GENWPG: A WPG Graphics File Generator

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Revised: September 9, 1996

(Revisions cover additions for ORAMUS)

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This document explains how to use a utility that can plot x-y data and bar-charts, and generate a DrawPerfect WPG graphics file. The format of a sample input text file (using the default page style) is described, and the graphics file it generated was printed on an HP LaserJet IV and is attached. Also attached are output graphs that demonstrate additional page styles. This utility lets you quickly generate x-y graphs and bar-charts for inclusion in WordPerfect documents. It was written because no other readily-available graphics package lets you overlay independent x-y curves on top of one other. Lotus 1-2-3, Harvard Graphics, and FoxGraph require all curves on the same page to have one common column of independent x-values or y-values. We were stuck in manual loops of cutting and pasting curves from one plot to another before they were included in our documents.

Not any more! This document describes how to overcome this problem.

While developing this program, we discovered several interesting things about WPG file formats and assumptions, such as the widths of each proportional-space character in DrawPerfect's Roman font. If you want information on these trivia, or if you have any additional suggestions or requests, please let us know!

(Note: Changes to GENWPG.EXE that led to GEN.WPG are described beginning on pg. 9.)

Command Syntax

To execute the graphics file generator, type the command:

GENWPG input-file-name drawperfect-graph-name HP-graph-name
such as: GENWPG gensamp10.dat gen0.wpg gen0.hpg

to generate the DrawPerfect WPG file *gen0.wpg* as well as the HPGL (HP Graphics Language) file *gen0.hpg*. There are default names for the input and output files, but they only work for the default user (me). The easiest way to format an x-y-type file for this program is to copy the *gensamp0.dat* and edit it as described in the rest of this document, inserting your own data where appropriate.

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, make any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

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Sample Input File

Here's a listing of *gensamp0.dat*, the file that was used to generate the WPG graph attached below. It contains just about all the features that are available at this time. The heart of the file is a set of x-y data formatted into *columns*. The rest of the file lets you specify titles, axes labels, legends, and the general appearance of the curves, as explained below.

Rule 1: Don't mess with the lines starting with "#", except for the first 3 comment lines available for your use.

Rule 2: Numeric data can be separated by blanks, tabs, or commas.

Rule 3: If you think you have a problem, let us know.

```
1 A # comment 1
2 # comment 2
3 # comment 3
4 # setup: x-min, x-max, x-interval, x-fmt, y-min, y-max, y-interval, y-fmt [page style]
5 B 100.0 600.0 5 %3.0f 80.0 200.0 6 %3.0f 0
6 # 5 (possibly blank) lines: title1, title2, x-label, y_label, small footer
7 C This Is the Main Title
8 (This is the Secondary Title)
9 This Is the x-Axis
10 This Is the y-Axis
11 D gen0.wpg - style 0 (default)
12 #-----data type (xy, yx, xyyy..., yxxx..., xxx...y, or yyy...x), # points/curve
13 E xyyy 6
14 # legends: 1 legend/line, may be blank, 1 line/curve (xyyy => 3 curves)
15 F Rocky Flats
16 123456789 12345
17 Chicago
18 # 4 lines: styles, colors, widths, markers (# items/line = # curves)
19 G 1 2 3
20 1 1 2
21 1 1 1
22 4 -1 -2
23 # 1 line/data point (Each column has same # points. No trailing blank lines!)
24 H 110 90 100 200
25 140 95 105 180
26 170, 100 110 170
27 200, 105 115 160
28 230, 120 130 140
29 250 130 140 120
30 #-----data type (xy, yx, xyyy..., yxxx..., xxx...y, or yyy...x), # points/curve
31 xyyy 6
32 # legends: 1 legend/line, may be blank, 1 line/curve (xyyy => 3 curves)
33 x
34 Albuquerque
35 Argonne
36 # 4 lines: styles, colors, widths, markers (# items/line = # curves)
37 4 5 6
38 3 4 5
39 40 1 1
40 4 -1 -2
41 # 1 line/data point (Each column has same # points. No trailing blank lines!)
42 210 90 100 200
43 220 95 105 180
44 230, 100 110 170
45 300, 105 115 160
46 400, 140 150 170
47 500 180 190 200
```

Description of Input File

Here is a description of the sample input data file listed above. One of the first things to notice is that data in lines 1-11 occur only once, but the blocks of data in lines 12-29 can be repeated, as seen in lines 30-47. The actual number of lines in the file changes, depending on the number of the x-y data points to be graphed. Each block defines a set of one or more curves, and multiple blocks allow you to overlay multiple sets of curves on top of previous ones.

