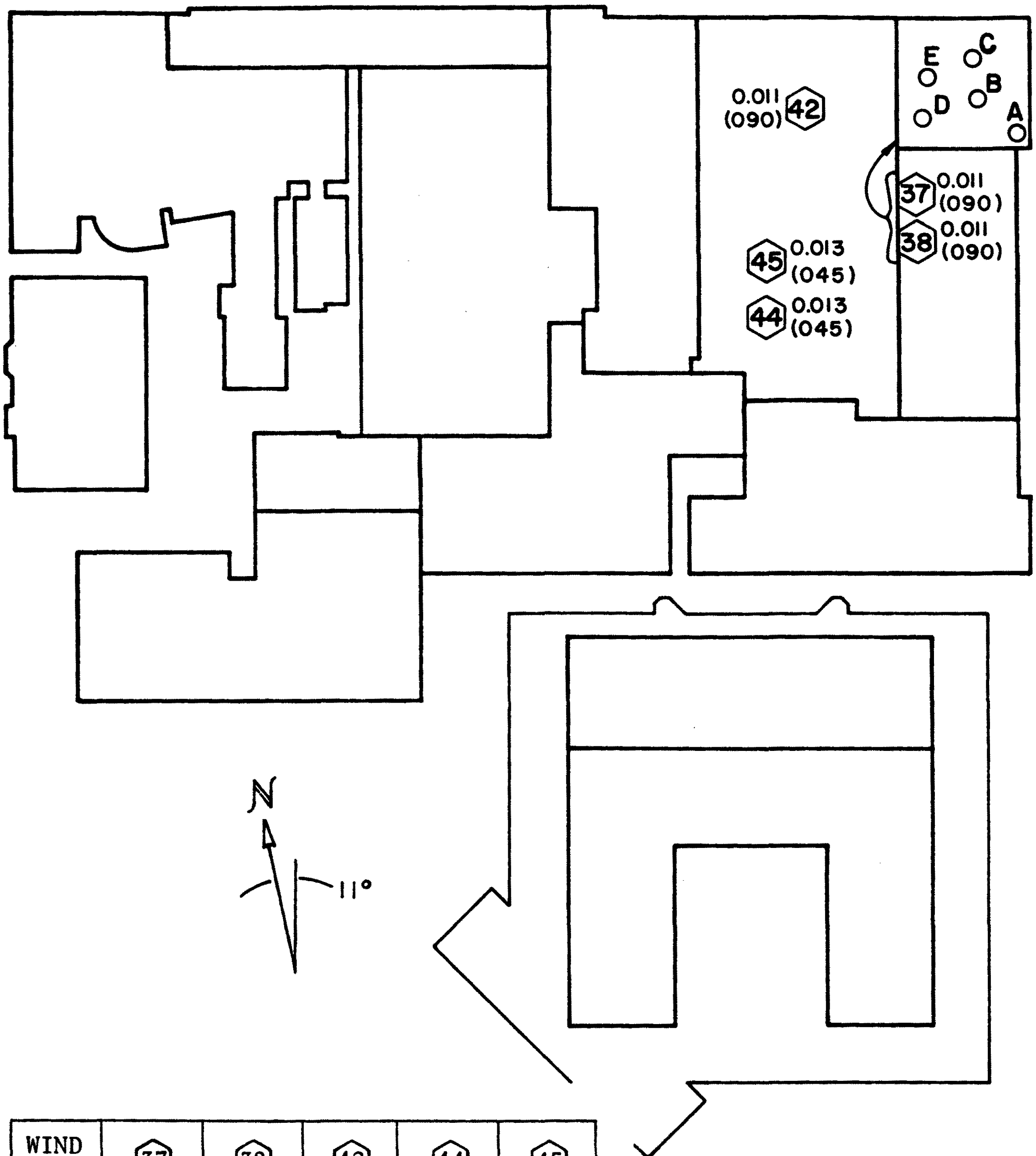


Figure 4-3i(2). Expanded View to Locate/Identify Maximum Concentration Ratios Measured at Receptors with Source Group 11 Active

SOURCE GROUP 12



WIND DIR.	37	38	42	44	45
045°		.010		.013	.013
090°	.011	.011	.011	.010	

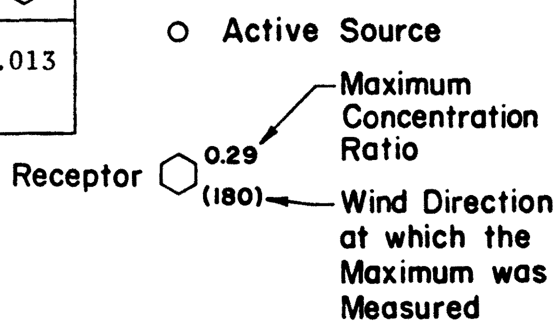
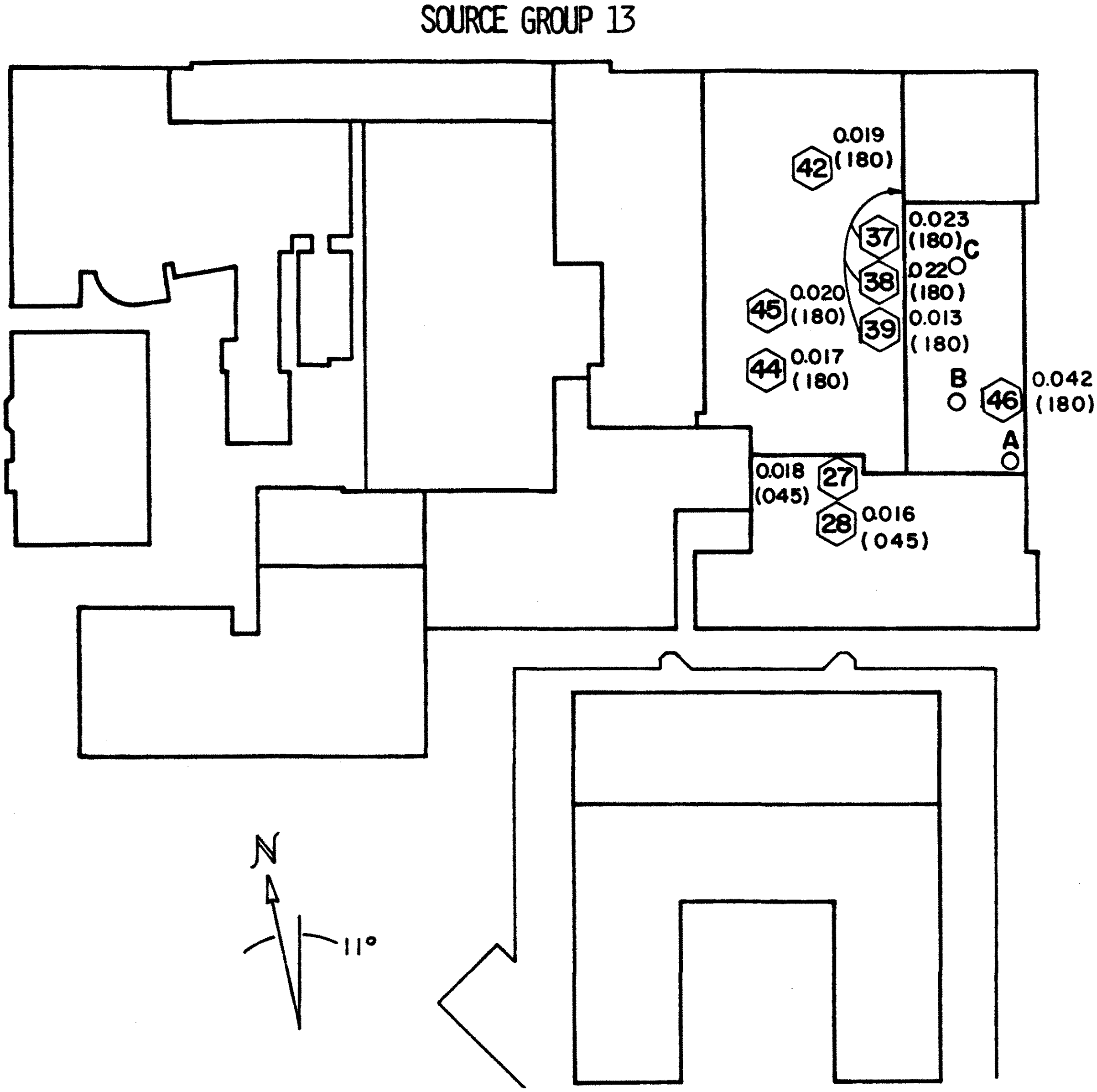


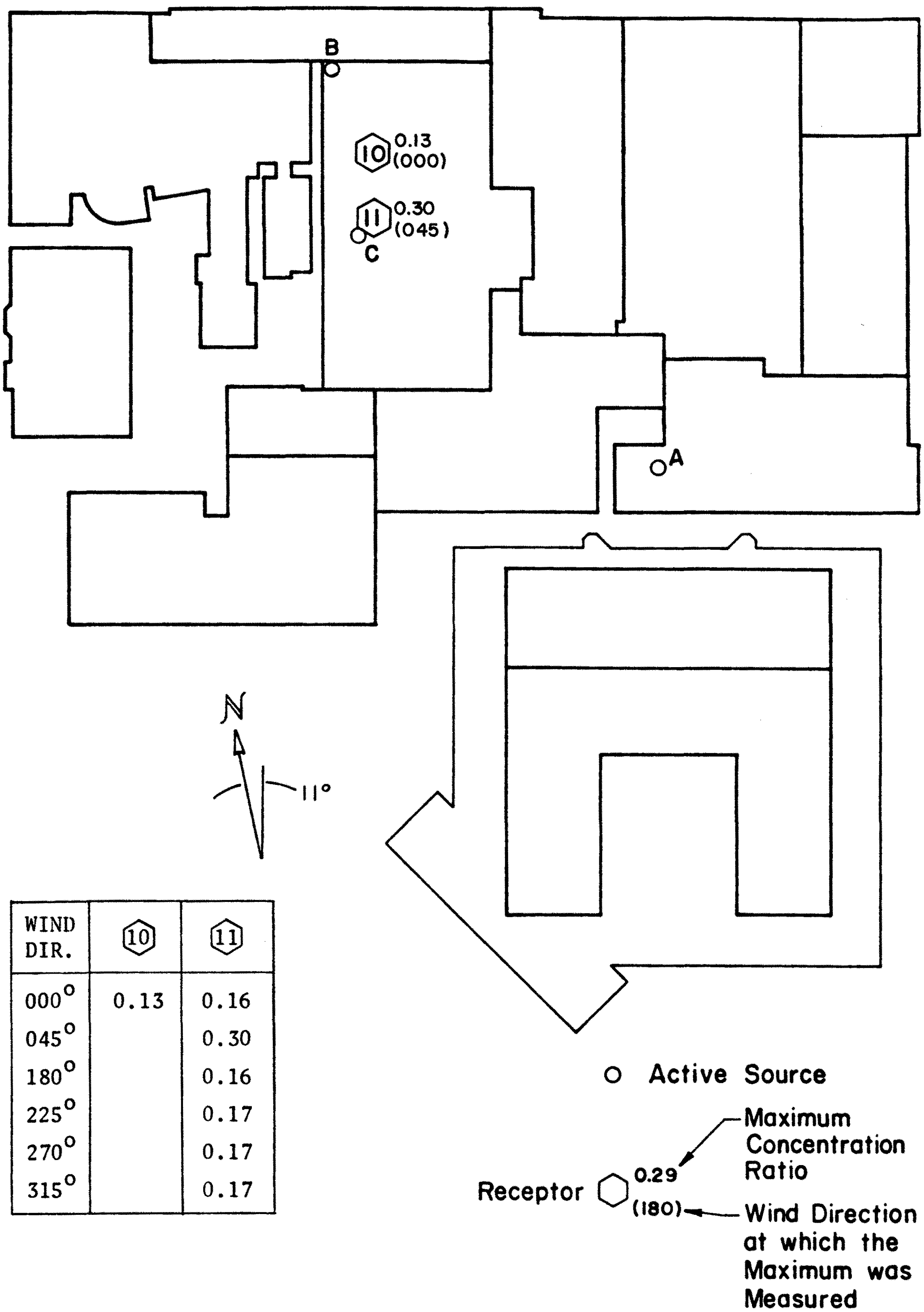
Figure 4-3j(1). Location/Identification of Receptors with Concentration Ratios ≧ 0.01 (1%) of Source Group 12



WIND DIR.	27	28	37	38	39	42	44	45	46
000°									.014
045°	.018	.016							
180°			.023	.022	.013	.019	.017	.020	.042
225°									.037
270°									.020
315°									.012

Figure 4-3j(2). Location/Identification of Receptors with Concentration Ratios ≧ 0.01 (1%) of Source Group 13

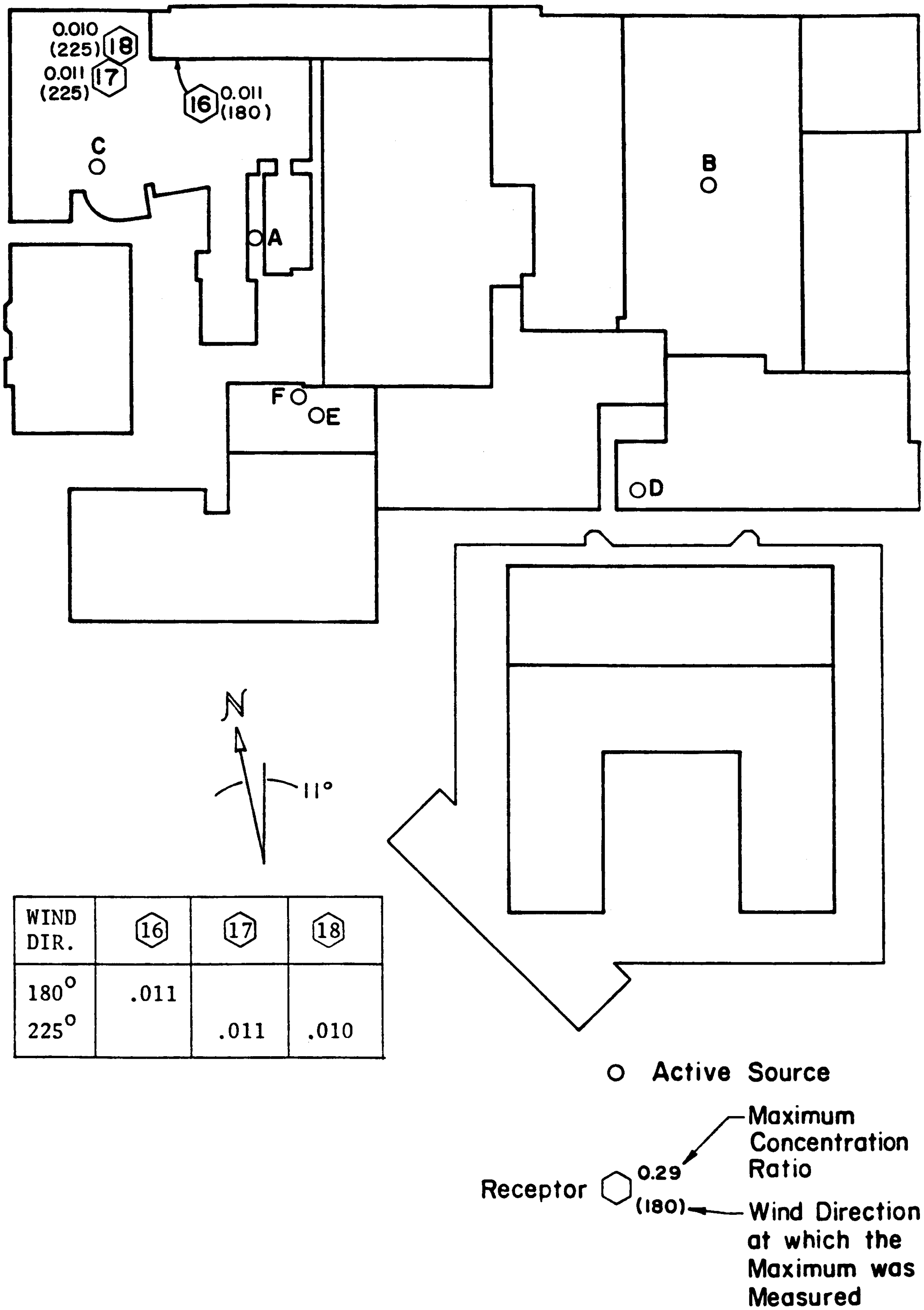
SOURCE GROUP 14



WIND DIR.	10	11
000°	0.13	0.16
045°		0.30
180°		0.16
225°		0.17
270°		0.17
315°		0.17

Figure 4-3k. Location/Identification of Receptors with Concentration Ratios ≧ 0.1 (10%) of Source Group 14

SOURCE GROUP 15



WIND DIR.	16	17	18
180°	.011		
225°		.011	.010

Figure 4-3ℓ. Location/Identification of Receptors with Concentration Ratios ≧ 0.01 (1%) of Source Group 15

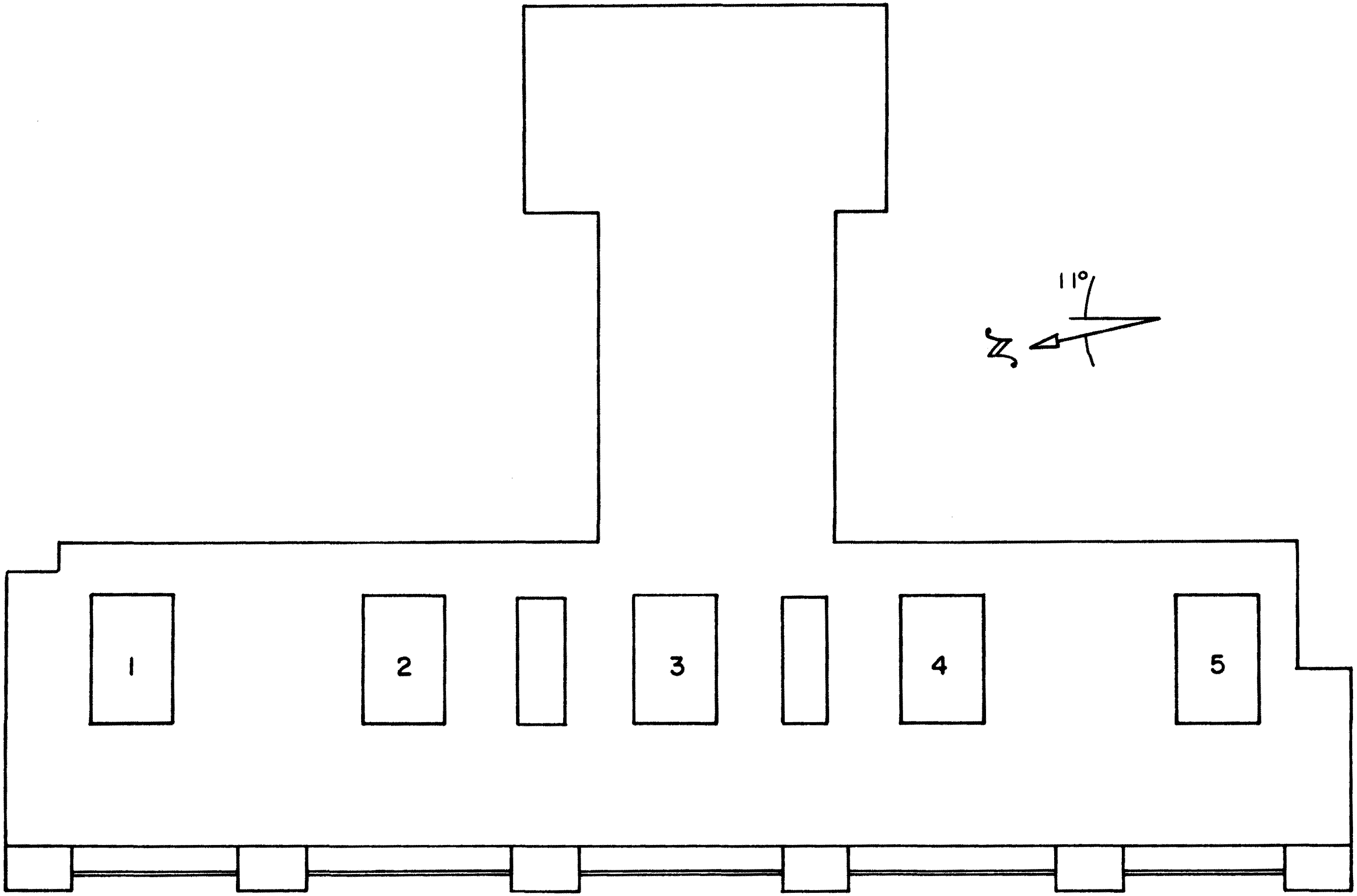


Figure 4-4a. HUP IV Model Roof Configuration Prior to October 1984 Modification

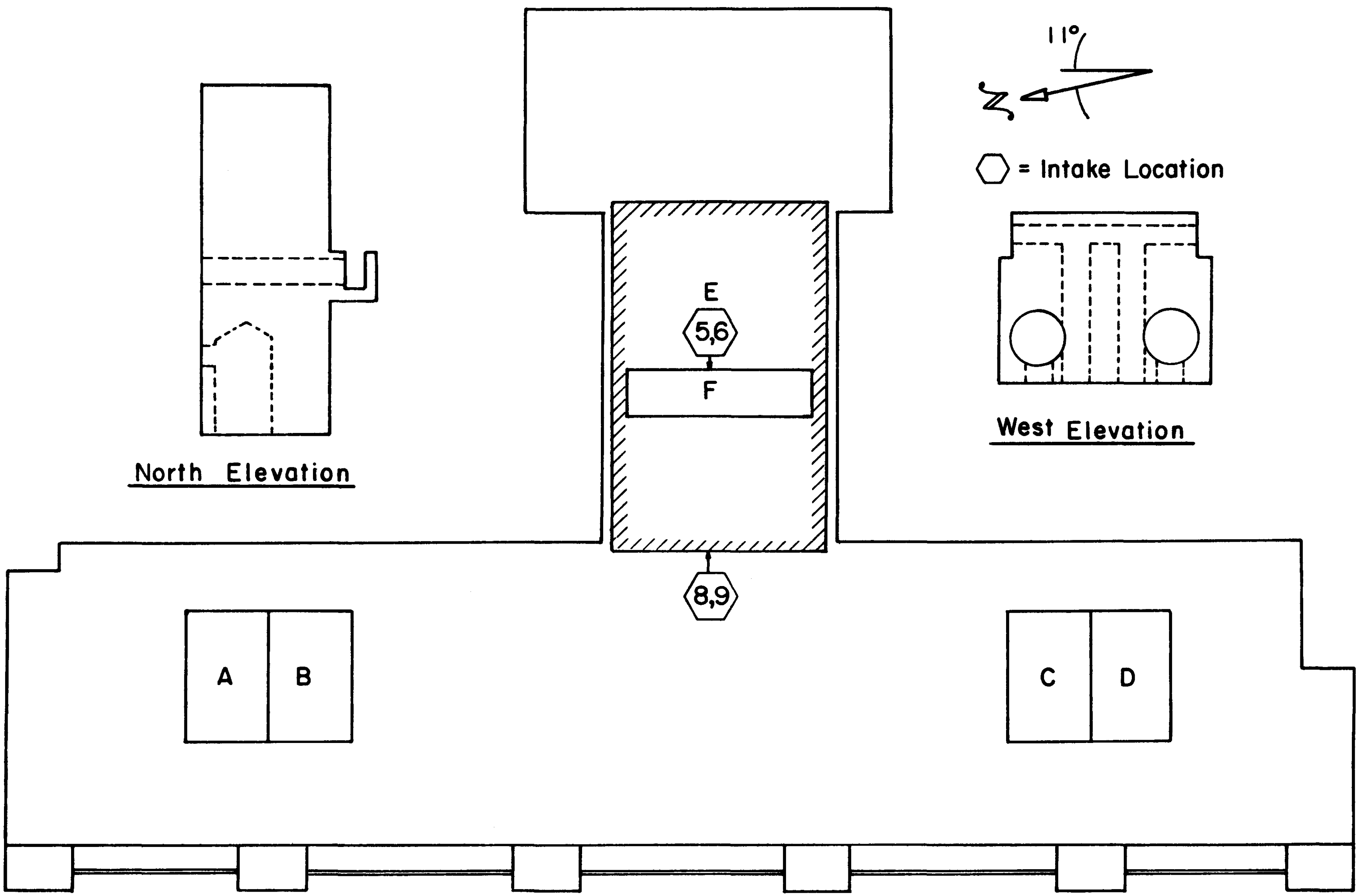


Figure 4-4b. HUP IV Model Roof Configuration Subsequent to October 1984 Modification

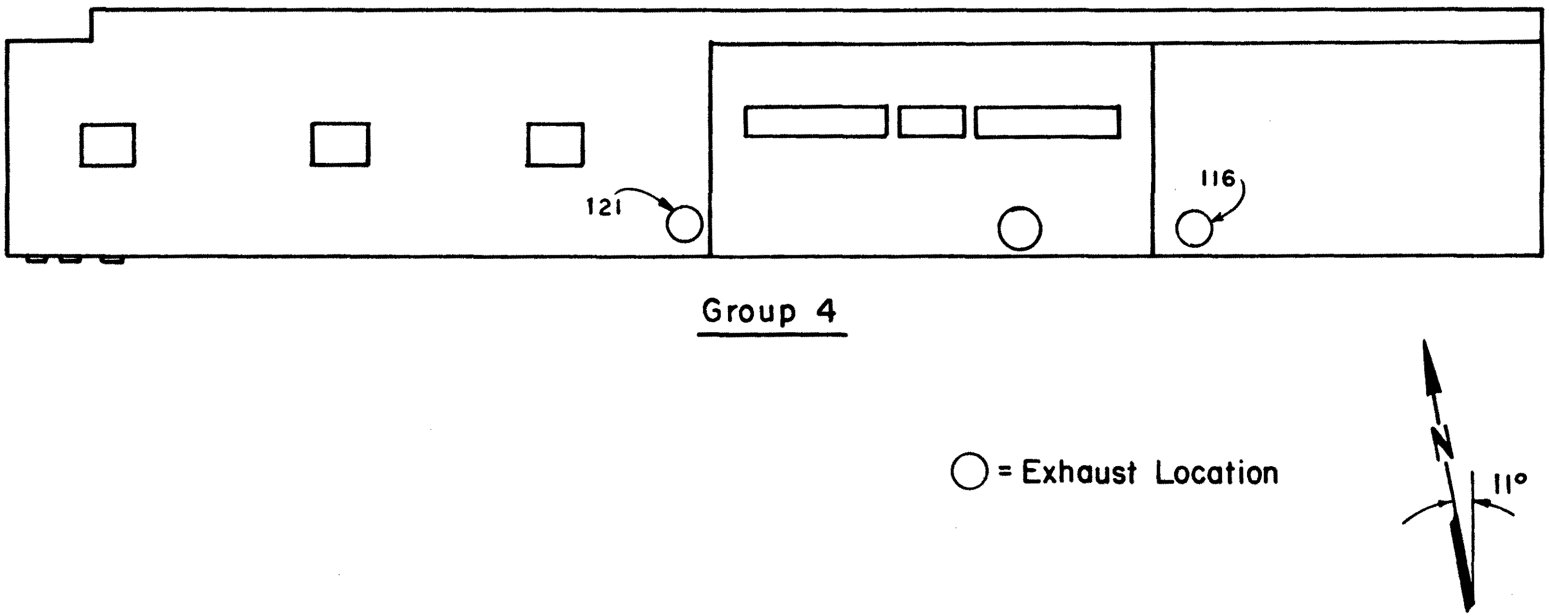


Figure 4-5a. Sources on Gates Building from which Identified Types and Quantities of Evaporated Solvents are Exhausted

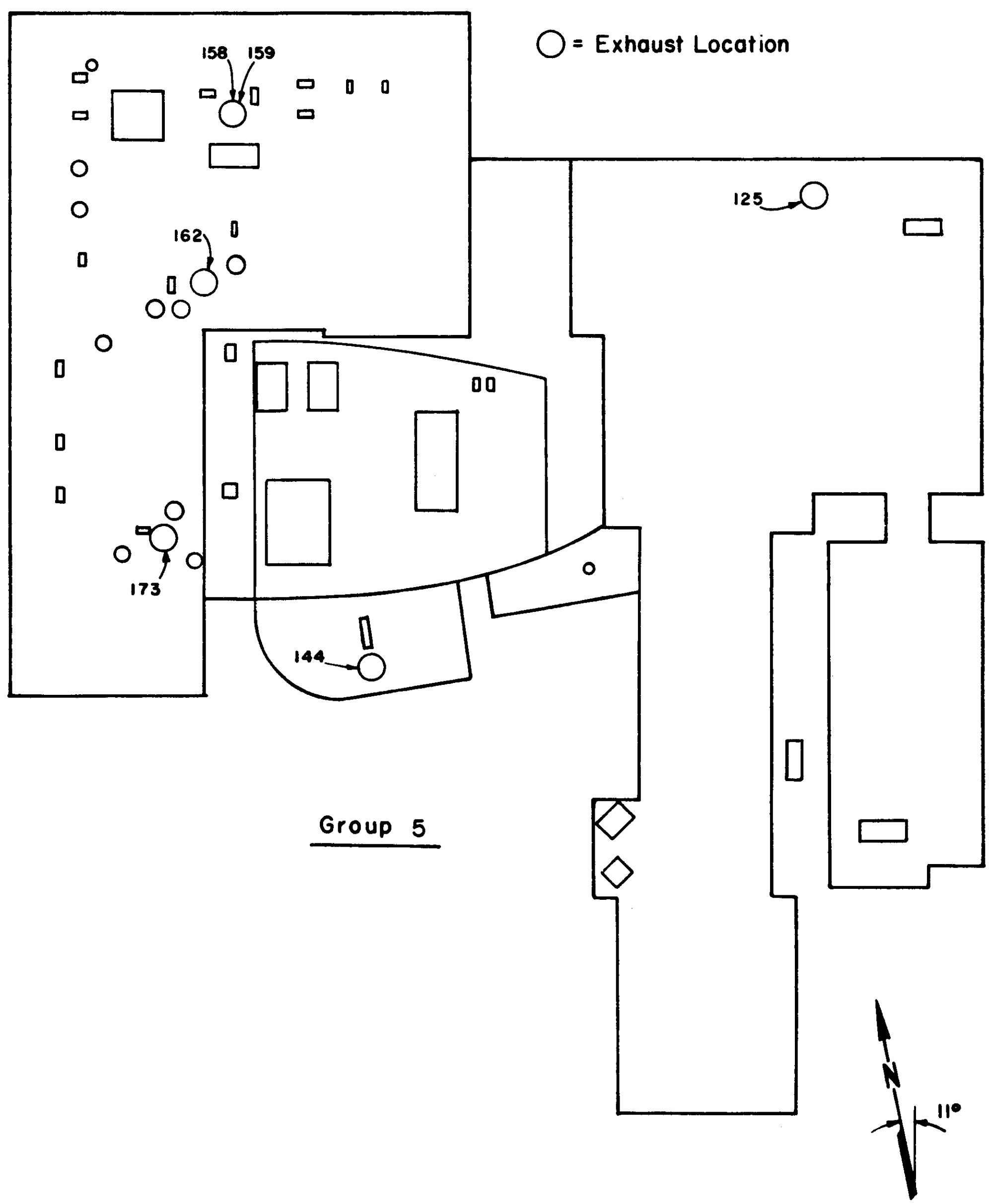


Figure 4-5b. Sources on Maloney, Alumni Hall, and Gibson Buildings from which Identified Types and Quantities of Evaporated Solvents are Exhausted

TABLES

Table 2-1a. Identification of Prototype Sources on the Medical Education Building which were Modeled

Group #1

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	62, 63, 64, 65, 66	6,200
B	69, 70, 71, 73, 74, 75, 76	7,020
C	67, 68, 77, 78, 79, 80	5,090
D	72	3,850
E	82, 83, 84, 85	4,000
F	86, 87, 89, 90	2,640
G	88, 91, 92, 93, 94	4,080
H	95, 96, 97	322,900
I	99, 100, 111	33,755
J	101, 102, 103	7,700
L	104, 105, 106	5,800
M	150	7,900
N	152	50,000
Total		460,935

Group #2

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	40	1,200
B	46, 47, 48, 54, 55, 110	4,500
C	56, 57	3,000
D	49, 50, 51, 52, 53, 61	5,355
E	58, 59, 60	2,700
Total		16,755

*Prototype source numbers from Caretsky and Associates, Drawing WS-1, dated 11-21-83.

Table 2-1b. Identification of Prototype Source Groups on HUP IV Building which were Modeled

Group 3-1

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	1, 2, 6, 7, 12, 13	5,900
L	20, 25, 26, 27	38,360
M	17, 18, 19	43,980
N	14, 15, 16	72,290
Total		160,530

Group 3-2

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
B	3, 4, 5, 8, 9, 10, 11	6,250
F	29, 30, 31, 32, 33, 34, 71	251,200
H	39, 40, 45, 46, 49, 50, 51	5,770
I	41, 42, 43, 44, 52, 53, 54	5,370
K	35, 36, 37	22,870
Total		291,460

*Prototype source numbers from Caretsky & Associates, Drawing WS-2, dated 12-2-83.

Table 2-1b. (Continued)

Group 3-3

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
E	28, 67	251,200
G	38, 47, 48, 68	251,960
O	69	250,000
P	70	250,000
Total		1,003,160

Group 3-4

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
D	21, 22, 23, 72	125,504
J	55, 56, 57	27,256
Total		152,760

*Prototype source numbers from Caretsky & Associates, Drawing WS-2, dated 12-2-83.

Table 2-1b. (Continued)

Sources 3-C, 3-Q, 3-R, 3-58, 3-59, & 3-60

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
C	24, 66	278,600
Q	63, 64, 65	50,975
R	62	11,000
58	58	7,200
59	59	34,000
60	60	40,000

*Prototype source numbers from Caretsky & Associates, Drawing WS-2, dated 12-2-83.

Table 2-1c. Identification of Prototype Sources on the Gates Building which were Modeled

Group #4

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	116	7,000
B	119 (2 of 5 cooling towers)	34,000
C	119 (1 of 5 cooling towers) 118	24,000
D	119 (2 of 5 cooling towers)	34,000
E	121	3,680
F	126	2,300
G	127	2,300
H	128	2,300
I	130	11,900
J	133	10,600
K	135, 136	11,600
Total		143,680

*Prototype source numbers from Penjerdel Refrigeration Co., Drawings 2582-1 & 2, dated 10-26-83, revised 1-24-84.

Table A-2-1d. Identification of Prototype Sources on the Centrex, Gibson, Alumni, Maloney & Piersol Buildings which were Modeled

Group #5

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	122	4,600
B	125	1,000
C	123	4,630
D	139, 140	9,200
E	138	11,000
F	141, 142, 143	78,900
G	144	23,600
H	147, 148, 164, 165	28,520
I	151, 152, 153, 154, 155, 156, 157	3,930
J	158, 159, 161	37,000
K	160, 181, 182, 183, 184, 185, 186	13,300
L	162, 163, 187, 188, 189	11,300
M	170, 171, 172, 173, 174, 175, 176	10,150
N	177, 178, 179	23,000
O	166, 167	15,560
P	168	9,600
Q	169	15,000
Total		300,290

*Source numbers from Penjerdel Refrigeration Co., Drawings 2582-1 & 2, 10-26-83, revised 1-24-84.

Table 2-1e. Identification of Prototype Sources on the Children's Hospital Building which were Modeled

Group #6

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	112 (see note)	
B	114	25,000
C	113 (see note)	
Total		25,000

Note: 112 and 113 are cooling towers of large enough size to permit modeling with working fans in the model which draw air from the roof level and discharge upwards.

Group #7

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	115, 116, 117, 118, 119	51,030
B	120, 121, 122, 123, 124, 125	85,721
C	126, 127, 128, 129, 130, 131	38,220
D	132, 133, 134, 135	46,205
E	136, 137, 138, 139, 140	46,185
F	141, 142, 143, 144, 145	52,295
Total		319,656

*Prototype source numbers from Caretsky & Associates, Drawing WS-1, dated 11-21-83.

Table 2-1f. Identification of Prototype Sources on the Silverstein Pavilion which were Modeled

Group #8

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	7, 8, 9, 10, 11	16,475
B	12, 13, 14, 15	15,800
C	19	8,000
D	20, 21, 22, 23	4,000
F	24, 25, 26	16,000
G	28 (see note)	
H	157, 158	341,800
I	159, 160	341,800
J	30	7,900
K	29, 31, 32	13,285
L	36	53,000
Total		818,060

Note: 28 is a cooling tower of large enough size to permit modeling with working fans in the model which draw air from roof level and discharge upwards.

*Prototype source numbers from Caretsky & Associates, Drawing WS-1, dated 11-21-83.

Table 2-1g. Identification of Prototype Sources on the Donner Building which were Modeled

Group #9

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	106	460
B	107, 108, 109, 110, 111	7,600
C	112, 113	39,100
D	114, 115	2,500
Total		49,660

*Prototype source numbers from Penjerdel Refrigeration Co., Drawings 2582-1 & 2, dated 10-26-83, revised 1-24-84.

Table 2-1h. Identification of Prototype Sources on the Dulles Building which were Modeled

Group #10

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
B	82, 83, 84, 85, 86	8,870
C	78, 79, 80	13,800
D	81	1,380
E	87, 88	5,860
F	74, 75, 76, 77, 90	5,100
G	89, 91	1,000
H	98, 99, 100, 101, 102	11,500
I	71, 72, 73	3,440
J	69, 70	13,800
K	66, 67, 68	2,700
L	60, 61, 62, 63, 64	16,420
N	58, 59	106,400
O	92, 93, 94	31,800
Total		222,070

*Prototype source numbers from Penjerdel Refrigeration Co., Drawings 2582-1 & 2, dated 10-26-83, revised 1-24-84.

Table 2-1i. Identification of Prototype Sources on the Agnew Building, Ravdin Court, and Silverstein Rad. Infill which were Modeled

Group #11

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	30, 36, 37	21,200
B	38, 39, 40, 41	18,450
C	51, 52, 53, 54, 55	21,240
D	56	8,285
E	44, 47, 48, 49, 50	98,800
F	162, 163	22,000
G	161, 164	302,785
H	32	27,600
I	25, 26, 27	30,960
J		30,000
K	45	30,000
Total		611,320

*Prototype source numbers from Penjerdel Refrigeration Co., Drawings 2582-1 & 2, dated 10-26-83, revised 1-24-84.

Table 2-1j. Identification of Prototype Sources on the White and Ravdin Buildings which were Modeled

Group #12

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	7, 8, 9, 10	25,050
B	12	30,000
C	11, 13, 14	12,500
D	20, 22, 23, 24	2,200
E	15, 16, 17, 18, 19	20,900
Total		90,650

Group #13

Model Sub-Group	Prototype Source Numbers*	Exhaust Discharge (cfm)
A	1	34,500
B	3	25,000
C	4, 5, 6	27,000
Total		86,500

*Prototype source numbers from Penjerdel Refrigeration Co., Drawings 2582-1 & 2, dated 10-26-83, revised 1-24-84.

Table 2-1k. Identification of Prototype Sources with 300° Exhausts which were Modeled

Group #14

Model Sub-Group	Prototype Source Numbers*		Exhaust Discharge (cfm)
A	27	Silverstein	60,000
B	60	HUP IV	40,000
C	26	HUP IV	1,500
Total			101,500

*Prototype source numbers from Caretsky & Associates, Drawings WS-1 & 2, dated 11-21-83.

Table 2-1ℓ. Identification of Prototype Sources with 1200°F-2000°F Exhausts (Emergency Generators and Incinerators) which were Modeled

Group #15

Model Sub-Group	Prototype Source Numbers			Exhaust Discharge (cfm)
A	124	Gibson	**	25,000
B	43	Ravdin Ct.	**	5,000
C	146	Alumni	**	27,000
D	38	Silverstein	*	3,000
E	43	Med. Ed.	*	3,000
F	Incinerator NW Corner Med. Ed.		†	18,000
Total				81,000

*Prototype source numbers from Caretsky & Associates, Drawings WS-1 & 2, dated 11-21-83.

**From Penjerdel Refrigeration Co., Drawings 2582-1 & 2, dated 10-26-83, revised 1-24-84.

†No drawing number--information from March 1984 meeting.

Table 2-2. Identification for Model Air Intakes and Ground-level Receptors

Model Sampling Point	Prototype Structure	Prototype Intake
1	Med. Ed. Building	148
2		149
3		150
4	HUP IV Building	2nd Floor O.A. Intake, North
5		2nd Floor O.A. Intake, Middle
6		2nd Floor O.A. Intake, South
7		3rd Floor O.A. Intake, North
8		3rd Floor O.A. Intake, Middle
9		3rd Floor O.A. Intake, South
10		Cooling Tower Intake, North
11		Cooling Tower Intake, Middle
12		Cooling Tower Intake, South
13	Gates Building	129
14		132
15		134
16		137
17	Maloney Building	149
18		150
19	CHOP	146
20		147
21		153 North
22		153 South
23		154
24		155
25		156 South
26		156 North
27	Silverstein Pavilion	5
28		6
29		33
30		37
31	NMR Pyramid	None--Ambient Air Sample
32	Miller Plaza	None--Ambient Air Sample
33	Donner Building	103
34		107
35		O.A. Intake

Table 2-2. (Continued)

Model Sampling Point	Prototype Structure	Prototype Intake
36	Dulles Building	95, 96, 97
37	Ravdin Building	30
38		29
39		28
40	Agnew Building	57
41		34
42		42
43	Silverstein Rad.	161
44		162
45		163
46	Ravdin Building	2
47	White Building	21

*All air intakes and ground-level receptors were identified from Caretsky & Associates, or Penjerdel Refrigeration Co. Drawings, previously noted.

Table 3-1a. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
Location 1			
0.00	22.0	10.2	52.5
22.50	24.3	11.5	58.9
45.00	16.2	8.1	40.6
67.50	16.6	8.7	42.7
90.00	25.7	9.7	54.8
112.50	37.0	10.4	68.1
135.00	28.1	8.7	54.2
157.50	27.9	9.7	57.1
180.00	21.0	8.6	46.8
202.50	28.3	8.3	53.3
225.00	32.1	9.5	60.5
247.50	27.9	8.3	52.9
270.00	27.3	8.4	52.6
292.50	32.5	9.4	60.7
315.00	18.1	9.6	47.0
337.50	25.4	11.3	59.1
Location 2			
0.00	13.2	6.6	33.0
22.50	21.6	10.8	53.9
45.00	22.9	8.8	49.4
67.50	11.0	5.0	26.2
90.00	9.1	4.3	22.0
112.50	19.2	9.6	47.9
135.00	16.4	8.4	41.7
157.50	30.2	11.8	65.6
180.00	24.7	8.9	51.3
202.50	28.6	9.8	58.0
225.00	23.6	8.8	49.9
247.50	19.8	9.1	47.1
270.00	18.8	8.9	45.5
292.50	17.6	7.8	40.9
315.00	21.3	9.6	50.1
337.50	29.8	11.6	64.6

Table 3-1b. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
Location 3			
0.00	9.1	3.7	20.0
22.50	17.5	6.9	38.1
45.00	26.8	8.8	53.3
67.50	20.2	7.3	42.1
90.00	14.5	6.7	34.6
112.50	16.3	6.1	34.5
135.00	16.7	6.4	35.9
157.50	19.1	6.1	37.4
180.00	30.0	7.8	53.3
202.50	31.1	8.5	56.6
225.00	27.9	9.3	55.8
247.50	10.4	5.2	25.9
270.00	7.7	3.2	17.3
292.50	12.7	5.8	30.2
315.00	12.7	5.6	29.5
337.50	13.3	6.8	33.6
Location 4			
0.00	22.0	10.3	53.0
22.50	33.0	11.3	66.9
45.00	15.6	8.1	39.9
67.50	10.1	4.8	24.4
90.00	16.7	7.3	38.6
112.50	11.3	5.4	27.4
135.00	11.4	5.3	27.4
157.50	10.1	4.4	23.4
180.00	14.9	6.8	35.3
202.50	27.0	6.7	47.2
225.00	23.0	8.1	47.2
247.50	10.3	4.8	24.7
270.00	10.8	4.8	25.3
292.50	11.5	5.5	28.0
315.00	25.1	10.1	55.3
337.50	38.7	11.6	73.4

Table 3-1c. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
Location 5			
0.00	15.6	6.9	36.1
22.50	20.6	8.4	45.9
45.00	19.4	8.1	43.8
67.50	23.3	7.5	45.8
90.00	22.9	7.9	46.7
112.50	22.7	6.4	42.0
135.00	22.9	7.1	44.3
157.50	23.9	7.5	46.3
180.00	23.5	7.5	46.1
202.50	19.4	7.1	40.7
225.00	15.2	6.2	33.8
247.50	14.8	5.7	32.0
270.00	15.1	5.9	32.6
292.50	14.3	6.4	33.4
315.00	16.2	7.4	38.3
337.50	21.4	9.6	50.3
Location 6			
0.00	18.3	6.6	38.1
22.50	13.3	5.2	28.9
45.00	9.1	3.1	18.4
67.50	11.4	3.7	22.4
90.00	10.7	3.3	20.5
112.50	11.1	3.4	21.4
135.00	10.0	2.9	18.7
157.50	11.0	3.4	21.3
180.00	11.7	3.5	22.3
202.50	11.6	3.6	22.6
225.00	9.8	3.3	19.8
247.50	8.3	3.0	17.4
270.00	9.6	4.7	23.7
292.50	19.4	9.6	40.2
315.00	21.3	8.5	46.9
337.50	23.6	11.0	56.5

Table 3-1d. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
Location 7			
0.00	20.1	7.7	43.1
22.50	17.5	5.0	32.5
45.00	13.9	3.4	24.2
67.50	12.4	2.9	21.2
90.00	12.1	2.8	20.5
112.50	13.8	3.2	23.5
135.00	10.1	3.6	21.0
157.50	9.6	3.3	19.4
180.00	8.5	3.2	18.2
202.50	10.1	4.0	22.1
225.00	12.1	5.7	29.3
247.50	22.2	9.6	50.9
270.00	21.0	10.4	52.3
292.50	19.0	8.5	44.6
315.00	28.4	11.6	63.2
337.50	20.6	10.5	52.3
Location 8			
0.00	16.3	4.8	30.7
22.50	9.9	3.8	21.3
45.00	14.2	7.0	35.1
67.50	9.2	4.1	21.6
90.00	8.5	3.8	20.1
112.50	8.5	3.4	18.7
135.00	18.5	6.3	37.4
157.50	17.8	4.1	30.1
180.00	23.3	7.3	45.3
202.50	18.2	6.7	38.4
225.00	19.0	6.6	38.8
247.50	24.9	7.3	46.8
270.00	25.7	7.1	47.0
292.50	34.5	7.6	57.3
315.00	40.2	9.4	68.3
337.50	32.6	8.3	57.4

Table 3-1e. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

Location 9

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
0.00	7.7	2.9	16.3
22.50	5.9	1.9	11.6
45.00	6.8	2.5	14.4
67.50	7.6	2.6	15.6
90.00	6.4	2.2	12.9
112.50	5.1	1.9	10.7
135.00	12.1	4.8	26.4
157.50	8.5	3.9	20.4
180.00	20.9	6.9	41.6
202.50	20.9	8.1	45.3
225.00	15.7	7.8	39.1
247.50	9.5	4.4	22.7
270.00	16.1	8.0	40.2
292.50	6.4	2.4	13.7
315.00	5.4	1.5	10.0
337.50	9.1	5.5	25.7

Location 10

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
0.00	5.7	1.5	10.2
22.50	9.7	4.4	22.9
45.00	10.3	4.9	25.1
67.50	8.5	3.2	18.2
90.00	6.4	2.5	13.9
112.50	6.1	2.3	12.8
135.00	14.9	5.3	30.7
157.50	8.8	4.5	22.2
180.00	16.4	6.8	36.7
202.50	15.6	6.5	34.9
225.00	11.0	5.4	27.1
247.50	9.9	4.3	22.8
270.00	13.3	6.2	32.0
292.50	18.3	8.4	43.7
315.00	15.5	6.9	36.0
337.50	14.8	6.3	33.6

Table 3-1f. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
Location 11			
0.00	5.7	2.4	13.0
22.50	10.6	4.6	24.5
45.00	9.3	4.8	23.7
67.50	8.7	4.3	21.5
90.00	7.2	3.1	16.4
112.50	6.2	2.2	12.9
135.00	14.8	5.9	32.5
157.50	14.7	6.6	34.6
180.00	24.4	9.0	51.4
202.50	23.7	9.4	51.8
225.00	17.2	8.0	41.2
247.50	12.9	6.2	31.5
270.00	12.2	7.1	33.5
292.50	10.2	3.7	21.2
315.00	8.7	2.7	16.7
337.50	10.9	5.5	27.6
Location 12			
0.00	5.2	1.9	10.8
22.50	7.7	3.2	17.3
45.00	7.6	2.8	15.9
67.50	6.3	2.2	12.9
90.00	7.6	2.8	16.0
112.50	10.6	3.4	21.0
135.00	19.4	7.3	41.3
157.50	12.4	5.4	28.7
180.00	17.3	9.1	44.6
202.50	17.3	8.0	41.2
225.00	13.4	6.9	34.1
247.50	15.8	7.1	37.0
270.00	15.2	6.3	34.0
292.50	10.9	4.9	25.5
315.00	9.0	3.1	18.4
337.50	8.8	5.0	23.7

Table 3-1g. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
Location 13			
0.00	5.4	2.3	12.2
22.50	9.9	5.2	25.6
45.00	12.5	6.7	32.7
67.50	11.4	5.9	29.0
90.00	8.0	3.6	19.0
112.50	7.4	2.7	15.7
135.00	14.4	7.5	36.9
157.50	17.6	9.5	46.2
180.00	14.6	7.7	37.8
202.50	11.4	5.6	28.2
225.00	12.0	5.5	28.5
247.50	11.0	4.6	24.9
270.00	9.7	4.1	21.9
292.50	12.3	6.1	30.5
315.00	18.3	6.9	39.1
337.50	14.4	7.5	37.0
Location 14			
0.00	11.3	6.8	31.7
22.50	11.6	4.8	26.1
45.00	11.7	5.6	28.4
67.50	10.2	4.5	23.8
90.00	9.7	3.3	19.7
112.50	11.3	4.1	23.7
135.00	21.4	5.6	38.2
157.50	23.8	7.4	46.0
180.00	11.9	5.5	28.5
202.50	16.7	5.9	34.3
225.00	13.9	5.2	29.3
247.50	10.6	4.1	22.9
270.00	12.7	5.2	28.4
292.50	18.6	6.0	36.5
315.00	14.1	5.0	29.1
337.50	22.1	11.4	56.3

Table 3-1h. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
Location 15			
0.00	5.0	2.1	11.4
22.50	8.0	3.8	19.5
45.00	9.1	4.3	22.1
67.50	7.3	3.3	17.3
90.00	8.0	4.5	21.5
112.50	8.7	4.3	21.5
135.00	11.5	5.8	28.9
157.50	10.8	5.4	27.0
180.00	19.5	7.4	41.6
202.50	22.1	7.3	43.9
225.00	23.3	7.3	45.1
247.50	23.0	7.2	44.4
270.00	22.3	6.8	42.8
292.50	17.6	7.3	39.6
315.00	14.7	4.5	28.1
337.50	9.1	4.7	23.3
Location 16			
0.00	43.8	8.2	68.4
22.50	46.1	7.7	69.2
45.00	48.6	6.9	69.2
67.50	47.3	6.0	65.3
90.00	54.8	6.5	74.4
112.50	44.8	5.5	61.3
135.00	45.8	6.6	65.6
157.50	45.4	6.9	66.1
180.00	35.7	7.8	59.2
202.50	38.8	7.4	60.9
225.00	35.8	9.3	63.8
247.50	29.7	8.6	55.5
270.00	34.3	8.0	58.4
292.50	44.0	5.8	61.4
315.00	45.2	5.7	62.4
337.50	50.1	8.1	74.2

Table 3-1i. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
Location 17			
0.00	18.5	6.1	36.9
22.50	17.2	5.9	34.8
45.00	21.0	6.8	41.5
67.50	19.6	6.4	38.9
90.00	14.5	5.4	30.9
112.50	13.4	4.9	28.0
135.00	20.0	9.8	49.4
157.50	12.0	5.7	29.0
180.00	12.6	4.5	26.2
202.50	15.7	5.5	32.3
225.00	17.8	6.8	38.1
247.50	22.6	8.9	49.1
270.00	16.6	5.9	34.3
292.50	18.4	5.7	35.5
315.00	19.0	6.0	36.9
337.50	16.0	5.2	31.5
Location 18			
0.00	22.9	5.9	40.7
22.50	29.8	7.2	51.2
45.00	40.4	9.7	69.4
67.50	46.7	12.8	85.0
90.00	36.0	13.2	75.7
112.50	35.9	14.9	80.7
135.00	18.4	8.1	42.7
157.50	19.9	8.9	46.5
180.00	21.7	9.3	49.4
202.50	15.2	7.6	38.0
225.00	11.7	5.8	29.0
247.50	8.3	3.6	19.1
270.00	8.8	4.1	21.1
292.50	10.9	5.4	27.0
315.00	12.9	6.0	31.0
337.50	21.4	5.8	38.9

Table 3-1j. Pedestrian Wind Velocities and Turbulence Intensities for Hospital of the University of Pennsylvania, Phase IV

WIND AZIMUTH	UMEAN/UINF (PERCENT)	URMS/UINF (PERCENT)	UMEAN+3*URMS/UINF (PERCENT)
Location 19			
0.00	28.7	7.5	51.2
22.50	42.1	6.9	62.7
45.00	54.8	10.6	86.7
67.50	51.9	11.6	86.7
90.00	32.3	14.3	75.1
112.50	35.9	14.6	79.8
135.00	14.9	7.4	37.1
157.50	19.9	8.7	46.0
180.00	29.1	8.7	55.2
202.50	24.2	8.1	48.6
225.00	22.4	8.0	46.4
247.50	15.4	6.6	35.2
270.00	17.4	6.9	38.1
292.50	10.2	3.8	21.7
315.00	12.1	5.3	28.0
337.50	15.6	6.9	36.4

Table 3-2. Percentage Frequency of Wind Direction and Speed, Philadelphia, Pennsylvania, International Airport (1965-1974)

Season: Annual Number of Observations: 29,211 Height of Measurement: 20 ft.

Velocity levels in MPH.

Direction	0-3	4-7	8-12	13-18	19-24	25-31	32+	Total
N	.30	2.00	3.60	2.00	.20	0.00	0.00	8.10
NNE	.20	.60	1.20	.90	.20	0.00	0.00	3.10
NE	.20	.60	1.10	1.00	.20	0.00	0.00	3.20
ENE	.20	1.00	2.20	2.00	.30	0.00	0.00	5.80
E	.40	1.70	2.60	1.10	.10	0.00	0.00	6.00
ESE	.40	1.50	1.00	.20	0.00	0.00	0.00	3.10
SE	.40	1.40	1.00	.30	0.00	0.00	0.00	3.10
SSE	.40	1.50	1.00	.30	0.00	0.00	0.00	3.30
S	.80	2.40	2.60	1.20	.10	0.00	0.00	7.20
SSW	.50	1.60	2.00	.90	.10	0.00	0.00	5.00
SW	.60	3.60	5.20	2.10	.30	0.00	0.00	11.70
WSW	.60	2.90	3.10	1.20	.10	0.00	0.00	7.90
W	.80	3.10	3.40	2.40	.70	.20	0.00	10.60
WNW	.40	1.70	2.80	2.80	.80	.20	0.00	8.70
NW	.30	1.40	2.10	2.60	.70	.10	0.00	7.10
NNW	.20	1.20	2.00	1.60	.30	0.00	0.00	5.40
CALM	.60	0.00	0.00	0.00	0.00	0.00	0.00	.60
TOTAL	7.30	28.30	37.10	22.60	4.00	.60	.10	100.00

Table 3-3. Summary of Wind Effects on People

	Beaufort Number	Speed (mph)	Effects
Calm, light air	0, 1	0-3	Calm, no noticeable wind
Light breeze	2	4-7	Wind felt on face
Gentle breeze	3	8-12	Wind extends light flag Hair is disturbed Clothing flaps
Moderate breeze	4	13-18	Raises dust, dry soil and loose paper Hair disarranged
Fresh breeze	5	19-24	Force of wind felt on body Drifting snow becomes airborne Limit of agreeable wind on land
Strong breeze	6	25-31	Umbrellas used with difficulty Hair blown straight Difficulty to walk steadily Wind noise on ears unpleasant Windborne snow above head height (blizzard)
Near gale	7	32-38	Inconvenience felt when walking
Gale	8	39-46	Generally impedes progress Great difficulty with balance in gusts
Strong gale	9	47-54	People blown over by gusts

Note: Table from Penwarden and Wise (1975), p. 40.

Table 3-4. Greatest Values of Pedestrian Wind Velocities and Turbulence Intensities, Hospital of the University of Pennsylvania, Phase IV

Loc	Az	Mean	RMS	M+3RMS
UMEAN/UINF (Percent)				
16	90.0	54.8	6.5	74.4
19	45.0	54.8	10.6	86.7
19	67.5	51.9	11.6	86.7
16	337.5	50.1	8.1	74.2
16	45.0	48.6	6.9	69.2
16	67.5	47.3	6.0	65.3
18	67.5	46.7	12.8	85.0
16	22.5	46.1	7.7	69.2
16	135.0	45.8	6.6	65.6
16	157.5	45.4	6.9	66.1
URMS/UINF (Percent)				
18	112.5	35.9	14.9	80.7
19	112.5	35.9	14.6	79.8
19	90.0	32.3	14.3	75.1
18	90.0	36.0	13.2	75.7
18	67.5	46.7	12.8	85.0
2	157.5	30.2	11.8	65.6
2	337.5	29.8	11.6	64.6
19	67.5	51.9	11.6	86.7
7	315.0	28.4	11.6	63.2
4	337.5	38.7	11.6	73.4
UMEAN+3*RMS/UINF (Percent)				
19	45.0	54.8	10.6	86.7
19	67.5	51.9	11.6	86.7
18	67.5	46.7	12.8	85.0
18	112.5	35.9	14.9	80.7
19	112.5	35.9	14.6	79.8
18	90.0	36.0	13.2	75.7
19	90.0	32.3	14.3	75.1
16	90.0	54.8	6.5	74.4
16	337.5	50.1	8.1	74.2
4	337.5	38.7	11.6	73.4

Table 4-1. Tabulation of Run Numbers and Model Test Parameters/Tracers

Run #	Wind Dir.	Wind VEL (m/s)	Source Group #	Tracer %	Volume Flow (m^3/s)	Source Group #	Tracer %	Volume Flow (m^3/s)
1	000	2.44	12	8.97M	.204E-3	13	10.0E	.195E-3
2	045							
3	090							
4	135							
5	180							
6	225							
7	270							
8	315							
9	000	2.44	4	8.97M	.324E-3	5	10.0E	.630E-3
10	045							
11	090							
12	135							
13	180							
14	225							
15	270							
15R	270							
16	315							

Table 4-1. (Continued).

Run #	Wind Dir.	Wind VEL (m/s)	Source Group #	Tracer %	Volume Flow (m^3/s)	Source Group #	Tracer %	Volume Flow (m^3/s)
17	000	2.44	2	8.97M	.378E-4	1	10.0E	.104E-2
18	045							
19	090							
20	135							
21	180							
22	225							
23	270							
24	315							
25	000	2.44	6	9.04M	.564E-4	7	9.98E	.720E-3
26	045							
27	090							
28	135							
29	180							
30	225							
31	270							
32	315							

Table 4-1. (Continued).

Run #	Wind Dir.	Wind VEL (m/s)	Source Group #	Tracer %	Volume Flow (m^3/s)	Source Group #	Tracer %	Volume Flow (m^3/s)
33	000	2.44	11	9.04M	.138E-2	9	9.98E	.112E-3
34	045							
35	090							
36	135							
37	180							
38	225							
39	270							
40	315							
41	000	2.44	14	4.02M	.237E-3	15	2.98E	.183E-3
42	045							
43	090							
44	135							
45	180							
46	225							
47	270							
48	315							

Table 4-1. (Continued).

Run #	Wind Dir.	Wind VEL (m/s)	Source Group #	Tracer %	Volume Flow (m^3/s)	Source Group #	Tracer %	Volume Flow (m^3/s)
49	000	2.44	3-58	4.02M	.162E-4	3-59	2.98E	.766E-4
50	045							
51	090							
52	135							
53	180							
54	225							
55	270							
56	315							
57	000	2.44	10	9.04M	.501E-3	3-60	2.98E	.902E-4
58	045							
59	090							
60	135							
61	180							
62	225							
63	270							
64	315							

Table 4-1. (Continued).

Run #	Wind Dir.	Wind VEL (m/s)	Source Group #	Tracer %	Volume Flow (m^3/s)	Source Group #	Tracer %	Volume Flow (m^3/s)
65	000	2.44	3Q	9.04M	.115E-3	8	9.98E	.184E-2
66	045							
67	090							
68	135							
69	180							
70	225							
71	270							
72	315							
73	000	2.44	3C	9.04M	.628E-3	3-1	10.0E	.362E-3
74	045							
75	090							
76	135							
77	180							
78	225							
79	270							
80	315							

Table 4-1. (Continued).