A You can change the **first 3 lines** (starting with "#"), just don't delete them. Leave **line 4** alone: it contains useful instructions. (Actually we lied: you **can** change any lines starting with "#" throughout the file, but you **must not** delete them).

B As explained in the comment line, **line 5** has 8 items (with two optional items): 4 describing the x-axis, and 4 the y-axis, and the optional items specify the general page style and grid/legend appearances. The first two numbers (100 and 600), not necessarily integers, are the minimum and maximum x-axis values. The third item (5) is the number of intervals along the x-axis that will be ticked-off; in this example, the number of tick marks (4) is one **less** than this number. The structure of the fourth item (%3.0f), which describes the output format for x-axis units, is obvious if you're a C programmer. If you're a FORTRAN programmer, you have to figure it out yourself.

The first 4 items describing the x-axis on **line 5** must be repeated on the same line for the y-axis. Of course the y-axis scaling and tick marks may differ from those of the x-axis.

The last (ninth) item on **line 5** is an optional integer representing one of the three available page styles, as shown in the three graphs included in this document. Page style 0 is the default: a thin box is used as a border. Page style 1 uses two thick axes as a border. Page style 2 uses a thick box as a border. A tenth item will be described later.

Line 6 is an instruction line, explaining that 5 text strings follow. All these strings are optional, but don't delete them. Just replace them with blank lines if you want to omit them from the output graph.

C **Line 7** is a string, which may be completely blank or contain leading blanks, is the **main title** of the output file. **Line 8** contains a **subtitle**. **Lines 9-10** are the **x-axis** and **y-axis labels**, respectively. Again: to omit these strings from the graph, leave the appropriate line blank; don't delete it!

D In **line 11** you are allowed to place a short string (or a long one, but it would look ugly), to be used as a **footer** at the bottom right-hand corner of the graph. The program appends the current date and time to this footer.

Lines 12-29 can be repeated, as in **lines 30-47**, for each block of curves. **Line 12** is an instruction line.

E **Line 13** contains two items, the first item is a tricky **column definition**: it explains how the columns of data in **H** are to be interpreted. The sample (xyyy) shows that there is one column of x-data, followed by 3 columns of y-data, for a total of 3 curves. Had the definition been yx, the program would assume there was 1 curve: with a column of y-data followed by a column of x-data. The program can handle any (reasonable) number of curves, but there can be **only 1 independent data** column, and it must be either the first column or the last column. There are some **valid definitions**: xy, yx, xyyy, yyyx, xxxxyx. These are **not valid definitions**: xx, yy, xxyx.

The second item of **line 13** is the **number of points (6)** in each curve defined in the current data block (lines 12-29 form a block, remember). The 6 in this example tells the program to expect 6 lines of data in section **H**.

Line 14 is an instruction line, reminding you to specify the curve legends. Remember that the column definition string in **line 13** defines the number of curves, and that one (possibly blank) legend for each curve must follow.

F **Lines 15-17** of the sample data file contain **legends** for each curve; there must be one line for each curve. You may insert leading blanks into these legends, or you may leave them completely blank (as shown in **line 33**). Legends are grouped inside the graph in the lower right-hand corner. When you're inside DrawPerfect, you can move or delete them, taking notice of the caveat described for marker-types in **line 22** below.

Line 18 is an instruction: exactly 4 lines follow it, describing the general appearance of each of the curves.

G **Lines 19-22** contain one integer for each curve defined in **E**. Since there are 3 curves in this sample block, there are 3 numbers on each of these lines, although extra numbers on each line would be ignored.

Line 19 defines the **line-styles** (1, 2, and 3; or as seen in **line 37**: 4, 5, and 6) for each of the curves, as shown in the following table. If a curve's line-style is 0, you better not use 0 for its marker-type (see **line 22**), otherwise you won't see that curve at all. A line-style of 0 prevents the program from drawing the curve; a single marker is placed at each point instead. And you can guess what a marker-type 0 means.

Line 20 defines the **colors** (1, 1, and 2) for each curve. Most of our graphs are reproduced in black-and-white reports, so we won't tell you about DrawPerfect's, or the QMS Color Printer's, color schemes. (Well, OK: basically you get about 4 good colors, the rest are indistinguishable from one another, as far as we are concerned). **Line 21** defines the **line-widths** (1, 1, and 1) for each curve, expressed in WordPerfect Units ($1 \text{ WPU} = \frac{1}{1200} \text{ inch}$), as shown in the following table. Let us know what happens if you set this to 0.

Line 22 is a **marker-type** (4, -1, and -2), as illustrated in the following table. If a non-0 marker-type is specified for a curve, the program will draw that marker at each point (vertex) in the curve. Be careful not to specify a line-type of 0 **and** a marker-type of 0 for the same curve! *Markers are not documented in any DrawPerfect or WordPerfect documentation that I've ever come across. Quirky things happen when a marker is moved from one WPG file to another, or copied to another location on the same graph. When CGM images with markers are imported from Lotus 1-2-3, markers occasionally act strange, too. If you need to generate additional heavy-duty markers or legends for your graph, let us know. Caution: Do not use marker 1 if you will be using the WPG files in WordPerfect 6.0 or 6.1.*

If the marker type is -1 (or -2), the first (two) characters of the legend will be used as the marker.

Line 23 is an instruction line, following it are the actual columns of data that will be graphed.

H As explained by the column definition (xyyy) and the point count (6) in **line 13**, the columns of data to be graphed are contained in **lines 24-29**. Columns can be separated by commas, tabs, or blanks. Extra numbers may appear on each line without causing problems. Obviously, there must be one line in this section for each point in the curves, as defined in **line 13**. This sample file shows 3 curves, defined by the 4 columns of data, each of 6 points.

The program will keep reading the input file until all data blocks are read and graphed. (Remember, there are 2 data blocks in the sample file: lines 12-29, and lines 30-47). Be careful not to add extra lines at the bottom of the file.

Line Markers, Styles, and Widths

Marker Type		Line Style		Line Width
×	9		15	150
◊	8		14	140
▽	7		13	130
△	6		12	120
□	5		11	110
○	4		10	100
*	3		9	90
+	2		8	80
◦	1		7	70
		6	60
		5	50
		4	40
		3	30
		2	20
		1	10

This Is the Main Title
(This is secondary title)

This Is the Main Title

(This is secondary title)

gen1.wpg - style 1 (2 borders); legend inside - 9-10-96 - 11:09

This Is the Main Title

(This is secondary title)

gen2.wpg - style 2 (thick border); legend inside; grids on - 9-10-96 - 11:09

Additional Features for ORAMUS (Ozone Risk Assessment Utilities)

Two specialized plots were needed for the ozone risk report [Whitfield, R.G., W.F. Biller, M.J. Jusko, J.M. Keisler, *A Probabilistic Assessment of Health Risks Associated with Short-Term Exposure to Tropospheric Ozone*, ANL/DIS-3, (June 1996)]. Consequently, GENWPG.EXE was modified to accommodate these needs by providing 4 more options to the style parameter (the 9th entry in line 5 of an input data file).