Run #	Wind Dir.	Wind VEL (m/s)	Source Group #	Tracer %	Volume Flow (m^3/s)	Source Group #	Tracer %	Volume Flow (m^3/s)
81	000	2.44	3-2	9.04M	.657E-3	3-4	10.0E	.344E-3
82	045							
83	090							
84	135							
85	180							
85R	180							
86	225							
87	270							
88	315							
89	000	2.44	3R	9.04M	.248E-4	3-3	10.0E	.226E-2
90	045							
91	090							
92	135							
93	180							
94	225							
95	270							
96	315							

Table 4-2. Conversion of Prototype Volume Flow Rates to Model Volume Flow Values

Source Group	Prototype Volume Flow, Q_p		Model Volume Flow, Q_m	
	cfm	m^3/s	cc/min	m^3/s
1	460,935	217.54	62,339	.104E-2
2	16,755	7.91	2,265	.378E-4
3-1	160,530	75.76	21,711	.362E-3
3-2	291,460	137.55	39,419	.657E-3
3-3	1,003,160	473.44	135,673	.226E-2
3-4	152,760	72.10	20,660	.344E-3
3-C	278,600	131.49	37,679	.628E-3
3-Q	50,975	24.06	6,894	.115E-3
3-R	11,000	5.19	1,488	.248E-4
3-58	7,200	3.40	974	.162E-4
3-59	34,000	16.05	4,598	.766E-4
3-60	40,000	18.88	5,410	.902E-4
4	143,680	67.81	19,433	.324E-3
5	279,370	131.85	37,784	.630E-3
6	25,000	11.80	3,381	.564E-4
7	319,206	150.65	43,168	.720E-3
8	818,060	386.08	110,639	.184E-2
9	49,660	23.44	6,716	.112E-3
10	222,070	104.81	30,033	.501E-3
11	611,320	288.51	82,677	.138E-2
12	90,650	42.78	12,256	.204E-3
13	86,500	40.82	11,699	.195E-3
14	105,000	49.55	14,201	.237E-3
15	81,000	38.23	10,955	.183E-3

Table 4-3a. Identification of Receptors with Measured Concentration Ratios ≧ 0.1 (10%) for Source Groups Listed

S.G.	W.D. 000°	045°	090°	135°	180°	225°	270°	315°
1			3/.149					
3-1	11/.323	11/.340	11/.338	11/.267	11/.317	10/.277	11/.269	10/.280
	12/.146	10/.203	10/.234	10/.216	10/.285	11/.266	10/.263	11/.248
		12/.186					12/.122	
3-2	12/.393	12/.405	12/.415	12/.421	12/.391	12/.383	12/.450	12/.410
	10/.233	11/.300	11/.100		11/.280	11/.289	11/.226	11/.211
	11/.218	10/.118			10/.197		10/.182	
3-3	12/.220	12/.240	12/.224	12/.222	12/.208	12/.237	12/.160	12/.216
3-C		10/.139	10/.141	10/.108			10/.111	
4	15/.300	15/.300	15/.280	15/.311	15/.407	15/.286	15/.301	15/.324
								14/.161
5			17/.178	17/.263				17/.280
			16/.174	18/.218				18/.229
			18/.167	16/.216				
7		20/.190	20/.172					20/.120
8	28/.277	29/.114	28/.204	28/.243	27/.268	28/.257	27/.274	27/.216
	27/.136		27/.156	27/.232	28/.249	27/.233	28/.254	28/.212
	29/.110			29/.112	29/.109	29/.216		
10		36/.102	36/.342		36/.402	36/.258	36/.303	36/.329
11	43/.555	43/.521	43/.528	43/.548	43/.551	43/.555	43/.550	43/.550
	42/.395	42/.369	42/.382	42/.408	42/.416	42/.372	42/.352	42/.394
	45/.297	38/.334	38/.319	38/.332	38/.264	38/.267	38/.282	45/.317
	38/.280	39/.318	39/.280	39/.301	39/.253	40/.264	39/.270	44/.281
	39/.255	37/.257	40/.129	37/.214	37/.230	39/.254	37/.258	39/.254
	46/.246	45/.202	45/.129	44/.161	44/.227	37/.250	45/.230	38/.228
	37/.220	44/.176	44/.107	40/.106	45/.222	45/.194	44/.216	37/.173
		31/.109			40/.171	44/.177	40/.168	40/.149
14	11/.162	11/.296			11/.164	11/.170	11/.174	11/.168
	10/.127							

Table 4-3b. Identification of Receptors with Measured Concentration Ratios ≧ 0.025 (2.5%) for the Source Group Listed

S.G.	W.D.							
	000°	045°	090°	135°	180°	225°	270°	315°
1	3/.059	3/.065	3/.149	3/.045	3/.081 17/.031 16/.025	3/.066 33/.038 1/.036 32/.028	3/.050	3/.050

Table 4-3c. Identification of Receptors with Measured Concentration Ratios ≧ 0.01 (1%) for Source Groups Listed.

S.G.	W.D.							
	000°	045°	090°	135°	180°	225°	270°	315°
3-4	12/.011	12/.018 11/.016			11/.029 10/.028 12/.018	11/.024 12/.021 10/.017	12/.019	12/.017
3-Q			12/.026 11/.022	10/.031 11/.028				
3-R			33/.011				33/.021	
6				19/.020		20/.014		
9	33/.022 34/.015 29/.013	34/.021 33/.019 29/.013	29/.030	45/.011	45/.012 44/.011 37/.010	33/.011	34/.019	33/.017
12		44/.013 45/.013 38/.010	37/.011 38/.011 39/.011 44/.010					
13	46/.014	27/.018 28/.016			46/.042 38/.023 38/.022 45/.020 42/.019 44/.017 39/.013			
15					16/.011	17/.011 18/.010		

Table 4-3d. Identification of Receptors with Measured Concentration Ratios ≧ 0.002 (0.2%) for the Source Group Listed

S.G.	W.D. 000°	045°	090°	135°	180°	225°	270°	315°
2		12/.0020				32/.0070		
						1/.0049		
						33/.0039		
						34/.0024		

Table 4-3e. Identification of Receptors with Measured Concentration Ratios ≧ 0.00015 (.015%) for the Source Listed

S.G.	W.D. 000°	045°	090°	135°	180°	225°	270°	315°
59	20/.00023	3/.00027	2/.00019					20/.00028
	19/.00021		17/.00015					25/.00020
								24/.00017
								26/.00017

Table 4-3f. Identification of Receptors with Measured Concentration Ratios ≧ 0.0001 (.01%) for the Sources Listed

S.G.	W.D. 000°	045°	090°	135°	180°	225°	270°	315°
58	11/.00063							
	43/.00043							
	42/.00022							
	38/.00018							
	37/.00017							
	39/.00016							
	45/.00014							
	44/.00012							
60	12/.00014		18/.00015					28/.00024
			17/.00013					27/.00023
								30/.00013
								26/.00011
								25/.00011

Table 4-4a. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #1

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	.194E-3	0	0	0	0	0	.527E-3	.583E-2	.124E-1	0	0	.257E-2	.829E-2	.195E-2	.179E-2
045	.218E-3	.104E-3	0	0	0	0	0	.744E-2	.247E-1	0	0	.238E-2	.608E-2	.772E-2	.561E-2
090	.688E-2	.357E-3	.105E-3	0	0	.114E-3	0	0	.134E-3	0	0	.373E-3	.984E-2	.115E-1	.106E-1
135	.111E-3	.195E-3	0	0	0	.152E-3	0	0	0	0	0	.292E-2	.184E-1	.172E-1	.169E-1
180	.184E-3	.347E-3	0	0	0	.217E-3	.807E-2	.791E-2	.679E-2	0	0	.185E-1	.250E-1	.306E-1	.138E-2
225	.162E-3	0	0	0	0	0	.620E-2	.757E-2	.894E-2	0	0	.873E-3	.242E-2	.177E-2	.194E-2
270	.123E-3	0	0	0	0	0	.260E-3	.706E-3	.345E-3	0	0	0	0	0	0
315	0	0	0	0	0	0	0	.337E-3	.811E-3	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4b. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #2

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	--	--	0	0	0	0	0	.259E-3	.629E-3	0	.111E-3	.437E-3	.336E-3	0	0
045	--	--	0	--	0	0	0	.511E-3	.197E-2	0	0	.294E-3	.317E-3	.437E-3	.314E-3
090	--	0	0	0	0	0	0	0	0	0	0	.107E-3	.587E-3	.728E-3	.683E-3
135	0	0	0	0	0	0	0	0	--	0	0	.215E-3	.191E-2	.167E-2	.153E-2
180	0	0	0	0	--	0	.480E-3	.493E-3	.513E-3	0	0	.104E-2	.145E-2	.164E-2	0
225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
270	0	0	0	0	0	--	0	.168E-3	.620E-3	0	0	0	0	--	0
315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4c. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-1

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	.828E-1	.323E+0	.146E+0	.515E-3	0	0	0	0	0
045	0	0	0	0	0	0	.203E+0	.340E+0	.186E+0	.438E-3	0	.153E-3	.269E-3	.411E-3	.308E-3
090	0	0	0	0	0	0	.234E+0	.338E+0	.527E-2	.176E-3	0	.112E-3	.721E-3	.257E-2	.263E-2
135	0	0	0	0	0	0	.216E+0	.267E+0	.233E-1	0	0	.416E-3	.161E-2	.367E-2	.351E-2
180	0	0	0	0	0	0	.285E+0	.317E+0	.392E-1	.230E-3	0	.435E-3	.631E-3	.340E-3	.415E-3
225	0	0	0	0	0	0	.277E+0	.266E+0	.157E-1	0	0	0	0	0	0
270	0	0	0	0	0	0	.263E+0	.269E+0	.122E+0	.311E-3	0	0	0	0	0
315	0	0	0	0	0	0	.280E+0	.248E+0	.404E-1	.183E-3	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4d. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-2

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	.233E+0	.218E+0	.393E+0	.474E-3	0	0	0	0	0
045	0	0	0	0	0	0	.118E+0	.300E+0	.405E+0	.448E-3	.112E-3	0	.124E-3	.173E-3	.126E-3
090	0	0	0	0	0	0	.768E-1	.100E+0	.415E+0	.468E-3	0	.119E-3	.107E-2	.269E-2	.259E-2
135	0	0	0	0	0	0	.723E-1	.613E-1	.421E+0	.658E-3	0	.902E-3	.327E-2	.107E-1	.104E-1
180	0	0	0	0	0	0	.197E+0	.280E+0	.391E+0	.523E-3	.147E-3	.983E-3	.128E-2	.741E-3	.869E-3
225	0	0	0	0	0	0	.833E-1	.289E+0	.383E+0	.517E-3	.120E-3	0	0	0	0
270	0	0	0	0	0	0	.182E+0	.226E+0	.450E+0	.604E-3	0	0	0	0	0
315	0	0	0	0	0	0	.916E-1	.211E+0	.410E+0	.467E-3	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4e. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-3

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	.838E-2	.374E-1	.525E-1	.743E-2	.429E-1	.725E-1	.260E-1	.742E-1	.220E+0	.979E-3	.273E-3	.142E-2	.805E-2	.303E-2	.273E-2
045	.869E-2	.298E-1	.672E-1	.742E-2	.396E-1	.522E-1	.349E-1	.323E-3	.240E+0	.619E-3	.210E-3	.272E-3	.490E-2	.518E-2	.462E-2
090	.935E-2	.310E-1	.682E-1	.805E-2	.396E-1	.730E-1	.391E-2	.494E-1	.224E+0	.545E-3	.216E-3	.135E-2	.117E-1	.130E-1	.134E-1
135	.957E-2	.282E-1	.691E-1	.829E-2	.366E-1	.739E-1	.164E-1	.806E-1	.222E+0	.591E-3	.145E-3	.783E-3	.194E-2	.148E-2	.146E-2
180	.100E-1	.308E-1	.674E-1	.851E-2	.385E-1	.700E-1	.319E-1	.748E-1	.208E+0	.592E-3	.170E-3	.120E-2	.322E-2	.128E-2	.137E-2
225	.965E-2	.212E-1	.705E-1	.863E-2	.270E-2	.744E-1	.155E-1	.580E-1	.237E+0	.657E-3	.232E-3	.208E-2	.382E-2	.901E-3	.108E-2
270	.708E-2	.210E-1	.502E-1	.661E-2	.238E-1	.436E-1	.108E-1	.303E-1	.160E+0	.469E-3	.538E-3	.136E-1	.240E-1	.758E-2	.795E-2
315	.868E-2	.258E-1	.600E-1	.843E-2	.315E-1	.634E-1	.147E-1	.493E-1	.216E+0	.710E-2	.184E-3	.131E-2	.126E-1	.249E-3	.154E-3

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4f. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-4

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	.527E-2	.508E-2	.114E-1	0	0	0	0	0	0
045	0	0	0	0	0	0	.576E-3	.158E-1	.184E-1	0	0	0	0	0	0
090	0	0	0	0	0	0	.340E-3	.407E-3	.321E-2	0	0	0	.350E-3	.469E-3	.442E-3
135	0	0	0	0	0	0	.165E-2	.902E-3	.529E-2	0	0	.187E-3	.590E-3	.180E-2	.174E-2
180	0	.123E-3	.241E-3	0	.135E-3	.291E-3	.275E-1	.286E-1	.179E-1	0	0	.371E-3	.514E-3	.300E-3	.337E-3
225	0	0	0	0	0	0	.170E-1	.244E-1	.212E-1	0	0	0	0	0	0
270	0	0	0	0	0	0	.602E-2	.836E-2	.189E-1	0	0	0	0	0	0
315	0	0	0	0	0	0	.443E-2	.962E-2	.165E-1	0	0	0	.104E-3	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4g. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-C

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	.590E-1	.141E-1	.476E-1	.144E-3	0	0	0	0	0
045	0	0	0	0	0	0	.139E+0	.183E-1	.601E-1	0	0	0	0	0	0
090	0	0	0	0	0	0	.141E+0	.125E-1	.132E-2	0	0	0	.129E-3	.466E-3	.458E-3
135	0	0	0	0	0	0	.108E+0	.401E-2	.425E-2	0	0	.108E-3	.345E-3	.969E-3	.906E-3
180	0	0	0	0	0	0	.807E-1	.136E-1	.307E-1	0	0	0	.141E-3	0	0
225	0	0	0	0	0	0	.810E-1	.681E-2	.205E-1	0	0	0	0	0	0
270	0	0	0	0	0	0	.111E+0	.890E-2	.753E-1	0	0	0	0	0	0
315	0	0	.111E-3	0	0	.104E-3	.524E-1	.592E-2	.503E-1	.174E-3	.107E-3	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4h. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-Q

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
045	0	0	0	0	0	0	0	.108E-3	.296E-2	0	0	0	0	0	0
090	0	0	0	0	0	0	.437E-3	.216E-1	.263E-1	0	0	0	.357E-3	.587E-3	.543E-3
135	0	0	0	0	0	0	.311E-1	.275E-1	.998E-3	0	0	.158E-3	.512E-3	.185E-2	.184E-2
180	0	0	0	0	0	0	.220E-3	0	0	0	0	0	0	0	0
225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
270	0	0	0	0	0	0	0	.198E-3	0	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4i. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-R

Wind Dir.	HUP IV									Gates				Maloney	
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	.324E-3	.603E-3	0	.366E-3	.627E-3	.697E-3	.142E-2	.273E-2	0	0	0	0	0	0
045	0	.266E-3	.574E-3	--	.346E-3	.597E-3	.651E-3	--	.277E-2	0	0	0	0	0	0
090	0	.274E-3	.586E-3	0	.345E-3	.637E-3	.820E-3	.725E-3	.233E-2	0	0	0	.128E-3	.287E-3	.291E-3
135	0	.243E-3	.594E-3	0	.315E-3	.644E-3	.125E-2	.152E-2	.217E-2	0	0	0	0	0	0
180	0	.265E-3	.579E-3	0	.331E-3	.610E-3	.958E-3	.131E-2	.206E-2	0	0	0	0	0	0
225	0	.182E-3	.606E-3	0	.248E-3	.646E-3	.226E-2	.231E-2	.258E-2	0	0	0	0	0	0
270	0	.181E-3	.430E-3	0	.204E-3	.380E-3	.502E-3	.185E-2	.215E-2	0	0	.119E-3	.209E-3	0	0
315	0	.224E-3	.515E-3	0	.270E-3	.549E-3	.296E-3	.102E-2	.225E-2	.241E-3	0	0	.101E-3	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4j. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-58

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	0	0	0	--	0	0	0	0	0
045	0	0	0	--	0	0	0	0	0	0	0	0	0	0	0
090	0	0	0	0	--	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						All measured values less than 0.100 E-3									
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	0	0	0	0	--	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4k. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-59

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	--	0	0	0	0	0	0	0	0	0	0	0	0
045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
090	0	0	0	0	--	0	--	0	0	0	0	0	0	.149E-3	.141E-3
135	0	0	0	0	0	0	--	0	0	0	0	0	0	.104E-3	.101E-3
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225	0	0	0	0	0	0	--	0	0	0	0	0	0	0	0
270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4ℓ. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #3-60

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	--	0	0	0	0	0	0	0	0	0	0	0	0
045	0	0	0	0	0	0	--	--	--	0	0	0	0	0	0
090	0	--	0	--	--	0	--	--	--	0	0	0	0	.110E-3	0
135	0	0	0	0	0	0	0	--	0	0	0	0	0	.133E-3	.145E-3
180	0	--	0	0	0	0	0	--	0	0	0	0	0	0	0
225	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
270	0	0	0	0	0	0	--	--	--	0	0	0	0	0	0
315	0	0	0	0	--	0	0	0	0	--	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4m. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #4

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	--	0	0	0	0	0	.349E-1	.216E-1	.132E-1	.182E-2	.712E-1	.300E+0	.858E-1	.849E-2	.795E-2
045	0	0	0	0	0	0	.602E-2	.579E-2	.187E-2	.177E-2	.724E-1	.300E+0	.490E-1	.254E-1	.226E-1
090	0	0	0	0	0	0	0	0	0	.192E-2	.808E-1	.280E+0	.524E-1	.329E-1	.355E-1
135	0	.186E-3	0	0	0	0	.512E-3	0	0	.174E-2	.734E-1	.311E+0	.519E-1	.512E-2	.568E-2
180	--	.111E-3	0	0	0	0	.374E-2	.783E-3	.111E-3	.274E-2	.881E-1	.407E+0	.606E-1	.123E-2	.124E-2
225	0	0	0	0	0	0	.292E-3	0	0	.390E-2	.916E-1	.286E+0	.601E-1	.199E-2	.277E-2
270	0	0	0	0	0	0	.475E-3	.374E-3	0	.399E-2	.948E-1	.301E+0	.907E-1	.477E-2	.454E-2
315	0	0	0	0	0	0	.503E-2	.272E-2	.209E-2	.197E-2	.161E+0	.324E+0	.883E-1	.272E-3	.195E-3

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4n. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #5

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	--	.247E-3	0	.637E-3	0	.535E-3	.105E-2	.394E-2	.638E-2	0	--	.610E-3	.998E-1	.462E-1	.387E-1
045	.402E-3	.317E-3	0	.678E-3	0	.946E-3	0	.400E-2	.104E-1	0	--	.796E-3	.943E-1	.539E-1	.524E-1
090	.464E-3	.462E-3	0	.713E-3	0	.112E-2	0	.114E-3	.110E-3	0	--	.104E-2	.174E+0	.178E+0	.167E+0
135	.286E-3	.174E-2	0	.424E-3	.267E-3	.711E-3	0	0	0	0	--	.415E-2	.216E+0	.263E+0	.218E+0
180	.567E-3	.875E-3	0	.125E-2	0	.430E-3	.597E-2	.457E-2	.119E-2	0	.335E-3	.446E-2	.153E-1	.494E-1	.453E-1
225	.448E-3	.735E-3	0	.809E-3	0	.406E-3	.698E-2	.388E-2	.230E-2	0	.126E-2	.863E-2	.559E-1	.581E-1	.558E-1
270	.310E-3	.159E-3	0	.464E-3	0	.140E-2	.960E-2	.493E-2	.238E-2	0	.175E-2	.107E-1	.389E-1	.774E-1	.885E-1
315	.293E-3	.286E-3	0	.489E-3	0	.721E-3	.947E-2	.153E-1	.219E-1	0	--	.476E-3	.519E-1	.280E+0	.229E+0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4o. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #6

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
090	0	0	0	0	0	0	--	--	0	0	0	0	0	0	0
135	0	0	0	0	0	0	.133E-3	.283E-3	.518E-3	0	0	0	.386E-3	.543E-3	.521E-3
180	--	--	--	--	--	--	0	0	0	--	--	0	0	0	0
225	0	0	0	0	0	0	0	0	0	--	0	0	0	0	0
270	0	0	0	0	0	0	0	--	0	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	--	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4p. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #7

Wind Dir.	HUP IV									Gates				Maloney	
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
045	0	0	0	0	0	0	0	0	.213E-3	0	0	0	.102E-3	0	0
090	0	0	0	0	0	0	0	0	0	0	0	0	.587E-3	.800E-3	.750E-3
135	0	.100E-3	0	0	0	0	.370E-2	.764E-2	.124E-1	0	0	.101E-2	.622E-2	.818E-2	.783E-2
180	0	0	0	0	0	0	.125E-2	.712E-3	.740E-3	0	0	0	0	0	0
225	0	0	0	0	0	0	0	0	0	--	0	0	0	0	0
270	0	0	0	0	0	0	0	--	0	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	--	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4q. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #8

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
045	0	0	0	0	0	0	0	0	.369E-3	0	0	0	0	0	0
090	0	0	0	0	0	0	.119E-3	.259E-3	.440E-3	0	0	.189E-3	.240E-2	.337E-2	.314E-2
135	0	.212E-3	0	0	0	0	.405E-1	.477E-1	.507E-1	.177E-3	0	.173E-2	.496E-2	.134E-1	.131E-1
180	0	0	0	0	0	0	.105E-2	.543E-3	.399E-3	0	0	0	0	0	0
225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
270	0	0	0	0	0	0	0	--	0	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4r. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #9

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
045	0	0	0	0	--	0	0	0	.595E-3	0	0	0	.165E-3	.124E-3	0
090	0	0	0	0	0	0	--	0	0	0	0	0	.282E-3	.360E-3	.335E-3
135	0	0	0	0	0	0	.200E-2	.123E-2	.610E-3	0	0	0	.120E-3	.475E-3	.496E-3
180	0	--	0	0	0	0	.120E-3	0	0	0	0	0	0	0	0
225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
270	0	0	0	0	0	0	.234E-3	.483E-3	0	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4s. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #10

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	--	0	0	0	.952E-3	.781E-3	.198E-2	0	0	0	0	0	0
045	0	0	0	0	0	0	.510E-2	.327E-2	.453E-2	0	0	.421E-3	.559E-3	.751E-3	.683E-3
090	0	0	0	0	0	0	.745E-2	.665E-2	.376E-2	0	0	.154E-3	.973E-3	.251E-2	.247E-2
135	0	0	0	0	0	0	.874E-2	.116E-2	.212E-3	0	0	.516E-3	.351E-3	.165E-2	.173E-2
180	0	0	0	0	0	0	.239E-2	.349E-3	0	0	0	0	0	0	0
225	0	0	0	0	0	0	.903E-3	0	0	0	0	0	0	0	0
270	0	0	0	0	0	0	.160E-2	.529E-2	.309E-3	0	0	0	0	0	0
315	0	0	0	0	0	0	0	.132E-3	.570E-3	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4t. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #11

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	0	0	.474E-3	0	0	0	0	0	0
045	0	0	0	0	--	0	.717E-3	.125E-2	.507E-2	0	0	.600E-3	.124E-2	.140E-2	.118E-2
090	0	0	0	0	0	0	.106E-1	.157E-1	.167E-1	0	0	.316E-3	.404E-2	.626E-2	.589E-2
135	0	0	0	0	0	0	.957E-2	.549E-2	.305E-1	0	0	.107E-2	.999E-3	.399E-2	.428E-2
180	0	0	0	0	--	0	.954E-3	.247E-3	0	0	0	0	0	0	0
225	0	0	0	0	0	0	.342E-3	0	0	0	0	0	0	0	0
270	0	0	0	0	0	0	.227E-2	.448E-2	.304E-3	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	.618E-3	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4u. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #12

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	.834E-3	.971E-3	.680E-3	0	0	0	0	0	--
045	0	0	0	0	0	0	0	.177E-2	.432E-3	0	0	0	.106E-3	0	0
090	0	0	0	0	0	.101E-3	.254E-2	.291E-2	.200E-2	0	0	.129E-3	.382E-3	.710E-3	.715E-3
135	0	0	0	0	0	0	0	0	0	0	0	.101E-3	0	.251E-3	.275E-3
180	0	0	0	0	0	0	.116E-3	.328E-3	0	0	0	0	0	0	0
225	0	0	0	0	0	0	.156E-3	.919E-3	0	0	0	0	0	0	0
270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4v. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #13

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	--	--	0	0	0	0	0	0	0
045	0	0	0	0	0	0	0	0	.196E-3	0	0	0	0	0	0
090	0	0	0	0	0	0	.920E-3	.203E-2	.257E-2	0	0	0	.474E-3	.596E-3	.569E-3
135	0	0	0	0	0	0	.132E-2	.346E-3	0	0	0	.193E-3	.128E-3	.532E-3	.576E-3
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4w. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #14

Wind	HUP IV									Gates				Maloney	
Dir.	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	.117E-3	0	--	.127E-3	.127E+0	.162E+0	.701E-1	.103E-3	.176E-3	.122E-3	.293E-3	.121E-3	.177E-3
045	0	0	0	0	0	0	.195E-2	.296E+0	.129E-1	--	0	.532E-3	.122E-3	.133E-3	0
090	0	0	0	0	0	0	.128E-2	.169E-1	.180E-3	0	0	0	.505E-3	.155E-2	.159E-2
135	0	0	0	0	0	0	.245E-2	.547E-2	.631E-2	0	0	.200E-3	.762E-3	.302E-2	.285E-2
180	0	0	0	0	0	0	.577E-1	.164E+0	.344E-3	0	0	.144E-3	.204E-3	.136E-3	.157E-3
225	0	0	0	0	0	0	.322E-1	.170E+0	.404E-3	0	0	0	0	0	0
270	0	0	0	0	0	0	.925E-2	.174E+0	.524E-2	0	0	0	0	0	0
315	0	0	0	0	0	0	.187E-1	.168E+0	.260E-2	0	0	0	0	0	0

0 in Table 4-4 indicates value less than .999E-4.

Table 4-4x. Tabulation of Concentration Ratios (χ) Measured at HUP IV, Gates & Maloney Building Intakes from Source Group #15

Wind Dir.	HUP IV									Gates				Maloney	
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
000	0	0	0	0	0	0	.269E-3	.148E-2	.274E-2	0	0	.169E-2	.826E-2	.162E-2	.142E-2
045	0	0	0	0	0	0	0	.207E-2	.666E-2	--	0	.196E-2	.558E-2	.447E-2	.330E-2
090	0	0	0	0	0	0	0	0	0	0	0	.316E-3	.555E-2	.692E-2	.653E-2
135	0	0	0	0	0	0	.162E-3	.362E-3	.621E-3	0	0	.584E-3	.503E-2	.427E-2	.385E-2
180	0	.141E-3	0	0	0	0	.347E-2	.200E-2	.133E-2	0	.139E-3	.751E-2	.108E-1	.935E-2	.944E-2
225	0	0	0	0	0	0	.578E-2	.422E-2	.458E-2	0	.121E-3	.215E-2	.777E-2	.111E-1	.103E-1
270	0	.238E-3	0	0	0	.821E-3	.279E-2	.140E-2	.283E-2	0	.126E-3	.280E-2	.453E-2	.699E-2	.610E-2
315	0	.283E-3	0	0	0	0	.153E-2	.235E-2	.656E-2	0	0	.680E-3	.409E-2	.903E-3	.476E-3

0 in Table 4-4 indicates value less than .999E-4.

Table 4-5. Summary of Maximum Concentration Ratios and Direction of Occurrence from Tables 4-4 by Source Group

Source	INTAKES---				HUP IV					Gates				Maloney	
Group	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	090°	090°	090°	0	0	180°	180°	180°	045°	0	0	180°	180°	180°	135°
	.688E-2	.357E-3	.105E-3	0	0	.217E-3	.807E-2	.791E-2	.247E-1	0	0	.185E-1	.250E-1	.306E-1	.169E-1
2	0	0	0	0	0	0	180°	045°	045°	0	000°	180°	135°	135°	135°
	0	0	0	0	0	0	.480E-3	.511E-3	.197E-2	0	.111E-3	.104E-2	.191E-2	.167E-2	.153E-2
3-1	0	0	0	0	0	0	180°	045°	045°	000°	0	180°	135°	135°	135°
	0	0	0	0	0	0	.285E+0	.340E+0	.186E+0	.515E-3	0	.435E-3	.161E-2	.367E-2	.351E-2
3-2	0	0	0	0	0	0	000°	045°	270°	135°	180°	180°	135°	135°	135°
	0	0	0	0	0	0	.233E+0	.300E+0	.450E+0	.658E-3	.147E-3	.983E-3	.327E-2	.107E-1	.104E-1
3-3	Omitted														
3-4	0	180°	180°	0	180°	180°	180°	180°	270°	0	0	180°	135°	135°	135°
	0	.123E-3	.241E-3	0	.135E-3	.291E-3	.275E-1	.286E-1	.189E-1	0	0	.371E-3	.590E-3	.180E-2	.174E-2
3-C	0	0	315°	0	0	315°	090°	045°	270°	315°	315°	135°	135°	135°	135°
	0	0	.111E-3	0	0	.104E-3	.141E+0	.183E-1	.753E-1	.174E-3	.107E-3	.108E-3	.345E-3	.969E-3	.906E-3
3-Q	0	0	0	0	0	0	135°	135°	090°	0	0	135°	135°	135°	135°
	0	0	0	0	0	0	.311E-1	.275E-1	.263E-1	0	0	.158E-3	.512E-3	.185E-2	.184E-2
3-R	Omitted														
3-58	All Values less than 0.100E-3														
3-59	0	0	0	0	0	0	0	0	0	0	0	0	0	090°	090°
	0	0	0	0	0	0	0	0	0	0	0	0	0	.149E-3	.141E-3
3-60	0	0	0	0	0	0	0	0	0	0	0	0	0	135°	135°
	0	0	0	0	0	0	0	0	0	0	0	0	0	.133E-3	.145E-3

0 indicates value less than .999E-4.

Table 4-5. Summary of Maximum Concentration Ratios and Direction of Occurrence from Tables 4-4 by Source Group (Continued)

Source	INTAKES---				HUP IV					Gates				Maloney	
Group	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4	0	135°	0	0	0	0	000°	000°	000°	270°	315°	180°	270°	090°	090°
	0	.186E-3	0	0	0	0	.349E-1	.216E-1	.132E-1	.399E-2	.161E+0	.407E+0	.907E-1	.329E-1	.355E-1
5	180°	135°	0	180°	135°	270°	270°	315°	315°	0	270°	270°	135°	315°	315°
	.567E-3	.174E-2	0	.125E-2	.267E-3	.140E-2	.960E-2	.153E-1	.219E-1	0	.175E-2	.107E-1	.216E+0	.280E+0	.229E+0
6	0	0	0	0	0	0	135°	135°	135°	0	0	0	135°	135°	135°
	0	0	0	0	0	0	.133E-3	.283E-3	.518E-3	0	0	0	.386E-3	.543E-3	.521E-3
7	0	135°	0	0	0	0	135°	135°	135°	0	0	135°	135°	135°	135°
	0	.100E-3	0	0	0	0	.370E-2	.764E-2	.124E-1	0	0	.101E-2	.622E-2	.818E-2	.783E-2
8	0	135°	0	0	0	0	135°	135°	135°	135°	0	135°	135°	135°	135°
	0	.212E-3	0	0	0	0	.405E-1	.477E-1	.507E-1	.177E-3	0	.173E-2	.496E-2	.134E-1	.131E-1
9	0	0	0	0	0	0	135°	135°	135°	0	0	0	090°	135°	135°
	0	0	0	0	0	0	.200E-2	.123E-2	.610E-3	0	0	0	.282E-3	.475E-3	.496E-3
10	0	0	0	0	0	0	135°	090°	045°	0	0	135°	090°	090°	090°
	0	0	0	0	0	0	.874E-2	.665E-2	.453E-2	0	0	.516E-3	.973E-3	.251E-2	.247E-2
11	0	0	0	0	0	0	090°	090°	135°	0	0	135°	090°	090°	090°
	0	0	0	0	0	0	.106E-1	.157E-1	.305E-1	0	0	.107E-2	.404E-2	.626E-2	.589E-2
12	0	0	0	0	0	090°	090°	090°	090°	0	0	090°	090°	090°	090°
	0	0	0	0	0	.101E-3	.254E-2	.291E-2	.200E-2	0	0	.129E-3	.382E-3	.710E-3	.715E-3
13	0	0	0	0	0	0	135°	090°	090°	0	0	135°	090°	090°	135°
	0	0	0	0	0	0	.132E-2	.203E-2	.257E-2	0	0	.193E-3	.474E-3	.596E-3	.576E-3
14	0	0	000°	0	0	000°	000°	045°	000°	000°	000°	045°	135°	135°	135°
	0	0	.117E-3	0	0	.127E-3	.127E+0	.296E+0	.701E-1	.103E-3	.176E-3	.532E-3	.762E-3	.302E-2	.285E-2
15	0	315°	0	0	0	270°	225°	225°	045°	0	180°	180°	150°	225°	225°
	0	.283E-3	0	0	0	.821E-3	.578E-2	.422E-2	.666E-2	0	.139E-3	.751E-2	.108E-1	.111E-1	.103E-1

0 indicates value less than .999E-4.

Table 4-6. Tabulation of Run Numbers Assigned to the "Follow-On" Tests and Model Test Parameters/Tracers

Run #	Wind Dir.	Wind Vel. (m/s)	Source Group #	Tracer (%-Type)	Volume Flow (m^3/s)	Source Group #	Tracer (%-Type)	Volume Flow (m^3/s)
201	270°	2.44	2	9.01M	.378E-4	1	9.99E	.104E-2
201R	270°							
202	225°							
203	270°		4	9.01M	.324E-3	5	9.99E	.630E-3
203R	270°							
204	315°							
208	090°					3-Q	9.99E	.115E-3
209	270°		3-1	9.01M	.362E-3	3-2	9.99E	.657E-3
210	315°							
211	225°							

Table 4-7. Measured Concentration Ratios (χ), by Wind Direction, for the Eastern and Western HUP IV Penthouse Air Inlets, for the Source Groups Listed

	W.D.			
S.G.	090°	225°	270°	315°
1		E/.345E-2 W/.304E-2	E/.347E-2 W/.142E-2	
2		E/.195E-3 W/.875E-4	E/.180E-3 W/.107E-3	
3-1		E/.847E-3 W/.146E-2	E/.118E-1 W/.151E-1	E/.270E-1 W/.118E-1
3-2		E/.446E-1 W/.127E+0	E/.438E-1 W/.177E+0	E/.418E-1 W/.162E+0
3-Q	E/.207E-1 W/.227E-1			
4			E/.104E-2 W/.582E-3	E/.262E-2 W/.286E-2
5			E/.401E-2 W/.454E-2	E/.255E-2 W/.479E-2

NOTE: Where test runs were repeated, the most conservative values were tabulated.

Table 4-8a. Conversion of Liquid Solvent Evaporation Rates (ml/8-hr) to Solvent Vapor Concentrations (ppm) in Selected Exhausts of Source Group 4

Exhaust #	Solvent	Liquid Solvent Evaporation Rate (ml/8-hr)	K*	Solvent Vapor Creation Rate (ml/8-hr)	Exhaust Discharge (m^3/8-hr)	Exhaust Solvent Vapor Concentration (ppm)
121	Acetone	100	326.5	32,650	50,019	.653
121	Ether	5	231.2	1,156	50,019	.023
116	Ethyl Acetate	40	245.1	9,804	95,145	.103
116	Methanol	1	592.5	593	95,145	.006
116	Trimethyl Benzene	4	174.9	700	95,145	.007
116	Xylene	1	198.9	199	95,145	.002

*Solvent Liquid-to-Vapor Volume Ratio

Table 4-8b. Conversion of Liquid Solvent Evaporation Rates (ml/8-hr) to Solvent Vapor Concentrations (ppm) in Selected Exhausts of Source Group 5

Exhaust #	Solvent	Liquid Solvent Evaporation Rate (ml/8-hr)	K*	Solvent Vapor Creation Rate (ml/8-hr)	Exhaust Discharge (m^3/8-hr)	Exhaust Solvent Vapor Concentration (ppm)
125	Ethanol	8	411.0	3,288	13,592	.242
	Formaldehyde	4	651.4	2,606	13,592	.192
	Propylene Oxide	7	355.0	2,485	13,592	.183
144	Acetone	5	326.5	1,633	320,773	.005
	Ethanol	7,445	411.0	3,059,895	320,773	9.54
	Formaldehyde	960	651.4	625,344	320,773	1.95
	Methanol	20	592.5	11,850	320,773	.037
	Toluene (Readi-Solv")	300	225.8	67,740	320,773	.211
	Xylene	3,140	198.9	624,546	320,773	1.95
156, 158 & 162	Ethyl Ether	200	231.2	46,240	25,145	1.84
	Methylene Chloride	50	375.0	18,750	25,145	.746
159	Chloroform	10	298.1	2,981	15,631	.191
	Ethyl Acetate	30	245.1	7,353	15,631	.470
	Hexane	20	183.8	3,676	15,631	.235
173	Acetonitrile	25	459.5	11,488	28,543	.402
	Chloroform	10	298.1	2,981	28,543	.104
	Ethyl Acetate	10	245.1	2,451	28,543	.086
	Ethyl Ether	5	231.2	1,156	28,543	.040
	Methanol	10	592.5	5,925	28,543	.208
	Toluene	20	225.8	4,516	28,543	.158

*Solvent Liquid-to-Vapor Volume Ratio

Table 4-8c. Total Solvent Vapor Concentrations (ppm) from Selected Exhausts within Source Group #5

	Vapor Concentration at Exhausts (ppm)					Total Vapor the Exhausts (ppm)
Solvent	#125	#144	#158, #162	#159	#173	
Acetone		.005				.005
Acetonitrile					.402	.402
Chloroform				.191	.104	.134
Ethanol	.242	9.54				9.16
Ethyl Acetate				.470	.086	.222
Ethyl Ether			1.84		.040	.883
Formaldehyde	.192	1.95				1.87
Hexane				.235		.235
Methanol		.037			.208	.051
Methylene Chloride			.746			.746
Propylene Oxide	.183					.183
Toluene		.211			.158	.207
Xylene		1.95				1.95

Table 4-8d. Solvent Vapor Concentrations (ppm) at HUP IV Penthouse Air Intakes (East and West) from Source Group #4 Exhausts

Solvent (Exhaust #)	Exhaust Vapor Concentrations (ppm)	χ*	Vapor Concentrations for East Inlets (ppm)	χ**	Vapor Concentrations for West Inlets (ppm)
Acetone (121)	.653	.0026	.001698	.0029	.001894
Ethyl Acetate (116)	.103		.000268		.000299
Ethyl Ether (121)	.023		.000060		.000067
Methanol (116)	.006		.000016		.000017
Trimethyl Benzene (116)	.007		.000018		.000020
Xylene (116)	.002		.000005		.000006

*Concentration ratio measured for worst wind conditions (315°) = .0026.

**Concentration ratio measured for worst wind conditions (315°) = .0029.

Table 4-8e. Solvent Vapor Concentrations (ppm) at HUP IV Penthouse Air Intakes (East and West) from Source Group #5 Exhausts

Solvent	Exhaust Vapor Concentrations (ppm)	χ*	Vapor Concentrations for East Inlets (ppm)	χ**	Vapor Concentrations for West Inlets (ppm)
Acetone	.005	.00401	.00002	.00480	.00002
Acetonitrile	.402		.00161		.00193
Chloroform	.134		.00054		.00064
Ethanol	9.16		.0367		.0440
Ethyl Acetate	.222		.00089		.00107
Ethyl Ether	.883		.00354		.00424
Formaldehyde	1.87		.00750		.00898
Hexane	.235		.00094		.00112
Methanol	.051		.00020		.00024
Methylene Chloride	.746		.00299		.00358
Propylene Oxide	.183		.00073		.00087
Toluene	.207		.00083		.00099
Xylene	1.95		.00782		.00936

*Concentration ratio measured for worst wind conditions (270°) = .00401.

**Concentration ratio measured for worst wind conditions (315°) = .00480.

Table 5-1. Identification of Visualization Data Recorded on VHS Video Cassettes

Run No.	Description	Wind Direction
	CASSETTE #1	
1	Med. Ed. Incinerator Source	225°
2	Med. Ed. Incinerator Source	180°
3	HUP IV Cooling Towers	180°
4	HUP IV Cooling Towers	225°
5	HUP IV Cooling Towers	270°
6	HUP IV Cooling Towers	315°
7	HUP IV Cooling Towers	360°
8	HUP IV Cooling Towers	045°
9	HUP IV Cooling Towers	090°
10	HUP IV Cooling Towers	135°
11	Source Group 11	135°
12	Source Group 11	180°
13	Source Group 11	225°
14	Source Group 11	270°
15	Source Group 11	315°
16	Source Group 11	360°
17	Source Group 11	045°
18	Source Group 11	090°
19	Intakes 36 - Sources Varied	090°
20	Intakes 36 - Sources Varied	135°
21	Intakes 36 - Sources Varied	180°
22	Intakes 36 - Sources Varied	225°
23	Intakes 36 - Sources Varied	270°
24	Intakes 36 - Sources Varied	315°
25	Intakes 36 - Sources Varied	360°
26	Intakes 36 - Sources Varied	045°
27	Intakes 13, 14, 15, 16 - Sources Varied	045°
28	Intakes 13, 14, 15, 16 - Sources Varied	090°
29	Intakes 13, 14, 15, 16 - Sources Varied	135°
30	Intakes 13, 14, 15, 16 - Sources Varied	180°
31	Intakes 13, 14, 15, 16 - Sources Varied	225°
32	Intakes 13, 14, 15, 16 - Sources Varied	270°
33	Intakes 13, 14, 15, 16 - Sources Varied	315°
34	Intakes 13, 14, 15, 16 - Sources Varied	360°
35	Intakes 37, 38, 39 - Sources Varied	360°
36	Intakes 37, 38, 39 - Sources Varied	045°
37	Intakes 37, 38, 39 - Sources Varied	090°

Table 5-1. continued.

Run No.	Description	Wind Direction
	CASSETTE #2	
38	Intakes 37, 38, 39 - Sources Varied	135°
39	Intakes 37, 38, 39 - Sources Varied	180°
40	Intakes 37, 38, 39 - Sources Varied	225°
41	Intakes 37, 38, 39 - Sources Varied	270°
42	Intakes 37, 38, 39 - Sources Varied	315°
101	Intakes HUP IV Penthouse - Sources 1 & 2	225°
102	Intakes HUP IV Penthouse - Sources 1 & 2	270°
103	Intakes HUP IV Penthouse - Sources 4 & 5	270°
104	Intakes HUP IV Penthouse - Sources 4 & 5	315°
105	Intakes HUP IV Penthouse - Source 3	315°
106	Intakes HUP IV Penthouse - Source 3	270°
107	Intakes HUP IV Penthouse - Source 3	225°
108	Intakes HUP IV Penthouse - Source 3-Q	090°

NOTE 1: Runs 101 through 108 were made subsequent to October 1984 modifications to HUP IV rooftop configuration.

NOTE 2: Counter number and run times were supplied in a separate Video Log.

WIND-TUNNEL STUDY OF EXHAUST-INTAKE CROSS CONTAMINATION AND DISPERSION OF ROOFTOP EMISSIONS, HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA (HUP PHASE IV)

- APPENDICES -

by

J. E. Cermak[1] and J. A. Peterka[2]

FLUID MECHANICS AND
WIND ENGINEERING PROGRAM

COLLEGE OF ENGINEERING

COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO

WIND-TUNNEL STUDY OF EXHAUST-INTAKE CROSS CONTAMINATION AND DISPERSION OF ROOFTOP EMISSIONS, HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA (HUP PHASE IV)

- APPENDICES -

by

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CSU Project 2-95750

July 1984
Modified March 1985

CER84-85JEC-JAP1a

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APPENDIX A

TABULATION OF CONCENTRATION RATIOS

RUN #1

W. D. 000°

SAMPLE PT.	SOURCE GROUP #12 CONCENTRATION RATIO	SOURCE GROUP #13 CONCENTRATION RATIO
1	.817E-03	.304E-04
2	.634E-05	********
4	.379E-04	.174E-05
5	.440E-04	.199E-05
6	.478E-04	.139E-05
7	.391E-04	.191E-05
8	.428E-04	.252E-05
9	.485E-04	.201E-05
10	.834E-03	********
11	.971E-03	********
12	.680E-03	.121E-05
13	.225E-04	.951E-05
14	.559E-04	.262E-05
15	.510E-04	.336E-05
16	.484E-04	.189E-05
17	.428E-06	.117E-05
18	********	.410E-07
20	.190E-02	.717E-03
21	.544E-03	.385E-04
22	.421E-04	.375E-05
23	.292E-03	.189E-03
24	.295E-03	.186E-03
25	.409E-02	.462E-03
26	.413E-02	.343E-03
27	.174E-02	.443E-02
28	.147E-02	.321E-02
29	.103E-02	.232E-04
30	.610E-02	.152E-02
31	.109E-02	.117E-04
32	.569E-03	.501E-04
33	.537E-03	.850E-04
34	.206E-03	.258E-04
35	.196E-03	.781E-05
36	.340E-02	.820E-06
37	.440E-02	.476E-05
38	.461E-02	.230E-05
39	.302E-02	.107E-05
40	.836E-05	********
41	.485E-04	.504E-05
42	.180E-05	.143E-05
43	.199E-02	.228E-05
44	.412E-02	.861E-06
45	.385E-02	.476E-05
46	.483E-02	.138E-01
47	.936E-04	.156E-04

RUN #2

W. D. 045°

SAMPLE PT.	SOURCE GROUP #12 CONCENTRATION RATIO	SOURCE GROUP #13 CONCENTRATION RATIO
1	.673E-02	.415E-02
2	.220E-03	.131E-03
3	.208E-02	.136E-02
4	.409E-04	.590E-05
5	.371E-04	.465E-05
6	.359E-04	.406E-05
7	.382E-04	.398E-05
8	.383E-04	.457E-05
9	.371E-04	.535E-05
10	.451E-04	.111E-05
11	.177E-02	.304E-04
12	.432E-03	.196E-03
13	.345E-04	.605E-05
14	.324E-04	.449E-05
15	.738E-04	.280E-04
16	.106E-03	.501E-04
17	.848E-04	.428E-04
18	.666E-04	.335E-04
20	.917E-03	.110E-02
21	.323E-02	.245E-02
22	.416E-04	.224E-04
23	.313E-03	.460E-03
24	.520E-03	.567E-03
25	.398E-03	.108E-03
26	.493E-03	.118E-03
27	.173E-02	.182E-01
28	.163E-02	.164E-01
29	.406E-02	.430E-02
30	.134E-02	.401E-03
31	.863E-02	.582E-02
32	.570E-02	.362E-02
33	.774E-03	.277E-03
34	.571E-03	.192E-03
35	.917E-03	.560E-03
36	.395E-02	.164E-05
37	.958E-02	.385E-02
38	.101E-01	.443E-02
39	.630E-02	.250E-02
40	.156E-04	.517E-05
41	.423E-04	.676E-05
42	.504E-03	.726E-05
43	.615E-02	.255E-02
44	.127E-01	.513E-02
45	.129E-01	.522E-02
46	.304E-02	.262E-03
47	.959E-04	.545E-05

RUN #3

W. D. 090°

SAMPLE PT.	SOURCE GROUP #12 CONCENTRATION RATIO	SOURCE GROUP #13 CONCENTRATION RATIO
1	.157E-02	.190E-02
2	.481E-03	.658E-03
3	.147E-02	.262E-02
4	.866E-04	.748E-05
5	.970E-04	.861E-05
6	.996E-04	.355E-05
7	.866E-04	.348E-05
8	.941E-04	.340E-05
9	.101E-03	.580E-05
10	.254E-02	.920E-03
11	.291E-02	.203E-02
12	.200E-02	.257E-02
13	.978E-04	.133E-04
14	.951E-04	.527E-05
15	.129E-03	.581E-04
16	.382E-03	.474E-03
17	.710E-03	.596E-03
18	.715E-03	.569E-03
20	.710E-03	.123E-04
21	.136E-02	.162E-02
22	.102E-03	.425E-04
23	.439E-04	.111E-04
24	.291E-04	.116E-04
25	.720E-05	.279E-05
26	.111E-04	.330E-05
27	.163E-03	.539E-02
28	.115E-03	.433E-02
29	.490E-02	.499E-02
30	.185E-04	.164E-04
31	.166E-02	.146E-02
32	.115E-02	.130E-02
33	.475E-02	.273E-02
34	.384E-02	.243E-02
35	.180E-03	.696E-04
36	.598E-02	.392E-03
37	.108E-01	.497E-02
38	.110E-01	.582E-02
39	.574E-02	.285E-02
40	.417E-02	.863E-05
41	.126E-03	.183E-04
42	.111E-01	.326E-04
43	.479E-02	.350E-02
44	.102E-01	.683E-02
45	.981E-02	.774E-02
46	.571E-04	.137E-02
47	.857E-04	.474E-05

RUN #4

W. D. 135°

SAMPLE PT.	SOURCE GROUP #12 CONCENTRATION RATIO	SOURCE GROUP #13 CONCENTRATION RATIO
1	.626E-05	.894E-05
2	.763E-05	.832E-05
3	.373E-05	.965E-05
4	.428E-05	.469E-05
5	.501E-05	.533E-05
6	.540E-05	.449E-05
7	.407E-05	.445E-05
8	.484E-05	.463E-05
9	.531E-05	.465E-05
10	.163E-04	.132E-02
11	.738E-04	.346E-03
12	.203E-04	.535E-04
13	.506E-05	.547E-05
14	.514E-05	.476E-05
15	.101E-03	.193E-03
16	.630E-04	.128E-03
17	.251E-03	.532E-03
18	.275E-03	.576E-03
20	.780E-05	.476E-05
21	.660E-05	.131E-04
22	.634E-05	.353E-05
23	.368E-05	.266E-05
24	.330E-05	.228E-05
25	.488E-05	.109E-05
26	.527E-05	.117E-05
27	.698E-05	.518E-04
28	.758E-05	.390E-04
29	.159E-04	.632E-04
30	.613E-05	.191E-05
31	.964E-05	.156E-04
32	.788E-05	.176E-04
33	.231E-04	.108E-02
34	.184E-04	.737E-03
35	.544E-05	.508E-05
36	.476E-04	.577E-02
37	.103E-03	.716E-02
38	.104E-03	.743E-02
39	.631E-04	.345E-02
40	.133E-02	.560E-02
41	.840E-05	.241E-04
42	.385E-02	.675E-02
43	.404E-04	.465E-02
44	.931E-04	.895E-02
45	.698E-04	.906E-02
46	.746E-05	.513E-02
47	.397E-04	.119E-04

RUN #5

W. D. 180°

SAMPLE PT.	SOURCE GROUP #12 CONCENTRATION RATIO	SOURCE GROUP #13 CONCENTRATION RATIO
1	.364E-05	.277E-05
2	.148E-04	.361E-05
3	.630E-05	.330E-05
4	.155E-04	.340E-05
5	.196E-04	.314E-05
6	.223E-04	.336E-05
7	.149E-04	.332E-05
8	.182E-04	.346E-05
9	.205E-04	.330E-05
10	.116E-03	.874E-04
11	.328E-03	.179E-04
12	.146E-05	.307E-05
13	.240E-04	.402E-05
14	.199E-04	.353E-05
15	.139E-04	.748E-05
16	.977E-05	.998E-05
17	.724E-05	.898E-05
18	.806E-05	.116E-04
20	.172E-04	.541E-05
21	.134E-04	.439E-05
22	.224E-04	.193E-05
23	.283E-05	.162E-05
24	.154E-05	.148E-05
25	.107E-05	.123E-05
26	.176E-05	.383E-05
27	.333E-04	.723E-04
28	.309E-04	.177E-04
29	.767E-05	.927E-05
30	.120E-05	.201E-05
31	.788E-05	.517E-05
32	.390E-05	.797E-05
33	.784E-05	.189E-04
34	.113E-04	.213E-04
35	.360E-05	.234E-05
36	.540E-03	.132E-03
37	.581E-04	.231E-01
38	.484E-04	.219E-01
39	.344E-04	.125E-01
40	.349E-02	.471E-02
41	.242E-04	.339E-04
42	.127E-03	.187E-01
43	.673E-04	.655E-02
44	.671E-04	.169E-01
45	.579E-04	.202E-01
46	.237E-04	.414E-01
47	.708E-04	.888E-04

RUN #6

W. D. 225°

SAMPLE PT.	SOURCE GROUP #12 CONCENTRATION RATIO	SOURCE GROUP #13 CONCENTRATION RATIO
1	.454E-04	.168E-05
2	.405E-04	.984E-06
3	.904E-05	.156E-05
4	.404E-04	.254E-05
5	.579E-04	.137E-05
6	.911E-04	.166E-05
7	.407E-04	.199E-05
8	.637E-04	.160E-05
9	.906E-04	.131E-05
10	.156E-03	.250E-05
11	.919E-03	.107E-05
12	.827E-05	.189E-05
13	.839E-04	.187E-05
14	.740E-04	.129E-05
15	.552E-04	.166E-05
16	.217E-04	.922E-06
17	.136E-04	.154E-05
18	.134E-04	.160E-05
20	.395E-03	.207E-05
21	.131E-04	.223E-05
22	.291E-04	.389E-06
23	.180E-04	.266E-06
24	.219E-05	.574E-06
25	.109E-04	.131E-05
26	.124E-04	.310E-05
27	.276E-04	.115E-03
28	.183E-04	.486E-04
29	.116E-04	.547E-05
30	.741E-05	.623E-05
31	.153E-04	.299E-05
32	.172E-04	.609E-05
33	.265E-04	.114E-04
34	.403E-04	.879E-05
35	.124E-04	.902E-06
36	.389E-03	.151E-04
37	.851E-03	.125E-03
38	.543E-03	.119E-03
39	.325E-03	.738E-04
40	.119E-03	.535E-04
41	.486E-04	.679E-05
42	.899E-03	.127E-03
43	.205E-03	.505E-04
44	.303E-03	.123E-03
45	.318E-03	.140E-03
46	.656E-04	.367E-01
47	.827E-04	.484E-04

RUN #7

W. D. 270°

SAMPLE PT.	SOURCE GROUP #12 CONCENTRATION RATIO	SOURCE GROUP #13 CONCENTRATION RATIO
1	.211E-04	.180E-05
2	.192E-04	.113E-05
3	.797E-05	.160E-05
4	.709E-04	.437E-05
5	.772E-04	.383E-05
6	.857E-04	.392E-05
7	.716E-04	.443E-05
8	.782E-04	.398E-05
9	.770E-04	.381E-05
10	.840E-04	.357E-05
11	.315E-02	.371E-05
12	.905E-04	.143E-05
13	.864E-04	.484E-05
14	.776E-04	.396E-05
15	.565E-04	.339E-05
16	.343E-04	.217E-05
17	.227E-04	.178E-05
18	.212E-04	.174E-05
20	.313E-03	.217E-05
21	.296E-05	.250E-05
22	.403E-05	.115E-05
23	.430E-04	.236E-05
24	.977E-05	.146E-05
25	.143E-04	.178E-04
26	.186E-04	.252E-04
27	.890E-04	.151E-02
28	.905E-04	.962E-02
29	.161E-04	.204E-04
30	.299E-04	.102E-03
31	.857E-05	.449E-05
32	.147E-04	.758E-05
33	.219E-03	.730E-04
34	.120E-03	.305E-04
35	.446E-05	.246E-05
36	.146E-02	.435E-04
37	.653E-03	.386E-03
38	.257E-03	.337E-03
39	.180E-03	.187E-03
40	.437E-04	.102E-04
41	.825E-04	.101E-04
42	.724E-03	.247E-03
43	.298E-03	.192E-03
44	.152E-03	.427E-03
45	.141E-03	.446E-03
46	.312E-03	.199E-01
47	.118E-03	.254E-04

RUN #8

W. D. 315°

SAMPLE PT.	SOURCE GROUP #12 CONCENTRATION RATIO	SOURCE GROUP #13 CONCENTRATION RATIO
1	.351E-05	.240E-05
2	.133E-05	.697E-06
3	.133E-05	.156E-05
4	.381E-05	.281E-05
5	.386E-05	.269E-05
6	.386E-05	.307E-05
7	.411E-05	.285E-05
8	.390E-05	.297E-05
9	.420E-05	.318E-05
10	.626E-05	.240E-05
11	.795E-04	.205E-05
12	.690E-05	.203E-05
13	.347E-05	.375E-05
14	.326E-05	.312E-05
15	.279E-05	.289E-05
16	.643E-05	.258E-05
17	.287E-05	.172E-05
18	.317E-05	.113E-05
20	.199E-04	.111E-03
21	.557E-05	.330E-05
22	.309E-05	.201E-05
23	.381E-05	.334E-05
24	.797E-05	.469E-05
25	.968E-05	.309E-03
26	.111E-04	.397E-03
27	.683E-04	.851E-04
28	.677E-04	.470E-04
29	.373E-04	.738E-05
30	.245E-04	.966E-03
31	.256E-04	.490E-05
32	.437E-05	.742E-05
33	.256E-03	.111E-04
34	.701E-04	.804E-05
35	.390E-05	.301E-05
36	.156E-04	.746E-05
37	.315E-03	.426E-04
38	.395E-03	.364E-04
39	.285E-03	.222E-04
40	.728E-05	.135E-04
41	.428E-05	.537E-05
42	.312E-04	.349E-04
43	.338E-03	.186E-04
44	.517E-03	.367E-04
46	.179E-03	.116E-01
47	.430E-04	.192E-04

RUN #9

W. D. 000°

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
1	.130E-02	.102E-02
2	.263E-02	.275E-01
3	.748E-04	.114E-02
5	.116E-04	.247E-03
6	.605E-05	.235E-04
7	.106E-04	.637E-03
8	.484E-05	.234E-04
9	.111E-04	.535E-03
10	.349E-01	.105E-02
11	.216E-01	.394E-02
12	.132E-01	.638E-02
13	.182E-02	.249E-04
14	.712E-01	********
15	.300E+00	.610E-03
16	.858E-01	.998E-01
17	.849E-02	.462E-01
18	.795E-02	.387E-01
19	.182E-02	.171E-03
20	.422E-03	.462E-04
21	.132E-02	.627E-03
22	.218E-03	.114E-03
23	.426E-03	.653E-03
24	.594E-03	.859E-03
25	.640E-05	.102E-04
26	.149E-04	.107E-04
27	.850E-04	.878E-05
28	.983E-04	.788E-05
29	.789E-03	.210E-03
30	.327E-05	.671E-05
31	.482E-03	.354E-03
32	.892E-03	.177E-02
33	.882E-02	********
34	.212E-02	.111E-04
35	.991E-04	.779E-04
36	.114E-01	********
37	.156E-04	.731E-05
38	.708E-05	.713E-05
39	.672E-05	.833E-05
40	.206E-05	.658E-05
41	.645E-05	.114E-04
42	.132E-04	.801E-05
43	.564E-05	.853E-05
44	.618E-05	.634E-05
45	.829E-05	.664E-05
46	.985E-06	.818E-05
47	.717E-06	.480E-05

RUN #10

W. D. 045°

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
1	.157E-03	.109E-04
2	.324E-02	.161E-01
3	.168E-02	.384E-02
4	.154E-04	.402E-03
5	.212E-04	.317E-03
6	.114E-04	.166E-04
7	.193E-04	.678E-03
8	.129E-04	.424E-04
9	.173E-04	.946E-03
10	.602E-02	.776E-05
11	.579E-02	.400E-02
12	.187E-02	.104E-01
13	.177E-02	.296E-04
14	.724E-01	********
15	.300E+00	.796E-03
16	.490E-01	.943E-01
17	.254E-01	.539E-01
18	.226E-01	.524E-01
19	********	********
20	.999E-05	.187E-04
21	.529E-04	.298E-04
22	.147E-04	.174E-04
23	.162E-03	.302E-03
24	.288E-03	.547E-03
25	.358E-05	.598E-05
26	.542E-05	.474E-05
27	.551E-05	.634E-05
28	.237E-05	.433E-05
29	.142E-04	.981E-05
30	.488E-05	.465E-05
31	.161E-04	.621E-05
32	.101E-03	.448E-04
33	.156E-02	.593E-05
34	.861E-03	.295E-04
35	.176E-04	.130E-04
36	.163E-02	.384E-05
37	.564E-05	.651E-05
38	.192E-04	.171E-04
39	.932E-05	.838E-05
40	.242E-05	.409E-05
41	.128E-04	.116E-04
42	.552E-04	.119E-04
43	.676E-05	.842E-05
44	.717E-05	.645E-05
45	.533E-05	.583E-05
46	.313E-05	.581E-05
47	.520E-05	.362E-05

RUN #11

W. D. 090°

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
1	.520E-05	.698E-05
2	.579E-03	.276E-01
3	.165E-03	.756E-02
4	.114E-04	.464E-03
5	.152E-04	.462E-03
6	.981E-05	.221E-04
7	.147E-04	.713E-03
8	.909E-05	.496E-04
9	.851E-05	.112E-02
10	.707E-04	.369E-04
11	.413E-04	.114E-03
12	.189E-04	.110E-03
13	.192E-02	.155E-04
14	.808E-01	********
15	.280E+00	.104E-02
16	.524E-01	.174E+00
17	.329E-01	.178E+00
18	.355E-01	.167E+00
19	.730E-04	.451E-03
20	********	.724E-04
21	********	.487E-04
22	********	********
23	.107E-04	.289E-04
24	.112E-04	.268E-04
25	.246E-05	.938E-05
26	.297E-04	.154E-04
27	.524E-05	.117E-04
28	.188E-05	.754E-05
29	.967E-05	.155E-04
30	.349E-05	.801E-05
31	.793E-05	.155E-04
32	.748E-05	.276E-04
33	.287E-04	.103E-04
34	.125E-03	.573E-04
35	.10[illegible]E-04	.186E-04
36	.565E-04	.319E-05
37	.322E-05	.784E-05
38	.560E-05	.973E-05
39	.726E-05	.117E-04
40	.112E-05	.459E-05
41	.915E-04	.508E-04
42	.161E-03	.846E-04
43	.470E-05	.992E-05
44	.631E-05	.949E-05
45	.710E-04	.415E-04
46	.284E-04	.121E-04
47	********	********

RUN #12

W. D. 135°

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
1	********	.590E-05
2	.336E-03	.118E-01
3	.184E-04	.278E-03
4	.339E-05	.286E-03
5	.186E-03	.174E-02
6	.458E-07	.118E-04
7	.197E-05	.424E-03
8	.297E-04	.267E-03
9	.132E-04	.711E-03
10	.512E-03	.430E-04
11	.410E-04	.337E-04
12	.550E-06	.185E-04
13	.174E-02	.708E-05
14	.734E-01	********
15	.311E+00	.415E-02
16	.519E-01	.216E+00
17	.512E-02	.263E+00
18	.568E-02	.218E+00
19	.203E-03	.527E-03
20	.394E-04	.127E-03
21	.500E-05	.509E-04
22	.215E-05	.422E-04
23	********	.258E-04
24	.504E-06	.284E-04
25	********	.203E-04
26	.193E-05	.214E-04
27	.917E-06	.205E-04
28	.779E-06	.187E-04
29	.371E-05	.201E-04
30	********	.125E-04
31	.188E-05	.143E-04
32	********	.163E-04
33	.307E-05	.187E-04
34	.683E-04	.586E-04
35	.733E-06	.118E-04
36	.327E-04	.179E-04
37	.490E-05	.219E-04
38	.637E-05	.208E-04
39	.692E-05	.171E-04
40	.313E-03	.943E-03
41	.822E-04	.724E-04
42	.130E-03	.166E-03
43	.101E-05	.111E-04
44	.458E-05	.168E-04
45	.536E-05	.180E-04
46	.285E-04	.341E-04
47	********	********