The first plot (style 3) is a variation of the Tukey box plot. The data file is listed below and the figure follows the listing of the data file:

```
# style 3
# comment 2
# comment 3
# setup: x-min, x-max, x-int, x-fmt, y-min, y-max, y-int, page-style=3
0 1 5 %3.2f 0 100 5 %9.0f 3 4
# 5 (possibly blank) lines: title1, title2, x-label, y-label, small footer
Pol-Hor-McD, DFEV1≥20%, 8Hr Expo, Moder Exer, Children
Ranges for Medians, 0.05, and 0.95 Fractiles
Scenarios:, Chicago, Denver, Houston, Los Ang, Miami, New York, Phila, St Louis, WashDC
Persons Responding (thousands)

#-----data type (xy, yx, xyyy, ...), # points/curve
xyyyyyy 81
# legends: 1 legend/line, may be blank, 1 line/curve (yxxx => 3 curves)
Z=AsIs
D=8110
A=1112
B=8109
H=1110
J=8509
F=8508
C=8108
G=8107
# 4 lines: styles, colors, widths, markers (# items/line = # curves)
1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1
100 100 100 100 100 100 100 100 100
0 0 0 0 0 0 0 0 0
# 1 line/data point (each col has same # points; no trailing blank lines!)
1 10.5 12.4 25.8 29.4 51.7 57.4
1 9.0 10.5 22.8 25.7 46.7 51.4
1 6.0 7.8 16.3 19.8 36.0 41.4
1 5.3 6.4 14.6 16.5 32.7 36.1
1 1.3 2.0 3.9 6.1 13.3 17.3
1 9.7 11.7 24.1 28.2 48.8 55.6
1 5.8 7.6 15.4 19.5 34.0 41.1
1 1.8 3.2 5.7 9.2 16.8 22.8
1 0.4 0.9 1.4 2.7 8.3 10.7
2 1.2 1.4 3.3 3.8 7.6 8.5
2 2.6 2.9 6.3 6.9 12.5 13.6
2 1.5 1.9 3.9 4.7 8.4 9.8
2 1.6 2.0 4.0 4.9 8.7 10.1
2 0.4 0.5 1.1 1.7 3.5 4.8
2 1.5 1.9 4.0 4.8 8.7 10.1
2 0.7 1.0 2.0 2.8 5.3 6.7
2 0.7 1.0 2.2 2.7 5.5 6.5
2 0.2 0.4 0.7 1.2 2.7 3.6
3 10.3 12.8 21.8 26.3 38.8 45.5
3 3.6 4.4 8.7 10.7 18.1 21.7
3 2.3 2.7 6.4 7.3 14.5 16.2
3 2.1 3.0 5.8 7.6 13.2 16.2
3 0.5 1.1 1.6 3.3 5.8 8.9
3 3.7 4.9 9.4 11.6 19.5 22.9
3 2.1 2.7 5.6 6.9 12.9 15.2
3 0.8 1.5 2.1 4.0 6.7 10.0
3 0.2 0.5 0.6 1.5 3.6 5.3
4 53.2 56.4 101.0 102.0 101.0 102.0
4 7.6 8.4 18.8 20.5 42.6 45.2
4 3.1 3.8 8.9 10.2 25.5 28.2
4 4.6 5.5 12.3 14.2 29.9 33.5
4 0.9 1.3 3.0 4.2 12.6 14.5
4 5.0 5.7 13.0 14.5 31.3 34.2
4 2.3 3.0 6.7 8.3 18.7 21.7
4 2.4 2.9 7.0 8.2 19.0 21.3
4 0.6 0.9 2.0 3.1 8.2 11.1
5 0.3 0.6 1.0 1.8 3.4 5.1
5 2.3 2.9 5.8 7.2 12.2 14.5
5 1.0 1.4 2.8 3.8 6.9 8.7
```

5	1.0	1.7	3.0	4.3	7.4	9.5
5	0.2	0.4	0.6	1.2	2.7	3.9
5	2.7	3.4	6.7	8.4	13.9	16.6
5	1.6	2.1	4.2	5.4	9.4	11.5
5	0.5	1.0	1.6	2.7	4.8	6.5
5	0.1	0.2	0.5	0.8	2.4	3.0
6	22.6	24.8	51.2	57.0	97.1	102.0
6	10.7	12.9	27.3	31.7	58.9	65.7
6	6.7	8.3	17.6	21.4	41.7	48.3
6	6.0	7.5	16.7	20.3	40.5	47.0
6	2.0	2.7	6.1	8.2	20.9	24.7
6	8.0	9.5	21.1	25.1	47.9	55.1
6	3.8	5.0	10.7	14.3	28.6	35.3
6	2.7	3.4	7.9	9.7	22.7	26.8
6	0.6	1.0	2.1	3.3	11.5	14.1
7	11.9	12.7	26.6	28.4	49.0	51.9
7	6.1	7.0	15.0	16.7	30.1	33.0
7	6.1	6.6	15.0	15.9	30.1	31.6
7	3.8	4.6	10.5	12.0	23.0	25.3
7	2.7	3.2	8.0	9.2	19.0	21.0
7	5.4	6.2	13.6	14.9	27.8	29.8
7	2.8	3.5	7.9	9.5	18.5	21.2
7	1.9	2.2	5.7	6.7	14.4	16.5
7	0.3	0.6	1.0	1.9	5.6	7.3
8	2.0	2.4	5.0	5.7	10.5	11.8
8	2.1	2.3	5.4	5.8	11.3	12.1
8	2.4	2.6	6.0	6.5	12.5	13.2
8	1.2	1.4	3.2	3.9	7.6	9.0
8	0.9	1.1	2.7	3.3	6.9	8.0
8	2.4	2.9	6.0	6.9	12.4	13.9
8	1.2	1.7	3.5	4.4	8.1	9.7
8	0.5	0.7	1.6	2.0	4.7	5.4
8	0.0	0.1	0.1	0.5	1.7	2.5
9	7.4	8.1	16.8	18.3	31.3	33.7
9	3.8	4.3	9.8	10.7	20.4	21.7
9	3.6	4.0	9.3	10.2	19.5	21.0
9	2.2	2.7	6.3	7.4	14.5	16.4
9	1.3	1.8	3.9	5.2	10.2	12.4
9	4.3	4.9	10.5	12.0	21.1	23.7
9	2.3	2.7	6.5	7.2	14.6	15.8
9	0.9	1.2	2.8	3.5	7.9	9.3
9	0.2	0.3	0.6	0.9	3.7	4.3

Note that the 8th character of the fifth line (the line following the comment "# setup:") is a 3 (for style 3). The X-axis label line (line 9) is highly specialized: It begins with the word "Scenarios:", which identifies the 9 air quality scenarios that are defined in the "legends:" section (beginning on line 14). There are 9 city names that follow the word "Scenarios:" on line 9. The 9 cities and 9 air quality scenarios define 81 areas in which to plot results; thus the number 81 on line 13. Line 13 also defines the plot of type "xyyyyyy", which means that there are 6 y-values for each x-value. The y-values are in pairs, one pair for the upper and lower bounds for the 0.05-, 0.50-, and 0.95-fractiles, respectively. [See Sec. 4.3 of Whitfield et al. (1996) for further discussion.]

Also note that the last character (parameter 10) on line 5 is 4: this turns the y-grid on (no x-grid).

Ranges for Medians, 0.05, and 0.95 Fractiles

FIGURE 8 Using Rectangles to Represent Variability in 81 Sets of 10 Risk Distributions Attributable to Differences in pNEM/O₃ Exposure Estimates

The second figure style (style 5) is used to display benchmark risk results. The data file is listed below and the figure follows the listing of the data file:

```
# ORAMUS GEN file CF208!8D.g5 - 09-09-1996 12:48:28
# comment 2
# comment 3
# setup: x-min, x-max, x-int, x-fmt, y-min, y-max, y-int, y-fmt, [page-style]
100.0 600.0 5 %3.0f 0.0 1.0 5 %3.1f 5 4
# 5 (possibly blank) lines: title1, title2, x-label, y_label, small footer
Fol-Hor-McD, DFEV1≥20%, 8Hr Expo, Moderate Exer, 8hDMax, Nhigh=5
Benchmark Risks for 0.05 and 0.10 Benchmarks
Benchmarks:, Chicago, Denver, Houston, Los Ang, Miami, New York, Philadel, St Louis, Wash DC
Benchmark Risk (probability)
From CF208!8D.g5
#-----data type (xy, yx, xyyy..., yxxx..., xxx...y, or yyy...x), # points/curve
xyyyy 81 Scenarios:, Z=AsIs, J=8509, B=8109, F=8508, C=8108, A=1112, H=1110, D=8110, G=8107
# legends: 1 legend/line, may be blank, 1 line/curve (xyyy => 3 curves)
0.05
0.05
0.10
0.10
# 4 lines: styles, colors, widths, markers (# items/line = # curves)
1 1 12 12
1 1 2 2
40 40 40 40
0 0 0 0
# 1 line/data point (Each column has same # points. No trailing blank lines!)
1 0 0.962 0 0.686
2 0 0.967 0 0.708
3 0 0.930 0 0.523
4 0 0.922 0 0.505
5 0 0.776 0 0.259 Chicago
6 0 0.937 0 0.556
7 0 0.770 0 0.257
8 0 0.970 0 0.722
9 0 0.486 0 0.096
1 0 0.721 0 0.191
2 0 0.966 0 0.695
3 0 0.957 0 0.651
4 0 0.918 0 0.478
5 0 0.899 0 0.443 Denver
6 0 0.909 0 0.458
7 0 0.550 0 0.121
8 0 0.981 0 0.799
9 0 0.709 0 0.186
1 0 0.992 0 0.892
2 0 0.952 0 0.642
3 0 0.929 0 0.572
4 0 0.892 0 0.442
5 0 0.829 0 0.349 Houston
6 0 0.859 0 0.393
7 0 0.623 0 0.151
8 0 0.969 0 0.733
9 0 0.667 0 0.169
1 0 1.000 0 1.000
2 0 0.961 0 0.673
3 0 0.955 0 0.639 etc.
4 0 0.909 0 0.465
5 0 0.891 0 0.430
6 0 0.897 0 0.439
7 0 0.704 0 0.183
8 0 0.978 0 0.781
9 0 0.671 0 0.170
1 0 0.436 0 0.116
2 0 0.961 0 0.680
3 0 0.762 0 0.281
4 0 0.893 0 0.469
5 0 0.447 0 0.118
6 0 0.756 0 0.279
7 0 0.328 0 0.057
8 0 0.914 0 0.512
9 0 0.166 0 0.037
1 0 0.993 0 0.901
2 0 0.960 0 0.668
3 0 0.927 0 0.513
4 0 0.916 0 0.476
5 0 0.768 0 0.246
6 0 0.960 0 0.668
7 0 0.894 0 0.443
8 0 0.960 0 0.668
9 0 0.608 0 0.145
1 0 0.999 0 0.960
2 0 0.967 0 0.698
```

```

3 0 0.965 0 0.688
4 0 0.920 0 0.482
5 0 0.918 0 0.471
6 0 0.969 0 0.715
7 0 0.918 0 0.471
8 0 0.984 0 0.821
9 0 0.727 0 0.193
1 0 0.962 0 0.684
2 0 0.967 0 0.699
3 0 0.929 0 0.515
4 0 0.922 0 0.484
5 0 0.803 0 0.299
6 0 0.967 0 0.698
7 0 0.921 0 0.482
8 0 0.967 0 0.698
9 0 0.686 0 0.176
1 0 0.991 0 0.878
2 0 0.964 0 0.685
3 0 0.962 0 0.675
4 0 0.918 0 0.472
5 0 0.912 0 0.462
6 0 0.973 0 0.743
7 0 0.921 0 0.475
8 0 0.978 0 0.778
9 0 0.729 0 0.194