RUN #13

W. D. 180°

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
1	.353E-05	.291E-04
2	.682E-03	.423E-01
3	.308E-03	.200E-01
4	********	.567E-03
5	.111E-03	.875E-03
6	.756E-05	.288E-04
7	.208E-04	.125E-02
8	.154E-04	.834E-04
9	.507E-04	.430E-03
10	.374E-02	.597E-02
11	.783E-03	.457E-02
12	.111E-03	.119E-02
13	.274E-02	.119E-04
14	.881E-01	.335E-03
15	.407E+00	.446E-02
16	.606E-01	.153E-01
17	.123E-02	.494E-01
18	.124E-02	.453E-01
20	.304E-04	.393E-04
21	.147E-04	.186E-04
22	.127E-04	.114E-04
23	.765E-05	.104E-04
24	.541E-05	.102E-04
25	.834E-05	.114E-04
26	.798E-05	.921E-05
27	.103E-04	.156E-04
28	.628E-05	.108E-04
29	.114E-04	.150E-04
30	.481E-05	.662E-05
31	.724E-05	.103E-04
32	.335E-05	.138E-04
33	.104E-04	.220E-04
34	.146E-03	.314E-04
35	.500E-05	.825E-05
36	.934E-03	.646E-04
37	.876E-05	.254E-04
38	.123E-04	.237E-04
39	.122E-04	.183E-04
40	.471E-03	.480E-03
41	.149E-03	.317E-04
42	.164E-03	.886E-04
43	.669E-05	.118E-04
44	.121E-04	.199E-04
45	.127E-04	.207E-04
46	.132E-04	.244E-04
47	.243E-05	.419E-05

RUN #14

W. D. 225°

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
1	.192E-04	.332E-02
2	.295E-04	.130E-01
3	********	.367E-02
4	.403E-05	.448E-03
5	.224E-04	.735E-03
6	.270E-05	.185E-04
7	.591E-05	.809E-03
8	.532E-05	.495E-04
9	.880E-05	.406E-03
10	.292E-03	.698E-02
11	.338E-04	.388E-02
12	.128E-04	.230E-02
13	.390E-02	.130E-04
14	.916E-01	.126E-02
15	.286E+00	.863E-02
16	.601E-01	.559E-01
17	.199E-02	.581E-01
18	.277E-02	.558E-01
20	.205E-04	.351E-04
21	.371E-05	.163E-04
22	.798E-05	.130E-04
23	.573E-05	.121E-04
24	.358E-05	.134E-04
25	.468E-05	.118E-04
26	.107E-03	.274E-04
27	.127E-04	.586E-04
28	.853E-05	.313E-04
29	.706E-05	.572E-04
30	.541E-05	.105E-04
31	.706E-05	.159E-03
32	.458E-05	.383E-03
33	.154E-04	.547E-03
34	.138E-03	.347E-03
35	.211E-05	.215E-03
36	.335E-03	.124E-02
37	.125E-03	.867E-03
38	.118E-03	.799E-03
39	.831E-04	.490E-03
40	.146E-02	.108E-01
41	.119E-04	.332E-04
42	.680E-03	.355E-02
43	.226E-04	.220E-03
44	.856E-04	.664E-03
45	.696E-04	.597E-03
46	.166E-03	.148E-03
47	.504E-06	.476E-05

RUN #15R

W. D. 270°

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
1	.225E-04	.986E-03
2	.471E-04	.917E-02
3	.184E-04	.264E-02
4	.660E-05	.310E-03
5	.101E-04	.159E-03
6	.605E-05	.212E-04
7	.674E-05	.464E-03
8	.669E-05	.248E-04
9	.419E-04	.140E-02
10	.475E-03	.960E-02
11	.374E-03	.493E-02
12	.950E-04	.238E-02
13	.399E-02	.139E-04
14	.948E-01	.175E-02
15	.301E+00	.107E-01
16	.907E-01	.389E-01
17	.477E-02	.774E-01
18	.454E-02	.885E-01
20	.497E-04	.233E-03
21	.208E-04	.111E-03
22	.163E-04	.591E-04
23	.245E-04	.542E-04
24	.242E-04	.906E-04
25	.223E-04	.627E-04
26	.148E-03	.910E-04
27	.954E-04	.833E-03
28	.976E-04	.864E-03
29	.580E-04	.944E-03
30	.361E-04	.114E-03
31	.496E-04	.148E-03
32	.261E-04	.675E-03
33	.135E-02	.383E-02
34	.615E-03	.116E-02
35	.215E-04	.135E-03
36	.100E-02	.265E-02
37	.430E-03	.203E-02
38	.446E-03	.198E-02
39	.297E-03	.112E-02
40	.176E-02	.958E-02
41	.328E-04	.759E-04
42	.133E-02	.394E-02
43	.125E-03	.694E-03
44	.241E-03	.152E-02
45	.245E-03	.154E-02
46	.369E-03	.729E-03
47	.229E-05	.485E-05

RUN #16

W. D. 315°

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
1	.266E-03	.308E-02
2	.139E-03	.101E-01
3	.985E-04	.515E-02
4	.454E-05	.293E-03
5	.122E-04	.286E-03
6	.458E-05	.184E-04
7	.458E-05	.489E-03
8	.532E-05	.384E-04
9	.158E-04	.721E-03
10	.503E-02	.947E-02
11	.272E-02	.153E-01
12	.209E-02	.219E-01
13	.197E-02	.555E-04
14	.161E+00	********
15	.324E+00	.476E-03
16	.883E-01	.519E-01
17	.272E-03	.280E+00
18	.195E-03	.229E+00
20	.184E-02	.522E-02
21	.667E-03	.690E-02
22	.249E-03	.268E-02
23	.298E-03	.198E-02
24	.952E-03	.641E-02
25	.125E-02	.240E-02
26	.140E-02	.217E-02
27	.104E-01	.276E-02
28	.103E-01	.288E-02
29	.396E-02	.336E-02
30	.146E-02	.166E-02
31	.253E-02	.240E-02
32	.205E-03	.324E-02
33	.108E-01	.135E-02
34	.286E-02	.451E-03
35	.137E-03	.157E-02
36	.175E-01	.494E-03
37	.431E-02	.222E-03
38	.735E-02	.319E-03
39	.765E-02	.313E-03
40	.914E-04	.205E-03
41	.352E-04	.334E-04
42	.133E-02	.245E-03
43	.582E-02	.213E-03
44	.835E-02	.297E-03
45	.106E-01	.372E-03
46	.362E-02	.108E-02
47	.591E-05	.862E-05

RUN #17

W. D. 000°

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
1	.705E-04	.288E-02
2	.313E-03	.975E-02
3	.385E-03	.593E-01
4	********	.194E-03
5	********	.755E-04
6	.184E-05	.318E-04
7	.305E-05	.323E-04
8	.260E-05	.273E-04
9	.354E-05	.599E-04
10	.227E-04	.527E-03
11	.259E-03	.583E-02
12	.629E-03	.124E-01
13	.331E-05	.502E-04
14	.111E-03	.278E-04
15	.437E-03	.257E-02
16	.336E-03	.829E-02
17	.805E-04	.195E-02
18	.783E-04	.179E-02
19	.833E-04	.412E-03
20	.824E-05	.654E-04
21	.923E-04	.207E-02
22	.170E-05	.474E-04
23	.369E-04	.137E-02
24	.382E-04	.151E-02
25	********	.784E-05
26	********	.133E-04
27	********	.510E-05
28	********	.326E-05
29	.188E-04	.640E-03
30	********	.375E-05
31	.658E-05	.408E-03
32	.464E-04	.270E-02
33	.985E-06	.108E-04
34	.985E-06	.225E-04
35	.219E-05	.120E-03
36	.157E-05	********
37	********	.345E-05
38	********	.461E-05
39	********	.106E-04
40	********	.223E-05
41	.672E-06	.201E-04
42	.313E-06	.116E-04
43	********	.107E-04
44	********	.362E-05
45	********	.437E-05
46	********	.154E-04
47	********	********

RUN #18

W. D. 045°

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
1	.390E-05	.146E-03
2	.167E-03	.106E-01
3	.535E-03	.645E-01
4	********	.218E-03
5	.246E-05	.104E-03
6	.448E-07	.276E-04
7	********	.229E-04
8	.672E-06	.253E-04
9	.134E-06	.718E-04
10	.139E-05	.711E-05
11	.511E-03	.744E-02
12	.197E-02	.247E-01
13	.345E-05	.829E-04
14	.584E-04	.245E-04
15	.294E-03	.238E-02
16	.317E-03	.608E-02
17	.437E-03	.772E-02
18	.314E-03	.561E-02
19	.627E-06	.334E-04
20	********	.118E-05
21	.457E-05	.234E-03
22	.448E-07	.256E-04
23	.168E-04	.930E-03
24	.304E-04	.165E-02
25	********	.439E-05
26	********	.332E-05
27	********	.426E-05
28	********	.257E-05
29	********	.162E-04
30	********	.276E-05
31	********	.143E-04
32	.260E-05	.890E-03
33	.672E-06	.906E-05
34	.188E-05	.495E-04
35	.134E-06	.566E-04
36	.582E-06	********
37	********	.291E-05
38	********	.754E-05
39	********	.101E-04
40	********	.159E-05
41	.224E-06	.177E-04
42	.672E-06	.142E-04
43	********	.998E-05
44	********	.583E-05
45	********	.553E-05
46	********	.110E-04
47	********	.206E-05

RUN #19

W. D. 090°

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
1	********	.376E-03
2	.238E-03	.632E-02
3	.572E-03	.149E+00
4	********	.688E-02
5	.600E-05	.357E-03
6	.940E-06	.105E-03
7	.896E-06	.502E-04
8	.152E-05	.618E-04
9	.193E-05	.114E-03
10	.157E-05	.176E-04
11	.233E-05	.618E-04
12	.318E-05	.134E-03
13	.152E-05	.342E-04
14	.307E-04	.355E-04
15	.107E-03	.373E-03
16	.587E-03	.984E-02
17	.728E-03	.115E-01
18	.683E-03	.106E-01
19	.107E-05	.316E-04
20	********	.450E-05
21	.506E-05	.287E-03
22	.537E-06	.441E-04
23	.761E-06	.233E-04
24	.224E-06	.200E-04
25	********	.311E-05
26	********	.583E-05
27	********	.568E-05
28	********	.343E-05
29	.537E-06	.782E-04
30	********	.336E-05
31	.246E-05	.599E-03
32	.717E-05	.163E-02
33	.851E-06	.102E-04
34	.121E-05	.282E-04
35	.166E-05	.233E-03
36	.672E-06	********
37	.448E-07	.486E-05
38	.403E-06	.810E-05
39	.537E-06	.125E-04
40	.358E-06	.373E-05
41	.143E-05	.418E-04
42	.139E-05	.335E-04
43	.403E-06	.125E-04
44	.358E-06	.677E-05
45	.403E-06	.632E-05
46	.313E-06	.626E-05
47	.448E-07	.229E-05

RUN #20

W. D. 135°

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
1	********	.144E-03
2	.587E-03	.326E-02
3	.143E-03	.446E-01
4	.806E-06	.111E-03
5	.204E-04	.195E-03
6	.627E-06	.223E-04
7	.403E-06	.214E-04
8	.179E-05	.280E-04
9	.118E-04	.152E-03
10	.112E-05	.155E-04
11	.940E-06	.292E-04
13	.493E-06	.169E-04
14	.151E-04	.188E-04
15	.215E-03	.292E-02
16	.191E-02	.184E-01
17	.167E-02	.172E-01
18	.153E-02	.169E-01
19	.255E-05	.494E-04
20	.179E-06	.846E-05
21	.851E-06	.143E-03
22	.358E-06	.934E-05
23	.179E-06	.823E-05
24	.896E-07	.793E-05
25	********	.429E-05
26	.537E-06	.812E-05
27	********	.478E-05
28	.448E-07	.414E-05
29	.152E-05	.262E-04
30	.134E-06	.456E-05
31	.851E-06	.283E-04
32	.226E-04	.973E-04
33	.152E-05	.477E-04
34	.228E-05	.439E-04
35	.125E-05	.614E-04
36	.851E-06	.148E-04
37	.582E-06	.321E-04
38	.107E-05	.347E-04
39	.448E-06	.248E-04
40	.473E-04	.984E-03
41	.148E-05	.276E-04
42	.452E-05	.879E-04
43	.313E-06	.211E-04
44	.761E-06	.303E-04
45	.493E-06	.327E-04
46	.134E-05	.179E-04
47	.179E-06	.120E-05

RUN #21

W. D. 180°

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
1	.122E-02	.137E-02
2	.921E-03	.160E-01
3	.493E-03	.809E-01
4	.985E-06	.184E-03
5	.189E-04	.347E-03
6	.851E-06	.479E-04
7	.125E-05	.525E-04
8	********	.124E-04
9	.107E-04	.217E-03
10	.480E-03	.807E-02
11	.493E-03	.791E-02
12	.513E-03	.679E-02
13	.358E-06	.387E-04
14	.150E-04	.594E-04
15	.104E-02	.185E-01
16	.145E-02	.250E-01
17	.164E-02	.306E-01
18	.429E-04	.138E-02
19	.179E-05	.696E-04
20	.985E-06	.629E-04
21	********	.241E-04
22	********	.135E-04
23	********	.523E-05
24	********	.390E-05
25	.358E-06	.313E-04
26	.134E-06	.171E-04
27	.358E-06	.308E-04
28	********	.253E-04
29	.341E-04	.751E-04
30	.103E-05	.375E-04
31	.134E-03	.178E-03
32	.808E-03	.109E-02
33	.383E-03	.759E-03
34	.271E-03	.555E-03
35	.203E-03	.231E-03
36	.195E-03	.409E-03
37	.546E-04	.905E-04
38	.528E-04	.958E-04
39	.284E-04	.592E-04
40	.525E-04	.367E-03
41	.896E-06	.270E-04
42	.497E-04	.861E-04
43	.558E-04	.102E-03
44	.795E-04	.127E-03
45	.802E-04	.134E-03
46	.121E-05	.277E-04
47	********	********

RUN #22

W. D. 225°

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
1	.485E-02	.355E-01
2	********	.175E-01
3	********	.655E-01
4	.179E-06	.162E-03
5	.717E-06	.699E-04
6	.403E-06	.212E-04
7	.134E-06	.202E-04
8	.121E-05	.196E-04
9	.896E-06	.469E-04
10	.743E-04	.620E-02
11	.752E-04	.757E-02
12	.963E-04	.894E-02
13	.493E-06	.328E-04
14	.136E-04	.539E-04
15	.374E-04	.873E-03
16	.243E-04	.242E-02
17	.139E-04	.177E-02
18	.159E-04	.194E-02
19	.138E-04	.116E-03
20	.251E-05	.207E-04
21	.448E-07	.733E-05
22	********	.566E-05
23	.403E-06	.913E-05
24	********	.656E-05
25	.717E-06	.112E-04
26	.104E-04	.688E-04
27	.160E-03	.180E-02
28	.642E-04	.690E-03
29	.199E-03	.150E-02
30	.358E-05	.336E-04
31	.874E-03	.434E-02
32	.702E-02	.276E-01
33	.387E-02	.376E-01
34	.241E-02	.225E-01
35	.114E-02	.575E-02
36	.859E-03	.870E-02
37	.134E-02	.185E-01
38	.124E-02	.174E-01
39	.768E-03	.105E-01
40	.128E-03	.221E-02
41	.124E-04	.113E-03
42	.963E-03	.139E-01
43	.114E-02	.105E-01
44	.177E-02	.200E-01
45	.192E-02	.201E-01
46	.360E-03	.431E-02
47	.121E-05	.194E-04

RUN #23

W. D. 270°

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
1	.188E-05	.161E-02
2	.216E-05	.317E-02
3	.305E-04	.504E-01
4	.275E-06	.123E-03
5	.367E-06	.252E-04
6	.275E-06	.112E-04
7	.275E-06	.105E-04
8	.459E-07	.894E-05
9	********	.894E-05
10	.193E-04	.260E-03
11	.168E-03	.706E-03
12	.620E-03	.345E-03
13	.142E-05	.119E-04
14	.418E-05	.905E-05
15	.863E-05	.137E-04
16	.165E-05	.338E-04
18	.826E-06	.432E-04
19	.477E-05	.298E-02
20	.112E-04	.488E-02
21	.643E-06	.462E-03
22	********	********
23	.413E-06	.278E-04
24	.505E-06	.239E-04
25	.184E-05	.281E-03
26	.326E-05	.360E-03
27	.279E-03	.135E-01
28	.249E-03	.140E-01
29	.130E-03	.136E-01
30	.803E-05	.859E-03
31	.220E-05	.807E-03
32	.234E-05	.122E-02
33	.405E-03	.697E-02
34	.126E-03	.200E-02
35	.643E-06	.611E-03
36	.264E-03	.421E-02
37	.533E-03	.839E-02
38	.528E-03	.838E-02
39	.301E-03	.476E-02
40	.192E-04	.350E-03
41	.964E-06	.372E-04
42	.384E-03	.578E-02
43	.293E-03	.566E-02
44	.560E-03	.105E-01
45	.637E-03	.116E-01
46	.317E-03	.642E-02
47	********	.171E-04

RUN #24

W. D. 315°

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
1	.106E-05	.278E-04
2	.308E-05	.533E-03
3	.372E-04	.498E-01
4	.367E-06	.897E-04
5	.551E-06	.152E-04
6	.367E-06	.122E-04
7	.597E-06	.143E-04
8	.184E-06	.122E-04
9	.413E-06	.124E-04
10	.229E-05	.287E-04
11	.550E-04	.337E-03
12	.751E-04	.811E-03
13	.597E-06	.153E-04
14	.454E-05	.104E-04
15	.101E-04	.146E-04
16	.330E-05	.644E-04
17	.964E-06	.359E-04
18	.505E-06	.281E-04
19	.742E-03	.129E-01
20	.410E-03	.671E-02
21	.270E-03	.774E-02
22	.563E-04	.186E-02
23	.151E-03	.356E-02
24	.526E-03	.110E-01
25	.174E-03	.534E-02
26	.149E-03	.491E-02
27	.113E-03	.114E-02
28	.116E-03	.117E-02
29	.156E-03	.563E-02
30	.114E-03	.434E-02
31	.177E-03	.646E-02
32	.648E-03	.131E-01
33	.749E-04	.206E-02
34	.317E-04	.757E-03
35	.772E-04	.231E-02
36	.136E-04	.145E-03
37	.542E-05	.879E-04
38	.721E-05	.967E-04
39	.652E-05	.718E-04
40	.229E-06	.100E-04
41	.321E-06	.173E-04
42	.330E-05	.823E-04
43	.523E-05	.747E-04
44	.661E-05	.114E-03
45	.909E-05	.136E-03
46	.488E-04	.184E-02
47	.184E-06	.476E-05

RUN #25

W. D. 000°

SAMPLE PT.	SOURCE GROUP #6 CONCENTRATION RATIO	SOURCE GROUP #7 CONCENTRATION RATIO
1	********	.246E-05
2	.592E-06	.424E-04
3	.187E-05	.258E-03
4	.100E-05	.154E-04
5	.100E-05	.131E-04
6	.956E-06	.143E-04
7	.865E-06	.146E-04
8	.956E-06	.148E-04
9	.114E-05	.143E-04
10	.319E-06	.988E-05
11	.319E-06	.111E-04
12	.364E-06	.176E-04
13	.109E-05	.149E-04
14	.314E-05	.142E-04
15	.496E-05	.281E-04
16	.305E-05	.549E-04
17	.178E-05	.495E-04
18	.200E-05	.502E-04
19	.356E-02	.731E-01
20	.111E-02	.886E-01
21	********	.266E-02
22	.120E-04	.378E-03
23	.397E-03	.255E-02
24	.623E-03	.341E-02
25	.592E-06	.357E-04
26	.132E-05	.459E-04
27	.364E-06	.433E-04
28	.364E-06	.438E-04
29	.121E-04	.112E-02
30	********	.127E-04
31	.323E-05	.207E-03
32	.154E-04	.813E-03
33	.774E-06	.265E-04
34	.219E-05	.516E-04
35	.169E-05	.558E-04
36	********	.735E-05
37	.820E-06	.207E-04
38	.683E-06	.207E-04
39	.638E-06	.174E-04
40	.911E-07	.799E-05
41	.141E-05	.219E-04
42	.132E-05	.390E-04
43	.911E-06	.188E-04
44	.774E-06	.232E-04
45	.729E-06	.233E-04
46	.455E-07	.120E-04
47	********	.594E-06

RUN #26

W. D. 045°

SAMPLE PT.	SOURCE GROUP #6 CONCENTRATION RATIO	SOURCE GROUP #7 CONCENTRATION RATIO
1	********	********
2	.988E-05	.196E-03
3	.161E-03	.288E-02
4	.683E-06	.164E-04
5	.911E-06	.110E-04
6	.956E-06	.119E-04
7	.911E-06	.103E-04
8	.638E-06	.102E-04
9	.105E-05	.126E-04
10	.228E-06	.458E-05
11	.187E-05	.501E-04
12	.856E-05	.213E-03
13	.155E-05	.160E-04
14	.223E-05	.117E-04
15	.478E-05	.383E-04
16	.501E-05	.102E-03
17	.310E-05	.693E-04
18	.241E-05	.587E-04
19	.522E-02	.783E-01
20	.169E-02	.190E+00
21	********	.281E-02
22	********	.111E-03
23	.150E-02	.477E-02
24	.537E-03	.315E-02
25	.137E-06	.225E-04
26	.100E-05	.167E-04
27	********	.151E-04
28	********	.134E-04
29	********	.101E-04
30	********	********
31	.410E-06	.224E-04
32	.419E-05	.237E-03
33	.455E-06	.203E-04
34	.173E-05	.512E-04
35	.956E-06	.227E-04
36	********	********
37	********	.134E-04
38	.319E-06	.160E-04
39	.319E-06	.136E-04
40	********	.466E-05
41	.911E-06	.176E-04
42	.638E-06	.250E-04
43	.455E-06	.124E-04
44	.364E-06	.160E-04
45	.182E-06	.163E-04
46	********	.515E-05
47	********	.242E-06

RUN #27

W. D. 090°

SAMPLE PT.	SOURCE GROUP #6 CONCENTRATION RATIO	SOURCE GROUP #7 CONCENTRATION RATIO
1	********	.133E-04
2	.738E-04	.858E-03
3	.352E-03	.357E-02
4	.319E-06	.258E-04
5	.228E-05	.250E-04
6	.208E-04	.189E-04
7	.273E-06	.175E-04
8	.182E-05	.380E-04
9	.729E-06	.218E-04
10	********	.871E-05
11	********	.109E-04
12	.455E-06	.139E-04
13	.455E-06	.190E-04
14	.296E-05	.206E-04
15	.861E-05	.467E-04
16	.473E-04	.587E-03
17	.689E-04	.800E-03
18	.648E-04	.750E-03
19	.310E-02	.781E-01
20	.153E-02	.172E+00
21	********	.132E-02
22	.155E-05	.101E-03
23	.168E-02	.422E-02
24	.944E-03	.287E-02
25	********	.273E-04
26	.455E-07	.339E-04
27	********	.276E-04
28	********	.206E-04
29	********	.319E-04
30	********	.158E-04
31	.273E-06	.415E-04
32	.638E-06	.110E-03
33	********	.284E-04
34	.260E-05	.949E-04
35	.547E-06	.319E-04
36	********	.955E-05
37	********	.217E-04
38	********	.263E-04
39	********	.233E-04
40	********	.854E-05
41	.401E-05	.961E-04
42	.310E-05	.110E-03
43	********	.216E-04
44	.228E-06	.272E-04
45	********	********
46	********	.983E-05
47	********	.356E-05

RUN #28

W. D. 135°

SAMPLE PT.	SOURCE GROUP #6 CONCENTRATION RATIO	SOURCE GROUP #7 CONCENTRATION RATIO
1	********	.552E-05
2	.444E-03	.632E-02
3	.295E-03	.386E-02
4	.729E-06	.165E-04
5	.697E-05	.100E-03
6	.105E-05	.103E-04
7	.410E-06	.986E-05
8	.100E-05	.157E-04
9	.273E-05	.508E-04
10	.133E-03	.370E-02
11	.283E-03	.764E-02
12	.518E-03	.124E-01
13	.255E-05	.385E-04
14	.351E-05	.170E-04
15	.681E-04	.101E-02
16	.386E-03	.622E-02
17	.543E-03	.818E-02
18	.521E-03	.783E-02
19	.203E-01	.748E-01
20	.355E-03	.434E-01
21	.158E-04	.164E-03
22	.305E-05	.362E-04
23	.103E-04	.450E-04
24	.314E-05	.364E-04
25	.132E-05	.123E-04
26	.169E-05	.127E-04
27	.150E-05	.229E-04
28	.137E-05	.218E-04
29	.128E-04	.562E-03
30	.820E-06	.970E-05
31	.524E-05	.108E-03
32	.233E-04	.554E-03
33	.233E-03	.594E-02
34	.155E-03	.375E-02
35	.952E-05	.247E-03
36	.554E-04	.151E-02
37	.133E-03	.360E-02
38	.138E-03	.369E-02
39	.856E-04	.219E-02
40	.713E-04	.151E-02
41	.770E-05	.570E-04
42	.552E-04	.131E-02
43	.721E-04	.191E-02
44	.126E-03	.341E-02
45	.139E-03	.372E-02
46	.159E-05	.179E-04
47	.729E-06	.103E-05

RUN #29

W. D. 180°

SAMPLE PT.	SOURCE GROUP #6 CONCENTRATION RATIO	SOURCE GROUP #7 CONCENTRATION RATIO
1	********	********
2	********	.340E-04
3	********	.401E-04
4	********	.205E-05
5	********	.264E-05
6	********	.273E-05
7	********	.244E-05
8	********	.110E-05
9	********	.284E-05
10	.412E-04	.125E-02
11	.183E-04	.712E-03
12	.168E-04	.740E-03
13	********	.495E-05
14	********	.213E-05
15	.205E-05	.270E-04
16	.146E-05	.635E-04
17	.118E-05	.629E-04
18	.141E-05	.684E-04
19	.125E-02	.483E-01
20	.655E-03	.164E-01
21	.228E-06	.488E-04
22	********	.966E-05
23	********	.111E-04
25	********	.282E-05
26	********	.585E-05
27	.121E-02	.157E-01
28	.130E-02	.168E-01
29	.809E-03	.552E-02
30	.506E-04	.305E-03
31	.865E-06	.579E-04
32	.255E-05	.152E-03
33	.244E-04	.113E-02
34	.202E-04	.923E-03
35	.182E-06	.541E-04
36	.261E-04	.801E-03
37	.225E-03	.336E-02
38	.217E-03	.328E-02
39	.117E-03	.165E-02
40	.160E-03	.233E-02
41	.319E-06	.240E-04
42	.220E-03	.328E-02
43	.864E-04	.141E-02
44	.186E-03	.305E-02
45	.218E-03	.343E-02
46	.683E-05	.104E-03
47	********	********

RUN #30

W. D. 225°

SAMPLE PT.	SOURCE GROUP #6 CONCENTRATION RATIO	SOURCE GROUP #7 CONCENTRATION RATIO
1	.293E-05	.259E-04
2	.766E-06	.671E-05
3	.451E-06	.174E-04
4	.902E-06	.930E-05
5	.721E-06	.662E-05
6	.541E-06	.664E-05
7	.857E-06	.854E-05
8	.586E-06	.808E-05
9	.586E-06	.651E-05
10	.496E-06	.120E-04
11	.406E-06	.993E-05
12	.316E-06	.126E-04
13	********	********
14	.153E-05	.767E-05
15	.239E-05	.112E-04
16	.631E-06	.125E-04
17	.361E-06	.145E-04
18	.135E-06	.134E-04
19	.339E-03	.387E-01
20	.136E-01	.673E-01
21	.915E-05	.217E-03
22	.586E-06	.170E-04
23	.676E-06	.144E-04
24	.586E-06	.146E-04
25	.306E-03	.270E-02
26	.193E-03	.164E-02
27	.111E-02	.230E-01
28	.134E-02	.293E-01
29	.215E-04	.170E-02
30	.411E-03	.365E-02
31	.902E-06	.273E-04
32	.992E-06	.147E-04
33	.992E-06	.539E-04
34	.536E-05	.663E-04
35	.451E-06	.104E-04
36	.185E-05	.483E-04
37	.112E-04	.705E-03
38	.101E-04	.673E-03
39	.640E-05	.379E-03
40	.875E-05	.113E-03
41	.451E-05	.440E-04
42	.135E-04	.388E-03
43	.334E-05	.234E-03
44	.104E-04	.736E-03
45	.978E-05	.701E-03
46	.892E-03	.123E-01
47	.857E-06	.171E-04

RUN #31

W. D. 270°

SAMPLE PT.	SOURCE GROUP #6 CONCENTRATION RATIO	SOURCE GROUP #7 CONCENTRATION RATIO
1	.176E-05	.152E-04
2	.271E-06	********
3	.451E-07	.673E-05
4	.104E-05	.436E-05
5	.676E-06	.200E-05
6	.586E-06	.287E-05
7	.766E-06	.362E-05
8	.541E-06	.290E-05
9	.361E-06	.168E-05
10	.902E-07	.305E-06
11	********	********
12	.902E-07	.407E-05
13	.451E-06	.129E-05
14	.140E-05	.200E-05
15	.225E-05	.105E-05
16	.586E-06	.425E-05
17	.316E-06	.627E-05
18	.135E-06	.475E-05
19	.158E-03	.156E-01
20	.948E-02	.719E-01
21	.726E-05	.295E-03
22	.857E-06	.801E-05
23	.334E-04	.243E-04
24	.569E-04	.187E-04
25	.577E-03	.330E-02
26	.583E-03	.350E-02
27	.127E-03	.620E-02
28	.113E-03	.691E-02
29	.361E-05	.305E-03
30	.739E-03	.535E-02
31	.586E-06	.107E-04
32	.135E-06	.198E-05
33	.496E-06	.227E-04
34	.383E-05	.431E-04
35	.225E-06	********
36	.541E-06	.142E-04
37	.221E-05	.633E-04
38	.212E-05	.639E-04
39	.144E-05	.373E-04
40	.135E-06	.564E-05
41	.343E-05	.364E-04
42	.460E-05	.778E-04
43	.144E-05	.379E-04
44	.243E-05	.779E-04
45	.261E-05	.810E-04
46	.388E-03	.433E-02
47	.406E-06	.144E-05

RUN #32

W. D. 315°

SAMPLE PT.	SOURCE GROUP #6 CONCENTRATION RATIO	SOURCE GROUP #7 CONCENTRATION RATIO
1	.113E-05	.169E-04
2	.180E-06	.507E-05
3	********	.108E-04
4	.140E-05	.175E-04
5	.992E-06	.159E-04
6	.135E-05	.166E-04
7	.131E-05	.179E-04
8	.126E-05	.171E-04
9	.140E-05	.165E-04
10	.225E-06	.727E-05
11	.180E-06	.673E-05
12	.135E-06	.865E-05
13	********	********
14	.221E-05	.172E-04
15	.266E-05	.246E-04
16	.167E-05	.208E-04
17	.361E-06	.130E-04
18	.902E-07	.117E-04
19	.107E-03	.131E-01
20	.408E-03	.120E+00
21	.446E-05	.242E-03
22	.284E-05	.500E-04
23	.962E-03	.289E-02
24	.577E-02	.156E-01
25	.114E-02	.966E-02
26	.860E-03	.629E-02
27	.183E-04	.646E-03
28	.183E-04	.708E-03
29	.406E-05	.300E-03
30	.544E-03	.378E-02
31	.167E-05	.220E-04
32	.902E-06	.166E-04
33	.496E-06	.181E-04
34	.618E-05	.509E-04
35	.992E-06	.186E-04
36	.766E-06	.150E-04
37	.631E-06	.164E-04
38	.451E-06	.175E-04
39	.496E-06	.144E-04
40	.451E-07	.880E-05
41	.478E-05	.431E-04
42	.532E-05	.448E-04
43	.586E-06	.152E-04
44	.271E-06	.169E-04
45	.361E-06	.193E-04
47	.676E-06	.743E-05

RUN #33

W. D. 000°

SAMPLE PT.	SOURCE GROUP #11 CONCENTRATION RATIO	SOURCE GROUP #9 CONCENTRATION RATIO
1	.850E-04	.431E-05
2	.230E-04	.318E-05
3	.209E-03	.323E-04
4	.442E-04	.348E-05
5	.390E-04	.316E-05
6	.440E-04	.357E-05
7	.440E-04	.355E-05
8	.469E-04	.348E-05
9	.429E-04	.348E-05
10	.349E-04	.179E-05
11	.493E-04	.346E-05
12	.474E-03	.593E-04
13	.444E-04	.381E-05
14	.432E-04	.359E-05
15	.284E-04	.274E-05
16	.384E-04	.553E-05
17	.170E-04	.429E-05
18	.142E-04	.396E-05
19	.368E-01	.639E-02
20	.243E-01	.139E-02
21	.276E-01	.700E-02
22	.234E-02	.472E-03
23	.318E-02	.311E-03
24	.423E-02	.401E-03
25	.405E-02	.657E-04
26	.627E-02	.128E-03
27	.300E-01	.125E-03
28	.287E-01	.137E-03
29	.508E-01	.126E-01
30	.288E-02	.203E-04
31	.774E-01	.801E-02
32	.487E-01	.795E-02
33	.229E-01	.221E-01
34	.107E-01	.151E-01
35	.440E-01	.243E-02
36	.208E-02	********
37	.220E+00	********
38	.280E+00	********
39	.255E+00	********
40	.754E-01	********
41	.860E-02	********
42	.395E+00	********
43	.555E+00	********
44	.246E+00	********
45	.297E+00	********
46	.454E-02	.128E-04
47	.809E-04	.203E-05

RUN #34

W. D. 045°

SAMPLE PT.	SOURCE GROUP #11 CONCENTRATION RATIO	SOURCE GROUP #9 CONCENTRATION RATIO
1	.398E-04	.270E-05
2	.290E-02	.269E-03
3	.217E-01	.249E-02
4	.486E-04	.605E-05
5	.488E-04	.555E-05
6	.322E-04	.283E-05
7	.299E-04	.250E-05
9	.541E-04	.649E-05
10	.717E-03	.222E-05
11	.125E-02	.892E-04
12	.507E-02	.595E-03
13	.356E-04	.390E-05
14	.334E-04	.264E-05
15	.600E-03	.343E-04
16	.124E-02	.165E-03
17	.140E-02	.124E-03
18	.118E-02	.930E-04
19	.252E-01	.277E-02
20	.127E-02	.754E-04
21	.142E-01	.220E-02
22	.265E-02	.366E-03
23	.433E-02	.194E-03
24	.345E-02	.192E-03
25	.437E-03	.366E-05
26	.662E-03	.327E-05
27	.245E-01	********
28	.222E-01	********
29	.806E-01	.134E-01
30	.343E-03	.254E-04
31	.109E+00	.566E-02
32	.528E-01	.734E-02
33	.888E-02	.193E-01
34	.908E-02	.210E-01
35	.375E-01	.121E-02
36	.175E-02	********
37	.257E+00	********
38	.334E+00	********
39	.318E+00	********
40	.971E-01	********
41	.107E-01	********
42	.369E+00	********
43	.521E+00	********
44	.176E+00	********
45	.202E+00	********
46	.513E-03	.105E-04
47	.994E-04	.118E-05

RUN #35

W. D. 090°

SAMPLE PT.	SOURCE GROUP #11 CONCENTRATION RATIO	SOURCE GROUP #9 CONCENTRATION RATIO
1	.536E-04	.473E-05
2	.740E-02	.492E-03
3	.264E-01	.218E-02
4	.741E-04	.897E-05
5	.959E-04	.856E-05
6	.530E-04	.555E-05
7	.521E-04	.540E-05
8	.605E-04	.553E-05
9	.701E-04	.697E-05
10	.106E-01	********
11	.157E-01	.255E-04
12	.167E-01	.931E-04
13	.685E-04	.551E-05
14	.682E-04	.544E-05
15	.316E-03	.173E-04
16	.404E-02	.282E-03
17	.626E-02	.360E-03
18	.589E-02	.335E-03
19	.126E-02	.272E-03
20	.496E-04	.602E-04
21	.242E-01	.445E-02
22	.996E-03	.149E-03
23	.134E-03	.115E-04
24	.128E-03	.146E-04
25	.549E-04	.436E-05
26	.115E-03	.405E-05
27	.779E-02	.116E-04
28	.415E-02	.131E-04
29	.478E-01	.299E-01
30	.869E-04	.525E-04
31	.381E-01	.507E-02
32	.370E-01	.495E-02
33	.268E-01	.255E-02
34	.236E-01	.372E-02
35	.730E-02	.115E-02
36	.961E-02	********
37	.279E+00	********
38	.319E+00	********
39	.280E+00	********
40	.129E+00	********
41	.464E-02	********
42	.382E+00	********
43	.528E+00	********
44	.117E+00	.135E-03
45	.129E+00	.122E-03
46	.352E-03	.108E-04
47	.775E-04	********

RUN #36

W. D. 135°

SAMPLE PT.	SOURCE GROUP #11 CONCENTRATION RATIO	SOURCE GROUP #9 CONCENTRATION RATIO
1	.181E-04	.270E-05
2	.408E-03	.169E-04
3	.188E-03	.108E-04
4	.349E-04	.427E-05
5	.481E-04	.577E-05
6	.336E-04	.416E-05
7	.337E-04	.423E-05
8	.648E-04	.453E-05
9	.366E-04	.451E-05
10	.957E-02	.200E-02
11	.549E-02	.123E-02
12	.305E-01	.610E-03
13	.371E-04	.577E-05
14	.357E-04	.446E-05
15	.107E-02	.930E-04
16	.999E-03	.120E-03
17	.399E-02	.475E-03
18	.428E-02	.496E-03
19	.384E-03	.674E-04
20	.446E-04	.112E-03
21	.123E-03	.505E-05
22	.118E-03	.468E-05
23	.589E-04	.523E-05
25	.434E-04	.616E-05
26	.182E-03	.603E-05
27	.100E-03	.201E-04
28	.541E-04	.176E-04
29	.216E-01	.605E-03
30	.107E-03	.745E-05
31	.342E-01	.591E-03
32	.308E-02	.594E-04
33	.610E-02	.472E-02
34	.503E-02	.276E-02
35	.657E-02	.121E-03
36	.251E-01	.303E-02
37	.214E+00	.944E-02
38	.332E+00	.758E-02
39	.301E+00	.617E-02
40	.106E+00	.282E-02
41	.618E-02	********
42	.408E+00	.279E-02
43	.548E+00	.161E-02
44	.161E+00	.909E-02
45	.815E-01	.106E-01
46	.369E-03	.350E-04
47	.636E-04	.542E-05

RUN #37

W. D. 180°

SAMPLE PT.	SOURCE GROUP #11 CONCENTRATION RATIO	SOURCE GROUP #9 CONCENTRATION RATIO
1	.349E-04	.335E-05
2	.483E-04	.540E-05
3	.258E-04	.105E-04
4	.278E-04	.377E-05
5	.251E-04	********
6	.271E-04	.370E-05
7	.259E-04	.375E-05
8	.137E-03	.470E-05
9	.362E-04	.414E-05
10	.954E-03	.120E-03
11	.247E-03	.338E-04
12	.771E-04	.690E-05
13	.265E-04	.433E-05
14	.354E-04	.425E-05
15	.550E-04	.625E-05
16	.992E-04	.122E-04
17	.738E-04	.119E-04
18	.639E-04	.113E-04
19	.810E-03	.960E-04
20	.317E-04	.166E-03
21	.246E-04	.394E-05
23	.180E-04	.501E-05
24	.172E-04	.980E-05
25	.321E-04	.841E-05
26	.333E-03	.110E-04
27	.131E-02	.102E-03
28	.339E-03	.410E-04
29	.109E-01	.189E-03
30	.922E-04	.932E-05
31	.557E-02	.973E-04
32	.520E-03	.147E-04
33	.102E-02	.643E-02
34	.159E-02	.471E-02
35	.938E-03	.246E-04
36	.160E-02	.282E-02
37	.230E+00	.101E-01
38	.264E+00	.688E-02
39	.253E+00	.420E-02
40	.171E+00	.255E-02
41	.707E-02	.277E-04
42	.416E+00	.345E-02
43	.551E+00	.236E-02
44	.227E+00	.114E-01
45	.222E+00	.123E-01
46	.913E-03	.837E-04
47	.916E-04	.610E-05

RUN #38

W. D. 225°

SAMPLE PT.	SOURCE GROUP #11 CONCENTRATION RATIO	SOURCE GROUP #9 CONCENTRATION RATIO
1	.152E-04	********
2	.125E-04	.370E-05
3	.370E-05	.706E-05
4	.258E-04	.368E-05
5	.207E-04	.338E-05
6	.247E-04	.364E-05
7	.250E-04	.368E-05
8	.314E-04	.372E-05
9	.234E-04	.370E-05
10	.342E-03	.409E-04
11	.141E-04	.527E-05
12	.821E-05	.390E-05
13	.255E-04	.399E-05
14	.235E-04	.366E-05
15	.180E-04	.390E-05
16	.527E-05	.547E-05
17	.902E-05	.647E-05
18	.500E-05	.595E-05
19	.228E-03	.619E-04
20	.333E-03	.145E-03
21	.518E-05	.325E-05
22	.875E-05	********
23	.730E-05	.586E-05
24	.302E-05	.895E-05
25	.282E-03	.117E-04
26	.935E-03	.181E-04
27	.467E-01	.237E-02
28	.195E-01	.106E-02
29	.611E-03	.197E-04
30	.190E-02	.371E-04
31	.251E-04	.351E-05
32	.115E-04	.501E-05
33	.264E-03	.109E-01
34	.662E-03	.423E-02
35	.436E-03	.114E-04
36	.429E-02	.252E-02
37	.250E+00	.432E-02
38	.267E+00	.362E-02
39	.254E+00	.281E-02
40	.264E+00	.199E-03
41	.746E-02	********
42	.372E+00	.224E-02
43	.555E+00	.204E-03
44	.177E+00	.991E-02
45	.194E+00	.942E-02
46	.466E-01	.331E-02
47	.136E-03	.119E-04

RUN #39

W. D. 270°

SAMPLE PT.	SOURCE GROUP #11 CONCENTRATION RATIO	SOURCE GROUP #9 CONCENTRATION RATIO
1	.288E-04	.381E-05
2	.248E-05	.455E-05
3	********	.104E-04
4	.266E-04	.455E-05
5	.213E-04	.440E-05
6	.246E-04	.446E-05
7	.257E-04	.468E-05
8	.375E-04	.488E-05
9	.213E-04	.429E-05
10	.227E-02	.234E-03
11	.448E-02	.483E-03
12	.304E-03	.580E-04
13	.272E-04	.501E-05
14	.248E-04	.464E-05
15	.170E-04	.492E-05
16	.947E-05	.775E-05
17	.902E-05	.860E-05
18	.379E-05	.793E-05
19	.268E-03	.995E-04
20	.452E-03	.277E-03
21	.766E-06	.451E-05
22	.203E-05	.320E-05
23	.277E-04	.963E-05
24	.708E-05	.182E-04
25	.102E-02	.278E-04
26	.445E-02	.681E-04
27	.515E-01	.174E-02
28	.297E-01	.104E-02
29	.142E-03	.189E-04
30	.354E-02	.596E-04
31	.109E-03	.307E-05
32	.314E-04	.468E-05
33	.839E-05	.677E-05
34	.537E-01	.186E-01
36	.616E-01	.503E-02
37	.258E+00	.259E-02
38	.282E+00	.242E-02
39	.270E+00	.169E-02
40	.168E+00	********
41	.772E-02	********
42	.352E+00	.146E-02
43	.550E+00	.147E-02
44	.216E+00	.666E-02
45	.230E+00	.578E-02
46	.222E-01	.955E-03
47	.150E-03	.747E-05

RUN #40

W. D. 315°

SAMPLE PT.	SOURCE GROUP #11 CONCENTRATION RATIO	SOURCE GROUP #9 CONCENTRATION RATIO
1	.536E-04	.632E-06
2	.812E-05	.218E-07
3	.712E-05	.553E-05
4	.385E-04	.392E-06
5	.319E-04	.653E-06
6	.362E-04	.240E-06
7	.384E-04	.610E-06
8	.405E-04	.566E-06
9	.356E-04	.610E-06
10	.121E-04	.109E-05
11	.863E-04	.950E-05
12	.618E-03	.658E-04
13	.394E-04	.129E-05
14	.369E-04	.588E-06
15	.241E-04	.632E-06
16	.287E-04	.392E-05
17	.116E-04	.453E-05
18	.942E-05	.390E-05
19	.268E-02	.675E-03
20	.167E-01	.202E-02
21	.519E-03	.847E-04
22	.168E-03	.189E-04
23	.662E-03	.113E-03
24	.222E-02	.415E-03
25	.474E-02	.405E-03
26	.508E-02	.365E-03
27	.384E-01	.177E-02
28	.383E-01	.192E-02
29	.765E-02	.312E-02
30	.516E-02	.334E-03
31	.262E-02	.123E-03
32	.120E-03	.465E-04
33	.340E-01	.166E-01
34	.111E-01	.732E-02
35	.274E-03	.411E-04
36	.916E-02	.637E-04
37	.173E+00	********
38	.228E+00	********
39	.274E+00	********
40	.149E+00	********
41	.278E-02	********
42	.394E+00	********
43	.550E+00	********
44	.281E+00	********
45	.317E+00	********
46	.131E-01	.179E-03
47	.196E-03	********

RUN #41

W. D. 000°

SAMPLE PT.	SOURCE GROUP #14 CONCENTRATION RATIO	SOURCE GROUP #15 CONCENTRATION RATIO
1	.519E-05	********
2	.110E-03	.423E-02
3	.193E-03	.456E-02
4	.563E-04	.108E-04
5	.849E-04	.938E-04
6	.117E-03	.612E-05
7	.768E-04	.284E-05
8	********	.418E-05
9	.127E-03	.470E-04
10	.127E+00	.269E-03
11	.162E+00	.148E-02
12	.701E-01	.274E-02
13	.103E-03	.545E-05
14	.176E-03	.829E-05
15	.122E-03	.169E-02
16	.293E-03	.826E-02
17	.121E-03	.162E-02
18	.177E-03	.142E-02
19	.486E-02	.854E-03
20	.179E-02	.295E-03
21	.523E-03	.491E-03
22	.136E-03	.584E-04
23	.487E-03	.167E-03
24	.870E-03	.218E-03
25	.173E-04	.306E-05
26	.572E-04	.553E-05
27	.110E-03	.147E-03
28	.159E-03	.147E-03
29	.298E-03	.567E-03
30	.441E-04	.560E-05
31	.158E-03	.551E-03
32	.317E-03	.596E-03
33	.106E-03	.246E-03
34	.117E-03	.116E-03
35	.485E-04	.123E-03
36	.807E-04	.246E-05
37	.224E-03	.355E-03
38	.190E-03	.412E-03
39	.232E-03	.261E-03
40	.407E-04	.896E-06
41	.170E-04	********
42	.218E-03	.336E-05
43	.431E-03	.245E-03
44	.213E-03	.608E-03
45	********	.889E-03
46	.144E-03	.118E-04
47	********	********

RUN #42

W. D. 045°

SAMPLE PT.	SOURCE GROUP #14 CONCENTRATION RATIO	SOURCE GROUP #15 CONCENTRATION RATIO
1	.249E-05	********
2	.259E-03	.159E-02
3	.111E-02	.142E-02
4	.129E-04	.777E-05
5	.103E-04	.721E-04
6	.121E-04	.515E-05
7	.136E-04	.575E-05
8	.446E-05	.836E-05
9	.107E-04	.153E-04
10	.195E-02	.321E-05
11	.296E+00	.207E-02
12	.129E-01	.666E-02
14	.283E-04	.672E-05
15	.532E-04	.196E-02
16	.122E-03	.558E-02
17	.133E-03	.447E-02
18	.868E-04	.330E-02
19	.126E-02	.127E-03
20	.138E-04	.663E-04
21	.266E-03	.335E-03
22	.443E-04	.326E-04
23	.185E-03	.105E-03
24	.289E-03	.182E-03
25	.477E-05	.478E-05
26	.623E-05	.403E-05
27	.132E-04	.438E-04
28	.103E-04	.402E-04
29	.114E-03	.316E-03
30	.758E-05	.568E-05
31	.316E-04	.768E-03
32	.373E-04	.564E-03
33	.269E-04	.161E-03
34	.130E-03	.119E-03
35	.234E-04	.129E-03
36	.654E-05	.493E-05
37	.193E-03	.106E-02
38	.174E-03	.111E-02
39	.124E-03	.681E-03
40	.438E-04	.657E-05
41	.965E-05	.642E-05
42	.214E-03	.933E-05
43	.178E-02	.407E-04
44	.126E-03	.249E-02
45	.144E-03	.239E-02
46	.768E-05	.137E-04
47	********	.239E-05

RUN #43

W. D. 090°

SAMPLE PT.	SOURCE GROUP #14 CONCENTRATION RATIO	SOURCE GROUP #15 CONCENTRATION RATIO
1	********	.448E-06
2	.608E-03	.107E-02
3	.762E-03	.106E-02
4	.116E-04	.777E-05
5	.121E-04	.977E-04
6	.716E-05	.612E-05
7	.976E-05	.687E-05
8	.104E-04	.155E-04
9	.934E-05	.214E-04
10	.128E-02	.386E-04
11	.169E-01	.786E-04
12	.180E-03	.848E-04
13	.176E-05	.747E-07
14	.103E-04	.918E-05
15	.469E-04	.316E-03
16	.505E-03	.555E-02
17	.155E-02	.692E-02
18	.159E-02	.653E-02
19	.427E-04	.953E-04
20	.446E-05	.880E-04
21	.304E-04	.924E-04
22	.685E-05	.971E-05
23	.581E-05	.149E-04
24	.436E-05	.904E-05
25	.176E-05	.500E-05
26	.477E-05	.523E-05
27	.934E-05	.438E-04
28	.737E-05	.281E-04
29	.662E-04	.435E-03
30	.332E-05	.627E-05
31	.225E-04	.202E-03
32	.195E-04	.124E-03
33	.861E-05	.114E-03
34	.164E-04	.989E-04
35	.147E-04	.249E-04
36	.498E-05	.185E-04
37	.183E-03	.141E-02
38	.174E-03	.157E-02
39	.125E-03	.930E-03
40	.447E-04	.881E-05
41	.184E-04	.115E-04
42	.164E-03	.166E-04
43	.323E-03	.605E-03
44	.102E-03	.125E-02
45	.116E-03	.115E-02
46	.488E-05	.111E-04
47	.156E-05	.314E-05

RUN #44

W. D. 135°

SAMPLE PT.	SOURCE GROUP #14 CONCENTRATION RATIO	SOURCE GROUP #15 CONCENTRATION RATIO
1	********	.523E-06
2	.997E-04	.771E-03
3	.167E-04	.428E-04
4	.768E-05	.545E-05
5	.174E-04	.777E-04
6	.415E-05	.560E-05
7	.706E-05	.530E-05
8	.592E-05	.127E-04
9	.108E-04	.494E-04
10	.245E-02	.162E-03
11	.547E-02	.362E-03
12	.631E-02	.621E-03
13	.118E-04	.709E-05
14	.643E-05	.747E-05
15	.200E-03	.584E-03
16	.762E-03	.503E-02
17	.302E-02	.427E-02
18	.285E-02	.385E-02
19	.426E-05	.455E-04
20	.623E-06	.413E-04
21	.301E-05	.792E-05
22	.187E-05	.455E-05
23	.830E-06	.829E-05
24	.259E-05	.508E-05
25	********	.299E-05
26	.104E-05	.343E-05
27	.737E-05	.836E-05
28	.446E-05	.806E-05
29	.279E-03	.314E-04
30	.519E-06	.358E-05
31	.135E-04	.107E-04
32	.238E-04	.151E-04
33	.252E-02	.200E-03
34	.135E-02	.112E-03
35	.955E-05	.560E-05
36	.734E-03	.691E-04
37	.177E-02	.463E-03
38	.176E-02	.403E-03
39	.111E-02	.183E-03
40	.585E-03	.305E-03
41	.152E-04	.904E-05
42	.726E-03	.775E-03
43	.106E-02	.114E-03
44	.170E-02	.194E-03
45	.182E-02	.249E-03
46	.706E-05	.724E-05
47	********	.187E-05

RUN #45

W. D. 180°

SAMPLE PT.	SOURCE GROUP #14 CONCENTRATION RATIO	SOURCE GROUP #15 CONCENTRATION RATIO
1	.467E-05	********
2	.788E-04	.859E-02
3	.281E-04	.298E-02
4	.115E-04	.157E-04
5	.851E-05	.141E-03
6	.643E-05	.694E-05
7	.104E-04	.139E-04
8	.695E-05	.143E-04
9	.706E-05	.947E-04
10	.577E-01	.347E-02
11	.164E+00	.200E-02
12	.344E-03	.133E-02
13	.470E-04	.149E-04
14	.163E-04	.139E-03
15	.144E-03	.751E-02
16	.204E-03	.108E-01
17	.136E-03	.935E-02
18	.157E-03	.944E-02
19	.436E-05	.581E-04
20	.467E-05	.445E-04
21	.550E-05	.103E-04
22	.529E-05	.687E-05
23	.477E-05	.717E-05
24	.332E-05	.515E-05
25	.311E-05	.373E-05
26	.283E-04	.455E-05
27	.282E-04	.814E-05
28	.280E-04	.836E-05
29	.115E-02	.303E-04
30	.102E-03	.463E-05
31	.119E-04	.859E-05
32	.727E-05	.202E-04
33	.225E-04	.260E-04
34	.915E-04	.226E-04
35	.654E-05	.582E-05
36	.128E-03	.315E-04
37	.323E-03	.190E-03
38	.301E-03	.155E-03
39	.178E-03	.792E-04
40	.382E-03	.316E-03
41	.978E-04	.113E-04
42	.450E-03	.337E-03
43	.269E-03	.901E-04
44	.246E-03	.166E-03
45	.292E-03	.186E-03
46	.799E-04	.100E-04
47	.249E-05	.246E-05

RUN #46

W. D. 225°

SAMPLE PT.	SOURCE GROUP #14 CONCENTRATION RATIO	SOURCE GROUP #15 CONCENTRATION RATIO
1	.394E-05	.373E-06
2	.162E-04	.204E-02
3	.560E-05	.498E-03
4	.529E-05	.336E-05
5	.623E-06	.956E-04
6	.519E-06	.396E-05
7	.415E-05	.463E-05
8	.104E-05	.329E-05
9	.135E-05	.771E-04
10	.322E-01	.578E-02
11	.170E+00	.422E-02
12	.404E-03	.458E-02
13	.297E-04	.108E-04
14	.675E-05	.121E-03
15	.272E-04	.215E-02
16	.639E-04	.777E-02
17	.915E-04	.111E-01
18	.826E-04	.103E-01
19	.851E-05	.607E-04
20	.550E-05	.457E-04
21	.529E-05	.792E-05
22	.176E-05	.254E-05
23	.291E-05	.956E-05
24	.176E-05	.441E-05
25	.270E-05	.373E-05
26	.946E-04	.904E-05
27	.162E-02	.214E-03
28	.190E-02	.958E-04
29	.159E-02	.127E-03
30	.162E-03	.866E-05
31	.125E-04	.159E-03
32	.159E-04	.934E-03
33	.441E-04	.175E-02
34	.139E-03	.932E-03
35	.820E-05	.216E-03
36	.240E-03	.488E-03
37	.808E-03	.169E-02
38	.766E-03	.160E-02
39	.471E-03	.946E-03
40	.270E-03	.972E-03
41	.104E-03	.135E-04
42	.877E-03	.121E-02
43	.373E-03	.108E-02
44	.671E-03	.297E-02
45	.604E-03	.277E-02
46	.894E-03	.648E-03
47	.280E-05	.231E-05

RUN #47

W. D. 270°

SAMPLE PT.	SOURCE GROUP #14 CONCENTRATION RATIO	SOURCE GROUP #15 CONCENTRATION RATIO
1	.654E-05	.164E-05
2	.429E-04	.550E-02
3	.112E-04	.143E-02
4	.509E-05	.560E-05
5	.249E-05	.238E-03
6	.156E-05	.814E-05
7	.467E-05	.299E-05
8	.176E-05	.377E-04
9	.737E-05	.821E-03
10	.925E-02	.279E-02
11	.174E+00	.140E-02
12	.524E-02	.283E-02
13	.538E-04	.687E-05
14	.119E-04	.126E-03
15	.373E-04	.280E-02
16	.412E-04	.453E-02
17	.561E-04	.699E-02
18	.510E-04	.610E-02
19	.768E-05	.905E-04
20	.227E-04	.153E-03
21	.426E-05	.836E-05
22	.259E-05	.455E-05
23	.436E-05	.108E-04
24	.270E-05	.396E-05
25	.143E-04	.131E-04
26	.891E-04	.194E-04
27	.928E-02	.180E-02
28	.108E-01	.187E-02
29	.187E-02	.147E-02
30	.574E-03	.905E-04
31	.110E-04	.115E-03
32	.122E-04	.893E-03
33	.441E-03	.221E-02
34	.220E-03	.512E-03
35	.550E-05	.101E-03
36	.284E-03	.110E-02
37	.431E-03	.250E-02
38	.406E-03	.231E-02
39	.229E-03	.121E-02
40	.738E-04	.548E-03
41	.989E-04	.217E-04
42	.487E-03	.204E-02
43	.291E-03	.147E-02
44	.361E-03	.292E-02
45	.374E-03	.334E-02
46	.130E-02	.967E-03
47	.114E-05	.396E-05

RUN #48

W. D. 315°

SAMPLE PT.	SOURCE GROUP #14 CONCENTRATION RATIO	SOURCE GROUP #15 CONCENTRATION RATIO
1	.602E-05	.105E-05
2	.509E-05	.474E-03
3	.394E-05	.328E-03
4	.105E-04	.620E-05
5	.820E-05	.283E-03
6	.695E-05	.650E-05
7	.913E-05	.620E-05
8	.976E-05	.474E-04
9	.685E-05	.618E-04
10	.187E-01	.153E-02
11	.168E+00	.235E-02
12	.260E-02	.656E-02
13	.243E-04	.233E-04
14	.140E-04	.104E-04
15	.144E-04	.680E-03
16	.395E-04	.409E-02
17	.127E-04	.903E-03
18	.799E-05	.476E-03
19	.256E-03	.510E-02
20	.103E-02	.245E-02
21	.596E-04	.301E-02
22	.228E-04	.934E-03
23	.199E-03	.608E-03
24	.305E-03	.176E-02
25	.876E-03	.859E-03
26	.882E-03	.724E-03
27	.648E-02	.107E-02
28	.652E-02	.110E-02
29	.166E-02	.151E-02
30	.100E-02	.551E-03
31	.480E-03	.722E-03
32	.217E-04	.388E-03
33	.199E-02	.933E-03
34	.834E-03	.312E-03
35	.227E-04	.270E-03
36	.156E-02	.120E-03
37	.886E-03	.155E-03
38	.134E-02	.240E-03
39	.128E-02	.205E-03
40	.293E-04	.101E-04
41	.100E-03	.116E-04
42	.277E-03	.307E-04
43	.101E-02	.300E-03
44	.103E-02	.294E-03
45	.141E-02	.491E-03
46	.123E-02	.281E-03
47	.259E-05	.261E-05

RUN #49

W. D. 000°

SAMPLE PT.	SOURCE GROUP #58 CONCENTRATION RATIO	SOURCE GROUP #59 CONCENTRATION RATIO
1	********	********
2	.519E-06	.306E-05
3	.156E-05	.657E-05
4	.509E-05	.455E-05
5	.176E-05	.366E-05
6	.934E-06	********
7	.104E-05	.157E-05
8	.156E-05	.202E-05
9	.727E-06	.291E-05
10	.106E-03	.192E-04
11	.630E-03	.230E-04
12	.504E-04	.416E-04
13	********	.448E-05
14	.311E-05	.276E-05
15	.560E-05	.237E-04
16	.208E-05	.800E-04
17	.156E-05	.763E-04
18	.135E-05	.687E-04
19	.893E-05	.213E-03
20	.602E-05	.225E-03
21	.215E-04	.907E-04
22	.176E-05	.102E-04
23	.126E-04	.735E-04
24	.165E-04	.987E-04
25	.125E-05	.680E-05
26	.270E-05	.515E-05
27	.225E-04	.308E-04
28	.207E-04	.333E-04
29	.229E-04	.621E-04
30	.187E-05	.493E-05
31	.225E-04	.223E-04
32	.212E-04	.759E-04
33	.120E-04	.744E-04
34	.633E-05	.420E-04
35	.107E-04	.151E-04
36	.820E-05	.769E-05
37	.166E-03	.343E-04
38	.183E-03	.282E-04
39	.159E-03	.152E-04
40	.663E-04	.709E-05
41	.519E-05	.411E-05
42	.215E-03	.147E-04
43	.431E-03	.163E-04
44	.117E-03	.364E-04
45	.136E-03	.435E-04
46	.747E-05	.137E-04
47	********	********

RUN #50

W. D. 045°

SAMPLE PT.	SOURCE GROUP #58 CONCENTRATION RATIO	SOURCE GROUP #59 CONCENTRATION RATIO
1	.311E-06	********
2	.540E-05	.222E-04
3	.625E-04	.269E-03
4	.208E-06	.149E-05
5	.415E-06	.971E-06
6	.519E-06	.119E-05
7	********	.112E-05
8	.104E-06	.149E-05
9	.415E-06	.172E-05
10	.322E-05	.373E-06
11	.287E-04	.993E-05
12	.398E-04	.519E-04
13	.415E-06	.224E-05
14	.623E-06	.164E-05
15	.176E-05	.478E-05
16	.415E-05	.244E-04
17	.259E-05	.174E-04
18	.239E-05	.140E-04
19	.104E-05	.248E-04
20	.623E-06	.267E-04
21	.125E-05	.605E-05
22	.415E-06	.217E-05
23	.436E-05	.276E-04
24	.695E-05	.434E-04
25	.208E-06	.224E-06
26	.104E-06	********
27	.239E-05	.321E-05
28	.208E-05	.343E-05
29	.322E-05	.963E-05
30	.208E-06	.747E-07
31	.384E-05	.157E-05
32	.249E-05	.978E-05
33	.187E-05	.115E-04
34	.135E-05	.754E-05
35	.156E-05	.642E-05
36	.830E-06	********
37	.499E-04	.642E-05
38	.440E-04	.545E-05
39	.314E-04	.284E-05
40	.136E-04	.597E-06
41	.727E-06	.217E-05
42	.488E-04	.209E-05
43	.894E-04	.314E-05
44	.246E-04	.627E-05
45	.287E-04	.792E-05
46	.135E-05	.217E-05
47	********	********