```

Note that the 8th character of the fifth line (the line following the comment "# setup:") is a 5 (for style 5). The X-axis label line (line 9) is highly specialized: It begins with the word "Benchmarks:", and identifies the 9 cities to be displayed in the X-axis label. The letter codes (on the X-axis) and the more complete labels in the legend area on the right side of the plot (which identify the air quality scenarios used in the plot) are defined on line 13. The 9 cities and 9 air quality scenarios define 81 areas in which to plot results; thus the number 81 on line 13. Line 13 also defines the plot of type "xyyyy", which means that there are 4 y-values for each x-value. The y-values are in pairs, one pair for, in this case, the lower (which is always 0) and upper (a number between 0 and 1) values of a bar for a bar graph representative of benchmark risk. The two pairs of values correspond to benchmark risk results for the 0.05 and 0.10 benchmarks (which are identified in lines 15-18).[See Sec. 5 of Whitfield et al. (1996) for further discussion.]

Also note that the last character (parameter 10) on line 5 is 4: this turns the y-grid on (no x-grid).

FIGURE 17 Probability That the Benchmark Response for the 8-h Exposure, Moderate Exertion, FEV₁ Decrement $\geq 20\%$ Endpoint Will Be Exceeded Five or More Times in an Ozone Season

parameters 9 (style) and 10 (grid/legend) options for line 5 (setup)

rectangular border around the graph

bottom borders only

angular border

including the "Key"

o "Key"

plot (side-by-side, the standard method)

plot (stacked results)

defined) inside borders (default is outside)

default is

Legend inside, X-grid on

Legend inside, Y-grid on

X- and Y-grids on, legend outside (the usual configuration)

4 = Legend inside, X- and Y-grids on

with the installation disks for ORAMUS are data and WPG files for the
this document.

Urban Areas	Health Endpoints			Scenarios	Populations
Chicago	AF101	KF101	MF101	S=1124P *	Children *
Denver	AF151	KF151	MF151	T=8784P *	Workers
Houston *	AF201	KF201	MF201	N=8584P *	TotalPop
Los Angeles *	AALR1	KACF1	MACF1	O=8334P *	
Miami	AMLR1	KMCF1	MMCF1 *		
New York *	KAPD1	MAPD1	KMPD1		
Philadelphia *	MMPD1	SF102	SF152		
St. Louis *	SF202	SACF2	SAPD2		
WashingtonDC *	SMCF2	SMPD2	CF100		
	CF158	CF208	CACF8		
	CAPD8	CMCF8	CMPD8		

Compute or View Headcount Risks: Persons or Occurrences: p

Keys: F1/F2 Help, F4 Mark, F5 Unmark, F6 Next Block, F9 Form H000, F10 Process
SF4 Clear all marks, SF8 Change Scenarios, SF9 DOS shell

Form A000 - Setup for Computing or Viewing Selected Risk Results for Acute Endpoints