RUN #51

W. D. 090°

SAMPLE PT.	SOURCE GROUP #58 CONCENTRATION RATIO	SOURCE GROUP #59 CONCENTRATION RATIO
1	.684E-05	.383E-05
2	.502E-04	.194E-03
3	.150E-04	.521E-04
4	.382E-05	.130E-05
5	.382E-05	.333E-05
6	.332E-05	.108E-05
7	.292E-05	.130E-05
9	.372E-05	.195E-05
10	.342E-05	********
11	.106E-04	.579E-06
12	.322E-05	.796E-06
13	.251E-05	.202E-05
14	.261E-05	.137E-05
15	.432E-05	.665E-05
16	.299E-04	.118E-03
17	.424E-04	.149E-03
18	.396E-04	.141E-03
19	.111E-05	.208E-04
20	.101E-05	.229E-04
21	.221E-05	.181E-05
22	********	.723E-07
23	.171E-05	.651E-06
24	.151E-05	.130E-05
25	.141E-05	.217E-06
26	.171E-05	.145E-06
27	.292E-05	.275E-05
28	.281E-05	.318E-05
29	.322E-05	.463E-05
30	.151E-05	.289E-06
31	.362E-05	.268E-05
32	.281E-05	.853E-05
33	.411E-04	.738E-05
34	.251E-05	.448E-05
35	.261E-05	.665E-05
36	.201E-05	.651E-06
37	.274E-04	.499E-05
38	.260E-04	.391E-05
39	.192E-04	.210E-05
40	.955E-05	.434E-06
41	.181E-05	.195E-05
42	.297E-04	.145E-05
43	.527E-04	.217E-05
44	.158E-04	.441E-05
45	.175E-04	.550E-05
46	.281E-05	.188E-05
47	.181E-05	********

RUN #52

W. D. 135°

SAMPLE PT.	SOURCE GROUP #58 CONCENTRATION RATIO	SOURCE GROUP #59 CONCENTRATION RATIO
1	.201E-05	.253E-05
2	.171E-05	.340E-05
3	.151E-05	.275E-05
4	.121E-05	.340E-05
5	.151E-05	.376E-05
6	.905E-06	.333E-05
7	.101E-05	.354E-05
8	.905E-06	.340E-05
9	.121E-05	.376E-05
10	.141E-05	********
11	.684E-05	.217E-06
12	.503E-06	.651E-06
13	.101E-05	.412E-05
14	.131E-05	.354E-05
15	.734E-05	.220E-04
16	.207E-04	.357E-04
17	.546E-04	.104E-03
18	.511E-04	.101E-03
19	********	.173E-04
20	********	.182E-04
21	.111E-05	.231E-05
22	.804E-06	.246E-05
23	.101E-05	.506E-05
24	.101E-05	.101E-05
25	.503E-06	.289E-06
26	.503E-06	.145E-06
27	.131E-05	.239E-05
28	.131E-05	.246E-05
29	.302E-05	.998E-05
30	.402E-06	.506E-06
31	.191E-05	.318E-05
32	.151E-05	.550E-05
33	.141E-05	.636E-05
34	.332E-05	********
35	.131E-05	.188E-05
36	.131E-05	.152E-05
37	.240E-04	.456E-05
38	.224E-04	.383E-05
39	.182E-04	.354E-05
40	.171E-04	.230E-04
41	.101E-05	.427E-05
42	.162E-04	.297E-05
43	.479E-04	.347E-05
44	.137E-04	.412E-05
45	.159E-04	.528E-05
46	.724E-05	.195E-05
47	.603E-06	.145E-05

RUN #53

W. D. 180°

SAMPLE PT.	SOURCE GROUP #58 CONCENTRATION RATIO	SOURCE GROUP #59 CONCENTRATION RATIO
1	.704E-06	.289E-05
2	.231E-05	.528E-05
3	.905E-06	.470E-05
4	.603E-06	.268E-05
5	.905E-06	.231E-05
6	.302E-06	.246E-05
7	.503E-06	.253E-05
8	.704E-06	.260E-05
9	.503E-06	.253E-05
10	.665E-04	.123E-03
11	.552E-04	.276E-04
12	.422E-05	.268E-05
13	.402E-06	.311E-05
14	.704E-06	.297E-05
15	.144E-04	.152E-04
16	.208E-04	.237E-04
17	.126E-04	.171E-04
18	.147E-04	.189E-04
19	.704E-06	.151E-04
20	.603E-06	.162E-04
21	.402E-06	.369E-05
22	.704E-06	.354E-05
23	.503E-06	.376E-05
24	.302E-06	.217E-05
25	.402E-06	.166E-05
26	.302E-06	.174E-05
27	.131E-05	.333E-05
28	.111E-05	.362E-05
29	.241E-05	.962E-05
30	.302E-06	.282E-05
31	.201E-05	.246E-05
32	.141E-05	.499E-05
33	.111E-05	.651E-05
34	.704E-06	.485E-05
35	.131E-05	.268E-05
36	.161E-05	.499E-05
37	.197E-04	.506E-05
38	.189E-04	.441E-05
39	.145E-04	.340E-05
40	.955E-05	.172E-04
41	.804E-06	.340E-05
42	.233E-04	.304E-05
43	.407E-04	.333E-05
44	.119E-04	.485E-05
45	.130E-04	.550E-05
46	.603E-06	.325E-05
47	********	.101E-05

RUN #54

W. D. 225°

SAMPLE PT.	SOURCE GROUP #58 CONCENTRATION RATIO	SOURCE GROUP #59 CONCENTRATION RATIO
1	.804E-06	.239E-05
2	.302E-06	.354E-05
3	.402E-06	.340E-05
4	.704E-06	.268E-05
5	.503E-06	.202E-05
6	.503E-06	.260E-05
7	.402E-06	.260E-05
8	.402E-06	.268E-05
9	.503E-06	.246E-05
10	.139E-04	********
11	.133E-04	.398E-05
12	.228E-04	.297E-05
13	********	.318E-05
14	.905E-06	.268E-05
15	.503E-06	.275E-05
16	.402E-06	.427E-05
17	.201E-06	.463E-05
18	.402E-06	.419E-05
19	.503E-06	.145E-04
20	.402E-06	.158E-04
21	.402E-06	.202E-05
22	.302E-06	.174E-05
23	.141E-05	.730E-05
24	.101E-06	.174E-05
25	.201E-06	.152E-05
26	.101E-06	.159E-05
27	.141E-05	.318E-05
28	.121E-05	.333E-05
29	.191E-05	.673E-05
30	.302E-06	.224E-05
31	.171E-05	.231E-05
32	.111E-05	.499E-05
33	.161E-05	.687E-05
34	.121E-05	.513E-05
35	.101E-05	.246E-05
36	.533E-05	.137E-04
37	.192E-04	.962E-05
38	.188E-04	.940E-05
39	.155E-04	.593E-05
40	.113E-04	.195E-04
41	.121E-05	.354E-05
42	.278E-04	.182E-04
43	.397E-04	.419E-05
44	.125E-04	.745E-05
45	.141E-04	.752E-05
46	.704E-06	.325E-05
47	********	.108E-05

RUN #55

W. D. 270°

SAMPLE PT.	SOURCE GROUP #58 CONCENTRATION RATIO	SOURCE GROUP #59 CONCENTRATION RATIO
1	.131E-05	.311E-05
2	.905E-06	.311E-05
3	.603E-06	.304E-05
4	.804E-06	.340E-05
5	.905E-06	.275E-05
6	.704E-06	.239E-05
7	.603E-06	.333E-05
8	.603E-06	.340E-05
9	.603E-06	.289E-05
10	.141E-05	.159E-05
11	.704E-05	.275E-05
12	.523E-05	.369E-05
13	.603E-06	.391E-05
14	.804E-06	.340E-05
15	.704E-06	.311E-05
16	.402E-06	.448E-05
17	.302E-06	.463E-05
18	.503E-06	.427E-05
19	.804E-06	.127E-04
20	.503E-06	.441E-05
21	.704E-06	.181E-05
22	.402E-06	.130E-05
23	.221E-05	.133E-04
24	********	.224E-05
25	.503E-06	.297E-05
26	.704E-06	.354E-05
27	.142E-04	.314E-04
28	.106E-04	.213E-04
29	.171E-05	.477E-05
30	.181E-05	.730E-05
31	.161E-05	.210E-05
32	.121E-05	.571E-05
33	.975E-05	.142E-04
34	.392E-05	.796E-05
35	.141E-05	.217E-05
36	.653E-05	.817E-05
37	.373E-04	.258E-04
38	.364E-04	.263E-04
39	.230E-04	.127E-04
40	.694E-05	.268E-05
41	.121E-05	.434E-05
42	.226E-04	.148E-04
43	.460E-04	.117E-04
44	.258E-04	.200E-04
45	.273E-04	.212E-04
46	.495E-04	.116E-03
47	.603E-06	.217E-05

RUN #56

W. D. 315°

SAMPLE PT.	SOURCE GROUP #58 CONCENTRATION RATIO	SOURCE GROUP #59 CONCENTRATION RATIO
1	.131E-05	.246E-05
2	.302E-06	.174E-05
3	.704E-06	.492E-05
4	.905E-06	.354E-05
5	.101E-05	.297E-05
6	.402E-06	.347E-05
7	.704E-06	.347E-05
8	.503E-06	.369E-05
9	.101E-05	.354E-05
10	.211E-05	.188E-05
11	.663E-05	.195E-05
12	.161E-05	.499E-05
13	.201E-06	.434E-06
14	.131E-05	.391E-05
15	.131E-05	.362E-05
16	.704E-06	.738E-05
17	********	.600E-05
18	.503E-06	.506E-05
19	.437E-04	.863E-04
20	.700E-04	.281E-03
21	.754E-05	.984E-05
22	.261E-05	.658E-05
23	.153E-04	.666E-04
24	.493E-04	.170E-03
25	.330E-04	.199E-03
26	.284E-04	.169E-03
27	.704E-05	.414E-04
28	.794E-05	.456E-04
29	.573E-05	.167E-04
30	.211E-04	.126E-03
31	.322E-05	.702E-05
32	.211E-05	.136E-04
33	.151E-05	.955E-05
34	.151E-05	.694E-05
35	.131E-05	.926E-05
36	.121E-05	.376E-05
37	.180E-04	.557E-05
38	.194E-04	.463E-05
39	.162E-04	.340E-05
40	.774E-05	.231E-05
41	.603E-06	.470E-05
42	.259E-04	.333E-05
43	.458E-04	.405E-05
44	.128E-04	.506E-05
45	.153E-04	.651E-05
46	.764E-05	.498E-04
47	********	.868E-06

RUN #57

W. D. 000°

SAMPLE PT.	SOURCE GROUP #10 CONCENTRATION RATIO	SOURCE GROUP #60 CONCENTRATION RATIO
1	.124E-04	.217E-05
2	.358E-05	.116E-05
3	.799E-04	.304E-05
4	.840E-05	.311E-05
5	.796E-05	.311E-05
6	********	********
7	.849E-05	.347E-05
8	.818E-05	.289E-05
9	.760E-05	.311E-05
10	.952E-03	.116E-05
11	.781E-03	.199E-04
12	.198E-02	.140E-03
13	.988E-05	.398E-05
14	.818E-05	.333E-05
15	.340E-05	.202E-05
16	.805E-05	.485E-05
17	.255E-05	.405E-05
18	.201E-05	.340E-05
19	.810E-02	.242E-04
20	.588E-02	.137E-04
21	.128E-01	********
22	.138E-02	.723E-05
23	.125E-02	.587E-04
24	.170E-02	.635E-04
25	.120E-03	.231E-05
26	.298E-03	.195E-05
27	.347E-02	.940E-06
28	.355E-02	********
29	.799E-02	********
30	.163E-03	.130E-05
31	.756E-02	********
32	.956E-02	********
33	.499E-01	********
34	.127E-01	********
35	.219E-02	.354E-05
36	.943E-01	********
37	.281E-02	.275E-05
38	.254E-02	.940E-06
39	.184E-02	.210E-05
40	.183E-03	********
41	.464E-04	.376E-05
42	.662E-02	********
43	.261E-02	.231E-05
44	.300E-02	.506E-06
45	.972E-02	********
46	.218E-03	.391E-05
47	.487E-05	.174E-05

RUN #58

W. D. 045°

SAMPLE PT.	SOURCE GROUP #10 CONCENTRATION RATIO	SOURCE GROUP #60 CONCENTRATION RATIO
1	.796E-05	.123E-05
2	.127E-02	.651E-05
3	.116E-01	********
4	.234E-04	.311E-05
5	.168E-04	.260E-05
6	.970E-05	.304E-05
7	.122E-04	.325E-05
8	.112E-04	.311E-05
9	.155E-04	.354E-05
10	.510E-02	********
11	.327E-02	********
12	.453E-02	********
13	.149E-04	.405E-05
14	.117E-04	.376E-05
15	.421E-03	.268E-05
16	.559E-03	.636E-05
17	.751E-03	.499E-05
18	.683E-03	.391E-05
19	.170E-03	.112E-04
20	.380E-05	.121E-04
21	.553E-02	********
22	.293E-03	.376E-05
23	.852E-03	.955E-05
24	.164E-02	.405E-05
25	.107E-05	.796E-06
26	.259E-05	.579E-06
27	.655E-04	.174E-05
28	.604E-04	.108E-05
29	.199E-02	.427E-05
30	.304E-05	.434E-06
31	.386E-02	********
32	.112E-01	********
33	.491E-01	********
34	.293E-01	********
35	.942E-03	.340E-05
36	.102E+00	********
37	.180E-02	.275E-05
38	.115E-02	.108E-05
39	.651E-03	.260E-05
40	.114E-01	********
41	.514E-04	.391E-05
42	.332E-03	.333E-05
43	.928E-03	.260E-05
44	.134E-02	.145E-05
45	.210E-02	.282E-05
46	.526E-04	.101E-05
47	.273E-05	.108E-05

RUN #59

W. D. 090°

SAMPLE PT.	SOURCE GROUP #10 CONCENTRATION RATIO	SOURCE GROUP #60 CONCENTRATION RATIO
1	.966E-05	********
2	.166E-02	.366E-04
3	.443E-02	.752E-05
4	.992E-05	.137E-05
5	.236E-04	********
6	.421E-04	.159E-05
7	.581E-05	********
8	.782E-05	********
9	.115E-04	.116E-05
10	.745E-02	********
11	.665E-02	********
12	.376E-02	********
13	.854E-05	.202E-05
14	.845E-05	.137E-05
15	.154E-03	.347E-05
16	.973E-03	.461E-04
17	.251E-02	.110E-03
18	.247E-02	.916E-04
19	.293E-03	.998E-05
20	.241E-05	.106E-04
21	.573E-02	********
22	.344E-03	.796E-06
23	.941E-04	.702E-05
24	.152E-04	********
25	.358E-06	.868E-06
26	.147E-04	********
27	.445E-03	.159E-05
28	.201E-03	.579E-06
29	.250E-01	********
30	.278E-04	.579E-06
31	.637E-02	********
32	.568E-02	********
33	.466E-01	********
34	.368E-01	********
35	.638E-03	********
36	.342E+00	********
37	.304E-01	********
38	.329E-01	********
39	.208E-01	********
40	.464E-01	********
41	.197E-03	********
42	.632E-03	********
43	.864E-02	********
44	.410E-01	********
45	.426E-01	********
46	.878E-04	.123E-05
47	.572E-05	.289E-06

RUN #60

W. D. 135°

SAMPLE PT.	SOURCE GROUP #10 CONCENTRATION RATIO	SOURCE GROUP #60 CONCENTRATION RATIO
1	.657E-05	.181E-05
2	.299E-04	.174E-05
3	.165E-04	.246E-05
4	.814E-05	.369E-05
5	.179E-04	.347E-05
6	.747E-05	.369E-05
7	.742E-05	.340E-05
8	.104E-04	.383E-05
9	.876E-05	.376E-05
10	.874E-02	.217E-06
11	.116E-02	********
12	.212E-03	.188E-05
13	.818E-05	.398E-05
14	.800E-05	.412E-05
15	.516E-03	.318E-04
16	.351E-03	.270E-04
17	.165E-02	.133E-03
18	.173E-02	.145E-03
19	.294E-04	.134E-04
20	.165E-05	.149E-04
21	.227E-04	.275E-05
22	.662E-05	.369E-05
23	.279E-04	.391E-05
24	.983E-06	.217E-05
25	********	.210E-05
26	.671E-05	.210E-05
27	.120E-04	.347E-05
28	.389E-05	.369E-05
29	.416E-03	.636E-05
30	.134E-05	.195E-05
31	.385E-04	.174E-05
32	.341E-04	.441E-05
33	.356E-02	.181E-05
34	.221E-02	.325E-05
35	.108E-04	.246E-05
36	.787E-01	********
37	.593E-01	********
38	.602E-01	********
39	.365E-01	********
40	.823E-01	********
41	.497E-03	********
42	.267E-01	********
43	.385E-01	********
44	.685E-01	********
45	.688E-01	********
46	.119E-03	.188E-05
47	.206E-04	.217E-05

RUN #61

W. D. 180°

SAMPLE PT.	SOURCE GROUP #10 CONCENTRATION RATIO	SOURCE GROUP #60 CONCENTRATION RATIO
1	.747E-05	********
2	.105E-04	.333E-05
3	.527E-05	.398E-05
4	.104E-04	.412E-05
5	.921E-05	********
6	.992E-05	.405E-05
7	.105E-04	.434E-05
8	.159E-04	.419E-05
9	.988E-05	.419E-05
10	.239E-02	.803E-05
11	.349E-03	********
12	.527E-05	.130E-05
13	.104E-04	.528E-05
14	.102E-04	.463E-05
15	.226E-04	.398E-05
16	.289E-04	.579E-05
17	.188E-04	.593E-05
18	.261E-04	.550E-05
19	.328E-04	.137E-04
20	.103E-05	.152E-04
21	.501E-05	.318E-05
22	.420E-05	.456E-05
23	.215E-05	.340E-05
24	.581E-06	.202E-05
25	.358E-06	********
26	.477E-04	********
27	.313E-05	.289E-05
28	.581E-06	.289E-05
29	.141E-04	.673E-05
30	.268E-05	.210E-05
31	.890E-05	.246E-05
32	.519E-05	.391E-05
33	.513E-04	.564E-05
34	.154E-03	.318E-05
35	.331E-05	.217E-05
36	.402E+00	********
37	.176E-02	********
38	.149E-02	********
39	.794E-03	********
40	.698E-01	********
41	.236E-03	********
42	.499E-02	********
43	.428E-02	********
44	.296E-02	********
45	.215E-02	********
46	.131E-03	********
47	.411E-05	.195E-05

RUN #62

W. D. 225°

SAMPLE PT.	SOURCE GROUP #10 CONCENTRATION RATIO	SOURCE GROUP #60 CONCENTRATION RATIO
1	.773E-05	.159E-05
2	.849E-06	********
3	.130E-05	.145E-05
4	.219E-05	********
5	.268E-05	********
6	.228E-05	********
7	.215E-05	********
8	.416E-05	********
9	.197E-05	********
10	.903E-03	********
11	.335E-04	********
12	.170E-05	********
13	.215E-05	********
14	.165E-05	********
15	.130E-05	********
16	.358E-06	********
17	.170E-05	.246E-05
18	.125E-05	********
19	.252E-04	.111E-04
20	.121E-05	.112E-04
21	.215E-05	********
22	.715E-06	********
23	.341E-04	********
24	.313E-06	********
25	.112E-05	********
26	.788E-04	********
27	.153E-02	********
28	.524E-03	********
29	.827E-05	.412E-05
30	.443E-05	********
31	.492E-05	********
32	.264E-05	.181E-05
33	.153E-03	********
34	.171E-03	********
35	.192E-05	********
36	.258E+00	********
37	.200E-01	********
38	.184E-01	********
39	.108E-01	********
40	.675E-01	********
41	.255E-03	********
42	.297E-01	********
43	.127E-01	********
44	.198E-01	********
45	.214E-01	********
46	.249E-02	********
47	.140E-04	********

RUN #63

W. D. 270°

SAMPLE PT.	SOURCE GROUP #10 CONCENTRATION RATIO	SOURCE GROUP #60 CONCENTRATION RATIO
1	.100E-04	.145E-05
2	.121E-05	.181E-05
3	.805E-06	.448E-05
4	.778E-05	.354E-05
5	.662E-05	.246E-05
6	.621E-05	.275E-05
7	.760E-05	.376E-05
8	.104E-04	.333E-05
9	.519E-05	.289E-05
10	.160E-02	********
11	.529E-02	********
12	.309E-03	********
13	.760E-05	.419E-05
14	.679E-05	.340E-05
15	.434E-05	.340E-05
16	.331E-05	.499E-05
17	.362E-05	.564E-05
18	.197E-05	.470E-05
19	.515E-04	.149E-04
20	.626E-06	.160E-04
21	.179E-05	********
22	.130E-05	.145E-05
23	.133E-03	.114E-04
24	.107E-05	.231E-05
25	.411E-05	.188E-05
26	.111E-03	.166E-05
27	.138E-03	.333E-05
28	.803E-04	.311E-05
29	.706E-05	.550E-05
30	.211E-04	.311E-05
31	.590E-05	.188E-05
32	.165E-05	.376E-05
33	.765E-01	********
34	.413E-01	********
35	.383E-04	********
36	.303E+00	********
37	.276E-02	********
38	.227E-02	********
39	.114E-02	.398E-05
40	.131E-01	********
41	.206E-03	********
42	.677E-02	********
43	.871E-02	********
44	.257E-02	********
45	.327E-02	********
46	.432E-03	.528E-05
47	.398E-05	.108E-05

RUN #64

W. D. 315°

SAMPLE PT.	SOURCE GROUP #10 CONCENTRATION RATIO	SOURCE GROUP #60 CONCENTRATION RATIO
1	.101E-04	.239E-05
2	.224E-06	.101E-05
3	.447E-06	.282E-05
4	.250E-05	.940E-06
5	.170E-05	.651E-06
6	.183E-05	.723E-06
7	.246E-05	.108E-05
8	.572E-05	********
9	.139E-05	.868E-06
10	.653E-05	.116E-05
11	.132E-03	.940E-06
12	.570E-03	.145E-05
13	.232E-05	********
14	.259E-05	.152E-05
15	.107E-05	.174E-05
16	.224E-05	.391E-05
17	.183E-05	.448E-05
18	.849E-06	.405E-05
19	.129E-02	.145E-04
20	.250E-02	.571E-04
21	.347E-03	.217E-05
22	.103E-03	.579E-06
23	.225E-03	.897E-05
24	.770E-03	.340E-05
25	.180E-02	.113E-03
26	.186E-02	.113E-03
27	.159E-01	.234E-03
28	.160E-01	.242E-03
29	.419E-02	.173E-04
30	.194E-02	.126E-03
31	.186E-02	.104E-04
32	.181E-03	********
33	.207E-01	********
34	.631E-02	********
35	.137E-03	.217E-05
36	.329E+00	********
37	.168E-01	********
38	.177E-01	********
39	.143E-01	********
40	.642E-02	********
41	.685E-03	.123E-05
42	.365E-01	********
43	.123E-01	********
44	.209E-01	********
45	.214E-01	********
46	.552E-02	.943E-04
47	.147E-04	.579E-06

RUN #65

W. D. 000°

SAMPLE PT.	SOURCE GROUP #3Q CONCENTRATION RATIO	SOURCE GROUP #8 CONCENTRATION RATIO
1	.191E-05	.264E-04
2	.136E-06	.101E-04
3	.323E-05	.225E-04
4	.227E-06	.240E-04
5	********	.164E-04
6	********	.178E-04
7	.409E-06	.227E-04
8	.273E-06	.221E-04
9	.136E-06	.173E-04
10	.164E-05	.148E-04
11	.445E-05	.195E-04
12	.217E-04	.274E-04
13	.909E-07	.155E-04
14	********	.133E-04
15	********	.788E-05
16	********	.160E-04
17	********	.146E-04
18	********	.135E-04
19	.257E-02	.218E-01
20	.157E-02	.756E-01
21	.110E-02	.260E-02
22	.137E-03	.367E-03
23	.246E-03	.193E-02
24	.333E-03	.287E-02
25	.114E-04	.126E-02
26	.279E-04	.292E-02
27	.116E-02	.136E+00
28	.253E-02	.277E+00
29	.120E-02	.110E+00
30	.150E-03	.175E-01
31	.151E-03	.132E-02
32	.342E-03	.135E-02
33	********	********
34	.594E-04	.158E-03
35	.116E-03	.243E-03
36	.203E-04	.399E-04
37	.441E-05	.551E-04
38	.405E-05	.499E-04
39	.291E-05	.375E-04
40	.345E-05	.216E-04
41	.155E-05	.467E-04
42	.664E-05	.874E-04
43	.873E-05	.459E-04
44	.323E-05	.492E-04
45	.482E-05	.911E-04
46	.273E-05	.106E-03
47	********	********

RUN #66

W. D. 045°

SAMPLE PT.	SOURCE GROUP #3Q CONCENTRATION RATIO	SOURCE GROUP #8 CONCENTRATION RATIO
1	.168E-05	.275E-04
2	.272E-03	.323E-03
3	.207E-02	.370E-02
4	.427E-05	.426E-04
5	.268E-05	.323E-04
6	.241E-05	.368E-04
7	.227E-05	.362E-04
8	.209E-05	.353E-04
9	.250E-05	.365E-04
10	.418E-05	.271E-04
11	.108E-03	.959E-04
12	.296E-02	.369E-03
13	.536E-05	.383E-04
14	.255E-05	.338E-04
15	.261E-04	.386E-04
16	.516E-04	.870E-04
17	.688E-04	.937E-04
18	.493E-04	.744E-04
19	.393E-03	.453E-01
20	.153E-03	.187E-01
21	.247E-04	.238E-02
22	.182E-05	.621E-04
23	.121E-03	.330E-02
24	.217E-03	.547E-02
25	.364E-05	.380E-03
26	.473E-05	.512E-03
27	.155E-03	.203E-01
28	.113E-02	.665E-01
29	.940E-03	.114E+00
30	.900E-04	.101E-01
31	.122E-04	.962E-03
32	.141E-04	.846E-03
33	.187E-04	.779E-04
34	.315E-04	.856E-04
35	.296E-04	.122E-03
36	.202E-04	.567E-04
37	.518E-05	.624E-04
38	.464E-05	.617E-04
39	.409E-05	.506E-04
40	.373E-05	.308E-04
41	.236E-05	.447E-04
42	.541E-05	.494E-04
43	.864E-05	.476E-04
44	.332E-05	.596E-04
45	.377E-05	.652E-04
46	.132E-05	.398E-04
47	.273E-06	.791E-05

RUN #67

W. D. 090°

SAMPLE PT.	SOURCE GROUP #3Q CONCENTRATION RATIO	SOURCE GROUP #8 CONCENTRATION RATIO
1	.191E-05	.216E-04
2	.866E-03	.639E-02
3	.101E-02	.108E-01
4	.486E-05	.799E-04
5	.845E-05	.881E-04
6	.382E-05	.623E-04
7	.364E-05	.572E-04
8	.473E-05	.624E-04
9	.532E-05	.764E-04
10	.437E-03	.119E-03
11	.216E-01	.259E-03
12	.263E-01	.440E-03
13	.316E-04	.597E-04
14	.106E-04	.576E-04
15	.333E-04	.189E-03
16	.357E-03	.240E-02
17	.587E-03	.337E-02
18	.543E-03	.314E-02
19	.161E-03	.195E-01
20	.377E-05	.296E-03
21	.763E-04	.362E-02
22	.732E-05	.215E-03
23	.718E-05	.391E-03
24	.436E-05	.322E-03
25	.141E-05	.254E-04
26	.173E-05	.327E-04
27	.132E-02	.156E+00
28	.178E-02	.204E+00
29	.744E-03	.897E-01
30	.125E-03	.139E-01
31	.558E-04	.564E-02
32	.955E-04	.892E-02
33	********	.361E-03
34	.628E-04	.198E-03
35	.210E-04	.464E-03
36	.330E-04	.146E-03
37	.773E-05	.229E-03
38	.805E-05	.234E-03
39	.664E-05	.164E-03
40	.650E-05	.954E-04
41	.209E-04	.153E-03
42	.287E-04	.225E-03
43	.129E-04	.164E-03
44	.668E-05	.254E-03
45	.705E-05	.270E-03
46	.125E-04	.118E-03
47	.709E-05	.400E-04

RUN #68

W. D. 135°

SAMPLE PT.	SOURCE GROUP #3Q CONCENTRATION RATIO	SOURCE GROUP #8 CONCENTRATION RATIO
1	.227E-05	.343E-04
2	.453E-04	.195E-02
3	.732E-05	.859E-03
4	.332E-05	.631E-04
5	.215E-04	.212E-03
6	.341E-05	.691E-04
7	.341E-05	.612E-04
8	.700E-05	.902E-04
9	.527E-05	.912E-04
10	.311E-01	.405E-01
11	.275E-01	.477E-01
12	.998E-03	.507E-01
13	.718E-05	.177E-03
14	.545E-05	.743E-04
15	.158E-03	.173E-02
16	.512E-03	.496E-02
17	.185E-02	.134E-01
18	.184E-02	.131E-01
19	.964E-05	.644E-03
20	.136E-05	.369E-04
21	.268E-05	.152E-03
22	.264E-05	.455E-04
23	.182E-05	.233E-04
24	.105E-05	.135E-04
25	.864E-06	.152E-04
26	.200E-05	.207E-04
27	.205E-02	.232E+00
28	.217E-02	.243E+00
29	.919E-03	.112E+00
30	.184E-03	.212E-01
31	.115E-03	.138E-01
32	.507E-04	.608E-02
33	.383E-03	.462E-01
34	.300E-03	.249E-01
35	********	.875E-02
36	.279E-03	.221E-01
37	.248E-03	.281E-01
38	.245E-03	.282E-01
39	.152E-03	.159E-01
40	.224E-03	.103E-01
41	.245E-04	.307E-03
42	.129E-03	.108E-01
43	.138E-03	.146E-01
44	.240E-03	.276E-01
45	.247E-03	.283E-01
46	.110E-04	.249E-03
47	.864E-06	.267E-04

RUN #69

W. D. 180°

SAMPLE PT.	SOURCE GROUP #3Q CONCENTRATION RATIO	SOURCE GROUP #8 CONCENTRATION RATIO
1	.127E-05	.322E-04
2	.123E-05	.383E-04
3	.545E-06	.193E-04
4	.182E-05	.320E-04
5	.100E-05	.251E-04
6	.123E-05	.265E-04
7	.168E-05	.309E-04
8	.136E-05	.264E-04
9	.114E-05	.250E-04
10	.220E-03	.105E-02
11	.696E-04	.543E-03
12	.364E-05	.399E-03
13	.173E-05	.315E-04
14	.145E-05	.270E-04
15	.291E-05	.421E-04
16	.445E-05	.635E-04
17	.300E-05	.508E-04
18	.327E-05	.548E-04
19	.800E-04	.990E-02
20	.641E-05	.826E-03
21	.455E-06	.125E-04
22	.455E-06	.119E-04
23	.636E-06	.105E-04
24	.364E-06	.665E-05
25	.318E-06	.162E-04
26	********	.352E-04
27	.244E-02	.268E+00
28	.224E-02	.249E+00
29	.892E-03	.109E+00
30	.275E-03	.330E-01
31	.155E-04	.172E-02
32	.459E-05	.500E-03
33	.200E-04	.851E-03
34	.394E-04	.629E-03
35	.505E-05	.436E-03
36	.271E-03	.101E-02
37	.211E-03	.251E-01
38	.197E-03	.238E-01
39	.108E-03	.125E-01
40	.525E-03	.111E-01
41	.409E-05	.171E-03
42	.207E-03	.235E-01
43	.112E-03	.126E-01
44	.201E-03	.245E-01
45	.231E-03	.278E-01
46	********	.145E-02
47	.455E-07	.161E-04

RUN #70

W. D. 225°

SAMPLE PT.	SOURCE GROUP #3Q CONCENTRATION RATIO	SOURCE GROUP #8 CONCENTRATION RATIO
1	.205E-05	.306E-04
2	.168E-05	.244E-04
3	.864E-06	.125E-04
4	.350E-05	.574E-04
5	.268E-05	.450E-04
6	.332E-05	.543E-04
7	.364E-05	.565E-04
8	.341E-05	.533E-04
9	.314E-05	.516E-04
10	.139E-04	.223E-04
11	.223E-05	.305E-04
12	.132E-05	.176E-04
13	.355E-05	.564E-04
14	.359E-05	.529E-04
15	.227E-05	.352E-04
16	.127E-05	.184E-04
17	.118E-05	.189E-04
18	.105E-05	.166E-04
19	.182E-05	.116E-03
20	.607E-04	.755E-02
21	.155E-05	.351E-04
22	.191E-05	.299E-04
23	.150E-05	.257E-04
24	.105E-05	.179E-04
25	.568E-05	.606E-03
26	.727E-05	.630E-03
27	.208E-02	.233E+00
28	.228E-02	.257E+00
29	.189E-02	.216E+00
30	.236E-03	.280E-01
31	.482E-05	.352E-03
32	.241E-05	.505E-04
33	.275E-04	.665E-04
34	.420E-04	.145E-03
35	.236E-05	.352E-04
36	.307E-03	.126E-03
37	.309E-03	.217E-02
38	.294E-03	.190E-02
39	.175E-03	.106E-02
40	.372E-03	.260E-03
41	.714E-05	.149E-03
42	.706E-03	.133E-02
43	.540E-04	.523E-03
44	.157E-03	.172E-02
45	.130E-03	.167E-02
46	.390E-03	.442E-01
47	********	.868E-04

RUN #71

W. D. 270°

SAMPLE PT.	SOURCE GROUP #3Q CONCENTRATION RATIO	SOURCE GROUP #8 CONCENTRATION RATIO
1	.109E-05	.261E-04
2	********	.823E-05
3	********	.474E-05
4	.150E-05	.355E-04
5	.727E-06	.266E-04
6	.100E-05	.299E-04
7	.136E-05	.334E-04
8	.100E-05	.304E-04
9	.909E-06	.256E-04
10	.743E-04	.236E-04
11	.198E-03	.114E-03
12	.900E-05	.760E-05
13	.132E-05	.332E-04
14	.118E-05	.293E-04
15	.500E-06	.216E-04
16	.227E-06	.157E-04
17	********	.123E-04
18	********	.108E-04
19	********	.235E-04
20	.300E-04	.384E-02
21	********	.123E-04
22	********	.571E-05
23	.409E-06	.190E-04
24	********	.112E-04
25	.395E-05	.548E-03
26	.142E-04	.174E-02
27	.251E-02	.274E+00
28	.230E-02	.254E+00
29	.607E-03	.737E-01
30	.240E-03	.278E-01
31	.159E-05	.134E-03
32	.182E-06	.292E-04
33	.101E-02	.533E-03
34	.319E-03	.229E-03
35	.182E-06	.196E-04
36	.762E-03	.307E-03
37	.788E-04	.287E-02
38	.761E-04	.270E-02
39	.387E-04	.145E-02
40	.376E-04	.459E-04
41	.364E-05	.111E-03
42	.121E-03	.194E-02
43	.352E-04	.132E-02
44	.612E-04	.291E-02
45	.602E-04	.286E-02
46	.118E-03	.943E-02
47	********	.216E-04

RUN #72

W. D. 315°

SAMPLE PT.	SOURCE GROUP #3Q CONCENTRATION RATIO	SOURCE GROUP #8 CONCENTRATION RATIO
1	********	********
2	********	.571E-06
3	********	.116E-04
4	********	.156E-04
5	********	.159E-04
6	********	.171E-04
7	********	.164E-04
8	********	.138E-04
9	********	.157E-04
10	.409E-06	.304E-04
11	.109E-04	.429E-04
12	.330E-04	.307E-04
13	********	.966E-05
14	********	.146E-04
15	********	.134E-04
16	********	.157E-04
17	********	.157E-04
18	********	.120E-04
19	.250E-03	.893E-03
20	.803E-03	.303E-01
21	.484E-04	.103E-03
22	.104E-04	.398E-04
23	.484E-04	.610E-03
24	.174E-03	.194E-02
25	.433E-03	.747E-02
26	.451E-03	.752E-02
27	.392E-02	.216E+00
28	.368E-02	.212E+00
29	.202E-02	.857E-01
30	.537E-03	.180E-01
31	.164E-02	.111E-02
32	.334E-04	.657E-04
33	.120E-02	.121E-03
34	.393E-03	.152E-03
35	.124E-03	.725E-04
36	.291E-03	.890E-04
37	.317E-03	.343E-04
38	.533E-03	.445E-04
39	.452E-03	.322E-04
40	.736E-05	.453E-04
41	.305E-05	.744E-04
42	.197E-04	.969E-04
43	.328E-03	.343E-04
44	.367E-03	.356E-04
45	.489E-03	.280E-04
46	.526E-03	.306E-02
47	.182E-06	.175E-04

RUN #73

W. D. 000°

SAMPLE PT.	SOURCE GROUP #3C CONCENTRATION RATIO	SOURCE GROUP #3-1 CONCENTRATION RATIO
1	.153E-04	.150E-04
2	.175E-04	.594E-05
3	.193E-04	.247E-04
4	.936E-04	.703E-05
5	.600E-04	.456E-05
6	.682E-04	.471E-05
7	.892E-04	.644E-05
8	.780E-04	.123E-04
9	.676E-04	.583E-05
10	.590E-01	.828E-01
11	.141E-01	.323E+00
12	.476E-01	.146E+00
13	.144E-03	.515E-03
14	.876E-04	.688E-04
15	.414E-04	.412E-04
16	.637E-04	.440E-04
17	.152E-04	.429E-04
18	.129E-04	.307E-04
19	.267E-03	.703E-03
20	.580E-04	.372E-03
21	.142E-03	.318E-03
22	.470E-04	.462E-04
23	.136E-03	.329E-03
24	.107E-03	.236E-03
25	.750E-05	.198E-04
26	.349E-04	.104E-03
27	.868E-05	.879E-03
28	.855E-05	.165E-02
29	.437E-04	.777E-03
30	.668E-05	.131E-03
31	.337E-04	.648E-04
32	.730E-04	.464E-03
33	.701E-04	.852E-04
34	.275E-03	.208E-03
35	.134E-03	.351E-04
36	.163E-03	.137E-03
37	.124E-04	.314E-04
38	.114E-04	.365E-04
39	.294E-04	.274E-04
40	.109E-04	.125E-04
41	.697E-04	.281E-04
42	.410E-04	.113E-03
43	.454E-04	.210E-04
44	.986E-05	.407E-04
45	.877E-05	.386E-04
46	.361E-04	.135E-03
47	.210E-04	.140E-05

RUN #74

W. D. 045°

SAMPLE PT.	SOURCE GROUP #3C CONCENTRATION RATIO	SOURCE GROUP #3-1 CONCENTRATION RATIO
1	.574E-04	.148E-04
2	.891E-04	.388E-03
3	.279E-03	.868E-03
4	.160E-04	.140E-04
5	.129E-04	.133E-04
6	.285E-04	.120E-04
7	.160E-04	.117E-04
8	.198E-04	.167E-04
9	.293E-04	.121E-04
10	.139E+00	.203E+00
11	.183E-01	.340E+00
12	.601E-01	.186E+00
13	.753E-04	.438E-03
14	.271E-04	.844E-04
15	.218E-04	.153E-03
16	.383E-04	.269E-03
17	.428E-04	.411E-03
18	.330E-04	.308E-03
19	.256E-04	.913E-04
20	.441E-05	.843E-04
21	.247E-04	.549E-04
22	.223E-04	.223E-04
23	.747E-04	.145E-03
24	.423E-04	.132E-03
25	.350E-05	.973E-05
26	.627E-05	.114E-04
27	.445E-05	.341E-03
28	.368E-05	.563E-03
29	.171E-04	.273E-03
30	.423E-05	.526E-04
31	.131E-04	.216E-04
32	.406E-04	.196E-03
33	.127E-04	.247E-04
34	.174E-03	.110E-03
35	.107E-03	.202E-04
36	.182E-04	.116E-04
37	.945E-05	.206E-04
38	.995E-05	.231E-04
39	.172E-04	.191E-04
40	.514E-05	.574E-05
41	.290E-04	.132E-04
42	.334E-04	.452E-04
43	.280E-04	.149E-04
44	.695E-05	.253E-04
45	.664E-05	.250E-04
46	.230E-04	.408E-04
47	.119E-04	********

RUN #75

W. D. 090°

SAMPLE PT.	SOURCE GROUP #3C CONCENTRATION RATIO	SOURCE GROUP #3-1 CONCENTRATION RATIO
1	.224E-03	.124E-04
2	.153E-03	.297E-03
3	.380E-04	.697E-04
4	.290E-04	.155E-04
5	.340E-04	.179E-04
6	.422E-04	.137E-04
7	.293E-04	.142E-04
8	.236E-04	.133E-04
9	.432E-04	.134E-04
10	.141E+00	.234E+00
11	.125E-01	.338E+00
12	.132E-02	.527E-02
13	.300E-04	.176E-03
14	.261E-04	.522E-04
15	.351E-04	.112E-03
16	.129E-03	.721E-03
17	.466E-03	.257E-02
18	.458E-03	.263E-02
19	.120E-04	.567E-04
20	.464E-05	.491E-04
21	.266E-04	.213E-04
22	.369E-04	.167E-04
23	.380E-04	.527E-04
24	.955E-05	.177E-04
25	.395E-05	.852E-05
26	.882E-05	.130E-04
27	.427E-05	.212E-03
28	.368E-05	.328E-03
29	.121E-04	.164E-03
30	.395E-05	.353E-04
31	.413E-04	.199E-04
32	.537E-04	.861E-04
33	.627E-05	.181E-04
34	.617E-04	.570E-04
35	.155E-03	.177E-04
36	.230E-04	.879E-05
37	.945E-05	.172E-04
38	.102E-04	.197E-04
39	.215E-04	.160E-04
40	.841E-05	.655E-05
41	.624E-04	.613E-04
42	.477E-04	.743E-04
43	.328E-04	.137E-04
44	.723E-05	.199E-04
45	.636E-05	.201E-04
46	.923E-05	.177E-04
47	.619E-04	********

RUN #76

W. D. 135°

SAMPLE PT.	SOURCE GROUP #3C CONCENTRATION RATIO	SOURCE GROUP #3-1 CONCENTRATION RATIO
1	.213E-04	.163E-04
2	.172E-04	.680E-04
3	.155E-05	.806E-05
4	.166E-04	.156E-04
5	.253E-04	.734E-04
6	.371E-04	.156E-04
7	.167E-04	.152E-04
8	.230E-04	.242E-04
9	.398E-04	.184E-04
10	.108E+00	.216E+00
11	.401E-02	.267E+00
12	.425E-02	.233E-01
13	.240E-04	.977E-04
14	.200E-04	.490E-04
15	.108E-03	.416E-03
16	.345E-03	.161E-02
17	.969E-03	.367E-02
18	.906E-03	.351E-02
19	.175E-04	.705E-04
20	.368E-05	.473E-04
21	.138E-04	.162E-04
22	.232E-04	.158E-04
23	.100E-04	.203E-04
24	.464E-05	.131E-04
25	.545E-05	.806E-05
26	.295E-04	.591E-04
27	.518E-05	.287E-03
28	.391E-05	.415E-03
29	.323E-04	.214E-03
30	.541E-05	.449E-04
31	.404E-04	.225E-04
32	.591E-05	.241E-04
33	.115E-04	.241E-04
34	.197E-03	.122E-03
35	.245E-04	.132E-04
36	.258E-04	.177E-04
37	.120E-04	.203E-04
38	.145E-04	.262E-04
39	.185E-04	.229E-04
40	.551E-04	.186E-03
41	.830E-04	.172E-03
42	.730E-04	.175E-03
43	.353E-04	.175E-04
44	.125E-04	.281E-04
45	.114E-04	.279E-04
46	.430E-04	.111E-03
47	.818E-05	.153E-06

RUN #77

W. D. 180°

SAMPLE PT.	SOURCE GROUP #3C CONCENTRATION RATIO	SOURCE GROUP #3-1 CONCENTRATION RATIO
1	.286E-05	.739E-05
2	.202E-04	.577E-04
3	.323E-05	.102E-04
4	.122E-04	.123E-04
5	.115E-04	.190E-04
6	.207E-04	.111E-04
7	.117E-04	.119E-04
8	.122E-04	.118E-04
9	.213E-04	.130E-04
10	.807E-01	.285E+00
11	.136E-01	.317E+00
12	.307E-01	.392E-01
13	.460E-04	.230E-03
14	.158E-04	.494E-04
15	.983E-04	.435E-03
16	.141E-03	.631E-03
17	.655E-04	.340E-03
18	.821E-04	.415E-03
19	.964E-05	.463E-04
20	.327E-05	.320E-04
21	.845E-05	.149E-04
22	.110E-04	.123E-04
23	.123E-04	.258E-04
24	.350E-05	.113E-04
25	.359E-05	.107E-04
26	.230E-04	.491E-04
27	.345E-05	.142E-03
28	.309E-05	.197E-03
29	.110E-04	.105E-03
30	.405E-05	.281E-04
31	.181E-04	.132E-04
32	.295E-05	.796E-05
33	.864E-05	.153E-04
34	.134E-03	.799E-04
35	.180E-04	.835E-05
36	.952E-04	.325E-03
37	.102E-04	.150E-04
38	.110E-04	.170E-04
39	.185E-04	.155E-04
40	.362E-04	.101E-03
41	.552E-04	.109E-03
42	.435E-04	.102E-03
43	.347E-04	.119E-04
44	.117E-04	.186E-04
45	.773E-05	.174E-04
46	.323E-04	.892E-04
47	.140E-04	.745E-06

RUN #78

W. D. 225°

SAMPLE PT.	SOURCE GROUP #3C CONCENTRATION RATIO	SOURCE GROUP #3-1 CONCENTRATION RATIO
1	.138E-04	.829E-05
2	.447E-04	.853E-07
3	.126E-04	********
4	.460E-04	.501E-05
5	.488E-04	.316E-05
6	.785E-04	.365E-05
7	.453E-04	.484E-05
8	.531E-04	.420E-05
9	.755E-04	.375E-05
10	.810E-01	.277E+00
11	.681E-02	.266E+00
12	.205E-01	.157E-01
13	.890E-04	.877E-04
14	.656E-04	.575E-04
15	.464E-04	.243E-04
16	.185E-04	.199E-04
17	.124E-04	.131E-04
18	.117E-04	.117E-04
19	.389E-05	.149E-04
20	.438E-05	.152E-04
21	.168E-04	.648E-05
22	.341E-04	.625E-05
23	.222E-04	.104E-04
24	.305E-05	.335E-05
25	.114E-04	.403E-05
26	.277E-04	.356E-04
27	.601E-05	.719E-04
28	.411E-05	.877E-04
29	.743E-05	.464E-04
30	.725E-05	.116E-04
31	.162E-04	.360E-05
32	.787E-05	.241E-05
33	.155E-03	.646E-04
34	.199E-03	.876E-04
35	.165E-04	.179E-05
36	.199E-03	.350E-03
37	.899E-04	.138E-03
38	.101E-03	.147E-03
39	.936E-04	.887E-04
40	.964E-04	.234E-03
41	.827E-04	.598E-04
42	.182E-03	.365E-03
43	.723E-04	.287E-04
44	.651E-04	.927E-04
45	.554E-04	.795E-04
46	.111E-04	.167E-04
47	.261E-04	.341E-06

RUN #79

W. D. 270°

SAMPLE PT.	SOURCE GROUP #3C CONCENTRATION RATIO	SOURCE GROUP #3-1 CONCENTRATION RATIO
1	.477E-04	.118E-04
2	.637E-05	.392E-05
3	.252E-05	.333E-05
4	.190E-04	.111E-04
5	.181E-04	.836E-05
6	.254E-04	.797E-05
7	.190E-04	.111E-04
8	.190E-04	.917E-05
9	.237E-04	.746E-05
10	.111E+00	.263E+00
11	.890E-02	.269E+00
12	.753E-01	.122E+00
13	.972E-04	.311E-03
14	.408E-04	.946E-04
15	.180E-04	.388E-04
16	.157E-04	.350E-04
17	.102E-04	.257E-04
18	.960E-05	.245E-04
19	.876E-05	.240E-04
20	.805E-05	.216E-04
21	.486E-05	.143E-04
22	.442E-05	.117E-04
23	.145E-04	.178E-04
24	.540E-05	.112E-04
25	.685E-05	.131E-04
26	.357E-04	.521E-04
27	.130E-04	.633E-04
28	.858E-05	.711E-04
29	.398E-05	.383E-04
30	.774E-05	.190E-04
31	.672E-05	.105E-04
32	.526E-05	.192E-04
33	.199E-03	.473E-03
34	.249E-03	.202E-03
35	.420E-05	.761E-05
36	.132E-03	.306E-03
37	.465E-04	.737E-04
38	.452E-04	.735E-04
39	.482E-04	.472E-04
40	.235E-04	.830E-04
41	.714E-04	.799E-04
42	.101E-03	.211E-03
43	.395E-04	.234E-04
44	.287E-04	.443E-04
45	.266E-04	.438E-04
46	.831E-04	.123E-03
47	.324E-04	.414E-05

RUN #80

W. D. 315°

SAMPLE PT.	SOURCE GROUP #3C CONCENTRATION RATIO	SOURCE GROUP #3-1 CONCENTRATION RATIO
1	.127E-04	.985E-05
2	.121E-04	.207E-05
3	.699E-05	.185E-05
4	.720E-04	.738E-05
5	.662E-04	.488E-05
6	.111E-03	.539E-05
7	.703E-04	.680E-05
8	.783E-04	.565E-05
9	.104E-03	.501E-05
10	.524E-01	.280E+00
11	.592E-02	.248E+00
12	.503E-01	.404E-01
13	.174E-03	.183E-03
14	.107E-03	.514E-04
15	.555E-04	.434E-04
16	.658E-04	.381E-04
17	.104E-04	.222E-04
18	.809E-05	.159E-04
19	.128E-03	.235E-03
20	.415E-03	.898E-03
21	.492E-04	.635E-04
22	.361E-04	.208E-04
23	.626E-04	.569E-04
24	.947E-04	.155E-03
25	.394E-03	.991E-03
26	.419E-03	.105E-02
27	.317E-02	.860E-02
28	.318E-02	.869E-02
29	.643E-03	.167E-02
30	.444E-03	.115E-02
31	.520E-03	.129E-02
32	.330E-04	.105E-03
33	.119E-02	.311E-02
34	.641E-03	.120E-02
35	.168E-03	.977E-04
36	.141E-02	.312E-02
37	.458E-03	.113E-02
38	.699E-03	.183E-02
39	.670E-03	.160E-02
40	.141E-04	.146E-04
41	.913E-04	.611E-04
42	.833E-04	.183E-03
43	.515E-03	.122E-02
44	.639E-03	.165E-02
45	.825E-03	.211E-02
46	.608E-03	.165E-02
47	.234E-04	.499E-05

RUN #81

W. D. 000°

SAMPLE PT.	SOURCE GROUP #3-2 CONCENTRATION RATIO	SOURCE GROUP #3-4 CONCENTRATION RATIO
1	.175E-04	.397E-05
2	.163E-04	.159E-04
3	.539E-04	.251E-04
4	.108E-04	.478E-05
5	.911E-05	.689E-05
6	.113E-04	.633E-05
7	.106E-04	.463E-05
8	.243E-04	.478E-05
9	.111E-04	.114E-04
10	.233E+00	.527E-02
11	.218E+00	.508E-02
12	.393E+00	.114E-01
13	.474E-03	.269E-04
14	.481E-04	.697E-05
15	.318E-04	.131E-04
16	.275E-04	.764E-04
17	.183E-04	.124E-04
18	.128E-04	.113E-04
19	.185E-02	.135E-03
20	.330E-03	.267E-04
21	.938E-03	.103E-03
22	.122E-03	.162E-04
23	.522E-03	.729E-04
24	.482E-03	.801E-04
25	.632E-05	.196E-05
26	.139E-03	.371E-05
27	.105E-04	.190E-04
28	.739E-05	.242E-04
29	.180E-03	.300E-04
30	.752E-05	.365E-05
31	.122E-03	.210E-04
32	.832E-03	.857E-04
33	.110E-03	.252E-05
34	.238E-03	.640E-05
35	.755E-04	.875E-04
36	.240E-03	.230E-05
37	.495E-05	.252E-05
38	.267E-04	.294E-05
39	.115E-04	.335E-05
40	.265E-05	.160E-05
41	.755E-04	.527E-05
42	.170E-03	.358E-05
43	.102E-04	.375E-05
44	.108E-04	.269E-05
45	.893E-05	.260E-05
46	.191E-03	.431E-05
47	.146E-05	.576E-06

RUN #82

W. D. 045°

SAMPLE PT.	SOURCE GROUP #3-2 CONCENTRATION RATIO	SOURCE GROUP #3-4 CONCENTRATION RATIO
1	.133E-04	.437E-05
2	.571E-03	.851E-04
3	.280E-02	.526E-03
4	.152E-04	.550E-05
5	.132E-04	.870E-05
6	.149E-04	.712E-05
7	.133E-04	.478E-05
8	.271E-04	.486E-05
9	.158E-04	.163E-04
10	.118E+00	.576E-03
11	.300E+00	.158E-01
12	.405E+00	.184E-01
13	.448E-03	.422E-04
14	.112E-03	.115E-04
15	.836E-04	.422E-04
16	.124E-03	.776E-04
17	.173E-03	.864E-04
18	.126E-03	.685E-04
19	.124E-03	.478E-05
20	.333E-04	.401E-05
21	.403E-04	.100E-04
22	.195E-04	.522E-05
23	.324E-03	.423E-04
24	.302E-03	.636E-04
25	.482E-05	.194E-05
26	.678E-04	.277E-05
27	.761E-05	.218E-04
28	.442E-05	.273E-04
29	.134E-04	.162E-04
30	.142E-04	.412E-05
31	.129E-04	.795E-05
32	.300E-03	.510E-04
33	.105E-04	.309E-05
34	.226E-03	.727E-05
35	.242E-04	.703E-04
36	.122E-04	.192E-05
37	.245E-04	.367E-05
38	.130E-04	.345E-05
39	.136E-04	.358E-05
40	.345E-05	.185E-05
41	.654E-04	.499E-05
42	.153E-03	.441E-05
43	.153E-04	.380E-05
44	.119E-04	.309E-05
45	.109E-04	.313E-05
46	.159E-03	.510E-05
47	.142E-05	.298E-06

RUN #83

W. D. 090°

SAMPLE PT.	SOURCE GROUP #3-2 CONCENTRATION RATIO	SOURCE GROUP #3-4 CONCENTRATION RATIO
1	.121E-04	.102E-05
2	.133E-02	.525E-03
3	.956E-03	.287E-03
4	.800E-05	.154E-05
5	.170E-04	.748E-05
6	.107E-04	.343E-05
7	.694E-05	.810E-06
8	.104E-04	.832E-06
9	.125E-04	.249E-04
10	.768E-01	.340E-03
11	.100E+00	.407E-03
12	.415E+00	.321E-02
13	.468E-03	.725E-05
14	.427E-04	.158E-05
15	.119E-03	.251E-04
16	.107E-02	.350E-03
17	.269E-02	.469E-03
18	.259E-02	.442E-03
19	.440E-04	.198E-05
20	.259E-04	.175E-05
21	.297E-04	.463E-05
22	.110E-04	.405E-06
23	.938E-04	.275E-05
24	.761E-05	.533E-06
25	.398E-05	********
26	.853E-05	********
27	.522E-05	.196E-04
28	.385E-05	.258E-04
29	.232E-04	.135E-04
30	.438E-05	.194E-05
31	.138E-04	.736E-05
32	.138E-03	.358E-04
33	.734E-05	.618E-06
34	.129E-03	.171E-06
35	.202E-04	.912E-04
36	.805E-05	.426E-07
37	.566E-05	.832E-06
38	.862E-05	.959E-06
39	.889E-05	.426E-06
40	.332E-05	********
41	.396E-04	.107E-05
42	.782E-04	********
43	.805E-05	.533E-06
44	.809E-05	.618E-06
45	.761E-05	.768E-06
46	.265E-05	.490E-06
47	********	********

RUN #84

W. D. 135°

SAMPLE PT.	SOURCE GROUP #3-2 CONCENTRATION RATIO	SOURCE GROUP #3-4 CONCENTRATION RATIO
1	.151E-04	.525E-05
2	.137E-03	.987E-04
3	.336E-05	.286E-05
4	.119E-04	.429E-05
5	.893E-04	.172E-04
6	.130E-04	.642E-05
7	.115E-04	.418E-05
8	.154E-04	.429E-05
9	.176E-04	.252E-04
10	.723E-01	.165E-02
11	.613E-01	.902E-03
12	.421E+00	.529E-02
13	.658E-03	.197E-04
14	.399E-04	.507E-05
15	.902E-03	.187E-03
16	.327E-02	.590E-03
17	.107E-01	.180E-02
18	.104E-01	.174E-02
19	.551E-04	.810E-05
20	.743E-05	.603E-05
21	.871E-05	.388E-05
22	.111E-04	.330E-05
23	.423E-04	.360E-05
24	.473E-05	.228E-05
25	.517E-05	.260E-05
26	.169E-04	.320E-05
27	.783E-05	.328E-04
28	.579E-05	.419E-04
29	.287E-04	.471E-04
30	.628E-05	.601E-05
31	.127E-04	.504E-04
32	.249E-04	.174E-03
33	.133E-02	.414E-04
34	.929E-03	.268E-04
35	.109E-04	.587E-04
36	.213E-03	.112E-04
37	.703E-03	.284E-04
38	.719E-03	.294E-04
39	.469E-03	.188E-04
40	.254E-03	.254E-04
41	.241E-03	.672E-05
42	.486E-03	.148E-04
43	.288E-03	.135E-04
44	.595E-03	.249E-04
45	.644E-03	.262E-04
46	.107E-03	.537E-05
47	.119E-05	********

RUN #85R

W. D. 180°

SAMPLE PT.	SOURCE GROUP #3-2 CONCENTRATION RATIO	SOURCE GROUP #3-4 CONCENTRATION RATIO
1	.823E-05	********
2	.108E-03	.431E-03
3	.138E-04	.392E-04
4	.186E-04	.332E-04
5	.399E-04	.123E-03
6	.187E-04	.241E-03
7	.190E-04	.362E-04
8	.206E-04	.135E-03
9	.251E-04	.291E-03
10	.197E+00	.275E-01
11	.280E+00	.286E-01
12	.391E+00	.179E-01
13	.523E-03	.446E-04
14	.147E-03	.179E-04
15	.983E-03	.371E-03
16	.128E-02	.514E-03
17	.741E-03	.300E-03
18	.869E-03	.337E-03
19	.595E-04	.161E-04
20	.139E-04	.146E-04
21	.151E-04	.359E-04
22	.178E-04	.584E-04
23	.131E-04	.440E-04
24	.101E-04	.233E-04
25	.836E-05	.136E-04
26	.781E-04	.188E-04
27	.104E-04	.230E-04
28	.787E-05	.242E-04
29	.133E-04	.179E-03
30	.102E-04	.128E-04
31	.148E-04	.268E-03
32	.111E-03	.261E-03
33	.120E-03	.209E-03
34	.279E-03	.106E-02
35	.133E-04	.230E-03
36	.387E-03	.248E-03
37	.124E-04	.213E-04
38	.350E-04	.210E-04
39	.204E-04	.304E-04
40	.239E-03	.634E-04
41	.256E-03	.775E-04
42	.281E-03	.333E-04
43	.197E-04	.947E-04
44	.207E-04	.265E-04
45	.185E-04	.250E-04
46	.236E-03	.256E-04
47	.209E-04	.309E-04

RUN #86

W. D. 225°

SAMPLE PT.	SOURCE GROUP #3-2 CONCENTRATION RATIO	SOURCE GROUP #3-4 CONCENTRATION RATIO
1	.273E-04	.441E-05
2	.884E-05	.129E-03
3	.358E-05	.140E-04
4	.189E-04	.751E-05
5	.161E-04	.625E-05
6	.189E-04	.657E-05
7	.177E-04	.740E-05
8	.704E-04	.810E-05
9	.195E-04	.742E-05
10	.833E-01	.170E-01
11	.289E+00	.244E-01
12	.383E+00	.212E-01
13	.517E-03	.580E-04
14	.120E-03	.162E-04
15	.358E-04	.128E-04
16	.368E-04	.192E-04
17	.219E-04	.159E-04
18	.921E-04	.275E-04
19	.250E-03	.177E-04
20	.273E-04	.103E-04
21	.116E-04	.535E-05
22	.154E-04	.763E-05
23	.144E-03	.117E-04
24	.792E-05	.341E-05
25	.112E-04	.501E-05
26	.346E-03	.191E-04
27	.462E-04	.675E-04
28	.181E-04	.773E-04
29	.180E-04	.450E-04
30	.182E-04	.108E-04
31	.185E-04	.336E-04
32	.575E-05	.163E-03
33	.169E-02	.412E-03
34	.150E-02	.286E-03
35	.142E-04	.466E-04
36	.261E-02	.444E-03
37	.970E-03	.226E-03
38	.965E-03	.221E-03
39	.649E-03	.146E-03
40	.118E-02	.228E-03
41	.400E-03	.272E-04
42	.230E-02	.409E-03
43	.240E-03	.740E-04
44	.677E-03	.168E-03
45	.617E-03	.159E-03
46	.401E-03	.415E-04
47	.460E-05	.128E-05

RUN #87

W. D. 270°

SAMPLE PT.	SOURCE GROUP #3-2 CONCENTRATION RATIO	SOURCE GROUP #3-4 CONCENTRATION RATIO
1	.179E-04	.452E-05
2	.407E-05	.166E-03
3	.146E-05	.279E-04
4	.155E-04	.584E-05
5	.126E-04	.446E-05
6	.153E-04	.461E-05
7	.151E-04	.569E-05
8	.151E-04	.503E-05
9	.137E-04	.488E-05
10	.182E+00	.602E-02
11	.226E+00	.836E-02
12	.450E+00	.189E-01
13	.604E-03	.465E-04
14	.895E-04	.962E-05
15	.344E-04	.829E-05
16	.411E-04	.127E-04
17	.171E-04	.144E-04
18	.196E-04	.130E-04
19	.779E-04	.631E-05
20	.192E-04	.782E-05
21	.650E-05	.252E-05
22	.712E-05	.211E-05
23	.126E-04	.913E-05
25	.973E-05	.493E-05
26	.172E-03	.866E-05
28	.655E-04	.103E-03
29	.101E-04	.346E-04
30	.306E-04	.149E-04
31	.871E-05	.723E-05
32	.928E-04	.383E-04
33	.143E-02	.264E-03
34	.697E-03	.833E-04
35	.460E-05	.712E-05
36	.943E-03	.178E-03
37	.319E-03	.193E-03
38	.340E-03	.208E-03
39	.170E-03	.953E-04
40	.621E-04	.104E-04
41	.251E-03	.131E-04
42	.688E-03	.190E-03
44	.217E-03	.141E-03
46	.653E-03	.220E-03
47	.177E-05	.874E-06

RUN #88

W. D. 315°

SAMPLE PT.	SOURCE GROUP #3-2 CONCENTRATION RATIO	SOURCE GROUP #3-4 CONCENTRATION RATIO
1	.303E-04	.103E-04
2	.341E-05	.708E-05
3	.296E-05	.650E-05
4	.177E-04	.101E-04
5	.148E-04	.173E-04
6	.179E-04	.133E-04
7	.172E-04	.947E-05
8	.193E-04	.968E-05
9	.172E-04	.273E-04
10	.916E-01	.443E-02
11	.211E+00	.962E-02
12	.410E+00	.165E-01
13	.467E-03	.373E-04
14	.532E-04	.125E-04
15	.337E-04	.177E-04
16	.253E-04	.104E-03
17	.138E-04	.137E-04
18	.853E-05	.770E-05
19	.554E-03	.246E-03
20	.138E-02	.378E-03
21	.153E-03	.660E-04
22	.524E-04	.268E-04
23	.126E-03	.592E-04
24	.409E-03	.193E-03
25	.179E-02	.253E-03
26	.202E-02	.260E-03
27	.122E-01	.799E-03
28	.121E-01	.813E-03
29	.219E-02	.192E-03
30	.213E-02	.232E-03
31	.871E-03	.927E-04
32	.164E-03	.109E-03
33	.353E-02	.153E-03
34	.173E-02	.731E-04
35	.690E-04	.127E-03
36	.536E-02	.152E-03
37	.148E-02	.466E-04
38	.224E-02	.680E-04
39	.220E-02	.643E-04
40	.127E-04	.586E-05
41	.198E-03	.168E-04
42	.366E-03	.161E-04
43	.170E-02	.543E-04
44	.201E-02	.616E-04
45	.269E-02	.811E-04
46	.234E-02	.147E-03
47	.845E-05	.132E-05

RUN #89

W. D. 000°

SAMPLE PT.	SOURCE GROUP #3R CONCENTRATION RATIO	SOURCE GROUP #3-3 CONCENTRATION RATIO
1	*********	.109E-04
2	.130E-04	.186E-02
3	.134E-04	.177E-02
4	.679E-04	.838E-02
5	.324E-03	.374E-01
6	.603E-03	.525E-01
7	.596E-04	.743E-02
8	.366E-03	.429E-01
9	.627E-03	.725E-01
10	.697E-03	.260E-01
11	.142E-02	.742E-01
12	.273E-02	.220E+00
13	.433E-05	.979E-03
14	.133E-06	.273E-03
15	.107E-04	.142E-02
16	.609E-04	.805E-02
17	.241E-04	.303E-02
18	.213E-04	.273E-02
19	.174E-03	.381E-02
20	.509E-04	.357E-02
21	.160E-03	.104E-01
22	.151E-03	.175E-01
23	.108E-03	.100E-01
24	.858E-04	.792E-02
25	.433E-05	.873E-03
26	.125E-04	.165E-02
27	.198E-04	.191E-02
28	.219E-04	.213E-02
29	.469E-03	.439E-01
30	********	.361E-03
31	.476E-03	.443E-01
32	.252E-03	.242E-01
33	.119E-02	.279E-01
34	.179E-02	.669E-01
35	.644E-03	.669E-01
36	.634E-02	.201E-01
37	.840E-05	.587E-03
38	.478E-05	.536E-03
39	.221E-04	.296E-02
40	.314E-05	.552E-03
41	.773E-04	.916E-02
42	.964E-05	.835E-03
43	.122E-03	.142E-01
44	.425E-05	.520E-03
45	.522E-05	.482E-03
46	.301E-05	.188E-03
47	.428E-04	.551E-02

RUN #90

W. D. 045°

SAMPLE PT.	SOURCE GROUP #3R CONCENTRATION RATIO	SOURCE GROUP #3-3 CONCENTRATION RATIO
1	********	.272E-04
2	.456E-04	.107E-02
3	.831E-04	.137E-02
4	.717E-04	.869E-02
5	.266E-03	.298E-01
6	.574E-03	.672E-01
7	********	.742E-02
8	.346E-03	.396E-01
9	.597E-03	.522E-01
10	.651E-03	.349E-01
11	********	.323E-03
12	.277E-02	.240E+00
13	.416E-05	.619E-03
14	.708E-06	.210E-03
15	.208E-05	.272E-03
16	.528E-04	.490E-02
17	.605E-04	.518E-02
18	.516E-04	.462E-02
19	.272E-04	.243E-02
20	.128E-05	.267E-03
21	.179E-03	.117E-01
22	.167E-03	.178E-01
23	.918E-04	.102E-01
24	.839E-04	.946E-02
25	********	.151E-03
26	.973E-06	.188E-03
27	********	.687E-04
28	********	.667E-04
29	.185E-03	.198E-01
30	********	.730E-04
31	.128E-03	.138E-01
32	.213E-03	.125E-01
33	.888E-02	.266E-01
34	.452E-02	.677E-01
35	.654E-03	.679E-01
36	.472E-02	.175E-01
37	.108E-04	.782E-03
38	.871E-05	.889E-03
39	.200E-04	.249E-02
40	.336E-05	.368E-03
41	.686E-04	.777E-02
42	.902E-05	.557E-03
43	.707E-04	.818E-02
44	.349E-05	.378E-03
45	.345E-05	.356E-03
46	.150E-05	.461E-04
47	.274E-04	.336E-02

RUN #91

W. D. 090°

SAMPLE PT.	SOURCE GROUP #3R CONCENTRATION RATIO	SOURCE GROUP #3-3 CONCENTRATION RATIO
1	.444E-06	.629E-04
2	.539E-04	.112E-02
3	.193E-03	.327E-02
4	.784E-04	.935E-02
5	.274E-03	.310E-01
6	.586E-03	.682E-01
7	.861E-04	.805E-02
8	.345E-03	.396E-01
9	.637E-03	.730E-01
10	.820E-03	.391E-02
11	.725E-03	.494E-01
12	.233E-02	.224E+00
13	.279E-05	.545E-03
14	.133E-05	.216E-03
15	.166E-04	.135E-02
16	.128E-03	.117E-01
17	.287E-03	.130E-01
18	.291E-03	.134E-01
19	.679E-05	.353E-03
20	.164E-05	.246E-03
21	.300E-03	.173E-01
22	.179E-03	.208E-01
23	.662E-04	.757E-02
24	.325E-04	.390E-02
25	.160E-05	.280E-03
26	********	.270E-03
27	.302E-05	.173E-03
28	.142E-05	.154E-03
29	.743E-03	.214E-01
30	.120E-05	.187E-03
31	.455E-03	.402E-01
32	.335E-03	.193E-01
33	.113E-01	.526E-02
34	.948E-02	.381E-01
35	.923E-03	.910E-01
36	.571E-02	.128E-01
37	.769E-04	.708E-03
38	.836E-04	.777E-03
39	.711E-04	.253E-02
40	.138E-04	.618E-03
41	.740E-04	.743E-02
42	.227E-04	.961E-03
43	.121E-03	.769E-02
44	.118E-03	.367E-03
45	.111E-03	.315E-03
46	.395E-05	.167E-03
47	.303E-04	.364E-02

RUN #92

W. D. 135°

SAMPLE PT.	SOURCE GROUP #3R CONCENTRATION RATIO	SOURCE GROUP #3-3 CONCENTRATION RATIO
1	.532E-06	.375E-04
2	.142E-04	.161E-02
3	.497E-05	.543E-03
4	.812E-04	.957E-02
5	.243E-03	.282E-01
6	.594E-03	.691E-01
7	.706E-04	.829E-02
8	.315E-03	.366E-01
9	.644E-03	.739E-01
10	.125E-02	.164E-01
11	.152E-02	.806E-01
12	.217E-02	.222E+00
13	.408E-05	.591E-03
14	.355E-05	.145E-03
15	.199E-04	.783E-03
16	.189E-04	.194E-02
17	.317E-04	.148E-02
18	.330E-04	.146E-02
19	.452E-05	.473E-03
20	.359E-05	.369E-03
21	.909E-04	.160E-01
22	.169E-03	.195E-01
23	.328E-04	.378E-02
24	.156E-04	.180E-02
25	.359E-05	.386E-03
26	.452E-05	.449E-03
27	.346E-05	.338E-03
28	.333E-05	.332E-03
29	.267E-03	.302E-01
30	.537E-05	.610E-03
31	.221E-03	.253E-01
32	.248E-03	.283E-01
33	.195E-03	.140E-01
34	.440E-03	.377E-01
35	.759E-04	.910E-02
36	.313E-02	.387E-01
37	********	.584E-02
38	.539E-04	.591E-02
39	.525E-04	.586E-02
40	.155E-03	.307E-02
41	.694E-04	.770E-02
42	.495E-04	.363E-02
43	.109E-03	.124E-01
44	.488E-04	.535E-02
45	.460E-04	.503E-02
46	.665E-05	.503E-03
47	.362E-04	.422E-02

RUN #93

W. D. 180°

SAMPLE PT.	SOURCE GROUP #3R CONCENTRATION RATIO	SOURCE GROUP #3-3 CONCENTRATION RATIO
1	.222E-06	.221E-04
2	.152E-04	.172E-02
3	.271E-05	.289E-03
4	.850E-04	.100E-01
5	.265E-03	.308E-01
6	.579E-03	.674E-01
7	.722E-04	.851E-02
8	.331E-03	.385E-01
9	.610E-03	.700E-01
10	.958E-03	.319E-01
11	.131E-02	.748E-01
12	.206E-02	.208E+00
13	.430E-05	.592E-03
14	.213E-05	.170E-03
15	.128E-04	.120E-02
16	.278E-04	.322E-02
17	.115E-04	.128E-02
18	.127E-04	.137E-02
19	.528E-05	.503E-03
20	.373E-05	.400E-03
21	.960E-04	.113E-01
22	.103E-03	.120E-01
23	.180E-04	.206E-02
24	.776E-05	.864E-03
25	.479E-05	.552E-03
26	.874E-05	.862E-03
27	.284E-05	.348E-03
28	.293E-05	.352E-03
29	.113E-03	.130E-01
30	.523E-05	.577E-03
31	.265E-03	.309E-01
32	.205E-03	.233E-01
33	.195E-03	.213E-01
34	.110E-02	.120E+00
35	.127E-03	.152E-01
36	.183E-02	.490E-01
37	.216E-04	.230E-02
38	.241E-04	.261E-02
39	.371E-04	.429E-02
40	.527E-04	.314E-02
41	.672E-04	.758E-02
42	.233E-04	.224E-02
43	.109E-03	.125E-01
44	.387E-04	.430E-02
45	.292E-04	.328E-02
46	.639E-05	.509E-03
47	.360E-04	.419E-02

RUN #94

W. D. 225°

SAMPLE PT.	SOURCE GROUP #3R CONCENTRATION RATIO	SOURCE GROUP #3-3 CONCENTRATION RATIO
1	********	********
2	.936E-05	.112E-02
3	.887E-06	.113E-03
4	.813E-04	.965E-02
5	.182E-03	.212E-01
6	.606E-03	.705E-01
7	.733E-04	.863E-02
8	.248E-03	.270E-02
9	.646E-03	.744E-01
10	.226E-02	.155E-01
11	.231E-02	.580E-01
12	.258E-02	.237E+00
13	.390E-05	.657E-03
14	.208E-05	.232E-03
15	.176E-04	.208E-02
16	.322E-04	.382E-02
17	.750E-05	.901E-03
18	.896E-05	.108E-02
19	.399E-05	.328E-03
20	.563E-05	.699E-03
21	.163E-04	.195E-02
22	.341E-04	.405E-02
23	.208E-04	.243E-02
24	.111E-05	.192E-03
25	.176E-04	.207E-02
26	.208E-04	.204E-02
27	.206E-04	.160E-02
28	.165E-04	.162E-02
29	.437E-04	.521E-02
30	.103E-04	.124E-02
31	.209E-03	.243E-01
32	.256E-03	.288E-01
33	.602E-02	.415E-01
34	.291E-02	.161E+00
35	********	.557E-02
36	.312E-02	.404E-01
37	.876E-04	.235E-02
38	.860E-04	.218E-02
39	.812E-04	.325E-02
40	.358E-04	.231E-02
41	.713E-04	.776E-02
42	.108E-03	.224E-02
43	.166E-03	.138E-01
44	.105E-03	.334E-02
45	.122E-03	.322E-02
46	.282E-04	.165E-02
47	.308E-04	.359E-02

RUN #95

W. D. 270°

SAMPLE PT.	SOURCE GROUP #3R CONCENTRATION RATIO	SOURCE GROUP #3-3 CONCENTRATION RATIO
1	.120E-05	.983E-04
2	.252E-04	.288E-02
3	.421E-05	.484E-03
4	.606E-04	.708E-02
5	.181E-03	.210E-01
6	.430E-03	.502E-01
7	.561E-04	.661E-02
8	.204E-03	.238E-01
9	.380E-03	.436E-01
10	.502E-03	.108E-01
11	.185E-02	.303E-01
12	.215E-02	.160E+00
13	.426E-05	.469E-03
14	.705E-05	.538E-03
15	.119E-03	.136E-01
16	.209E-03	.240E-01
17	.668E-04	.785E-02
18	.681E-04	.795E-02
19	.497E-05	.411E-03
20	.103E-04	.124E-02
21	.355E-05	.402E-03
22	.342E-05	.412E-03
23	.326E-04	.338E-02
24	.887E-05	.101E-02
25	.114E-04	.129E-02
26	.149E-04	.135E-02
27	.212E-04	.200E-02
28	.212E-04	.215E-02
29	.283E-04	.337E-02
30	.830E-05	.912E-03
31	.695E-04	.816E-02
32	.143E-03	.169E-01
33	.205E-01	.111E-01
34	.949E-02	.777E-01
35	********	.108E-02
36	.174E-02	.344E-01
37	********	.162E-02
38	.392E-04	.155E-02
39	.362E-04	.231E-02
40	.311E-04	.302E-02
41	.503E-04	.532E-02
42	.481E-04	.169E-02
43	.102E-03	.878E-02
44	.429E-04	.215E-02
45	.403E-04	.176E-02
46	.213E-04	.106E-02
47	.292E-04	.345E-02

RUN #96

W. D. 315°

SAMPLE PT.	SOURCE GROUP #3R CONCENTRATION RATIO	SOURCE GROUP #3-3 CONCENTRATION RATIO
1	********	.205E-03
2	.532E-06	.115E-03
3	********	.429E-04
4	.736E-04	.868E-02
5	.224E-03	.258E-01
6	.515E-03	.600E-01
7	.711E-04	.843E-02
8	.270E-03	.315E-01
9	.549E-03	.634E-01
10	.296E-03	.147E-01
11	.102E-02	.493E-01
12	.225E-02	.216E+00
13	.241E-03	.710E-02
14	.138E-05	.184E-03
15	.102E-04	.131E-02
16	.101E-03	.126E-01
17	.169E-05	.249E-03
18	.577E-06	.154E-03
19	.865E-05	.638E-03
20	.982E-04	.174E-02
21	.378E-04	.441E-02
22	.629E-04	.743E-02
23	.610E-04	.677E-02
24	.362E-04	.351E-01
25	.548E-04	.182E-02
26	.568E-04	.186E-02
27	.394E-03	.121E-02
28	.401E-03	.127E-02
29	.468E-03	.301E-01
30	.546E-04	.125E-02
31	.373E-03	.377E-01
32	.557E-04	.601E-02
33	.473E-03	.261E-01
34	.140E-02	.661E-01
35	.237E-03	.273E-01
36	.379E-02	.226E-01
37	.108E-03	.790E-03
38	.131E-03	.708E-03
39	.120E-03	.202E-02
40	.252E-04	.280E-02
41	.582E-04	.658E-02
42	.185E-04	.845E-03
43	.141E-03	.772E-02
44	.108E-03	.678E-03
45	.598E-04	.997E-03
46	.593E-04	.988E-03
47	.206E-04	.246E-02

APPENDIX B

TABULATION OF DIMENSIONLESS CONCENTRATION COEFFICIENTS (K)

RUN #1

W. D. 000^{o}

SAMPLE PT.	Source Group 12 RAW (AREA)	Source Group 12 DIMENSIONLESS CONCENTRATION	Source Group 13 RAW (AREA)	Source Group 13 DIMENSIONLESS CONCENTRATION
1	20115	.473E+00	1856	.184E-01
2	1198	.367E-02	366	********
4	1934	.219E-01	460	.105E-02
5	2076	.254E-01	472	.120E-02
6	2166	.277E-01	443	.843E-03
7	1962	.226E-01	468	.115E-02
8	2049	.248E-01	498	.153E-02
9	2182	.281E-01	473	.122E-02
10	20525	.483E+00	373	********
11	23700	.561E+00	371	********
12	16917	.393E+00	434	.732E-03
13	1576	.130E-01	839	.576E-02
14	2355	.323E-01	503	.159E-02
15	2240	.295E-01	539	.203E-02
16	2179	.280E-01	467	.114E-02
17	1060	.248E-03	432	.707E-03
18	1021	********	377	.248E-04
20	45401	.110E+01	35342	.434E+00
21	13741	.315E+00	2254	.233E-01
22	2032	.243E-01	558	.227E-02
23	7873	.169E+00	9580	.114E+00
24	7932	.171E+00	9451	.113E+00
25	96437	.236E+01	22920	.280E+00
26	97395	.239E+01	17105	.208E+00
27	41710	.101E+01	216641	.268E+01
28	35353	.850E+00	157161	.194E+01
29	25085	.596E+00	1506	.140E-01
30	143320	.353E+01	74653	.921E+00
31	26543	.632E+00	945	.707E-02
32	14332	.329E+00	2820	.303E-01
33	13580	.311E+00	4523	.515E-01
34	5851	.119E+00	1634	.156E-01
35	5633	.114E+00	756	.473E-02
36	80384	.197E+01	415	.496E-03
37	103798	.255E+01	607	.288E-02
38	108736	.267E+01	487	.139E-02
39	71547	.175E+01	427	.645E-03
40	1245	.483E-02	375	********
41	2183	.281E-01	621	.305E-02
42	1092	.104E-02	445	.868E-03
43	47545	.115E+01	486	.138E-02
44	97258	.238E+01	417	.521E-03
45	90861	.223E+01	607	.288E-02
46	113784	.279E+01	675055	.837E+01
47	3234	.541E-01	1136	.944E-02

RUN #2

W. D. 045°

SAMPLE PT.	Source Group 12 RAW (AREA)	Source Group 12 DIMENSIONLESS CONCENTRATION	Source Group 13 RAW (AREA)	Source Group 13 DIMENSIONLESS CONCENTRATION
1	157848	.389E+01	202948	.251E+01
2	5953	.127E+00	7025	.795E-01
3	49484	.121E+01	66804	.821E+00
4	1780	.237E-01	904	.357E-02
5	1690	.214E-01	843	.282E-02
6	1664	.208E-01	814	.246E-02
7	1717	.221E-01	810	.241E-02
8	1718	.221E-01	839	.277E-02
9	1692	.215E-01	877	.324E-02
10	1877	.261E-01	670	.670E-03
11	42248	.103E+01	2099	.184E-01
12	10907	.250E+00	10184	.119E+00
13	1630	.200E-01	911	.366E-02
14	1581	.187E-01	835	.272E-02
15	2548	.427E-01	1981	.169E-01
16	3307	.615E-01	3062	.303E-01
17	2803	.490E-01	2704	.259E-01
18	2379	.385E-01	2248	.202E-01
20	22217	.530E+00	54498	.668E+00
21	76103	.187E+01	120095	.148E+01
22	1796	.241E-01	1710	.136E-01
23	8137	.181E+00	23051	.278E+00
24	12950	.301E+00	28271	.343E+00
25	10115	.230E+00	5887	.654E-01
26	12339	.285E+00	6374	.714E-01
27	41158	.100E+01	887806	.110E+02
28	38795	.941E+00	800730	.992E+01
29	95585	.235E+01	210585	.260E+01
30	32136	.776E+00	20185	.243E+00
31	202247	.499E+01	284673	.352E+01
32	133926	.330E+01	177314	.219E+01
33	18892	.448E+00	14125	.168E+00
34	14148	.330E+00	10003	.116E+00
35	22216	.530E+00	27943	.339E+00
36	93059	.229E+01	696	.992E-03
37	224440	.554E+01	188271	.233E+01
38	236800	.585E+01	216718	.268E+01
39	147898	.365E+01	122685	.151E+01
40	1188	.900E-02	868	.313E-02
41	1813	.245E-01	946	.409E-02
42	12586	.291E+00	970	.439E-02
43	144396	.356E+01	125217	.155E+01
44	296762	.733E+01	250883	.310E+01
45	301050	.744E+01	255285	.316E+01
46	71864	.176E+01	13395	.159E+00
47	3063	.555E-01	882	.330E-02

RUN #3

W. D. 090°

SAMPLE PT.	Source Group 12 RAW (AREA)	Source Group 12 DIMENSIONLESS CONCENTRATION	Source Group 13 RAW (AREA)	Source Group 13 DIMENSIONLESS CONCENTRATION
1	37485	.907E+00	93425	.115E+01
2	12103	.278E+00	32807	.398E+00
3	35081	.847E+00	128312	.158E+01
4	2908	.501E-01	1059	.453E-02
5	3151	.561E-01	1114	.521E-02
6	3212	.576E-01	867	.215E-02
7	2909	.501E-01	864	.211E-02
8	3082	.544E-01	860	.206E-02
9	3248	.585E-01	977	.351E-02
10	60238	.147E+01	45593	.557E+00
11	68762	.168E+01	99752	.123E+01
12	47631	.116E+01	125829	.155E+01
13	3169	.566E-01	1342	.804E-02
14	3106	.550E-01	951	.319E-02
15	3890	.744E-01	3526	.351E-01
16	9808	.221E+00	23797	.287E+00
17	17462	.411E+00	29767	.361E+00
18	17571	.414E+00	28462	.344E+00
20	17455	.411E+00	1292	.742E-02
21	32590	.786E+00	79703	.980E+00
22	3269	.590E-01	2766	.257E-01
23	1912	.254E-01	1236	.672E-02
24	1565	.168E-01	1261	.703E-02
25	1055	.416E-02	830	.169E-02
26	1145	.639E-02	855	.200E-02
27	4696	.944E-01	263447	.326E+01
28	3572	.665E-01	211815	.262E+01
29	115226	.283E+01	244311	.302E+01
30	1319	.107E-01	1494	.992E-02
31	39681	.961E+00	71679	.881E+00
32	27741	.666E+00	64339	.789E+00
33	111656	.275E+01	133835	.165E+01
34	90605	.222E+01	119031	.147E+01
35	5089	.104E+00	4087	.421E-01
36	140486	.346E+01	19793	.237E+00
37	252197	.623E+01	242977	.301E+01
38	257710	.637E+01	284411	.352E+01
39	134947	.332E+01	139657	.172E+01
40	98143	.241E+01	1115	.522E-02
41	3833	.730E-01	1589	.111E-01
42	259304	.640E+01	2284	.197E-01
43	112682	.277E+01	171450	.212E+01
44	238767	.590E+01	333967	.413E+01
45	229937	.568E+01	378433	.469E+01
46	2220	.330E-01	67646	.830E+00
47	2887	.496E-01	925	.287E-02

RUN #4

W. D. 135^{o}

SAMPLE PT.	Source Group 12 RAW (AREA)	Source Group 12 DIMENSIONLESS CONCENTRATION	Source Group 13 RAW (AREA)	Source Group 13 DIMENSIONLESS CONCENTRATION
1	880	.362E-02	887	.541E-02
2	912	.441E-02	857	.504E-02
3	821	.216E-02	922	.584E-02
4	834	.248E-02	680	.284E-02
5	851	.290E-02	711	.323E-02
6	860	.312E-02	670	.272E-02
7	829	.235E-02	668	.269E-02
8	847	.280E-02	677	.280E-02
9	858	.307E-02	678	.282E-02
10	1114	.942E-02	64630	.796E+00
11	2457	.427E-01	17326	.209E+00
12	1208	.117E-01	3059	.324E-01
13	852	.292E-02	718	.331E-02
14	854	.297E-02	683	.288E-02
15	3084	.582E-01	9884	.117E+00
16	2204	.364E-01	6696	.775E-01
17	6589	.145E+00	26381	.322E+00
18	7147	.159E+00	28572	.349E+00
20	916	.451E-02	683	.288E-02
21	888	.382E-02	1088	.790E-02
22	882	.367E-02	623	.213E-02
23	820	.213E-02	581	.161E-02
24	811	.191E-02	562	.138E-02
25	848	.283E-02	504	.657E-03
26	857	.305E-02	508	.707E-03
27	897	.404E-02	2976	.313E-01
28	911	.439E-02	2354	.236E-01
29	1105	.920E-02	3536	.383E-01
30	877	.354E-02	544	.115E-02
31	959	.558E-02	1211	.943E-02
32	918	.456E-02	1309	.106E-01
33	1272	.133E-01	53242	.655E+00
34	1163	.106E-01	36389	.446E+00
35	861	.315E-02	699	.308E-02
36	1845	.275E-01	281745	.349E+01
37	3133	.595E-01	349876	.433E+01
38	3155	.600E-01	363087	.450E+01
39	2206	.365E-01	168980	.209E+01
40	31705	.768E+00	273516	.339E+01
41	930	.486E-02	1625	.146E-01
42	90699	.223E+01	329618	.408E+01
43	1677	.234E-01	227144	.281E+01
44	2906	.538E-01	436947	.541E+01
45	2364	.404E-01	443496	.550E+01
46	908	.431E-02	250735	.310E+01
47	1661	.230E-01	1031	.719E-02

RUN #5

W. D. 180°

SAMPLE PT.	Source Group 12 RAW (AREA)	Source Group 12 DIMENSIONLESS CONCENTRATION	Source Group 13 RAW (AREA)	Source Group 13 DIMENSIONLESS CONCENTRATION
1	658	.211E-02	298	.167E-02
2	919	.858E-02	339	.218E-02
3	720	.364E-02	324	.200E-02
4	934	.895E-02	329	.206E-02
5	1030	.113E-01	316	.190E-02
6	1093	.129E-01	327	.203E-02
7	921	.863E-02	325	.201E-02
8	998	.105E-01	332	.210E-02
9	1051	.118E-01	324	.200E-02
10	3270	.668E-01	4428	.529E-01
11	8220	.190E+00	1036	.108E-01
12	607	.843E-03	313	.186E-02
13	1132	.139E-01	359	.243E-02
14	1037	.115E-01	335	.213E-02
15	897	.803E-02	528	.453E-02
16	801	.565E-02	650	.604E-02
17	742	.419E-02	601	.543E-02
18	761	.466E-02	729	.702E-02
20	975	.996E-02	427	.327E-02
21	885	.773E-02	377	.265E-02
22	1095	.129E-01	257	.117E-02
23	639	.164E-02	242	.980E-03
24	609	.892E-03	235	.893E-03
25	598	.620E-03	223	.744E-03
26	614	.102E-02	350	.232E-02
27	1350	.193E-01	3689	.437E-01
28	1293	.178E-01	1028	.107E-01
29	752	.444E-02	615	.561E-02
30	601	.694E-03	261	.122E-02
31	757	.456E-02	415	.313E-02
32	664	.226E-02	552	.483E-02
33	756	.454E-02	1083	.114E-01
34	836	.652E-02	1200	.129E-01
35	657	.208E-02	277	.141E-02
36	13178	.312E+00	6624	.801E-01
37	1930	.336E-01	1127025	.140E+02
38	1703	.280E-01	1070570	.133E+02
39	1375	.199E-01	609340	.756E+01
40	81955	.202E+01	230057	.285E+01
41	1137	.140E-01	1816	.205E-01
42	3543	.736E-01	914180	.113E+02
43	2144	.389E-01	319475	.396E+01
44	2138	.388E-01	823362	.102E+02
45	1925	.335E-01	985989	.122E+02
46	1126	.137E-01	2019235	.250E+02
47	2225	.409E-01	4497	.538E-01

RUN #6

W. D. 225°

SAMPLE PT.	Source Group 12 RAW (AREA)	Source Group 12 DIMENSIONLESS CONCENTRATION	Source Group 13 RAW (AREA)	Source Group 13 DIMENSIONLESS CONCENTRATION
1	1701	.263E-01	441	.102E-02
2	1586	.234E-01	407	.595E-03
3	852	.523E-02	435	.943E-03
4	1583	.233E-01	483	.154E-02
5	1993	.335E-01	426	.831E-03
6	2767	.527E-01	440	.100E-02
7	1592	.236E-01	456	.120E-02
8	2128	.369E-01	437	.968E-03
9	2756	.524E-01	423	.794E-03
10	4275	.901E-01	481	.151E-02
11	22085	.531E+00	411	.645E-03
12	834	.478E-02	451	.114E-02
13	2598	.485E-01	450	.113E-02
14	2368	.428E-01	422	.781E-03
15	1930	.319E-01	440	.100E-02
16	1148	.126E-01	404	.558E-03
17	958	.786E-02	434	.930E-03
18	953	.773E-02	437	.968E-03
20	9861	.229E+00	460	.125E-02
21	946	.756E-02	468	.135E-02
22	1321	.169E-01	378	.236E-03
23	1060	.104E-01	372	.161E-03
24	692	.126E-02	387	.347E-03
25	895	.630E-02	423	.794E-03
26	930	.716E-02	510	.187E-02
27	1285	.160E-01	5976	.697E-01
28	1068	.106E-01	2731	.294E-01
29	911	.669E-02	626	.331E-02
30	814	.429E-02	663	.377E-02
31	997	.882E-02	505	.181E-02
32	1043	.996E-02	656	.368E-02
33	1260	.153E-01	915	.690E-02
34	1581	.233E-01	788	.532E-02
35	930	.716E-02	403	.546E-03
36	9711	.225E+00	1098	.917E-02
37	20501	.492E+00	6465	.757E-01
38	13305	.314E+00	6147	.718E-01
39	8234	.188E+00	3960	.447E-01
40	3429	.691E-01	2967	.324E-01
41	1775	.281E-01	690	.411E-02
42	21615	.520E+00	6535	.766E-01
43	5416	.118E+00	2822	.306E-01
44	7704	.175E+00	6380	.747E-01
45	8054	.184E+00	7170	.845E-01
46	2172	.379E-01	1791353	.222E+02
47	2570	.478E-01	2721	.293E-01

RUN #7

W. D. 270°

SAMPLE PT.	Source Group 12 RAW (AREA)	Source Group 12 DIMENSIONLESS CONCENTRATION	Source Group 13 RAW (AREA)	Source Group 13 DIMENSIONLESS CONCENTRATION
1	1293	.122E-01	758	.109E-02
2	1248	.111E-01	725	.682E-03
3	986	.461E-02	748	.968E-03
4	2454	.410E-01	883	.264E-02
5	2601	.446E-01	857	.232E-02
6	2801	.496E-01	861	.237E-02
7	2471	.414E-01	886	.268E-02
8	2624	.452E-01	864	.241E-02
9	2596	.445E-01	856	.231E-02
10	2760	.486E-01	844	.216E-02
11	74309	.182E+01	851	.225E-02
12	2912	.523E-01	740	.868E-03
13	2816	.500E-01	906	.293E-02
14	2610	.449E-01	863	.239E-02
15	2118	.327E-01	835	.205E-02
16	1600	.198E-01	776	.131E-02
17	1329	.131E-01	757	.108E-02
18	1295	.123E-01	755	.105E-02
20	8104	.181E+00	776	.131E-02
21	869	.171E-02	792	.151E-02
22	894	.233E-02	726	.695E-03
23	1804	.249E-01	785	.143E-02
24	1028	.565E-02	741	.881E-03
25	1134	.828E-02	1540	.108E-01
26	1234	.108E-01	1898	.152E-01
27	2876	.515E-01	74230	.912E+00
28	2911	.523E-01	469861	.582E+01
29	1175	.929E-02	1665	.123E-01
30	1498	.173E-01	5635	.616E-01
31	1000	.496E-02	889	.272E-02
32	1143	.850E-02	1040	.459E-02
33	5905	.127E+00	4230	.442E-01
34	3598	.693E-01	2158	.185E-01
35	904	.258E-02	790	.149E-02
36	34945	.846E+00	2791	.263E-01
37	16050	.378E+00	19480	.233E+00
38	6793	.149E+00	17111	.204E+00
39	4993	.104E+00	9777	.113E+00
40	1821	.253E-01	1168	.618E-02
41	2725	.477E-01	1163	.612E-02
42	17699	.419E+00	12722	.149E+00
43	7757	.172E+00	10026	.116E+00
44	4344	.878E-01	21495	.258E+00
45	4091	.816E-01	22405	.270E+00
46	8074	.180E+00	970626	.120E+02
47	3561	.684E-01	1910	.154E-01

RUN #8

W. D. 315^{o}

SAMPLE PT.	Source Group 12 RAW (AREA)	Source Group 12 DIMENSIONLESS CONCENTRATION	Source Group 13 RAW (AREA)	Source Group 13 DIMENSIONLESS CONCENTRATION
1	762	.203E-02	516	.145E-02
2	711	.768E-03	433	.422E-03
3	711	.768E-03	475	.943E-03
4	769	.221E-02	536	.170E-02
5	770	.223E-02	530	.162E-02
6	770	.223E-02	549	.186E-02
7	776	.238E-02	538	.172E-02
8	771	.226E-02	544	.180E-02
9	778	.243E-02	554	.192E-02
10	826	.362E-02	516	.145E-02
11	2536	.460E-01	499	.124E-02
12	841	.399E-02	498	.123E-02
13	761	.201E-02	582	.227E-02
14	756	.188E-02	551	.189E-02
15	745	.161E-02	540	.175E-02
16	830	.372E-02	525	.156E-02
17	747	.166E-02	483	.104E-02
18	754	.183E-02	454	.682E-03
20	1145	.115E-01	5820	.672E-01
21	810	.322E-02	560	.200E-02
22	752	.178E-02	497	.122E-02
23	769	.221E-02	562	.202E-02
24	866	.461E-02	628	.284E-02
25	906	.560E-02	15452	.187E+00
26	939	.642E-02	19759	.240E+00
27	2273	.395E-01	4552	.515E-01
28	2259	.391E-01	2692	.284E-01
29	1550	.216E-01	759	.447E-02
30	1251	.142E-01	47548	.585E+00
31	1277	.148E-01	638	.296E-02
32	782	.253E-02	761	.449E-02
33	6661	.148E+00	942	.674E-02
34	2316	.405E-01	791	.486E-02
35	771	.226E-02	546	.182E-02
36	1044	.902E-02	763	.452E-02
37	8033	.182E+00	2475	.258E-01
38	9887	.228E+00	2177	.221E-01
39	7320	.165E+00	1481	.134E-01
40	850	.421E-02	1060	.820E-02
41	780	.248E-02	661	.325E-02
42	1409	.181E-01	2102	.211E-01
43	8576	.196E+00	1307	.113E-01
44	12735	.299E+00	2190	.222E-01
46	4851	.103E+00	567064	.703E+01
47	1683	.249E-01	1335	.116E-01

RUN #9

W. D. 000°

SAMPLE PT.	Source Group 4 RAW (AREA)	Source Group 4 DIMENSIONLESS CONCENTRATION	Source Group 5 RAW (AREA)	Source Group 5 DIMENSIONLESS CONCENTRATION
1	29614	.474E+00	47826	.192E+00
2	59218	.957E+00	1282234	.515E+01
3	2219	.272E-01	5298	.213E-01
5	809	.424E-02	11537	.463E-01
6	684	.220E-02	1098	.441E-02
7	785	.385E-02	29751	.119E+00
8	657	.176E-02	1094	.439E-02
9	796	.403E-02	24982	.100E+00
10	780930	.127E+02	48948	.196E+00
11	482206	.786E+01	184016	.738E+00
12	295165	.481E+01	297690	.119E+01
13	41244	.664E+00	1164	.467E-02
14	1590805	.259E+02	0	********
15	6696730	.109E+03	28480	.114E+00
16	1917190	.313E+02	4658110	.187E+02
17	190140	.309E+01	2158340	.866E+01
18	178170	.290E+01	1805310	.724E+01
19	41090	.661E+00	7980	.320E-01
20	9978	.154E+00	2154	.864E-02
21	30000	.480E+00	29269	.117E+00
22	5424	.795E-01	5325	.214E-01
23	10057	.155E+00	30499	.122E+00
24	13808	.216E+00	40080	.161E+00
25	692	.233E-02	474	.190E-02
26	881	.542E-02	501	.201E-02
27	2447	.310E-01	410	.165E-02
28	2745	.358E-01	368	.148E-02
29	18173	.287E+00	9794	.393E-01
30	622	.119E-02	313	.126E-02
31	11319	.176E+00	16502	.662E-01
32	20471	.325E+00	82568	.331E+00
33	197515	.321E+01	0	********
34	47782	.770E+00	516	.207E-02
35	2761	.361E-01	3634	.146E-01
36	255689	.416E+01	0	********
37	897	.568E-02	341	.137E-02
38	707	.258E-02	333	.134E-02
39	699	.245E-02	389	.156E-02
40	595	.750E-03	307	.123E-02
41	693	.235E-02	530	.213E-02
42	844	.481E-02	374	.150E-02
43	675	.206E-02	398	.160E-02
44	687	.225E-02	296	.119E-02
45	734	.302E-02	310	.124E-02
46	571	.359E-03	382	.153E-02
47	565	.261E-03	224	.899E-03

RUN #10

W. D. 045°

SAMPLE PT.	Source Group 4 RAW (AREA)	Source Group 4 DIMENSIONLESS CONCENTRATION	Source Group 5 RAW (AREA)	Source Group 5 DIMENSIONLESS CONCENTRATION
1	4205	.572E-01	1365	.205E-02
2	72949	.118E+01	752383	.302E+01
3	38294	.613E+00	180047	.719E+00
4	1039	.559E-02	19614	.753E-01
5	1170	.773E-02	15651	.594E-01
6	950	.414E-02	1628	.311E-02
7	1127	.703E-02	32505	.127E+00
8	984	.470E-02	2834	.795E-02
9	1083	.631E-02	45021	.177E+00
10	135140	.219E+01	1216	.145E-02
11	129982	.211E+01	187731	.750E+00
12	42517	.682E+00	486172	.195E+01
13	40242	.645E+00	2234	.554E-02
14	1617056	.264E+02	0	********
15	6709160	.109E+03	38020	.149E+00
16	1094970	.178E+02	4400300	.177E+02
17	568320	.926E+01	2514240	.101E+02
18	504640	.822E+01	2445630	.981E+01
19	0	********	619	********
20	919	.364E-02	1728	.351E-02
21	1877	.193E-01	2246	.559E-02
22	1024	.535E-02	1667	.326E-02
23	4305	.589E-01	14970	.566E-01
24	7116	.105E+00	26401	.103E+00
25	776	.130E-02	1133	.112E-02
26	817	.197E-02	1075	.887E-03
27	819	.201E-02	1150	.119E-02
28	749	.864E-03	1056	.811E-03
29	1014	.519E-02	1312	.184E-02
30	805	.178E-02	1071	.871E-03
31	1055	.586E-02	1144	.116E-02
32	2954	.368E-01	2947	.840E-02
33	35523	.568E+00	1131	.111E-02
34	19914	.313E+00	2231	.553E-02
35	1090	.643E-02	1462	.244E-02
36	37188	.595E+00	1033	.718E-03
37	822	.206E-02	1158	.122E-02
38	1125	.700E-02	1653	.321E-02
39	904	.339E-02	1245	.157E-02
40	750	.881E-03	1045	.766E-03
41	982	.466E-02	1394	.217E-02
42	1928	.201E-01	1410	.223E-02
43	847	.246E-02	1247	.158E-02
44	856	.261E-02	1155	.121E-02
45	815	.194E-02	1126	.109E-02
46	766	.114E-02	1125	.109E-02
47	812	.189E-02	1023	.678E-03

RUN #11

W. D. 090^{o}

SAMPLE PT.	Source Group 4 RAW (AREA)	Source Group 4 DIMENSIONLESS CONCENTRATION	Source Group 5 RAW (AREA)	Source Group 5 DIMENSIONLESS CONCENTRATION
1	1035	.189E-02	2065	.131E-02
2	13846	.211E+00	1287828	.516E+01
3	4596	.600E-01	354738	.142E+01
4	1174	.416E-02	23409	.870E-01
5	1258	.553E-02	23291	.865E-01
6	1138	.357E-02	2771	.414E-02
7	1248	.537E-02	35019	.134E+00
8	1122	.331E-02	4054	.929E-02
9	1109	.310E-02	54244	.211E+00
10	2497	.257E-01	3463	.692E-02
11	1841	.150E-01	7057	.213E-01
12	1342	.690E-02	6875	.206E-01
13	43825	.700E+00	2461	.290E-02
14	1805091	.294E+02	0	********
15	6255260	.102E+03	50140	.194E+00
16	1171160	.191E+02	8122080	.326E+02
17	735930	.120E+02	8307630	.333E+02
18	794650	.129E+02	7810730	.313E+02
19	2550	.266E-01	22770	.844E-01
20	0	********	5120	.136E-01
21	0	********	4010	.911E-02
22	0	********	681	********
23	1159	.391E-02	3089	.542E-02
24	1170	.409E-02	2992	.503E-02
25	974	.897E-03	2177	.176E-02
26	1582	.108E-01	2457	.288E-02
27	1036	.191E-02	2285	.219E-02
28	961	.685E-03	2091	.141E-02
29	1135	.352E-02	2463	.291E-02
30	997	.127E-02	2113	.150E-02
31	1096	.289E-02	2463	.291E-02
32	1086	.272E-02	2113	.150E-02
33	1559	.104E-01	2220	.193E-02
34	3709	.455E-01	4412	.107E-01
35	1161	.395E-02	2608	.349E-02
36	2181	.206E-01	1888	.598E-03
37	991	.117E-02	2105	.147E-02
38	1044	.204E-02	2193	.182E-02
39	1081	.264E-02	2287	.220E-02
40	944	.408E-03	1953	.859E-03
41	2962	.333E-01	4108	.951E-02
42	4516	.587E-01	5689	.159E-01
43	1024	.171E-02	2202	.186E-02
44	1060	.230E-02	2182	.178E-02
45	2504	.259E-01	3675	.777E-02
46	1553	.103E-01	2302	.226E-02
47	910	********	1698	********

RUN #12

W. D. 135^{o}

SAMPLE PT.	Source Group 4 RAW (AREA)	Source Group 4 DIMENSIONLESS CONCENTRATION	Source Group 5 RAW (AREA)	Source Group 5 DIMENSIONLESS CONCENTRATION
1	1334	********	3577	.110E-02
2	8739	.122E+00	543336	.222E+01
3	1804	.671E-02	15994	.521E-01
4	1476	.124E-02	16360	.536E-01
5	5465	.678E-01	82428	.325E+00
6	1403	.167E-04	3845	.221E-02
7	1445	.718E-03	22659	.795E-01
8	2050	.108E-01	15481	.500E-01
9	1689	.479E-02	35724	.133E+00
10	12575	.187E+00	5267	.805E-02
11	2296	.149E-01	4844	.631E-02
12	1414	.200E-03	4150	.346E-02
13	39408	.634E+00	3631	.133E-02
14	1602030	.267E+02	0	********
15	6779840	.113E+03	192590	.777E+00
16	1132760	.189E+02	9858300	.405E+02
17	113200	.187E+01	11993840	.492E+02
18	125390	.207E+01	9929160	.408E+02
19	5820	.738E-01	27340	.987E-01
20	2262	.144E-01	9115	.239E-01
21	1511	.182E-02	5629	.953E-02
22	1449	.785E-03	5231	.790E-02
23	1399	********	4483	.483E-02
24	1413	.184E-03	4604	.532E-02
25	1390	********	4234	.380E-02
26	1444	.701E-03	4286	.402E-02
27	1422	.334E-03	4244	.384E-02
28	1419	.284E-03	4160	.350E-02
29	1483	.135E-02	4223	.376E-02
30	1364	********	3876	.233E-02
31	1443	.684E-03	3959	.267E-02
32	1397	********	4051	.305E-02
33	1469	.112E-02	4159	.350E-02
34	2893	.249E-01	5978	.110E-01
35	1418	.267E-03	3845	.221E-02
36	2115	.119E-01	4125	.336E-02
37	1509	.179E-02	4306	.410E-02
38	1541	.232E-02	4258	.390E-02
39	1553	.252E-02	4087	.320E-02
40	8223	.114E+00	46302	.177E+00
41	3195	.299E-01	6609	.136E-01
42	4229	.472E-01	10868	.311E-01
43	1424	.367E-03	3816	.209E-02
44	1502	.167E-02	4072	.314E-02
45	1519	.195E-02	4129	.337E-02
46	2024	.104E-01	4864	.639E-02
47	1262	********	3274	********

RUN #13

W. D. 180°

SAMPLE PT.	Source Group 4 RAW (AREA)	Source Group 4 DIMENSIONLESS CONCENTRATION	Source Group 5 RAW (AREA)	Source Group 5 DIMENSIONLESS CONCENTRATION
1	1359	.129E-02	4537	.545E-02
2	16163	.248E+00	1930562	.792E+01
3	8010	.112E+00	913340	.374E+01
4	0	********	29080	.106E+00
5	3702	.404E-01	43107	.164E+00
6	1447	.275E-02	4525	.540E-02
7	1736	.758E-02	60129	.234E+00
8	1617	.559E-02	7013	.156E-01
9	2389	.185E-01	22824	.806E-01
10	82823	.136E+01	275535	.112E+01
11	18372	.285E+00	211467	.855E+00
12	3696	.403E-01	57648	.224E+00
13	61044	.998E+00	3755	.223E-02
14	1923256	.321E+02	18484	.627E-01
15	8888210	.148E+03	206500	.835E+00
16	1322990	.221E+02	698700	.286E+01
17	28140	.448E+00	2256210	.925E+01
18	28430	.453E+00	2069570	.849E+01
20	1946	.111E-01	5004	.736E-02
21	1603	.536E-02	4058	.348E-02
22	1559	.462E-02	3732	.214E-02
23	1449	.279E-02	3687	.196E-02
24	1400	.197E-02	3674	.190E-02
25	1464	.304E-02	3730	.213E-02
26	1456	.290E-02	3631	.173E-02
27	1506	.374E-02	3922	.292E-02
28	1419	.229E-02	3705	.203E-02
29	1530	.414E-02	3894	.281E-02
30	1387	.175E-02	3513	.124E-02
31	1440	.264E-02	3679	.192E-02
32	1355	.122E-02	3840	.258E-02
33	1509	.379E-02	4216	.413E-02
34	4460	.531E-01	4641	.587E-02
35	1391	.182E-02	3587	.154E-02
36	21663	.340E+00	6159	.121E-01
37	1473	.319E-02	4371	.476E-02
38	1551	.449E-02	4293	.444E-02
39	1548	.444E-02	4045	.343E-02
40	11565	.172E+00	25112	.900E-01
41	4532	.543E-01	4656	.594E-02
42	4861	.597E-01	7251	.166E-01
43	1428	.244E-02	3749	.221E-02
44	1546	.441E-02	4119	.373E-02
45	1560	.464E-02	4156	.388E-02
46	1570	.481E-02	4324	.457E-02
47	1335	.885E-03	3402	.784E-03

RUN #14

W. D. 225°

SAMPLE PT.	Source Group 4 RAW (AREA)	Source Group 4 DIMENSIONLESS CONCENTRATION	Source Group 5 RAW (AREA)	Source Group 5 DIMENSIONLESS CONCENTRATION
1	1746	.699E-02	154958	.623E+00
2	1970	.107E-01	594814	.243E+01
3	0	*********	170630	.687E+00
4	1415	.147E-02	23798	.839E-01
5	1816	.816E-02	36900	.138E+00
6	1386	.985E-03	4209	.346E-02
7	1456	.215E-02	40262	.152E+00
8	1443	.194E-02	5622	.927E-02
9	1519	.321E-02	21864	.760E-01
10	7697	.106E+00	321516	.131E+01
11	2065	.123E-01	180422	.727E+00
12	1606	.466E-02	108445	.432E+00
13	86464	.142E+01	3959	.244E-02
14	1999744	.334E+02	60918	.236E+00
15	6246270	.104E+03	396950	.162E+01
16	1312180	.219E+02	2551940	.105E+02
17	44820	.726E+00	2651480	.109E+02
18	61740	.101E+01	2548480	.105E+02
20	1774	.746E-02	4965	.657E-02
21	1408	.135E-02	4109	.305E-02
22	1501	.290E-02	3958	.243E-02
23	1452	.209E-02	3916	.226E-02
24	1405	.130E-02	3977	.251E-02
25	1429	.170E-02	3905	.221E-02
26	3652	.388E-01	4617	.514E-02
27	1605	.464E-02	6036	.110E-01
28	1513	.311E-02	4793	.586E-02
29	1481	.257E-02	5976	.107E-01
30	1445	.197E-02	3843	.196E-02
31	1481	.257E-02	10605	.297E-01
32	1427	.167E-02	20835	.718E-01
33	1663	.561E-02	28323	.103E+00
34	4335	.502E-01	19210	.651E-01
35	1373	.768E-03	13164	.402E-01
36	8637	.122E+00	60011	.233E+00
37	4046	.454E-01	42889	.162E+00
38	3907	.431E-01	39798	.150E+00
39	3140	.303E-01	25726	.918E-01
40	33098	.530E+00	493751	.201E+01
41	1587	.434E-02	4880	.622E-02
42	16152	.247E+00	165468	.666E+00
43	1821	.825E-02	13396	.412E-01
44	3195	.312E-01	33651	.124E+00
45	2845	.253E-01	30585	.112E+00
46	4945	.604E-01	10102	.277E-01
47	1338	.184E-03	3583	.891E-03

RUN #15R

W. D. 270°

SAMPLE PT.	Source Group 4 RAW (AREA)	Source Group 4 DIMENSIONLESS CONCENTRATION	Source Group 5 RAW (AREA)	Source Group 5 DIMENSIONLESS CONCENTRATION
1	1365	.818E-02	46659	.185E+00
2	1902	.171E-01	419676	.172E+01
3	1277	.671E-02	121956	.494E+00
4	1019	.240E-02	15872	.582E-01
5	1095	.367E-02	8959	.298E-01
6	1007	.220E-02	2682	.398E-02
7	1022	.245E-02	22867	.869E-01
8	1021	.244E-02	2842	.464E-02
9	1789	.153E-01	65579	.262E+00
10	11248	.173E+00	439338	.180E+01
11	9037	.136E+00	226744	.924E+00
12	2948	.346E-01	110249	.446E+00
13	87911	.145E+01	2349	.261E-02
14	2069552	.345E+02	81537	.328E+00
15	6569480	.110E+03	490730	.201E+01
16	1980260	.330E+02	1774370	.728E+01
17	104980	.174E+01	3531940	.145E+02
18	99940	.165E+01	4038660	.166E+02
20	1960	.181E-01	12360	.437E-01
21	1328	.756E-02	6776	.208E-01
22	1230	.593E-02	4410	.111E-01
23	1410	.893E-02	4186	.102E-01
24	1404	.883E-02	5843	.170E-01
25	1361	.811E-02	4574	.118E-01
26	4095	.538E-01	5864	.170E-01
27	2956	.347E-01	39680	.156E+00
28	3004	.355E-01	41105	.162E+00
29	2140	.211E-01	44741	.177E+00
30	1663	.132E-01	6934	.214E-01
31	1956	.180E-01	8452	.277E-01
32	1445	.952E-02	32482	.126E+00
33	30273	.491E+00	176278	.717E+00
34	14292	.224E+00	54550	.217E+00
35	1345	.785E-02	7880	.253E-01
36	22725	.365E+00	122404	.496E+00
37	10263	.157E+00	94251	.380E+00
38	10595	.162E+00	91822	.370E+00
39	7361	.108E+00	52884	.210E+00
40	39373	.643E+00	438440	.179E+01
41	1590	.119E-01	5172	.142E-01
42	29850	.484E+00	181293	.738E+00
43	3605	.456E-01	33376	.130E+00
44	6135	.878E-01	71143	.285E+00
45	6223	.893E-01	71954	.289E+00
46	8927	.134E+00	34969	.137E+00
47	925	.835E-03	1934	.908E-03

RUN #16

W. D. 315°

	Source Group 4		Source Group 5	
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	6649	.970E-01	141669	.576E+00
2	3870	.506E-01	461424	.189E+01
3	2987	.359E-01	236150	.964E+00
4	937	.165E-02	14739	.549E-01
5	1104	.444E-02	14402	.535E-01
6	938	.167E-02	2220	.345E-02
7	938	.167E-02	23656	.915E-01
8	954	.194E-02	3129	.719E-02
9	1182	.574E-02	34250	.135E+00
10	110612	.183E+01	433014	.177E+01
11	60194	.991E+00	699459	.287E+01
12	46410	.761E+00	1000570	.410E+01
13	43750	.716E+00	3910	.104E-01
14	3513020	.586E+02	0	*********
15	7071140	.118E+03	23080	.891E-01
16	1927680	.322E+02	2367660	.972E+01
17	6770	.990E-01	12791510	.525E+02
18	5100	.712E-01	10440560	.429E+02
20	40950	.670E+00	239490	.978E+00
21	15380	.243E+00	315990	.129E+01
22	6270	.907E-01	123530	.502E+00
23	7336	.108E+00	91699	.371E+00
24	21617	.347E+00	293843	.120E+01
25	28000	.453E+00	111045	.450E+00
26	31344	.509E+00	100443	.407E+00
27	228233	.380E+01	127366	.517E+00
28	226102	.376E+01	132784	.540E+00
29	87135	.144E+01	154505	.629E+00
30	32670	.531E+00	77149	.311E+00
31	55942	.920E+00	110703	.449E+00
32	5311	.747E-01	148912	.606E+00
33	236200	.393E+01	63157	.254E+00
34	63154	.104E+01	21964	.845E-01
35	3837	.501E-01	72755	.293E+00
36	382659	.637E+01	23929	.926E-01
37	94834	.157E+01	11480	.415E-01
38	161255	.268E+01	15911	.597E-01
39	167764	.279E+01	15671	.587E-01
40	2833	.333E-01	10712	.383E-01
41	1606	.128E-01	2900	.625E-02
42	29780	.483E+00	12556	.459E-01
43	127775	.212E+01	11106	.400E-01
44	182963	.304E+01	14919	.556E-01
45	233020	.388E+01	18328	.696E-01
46	79803	.132E+01	50601	.202E+00
47	967	.215E-02	1772	.161E-02

RUN #17

W. D. 000^{o}

		Source Group 2		Source Group 1
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	2357	.220E+00	136708	.327E+00
2	7775	.978E+00	457601	.111E+01
3	9375	.120E+01	2772300	.673E+01
4	0	********	11390	.220E-01
5	0	********	5850	.857E-02
6	824	.573E-02	3808	.361E-02
7	851	.951E-02	3832	.366E-02
8	841	.811E-02	3599	.310E-02
9	862	.110E-01	5123	.680E-02
10	1289	.707E-01	26908	.598E-01
11	6575	.810E+00	274450	.662E+00
12	14832	.196E+01	579629	.140E+01
13	857	.103E-01	4669	.570E-02
14	3261	.346E+00	3621	.315E-02
15	10537	.136E+01	122155	.291E+00
16	8275	.105E+01	389154	.940E+00
17	2580	.251E+00	93131	.221E+00
18	2532	.245E+00	85716	.203E+00
19	2642	.260E+00	21534	.467E-01
20	967	.257E-01	5378	.742E-02
21	2843	.288E+00	98829	.235E+00
22	821	.531E-02	4539	.538E-02
23	1606	.115E+00	66478	.156E+00
24	1635	.119E+00	72746	.171E+00
25	767	********	2691	.890E-03
26	775	********	2945	.151E-02
27	774	********	2563	.579E-03
28	768	********	2477	.370E-03
29	1203	.587E-01	32217	.727E-01
30	775	********	2500	.425E-03
31	930	.206E-01	21367	.463E-01
32	1820	.145E+00	128511	.307E+00
33	805	.308E-02	2830	.123E-02
34	805	.308E-02	3374	.255E-02
35	832	.685E-02	7936	.136E-01
36	818	.489E-02	2295	********
37	770	********	2486	.391E-03
38	773	********	2540	.523E-03
39	779	********	2820	.120E-02
40	777	********	2429	.253E-03
41	798	.210E-02	3263	.228E-02
42	790	.979E-03	2867	.132E-02
43	779	********	2826	.122E-02
44	782	********	2494	.411E-03
45	776	********	2529	.496E-03
46	774	********	3045	.175E-02
47	762	********	2229	********

RUN #18

W. D. 045°

SAMPLE PT.	Source Group 2 RAW (AREA)	Source Group 2 DIMENSIONLESS CONCENTRATION	Source Group 1 RAW (AREA)	Source Group 1 DIMENSIONLESS CONCENTRATION
1	795	.122E-01	10485	.165E-01
2	4426	.520E+00	499327	.120E+01
3	12654	.167E+01	3015587	.732E+01
4	0	********	13870	.248E-01
5	763	.769E-02	8531	.118E-01
6	709	.140E-03	4976	.313E-02
7	705	********	4756	.260E-02
8	723	.210E-02	4866	.287E-02
9	711	.419E-03	7039	.815E-02
10	739	.433E-02	4019	.807E-03
11	12114	.159E+01	350905	.844E+00
12	44750	.616E+01	1158040	.281E+01
13	785	.108E-01	7558	.941E-02
14	2012	.182E+00	4829	.278E-02
15	7282	.919E+00	114987	.271E+00
16	7788	.990E+00	287358	.690E+00
17	10467	.136E+01	363931	.876E+00
18	7723	.981E+00	265740	.637E+00
19	722	.196E-02	5248	.379E-02
20	693	********	3742	.134E-03
21	810	.143E-01	14631	.266E-01
22	709	.140E-03	4882	.290E-02
23	1083	.524E-01	47089	.106E+00
24	1386	.948E-01	80878	.188E+00
25	692	********	3892	.498E-03
26	695	********	3842	.377E-03
27	694	********	3886	.484E-03
28	696	********	3807	.292E-03
29	703	********	4445	.184E-02
30	695	********	3816	.314E-03
31	695	********	4353	.162E-02
32	766	.811E-02	45230	.101E+00
33	723	.210E-02	4110	.103E-02
34	750	.587E-02	5996	.561E-02
35	711	.419E-03	6328	.642E-02
36	721	.182E-02	3353	********
37	697	********	3823	.331E-03
38	700	********	4039	.856E-03
39	700	********	4159	.115E-02
40	697	********	3761	.180E-03
41	713	.699E-03	4513	.201E-02
42	723	.210E-02	4349	.161E-02
43	700	********	4153	.113E-02
44	701	********	3959	.661E-03
45	695	********	3945	.627E-03
46	705	********	4202	.125E-02
47	689	********	3783	.233E-03

RUN #19

W. D. 090^{o}

SAMPLE PT.	Source Group 2 RAW (AREA)	Source Group 2 DIMENSIONLESS CONCENTRATION	Source Group 1 RAW (AREA)	Source Group 1 DIMENSIONLESS CONCENTRATION
1	0	********	20890	.427E-01
2	5950	.744E+00	298420	.717E+00
3	13410	.179E+01	6944910	.169E+02
4	528	********	324412	.781E+00
5	763	.187E-01	20007	.405E-01
6	650	.294E-02	8240	.119E-01
7	649	.280E-02	5680	.569E-02
8	663	.475E-02	6222	.701E-02
9	672	.601E-02	8680	.130E-01
10	664	.489E-02	4160	.200E-02
11	681	.727E-02	6222	.701E-02
12	700	.993E-02	9607	.152E-01
13	663	.475E-02	4935	.388E-02
14	1315	.959E-01	4998	.403E-02
15	3013	.333E+00	20757	.423E-01
16	13733	.183E+01	462598	.112E+01
17	16874	.227E+01	538486	.130E+01
18	15870	.213E+01	499953	.121E+01
19	653	.336E-02	4813	.358E-02
20	626	********	3549	.511E-03
21	742	.158E-01	16756	.326E-01
22	641	.168E-02	5397	.500E-02
23	646	.238E-02	4428	.265E-02
24	634	.699E-03	4272	.227E-02
25	628	********	3484	.352E-03
26	629	********	3611	.661E-03
27	626	********	3604	.644E-03
28	625	********	3499	.389E-03
29	641	.168E-02	6991	.888E-02
30	626	********	3496	.382E-03
31	684	.769E-02	31294	.680E-01
32	789	.224E-01	79375	.185E+00
33	648	.266E-02	3813	.115E-02
34	656	.377E-02	4656	.320E-02
35	666	.517E-02	14220	.265E-01
36	644	.210E-02	3135	********
37	630	.140E-03	3566	.552E-03
38	638	.126E-02	3717	.919E-03
39	641	.168E-02	3923	.142E-02
40	637	.112E-02	3513	.423E-03
41	661	.447E-02	5289	.474E-02
42	660	.433E-02	4903	.380E-02
43	638	.126E-02	3921	.141E-02
44	637	.112E-02	3655	.768E-03
45	638	.126E-02	3634	.717E-03
46	636	.979E-03	3631	.710E-03
47	630	.140E-03	3446	.260E-03

RUN #20

W. D. 135^{o}

		Source Group 2		Source Group 1
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	0	********	9360	.164E-01
2	13700	.183E+01	154665	.370E+00
3	3780	.446E+00	2085500	.506E+01
4	606	.252E-02	7801	.126E-01
5	1044	.638E-01	11752	.222E-01
6	602	.196E-02	3671	.253E-02
7	597	.126E-02	3629	.242E-02
8	628	.559E-02	3941	.318E-02
9	851	.368E-01	9727	.172E-01
10	613	.350E-02	3354	.176E-02
11	609	.294E-02	3995	.331E-02
13	599	.154E-02	3420	.192E-02
14	926	.473E-01	3508	.213E-02
15	5389	.671E+00	138785	.331E+00
16	43185	.596E+01	862579	.209E+01
17	37812	.520E+01	807325	.196E+01
18	34683	.477E+01	791137	.192E+01
19	645	.797E-02	4938	.561E-02
20	592	.559E-03	3027	.960E-03
21	607	.266E-02	9327	.163E-01
22	596	.112E-02	3068	.106E-02
23	592	.559E-03	3016	.933E-03
24	590	.280E-03	3002	.899E-03
25	586	********	2832	.486E-03
26	600	.168E-02	3011	.921E-03
27	588	********	2855	.542E-03
28	589	.140E-03	2825	.469E-03
29	622	.475E-02	3854	.297E-02
30	591	.419E-03	2845	.518E-03
31	607	.266E-02	3955	.322E-02
32	1093	.706E-01	7173	.110E-01
33	622	.475E-02	4860	.542E-02
34	639	.713E-02	4683	.499E-02
35	616	.391E-02	5498	.697E-02
36	607	.266E-02	3322	.168E-02
37	601	.182E-02	4132	.365E-02
38	612	.336E-02	4250	.393E-02
39	598	.140E-02	3791	.282E-02
40	1644	.148E+00	48548	.112E+00
41	621	.461E-02	3921	.313E-02
42	689	.141E-01	6733	.997E-02
43	595	.979E-03	3617	.239E-02
44	605	.238E-02	4044	.343E-02
45	599	.154E-02	4159	.371E-02
46	618	.419E-02	3467	.203E-02
47	592	.559E-03	2688	.136E-03

RUN #21

W. D. 180^{o}

SAMPLE PT.	Source Group 2 RAW (AREA)	Source Group 2 DIMENSIONLESS CONCENTRATION	Source Group 1 RAW (AREA)	Source Group 1 DIMENSIONLESS CONCENTRATION
1	27790	.379E+01	69170	.156E+00
2	21210	.287E+01	750430	.181E+01
3	11670	.154E+01	3780820	.918E+01
4	675	.308E-02	13677	.209E-01
5	1075	.590E-01	21292	.394E-01
6	672	.266E-02	7329	.544E-02
7	681	.391E-02	7540	.595E-02
8	632	********	5671	.141E-02
9	891	.333E-01	15201	.246E-01
10	11371	.150E+01	381731	.916E+00
11	11672	.154E+01	374245	.897E+00
12	12105	.160E+01	322185	.771E+00
13	661	.112E-02	6895	.439E-02
14	987	.467E-01	7864	.674E-02
15	23800	.324E+01	866407	.209E+01
16	33045	.453E+01	1171801	.284E+01
17	37316	.513E+01	1431796	.347E+01
18	1611	.134E+00	69436	.156E+00
19	693	.559E-02	8340	.790E-02
20	675	.308E-02	8025	.713E-02
21	641	********	6214	.273E-02
22	629	********	5722	.153E-02
23	614	********	5335	.593E-03
24	611	********	5273	.442E-03
25	661	.112E-02	6552	.355E-02
26	656	.419E-03	5889	.194E-02
27	661	.112E-02	6530	.350E-02
28	652	********	6271	.287E-02
29	1414	.106E+00	8595	.852E-02
30	676	.322E-02	6841	.425E-02
31	3634	.417E+00	13405	.202E-01
32	18684	.252E+01	56170	.124E+00
33	9200	.119E+01	40518	.861E-01
34	6712	.847E+00	30992	.630E-01
35	5179	.633E+00	15874	.262E-01
36	5012	.609E+00	24176	.464E-01
37	1872	.170E+00	9316	.103E-01
38	1831	.165E+00	9564	.109E-01
39	1287	.886E-01	7853	.671E-02
40	1826	.164E+00	22227	.417E-01
41	673	.280E-02	6352	.307E-02
42	1762	.155E+00	9108	.977E-02
43	1900	.174E+00	9845	.116E-01
44	2428	.248E+00	11019	.144E-01
45	2444	.250E+00	11359	.152E-01
46	680	.377E-02	6384	.314E-02
47	604	********	5008	********

RUN #22

W. D. 225^o

SAMPLE PT.	RAW (AREA)	Source Group 2 DIMENSIONLESS CONCENTRATION	RAW (AREA)	Source Group 1 DIMENSIONLESS CONCENTRATION
1	108770	.151E+02	1658940	.402E+01
2	0	********	821160	.199E+01
3	0	********	3060770	.743E+01
4	579	.559E-03	11456	.184E-01
5	591	.224E-02	7138	.793E-02
6	584	.126E-02	4865	.241E-02
7	578	.419E-03	4815	.229E-02
8	602	.377E-02	4787	.222E-02
9	595	.280E-02	6065	.533E-02
10	2234	.232E+00	293179	.703E+00
11	2255	.235E+00	357205	.859E+00
12	2725	.301E+00	421027	.101E+01
13	586	.154E-02	5405	.372E-02
14	879	.425E-01	6391	.612E-02
15	1410	.117E+00	44637	.991E-01
16	1117	.758E-01	116715	.274E+00
17	886	.435E-01	86551	.201E+00
18	930	.496E-01	94602	.221E+00
19	883	.431E-01	9302	.132E-01
20	631	.783E-02	4841	.235E-02
21	576	.140E-03	4216	.831E-03
22	571	********	4138	.642E-03
23	584	.126E-02	4300	.104E-02
24	574	********	4180	.744E-03
25	591	.224E-02	4399	.128E-02
26	808	.326E-01	7086	.781E-02
27	4140	.498E+00	87918	.204E+00
28	2008	.200E+00	36057	.782E-01
29	5026	.622E+00	74098	.171E+00
30	655	.112E-01	5441	.381E-02
31	20099	.273E+01	206283	.492E+00
32	157335	.219E+02	1290678	.313E+01
33	86955	.121E+02	1757610	.426E+01
34	54439	.753E+01	1055187	.256E+01
35	26140	.357E+01	272202	.652E+00
36	19749	.268E+01	409719	.987E+00
37	30598	.420E+01	866507	.210E+01
38	28356	.388E+01	816426	.198E+01
39	17716	.240E+01	494090	.119E+01
40	3429	.399E+00	107103	.251E+00
41	852	.387E-01	9129	.128E-01
42	22084	.301E+01	653858	.158E+01
43	26013	.356E+01	494061	.119E+01
44	40058	.552E+01	937714	.227E+01
45	43482	.600E+01	944112	.229E+01
46	8622	.113E+01	204963	.489E+00
47	602	.377E-02	4779	.220E-02

RUN #23

W. D. 270°

	Source Group 2		Source Group 1	
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	552	.587E-02	74648	.183E+00
2	558	.673E-02	145474	.359E+00
3	1176	.953E-01	2298524	.572E+01
4	517	.860E-03	6804	.140E-01
5	519	.115E-02	2352	.286E-02
6	517	.860E-03	1713	.127E-02
7	517	.860E-03	1681	.119E-02
8	512	.143E-03	1610	.101E-02
9	511	********	1610	.101E-02
10	932	.603E-01	13050	.295E-01
11	4176	.525E+00	33335	.801E-01
12	14011	.193E+01	16930	.392E-01
13	542	.444E-02	1744	.135E-02
14	602	.130E-01	1615	.103E-02
15	699	.269E-01	1827	.155E-02
16	547	.516E-02	2741	.383E-02
18	529	.258E-02	3169	.490E-02
19	615	.149E-01	136863	.338E+00
20	755	.350E-01	223362	.553E+00
21	525	.201E-02	22265	.525E-01
22	0	********	1137	********
23	520	.129E-02	2470	.316E-02
24	522	.158E-02	2292	.271E-02
25	551	.573E-02	13992	.319E-01
26	582	.102E-01	17582	.408E-01
27	6595	.872E+00	614668	.153E+01
28	5932	.777E+00	636671	.158E+01
29	3343	.406E+00	620024	.154E+01
30	686	.251E-01	40334	.975E-01
31	559	.688E-02	37938	.915E-01
32	562	.731E-02	56630	.138E+00
33	9336	.126E+01	318858	.791E+00
34	3247	.392E+00	92194	.227E+00
35	525	.201E-02	29031	.693E-01
36	6257	.823E+00	192898	.478E+00
37	12129	.166E+01	383140	.952E+00
38	12016	.165E+01	382758	.951E+00
39	7063	.939E+00	218060	.540E+00
40	929	.599E-01	17136	.397E-01
41	532	.301E-02	2896	.422E-02
42	8871	.120E+01	264526	.656E+00
43	6892	.914E+00	258814	.642E+00
44	12713	.175E+01	481342	.120E+01
45	14399	.199E+01	529863	.132E+01
46	7413	.989E+00	293533	.728E+00
47	510	********	1983	.194E-02

RUN #24

W. D. 315°

SAMPLE PT.	Source Group 2 RAW (AREA)	Source Group 2 DIMENSIONLESS CONCENTRATION	Source Group 1 RAW (AREA)	Source Group 1 DIMENSIONLESS CONCENTRATION
1	516	.330E-02	2643	.315E-02
2	560	.960E-02	25635	.604E-01
3	1303	.116E+00	2270124	.565E+01
4	501	.115E-02	5462	.102E-01
5	505	.172E-02	2070	.172E-02
6	501	.115E-02	1933	.138E-02
7	506	.186E-02	2031	.163E-02
8	497	.573E-03	1935	.139E-02
9	502	.129E-02	1941	.140E-02
10	543	.716E-02	2686	.326E-02
11	1692	.172E+00	16707	.382E-01
12	2129	.234E+00	38297	.920E-01
13	506	.186E-02	2074	.173E-02
14	592	.142E-01	1852	.118E-02
15	713	.315E-01	2042	.165E-02
16	565	.103E-01	4312	.731E-02
17	514	.301E-02	3014	.408E-02
18	504	.158E-02	2657	.319E-02
19	16652	.232E+01	588264	.146E+01
20	9424	.128E+01	307027	.761E+00
21	6373	.842E+00	353756	.878E+00
22	1720	.176E+00	86271	.211E+00
23	3777	.471E+00	163731	.404E+00
24	11961	.164E+01	501517	.125E+01
25	4286	.543E+00	244497	.606E+00
26	3732	.464E+00	224858	.557E+00
27	2958	.353E+00	53316	.129E+00
28	3020	.362E+00	54776	.133E+00
29	3900	.488E+00	257915	.639E+00
30	2979	.356E+00	198853	.492E+00
31	4358	.554E+00	295398	.732E+00
32	14611	.202E+01	598155	.149E+01
33	2125	.234E+00	95021	.233E+00
34	1184	.990E-01	35837	.858E-01
35	2175	.241E+00	106474	.262E+00
36	790	.426E-01	7961	.164E-01
37	611	.169E-01	5381	.997E-02
38	650	.225E-01	5784	.110E-01
39	635	.203E-01	4650	.815E-02
40	498	.716E-03	1835	.114E-02
41	500	.100E-02	2166	.196E-02
42	565	.103E-01	5127	.934E-02
43	607	.163E-01	4782	.848E-02
44	637	.206E-01	6580	.130E-01
45	691	.284E-01	7569	.154E-01
46	1556	.152E+00	85393	.209E+00
47	497	.573E-03	1595	.541E-03

RUN #25

W. D. 000°

SAMPLE PT.	Source Group 6 RAW (AREA)	Source Group 6 DIMENSIONLESS CONCENTRATION	Source Group 7 RAW (AREA)	Source Group 7 DIMENSIONLESS CONCENTRATION
1	543	********	2215	.404E-03
2	558	.124E-02	4032	.696E-02
3	586	.391E-02	13807	.422E-01
4	567	.210E-02	2804	.253E-02
5	567	.210E-02	2700	.215E-02
6	566	.200E-02	2755	.235E-02
7	564	.181E-02	2766	.239E-02
8	566	.200E-02	2777	.243E-02
9	570	.238E-02	2752	.234E-02
10	552	.667E-03	2552	.162E-02
11	552	.667E-03	2607	.182E-02
12	553	.762E-03	2902	.288E-02
13	569	.229E-02	2778	.243E-02
14	614	.657E-02	2750	.233E-02
15	654	.104E-01	3379	.460E-02
16	612	.638E-02	4597	.899E-02
17	584	.372E-02	4354	.812E-02
18	589	.419E-02	4385	.823E-02
19	78644	.744E+01	3326772	.120E+02
20	24910	.232E+01	4029140	.145E+02
21	0	********	122890	.436E+00
22	808	.251E-01	19285	.620E-01
23	9270	.831E+00	118053	.418E+00
24	14217	.130E+01	157019	.559E+00
25	558	.124E-02	3727	.586E-02
26	574	.276E-02	4189	.752E-02
27	553	.762E-03	4069	.709E-02
28	553	.762E-03	4095	.718E-02
29	811	.253E-01	53043	.184E+00
30	545	********	2679	.208E-02
31	616	.677E-02	11508	.339E-01
32	884	.323E-01	39062	.133E+00
33	562	.162E-02	3307	.434E-02
34	593	.457E-02	4449	.846E-02
35	582	.353E-02	4637	.914E-02
36	541	********	2437	.120E-02
37	563	.172E-02	3043	.339E-02
38	560	.143E-02	3045	.340E-02
39	559	.133E-02	2893	.285E-02
40	547	.191E-03	2466	.131E-02
41	576	.295E-02	3098	.359E-02
42	574	.276E-02	3874	.639E-02
43	565	.191E-02	2958	.308E-02
44	562	.162E-02	3158	.380E-02
45	561	.152E-02	3161	.381E-02
46	546	.953E-04	2649	.197E-02
47	539	********	2130	.974E-04

RUN #26

W. D. 045°

	Source Group 6		Source Group 7	
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	589	********	3034	********
2	816	.207E-01	12002	.322E-01
3	4144	.338E+00	133794	.471E+00
4	614	.143E-02	3815	.268E-02
5	619	.191E-02	3569	.180E-02
6	620	.200E-02	3614	.196E-02
7	619	.191E-02	3539	.169E-02
8	613	.133E-02	3534	.167E-02
9	622	.219E-02	3642	.206E-02
10	604	.476E-03	3279	.750E-03
11	640	.391E-02	5346	.820E-02
12	787	.179E-01	12767	.350E-01
13	633	.324E-02	3798	.262E-02
14	648	.467E-02	3601	.191E-02
15	704	.100E-01	4810	.627E-02
16	709	.105E-01	7710	.167E-01
17	667	.648E-02	6222	.114E-01
18	652	.505E-02	5737	.961E-02
19	115175	.109E+02	3562853	.128E+02
20	37770	.354E+01	8655420	.312E+02
21	0	********	130730	.460E+00
22	0	********	8100	.181E-01
23	33523	.314E+01	219888	.782E+00
24	12382	.112E+01	146083	.516E+00
25	602	.286E-03	4095	.369E-02
26	621	.210E-02	3831	.274E-02
27	592	********	3757	.247E-02
28	598	********	3678	.219E-02
29	599	********	3530	.166E-02
30	0	********	306	********
31	608	.858E-03	4091	.368E-02
32	691	.877E-02	13839	.388E-01
33	609	.953E-03	3992	.332E-02
34	637	.362E-02	5396	.838E-02
35	620	.200E-02	4101	.371E-02
36	581	********	3036	********
37	597	********	3682	.220E-02
38	606	.667E-03	3799	.263E-02
39	606	.667E-03	3687	.222E-02
40	595	********	3283	.764E-03
41	619	.191E-02	3870	.288E-02
42	613	.133E-02	4207	.410E-02
43	609	.953E-03	3634	.203E-02
44	607	.762E-03	3796	.261E-02
45	603	.381E-03	3811	.267E-02
46	587	********	3305	.844E-03
47	588	********	3082	.397E-04

RUN #27

W. D. 090°

SAMPLE PT.	Source Group 6 RAW (AREA)	Source Group 6 DIMENSIONLESS CONCENTRATION	Source Group 7 RAW (AREA)	Source Group 7 DIMENSIONLESS CONCENTRATION
1	1207	********	3258	.217E-02
2	2941	.154E+00	41636	.141E+00
3	9056	.737E+00	165020	.585E+00
4	1327	.667E-03	3828	.423E-02
5	1370	.476E-02	3791	.410E-02
6	1776	.434E-01	3516	.310E-02
7	1326	.572E-03	3449	.286E-02
8	1360	.381E-02	4383	.623E-02
9	1336	.152E-02	3644	.357E-02
10	1306	********	3051	.143E-02
11	1320	********	3151	.179E-02
12	1330	.953E-03	3289	.229E-02
13	1330	.953E-03	3520	.312E-02
14	1385	.619E-02	3592	.338E-02
15	1509	.180E-01	4777	.765E-02
16	2358	.989E-01	29353	.963E-01
17	2832	.144E+00	39021	.131E+00
18	2743	.136E+00	36734	.123E+00
19	69312	.648E+01	3554281	.128E+02
20	35010	.321E+01	7818000	.282E+02
21	0	********	62600	.216E+00
22	1354	.324E-02	7258	.166E-01
23	38258	.352E+01	194234	.691E+00
24	22052	.198E+01	133087	.470E+00
25	1311	********	3897	.448E-02
26	1321	.953E-04	4196	.556E-02
27	1304	********	3911	.453E-02
28	1294	********	3593	.338E-02
29	1306	********	4105	.523E-02
30	1294	********	3372	.259E-02
31	1326	.572E-03	4543	.681E-02
32	1334	.133E-02	7656	.180E-01
33	1315	********	3946	.466E-02
34	1377	.543E-02	6967	.155E-01
35	1332	.114E-02	4103	.522E-02
36	1257	********	3089	.156E-02
37	1299	********	3640	.355E-02
38	1300	********	3852	.432E-02
39	1312	********	3716	.383E-02
40	1294	********	3043	.140E-02
41	1408	.838E-02	7024	.158E-01
42	1388	.648E-02	7645	.180E-01
43	1312	********	3638	.354E-02
44	1325	.476E-03	3892	.446E-02
45	0	********	229	********
46	1292	********	3102	.161E-02
47	1309	********	2817	.584E-03

RUN #28

W. D. 135^{o}

SAMPLE PT.	Source Group 6 RAW (AREA)	Source Group 6 DIMENSIONLESS CONCENTRATION	Source Group 7 RAW (AREA)	Source Group 7 DIMENSIONLESS CONCENTRATION
1	929	*********	3134	.905E-03
2	10700	.929E+00	290304	.104E+01
3	7431	.618E+00	178182	.632E+00
4	964	.152E-02	3632	.270E-02
5	1101	.146E-01	7440	.164E-01
6	971	.219E-02	3350	.168E-02
7	957	.858E-03	3331	.162E-02
8	970	.210E-02	3598	.258E-02
9	1008	.572E-02	5191	.832E-02
10	3877	.279E+00	170854	.606E+00
11	7152	.591E+00	349974	.125E+01
12	12333	.108E+01	567040	.203E+01
13	1004	.534E-02	4635	.632E-02
14	1025	.734E-02	3655	.278E-02
15	2444	.143E+00	48839	.166E+00
16	9418	.807E+00	285585	.102E+01
17	12864	.114E+01	374839	.134E+01
18	12393	.109E+01	358704	.128E+01
19	447261	.425E+02	3403915	.123E+02
20	8750	.743E+00	1973450	.711E+01
21	1294	.330E-01	10353	.269E-01
22	1015	.638E-02	4529	.594E-02
23	1174	.215E-01	4930	.738E-02
24	1017	.657E-02	4537	.596E-02
25	977	.276E-02	3444	.202E-02
26	985	.353E-02	3458	.207E-02
27	981	.314E-02	3923	.375E-02
28	978	.286E-02	3875	.358E-02
29	1229	.268E-01	28447	.922E-01
30	966	.172E-02	3324	.159E-02
31	1063	.110E-01	7789	.177E-01
32	1460	.488E-01	28080	.909E-01
33	6070	.488E+00	273057	.974E+00
34	4345	.324E+00	173462	.615E+00
35	1157	.199E-01	14110	.405E-01
36	2164	.116E+00	71448	.247E+00
37	3865	.278E+00	166300	.589E+00
38	3978	.289E+00	170782	.605E+00
39	2828	.179E+00	102537	.359E+00
40	2514	.149E+00	71734	.248E+00
41	1117	.161E-01	5472	.934E-02
42	2159	.115E+00	62314	.214E+00
43	2532	.151E+00	89534	.312E+00
44	3720	.264E+00	157674	.558E+00
45	3997	.291E+00	171833	.609E+00
46	983	.333E-02	3696	.293E-02
47	964	.152E-02	2930	.169E-03

RUN #29

W. D. 180°

		Source Group 6		Source Group 7
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	779	********	2421	********
2	811	********	4061	.557E-02
3	818	********	4340	.657E-02
4	776	********	2610	.335E-03
5	778	********	2637	.433E-03
6	776	********	2641	.447E-03
7	779	********	2628	.400E-03
8	770	********	2567	.180E-03
9	780	********	2646	.465E-03
10	1723	.861E-01	59456	.205E+00
11	1220	.382E-01	34860	.117E+00
12	1187	.351E-01	36140	.121E+00
13	788	********	2742	.811E-03
14	797	********	2614	.350E-03
15	864	.429E-02	3746	.443E-02
16	851	.305E-02	5401	.104E-01
17	845	.248E-02	5375	.103E-01
18	850	.295E-02	5627	.112E-01
19	28270	.262E+01	2198260	.792E+01
20	15210	.137E+01	745730	.268E+01
21	824	.476E-03	4734	.799E-02
22	775	********	2956	.158E-02
23	818	********	3022	.182E-02
25	801	********	2645	.462E-03
26	806	********	2783	.959E-03
27	27359	.253E+01	715635	.257E+01
28	29270	.271E+01	766425	.275E+01
29	18593	.169E+01	253598	.905E+00
30	1929	.106E+00	16369	.499E-01
31	838	.181E-02	5147	.948E-02
32	875	.534E-02	9410	.249E-01
33	1354	.510E-01	53895	.185E+00
34	1262	.422E-01	44483	.151E+00
35	823	.381E-03	4975	.886E-02
36	1393	.547E-01	38927	.131E+00
37	5770	.472E+00	155389	.551E+00
38	5584	.454E+00	151613	.538E+00
39	3380	.244E+00	77456	.270E+00
40	4330	.335E+00	108372	.382E+00
41	826	.667E-03	3610	.394E-02
42	5659	.461E+00	151783	.538E+00
43	2716	.181E+00	66791	.232E+00
44	4913	.390E+00	141194	.500E+00
45	5610	.457E+00	158292	.562E+00
46	969	.143E-01	7257	.171E-01
47	768	********	2388	********

RUN #30

W. D. 225^{o}

SAMPLE PT.	Source Group 6 RAW (AREA)	Source Group 6 DIMENSIONLESS CONCENTRATION	Source Group 7 RAW (AREA)	Source Group 7 DIMENSIONLESS CONCENTRATION
1	605	.613E-02	1583	.425E-02
2	557	.160E-02	700	.110E-02
3	550	.943E-03	1192	.286E-02
4	560	.189E-02	819	.152E-02
5	556	.151E-02	696	.109E-02
6	552	.113E-02	697	.109E-02
7	559	.179E-02	784	.140E-02
8	553	.123E-02	763	.132E-02
9	553	.123E-02	691	.107E-02
10	551	.104E-02	942	.196E-02
11	549	.849E-03	848	.163E-02
12	547	.660E-03	970	.206E-02
13	540	********	392	********
14	574	.321E-02	744	.126E-02
15	593	.500E-02	906	.183E-02
16	554	.132E-02	964	.204E-02
17	548	.755E-03	1059	.238E-02
18	543	.283E-03	1006	.219E-02
19	8050	.708E+00	1776040	.634E+01
20	301932	.284E+02	3090943	.110E+02
21	743	.191E-01	10351	.355E-01
22	553	.123E-02	1171	.278E-02
23	555	.141E-02	1052	.236E-02
24	553	.123E-02	1063	.240E-02
25	7326	.640E+00	124311	.442E+00
26	4814	.403E+00	75732	.269E+00
27	25264	.233E+01	1056948	.377E+01
28	30357	.281E+01	1346212	.480E+01
29	1017	.450E-01	78349	.278E+00
30	9650	.859E+00	168105	.599E+00
31	560	.189E-02	1647	.448E-02
32	562	.208E-02	1066	.241E-02
33	562	.208E-02	2865	.883E-02
34	659	.112E-01	3438	.109E-01
35	550	.943E-03	869	.170E-02
36	581	.387E-02	2610	.792E-02
37	788	.234E-01	32771	.116E+00
38	763	.210E-01	31314	.110E+00
39	682	.134E-01	17803	.621E-01
40	734	.183E-01	5581	.185E-01
41	640	.943E-02	2412	.721E-02
42	840	.283E-01	18227	.637E-01
43	614	.698E-02	11155	.384E-01
44	770	.217E-01	34176	.121E+00
45	757	.205E-01	32584	.115E+00
46	20325	.187E+01	566753	.202E+01
47	559	.179E-02	1175	.279E-02

RUN #31

W. D. 270°

SAMPLE PT.	Source Group 6 RAW (AREA)	Source Group 6 DIMENSIONLESS CONCENTRATION	Source Group 7 RAW (AREA)	Source Group 7 DIMENSIONLESS CONCENTRATION
1	593	.368E-02	2129	.249E-02
2	560	.566E-03	1403	********
3	555	.943E-04	1741	.110E-02
4	577	.217E-02	1632	.714E-03
5	569	.141E-02	1524	.328E-03
6	567	.123E-02	1564	.471E-03
7	571	.160E-02	1598	.593E-03
8	566	.113E-02	1565	.475E-03
9	562	.755E-03	1509	.275E-03
10	556	.189E-03	1446	.500E-04
11	554	********	1432	********
12	556	.189E-03	1619	.667E-03
13	564	.943E-03	1491	.211E-03
14	585	.292E-02	1524	.328E-03
15	604	.472E-02	1480	.171E-03
16	567	.123E-02	1627	.696E-03
17	561	.660E-03	1720	.103E-02
18	557	.283E-03	1650	.778E-03
19	4051	.330E+00	715521	.255E+01
20	210810	.198E+02	3302139	.118E+02
21	715	.152E-01	14956	.483E-01
22	573	.179E-02	1800	.131E-02
23	1295	.699E-01	2550	.399E-02
24	1816	.119E+00	2290	.306E-02
25	13357	.121E+01	152947	.541E+00
26	13496	.122E+01	162047	.573E+00
27	3371	.266E+00	286268	.102E+01
28	3059	.236E+00	318857	.113E+01
29	634	.755E-02	15446	.500E-01
30	16941	.155E+01	246888	.876E+00
31	567	.123E-02	1923	.175E-02
32	557	.283E-03	1523	.325E-03
33	565	.104E-02	2475	.372E-02
34	639	.802E-02	3410	.706E-02
35	559	.472E-03	1411	********
36	566	.113E-02	2083	.232E-02
37	603	.462E-02	4338	.104E-01
38	601	.443E-02	4366	.105E-01
39	586	.302E-02	3146	.612E-02
40	557	.283E-03	1691	.924E-03
41	630	.717E-02	3102	.596E-02
42	656	.962E-02	5006	.128E-01
43	586	.302E-02	3172	.621E-02
44	608	.509E-02	5010	.128E-01
45	612	.547E-02	5150	.133E-01
46	9165	.812E+00	200190	.709E+00
47	563	.849E-03	1498	.236E-03

RUN #32

W. D. 315°

SAMPLE PT.	Source Group 6 RAW (AREA)	Source Group 6 DIMENSIONLESS CONCENTRATION	Source Group 7 RAW (AREA)	Source Group 7 DIMENSIONLESS CONCENTRATION
1	596	.236E-02	2711	.276E-02
2	575	.377E-03	2170	.832E-03
3	571	********	2431	.176E-02
4	602	.292E-02	2739	.286E-02
5	593	.208E-02	2665	.260E-02
6	601	.283E-02	2701	.273E-02
7	600	.274E-02	2757	.293E-02
8	599	.264E-02	2720	.279E-02
9	602	.292E-02	2693	.270E-02
10	576	.472E-03	2271	.119E-02
11	575	.377E-03	2246	.110E-02
12	574	.283E-03	2334	.142E-02
13	562	********	1639	********
14	620	.462E-02	2726	.282E-02
15	630	.557E-02	3068	.404E-02
16	608	.349E-02	2893	.341E-02
17	579	.755E-03	2532	.212E-02
18	573	.189E-03	2476	.192E-02
19	2943	.224E+00	602174	.214E+01
20	9623	.854E+00	5525020	.197E+02
21	670	.934E-02	13051	.397E-01
22	634	.594E-02	4232	.819E-02
23	21913	.201E+01	134627	.474E+00
24	128609	.121E+02	716545	.255E+01
25	25943	.239E+01	445334	.158E+01
26	19655	.180E+01	290948	.103E+01
27	978	.384E-01	31617	.106E+00
28	978	.384E-01	34440	.116E+00
29	661	.849E-02	15713	.492E-01
30	12633	.114E+01	175654	.620E+00
31	608	.349E-02	2948	.361E-02
32	591	.189E-02	2701	.273E-02
33	582	.104E-02	2770	.297E-02
34	708	.129E-01	4276	.835E-02
35	593	.208E-02	2793	.306E-02
36	588	.160E-02	2626	.246E-02
37	585	.132E-02	2692	.269E-02
38	581	.943E-03	2739	.286E-02
39	582	.104E-02	2598	.236E-02
40	572	.943E-04	2341	.144E-02
41	677	.100E-01	3914	.706E-02
42	689	.111E-01	3996	.735E-02
43	584	.123E-02	2635	.249E-02
44	577	.566E-03	2715	.278E-02
45	579	.755E-03	2822	.316E-02
47	586	.141E-02	2278	.122E-02

RUN #33

W. D. 000^o

SAMPLE PT.	Source Group 11 RAW (AREA)	Source Group 11 DIMENSIONLESS CONCENTRATION	Source Group 9 RAW (AREA)	Source Group 9 DIMENSIONLESS CONCENTRATION
1	2723	.727E-02	245	.454E-02
2	1348	.197E-02	193	.335E-02
3	5476	.179E-01	1529	.340E-01
4	1819	.378E-02	207	.367E-02
5	1703	.333E-02	192	.333E-02
6	1815	.377E-02	211	.376E-02
7	1813	.376E-02	210	.374E-02
8	1878	.401E-02	207	.367E-02
9	1790	.367E-02	207	.367E-02
10	1612	.298E-02	129	.188E-02
11	1932	.422E-02	206	.365E-02
12	11344	.405E-01	2770	.625E-01
13	1822	.379E-02	222	.402E-02
14	1797	.370E-02	212	.379E-02
15	1468	.243E-02	173	.289E-02
16	1690	.328E-02	301	.583E-02
17	1216	.146E-02	244	.452E-02
18	1153	.121E-02	229	.418E-02
19	816713	.315E+01	293222	.673E+01
20	540179	.208E+01	63687	.146E+01
21	612103	.236E+01	321337	.737E+01
22	52809	.200E+00	21730	.498E+00
23	71458	.272E+00	14306	.327E+00
24	94709	.362E+00	18459	.422E+00
25	90638	.346E+00	3065	.693E-01
26	139808	.536E+00	5905	.134E+00
27	666099	.256E+01	5769	.131E+00
28	637333	.245E+01	6324	.144E+00
29	1127314	.434E+01	577802	.133E+02
30	64678	.246E+00	980	.214E-01
31	1717930	.662E+01	367650	.844E+01
32	1081070	.416E+01	364940	.837E+01
33	508210	.196E+01	1013810	.233E+02
34	238830	.917E+00	692920	.159E+02
35	976090	.376E+01	111520	.256E+01
36	47020	.178E+00	0	********
37	4874900	.188E+02	0	********
38	6210050	.239E+02	0	********
39	5647650	.218E+02	0	********
40	1672910	.645E+01	0	********
41	191660	.736E+00	0	********
42	8763970	.338E+02	0	********
43	12308950	.474E+02	0	********
44	5450370	.210E+02	0	********
45	6580210	.254E+02	0	********
46	101560	.388E+00	633	.134E-01
47	2632	.692E-02	140	.213E-02

RUN #34

W. D. 045°

SAMPLE PT.	Source Group 11 RAW (AREA)	Source Group 11 DIMENSIONLESS CONCENTRATION	Source Group 9 RAW (AREA)	Source Group 9 DIMENSIONLESS CONCENTRATION
1	1700	.340E-02	177	.285E-02
2	65101	.248E+00	12416	.284E+00
3	482512	.186E+01	114584	.263E+01
4	1897	.416E-02	331	.638E-02
5	1901	.417E-02	308	.585E-02
6	1533	.276E-02	183	.298E-02
7	1481	.256E-02	168	.264E-02
9	2018	.463E-02	351	.684E-02
10	16728	.613E-01	155	.234E-02
11	28535	.107E+00	4149	.940E-01
12	113355	.434E+00	27354	.626E+00
13	1607	.304E-02	232	.411E-02
14	1559	.286E-02	174	.278E-02
15	14133	.513E-01	1628	.361E-01
16	28256	.106E+00	7638	.174E+00
17	31909	.120E+00	5768	.131E+00
18	26968	.101E+00	4323	.980E-01
19	559160	.215E+01	127226	.292E+01
20	29073	.109E+00	3513	.794E-01
21	316679	.122E+01	100891	.231E+01
22	59585	.227E+00	16854	.386E+00
23	96918	.370E+00	8965	.205E+00
24	77298	.295E+00	8852	.202E+00
25	10502	.373E-01	221	.386E-02
26	15496	.566E-01	203	.344E-02
27	544655	.210E+01	0	********
28	493045	.190E+01	0	********
29	1788200	.689E+01	614620	.141E+02
30	8436	.294E-01	1217	.267E-01
31	2410870	.929E+01	259890	.596E+01
32	1171880	.451E+01	336960	.773E+01
33	197890	.760E+00	888250	.204E+02
34	202300	.777E+00	962170	.221E+02
35	832160	.320E+01	55380	.127E+01
36	39550	.149E+00	0	********
37	5696190	.220E+02	0	********
38	7403000	.285E+02	0	********
39	7062340	.272E+02	0	********
40	2154690	.830E+01	0	********
41	239180	.919E+00	0	********
42	8180770	.315E+02	0	********
43	11546870	.445E+02	0	********
44	3902400	.150E+02	0	********
45	4475440	.172E+02	0	********
46	12195	.439E-01	534	.110E-01
47	3022	.850E-02	107	.124E-02

RUN #35

W. D. 090°

SAMPLE PT.	Source Group 11 RAW (AREA)	Source Group 11 DIMENSIONLESS CONCENTRATION	Source Group 9 RAW (AREA)	Source Group 9 DIMENSIONLESS CONCENTRATION
1	1971	.458E-02	217	.498E-02
2	164931	.633E+00	22589	.518E+00
3	585378	.225E+01	100152	.230E+01
4	2426	.633E-02	412	.945E-02
5	2911	.820E-02	393	.902E-02
6	1958	.453E-02	255	.585E-02
7	1939	.446E-02	248	.569E-02
8	2125	.517E-02	254	.583E-02
9	2338	.599E-02	320	.734E-02
10	235110	.903E+00	0	********
11	349308	.134E+01	1171	.269E-01
12	370725	.143E+01	4275	.981E-01
13	2302	.586E-02	253	.581E-02
14	2295	.583E-02	250	.574E-02
15	7796	.270E-01	794	.182E-01
16	90366	.345E+00	12934	.297E+00
17	139711	.536E+00	16515	.379E+00
18	131342	.503E+00	15399	.353E+00
19	28627	.107E+00	12491	.287E+00
20	1884	.424E-02	2762	.634E-01
21	538569	.207E+01	204467	.469E+01
22	22871	.851E-01	6845	.157E+00
23	3764	.115E-01	528	.121E-01
24	3627	.110E-01	672	.154E-01
25	2000	.469E-02	200	.459E-02
26	3323	.979E-02	186	.427E-02
27	173518	.666E+00	534	.123E-01
28	92889	.355E+00	602	.138E-01
29	1060548	.409E+01	1374886	.315E+02
30	2710	.743E-02	2410	.553E-01
31	844879	.325E+01	232864	.534E+01
32	821860	.317E+01	227300	.522E+01
33	594990	.229E+01	116890	.268E+01
34	523660	.202E+01	170740	.392E+01
35	162740	.624E+00	52620	.121E+01
36	214030	.822E+00	0	********
37	6185720	.238E+02	0	********
38	7077590	.273E+02	0	********
39	6215880	.240E+02	0	********
40	2862530	.110E+02	0	********
41	103630	.396E+00	0	********
42	8477480	.327E+02	0	********
43	11706080	.451E+02	0	********
44	2586280	.997E+01	6180	.142E+00
45	2864910	.110E+02	5600	.129E+00
46	8596	.301E-01	495	.114E-01
47	2502	.663E-02	0	********

RUN #36

W. D. 135°

SAMPLE PT.	Source Group 11 RAW (AREA)	Source Group 11 DIMENSIONLESS CONCENTRATION	Source Group 9 RAW (AREA)	Source Group 9 DIMENSIONLESS CONCENTRATION
1	1215	.155E-02	124	.285E-02
2	9856	.349E-01	773	.177E-01
3	4990	.161E-01	496	.114E-01
4	1587	.298E-02	196	.450E-02
5	1881	.412E-02	265	.608E-02
6	1559	.288E-02	191	.438E-02
7	1560	.288E-02	194	.445E-02
8	2251	.554E-02	208	.477E-02
9	1625	.313E-02	207	.475E-02
10	213079	.818E+00	91944	.211E+01
11	122494	.469E+00	56277	.129E+01
12	676360	.260E+01	27989	.642E+00
13	1637	.318E-02	265	.608E-02
14	1605	.305E-02	205	.470E-02
15	24604	.917E-01	4271	.980E-01
16	22961	.854E-01	5503	.126E+00
17	89329	.341E+00	21790	.500E+00
18	95652	.366E+00	22784	.523E+00
19	9323	.328E-01	3093	.710E-01
20	1803	.382E-02	5164	.118E+00
21	3549	.105E-01	232	.532E-02
22	3440	.101E-01	215	.493E-02
23	2119	.503E-02	240	.551E-02
25	1776	.371E-02	283	.649E-02
26	4854	.156E-01	277	.636E-02
27	3034	.856E-02	925	.212E-01
28	2014	.463E-02	806	.185E-01
29	480391	.185E+01	27773	.637E+00
30	3182	.913E-02	342	.785E-02
31	758605	.292E+01	27134	.623E+00
32	69232	.264E+00	2728	.626E-01
33	136215	.522E+00	216675	.497E+01
34	112442	.430E+00	126899	.291E+01
35	146454	.561E+00	5534	.127E+00
36	558190	.215E+01	138890	.319E+01
37	4758430	.183E+02	433250	.994E+01
38	7360110	.284E+02	347950	.798E+01
39	6669760	.257E+02	283220	.650E+01
40	2360730	.910E+01	129380	.297E+01
41	137890	.528E+00	0	********
42	9050970	.349E+02	127880	.293E+01
43	12156450	.469E+02	74120	.170E+01
44	3566210	.137E+02	417510	.958E+01
45	1809210	.697E+01	484450	.111E+02
46	8992	.315E-01	1607	.369E-01
47	2224	.544E-02	249	.571E-02

RUN #37

W. D. 180°

SAMPLE PT.	Source Group 11 RAW (AREA)	Source Group 11 DIMENSIONLESS CONCENTRATION	Source Group 9 RAW (AREA)	Source Group 9 DIMENSIONLESS CONCENTRATION
1	1215	.128E-02	124	.285E-02
2	9856	.346E-01	773	.177E-01
3	4990	.158E-01	496	.114E-01
4	1587	.271E-02	196	.450E-02
5	1881	.385E-02	265	.608E-02
6	1559	.261E-02	191	.438E-02
7	1560	.261E-02	194	.445E-02
8	2251	.527E-02	208	.477E-02
9	1625	.286E-02	207	.475E-02
10	213079	.818E+00	91944	.211E+01
11	122494	.469E+00	56277	.129E+01
12	676360	.260E+01	27989	.642E+00
13	1637	.291E-02	265	.608E-02
14	1605	.278E-02	205	.470E-02
15	24604	.914E-01	4271	.980E-01
16	22961	.851E-01	5503	.126E+00
17	89329	.341E+00	21790	.500E+00
18	95662	.365E+00	22784	.523E+00
19	9323	.325E-01	3093	.710E-01
20	1803	.355E-02	5164	.118E+00
21	3549	.103E-01	232	.532E-02
22	3440	.986E-02	215	.493E-02
23	2119	.476E-02	240	.551E-02
25	1776	.344E-02	283	.649E-02
26	4854	.153E-01	277	.636E-02
27	3034	.829E-02	925	.212E-01
28	2014	.436E-02	806	.185E-01
29	480391	.185E+01	27773	.637E+00
30	3182	.886E-02	342	.785E-02
31	758605	.292E+01	27134	.623E+00
32	69232	.263E+00	2728	.626E-01
33	136215	.522E+00	216675	.497E+01
34	112442	.430E+00	126899	.291E+01
35	146454	.561E+00	5534	.127E+00
36	558190	.215E+01	138890	.319E+01
37	4758430	.183E+02	433250	.994E+01
38	7360110	.284E+02	347950	.798E+01
39	6669760	.257E+02	283220	.650E+01
40	2360730	.910E+01	129380	.297E+01
41	137890	.528E+00	0	********
42	9050970	.349E+02	127880	.293E+01
43	12156450	.469E+02	74120	.170E+01
44	3566210	.137E+02	417510	.958E+01
45	1809210	.697E+01	484450	.111E+02
46	8992	.313E-01	1607	.369E-01
47	2224	.517E-02	249	.571E-02

RUN #38

W. D. 225°

SAMPLE PT.	Source Group 11 RAW (AREA)	Source Group 11 DIMENSIONLESS CONCENTRATION	Source Group 9 RAW (AREA)	Source Group 9 DIMENSIONLESS CONCENTRATION
1	1180	.130E-02	1	.229E-04
2	1121	.107E-02	170	.390E-02
3	925	.316E-03	324	.743E-02
4	1416	.221E-02	169	.388E-02
5	1302	.177E-02	155	.356E-02
6	1390	.211E-02	167	.383E-02
7	1398	.214E-02	169	.388E-02
8	1539	.268E-02	171	.392E-02
9	1363	.200E-02	170	.390E-02
10	8426	.292E-01	1876	.430E-01
11	1156	.121E-02	242	.555E-02
12	1025	.702E-03	179	.411E-02
13	1408	.218E-02	183	.420E-02
14	1364	.201E-02	168	.386E-02
15	1242	.154E-02	179	.411E-02
16	960	.451E-03	251	.576E-02
17	1043	.771E-03	297	.682E-02
18	954	.428E-03	273	.626E-02
19	5898	.195E-01	2844	.653E-01
20	8231	.285E-01	6650	.153E+00
21	958	.443E-03	149	.342E-02
22	1037	.748E-03	1	.229E-04
23	1005	.625E-03	269	.617E-02
24	910	.258E-03	411	.943E-02
25	7097	.241E-01	535	.123E-01
26	21576	.799E-01	832	.191E-01
27	1036394	.399E+01	108955	.250E+01
28	434386	.167E+01	48766	.112E+01
29	14402	.523E-01	904	.207E-01
30	42952	.162E+00	1704	.391E-01
31	1399	.214E-02	161	.369E-02
32	1098	.983E-03	230	.528E-02
33	6690	.225E-01	498830	.114E+02
34	15520	.566E-01	194060	.445E+01
35	10507	.373E-01	525	.120E-01
36	95940	.367E+00	115720	.266E+01
37	5552060	.214E+02	198280	.455E+01
38	5925590	.228E+02	166020	.381E+01
39	5633310	.217E+02	128890	.296E+01
40	5859450	.226E+02	9120	.209E+00
41	166420	.638E+00	1	.229E-04
42	8252470	.318E+02	102840	.236E+01
43	1231810	.475E+01	9381	.215E+00
44	3915950	.151E+02	455020	.104E+02
45	4306660	.166E+02	432440	.992E+01
46	1035311	.399E+01	152100	.349E+01
47	3855	.116E-01	545	.125E-01

RUN #39

W. D. 270°

SAMPLE PT.	Source Group 11 RAW (AREA)	Source Group 11 DIMENSIONLESS CONCENTRATION	Source Group 9 RAW (AREA)	Source Group 9 DIMENSIONLESS CONCENTRATION
1	1408	.246E-02	175	.402E-02
2	825	.212E-03	209	.480E-02
3	726	********	479	.110E-01
4	1360	.227E-02	209	.480E-02
5	1242	.182E-02	202	.464E-02
6	1316	.210E-02	205	.470E-02
7	1341	.220E-02	215	.493E-02
8	1602	.321E-02	224	.514E-02
9	1242	.182E-02	197	.452E-02
10	51143	.194E+00	10760	.247E+00
11	100215	.383E+00	22174	.509E+00
12	7511	.260E-01	2664	.611E-01
13	1374	.233E-02	230	.528E-02
14	1319	.212E-02	213	.489E-02
15	1146	.145E-02	226	.519E-02
16	980	.810E-03	356	.817E-02
17	970	.771E-03	395	.906E-02
18	854	.324E-03	364	.835E-02
19	6708	.229E-01	4568	.105E+00
20	10806	.387E-01	12710	.292E+00
21	787	.655E-04	207	.475E-02
22	815	.173E-03	147	.337E-02
23	1384	.237E-02	442	.101E-01
24	927	.605E-03	837	.192E-01
25	23421	.873E-01	1277	.293E-01
26	99408	.380E+00	3126	.717E-01
27	1142670	.440E+01	79795	.183E+01
28	660284	.254E+01	47812	.110E+01
29	3910	.121E-01	870	.200E-01
30	79396	.303E+00	2735	.628E-01
31	3195	.935E-02	141	.324E-02
32	1467	.269E-02	215	.493E-02
33	956	.717E-03	311	.714E-02
34	1192186	.459E+01	852850	.196E+02
36	1366920	.527E+01	230915	.530E+01
37	5725400	.221E+02	119110	.273E+01
38	6255290	.241E+02	110940	.255E+01
39	5980580	.231E+02	77470	.178E+01
40	3733750	.144E+02	1	.229E-04
41	171990	.660E+00	1	.229E-04
42	7809330	.301E+02	67220	.154E+01
43	12192620	.470E+02	67520	.155E+01
44	4789910	.185E+02	306000	.702E+01
45	5100230	.197E+02	265220	.609E+01
46	492989	.190E+01	43841	.101E+01
47	4107	.129E-01	343	.787E-02

RUN #40

W. D. 315°

SAMPLE PT.	Source Group 11 RAW (AREA)	Source Group 11 DIMENSIONLESS CONCENTRATION	Source Group 9 RAW (AREA)	Source Group 9 DIMENSIONLESS CONCENTRATION
1	1950	.458E-02	1114	.665E-03
2	941	.694E-03	1086	.229E-04
3	919	.609E-03	1339	.583E-02
4	1614	.329E-02	1103	.413E-03
5	1469	.273E-02	1115	.688E-03
6	1565	.310E-02	1096	.252E-03
7	1613	.328E-02	1113	.643E-03
8	1659	.346E-02	1111	.597E-03
9	1550	.304E-02	1113	.643E-03
10	1029	.103E-02	1135	.115E-02
11	2675	.738E-02	1521	.100E-01
12	14461	.528E-01	4105	.693E-01
13	1636	.337E-02	1144	.135E-02
14	1579	.315E-02	1112	.620E-03
15	1296	.206E-02	1114	.665E-03
16	1397	.245E-02	1265	.413E-02
17	1019	.995E-03	1293	.477E-02
18	970	.806E-03	1264	.411E-02
19	60288	.229E+00	32098	.712E+00
20	371503	.143E+01	93922	.213E+01
21	12262	.443E-01	4976	.893E-01
22	4495	.144E-01	1953	.199E-01
23	15445	.566E-01	6263	.119E+00
24	50084	.190E+00	20158	.438E+00
25	105950	.406E+00	19694	.427E+00
26	113394	.434E+00	17833	.384E+00
27	852829	.328E+01	82180	.186E+01
28	851110	.328E+01	89220	.202E+01
29	170460	.654E+00	144460	.329E+01
30	115120	.441E+00	16420	.352E+00
31	58840	.224E+00	6740	.130E+00
32	3420	.103E-01	3220	.490E-01
33	754710	.291E+01	764060	.175E+02
34	246820	.949E+00	337370	.772E+01
35	6830	.234E-01	2970	.433E-01
36	203970	.783E+00	4010	.671E-01
37	3842270	.148E+02	1	********
38	5060440	.195E+02	1	********
39	6074270	.234E+02	1	********
40	3310520	.128E+02	1	********
41	62470	.238E+00	1	********
42	8744110	.337E+02	1	********
43	12206480	.471E+02	1	********
44	6237130	.240E+02	1	********
45	7031650	.271E+02	1	********
46	292160	.112E+01	9310	.189E+00
47	5100	.167E-01	1050	********

RUN #41

W. D. 000°

SAMPLE PT.	Source Group 14 RAW (AREA)	Source Group 14 DIMENSIONLESS CONCENTRATION	Source Group 15 RAW (AREA)	Source Group 15 DIMENSIONLESS CONCENTRATION
1	751	.258E-02	169	********
2	1761	.548E-01	56893	.273E+01
3	2559	.960E-01	61332	.294E+01
4	1243	.280E-01	365	.693E-02
5	1519	.423E-01	1477	.605E-01
6	1830	.583E-01	303	.395E-02
7	1441	.382E-01	259	.183E-02
8	701	********	277	.270E-02
9	1926	.633E-01	851	.303E-01
10	1227758	.634E+02	3830	.174E+00
11	1561397	.806E+02	20016	.953E+00
12	676137	.349E+02	36869	.176E+01
13	1696	.514E-01	294	.351E-02
14	2392	.874E-01	332	.534E-02
15	1872	.605E-01	22792	.109E+01
16	3522	.146E+00	110832	.533E+01
17	1868	.603E-01	21923	.104E+01
18	2405	.881E-01	19209	.914E+00
19	47518	.242E+01	11654	.550E+00
20	17941	.891E+00	4172	.190E+00
21	5738	.260E+00	6790	.316E+00
22	2012	.677E-01	1003	.377E-01
23	5391	.242E+00	2455	.108E+00
24	9087	.433E+00	3144	.141E+00
25	868	.863E-02	262	.197E-02
26	1252	.285E-01	295	.356E-02
27	1757	.546E-01	2187	.947E-01
28	2234	.792E-01	2184	.945E-01
29	3575	.149E+00	7808	.365E+00
30	1126	.220E-01	296	.361E-02
31	2224	.787E-01	7600	.355E+00
32	3753	.158E+00	8201	.384E+00
33	1726	.530E-01	3520	.159E+00
34	1830	.583E-01	1770	.746E-01
35	1168	.241E-01	1870	.794E-01
36	1479	.402E-01	254	.159E-02
37	2856	.111E+00	4975	.229E+00
38	2536	.948E-01	5744	.266E+00
39	2935	.115E+00	3714	.168E+00
40	1093	.203E-01	233	.578E-03
41	865	.847E-02	221	********
42	2800	.108E+00	266	.217E-02
43	4852	.215E+00	5499	.254E+00
44	2757	.106E+00	8366	.392E+00
45	1	********	12124	.573E+00
46	2084	.715E-01	379	.761E-02
47	688	********	191	********

RUN #42

W. D. 045°

SAMPLE PT.	Source Group 14 RAW (AREA)	Source Group 14 DIMENSIONLESS CONCENTRATION	Source Group 15 RAW (AREA)	Source Group 15 DIMENSIONLESS CONCENTRATION
1	686	.124E-02	196	********
2	3161	.129E+00	21559	.103E+01
3	11345	.552E+00	19176	.913E+00
4	786	.641E-02	320	.501E-02
5	761	.512E-02	1181	.465E-01
6	779	.605E-02	285	.332E-02
7	793	.677E-02	293	.371E-02
8	705	.222E-02	328	.539E-02
9	765	.532E-02	421	.987E-02
10	19493	.973E+00	259	.207E-02
11	2853050	.147E+03	27970	.134E+01
12	125280	.644E+01	89380	.429E+01
14	935	.141E-01	306	.433E-02
15	1175	.265E-01	26425	.126E+01
16	1839	.608E-01	74928	.360E+01
17	1940	.660E-01	60125	.288E+01
18	1498	.432E-01	44404	.213E+01
19	12803	.627E+00	1917	.819E-01
20	795	.687E-02	1104	.428E-01
21	3225	.132E+00	4697	.216E+00
22	1089	.221E-01	653	.210E-01
23	2441	.919E-01	1619	.676E-01
24	3448	.144E+00	2650	.117E+00
25	708	.238E-02	280	.308E-02
26	722	.310E-02	270	.260E-02
27	789	.656E-02	803	.283E-01
28	761	.512E-02	755	.260E-01
29	1762	.568E-01	4446	.204E+00
30	735	.377E-02	292	.366E-02
31	966	.157E-01	10497	.495E+00
32	1021	.186E-01	7765	.363E+00
33	921	.134E-01	2373	.104E+00
34	1918	.649E-01	1814	.769E-01
35	887	.116E-01	1944	.832E-01
36	725	.326E-02	282	.318E-02
37	2518	.959E-01	14408	.683E+00
38	2338	.866E-01	15062	.715E+00
39	1856	.617E-01	9333	.439E+00
40	1084	.218E-01	304	.424E-02
41	755	.481E-02	302	.414E-02
42	2723	.107E+00	341	.602E-02
43	17781	.885E+00	761	.262E-01
44	1875	.627E-01	33555	.161E+01
45	2045	.715E-01	32167	.154E+01
46	736	.382E-02	399	.881E-02
47	662	********	248	.154E-02

RUN #43

W. D. 090°

SAMPLE PT.	Source Group 14 RAW (AREA)	Source Group 14 DIMENSIONLESS CONCENTRATION	Source Group 15 RAW (AREA)	Source Group 15 DIMENSIONLESS CONCENTRATION
1	606	********	182	.289E-03
2	6477	.303E+00	14495	.689E+00
3	7959	.379E+00	14336	.682E+00
4	729	.579E-02	280	.501E-02
5	734	.605E-02	1485	.630E-01
6	686	.357E-02	258	.395E-02
7	711	.486E-02	268	.443E-02
8	717	.517E-02	383	.997E-02
9	707	.465E-02	462	.138E-01
10	12911	.635E+00	693	.249E-01
11	163892	.844E+01	1229	.507E-01
12	2356	.899E-01	1311	.546E-01
13	634	.878E-03	177	.481E-04
14	716	.512E-02	299	.592E-02
15	1069	.234E-01	4403	.204E+00
16	5480	.251E+00	74440	.358E+01
17	16517	.822E+00	92834	.446E+01
18	15974	.794E+00	87675	.421E+01
19	1028	.212E-01	1452	.614E-01
20	660	.222E-02	1354	.567E-01
21	910	.151E-01	1413	.596E-01
22	683	.341E-02	306	.626E-02
23	673	.289E-02	375	.958E-02
24	659	.217E-02	297	.583E-02
25	634	.878E-03	243	.323E-02
26	663	.238E-02	246	.337E-02
27	707	.465E-02	763	.283E-01
28	688	.367E-02	552	.181E-01
29	1255	.330E-01	6007	.281E+00
30	649	.165E-02	260	.404E-02
31	834	.112E-01	2887	.131E+00
32	805	.971E-02	1843	.803E-01
33	700	.429E-02	1698	.733E-01
34	775	.816E-02	1500	.637E-01
35	759	.734E-02	509	.160E-01
36	665	.248E-02	424	.119E-01
37	2379	.911E-01	19038	.908E+00
38	2294	.867E-01	21190	.101E+01
39	1823	.623E-01	12626	.599E+00
40	1048	.223E-01	294	.568E-02
41	794	.915E-02	330	.741E-02
42	2199	.818E-01	398	.107E-01
43	3727	.161E+00	8278	.390E+00
44	1604	.510E-01	16909	.806E+00
45	1737	.579E-01	15590	.742E+00
46	664	.243E-02	325	.717E-02
47	632	.775E-03	218	.202E-02

RUN #44

W. D. 135^o

SAMPLE PT.	Source Group 14 RAW (AREA)	Source Group 14 DIMENSIONLESS CONCENTRATION	Source Group 15 RAW (AREA)	Source Group 15 DIMENSIONLESS CONCENTRATION
1	593	********	157	.337E-03
2	1574	.497E-01	10479	.497E+00
3	774	.832E-02	723	.276E-01
4	687	.382E-02	223	.351E-02
5	781	.868E-02	1191	.501E-01
6	653	.207E-02	225	.361E-02
7	681	.351E-02	221	.342E-02
8	670	.295E-02	320	.819E-02
9	717	.537E-02	812	.319E-01
10	24217	.122E+01	2314	.104E+00
11	53316	.272E+01	5003	.234E+00
12	61381	.314E+01	8469	.401E+00
13	727	.589E-02	245	.457E-02
14	675	.320E-02	250	.481E-02
15	2540	.996E-01	7977	.377E+00
16	7952	.379E+00	67508	.324E+01
17	29750	.151E+01	57280	.275E+01
18	28098	.142E+01	51689	.248E+01
19	654	.212E-02	760	.294E-01
20	619	.310E-03	703	.266E-01
21	642	.150E-02	256	.510E-02
22	631	.930E-03	211	.294E-02
23	621	.413E-03	261	.534E-02
24	638	.129E-02	218	.327E-02
25	608	********	190	.193E-02
26	623	.517E-03	196	.221E-02
27	684	.367E-02	262	.539E-02
28	656	.222E-02	258	.520E-02
29	3298	.139E+00	570	.202E-01
30	618	.258E-03	198	.231E-02
31	743	.672E-02	293	.689E-02
32	842	.118E-01	352	.973E-02
33	24926	.126E+01	2835	.129E+00
34	13611	.672E+00	1645	.720E-01
35	705	.475E-02	225	.361E-02
36	7688	.366E+00	1076	.446E-01
37	17632	.879E+00	6346	.298E+00
38	17591	.877E+00	5542	.260E+00
39	11350	.555E+00	2605	.118E+00
40	6245	.291E+00	4230	.196E+00
41	759	.754E-02	271	.583E-02
42	7610	.362E+00	10529	.500E+00
43	10830	.528E+00	1671	.732E-01
44	16972	.845E+00	2784	.127E+00
45	18179	.908E+00	3479	.160E+00
46	681	.351E-02	247	.467E-02
47	609	********	175	.120E-02

RUN #45

W. D. 180°

SAMPLE PT.	Source Group 14 RAW (AREA)	Source Group 14 DIMENSIONLESS CONCENTRATION	Source Group 15 RAW (AREA)	Source Group 15 DIMENSIONLESS CONCENTRATION
1	785	.233E-02	289	********
2	1499	.392E-01	115297	.554E+01
3	1011	.140E-01	40276	.192E+01
4	851	.574E-02	525	.101E-01
5	822	.424E-02	2197	.906E-01
6	802	.320E-02	408	.448E-02
7	840	.517E-02	501	.896E-02
8	807	.346E-02	506	.920E-02
9	808	.351E-02	1583	.611E-01
10	556261	.287E+02	46739	.224E+01
11	1581753	.817E+02	27153	.129E+01
12	4050	.171E+00	18080	.855E+00
13	1193	.234E-01	515	.963E-02
14	897	.811E-02	2171	.894E-01
15	2127	.717E-01	100907	.484E+01
16	2709	.102E+00	144831	.696E+01
17	2047	.675E-01	125520	.603E+01
18	2256	.783E-01	126782	.609E+01
19	782	.217E-02	1093	.375E-01
20	785	.233E-02	911	.287E-01
21	793	.274E-02	453	.664E-02
22	791	.264E-02	407	.443E-02
23	786	.238E-02	411	.462E-02
24	772	.165E-02	384	.332E-02
25	770	.155E-02	365	.241E-02
26	1013	.141E-01	376	.294E-02
27	1012	.141E-01	424	.525E-02
28	1010	.140E-01	427	.539E-02
29	11809	.572E+00	721	.195E-01
30	1723	.508E-01	377	.299E-02
31	855	.594E-02	430	.554E-02
32	810	.362E-02	585	.130E-01
33	957	.112E-01	663	.168E-01
34	1622	.456E-01	617	.145E-01
35	803	.326E-02	393	.376E-02
36	1975	.638E-01	737	.203E-01
37	3848	.161E+00	2855	.122E+00
38	3641	.150E+00	2390	.999E-01
39	2455	.886E-01	1376	.511E-01
40	4420	.190E+00	4543	.204E+00
41	1682	.487E-01	466	.727E-02
42	5075	.224E+00	4824	.217E+00
43	3334	.134E+00	1521	.581E-01
44	3108	.122E+00	2536	.107E+00
45	3554	.145E+00	2801	.120E+00
46	1510	.398E-01	449	.645E-02
47	764	.124E-02	348	.159E-02

RUN #46

W. D. 225^o

SAMPLE PT.	Source Group 14 RAW (AREA)	Source Group 14 DIMENSIONLESS CONCENTRATION	Source Group 15 RAW (AREA)	Source Group 15 DIMENSIONLESS CONCENTRATION
1	648	.196E-02	186	.241E-03
2	766	.806E-02	27562	.132E+01
3	664	.279E-02	6846	.321E+00
4	661	.264E-02	226	.217E-02
5	616	.310E-03	1461	.616E-01
6	615	.258E-03	234	.255E-02
7	650	.207E-02	243	.299E-02
8	620	.517E-03	225	.212E-02
9	623	.672E-03	1213	.497E-01
10	310876	.160E+02	77637	.373E+01
11	1639080	.847E+02	56679	.272E+01
12	4500	.201E+00	61508	.295E+01
13	896	.148E-01	325	.693E-02
14	675	.336E-02	1807	.783E-01
15	872	.135E-01	29005	.139E+01
16	1226	.318E-01	104273	.501E+01
17	1492	.456E-01	149309	.718E+01
18	1406	.411E-01	137864	.663E+01
19	692	.424E-02	994	.391E-01
20	663	.274E-02	793	.295E-01
21	661	.264E-02	287	.510E-02
22	627	.878E-03	215	.164E-02
23	638	.145E-02	309	.616E-02
24	627	.878E-03	240	.284E-02
25	636	.134E-02	231	.241E-02
26	1521	.471E-01	302	.583E-02
27	16183	.805E+00	3051	.138E+00
28	18869	.944E+00	1464	.618E-01
29	15884	.789E+00	1882	.819E-01
30	2170	.806E-01	297	.559E-02
31	730	.620E-02	2314	.103E+00
32	763	.791E-02	12690	.602E+00
33	1035	.220E-01	23614	.113E+01
34	1947	.691E-01	12658	.601E+00
35	689	.408E-02	3079	.140E+00
36	2919	.119E+00	6710	.314E+00
37	8397	.402E+00	22761	.109E+01
38	7988	.381E+00	21579	.103E+01
39	5152	.235E+00	12853	.610E+00
40	3208	.134E+00	13203	.627E+00
41	1611	.517E-01	362	.871E-02
42	9060	.437E+00	16375	.780E+00
43	4200	.186E+00	14618	.695E+00
44	7077	.334E+00	39988	.192E+01
45	6429	.301E+00	37292	.179E+01
46	9220	.445E+00	8857	.418E+00
47	637	.140E-02	212	.149E-02

RUN #47

W. D. 270°

SAMPLE PT.	Source Group 14 RAW (AREA)	Source Group 14 DIMENSIONLESS CONCENTRATION	Source Group 15 RAW (AREA)	Source Group 15 DIMENSIONLESS CONCENTRATION
1	646	.326E-02	172	.106E-02
2	996	.213E-01	73851	.355E+01
3	691	.558E-02	19365	.925E+00
4	632	.253E-02	225	.361E-02
5	607	.124E-02	3334	.153E+00
6	598	.775E-03	259	.525E-02
7	628	.233E-02	190	.193E-02
8	600	.878E-03	655	.243E-01
9	654	.367E-02	11142	.529E+00
10	89745	.461E+01	37494	.180E+01
11	1678739	.867E+02	18945	.905E+00
12	51118	.261E+01	38023	.182E+01
13	1101	.268E-01	242	.443E-02
14	698	.594E-02	1844	.816E-01
15	942	.186E-01	37679	.181E+01
16	980	.205E-01	60799	.292E+01
17	1124	.280E-01	93811	.451E+01
18	1074	.254E-01	81794	.393E+01
19	657	.382E-02	1362	.584E-01
20	802	.113E-01	2197	.986E-01
21	624	.212E-02	262	.539E-02
22	608	.129E-02	211	.294E-02
23	625	.217E-02	295	.698E-02
24	609	.134E-02	203	.255E-02
25	721	.713E-02	325	.843E-02
26	1441	.443E-01	410	.125E-01
27	90038	.462E+01	24248	.116E+01
28	104287	.536E+01	25163	.120E+01
29	18619	.932E+00	19827	.947E+00
30	6111	.286E+00	1362	.584E-01
31	689	.548E-02	1684	.739E-01
32	701	.610E-02	12111	.576E+00
33	4832	.220E+00	29687	.142E+01
34	2706	.110E+00	7011	.330E+00
35	636	.274E-02	1498	.649E-01
36	3317	.141E+00	14868	.709E+00
37	4732	.214E+00	33611	.161E+01
38	4491	.202E+00	31039	.149E+01
39	2786	.114E+00	16400	.782E+00
40	1294	.367E-01	7486	.353E+00
41	1536	.492E-01	440	.140E-01
42	5273	.242E+00	27455	.131E+01
43	3385	.145E+00	19848	.948E+00
44	4064	.180E+00	39285	.188E+01
45	4182	.186E+00	44909	.216E+01
46	13096	.647E+00	13097	.623E+00
47	594	.568E-03	203	.255E-02

RUN #48

W. D. 315°

SAMPLE PT.	Source Group 14 RAW (AREA)	Source Group 14 DIMENSIONLESS CONCENTRATION	Source Group 15 RAW (AREA)	Source Group 15 DIMENSIONLESS CONCENTRATION
1	653	.300E-02	182	.674E-03
2	644	.253E-02	6513	.306E+00
3	633	.196E-02	4566	.212E+00
4	696	.522E-02	251	.400E-02
5	674	.408E-02	3959	.183E+00
6	662	.346E-02	255	.419E-02
7	683	.455E-02	251	.400E-02
8	689	.486E-02	803	.306E-01
9	661	.341E-02	996	.399E-01
10	180996	.932E+01	20719	.990E+00
11	1621390	.838E+02	31624	.151E+01
12	25681	.130E+01	88042	.423E+01
13	829	.121E-01	480	.150E-01
14	730	.698E-02	307	.669E-02
15	734	.718E-02	9276	.439E+00
16	976	.197E-01	54991	.264E+01
17	717	.630E-02	12258	.582E+00
18	672	.398E-02	6544	.307E+00
19	3057	.127E+00	68431	.329E+01
20	10496	.512E+00	32961	.158E+01
21	1169	.297E-01	40453	.194E+01
22	815	.114E-01	12682	.603E+00
23	2515	.992E-01	8307	.392E+00
24	3537	.152E+00	23755	.114E+01
25	9039	.436E+00	11673	.554E+00
26	9091	.439E+00	9861	.467E+00
27	63044	.323E+01	14456	.688E+00
28	63401	.325E+01	14937	.711E+00
29	16624	.828E+00	20379	.973E+00
30	10242	.499E+00	7543	.355E+00
31	5222	.239E+00	9839	.466E+00
32	804	.108E-01	5367	.250E+00
33	19796	.992E+00	12656	.601E+00
34	8630	.415E+00	4347	.201E+00
35	814	.113E-01	3779	.174E+00
36	15634	.777E+00	1776	.774E-01
37	9130	.441E+00	2250	.100E+00
38	13502	.667E+00	3384	.155E+00
39	12906	.636E+00	2908	.132E+00
40	877	.146E-01	303	.650E-02
41	1560	.499E-01	323	.746E-02
42	3260	.138E+00	579	.198E-01
43	10372	.505E+00	4192	.194E+00
44	10566	.515E+00	4103	.189E+00
45	14150	.700E+00	6737	.316E+00
46	12412	.611E+00	3933	.181E+00
47	620	.129E-02	203	.169E-02

RUN #49

W. D. 000^{o}

SAMPLE PT.	Source 58 RAW (AREA)	Source 58 DIMENSIONLESS CONCENTRATION	Source 59 RAW (AREA)	Source 59 DIMENSIONLESS CONCENTRATION
1	565	********	345	********
2	573	.378E-02	451	.472E-02
3	583	.113E-01	498	.101E-01
4	617	.370E-01	471	.702E-02
5	585	.129E-01	459	.564E-02
6	577	.680E-02	410	********
7	578	.756E-02	431	.242E-02
8	583	.113E-01	437	.311E-02
9	575	.529E-02	449	.449E-02
10	1589	.772E+00	667	.296E-01
11	6634	.459E+01	718	.354E-01
12	1054	.367E+00	967	.641E-01
13	568	********	470	.690E-02
14	598	.227E-01	447	.426E-02
15	622	.408E-01	727	.365E-01
16	588	.151E-01	1482	.123E+00
17	583	.113E-01	1432	.118E+00
18	581	.983E-02	1330	.106E+00
19	654	.650E-01	3257	.327E+00
20	626	.438E-01	3418	.346E+00
21	775	.156E+00	1625	.140E+00
22	585	.129E-01	547	.158E-01
23	689	.915E-01	1394	.113E+00
24	727	.120E+00	1732	.152E+00
25	580	.907E-02	501	.105E-01
26	594	.197E-01	479	.794E-02
27	785	.164E+00	823	.475E-01
28	767	.150E+00	856	.513E-01
29	789	.167E+00	1242	.957E-01
30	586	.136E-01	476	.759E-02
31	785	.164E+00	708	.343E-01
32	772	.154E+00	1427	.117E+00
33	684	.877E-01	1407	.115E+00
34	629	.461E-01	973	.648E-01
35	671	.779E-01	612	.232E-01
36	647	.597E-01	513	.118E-01
37	2170	.121E+01	870	.529E-01
38	2334	.134E+01	788	.435E-01
39	2103	.116E+01	614	.235E-01
40	1207	.483E+00	505	.109E-01
41	618	.378E-01	465	.633E-02
42	2643	.157E+01	607	.227E-01
43	4716	.314E+01	628	.251E-01
44	1692	.850E+00	897	.560E-01
45	1874	.987E+00	992	.669E-01
46	640	.544E-01	593	.211E-01
47	557	********	394	********

RUN #50

W. D. 045°

SAMPLE PT.	Source 58 RAW (AREA)	Source 58 DIMENSIONLESS CONCENTRATION	Source 59 RAW (AREA)	Source 59 DIMENSIONLESS CONCENTRATION
1	484	.227E-02	161	********
2	533	.393E-01	458	.342E-01
3	1083	.455E+00	3764	.414E+00
4	483	.151E-02	181	.230E-02
5	485	.302E-02	174	.150E-02
6	486	.378E-02	177	.184E-02
7	481	********	176	.173E-02
8	482	.756E-03	181	.230E-02
9	485	.302E-02	184	.265E-02
10	512	.234E-01	166	.575E-03
11	758	.209E+00	294	.153E-01
12	864	.290E+00	856	.799E-01
13	485	.302E-02	191	.345E-02
14	487	.454E-02	183	.253E-02
15	498	.129E-01	225	.736E-02
16	521	.302E-01	488	.376E-01
17	506	.189E-01	394	.268E-01
18	504	.174E-01	349	.216E-01
19	491	.756E-02	493	.382E-01
20	487	.454E-02	519	.412E-01
21	493	.907E-02	242	.932E-02
22	485	.302E-02	190	.334E-02
23	523	.318E-01	531	.426E-01
24	548	.507E-01	742	.668E-01
25	483	.151E-02	164	.345E-03
26	482	.756E-03	161	********
27	504	.174E-01	204	.495E-02
28	501	.151E-01	207	.529E-02
29	512	.234E-01	290	.148E-01
30	483	.151E-02	162	.115E-03
31	518	.280E-01	182	.242E-02
32	505	.181E-01	292	.151E-01
33	499	.136E-01	315	.177E-01
34	494	.983E-02	262	.116E-01
35	496	.113E-01	247	.989E-02
36	489	.605E-02	155	********
37	962	.364E+00	247	.989E-02
38	905	.321E+00	234	.840E-02
39	784	.229E+00	199	.437E-02
40	612	.990E-01	169	.920E-03
41	488	.529E-02	190	.334E-02
42	951	.355E+00	189	.322E-02
43	1342	.651E+00	203	.483E-02
44	718	.179E+00	245	.966E-02
45	758	.209E+00	267	.122E-01
46	494	.983E-02	190	.334E-02
47	476	********	141	********

RUN #51

W. D. 090°

SAMPLE PT.	Source 58 RAW (AREA)	Source 58 DIMENSIONLESS CONCENTRATION	Source 59 RAW (AREA)	Source 59 DIMENSIONLESS CONCENTRATION
1	542	.498E-01	108	.590E-02
2	973	.365E+00	2737	.299E+00
3	623	.109E+00	775	.802E-01
4	512	.278E-01	73	.201E-02
5	512	.278E-01	101	.512E-02
6	507	.242E-01	70	.167E-02
7	503	.212E-01	73	.201E-02
9	511	.271E-01	82	.301E-02
10	508	.249E-01	55	********
11	579	.769E-01	63	.891E-03
12	506	.234E-01	66	.123E-02
13	499	.183E-01	83	.312E-02
14	500	.190E-01	74	.212E-02
15	517	.315E-01	147	.102E-01
16	771	.217E+00	1681	.181E+00
17	896	.309E+00	2115	.230E+00
18	868	.288E+00	2004	.217E+00
19	485	.805E-02	342	.320E-01
20	484	.732E-02	371	.352E-01
21	496	.161E-01	80	.279E-02
22	474	********	56	.111E-03
23	491	.124E-01	64	.100E-02
24	489	.110E-01	73	.201E-02
25	488	.103E-01	58	.334E-03
26	491	.124E-01	57	.223E-03
27	503	.212E-01	93	.423E-02
28	502	.205E-01	99	.490E-02
29	506	.234E-01	119	.713E-02
30	489	.110E-01	59	.446E-03
31	510	.264E-01	92	.412E-02
32	502	.205E-01	173	.131E-01
33	883	.299E+00	157	.114E-01
34	499	.183E-01	117	.691E-02
35	500	.190E-01	147	.102E-01
36	494	.146E-01	64	.100E-02
37	747	.200E+00	124	.769E-02
38	733	.190E+00	109	.602E-02
39	665	.140E+00	84	.323E-02
40	569	.696E-01	61	.668E-03
41	492	.132E-01	82	.301E-02
42	769	.216E+00	75	.223E-02
43	998	.384E+00	85	.334E-02
44	631	.115E+00	116	.680E-02
45	648	.127E+00	131	.847E-02
46	502	.205E-01	81	.290E-02
47	492	.132E-01	43	********

RUN #52

W. D. 135^{o}

SAMPLE PT.	Source 58 RAW (AREA)	Source 58 DIMENSIONLESS CONCENTRATION	Source 59 RAW (AREA)	Source 59 DIMENSIONLESS CONCENTRATION
1	497	.146E-01	105	.390E-02
2	494	.124E-01	117	.524E-02
3	492	.110E-01	108	.423E-02
4	489	.879E-02	117	.524E-02
5	492	.110E-01	122	.579E-02
6	486	.659E-02	116	.512E-02
7	487	.732E-02	119	.546E-02
8	486	.659E-02	117	.524E-02
9	489	.879E-02	122	.579E-02
10	491	.103E-01	70	********
11	545	.498E-01	73	.334E-03
12	482	.366E-02	79	.100E-02
13	487	.732E-02	127	.635E-02
14	490	.952E-02	119	.546E-02
15	550	.534E-01	374	.339E-01
16	683	.151E+00	563	.549E-01
17	1020	.398E+00	1506	.160E+00
18	985	.372E+00	1460	.155E+00
19	477	********	309	.266E-01
20	477	********	321	.280E-01
21	488	.805E-02	102	.357E-02
22	485	.586E-02	104	.379E-02
23	487	.732E-02	140	.780E-02
24	487	.732E-02	84	.156E-02
25	482	.366E-02	74	.446E-03
26	482	.366E-02	72	.223E-03
27	490	.952E-02	103	.368E-02
28	490	.952E-02	104	.379E-02
29	507	.220E-01	208	.154E-01
30	481	.293E-02	77	.780E-03
31	496	.139E-01	114	.490E-02
32	492	.110E-01	146	.847E-02
33	491	.103E-01	158	.980E-02
34	510	.242E-01	0	********
35	490	.952E-02	96	.290E-02
36	490	.952E-02	91	.234E-02
37	716	.175E+00	133	.702E-02
38	700	.163E+00	123	.590E-02
39	658	.133E+00	119	.546E-02
40	647	.124E+00	388	.354E-01
41	487	.732E-02	129	.657E-02
42	638	.118E+00	111	.457E-02
43	954	.349E+00	118	.535E-02
44	613	.996E-01	127	.635E-02
45	635	.116E+00	143	.813E-02
46	549	.527E-01	97	.301E-02
47	483	.439E-02	90	.223E-02

RUN #53

W. D. 180°

SAMPLE PT.	Source 58 RAW (AREA)	Source 58 DIMENSIONLESS CONCENTRATION	Source 59 RAW (AREA)	Source 59 DIMENSIONLESS CONCENTRATION
1	485	.513E-02	104	.446E-02
2	501	.168E-01	137	.813E-02
3	487	.659E-02	129	.724E-02
4	484	.439E-02	101	.412E-02
5	487	.659E-02	96	.357E-02
6	481	.220E-02	98	.379E-02
7	483	.366E-02	99	.390E-02
8	485	.513E-02	100	.401E-02
9	483	.366E-02	99	.390E-02
10	1140	.485E+00	1769	.190E+00
11	1027	.402E+00	445	.424E-01
12	520	.308E-01	101	.412E-02
13	482	.293E-02	107	.479E-02
14	485	.513E-02	105	.457E-02
15	621	.105E+00	274	.234E-01
16	685	.152E+00	392	.365E-01
17	603	.915E-01	301	.264E-01
18	624	.107E+00	326	.292E-01
19	485	.513E-02	273	.233E-01
20	484	.439E-02	288	.250E-01
21	482	.293E-02	115	.568E-02
22	485	.513E-02	113	.546E-02
23	483	.366E-02	116	.579E-02
24	481	.220E-02	94	.334E-02
25	482	.293E-02	87	.256E-02
26	481	.220E-02	88	.267E-02
27	491	.952E-02	110	.512E-02
28	489	.805E-02	114	.557E-02
29	502	.176E-01	197	.148E-01
30	481	.220E-02	103	.434E-02
31	498	.146E-01	98	.379E-02
32	492	.103E-01	133	.769E-02
33	489	.805E-02	154	.100E-01
34	485	.513E-02	131	.746E-02
35	491	.952E-02	101	.412E-02
36	494	.117E-01	133	.769E-02
37	674	.144E+00	134	.780E-02
38	666	.138E+00	125	.680E-02
39	622	.105E+00	111	.524E-02
40	573	.696E-01	302	.265E-01
41	486	.586E-02	111	.524E-02
42	710	.170E+00	106	.468E-02
43	883	.297E+00	110	.512E-02
44	596	.864E-01	131	.746E-02
45	607	.945E-01	140	.847E-02
46	484	.439E-02	109	.501E-02
47	477	********	78	.156E-02

RUN #54

W. D. 225^o

SAMPLE PT.	Source 58 RAW (AREA)	Source 58 DIMENSIONLESS CONCENTRATION	Source 59 RAW (AREA)	Source 59 DIMENSIONLESS CONCENTRATION
1	487	.586E-02	107	.368E-02
2	482	.220E-02	123	.546E-02
3	483	.293E-02	121	.524E-02
4	486	.513E-02	111	.412E-02
5	484	.366E-02	102	.312E-02
6	484	.366E-02	110	.401E-02
7	483	.293E-02	110	.401E-02
8	483	.293E-02	111	.412E-02
9	484	.366E-02	108	.379E-02
10	617	.101E+00	0	********
11	611	.966E-01	129	.613E-02
12	706	.166E+00	115	.457E-02
13	479	********	118	.490E-02
14	488	.659E-02	111	.412E-02
15	484	.366E-02	112	.423E-02
16	483	.293E-02	133	.657E-02
17	481	.146E-02	138	.713E-02
18	483	.293E-02	132	.646E-02
19	484	.366E-02	275	.224E-01
20	483	.293E-02	293	.244E-01
21	483	.293E-02	102	.312E-02
22	482	.220E-02	98	.267E-02
23	493	.103E-01	175	.113E-01
24	480	.732E-03	98	.267E-02
25	481	.146E-02	95	.234E-02
26	480	.732E-03	96	.245E-02
27	493	.103E-01	118	.490E-02
28	491	.879E-02	120	.512E-02
29	498	.139E-01	167	.104E-01
30	482	.220E-02	105	.345E-02
31	496	.124E-01	106	.357E-02
32	490	.805E-02	143	.769E-02
33	495	.117E-01	169	.106E-01
34	491	.879E-02	145	.791E-02
35	489	.732E-02	108	.379E-02
36	532	.388E-01	264	.212E-01
37	670	.140E+00	207	.148E-01
38	666	.137E+00	204	.145E-01
39	633	.113E+00	156	.914E-02
40	591	.820E-01	343	.300E-01
41	491	.879E-02	123	.546E-02
42	756	.203E+00	326	.281E-01
43	874	.289E+00	132	.646E-02
44	603	.908E-01	177	.115E-01
45	619	.103E+00	178	.116E-01
46	486	.513E-02	119	.501E-02
47	476	********	89	.167E-02

RUN #55

W. D. 270^{o}

SAMPLE PT.	Source 58 RAW (AREA)	Source 58 DIMENSIONLESS CONCENTRATION	Source 59 RAW (AREA)	Source 59 DIMENSIONLESS CONCENTRATION
1	487	.952E-02	107	.479E-02
2	483	.659E-02	107	.479E-02
3	480	.439E-02	106	.468E-02
4	482	.586E-02	111	.524E-02
5	483	.659E-02	102	.423E-02
6	481	.513E-02	97	.368E-02
7	480	.439E-02	110	.512E-02
8	480	.439E-02	111	.524E-02
9	480	.439E-02	104	.446E-02
10	488	.103E-01	86	.245E-02
11	544	.513E-01	102	.423E-02
12	526	.381E-01	115	.568E-02
13	480	.439E-02	118	.602E-02
14	482	.586E-02	111	.524E-02
15	481	.513E-02	107	.479E-02
16	478	.293E-02	126	.691E-02
17	477	.220E-02	128	.713E-02
18	479	.366E-02	123	.657E-02
19	481	.513E-02	240	.196E-01
20	479	.366E-02	125	.680E-02
21	481	.513E-02	89	.279E-02
22	478	.293E-02	82	.201E-02
23	496	.161E-01	248	.205E-01
24	474	********	95	.345E-02
25	479	.366E-02	105	.457E-02
26	481	.513E-02	113	.546E-02
27	615	.103E+00	498	.484E-01
28	579	.769E-01	358	.328E-01
29	491	.124E-01	130	.735E-02
30	492	.132E-01	165	.113E-01
31	490	.117E-01	93	.323E-02
32	486	.879E-02	143	.880E-02
33	571	.710E-01	261	.219E-01
34	513	.286E-01	174	.123E-01
35	488	.103E-01	94	.334E-02
36	539	.476E-01	177	.126E-01
37	845	.272E+00	421	.398E-01
38	836	.265E+00	427	.404E-01
39	703	.168E+00	239	.195E-01
40	543	.505E-01	101	.412E-02
41	486	.879E-02	124	.568E-02
42	699	.165E+00	269	.228E-01
43	932	.335E+00	226	.180E-01
44	731	.188E+00	341	.309E-01
45	746	.199E+00	357	.326E-01
46	966	.360E+00	1666	.178E+00
47	480	.439E-02	94	.334E-02

RUN #56

W. D. 315°

SAMPLE PT.	Source 58 RAW (AREA)	Source 58 DIMENSIONLESS CONCENTRATION	Source 59 RAW (AREA)	Source 59 DIMENSIONLESS CONCENTRATION
1	486	.952E-02	115	.379E-02
2	476	.220E-02	105	.267E-02
3	480	.513E-02	149	.758E-02
4	482	.659E-02	130	.546E-02
5	483	.732E-02	122	.457E-02
6	477	.293E-02	129	.535E-02
7	480	.513E-02	129	.535E-02
8	478	.366E-02	132	.568E-02
9	483	.732E-02	130	.546E-02
10	494	.154E-01	107	.290E-02
11	539	.483E-01	108	.301E-02
12	489	.117E-01	150	.769E-02
13	475	.146E-02	87	.668E-03
14	486	.952E-02	135	.602E-02
15	486	.952E-02	131	.557E-02
16	480	.513E-02	183	.114E-01
17	473	********	164	.925E-02
18	478	.366E-02	151	.780E-02
19	908	.319E+00	1274	.133E+00
20	1169	.510E+00	3965	.433E+00
21	548	.549E-01	217	.152E-01
22	499	.190E-01	172	.101E-01
23	625	.111E+00	1002	.103E+00
24	963	.359E+00	2433	.262E+00
25	801	.240E+00	2839	.307E+00
26	756	.207E+00	2424	.261E+00
27	543	.513E-01	654	.638E-01
28	552	.578E-01	712	.703E-01
29	530	.417E-01	312	.257E-01
30	683	.154E+00	1829	.195E+00
31	505	.234E-01	178	.108E-01
32	494	.154E-01	269	.209E-01
33	488	.110E-01	213	.147E-01
34	488	.110E-01	177	.107E-01
35	486	.952E-02	209	.143E-01
36	485	.879E-02	133	.579E-02
37	652	.131E+00	158	.858E-02
38	666	.141E+00	145	.713E-02
39	634	.118E+00	128	.524E-02
40	550	.564E-01	113	.357E-02
41	479	.439E-02	146	.724E-02
42	731	.189E+00	127	.512E-02
43	929	.334E+00	137	.624E-02
44	600	.930E-01	151	.780E-02
45	625	.111E+00	171	.100E-01
46	549	.556E-01	770	.768E-01
47	473	********	93	.134E-02

RUN #57

W. D. 000°

SAMPLE PT.	Source Group 10 RAW (AREA)	Source Group 10 DIMENSIONLESS CONCENTRATION	Source 60 RAW (AREA)	Source 60 DIMENSIONLESS CONCENTRATION
1	1265	.292E-02	219	.284E-02
2	1068	.842E-03	205	.151E-02
3	2775	.188E-01	231	.397E-02
4	1176	.198E-02	232	.407E-02
5	1166	.187E-02	232	.407E-02
6	773	********	154	********
7	1178	.200E-02	237	.454E-02
8	1171	.193E-02	229	.378E-02
9	1158	.179E-02	232	.407E-02
10	22277	.224E+00	205	.151E-02
11	18453	.184E+00	464	.260E-01
12	45366	.467E+00	2128	.183E+00
13	1209	.233E-02	244	.520E-02
14	1171	.193E-02	235	.435E-02
15	1064	.800E-03	217	.265E-02
16	1168	.190E-02	256	.634E-02
17	1045	.600E-03	245	.530E-02
18	1033	.474E-03	236	.445E-02
19	182174	.191E+01	524	.317E-01
20	132584	.139E+01	379	.180E-01
21	286980	.301E+01	1	********
22	31797	.324E+00	289	.946E-02
23	29053	.295E+00	1000	.767E-01
24	38930	.399E+00	1067	.831E-01
25	3671	.282E-01	221	.303E-02
26	7645	.701E-01	216	.255E-02
27	78530	.816E+00	202	.123E-02
28	80459	.837E+00	174	********
29	179824	.188E+01	1	********
30	4629	.383E-01	207	.170E-02
31	170146	.178E+01	40	********
32	214840	.225E+01	1	********
33	1117231	.118E+02	1	********
34	285231	.299E+01	1	********
35	50076	.517E+00	238	.464E-02
36	2110160	.222E+02	1	********
37	63859	.662E+00	227	.360E-02
38	57737	.597E+00	202	.123E-02
39	42224	.434E+00	218	.274E-02
40	5081	.431E-01	189	********
41	2027	.109E-01	241	.492E-02
42	149081	.156E+01	1	********
43	59471	.616E+00	221	.303E-02
44	68163	.707E+00	196	.662E-03
45	218421	.229E+01	1	********
46	5875	.515E-01	243	.511E-02
47	1097	.115E-02	213	.227E-02

RUN #58

W. D. 045°

SAMPLE PT.	Source Group 10 RAW (AREA)	Source Group 10 DIMENSIONLESS CONCENTRATION	Source 60 RAW (AREA)	Source 60 DIMENSIONLESS CONCENTRATION
1	1368	.187E-02	215	.161E-02
2	29636	.299E+00	288	.851E-02
3	260878	.273E+01	1	********
4	1713	.551E-02	241	.407E-02
5	1566	.396E-02	234	.341E-02
6	1407	.228E-02	240	.397E-02
7	1462	.286E-02	243	.426E-02
8	1440	.263E-02	241	.407E-02
9	1537	.365E-02	247	.464E-02
10	115206	.120E+01	45	********
11	74246	.769E+00	1	********
12	102564	.107E+01	1	********
13	1523	.351E-02	254	.530E-02
14	1452	.276E-02	250	.492E-02
15	10599	.991E-01	235	.350E-02
16	13698	.132E+00	286	.833E-02
17	17998	.177E+00	267	.653E-02
18	16462	.161E+00	252	.511E-02
19	4982	.399E-01	353	.147E-01
20	1275	.895E-03	366	.159E-01
21	124935	.130E+01	1	********
22	7740	.690E-01	250	.492E-02
23	20257	.201E+00	330	.125E-01
24	37780	.385E+00	254	.530E-02
25	1214	.253E-03	209	.104E-02
26	1248	.611E-03	206	.757E-03
27	2655	.154E-01	222	.227E-02
28	2541	.142E-01	213	.142E-02
29	45664	.468E+00	257	.558E-02
30	1258	.716E-03	204	.568E-03
31	87593	.910E+00	1	********
32	251600	.264E+01	1	********
33	1099790	.116E+02	1	********
34	656548	.690E+01	1	********
35	22263	.222E+00	245	.445E-02
36	2277733	.240E+02	1	********
37	41380	.423E+00	236	.360E-02
38	26913	.271E+00	213	.142E-02
39	15746	.153E+00	234	.341E-02
40	255434	.268E+01	1	********
41	2339	.121E-01	252	.511E-02
42	8609	.781E-01	244	.435E-02
43	21955	.219E+00	234	.341E-02
44	31222	.316E+00	218	.189E-02
45	48077	.494E+00	237	.369E-02
46	2367	.124E-01	212	.132E-02
47	1251	.642E-03	213	.142E-02

RUN #59

W. D. 090°

SAMPLE PT.	Source Group 10 RAW (AREA)	Source Group 10 DIMENSIONLESS CONCENTRATION	Source 60 RAW (AREA)	Source 60 DIMENSIONLESS CONCENTRATION
1	1182	.227E-02	1	********
2	38132	.391E+00	621	.479E-01
3	1000095	.105E+02	219	.984E-02
4	1188	.234E-02	134	.180E-02
5	1494	.556E-02	1	********
6	1908	.992E-02	137	.208E-02
7	1096	.137E-02	1	********
8	1141	.184E-02	1	********
9	1224	.272E-02	131	.151E-02
10	167572	.175E+01	1	********
11	149712	.157E+01	1	********
12	85034	.885E+00	1	********
13	1157	.201E-02	143	.265E-02
14	1155	.199E-02	134	.180E-02
15	4416	.363E-01	163	.454E-02
16	22730	.229E+00	753	.604E-01
17	57189	.592E+00	1640	.144E+00
18	56119	.581E+00	1382	.120E+00
19	7522	.690E-01	253	.131E-01
20	1020	.569E-03	261	.138E-01
21	129081	.135E+01	1	********
22	8668	.811E-01	126	.104E-02
23	3071	.222E-01	212	.918E-02
24	1307	.359E-02	1	********
25	974	.842E-04	127	.114E-02
26	1295	.346E-02	1	********
27	10914	.105E+00	137	.208E-02
28	5460	.473E-01	123	.757E-03
29	560064	.589E+01	1	********
30	1589	.656E-02	123	.757E-03
31	143571	.150E+01	1	********
32	128049	.134E+01	1	********
33	1043995	.110E+02	1	********
34	824314	.867E+01	1	********
35	15241	.150E+00	1	********
36	7657270	.806E+02	1	********
37	681866	.717E+01	1	********
38	736903	.775E+01	1	********
39	466657	.490E+01	1	********
40	1038271	.109E+02	1	********
41	5371	.464E-01	1	********
42	15103	.149E+00	1	********
43	194170	.203E+01	38	********
44	919187	.967E+01	1	********
45	953953	.100E+02	1	********
46	2930	.207E-01	132	.161E-02
47	1094	.135E-02	119	.378E-03

RUN #60

W. D. 135°

SAMPLE PT.	Source Group 10 RAW (AREA)	Source Group 10 DIMENSIONLESS CONCENTRATION	Source 60 RAW (AREA)	Source 60 DIMENSIONLESS CONCENTRATION
1	1760	.155E-02	272	.237E-02
2	2281	.703E-02	271	.227E-02
3	1982	.388E-02	281	.322E-02
4	1795	.192E-02	298	.483E-02
5	2013	.421E-02	295	.454E-02
6	1780	.176E-02	298	.483E-02
7	1779	.175E-02	294	.445E-02
8	1846	.245E-02	300	.501E-02
9	1809	.206E-02	299	.492E-02
10	197121	.206E+01	250	.284E-03
11	27522	.273E+00	240	********
12	6358	.500E-01	273	.246E-02
13	1796	.193E-02	302	.520E-02
14	1792	.188E-02	304	.539E-02
15	13159	.122E+00	687	.416E-01
16	9464	.827E-01	621	.354E-01
17	38528	.389E+00	2082	.174E+00
18	40414	.409E+00	2258	.190E+00
19	2270	.692E-02	432	.175E-01
20	1650	.390E-03	453	.195E-01
21	2120	.534E-02	285	.360E-02
22	1761	.156E-02	298	.483E-02
23	2237	.657E-02	301	.511E-02
24	1635	.232E-03	277	.284E-02
25	1603	********	276	.274E-02
26	1763	.158E-02	276	.274E-02
27	1881	.282E-02	295	.454E-02
28	1700	.916E-03	298	.483E-02
29	10910	.979E-01	335	.833E-02
30	1643	.316E-03	274	.255E-02
31	2475	.908E-02	271	.227E-02
32	2375	.802E-02	308	.577E-02
33	81224	.838E+00	272	.237E-02
34	51109	.521E+00	292	.426E-02
35	1855	.255E-02	281	.322E-02
36	1762693	.185E+02	1	********
37	1328790	.140E+02	1	********
38	1349140	.142E+02	1	********
39	817430	.859E+01	1	********
40	1843760	.194E+02	1	********
41	12730	.117E+00	1	********
42	599080	.629E+01	300	.501E-02
43	863050	.907E+01	1	********
44	1534510	.161E+02	1	********
45	1541070	.162E+02	1	********
46	4285	.281E-01	273	.246E-02
47	2073	.484E-02	277	.284E-02

RUN #61

W. D. 180^o

SAMPLE PT.	Source Group 10 RAW (AREA)	Source Group 10 DIMENSIONLESS CONCENTRATION	Source 60 RAW (AREA)	Source 60 DIMENSIONLESS CONCENTRATION
1	1085	.176E-02	0	********
2	1152	.246E-02	151	.435E-02
3	1036	.124E-02	160	.520E-02
4	1151	.245E-02	162	.539E-02
5	1124	.217E-02	0	********
6	1140	.234E-02	161	.530E-02
7	1153	.247E-02	165	.568E-02
8	1274	.375E-02	163	.549E-02
9	1139	.233E-02	163	.549E-02
10	54454	.564E+00	216	.105E-01
11	8728	.822E-01	0	********
12	1036	.124E-02	123	.170E-02
13	1150	.244E-02	178	.691E-02
14	1146	.240E-02	169	.606E-02
15	1424	.533E-02	160	.520E-02
16	1564	.680E-02	185	.757E-02
17	1339	.443E-02	187	.776E-02
18	1502	.615E-02	181	.719E-02
19	1652	.773E-02	294	.179E-01
20	941	.242E-03	315	.199E-01
21	1030	.118E-02	149	.416E-02
22	1012	.990E-03	168	.596E-02
23	966	.505E-03	152	.445E-02
24	931	.137E-03	133	.265E-02
25	926	.842E-04	0	********
26	1985	.112E-01	0	********
27	988	.737E-03	145	.378E-02
28	931	.137E-03	145	.378E-02
29	1234	.333E-02	198	.880E-02
30	978	.632E-03	134	.274E-02
31	1117	.210E-02	139	.322E-02
32	1034	.122E-02	159	.511E-02
33	2066	.121E-01	183	.738E-02
34	4357	.362E-01	149	.416E-02
35	992	.779E-03	135	.284E-02
36	8995220	.947E+02	0	********
37	40310	.415E+00	0	********
38	34260	.351E+00	0	********
39	18680	.187E+00	0	********
40	1562261	.164E+02	0	********
41	6200	.556E-01	0	********
42	112562	.118E+01	0	********
43	96706	.101E+01	0	********
44	67108	.697E+00	0	********
45	48996	.506E+00	0	********
46	3853	.309E-01	0	********
47	1010	.969E-03	132	.255E-02

RUN #62

W. D. 225°

SAMPLE PT.	Source Group 10 RAW (AREA)	Source Group 10 DIMENSIONLESS CONCENTRATION	Source 60 RAW (AREA)	Source 60 DIMENSIONLESS CONCENTRATION
1	962	.182E-02	125	.208E-02
2	808	.200E-03	1	********
3	818	.305E-03	123	.189E-02
4	838	.516E-03	1	********
5	849	.632E-03	1	********
6	840	.537E-03	1	********
7	837	.505E-03	1	********
8	882	.979E-03	1	********
9	833	.463E-03	1	********
10	20986	.213E+00	1	********
11	1538	.789E-02	1	********
12	827	.400E-03	1	********
13	837	.505E-03	1	********
14	826	.390E-03	1	********
15	818	.305E-03	1	********
16	797	.842E-04	1	********
17	827	.400E-03	137	.322E-02
18	817	.295E-03	1	********
19	1353	.594E-02	257	.146E-01
20	816	.284E-03	258	.147E-01
21	837	.505E-03	1	********
22	805	.168E-03	1	********
23	1551	.802E-02	1	********
24	796	.737E-04	103	********
25	814	.263E-03	1	********
26	2551	.186E-01	1	********
27	35096	.361E+00	1	********
28	12515	.123E+00	1	********
29	974	.195E-02	160	.539E-02
30	888	.104E-02	1	********
31	899	.116E-02	1	********
32	848	.621E-03	128	.237E-02
33	4220	.361E-01	1	********
34	4612	.402E-01	1	********
35	832	.453E-03	1	********
36	5773460	.608E+02	1	********
37	448759	.472E+01	1	********
38	412447	.433E+01	1	********
39	242234	.254E+01	1	********
40	1510010	.159E+02	1	********
41	6502	.601E-01	1	********
42	665065	.699E+01	1	********
43	284755	.299E+01	1	********
44	443087	.466E+01	1	********
45	479032	.504E+01	1	********
46	56567	.587E+00	1	********
47	1103	.331E-02	1	********

RUN #63

W. D. 270^{o}

SAMPLE PT.	Source Group 10 RAW (AREA)	Source Group 10 DIMENSIONLESS CONCENTRATION	Source 60 RAW (AREA)	Source 60 DIMENSIONLESS CONCENTRATION
1	1199	.236E-02	143	.189E-02
2	1002	.284E-03	148	.237E-02
3	993	.190E-03	185	.587E-02
4	1149	.183E-02	172	.464E-02
5	1123	.156E-02	157	.322E-02
6	1114	.146E-02	161	.360E-02
7	1145	.179E-02	175	.492E-02
8	1207	.244E-02	169	.435E-02
9	1091	.122E-02	163	.378E-02
10	36880	.378E+00	1	********
11	119318	.125E+01	1	********
12	7885	.728E-01	1	********
13	1145	.179E-02	181	.549E-02
14	1127	.160E-02	170	.445E-02
15	1072	.102E-02	170	.445E-02
16	1049	.779E-03	192	.653E-02
17	1056	.853E-03	201	.738E-02
18	1019	.463E-03	188	.615E-02
19	2128	.121E-01	329	.195E-01
20	989	.147E-03	344	.209E-01
21	1015	.421E-03	1	********
22	1004	.305E-03	143	.189E-02
23	3953	.314E-01	280	.149E-01
24	999	.253E-03	155	.303E-02
25	1067	.969E-03	149	.246E-02
26	3469	.263E-01	146	.218E-02
27	4065	.325E-01	169	.435E-02
28	2772	.189E-01	166	.407E-02
29	1133	.166E-02	199	.719E-02
30	1447	.497E-02	166	.407E-02
31	1107	.139E-02	149	.246E-02
32	1012	.390E-03	175	.492E-02
33	1712734	.180E+02	1	********
34	924553	.972E+01	1	********
35	1832	.902E-02	1	********
36	6785140	.714E+02	1	********
37	62740	.650E+00	1	********
38	51767	.535E+00	1	********
39	26505	.269E+00	178	.520E-02
40	293510	.308E+01	1	********
41	5576	.484E-01	1	********
42	152422	.159E+01	1	********
43	195930	.205E+01	1	********
44	58381	.604E+00	1	********
45	74079	.770E+00	1	********
46	10637	.102E+00	196	.691E-02
47	1064	.937E-03	138	.142E-02

RUN #64

W. D. 315°

SAMPLE PT.	Source Group 10 RAW (AREA)	Source Group 10 DIMENSIONLESS CONCENTRATION	Source 60 RAW (AREA)	Source 60 DIMENSIONLESS CONCENTRATION
1	1206	.239E-02	163	.312E-02
2	984	.526E-04	144	.132E-02
3	989	.105E-03	169	.369E-02
4	1035	.590E-03	143	.123E-02
5	1017	.400E-03	139	.851E-03
6	1020	.432E-03	140	.946E-03
7	1034	.579E-03	145	.142E-02
8	1107	.135E-02	1	********
9	1010	.326E-03	142	.114E-02
10	1125	.154E-02	146	.151E-02
11	3923	.310E-01	143	.123E-02
12	13731	.134E+00	150	.189E-02
13	1031	.547E-03	1	********
14	1037	.611E-03	151	.199E-02
15	1003	.253E-03	154	.227E-02
16	1029	.526E-03	184	.511E-02
17	1020	.432E-03	192	.587E-02
18	998	.200E-03	186	.530E-02
19	29746	.303E+00	330	.189E-01
20	56993	.590E+00	919	.746E-01
21	8745	.818E-01	160	.284E-02
22	3293	.244E-01	138	.757E-03
23	6007	.529E-01	254	.117E-01
24	18194	.181E+00	177	.445E-02
25	41264	.424E+00	1687	.147E+00
26	42656	.439E+00	1687	.147E+00
27	355747	.374E+01	3364	.306E+00
28	359473	.377E+01	3473	.316E+00
29	94800	.988E+00	369	.226E-01
30	44387	.457E+00	1877	.165E+00
31	42606	.438E+00	274	.136E-01
32	5019	.425E-01	1	********
33	464250	.488E+01	1	********
34	142097	.149E+01	1	********
35	4054	.324E-01	160	.284E-02
36	7362730	.775E+02	1	********
37	377752	.397E+01	1	********
38	396280	.416E+01	1	********
39	320556	.336E+01	1	********
40	144500	.151E+01	1	********
41	16313	.161E+00	147	.161E-02
42	817505	.860E+01	1	********
43	275721	.289E+01	1	********
44	467657	.491E+01	1	********
45	480066	.504E+01	1	********
46	124376	.130E+01	1434	.123E+00
47	1308	.346E-02	138	.757E-03

RUN #65

W. D. 000^{o}

	Source 3Q		Source Group 8	
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	650	.196E-02	5534	.169E-02
2	611	.140E-03	4790	.645E-03
3	679	.331E-02	5356	.144E-02
4	613	.233E-03	5423	.154E-02
5	605	********	5080	.105E-02
6	605	********	5144	.114E-02
7	617	.420E-03	5368	.146E-02
8	614	.280E-03	5337	.142E-02
9	611	.140E-03	5119	.111E-02
10	644	.168E-02	5004	.946E-03
11	706	.457E-02	5220	.125E-02
12	1086	.223E-01	5582	.176E-02
13	610	.933E-04	5036	.991E-03
14	604	********	4937	.852E-03
15	606	********	4691	.506E-03
16	606	********	5060	.103E-02
17	608	********	4998	.938E-03
18	606	********	4948	.867E-03
19	57084	.263E+01	998815	.140E+01
20	35240	.162E+01	3447120	.485E+01
21	24800	.113E+01	122760	.167E+00
22	3633	.141E+00	21045	.235E-01
23	6015	.252E+00	92433	.124E+00
24	7933	.342E+00	135087	.184E+00
25	858	.117E-01	61517	.805E-01
26	1222	.286E-01	137252	.187E+00
27	26050	.119E+01	6220350	.875E+01
28	56330	.260E+01	12613800	.178E+02
29	27080	.123E+01	4996500	.703E+01
30	3910	.154E+00	800780	.112E+01
31	3920	.154E+00	64600	.849E-01
32	8130	.351E+00	65730	.865E-01
33	0	********	1244	********
34	1915	.610E-01	11546	.102E-01
35	3150	.119E+00	15414	.156E-01
36	1055	.208E-01	6150	.256E-02
37	705	.452E-02	6840	.353E-02
38	697	.415E-02	6605	.320E-02
39	672	.298E-02	6039	.240E-02
40	684	.354E-02	5316	.139E-02
41	642	.159E-02	6458	.299E-02
42	754	.681E-02	8312	.560E-02
43	800	.895E-02	6422	.294E-02
44	679	.331E-02	6571	.315E-02
45	714	.494E-02	8482	.584E-02
46	668	.280E-02	9173	.682E-02
47	599	********	4295	********

RUN #66

W. D. 045°

SAMPLE PT.	Source 3Q RAW (AREA)	Source 3Q DIMENSIONLESS CONCENTRATION	Source Group 8 RAW (AREA)	Source Group 8 DIMENSIONLESS CONCENTRATION
1	537	.173E-02	2942	.176E-02
2	6494	.280E+00	16407	.207E-01
3	46036	.212E+01	170411	.238E+00
4	594	.438E-02	3628	.273E-02
5	559	.275E-02	3159	.207E-02
6	553	.247E-02	3366	.236E-02
7	550	.233E-02	3339	.232E-02
8	546	.215E-02	3298	.226E-02
9	555	.257E-02	3353	.234E-02
10	592	.429E-02	2923	.174E-02
11	2874	.111E+00	6059	.615E-02
12	65543	.303E+01	18498	.237E-01
13	618	.550E-02	3432	.245E-02
14	556	.261E-02	3231	.217E-02
15	1075	.268E-01	3449	.248E-02
16	1635	.529E-01	5653	.558E-02
17	2013	.706E-01	5955	.601E-02
18	1584	.506E-01	5080	.477E-02
19	9139	.403E+00	2066393	.291E+01
20	3856	.157E+00	853492	.120E+01
21	1043	.253E-01	109876	.152E+00
22	540	.187E-02	4516	.398E-02
23	3163	.124E+00	151821	.211E+00
24	5268	.222E+00	250847	.351E+00
25	580	.373E-02	18987	.244E-01
26	604	.485E-02	25014	.328E-01
27	3910	.159E+00	926120	.130E+01
28	25316	.116E+01	3031658	.427E+01
29	21170	.964E+00	5175590	.729E+01
30	2480	.923E-01	461650	.648E+00
31	769	.125E-01	45486	.617E-01
32	810	.145E-01	40211	.542E-01
33	912	.192E-01	5238	.500E-02
34	1193	.323E-01	5588	.549E-02
35	1152	.304E-01	7268	.786E-02
36	945	.208E-01	4274	.364E-02
37	614	.532E-02	4533	.400E-02
38	602	.476E-02	4498	.395E-02
39	590	.420E-02	3995	.325E-02
40	582	.382E-02	3091	.197E-02
41	552	.243E-02	3727	.287E-02
42	619	.555E-02	3938	.317E-02
43	690	.886E-02	3859	.305E-02
44	573	.340E-02	4405	.382E-02
45	583	.387E-02	4661	.418E-02
46	529	.135E-02	3502	.255E-02
47	506	.280E-03	2050	.507E-03

RUN #67

W. D. 090°

SAMPLE PT.	Source 3Q RAW (AREA)	Source 3Q DIMENSIONLESS CONCENTRATION	Source Group 8 RAW (AREA)	Source Group 8 DIMENSIONLESS CONCENTRATION
1	565	.196E-02	3468	.139E-02
2	19566	.888E+00	293454	.410E+00
3	22772	.104E+01	495258	.694E+00
4	630	.499E-02	6120	.512E-02
5	709	.868E-02	6494	.565E-02
6	607	.392E-02	5318	.399E-02
7	603	.373E-02	5087	.367E-02
8	627	.485E-02	5325	.400E-02
9	640	.546E-02	5960	.490E-02
10	10129	.448E+00	7902	.763E-02
11	476306	.222E+02	14258	.166E-01
12	579371	.270E+02	22524	.282E-01
13	1218	.324E-01	5200	.383E-02
14	757	.109E-01	5108	.370E-02
15	1255	.341E-01	11108	.121E-01
16	8378	.366E+00	111951	.154E+00
17	13435	.602E+00	156062	.216E+00
18	12464	.557E+00	145441	.201E+00
19	4071	.165E+00	889850	.125E+01
20	606	.387E-02	15958	.190E-01
21	2201	.783E-01	167326	.232E+00
22	684	.751E-02	12267	.138E-01
23	681	.737E-02	20310	.251E-01
24	619	.448E-02	17169	.207E-01
25	554	.145E-02	3638	.163E-02
26	561	.177E-02	3971	.210E-02
27	29630	.136E+01	7109020	.100E+02
28	39690	.183E+01	9294560	.131E+02
29	16890	.763E+00	4087440	.575E+01
30	3263	.128E+00	634849	.891E+00
3	1750	.572E-01	259158	.361E+00
32	2623	.979E-01	408811	.572E+00
33	0	********	18930	.232E-01
34	1904	.644E-01	11503	.127E-01
35	986	.216E-01	23628	.298E-01
36	1248	.338E-01	9132	.936E-02
37	693	.793E-02	12910	.147E-01
38	700	.826E-02	13146	.150E-01
39	669	.681E-02	9973	.105E-01
40	666	.667E-02	6827	.612E-02
41	983	.215E-01	9435	.979E-02
42	1154	.294E-01	12751	.145E-01
43	806	.132E-01	9971	.105E-01
44	670	.686E-02	14031	.163E-01
45	678	.723E-02	14777	.173E-01
46	799	.129E-01	7837	.754E-02
47	679	.728E-02	4306	.257E-02

RUN #68

W. D. 135°

SAMPLE PT.	Source 3Q RAW (AREA)	Source 3Q DIMENSIONLESS CONCENTRATION	Source Group 8 RAW (AREA)	Source Group 8 DIMENSIONLESS CONCENTRATION
1	591	.233E-02	4490	.220E-02
2	1538	.465E-01	91674	.125E+00
3	702	.751E-02	42051	.551E-01
4	614	.340E-02	5804	.405E-02
5	1014	.221E-01	12570	.136E-01
6	616	.350E-02	6078	.443E-02
7	616	.350E-02	5717	.393E-02
8	695	.718E-02	7038	.579E-02
9	657	.541E-02	7082	.585E-02
10	685494	.319E+02	1847823	.260E+01
11	606640	.283E+02	2176999	.306E+01
12	22490	.102E+01	2312200	.325E+01
13	699	.737E-02	10969	.113E-01
14	661	.560E-02	6313	.477E-02
15	4021	.162E+00	81744	.111E+00
16	11800	.525E+00	228899	.318E+00
17	41143	.189E+01	614331	.861E+00
18	41119	.189E+01	599446	.840E+00
19	753	.989E-02	32275	.413E-01
20	571	.140E-02	4609	.237E-02
21	600	.275E-02	9833	.972E-02
22	599	.271E-02	5002	.292E-02
23	581	.187E-02	3991	.150E-02
24	564	.107E-02	3543	.865E-03
25	560	.886E-03	3620	.973E-03
26	585	.205E-02	3870	.133E-02
27	45730	.211E+01	10549680	.149E+02
28	48350	.223E+01	11061860	.156E+02
29	20750	.943E+00	5110100	.719E+01
30	4600	.189E+00	970620	.136E+01
31	3077	.118E+00	630641	.884E+00
32	1657	.521E-01	279644	.390E+00
33	8959	.393E+00	2107458	.296E+01
34	7140	.308E+00	1134620	.159E+01
35	0	********	401590	.561E+00
36	6688	.287E+00	1009763	.142E+01
37	5990	.254E+00	1284380	.180E+01
38	5937	.252E+00	1285301	.181E+01
39	3876	.156E+00	725966	.102E+01
40	5459	.229E+00	472281	.661E+00
41	1081	.252E-01	16896	.197E-01
42	3374	.132E+00	496802	.695E+00
43	3573	.141E+00	669681	.939E+00
44	5820	.246E+00	1258092	.177E+01
45	5981	.254E+00	1291860	.182E+01
46	784	.113E-01	14265	.160E-01
47	560	.886E-03	4143	.171E-02

RUN #69

W. D. 180^{o}

	Source 3Q		Source Group 8	
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	572	.131E-02	4443	.207E-02
2	571	.126E-02	4721	.246E-02
3	556	.560E-03	3854	.124E-02
4	584	.187E-02	4430	.205E-02
5	566	.103E-02	4117	.161E-02
6	571	.126E-02	4180	.170E-02
7	581	.173E-02	4382	.198E-02
8	574	.140E-02	4177	.169E-02
9	569	.117E-02	4114	.160E-02
10	5375	.225E+00	50636	.671E-01
11	2076	.715E-01	27711	.348E-01
12	624	.373E-02	21151	.256E-01
13	582	.177E-02	4408	.202E-02
14	576	.149E-02	4205	.173E-02
15	608	.298E-02	4890	.270E-02
16	642	.457E-02	5866	.407E-02
17	610	.308E-02	5288	.326E-02
18	616	.336E-02	5471	.351E-02
19	2303	.820E-01	453969	.635E+00
20	685	.658E-02	40569	.529E-01
21	554	.466E-03	3546	.804E-03
22	554	.466E-03	3516	.762E-03
23	558	.653E-03	3454	.675E-03
24	552	.373E-03	3278	.427E-03
25	551	.326E-03	3711	.104E-02
26	0	********	4580	.226E-02
27	54310	.251E+01	12200480	.172E+02
28	49790	.230E+01	11361570	.160E+02
29	20170	.915E+00	4988320	.702E+01
30	6600	.282E+00	1504960	.212E+01
31	885	.159E-01	81523	.111E+00
32	645	.471E-02	25754	.321E-01
33	985	.206E-01	41739	.546E-01
34	1411	.404E-01	31620	.403E-01
35	655	.518E-02	22817	.279E-01
36	6501	.278E+00	49077	.649E-01
37	5195	.217E+00	1147888	.161E+01
38	4875	.202E+00	1084715	.152E+01
39	2926	.111E+00	572158	.802E+00
40	12104	.539E+00	507263	.710E+00
41	634	.420E-02	10779	.110E-01
42	5109	.213E+00	1071936	.151E+01
43	3003	.115E+00	576142	.807E+00
44	4975	.207E+00	1120058	.157E+01
45	5630	.237E+00	1268098	.178E+01
46	0	********	69230	.933E-01
47	545	.466E-04	3708	.103E-02

RUN #70

W. D. 225^{o}

SAMPLE PT.	Source 3Q RAW (AREA)	Source 3Q DIMENSIONLESS CONCENTRATION	Source Group 8 RAW (AREA)	Source Group 8 DIMENSIONLESS CONCENTRATION
1	594	.210E-02	4598	.196E-02
2	586	.173E-02	4318	.157E-02
3	568	.886E-03	3773	.800E-03
4	626	.359E-02	5818	.368E-02
5	608	.275E-02	5255	.289E-02
6	622	.340E-02	5677	.348E-02
7	629	.373E-02	5776	.362E-02
8	624	.350E-02	5630	.341E-02
9	618	.322E-02	5553	.331E-02
10	855	.143E-01	4219	.143E-02
11	598	.229E-02	4592	.195E-02
12	578	.135E-02	4007	.113E-02
13	627	.364E-02	5772	.361E-02
14	628	.368E-02	5616	.340E-02
15	599	.233E-02	4807	.226E-02
16	577	.131E-02	4045	.118E-02
17	575	.121E-02	4066	.121E-02
18	572	.107E-02	3962	.107E-02
19	589	.187E-02	8494	.745E-02
20	1884	.623E-01	347186	.484E+00
21	583	.159E-02	4803	.225E-02
22	591	.196E-02	4567	.192E-02
23	582	.154E-02	4374	.165E-02
24	572	.107E-02	4021	.115E-02
25	674	.583E-02	30817	.389E-01
26	709	.746E-02	31904	.404E-01
27	46310	.213E+01	10601570	.149E+02
28	50740	.234E+01	11693120	.165E+02
29	42110	.194E+01	9818060	.138E+02
30	5740	.242E+00	1277900	.180E+01
31	655	.494E-02	19234	.226E-01
32	602	.247E-02	5506	.324E-02
33	1153	.282E-01	6233	.426E-02
34	1472	.430E-01	9820	.932E-02
35	601	.243E-02	4806	.225E-02
36	7294	.315E+00	8951	.809E-02
37	7354	.317E+00	102089	.139E+00
38	7011	.301E+00	89821	.122E+00
39	4395	.179E+00	51547	.681E-01
40	8744	.382E+00	15042	.167E-01
41	706	.732E-02	9975	.953E-02
42	16091	.725E+00	63790	.853E-01
43	1736	.554E-01	27036	.336E-01
44	4005	.161E+00	81595	.110E+00
45	3401	.133E+00	79192	.107E+00
46	9137	.401E+00	2015689	.283E+01
47	0	********	7160	.557E-02

RUN #71

W. D. 270°

SAMPLE PT.	Source 3Q RAW (AREA)	Source 3Q DIMENSIONLESS CONCENTRATION	Source Group 8 RAW (AREA)	Source Group 8 DIMENSIONLESS CONCENTRATION
1	516	.112E-02	1957	.167E-02
2	487	********	1145	.528E-03
3	480	********	986	.304E-03
4	525	.154E-02	2386	.228E-02
5	508	.746E-03	1980	.170E-02
6	514	.103E-02	2133	.192E-02
7	522	.140E-02	2290	.214E-02
8	514	.103E-02	2156	.195E-02
9	512	.933E-03	1937	.164E-02
10	2127	.763E-01	1843	.151E-02
11	4842	.203E+00	5967	.732E-02
12	690	.923E-02	1116	.487E-03
13	521	.135E-02	2280	.213E-02
14	518	.121E-02	2105	.188E-02
15	503	.513E-03	1755	.139E-02
16	497	.233E-03	1487	.101E-02
17	489	********	1331	.790E-03
18	489	********	1264	.696E-03
19	492	********	1838	.150E-02
20	1153	.308E-01	175464	.246E+00
21	485	********	1331	.790E-03
22	483	********	1030	.366E-03
23	501	.420E-03	1633	.122E-02
24	481	********	1281	.720E-03
25	579	.406E-02	25724	.351E-01
26	804	.146E-01	79878	.111E+00
27	55770	.258E+01	12478850	.176E+02
28	51170	.236E+01	11571560	.163E+02
29	13840	.623E+00	3356000	.472E+01
30	5775	.246E+00	1265807	.178E+01
31	527	.163E-02	6875	.860E-02
32	496	.187E-03	2099	.187E-02
33	22783	.104E+01	25027	.342E-01
34	7512	.327E+00	11198	.147E-01
35	496	.187E-03	1661	.125E-02
36	17264	.782E+00	14751	.197E-01
37	2226	.809E-01	131388	.184E+00
38	2166	.781E-01	123531	.173E+00
39	1343	.397E-01	66756	.929E-01
40	1320	.386E-01	2859	.294E-02
41	572	.373E-02	5817	.711E-02
42	3150	.124E+00	89014	.124E+00
43	1266	.361E-01	60761	.845E-01
44	1839	.628E-01	133254	.187E+00
45	1817	.618E-01	136884	.192E+00
46	3092	.121E+00	430193	.605E+00
47	480	********	1753	.138E-02

RUN #72

W. D. 315°

SAMPLE PT.	Source 3Q RAW (AREA)	Source 3Q DIMENSIONLESS CONCENTRATION	Source Group 8 RAW (AREA)	Source Group 8 DIMENSIONLESS CONCENTRATION
1	550	********	2582	********
2	551	********	2741	.366E-04
3	562	********	3245	.746E-03
4	560	********	3425	.100E-02
5	567	********	3439	.102E-02
6	562	********	3493	.110E-02
7	565	********	3462	.105E-02
8	560	********	3344	.886E-03
9	564	********	3431	.101E-02
10	578	.420E-03	4100	.195E-02
11	809	.112E-01	4668	.275E-02
12	1296	.339E-01	4112	.197E-02
13	552	********	3155	.620E-03
14	556	********	3381	.938E-03
15	560	********	3326	.860E-03
16	561	********	3431	.101E-02
17	559	********	3431	.101E-02
18	554	********	3261	.769E-03
19	6080	.257E+00	43379	.573E-01
20	18246	.824E+00	1384464	.195E+01
21	1634	.497E-01	7414	.662E-02
22	797	.106E-01	4528	.255E-02
23	1633	.496E-01	30495	.391E-01
24	4394	.178E+00	91154	.125E+00
25	10097	.444E+00	342998	.479E+00
26	10494	.463E+00	345348	.483E+00
27	86750	.402E+01	9843240	.139E+02
28	81430	.377E+01	9645550	.136E+02
29	45000	.207E+01	3905660	.550E+01
30	12390	.551E+00	824410	.116E+01
31	36745	.169E+01	53052	.709E-01
32	1303	.342E-01	5706	.421E-02
33	26973	.123E+01	8248	.779E-02
34	9218	.403E+00	9648	.976E-02
35	3300	.127E+00	6016	.465E-02
36	6980	.299E+00	6766	.570E-02
37	7546	.325E+00	4275	.220E-02
38	12303	.547E+00	4742	.285E-02
39	10508	.464E+00	4182	.207E-02
40	731	.756E-02	4779	.291E-02
41	636	.312E-02	6101	.477E-02
42	1002	.202E-01	7126	.621E-02
43	7788	.337E+00	4277	.220E-02
44	8642	.377E+00	4334	.228E-02
45	11326	.502E+00	3989	.179E-02
46	12147	.540E+00	141938	.196E+00
47	573	.187E-03	3512	.112E-02

RUN #73

W. D. 000°

SAMPLE PT.	Source 3C RAW (AREA)	Source 3C DIMENSIONLESS CONCENTRATION	Source Group 3-1 RAW (AREA)	Source Group 3-1 DIMENSIONLESS CONCENTRATION
1	1144	.287E-02	1541	.490E-02
2	1194	.330E-02	1126	.194E-02
3	1232	.362E-02	1981	.804E-02
4	2868	.176E-01	1176	.229E-02
5	2129	.113E-01	1063	.149E-02
6	2309	.128E-01	1070	.154E-02
7	2771	.168E-01	1149	.210E-02
8	2524	.147E-01	1414	.399E-02
9	2295	.127E-01	1121	.190E-02
10	1299340	.111E+02	3779382	.270E+02
11	311490	.265E+01	14718250	.105E+03
12	1048170	.895E+01	6659010	.476E+02
13	3969	.270E-01	24368	.168E+00
14	2736	.165E-01	3993	.224E-01
15	1718	.777E-02	2734	.134E-01
16	2210	.120E-01	2863	.143E-01
17	1142	.285E-02	2811	.140E-01
18	1091	.242E-02	2258	.100E-01
19	6680	.502E-01	32947	.229E+00
20	2083	.109E-01	17841	.121E+00
21	3933	.267E-01	15344	.104E+00
22	1841	.882E-02	2961	.150E-01
23	3803	.256E-01	15866	.107E+00
24	3156	.201E-01	11637	.770E-01
25	973	.141E-02	1758	.645E-02
26	1575	.655E-02	5608	.340E-01
27	999	.163E-02	40970	.287E+00
28	996	.161E-02	76048	.537E+00
29	1770	.822E-02	36312	.253E+00
30	955	.126E-02	6836	.427E-01
31	1549	.633E-02	3813	.211E-01
32	2414	.137E-01	22041	.151E+00
33	2350	.132E-01	4743	.278E-01
34	6863	.517E-01	10328	.677E-01
35	3748	.251E-01	2457	.114E-01
236	4387	.306E-01	7129	.448E-01
37	1081	.233E-02	2287	.102E-01
38	1059	.214E-02	2521	.119E-01
39	1455	.553E-02	2106	.894E-02
40	1048	.205E-02	1427	.409E-02
41	2341	.131E-01	2135	.914E-02
42	1710	.770E-02	6002	.368E-01
43	1806	.852E-02	1812	.684E-02
44	1025	.185E-02	2712	.133E-01
45	1001	.165E-02	2615	.126E-01
46	1602	.678E-02	7003	.439E-01
47	1269	.394E-02	919	.457E-03

RUN #74

W. D. 045°

		Source 3C		Source Group 3-1
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	2053	.108E-01	1355	.484E-02
2	2751	.167E-01	18389	.127E+00
3	6919	.523E-01	40306	.283E+00
4	1143	.301E-02	1317	.456E-02
5	1074	.242E-02	1283	.432E-02
6	1418	.536E-02	1225	.391E-02
7	1142	.300E-02	1213	.382E-02
8	1227	.372E-02	1439	.544E-02
9	1435	.550E-02	1231	.395E-02
10	3064540	.262E+02	9245790	.660E+02
11	402600	.343E+01	15503130	.111E+03
12	1322380	.113E+02	8476120	.605E+02
13	2448	.142E-01	20683	.143E+00
14	1387	.509E-02	4531	.275E-01
15	1270	.409E-02	7661	.499E-01
16	1634	.720E-02	12939	.876E-01
17	1732	.804E-02	19446	.134E+00
18	1517	.620E-02	14731	.100E+00
19	1355	.482E-02	4844	.298E-01
20	888	.828E-03	4525	.275E-01
21	1334	.464E-02	3181	.179E-01
22	1282	.419E-02	1697	.728E-02
23	2434	.140E-01	7284	.472E-01
24	1721	.794E-02	6718	.431E-01
25	868	.658E-03	1122	.317E-02
26	929	.118E-02	1198	.371E-02
27	889	.837E-03	16230	.111E+00
28	872	.692E-03	26368	.184E+00
29	1168	.322E-02	13131	.890E-01
30	884	.794E-03	3077	.171E-01
31	1080	.247E-02	1665	.705E-02
32	1685	.764E-02	9601	.637E-01
33	1070	.238E-02	1806	.806E-02
34	4620	.327E-01	5682	.357E-01
35	3149	.201E-01	1602	.660E-02
36	1192	.342E-02	1209	.379E-02
37	999	.178E-02	1617	.671E-02
38	1010	.187E-02	1731	.752E-02
39	1170	.324E-02	1550	.623E-02
40	904	.965E-03	940	.187E-02
41	1428	.544E-02	1282	.431E-02
42	1526	.628E-02	2742	.147E-01
43	1406	.525E-02	1358	.486E-02
44	944	.131E-02	1832	.824E-02
45	937	.125E-02	1821	.817E-02
46	1297	.432E-02	2541	.133E-01
47	1052	.223E-02	587	********

RUN #75

W. D. 090^{o}

SAMPLE PT.	Source 3C RAW (AREA)	Source 3C DIMENSIONLESS CONCENTRATION	Source Group 3-1 RAW (AREA)	Source Group 3-1 DIMENSIONLESS CONCENTRATION
1	5834	.420E-01	1264	.405E-02
2	4285	.288E-01	14252	.968E-01
3	1750	.715E-02	3877	.227E-01
4	1552	.546E-02	1406	.506E-02
5	1662	.640E-02	1512	.582E-02
6	1842	.793E-02	1321	.446E-02
7	1558	.551E-02	1347	.464E-02
8	1432	.443E-02	1306	.435E-02
9	1864	.812E-02	1308	.436E-02
10	3112880	.266E+02	10678260	.763E+02
11	276850	.236E+01	15434430	.110E+03
12	30040	.249E+00	241150	.172E+01
13	1572	.563E-02	8718	.573E-01
14	1487	.490E-02	3080	.170E-01
15	1685	.659E-02	5787	.364E-01
16	3752	.242E-01	33601	.235E+00
17	11176	.877E-01	117950	.838E+00
18	10990	.861E-01	120727	.857E+00
19	1178	.226E-02	3283	.185E-01
20	1015	.871E-03	2937	.160E-01
21	1498	.500E-02	1671	.696E-02
22	1725	.694E-02	1458	.544E-02
23	1749	.714E-02	3103	.172E-01
24	1123	.179E-02	1506	.578E-02
25	1000	.743E-03	1086	.278E-02
26	1107	.166E-02	1289	.423E-02
27	1007	.803E-03	10379	.692E-01
28	994	.692E-03	15678	.107E+00
29	1180	.228E-02	8159	.533E-01
30	1000	.743E-03	2306	.115E-01
31	1822	.776E-02	1607	.650E-02
32	2094	.101E-01	4624	.281E-01
33	1051	.118E-02	1524	.591E-02
34	2271	.116E-01	3299	.186E-01
35	4330	.292E-01	1506	.578E-02
36	1419	.432E-02	1098	.286E-02
37	1121	.178E-02	1481	.560E-02
38	1137	.191E-02	1597	.643E-02
39	1387	.405E-02	1425	.520E-02
40	1098	.158E-02	996	.214E-02
41	2285	.117E-01	3495	.200E-01
42	1963	.897E-02	4089	.242E-01
43	1635	.617E-02	1323	.447E-02
44	1072	.136E-02	1606	.649E-02
45	1053	.120E-02	1614	.655E-02
46	1116	.173E-02	1505	.577E-02
47	2275	.116E-01	662	********

RUN #76

W. D. 135°

SAMPLE PT.	Source 3C RAW (AREA)	Source 3C DIMENSIONLESS CONCENTRATION	Source Group 3-1 RAW (AREA)	Source Group 3-1 DIMENSIONLESS CONCENTRATION
1	1492	.400E-02	1565	.532E-02
2	1403	.324E-02	3922	.222E-01
3	1058	.290E-03	1188	.263E-02
4	1390	.313E-02	1530	.507E-02
5	1580	.475E-02	4168	.239E-01
6	1840	.697E-02	1531	.508E-02
7	1391	.313E-02	1512	.494E-02
8	1530	.432E-02	1925	.789E-02
9	1899	.747E-02	1661	.601E-02
10	2385260	.204E+02	9842930	.703E+02
11	89160	.753E+00	12191620	.871E+02
12	94530	.799E+00	1062870	.759E+01
13	1552	.451E-02	5277	.318E-01
14	1463	.375E-02	3058	.160E-01
15	3393	.202E-01	19803	.136E+00
16	8619	.649E-01	74220	.524E+00
17	22337	.182E+00	168285	.120E+01
18	20965	.170E+00	161173	.115E+01
19	1408	.328E-02	4035	.230E-01
20	1105	.692E-03	2977	.154E-01
21	1328	.260E-02	1557	.526E-02
22	1535	.436E-02	1543	.516E-02
23	1245	.189E-02	1748	.663E-02
24	1126	.871E-03	1418	.427E-02
25	1144	.102E-02	1188	.263E-02
26	1674	.555E-02	3518	.193E-01
27	1138	.974E-03	13937	.937E-01
28	1110	.735E-03	19741	.135E+00
29	1735	.607E-02	10598	.698E-01
30	1143	.102E-02	2868	.146E-01
31	1912	.758E-02	1847	.734E-02
32	1154	.111E-02	1918	.784E-02
33	1278	.217E-02	1920	.786E-02
34	5357	.370E-01	6398	.398E-01
35	1564	.461E-02	1424	.431E-02
36	1592	.485E-02	1629	.578E-02
37	1289	.226E-02	1746	.661E-02
38	1343	.272E-02	2014	.853E-02
39	1432	.348E-02	1863	.745E-02
40	2236	.104E-01	9323	.607E-01
41	2849	.156E-01	8671	.561E-01
42	2629	.137E-01	8783	.569E-01
43	1800	.663E-02	1617	.569E-02
44	1300	.236E-02	2102	.916E-02
45	1274	.214E-02	2093	.909E-02
46	1970	.808E-02	5875	.361E-01
47	1204	.154E-02	827	.500E-04

RUN #77

W. D. 180°

SAMPLE PT.	RAW (AREA) Source 3C	DIMENSIONLESS CONCENTRATION Source 3C	RAW (AREA) Source Group 3-1	DIMENSIONLESS CONCENTRATION Source Group 3-1
1	912	.538E-03	870	.241E-02
2	1293	.379E-02	3164	.188E-01
3	920	.606E-03	997	.331E-02
4	1118	.230E-02	1094	.401E-02
5	1101	.215E-02	1402	.621E-02
6	1305	.389E-02	1038	.361E-02
7	1107	.220E-02	1076	.388E-02
8	1117	.229E-02	1073	.386E-02
9	1318	.401E-02	1124	.422E-02
10	1775300	.152E+02	13000810	.929E+02
11	300700	.256E+01	14477050	.103E+03
12	675470	.576E+01	1788190	.128E+02
13	1860	.863E-02	11043	.751E-01
14	1196	.296E-02	2788	.161E-01
15	3011	.185E-01	20395	.142E+00
16	3949	.265E-01	29320	.206E+00
17	2291	.123E-01	16042	.111E+00
18	2656	.154E-01	19449	.135E+00
19	1061	.181E-02	2647	.151E-01
20	921	.615E-03	1993	.104E-01
21	1035	.159E-02	1211	.484E-02
22	1090	.206E-02	1094	.401E-02
23	1120	.231E-02	1712	.842E-02
24	926	.658E-03	1049	.369E-02
25	928	.675E-03	1022	.349E-02
26	1354	.431E-02	2772	.160E-01
27	925	.649E-03	7015	.463E-01
28	917	.581E-03	9534	.643E-01
29	1090	.206E-02	5339	.343E-01
30	938	.760E-03	1813	.914E-02
31	1247	.340E-02	1136	.431E-02
32	914	.555E-03	896	.259E-02
33	1039	.162E-02	1229	.497E-02
34	3796	.252E-01	4181	.261E-01
35	1246	.339E-02	914	.272E-02
36	2943	.179E-01	15381	.106E+00
37	1074	.192E-02	1217	.489E-02
38	1092	.208E-02	1308	.554E-02
39	1257	.348E-02	1240	.505E-02
40	1646	.681E-02	5120	.328E-01
41	2063	.104E-01	5510	.356E-01
42	1805	.816E-02	5195	.333E-01
43	1613	.653E-02	1076	.388E-02
44	1107	.220E-02	1381	.606E-02
45	1019	.145E-02	1326	.566E-02
46	1560	.607E-02	4604	.291E-01
47	1156	.262E-02	567	.243E-03

RUN #78

W. D. 225^{o}

SAMPLE PT.	Source 3C RAW (AREA)	Source 3C DIMENSIONLESS CONCENTRATION	Source Group 3-1 RAW (AREA)	Source Group 3-1 DIMENSIONLESS CONCENTRATION
1	812	.259E-02	589	.270E-02
2	1511	.840E-02	204	.278E-04
3	786	.238E-02	128	********
4	1541	.865E-02	435	.163E-02
5	1604	.917E-02	348	.103E-02
6	2276	.148E-01	371	.119E-02
7	1525	.852E-02	427	.158E-02
8	1701	.998E-02	397	.137E-02
9	2207	.142E-01	376	.122E-02
10	1831650	.152E+02	12974360	.902E+02
11	154570	.128E+01	12460790	.866E+02
12	464380	.385E+01	735820	.511E+01
13	2513	.167E-01	4314	.286E-01
14	1983	.123E-01	2897	.187E-01
15	1549	.872E-02	1339	.792E-02
16	918	.347E-02	1134	.649E-02
17	780	.233E-02	816	.428E-02
18	765	.220E-02	751	.383E-02
19	588	.731E-03	901	.487E-02
20	599	.823E-03	912	.495E-02
21	880	.316E-02	504	.211E-02
22	1270	.640E-02	493	.204E-02
23	1002	.417E-02	689	.340E-02
24	569	.573E-03	357	.109E-02
25	758	.214E-02	389	.131E-02
26	1127	.521E-02	1868	.116E-01
27	636	.113E-02	3573	.234E-01
28	593	.773E-03	4311	.286E-01
29	668	.140E-02	2375	.151E-01
30	664	.136E-02	743	.377E-02
31	866	.304E-02	369	.117E-02
32	678	.148E-02	313	.785E-03
33	4015	.292E-01	3231	.211E-01
34	5002	.374E-01	4308	.286E-01
35	872	.309E-02	284	.584E-03
36	4992	.373E-01	16638	.114E+00
37	2533	.169E-01	6686	.451E-01
38	2782	.190E-01	7097	.479E-01
39	2617	.176E-01	4361	.289E-01
40	2679	.181E-01	11159	.762E-01
41	2369	.155E-01	3003	.195E-01
42	4606	.341E-01	17306	.119E+00
43	2136	.136E-01	1548	.937E-02
44	1971	.122E-01	4548	.302E-01
45	1752	.104E-01	3930	.259E-01
46	752	.209E-02	984	.545E-02
47	1091	.491E-02	216	.111E-03

RUN #79

W. D. 270°

SAMPLE PT.	Source 3C RAW (AREA)	Source 3C DIMENSIONLESS CONCENTRATION	Source Group 3-1 RAW (AREA)	Source Group 3-1 DIMENSIONLESS CONCENTRATION
1	2088	.897E-02	1202	.384E-02
2	1153	.120E-02	834	.128E-02
3	1066	.474E-03	806	.108E-02
4	1439	.357E-02	1170	.361E-02
5	1418	.340E-02	1042	.272E-02
6	1584	.478E-02	1024	.260E-02
7	1439	.357E-02	1170	.361E-02
8	1438	.356E-02	1080	.299E-02
9	1544	.445E-02	1000	.243E-02
10	2508120	.208E+02	12322300	.856E+02
11	202350	.167E+01	12629860	.878E+02
12	1703380	.141E+02	5718630	.397E+02
13	3206	.183E-01	15224	.101E+00
14	1931	.766E-02	5089	.309E-01
15	1415	.337E-02	2471	.127E-01
16	1364	.295E-02	2292	.114E-01
17	1239	.191E-02	1856	.838E-02
18	1226	.180E-02	1799	.799E-02
19	1207	.165E-02	1777	.783E-02
20	1191	.151E-02	1662	.703E-02
21	1119	.914E-03	1321	.466E-02
22	1109	.831E-03	1201	.383E-02
23	1338	.273E-02	1485	.580E-02
24	1131	.101E-02	1174	.364E-02
25	1164	.129E-02	1264	.427E-02
26	1817	.671E-02	3092	.170E-01
27	1303	.244E-02	3620	.206E-01
28	1203	.161E-02	3985	.232E-01
29	1099	.748E-03	2446	.125E-01
30	1184	.145E-02	1543	.621E-02
31	1161	.126E-02	1141	.341E-02
32	1128	.989E-03	1551	.626E-02
33	5508	.374E-01	22827	.154E+00
34	6631	.467E-01	10140	.660E-01
35	1104	.789E-03	1007	.248E-02
36	3983	.247E-01	15010	.998E-01
37	2061	.874E-02	4107	.240E-01
38	2032	.850E-02	4097	.240E-01
39	2100	.907E-02	2866	.154E-01
40	1540	.441E-02	4541	.270E-01
41	2624	.134E-01	4398	.260E-01
42	3302	.191E-01	10553	.688E-01
43	1902	.742E-02	1749	.764E-02
44	1659	.540E-02	2727	.144E-01
45	1611	.500E-02	2703	.143E-01
46	2889	.156E-01	6422	.401E-01
47	1741	.608E-02	844	.135E-02

RUN #80

W. D. 315°

SAMPLE PT.	Source 3C RAW (AREA)	Source 3C DIMENSIONLESS CONCENTRATION	Source Group 3-1 RAW (AREA)	Source Group 3-1 DIMENSIONLESS CONCENTRATION
1	1646	.239E-02	1610	.321E-02
2	1632	.228E-02	1245	.674E-03
3	1516	.131E-02	1235	.605E-03
4	2987	.135E-01	1494	.240E-02
5	2854	.124E-01	1377	.159E-02
6	3868	.209E-01	1401	.176E-02
7	2947	.132E-01	1467	.222E-02
8	3128	.147E-01	1413	.184E-02
9	3714	.196E-01	1383	.163E-02
10	1186950	.985E+01	13131220	.913E+02
11	135160	.111E+01	11626000	.808E+02
12	1138700	.945E+01	1894270	.132E+02
13	5294	.327E-01	9742	.597E-01
14	3767	.200E-01	3561	.168E-01
15	2613	.104E-01	3183	.141E-01
16	2845	.124E-01	2934	.124E-01
17	1593	.195E-02	2191	.725E-02
18	1541	.152E-02	1894	.518E-02
19	4242	.240E-01	12188	.767E-01
20	10739	.780E-01	43287	.293E+00
21	2471	.925E-02	4124	.207E-01
22	2174	.678E-02	2124	.678E-02
23	2774	.118E-01	3819	.186E-01
24	3499	.178E-01	8429	.506E-01
25	10278	.741E-01	47631	.323E+00
26	10828	.787E-01	50358	.342E+00
27	72935	.595E+00	404523	.280E+01
28	73162	.597E+00	408593	.283E+01
29	15901	.121E+00	79395	.544E+00
30	11400	.834E-01	55225	.376E+00
31	13110	.977E-01	61625	.420E+00
32	2104	.620E-02	6082	.343E-01
33	28316	.224E+00	146943	.101E+01
34	15842	.120E+00	57361	.391E+00
35	5164	.316E-01	5729	.318E-01
36	33130	.264E+00	147523	.102E+01
37	11720	.861E-01	54302	.369E+00
38	17165	.131E+00	86801	.595E+00
39	16507	.126E+00	76166	.521E+00
40	1676	.264E-02	1832	.475E-02
41	3423	.172E-01	4013	.199E-01
42	3242	.157E-01	9752	.598E-01
43	12994	.967E-01	58523	.399E+00
44	15803	.120E+00	78384	.537E+00
45	20008	.155E+00	100001	.687E+00
46	15110	.114E+00	78658	.539E+00
47	1888	.440E-02	1382	.163E-02

RUN #81

W. D. 000°

SAMPLE PT.	Source Group 3-2 RAW (AREA)	Source Group 3-2 DIMENSIONLESS CONCENTRATION	Source Group 3-4 RAW (AREA)	Source Group 3-4 DIMENSIONLESS CONCENTRATION
1	1379	.314E-02	767	.136E-02
2	1352	.292E-02	1326	.545E-02
3	2203	.968E-02	1760	.862E-02
4	1229	.195E-02	805	.164E-02
5	1190	.164E-02	904	.236E-02
6	1240	.203E-02	878	.217E-02
7	1223	.190E-02	798	.159E-02
8	1533	.436E-02	805	.164E-02
9	1235	.199E-02	1117	.392E-02
10	5279360	.419E+02	247600	.181E+01
11	4928060	.391E+02	239000	.174E+01
12	8897310	.707E+02	533940	.390E+01
13	11697	.851E-01	1841	.922E-02
14	2071	.863E-02	908	.239E-02
15	1703	.571E-02	1194	.448E-02
16	1605	.493E-02	4164	.262E-01
17	1398	.329E-02	1161	.424E-02
18	1273	.230E-02	1111	.388E-02
19	42870	.333E+00	6904	.462E-01
20	8437	.592E-01	1833	.916E-02
21	22198	.168E+00	5425	.354E-01
22	3738	.219E-01	1343	.557E-02
23	12778	.937E-01	4001	.250E-01
24	11893	.866E-01	4339	.275E-01
25	1127	.114E-02	673	.673E-03
26	4135	.250E-01	755	.127E-02
27	1222	.189E-02	1474	.653E-02
28	1151	.133E-02	1718	.832E-02
29	5062	.324E-01	1989	.103E-01
30	1154	.135E-02	752	.125E-02
31	3732	.218E-01	1567	.721E-02
32	19800	.149E+00	4602	.294E-01
33	3479	.198E-01	699	.863E-03
34	6363	.427E-01	881	.219E-02
35	2692	.136E-01	4683	.300E-01
36	6411	.431E-01	689	.790E-03
37	1096	.890E-03	699	.863E-03
38	1588	.480E-02	719	.101E-02
39	1243	.206E-02	738	.115E-02
40	1044	.477E-03	656	.549E-03
41	2692	.136E-01	828	.181E-02
42	4817	.304E-01	749	.123E-02
43	1215	.183E-02	757	.129E-02
44	1229	.195E-02	707	.922E-03
45	1186	.160E-02	703	.892E-03
46	5310	.344E-01	783	.148E-02
47	1017	.262E-03	608	.197E-03

RUN #82

W. D. 045^{o}

SAMPLE PT.	Source Group 3-2 RAW (AREA)	Source Group 3-2 DIMENSIONLESS CONCENTRATION	Source Group 3-4 RAW (AREA)	Source Group 3-4 DIMENSIONLESS CONCENTRATION
1	1135	.239E-02	616	.150E-02
2	13746	.103E+00	4403	.292E-01
3	64038	.502E+00	25098	.181E+00
4	1177	.272E-02	669	.189E-02
5	1132	.237E-02	819	.298E-02
6	1172	.268E-02	745	.244E-02
7	1134	.238E-02	635	.164E-02
8	1446	.486E-02	639	.167E-02
9	1191	.284E-02	1177	.560E-02
10	2669550	.212E+02	27410	.197E+00
11	6777650	.538E+02	740570	.541E+01
12	9152590	.727E+02	862220	.630E+01
13	10961	.804E-01	2388	.145E-01
14	3368	.201E-01	952	.396E-02
15	2724	.150E-01	2388	.145E-01
16	3645	.223E-01	4052	.266E-01
17	4735	.310E-01	4462	.296E-01
18	3678	.226E-01	3625	.235E-01
19	3633	.222E-01	635	.164E-02
20	1588	.599E-02	599	.137E-02
21	1746	.724E-02	880	.343E-02
22	1275	.350E-02	656	.179E-02
23	8164	.582E-01	2394	.145E-01
24	7652	.542E-01	3395	.218E-01
25	943	.866E-03	502	.666E-03
26	2368	.122E-01	541	.951E-03
27	1006	.137E-02	1432	.747E-02
28	934	.794E-03	1692	.937E-02
29	1137	.241E-02	1172	.557E-02
30	1154	.254E-02	604	.141E-02
31	1125	.231E-02	784	.273E-02
32	7618	.539E-01	2805	.175E-01
33	1071	.188E-02	556	.106E-02
34	5954	.407E-01	752	.249E-02
35	1382	.435E-02	3709	.241E-01
36	1110	.219E-02	501	.658E-03
37	1389	.441E-02	583	.126E-02
38	1128	.234E-02	573	.118E-02
39	1142	.245E-02	579	.123E-02
40	912	.620E-03	498	.636E-03
41	2313	.117E-01	645	.171E-02
42	4304	.276E-01	618	.151E-02
43	1179	.274E-02	589	.130E-02
44	1102	.213E-02	556	.106E-02
45	1080	.195E-02	558	.109E-02
46	4438	.286E-01	650	.175E-02
47	866	.254E-03	425	.102E-03

RUN #83

W. D. 090°

SAMPLE PT.	Source Group 3-2 RAW (AREA)	Source Group 3-2 DIMENSIONLESS CONCENTRATION	Source Group 3-4 RAW (AREA)	Source Group 3-4 DIMENSIONLESS CONCENTRATION
1	786	.217E-02	208	.351E-03
2	30487	.238E+00	24790	.180E+00
3	22125	.172E+00	13622	.985E-01
4	694	.144E-02	232	.527E-03
5	897	.305E-02	511	.257E-02
6	755	.192E-02	321	.118E-02
7	670	.125E-02	198	.278E-03
8	749	.187E-02	199	.285E-03
9	796	.225E-02	1327	.854E-02
10	1737315	.138E+02	16099	.117E+00
11	2265960	.180E+02	19260	.140E+00
12	9389090	.746E+02	150590	.110E+01
13	11097	.841E-01	500	.249E-02
14	1478	.766E-02	234	.541E-03
15	3213	.214E-01	1338	.862E-02
16	24622	.191E+00	16579	.120E+00
17	61233	.482E+00	22145	.161E+00
18	59005	.465E+00	20885	.152E+00
19	1508	.790E-02	253	.680E-03
20	1098	.465E-02	242	.600E-03
21	1184	.533E-02	377	.159E-02
22	762	.198E-02	179	.139E-03
23	2634	.168E-01	289	.943E-03
24	685	.137E-02	185	.183E-03
25	603	.715E-03	0	********
26	706	.153E-02	154	********
27	631	.937E-03	1081	.674E-02
28	600	.691E-03	1371	.886E-02
29	1037	.416E-02	791	.461E-02
30	612	.786E-03	251	.666E-03
31	825	.248E-02	505	.252E-02
32	3625	.247E-01	1840	.123E-01
33	679	.132E-02	189	.212E-03
34	3432	.232E-01	168	.585E-04
35	970	.363E-02	4437	.313E-01
36	695	.145E-02	162	.146E-04
37	641	.102E-02	199	.285E-03
38	708	.155E-02	205	.329E-03
39	714	.160E-02	180	.146E-03
40	588	.596E-03	144	********
41	1409	.712E-02	210	.366E-03
42	2281	.140E-01	0	********
43	695	.145E-02	185	.183E-03
44	696	.145E-02	189	.212E-03
45	685	.137E-02	196	.263E-03
46	573	.477E-03	183	.168E-03
47	503	********	0	********

RUN #84

W. D. 135^o

SAMPLE PT.	Source Group 3-2 RAW (AREA)	Source Group 3-2 DIMENSIONLESS CONCENTRATION	Source Group 3-4 RAW (AREA)	Source Group 3-4 DIMENSIONLESS CONCENTRATION
1	1250	.272E-02	736	.180E-02
2	4013	.247E-01	5117	.338E-01
3	984	.604E-03	624	.980E-03
4	1176	.213E-02	691	.147E-02
5	2928	.160E-01	1298	.591E-02
6	1203	.234E-02	791	.220E-02
7	1167	.206E-02	686	.143E-02
8	1256	.276E-02	691	.147E-02
9	1306	.316E-02	1673	.865E-02
10	1635124	.130E+02	77663	.564E+00
11	1387490	.110E+02	42780	.309E+00
12	9524780	.756E+02	248730	.182E+01
13	15778	.118E+00	1416	.677E-02
14	1810	.716E-02	728	.174E-02
15	21309	.162E+00	9248	.641E-01
16	74793	.587E+00	28164	.202E+00
17	242142	.192E+01	84740	.616E+00
18	235498	.186E+01	82116	.597E+00
19	2153	.989E-02	870	.278E-02
20	1076	.133E-02	773	.207E-02
21	1105	.156E-02	672	.133E-02
22	1159	.199E-02	645	.113E-02
23	1864	.759E-02	659	.124E-02
24	1015	.850E-03	597	.783E-03
25	1025	.929E-03	612	.892E-03
26	1290	.303E-02	640	.110E-02
27	1085	.141E-02	2030	.113E-01
28	1039	.104E-02	2454	.144E-01
29	1558	.516E-02	2697	.161E-01
30	1050	.113E-02	772	.206E-02
31	1195	.228E-02	2856	.173E-01
32	1470	.446E-02	8640	.596E-01
33	30918	.238E+00	2433	.142E-01
34	21905	.167E+00	1745	.918E-02
35	1154	.195E-02	3243	.201E-01
36	5728	.383E-01	1013	.383E-02
37	16808	.126E+00	1822	.974E-02
38	17166	.129E+00	1870	.101E-01
39	11514	.842E-01	1372	.645E-02
40	6653	.456E-01	1681	.871E-02
41	6359	.433E-01	805	.230E-02
42	11893	.872E-01	1185	.508E-02
43	7413	.517E-01	1124	.464E-02
44	14356	.107E+00	1656	.853E-02
45	15473	.116E+00	1720	.900E-02
46	3335	.193E-01	742	.184E-02
47	935	.214E-03	487	********

RUN #85R

W. D. 180^o

	Source Group 3-2		Source Group 3-4	
SAMPLE PT.	RAW (AREA)	DIMENSIONLESS CONCENTRATION	RAW (AREA)	DIMENSIONLESS CONCENTRATION
1	965	.147E-02	3492	*********
2	3204	.193E-01	24059	.148E+00
3	1090	.246E-02	5748	.135E-01
4	1197	.331E-02	5465	.114E-01
5	1673	.711E-02	9670	.422E-01
6	1199	.333E-02	15198	.828E-01
7	1207	.339E-02	5605	.124E-01
8	1242	.367E-02	10237	.464E-01
9	1342	.447E-02	17513	.998E-01
10	4407220	.351E+02	1290520	.944E+01
11	6267290	.499E+02	1339100	.980E+01
12	8751990	.697E+02	841250	.614E+01
13	12486	.933E-01	6000	.153E-01
14	4080	.263E-01	4750	.614E-02
15	22771	.175E+00	21280	.127E+00
16	29496	.229E+00	27954	.176E+00
17	17357	.132E+00	17941	.103E+00
18	20219	.155E+00	19661	.116E+00
19	2113	.106E-01	4668	.554E-02
20	1093	.249E-02	4598	.503E-02
21	1118	.268E-02	5592	.123E-01
22	1179	.317E-02	6646	.200E-01
23	1075	.234E-02	5970	.151E-01
24	1008	.181E-02	5004	.800E-02
25	968	.149E-02	4548	.466E-02
26	2529	.139E-01	4792	.645E-02
27	1014	.186E-02	4988	.789E-02
28	957	.140E-02	5046	.831E-02
29	1078	.237E-02	12278	.614E-01
30	1009	.182E-02	4611	.439E-02
31	1112	.264E-02	16447	.920E-01
32	3273	.199E-01	16119	.895E-01
33	3460	.213E-01	13696	.718E-01
34	7019	.497E-01	53343	.363E+00
35	1079	.237E-02	14675	.790E-01
36	9427	.689E-01	15494	.850E-01
37	1059	.221E-02	4909	.731E-02
38	1564	.624E-02	4895	.720E-02
39	1237	.363E-02	5334	.104E-01
40	6120	.425E-01	6877	.217E-01
41	6508	.456E-01	7537	.266E-01
42	7071	.501E-01	5471	.114E-01
43	1222	.351E-02	8339	.325E-01
44	1244	.369E-02	5152	.909E-02
45	1194	.329E-02	5083	.858E-02
46	6066	.421E-01	5112	.880E-02
47	1249	.373E-02	5357	.106E-01

RUN #86

W. D. 225^{o}

SAMPLE PT.	Source Group 3-2 RAW (AREA)	Source Group 3-2 DIMENSIONLESS CONCENTRATION	Source Group 3-4 RAW (AREA)	Source Group 3-4 DIMENSIONLESS CONCENTRATION
1	1429	.490E-02	584	.151E-02
2	1012	.159E-02	6444	.444E-01
3	893	.643E-03	1032	.479E-02
4	1240	.340E-02	685	.225E-02
5	1175	.288E-02	670	.214E-02
6	1240	.340E-02	685	.225E-02
7	1212	.318E-02	724	.254E-02
8	2403	.126E-01	757	.278E-02
9	1253	.350E-02	725	.255E-02
10	1884354	.150E+02	795907	.582E+01
11	6529490	.519E+02	1145900	.838E+01
12	8660330	.688E+02	995450	.728E+01
13	12500	.928E-01	3095	.199E-01
14	3526	.216E-01	1137	.556E-02
15	1621	.643E-02	979	.440E-02
16	1644	.661E-02	1279	.660E-02
17	1307	.393E-02	1124	.546E-02
18	2895	.165E-01	1665	.942E-02
19	6475	.450E-01	1205	.606E-02
20	1429	.490E-02	862	.355E-02
21	1074	.208E-02	628	.184E-02
22	1161	.277E-02	735	.262E-02
23	4072	.259E-01	928	.403E-02
24	991	.142E-02	537	.117E-02
25	1065	.201E-02	612	.172E-02
26	8641	.622E-01	1273	.655E-02
27	1856	.829E-02	3544	.232E-01
28	1222	.326E-02	4002	.265E-01
29	1219	.323E-02	2489	.154E-01
30	1223	.326E-02	883	.370E-02
31	1230	.332E-02	1952	.115E-01
32	942	.103E-02	8032	.560E-01
33	39046	.304E+00	19715	.141E+00
34	34643	.269E+00	13769	.979E-01
35	1133	.255E-02	2561	.160E-01
36	59788	.468E+00	21178	.152E+00
37	22741	.174E+00	10989	.776E-01
38	22642	.173E+00	10719	.756E-01
39	15484	.117E+00	7221	.501E-01
40	27389	.211E+00	11082	.783E-01
41	9854	.718E-01	1655	.935E-02
42	52766	.413E+00	19547	.140E+00
43	6237	.431E-01	3850	.254E-01
44	16118	.122E+00	8241	.575E-01
45	14765	.111E+00	7851	.547E-01
46	9871	.720E-01	2325	.142E-01
47	916	.826E-03	437	.439E-03

RUN #87

W. D. 270^{o}

SAMPLE PT.	Source Group 3-2 RAW (AREA)	Source Group 3-2 DIMENSIONLESS CONCENTRATION	Source Group 3-4 RAW (AREA)	Source Group 3-4 DIMENSIONLESS CONCENTRATION
1	1019	.321E-02	395	.155E-02
2	707	.731E-03	7946	.568E-01
3	648	.262E-03	1492	.957E-02
4	965	.278E-02	457	.200E-02
5	900	.226E-02	392	.153E-02
6	961	.275E-02	399	.158E-02
7	957	.272E-02	450	.195E-02
8	956	.271E-02	419	.173E-02
9	924	.245E-02	412	.167E-02
10	4112190	.327E+02	282540	.207E+01
11	5107330	.406E+02	392380	.287E+01
12	10181230	.809E+02	887280	.649E+01
13	14263	.108E+00	2365	.160E-01
14	2639	.161E-01	634	.330E-02
15	1392	.617E-02	572	.285E-02
16	1544	.738E-02	780	.437E-02
17	1002	.307E-02	857	.493E-02
18	1059	.353E-02	794	.447E-02
19	2376	.140E-01	479	.216E-02
20	1050	.346E-02	550	.268E-02
21	762	.117E-02	301	.863E-03
22	776	.128E-02	282	.724E-03
23	900	.226E-02	611	.313E-02
24	0	********	0	********
25	835	.175E-02	414	.169E-02
26	4507	.309E-01	589	.297E-02
27	0	********	0	********
28	2097	.118E-01	5025	.354E-01
29	843	.181E-02	1808	.119E-01
30	1307	.550E-02	880	.510E-02
31	812	.156E-02	522	.248E-02
32	2714	.167E-01	1980	.131E-01
33	32964	.257E+00	12582	.907E-01
34	16366	.125E+00	4090	.286E-01
35	719	.826E-03	517	.244E-02
36	21934	.169E+00	8537	.611E-01
37	7837	.574E-01	9230	.662E-01
38	8310	.611E-01	9917	.712E-01
39	4461	.305E-01	4651	.327E-01
40	2019	.112E-01	672	.358E-02
41	6295	.451E-01	799	.451E-02
42	16175	.124E+00	9080	.651E-01
43	0	********	0	********
44	5515	.389E-01	6778	.482E-01
45	0	********	0	********
46	15372	.117E+00	10516	.756E-01
47	655	.318E-03	224	.300E-03

RUN #88

W. D. 315°

SAMPLE PT.	Source Group 3-2 RAW (AREA)	Source Group 3-2 DIMENSIONLESS CONCENTRATION	Source Group 3-4 RAW (AREA)	Source Group 3-4 DIMENSIONLESS CONCENTRATION
1	1467	.545E-02	972	.355E-02
2	858	.612E-03	819	.243E-02
3	848	.532E-03	792	.223E-02
4	1181	.318E-02	959	.345E-02
5	1115	.265E-02	1297	.592E-02
6	1185	.321E-02	1112	.457E-02
7	1171	.310E-02	931	.325E-02
8	1217	.346E-02	941	.332E-02
9	1170	.309E-02	1768	.937E-02
10	2071440	.164E+02	208220	.152E+01
11	4761800	.378E+02	451660	.330E+01
12	9267080	.736E+02	776420	.567E+01
13	11339	.839E-01	2237	.128E-01
14	1983	.955E-02	1071	.427E-02
15	1543	.605E-02	1315	.606E-02
16	1353	.454E-02	5384	.358E-01
17	1094	.249E-02	1131	.471E-02
18	974	.153E-02	848	.264E-02
19	13318	.996E-01	12009	.843E-01
20	32059	.248E+00	18208	.130E+00
21	4249	.275E-01	3584	.227E-01
22	1967	.942E-02	1742	.918E-02
23	3623	.226E-01	3264	.203E-01
24	10030	.735E-01	9523	.661E-01
25	41146	.321E+00	12372	.869E-01
26	46374	.362E+00	12657	.891E-01
27	277086	.219E+01	37947	.274E+00
28	273626	.217E+01	38607	.279E+00
29	50357	.394E+00	9498	.659E-01
30	48929	.382E+00	11350	.794E-01
31	20478	.156E+00	4837	.318E-01
32	4486	.294E-01	5608	.375E-01
33	80614	.634E+00	7685	.526E-01
34	39981	.311E+00	3915	.251E-01
35	2342	.124E-01	6437	.435E-01
36	122094	.964E+00	7606	.521E-01
37	34140	.265E+00	2672	.160E-01
38	51329	.401E+00	3677	.233E-01
39	50619	.396E+00	3502	.221E-01
40	1069	.229E-02	762	.201E-02
41	5253	.355E-01	1277	.578E-02
42	9053	.657E-01	1243	.553E-02
43	39252	.306E+00	3034	.186E-01
44	46223	.361E+00	3375	.211E-01
45	61647	.483E+00	4292	.278E-01
46	53614	.420E+00	7398	.505E-01
47	972	.152E-02	549	.453E-03

RUN #89

W. D. 000^o

SAMPLE PT.	Source 3R RAW (AREA)	Source 3R DIMENSIONLESS CONCENTRATION	Source Group 3-3 RAW (AREA)	Source Group 3-3 DIMENSIONLESS CONCENTRATION
1	939	********	5036	.570E-03
2	1298	.621E-01	91984	.974E-01
3	1307	.640E-01	87588	.925E-01
4	2538	.323E+00	397373	.437E+00
5	8327	.154E+01	1758356	.195E+01
6	14640	.287E+01	2467388	.274E+01
7	2350	.283E+00	352990	.388E+00
8	9290	.174E+01	2015160	.224E+01
9	15190	.299E+01	3403690	.378E+01
10	16770	.332E+01	1221990	.136E+01
11	33020	.674E+01	3483070	.387E+01
12	62690	.130E+02	10311150	.115E+02
13	1101	.206E-01	50421	.511E-01
14	1006	.631E-03	17342	.143E-01
15	1244	.507E-01	71020	.740E-01
16	2380	.290E+00	382211	.420E+00
17	1548	.115E+00	146617	.158E+00
18	1485	.101E+00	132759	.143E+00
19	4940	.828E+00	183216	.199E+00
20	2154	.242E+00	172001	.186E+00
21	4616	.760E+00	494095	.545E+00
22	4409	.717E+00	825620	.914E+00
23	3445	.514E+00	475164	.524E+00
24	2943	.408E+00	375993	.414E+00
25	1101	.206E-01	45484	.456E-01
26	1285	.593E-01	81804	.860E-01
27	1451	.943E-01	93988	.996E-01
28	1499	.104E+00	104479	.111E+00
29	11611	.223E+01	2063958	.229E+01
30	1	********	21440	.188E-01
31	11777	.227E+01	2081968	.231E+01
32	6706	.120E+01	1141649	.127E+01
33	27933	.567E+01	1312637	.146E+01
34	41487	.852E+01	3143132	.349E+01
35	15560	.306E+01	3139980	.349E+01
36	144380	.302E+02	945960	.105E+01
37	1193	.400E-01	32066	.307E-01
38	1111	.227E-01	29652	.280E-01
39	1503	.105E+00	143428	.155E+00
40	1074	.149E-01	30398	.288E-01
41	2752	.368E+00	433934	.478E+00
42	1221	.459E-01	43673	.436E-01
43	3765	.581E+00	668906	.740E+00
44	1099	.202E-01	28905	.271E-01
45	1121	.248E-01	27146	.252E-01
46	1071	.143E-01	13333	.981E-02
47	1971	.204E+00	262978	.288E+00

RUN #90

W. D. 045^{o}

SAMPLE PT.	Source 3R RAW (AREA)	Source 3R DIMENSIONLESS CONCENTRATION	Source Group 3-3 RAW (AREA)	Source Group 3-3 DIMENSIONLESS CONCENTRATION
1	576	********	3939	.142E-02
2	1631	.217E+00	52633	.556E-01
3	2478	.395E+00	66834	.714E-01
4	2221	.341E+00	410176	.454E+00
5	6611	.126E+01	1400667	.156E+01
6	13590	.273E+01	3153340	.351E+01
7	1	********	350570	.387E+00
8	8430	.165E+01	1858960	.207E+01
9	14096	.284E+01	2452638	.273E+01
10	15310	.310E+01	1638200	.182E+01
11	1	********	17810	.169E-01
12	63160	.132E+02	11273740	.125E+02
13	694	.198E-01	31695	.323E-01
14	616	.337E-02	12496	.109E-01
15	647	.989E-02	15438	.142E-01
16	1793	.251E+00	232409	.256E+00
17	1969	.288E+00	245785	.271E+00
18	1767	.246E+00	219512	.241E+00
19	1215	.129E+00	116552	.127E+00
20	629	.610E-02	15202	.140E-01
21	4641	.850E+00	551259	.611E+00
22	4366	.792E+00	838144	.930E+00
23	2676	.437E+00	480050	.531E+00
24	2497	.399E+00	446421	.494E+00
25	600	********	9765	.791E-02
26	622	.463E-02	11466	.980E-02
27	596	********	5884	.359E-02
28	591	********	5792	.348E-02
29	4780	.880E+00	931517	.103E+01
30	586	********	6084	.381E-02
31	3485	.607E+00	650501	.721E+00
32	5408	.101E+01	588142	.652E+00
33	201342	.422E+02	1248555	.139E+01
34	102777	.215E+02	3178661	.354E+01
35	15390	.311E+01	3184960	.354E+01
36	107405	.225E+02	822065	.912E+00
37	844	.513E-01	39331	.408E-01
38	797	.415E-01	44359	.464E-01
39	1053	.953E-01	119477	.130E+00
40	676	.160E-01	19918	.192E-01
41	2151	.326E+00	367013	.406E+00
42	804	.429E-01	28794	.291E-01
43	2199	.336E+00	386540	.427E+00
44	679	.166E-01	20393	.197E-01
45	678	.164E-01	19371	.186E-01
46	634	.715E-02	4826	.241E-02
47	1219	.130E+00	160371	.176E+00

RUN #91

W. D. 090^{o}

SAMPLE PT.	Source 3R RAW (AREA)	Source 3R DIMENSIONLESS CONCENTRATION	Source Group 3-3 RAW (AREA)	Source Group 3-3 DIMENSIONLESS CONCENTRATION
1	518	.211E-02	5001	.329E-02
2	1723	.256E+00	54501	.586E-01
3	4859	.918E+00	155019	.171E+00
4	2275	.373E+00	439473	.488E+00
5	6692	.131E+01	1453566	.162E+01
6	13710	.279E+01	3190030	.356E+01
7	2450	.410E+00	378310	.420E+00
8	8290	.164E+01	1851680	.207E+01
9	14870	.303E+01	3416150	.381E+01
10	19000	.390E+01	184950	.204E+00
11	16850	.345E+01	2313700	.258E+01
12	52960	.111E+02	10457600	.117E+02
13	571	.133E-01	27520	.284E-01
14	538	.633E-02	12159	.113E-01
15	883	.791E-01	65351	.707E-01
16	3393	.609E+00	549327	.611E+00
17	6969	.136E+01	609434	.678E+00
18	7073	.139E+01	627454	.698E+00
19	661	.323E-01	18542	.184E-01
20	545	.781E-02	13572	.129E-01
21	7264	.143E+01	809243	.901E+00
22	4535	.850E+00	974341	.109E+01
23	2001	.315E+00	355901	.395E+00
24	1240	.154E+00	184261	.203E+00
25	544	.760E-02	15161	.146E-01
26	1	********	14690	.141E-01
27	576	.144E-01	10156	.904E-02
28	540	.675E-02	9260	.804E-02
29	17260	.354E+01	1004280	.112E+01
30	535	.570E-02	10785	.974E-02
31	10760	.216E+01	1882950	.210E+01
32	8050	.159E+01	904830	.101E+01
33	254480	.536E+02	248230	.275E+00
34	214330	.451E+02	1784060	.199E+01
35	21310	.439E+01	4255040	.475E+01
36	129340	.272E+02	601770	.670E+00
37	2242	.366E+00	35168	.370E-01
38	2393	.398E+00	38411	.406E-01
39	2111	.338E+00	120136	.132E+00
40	818	.654E-01	30944	.323E-01
41	2176	.352E+00	349297	.388E+00
42	1019	.108E+00	47007	.502E-01
43	3235	.576E+00	361685	.402E+00
44	3159	.560E+00	19241	.192E-01
45	3012	.528E+00	16794	.165E-01
46	597	.188E-01	9860	.871E-02
47	1190	.144E+00	172467	.190E+00

RUN #92

W. D. 135°

SAMPLE PT.	Source 3R RAW (AREA)	Source 3R DIMENSIONLESS CONCENTRATION	Source Group 3-3 RAW (AREA)	Source Group 3-3 DIMENSIONLESS CONCENTRATION
1	500	.253E-02	4960	.196E-02
2	809	.678E-01	78381	.839E-01
3	600	.236E-01	28594	.284E-01
4	2319	.386E+00	450578	.500E+00
5	5975	.116E+01	1322752	.147E+01
6	13870	.282E+01	3234160	.361E+01
7	2080	.336E+00	391060	.433E+00
8	7580	.150E+01	1713590	.191E+01
9	15000	.306E+01	3456460	.386E+01
10	28760	.597E+01	772140	.859E+00
11	34700	.722E+01	3771690	.421E+01
12	49410	.103E+02	10394080	.116E+02
13	580	.194E-01	30828	.308E-01
14	568	.169E-01	9991	.758E-02
15	937	.948E-01	39801	.409E-01
16	915	.901E-01	93822	.101E+00
17	1203	.151E+00	72620	.775E-01
18	1231	.157E+00	71657	.764E-01
19	590	.215E-01	25300	.247E-01
20	569	.171E-01	20458	.193E-01
21	2538	.433E+00	750000	.834E+00
22	4293	.803E+00	916653	.102E+01
23	1227	.156E+00	179877	.197E+00
24	840	.743E-01	87312	.939E-01
25	569	.171E-01	21274	.202E-01
26	590	.215E-01	24211	.235E-01
27	566	.165E-01	19007	.176E-01
28	563	.158E-01	18740	.173E-01
29	6510	.127E+01	1415720	.158E+01
30	609	.255E-01	31746	.319E-01
31	5470	.105E+01	1185990	.132E+01
32	6090	.118E+01	1326880	.148E+01
33	4890	.929E+00	660060	.733E+00
34	10410	.209E+01	1764230	.197E+01
35	2200	.361E+00	428870	.475E+00
36	71110	.149E+02	1811350	.202E+01
37	0	********	276190	.305E+00
38	1702	.256E+00	279664	.309E+00
39	1671	.250E+00	277120	.306E+00
40	3991	.739E+00	146826	.160E+00
41	2053	.330E+00	363118	.402E+00
42	1605	.236E+00	173053	.190E+00
43	2942	.518E+00	583824	.648E+00
44	1589	.232E+00	253164	.279E+00
45	1525	.219E+00	238195	.262E+00
46	638	.317E-01	26726	.263E-01
47	1304	.172E+00	200617	.220E+00

RUN #93

W. D. 180°

SAMPLE PT.	Source 3R RAW (AREA)	Source 3R DIMENSIONLESS CONCENTRATION	Source Group 3-3 RAW (AREA)	Source Group 3-3 DIMENSIONLESS CONCENTRATION
1	497	.106E-02	4844	.115E-02
2	835	.724E-01	84085	.896E-01
3	553	.129E-01	17317	.151E-01
4	2408	.404E+00	471393	.522E+00
5	6462	.126E+01	1444078	.161E+01
6	13550	.276E+01	3155810	.352E+01
7	2120	.344E+00	401780	.444E+00
8	7950	.157E+01	1806160	.201E+01
9	14240	.290E+01	3278820	.366E+01
10	22100	.456E+01	1497310	.167E+01
11	30000	.623E+01	3500000	.390E+01
12	46940	.980E+01	9739550	.109E+02
13	589	.205E-01	31479	.309E-01
14	540	.101E-01	11767	.888E-02
15	781	.610E-01	59846	.626E-01
16	1119	.132E+00	154439	.168E+00
17	752	.549E-01	63480	.666E-01
18	779	.606E-01	68066	.717E-01
19	611	.251E-01	27341	.263E-01
20	576	.177E-01	22534	.209E-01
21	2657	.457E+00	530972	.589E+00
22	2813	.490E+00	562807	.624E+00
23	898	.857E-01	100048	.107E+00
24	667	.369E-01	44206	.451E-01
25	600	.228E-01	29634	.288E-01
26	689	.416E-01	44098	.450E-01
27	556	.135E-01	20069	.182E-01
28	558	.139E-01	20249	.184E-01
29	3030	.536E+00	613820	.681E+00
30	610	.249E-01	30794	.301E-01
31	6459	.126E+01	1450064	.161E+01
32	5110	.975E+00	1093340	.122E+01
33	4890	.928E+00	999180	.111E+01
34	25220	.522E+01	5620850	.627E+01
35	3360	.605E+00	715690	.795E+00
36	41770	.871E+01	2296390	.256E+01
37	980	.103E+00	111125	.120E+00
38	1036	.115E+00	125625	.136E+00
39	1329	.177E+00	204303	.224E+00
40	1680	.251E+00	150418	.164E+00
41	2008	.320E+00	358249	.396E+00
42	1018	.111E+00	108350	.117E+00
43	2957	.520E+00	587630	.652E+00
44	1364	.184E+00	204990	.225E+00
45	1151	.139E+00	157016	.171E+00
46	636	.304E-01	27590	.266E-01
47	1303	.171E+00	199854	.219E+00

RUN #94

W. D. 225°

SAMPLE PT.	Source 3R RAW (AREA)	Source 3R DIMENSIONLESS CONCENTRATION	Source Group 3-3 RAW (AREA)	Source Group 3-3 DIMENSIONLESS CONCENTRATION
1	537	********	9090	********
2	769	.445E-01	63825	.584E-01
3	578	.422E-02	16831	.589E-02
4	2390	.387E+00	462547	.504E+00
5	4657	.865E+00	1001731	.111E+01
6	14210	.288E+01	3307650	.368E+01
7	2210	.349E+00	415270	.451E+00
8	6160	.118E+01	1377570	.153E+01
9	15110	.307E+01	3489800	.388E+01
10	51400	.107E+02	737600	.811E+00
11	52730	.110E+02	2723100	.303E+01
12	58700	.123E+02	11078470	.124E+02
13	646	.186E-01	42273	.343E-01
14	605	.992E-02	22392	.121E-01
15	955	.838E-01	108750	.109E+00
16	1285	.153E+00	190129	.199E+00
17	727	.357E-01	53686	.470E-01
18	760	.426E-01	62013	.563E-01
19	648	.190E-01	26916	.171E-01
20	685	.268E-01	44259	.365E-01
21	925	.775E-01	102869	.102E+00
22	1326	.162E+00	200859	.211E+00
23	1026	.988E-01	125171	.127E+00
24	583	.528E-02	20526	.100E-01
25	954	.836E-01	108495	.108E+00
26	1027	.990E-01	107030	.107E+00
27	1022	.979E-01	86308	.835E-01
28	931	.787E-01	87301	.846E-01
29	1543	.208E+00	255043	.272E+00
30	790	.490E-01	69576	.648E-01
31	5261	.993E+00	1146848	.127E+01
32	6330	.122E+01	1358850	.150E+01
33	136289	.286E+02	1951885	.217E+01
34	66190	.139E+02	7560530	.843E+01
35	1	********	271910	.291E+00
36	70906	.148E+02	1899012	.211E+01
37	2532	.417E+00	121331	.123E+00
38	2496	.409E+00	113531	.114E+00
39	2388	.386E+00	163431	.170E+00
40	1366	.171E+00	119615	.121E+00
41	2166	.339E+00	374409	.405E+00
42	3001	.516E+00	116313	.117E+00
43	4303	.790E+00	656128	.720E+00
44	2923	.499E+00	167630	.174E+00
45	3307	.580E+00	162335	.168E+00
46	1194	.134E+00	88758	.862E-01
47	1252	.146E+00	179192	.187E+00

RUN #95

W. D. 270°

SAMPLE PT.	Source 3R RAW (AREA)	Source 3R DIMENSIONLESS CONCENTRATION	Source Group 3-3 RAW (AREA)	Source Group 3-3 DIMENSIONLESS CONCENTRATION
1	536	.570E-02	11242	.513E-02
2	1077	.120E+00	141486	.151E+00
3	604	.201E-01	29290	.253E-01
4	1875	.288E+00	337778	.370E+00
5	4600	.863E+00	988727	.110E+01
6	10210	.205E+01	2353800	.262E+01
7	1774	.267E+00	315916	.345E+00
8	5115	.972E+00	1119145	.124E+01
9	9070	.181E+01	2047560	.228E+01
10	11830	.239E+01	510640	.563E+00
11	42200	.880E+01	1422680	.158E+01
12	49080	.103E+02	7491970	.836E+01
13	605	.203E-01	28568	.245E-01
14	668	.336E-01	31821	.281E-01
15	3188	.565E+00	640673	.708E+00
16	5212	.993E+00	1128831	.125E+01
17	2015	.318E+00	373775	.410E+00
18	2045	.324E+00	378503	.415E+00
19	621	.236E-01	25869	.215E-01
20	742	.492E-01	64528	.646E-01
21	589	.169E-01	25433	.210E-01
22	586	.163E-01	25902	.215E-01
23	1245	.155E+00	164847	.177E+00
24	709	.422E-01	53864	.527E-01
25	765	.540E-01	66840	.672E-01
26	845	.709E-01	69884	.706E-01
27	986	.101E+00	100145	.104E+00
28	987	.101E+00	106948	.112E+00
29	1146	.134E+00	164311	.176E+00
30	696	.395E-01	49311	.476E-01
31	2076	.331E+00	388280	.426E+00
32	3743	.683E+00	797334	.883E+00
33	461740	.973E+02	526750	.581E+00
34	214470	.452E+02	3638670	.406E+01
35	1	********	57130	.564E-01
36	39760	.828E+01	1613030	.179E+01
37	1	********	82370	.846E-01
38	1392	.186E+00	79281	.811E-01
39	1326	.172E+00	114852	.121E+00
40	1211	.148E+00	147859	.158E+00
41	1643	.239E+00	255320	.278E+00
42	1594	.229E+00	85766	.883E-01
43	2811	.486E+00	417386	.459E+00
44	1477	.204E+00	107185	.112E+00
45	1418	.192E+00	88946	.919E-01
46	990	.102E+00	56043	.552E-01
47	1167	.139E+00	167979	.180E+00

RUN #96

W. D. 315°

SAMPLE PT.	Source 3R RAW (AREA)	Source 3R DIMENSIONLESS CONCENTRATION	Source Group 3-3 RAW (AREA)	Source Group 3-3 DIMENSIONLESS CONCENTRATION
1	507	*********	5396	.107E-03
2	528	.253E-02	10667	.599E-02
3	512	*********	7308	.224E-02
4	2175	.350E+00	411094	.453E+00
5	5559	.106E+01	1213987	.135E+01
6	12120	.245E+01	2812230	.313E+01
7	2118	.338E+00	399348	.440E+00
8	6592	.128E+01	1476222	.164E+01
9	12900	.261E+01	2972100	.331E+01
10	7195	.141E+01	691247	.766E+00
11	23525	.486E+01	2311519	.258E+01
12	51230	.107E+02	10122940	.113E+02
13	5941	.114E+01	337224	.371E+00
14	547	.654E-02	13911	.962E-02
15	746	.485E-01	66449	.683E-01
16	2794	.481E+00	592584	.656E+00
17	554	.802E-02	16966	.130E-01
18	529	.274E-02	12481	.802E-02
19	711	.412E-01	35117	.333E-01
20	2729	.467E+00	86595	.908E-01
21	1369	.180E+00	211386	.230E+00
22	1935	.299E+00	352628	.388E+00
23	1891	.290E+00	321641	.353E+00
24	1331	.172E+00	164724	.178E+00
25	1751	.261E+00	90470	.951E-01
26	1797	.270E+00	92164	.970E-01
27	9405	.188E+01	61929	.632E-01
28	9564	.191E+01	64509	.661E-01
29	11058	.222E+01	1414786	.157E+01
30	1747	.260E+00	63564	.651E-01
31	8935	.178E+01	1765830	.197E+01
32	1772	.265E+00	286138	.314E+00
33	11170	.225E+01	1227762	.137E+01
34	32042	.665E+01	3096940	.345E+01
35	5865	.113E+01	1281970	.143E+01
36	85917	.180E+02	1062196	.118E+01
37	2948	.513E+00	42251	.413E-01
38	3475	.625E+00	38418	.370E-01
39	3227	.572E+00	99874	.106E+00
40	1085	.120E+00	136094	.146E+00
41	1829	.277E+00	313036	.344E+00
42	934	.882E-01	44806	.441E-01
43	3694	.671E+00	366371	.403E+00
44	2960	.516E+00	37013	.354E-01
45	1865	.285E+00	51908	.520E-01
46	1853	.282E+00	51499	.516E-01
47	980	.979E-01	120185	.128E+00

APPENDIX C

TABULATION OF CONCENTRATION RATIOS AND DIMENSIONLESS CONCENTRATION COEFFICIENTS FOR HUP IV PENTHOUSE TESTS

RUN #201

W. D. 270°

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
5	.180E-03	.320E-02
6	.176E-03	.320E-02
8	.107E-03	.123E-02
9	.104E-03	.121E-02

SAMPLE PT.	DIMENSIONLESS CONCENTRATION	DIMENSIONLESS CONCENTRATION
5	.562E+00	.363E+00
6	.551E+00	.363E+00
8	.334E+00	.140E+00
9	.324E+00	.137E+00

RUN #201R

W. D. 270^{o}

SAMPLE PT.	SOURCE GROUP #2 CONCENTRATION RATIO	SOURCE GROUP #1 CONCENTRATION RATIO
5	.160E-03	.346E-02
6	.159E-03	.347E-02
8	.792E-04	.139E-02
9	.802E-04	.142E-02

SAMPLE PT.	DIMENSIONLESS CONCENTRATION	DIMENSIONLESS CONCENTRATION
5	.501E+00	.393E+00
6	.497E+00	.394E+00
8	.247E+00	.158E+00
9	.250E+00	.161E+00

RUN #202

W. D. 225^{o}

	SOURCE GROUP #2	SOURCE GROUP #1
SAMPLE PT.	CONCENTRATION RATIO	CONCENTRATION RATIO
5	.195E-03	.345E-02
6	.188E-03	.329E-02
8	.875E-04	.304E-02
9	.869E-04	.290E-02

SAMPLE PT.	DIMENSIONLESS CONCENTRATION	DIMENSIONLESS CONCENTRATION
5	.608E+00	.391E+00
6	.586E+00	.373E+00
8	.273E+00	.345E+00
9	.271E+00	.328E+00

RUN #203

W. D. 270^{o}

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
5	.993E-03	.401E-02
6	.992E-03	.393E-02
8	.563E-03	.454E-02
9	.551E-03	.449E-02

SAMPLE PT.	DIMENSIONLESS CONCENTRATION	DIMENSIONLESS CONCENTRATION
5	.361E+00	.751E+00
6	.361E+00	.735E+00
8	.205E+00	.850E+00
9	.201E+00	.841E+00

RUN #203R

W. D. 270^{o}

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
5	.103E-02	.374E-02
6	.104E-02	.376E-02
8	.582E-03	.430E-02
9	.576E-03	.434E-02

SAMPLE PT.	DIMENSIONLESS CONCENTRATION	DIMENSIONLESS CONCENTRATION
5	.376E+00	.701E+00
6	.379E+00	.703E+00
8	.212E+00	.806E+00
9	.210E+00	.813E+00

RUN #204

W. D. 315°

SAMPLE PT.	SOURCE GROUP #4 CONCENTRATION RATIO	SOURCE GROUP #5 CONCENTRATION RATIO
5	.259E-02	.255E-02
6	.262E-02	.254E-02
8	.282E-02	.479E-02
9	.286E-02	.476E-02

SAMPLE PT.	DIMENSIONLESS CONCENTRATION	DIMENSIONLESS CONCENTRATION
5	.943E+00	.478E+00
6	.953E+00	.477E+00
8	.103E+01	.897E+00
9	.104E+01	.892E+00

RUN #208

W. D. 090^{o}

SOURCE
GROUP #3-Q

SAMPLE PT.	CONCENTRATION RATIO
5	.517E-04
6	.580E-04
8	.227E-01
9	.226E-01

SAMPLE PT.	DIMENSIONLESS CONCENTRATION
5	.531E-01
6	.595E-01
8	.233E+02
9	.232E+02

RUN #209

W. D. 270°

SAMPLE PT.	SOURCE GROUP #3-1 CONCENTRATION RATIO	SOURCE GROUP #3-2 CONCENTRATION RATIO
5	.117E-01	.435E-01
6	.118E-01	.438E-01
8	.150E-01	.176E+00
9	.151E-01	.177E+00

SAMPLE PT.	DIMENSIONLESS CONCENTRATION	DIMENSIONLESS CONCENTRATION
5	.380E+01	.780E+01
6	.386E+01	.787E+01
8	.490E+01	.315E+02
9	.493E+01	.319E+02

RUN #210

W. D. 315°

SAMPLE PT.	SOURCE GROUP #3-1 CONCENTRATION RATIO	SOURCE GROUP #3-2 CONCENTRATION RATIO
5	.269E-01	.415E-01
6	.270E-01	.418E-01
8	.117E-01	.162E+00
9	.118E-01	.162E+00

SAMPLE PT.	DIMENSIONLESS CONCENTRATION	DIMENSIONLESS CONCENTRATION
5	.878E+01	.746E+01
6	.879E+01	.752E+01
8	.381E+01	.292E+02
9	.385E+01	.291E+02

RUN #211

W. D. 225°

SAMPLE PT.	SOURCE GROUP #3-1 CONCENTRATION RATIO	SOURCE GROUP #3-2 CONCENTRATION RATIO
5	.847E-03	.442E-01
6	.832E-03	.446E-01
8	.146E-02	.126E+00
9	.145E-02	.127E+00

SAMPLE PT.	DIMENSIONLESS CONCENTRATION	DIMENSIONLESS CONCENTRATION
5	.276E+00	.793E+01
6	.271E+00	.800E+01
8	.476E+00	.227E+02
9	.474E+00	.228E+02