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Evaluation Of Rural Air Quality Simulation Models

Addendum C: Kincaid SO_2 Data Base

By

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PREFACE

This report summarizes performance statistics for several rural point source models. The performance of the models is based on SO_2 data collected near the Kincaid Power Plant. The report serves as an addendum to a previous publication* on model performance which was based on data from the Clifty Creek Power Plant. Other addenda to the Clifty Creek publication are also planned for additional data bases and for presentation of supplemental information on model performance.

The Kincaid SO_2 data base was collected by the Electric Power Research Institute (EPRI) for an extensive evaluation of selected models, two of which (TEM-8A and CRSTER/MPTER) are included in this evaluation study. This report extends the EPRI evaluation by including two additional models and by presenting performance results in a standard format that facilitates performance comparison among models and among other data bases, for which results are now available.

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*Londergan, R. J., D. H. Minott, D. J. Wackter, T. Kincaid and D. Bonitata, 1982. Evaluation of Rural Air Quality Simulation Models. EPA Publication No. EPA-450/4-83-003. U.S. Environmental Protection Agency, Research Triangle Park, N.C. (NTIS No. PB 83-182758).

TABLE OF CONTENTS

		Page
	PREFACE	iii
	TABLES	vi
	FIGURES	vi
1.	INTRODUCTION	1
2.	AIR QUALITY DATA BASE AND STATISTICAL APPROACH	5
3.	MODEL PERFORMANCE RESULTS	11
4.	CONCLUSIONS	29
	REFERENCES	31

APPENDICES

A. Statistics For 25 Highest Values
B. Statistics For All Events
C. Statistics For Highest Concentrations At Each Station
D. Comparisons Of Highest Values For Various Pairings
E. Comparison Of Model Performance Obtained By EPA And By EPRI For The MPTER Model

TABLES

Number		Page
1A-C	Difference of Observed and Predicted Averages of the 25 Highest SO_2 Concentration Values (Unpaired in Time or Location)	13-17
2A-C	Average Difference Between Observed and Predicted Concentration Values Event-By-Event (Paired in Time)	18-23
3A-C	Comparison of Maximum Observed and Maximum Predicted Concentration Values	24-26

FIGURES

Number		Page
1	EPRI PMV&D Project And CECo Air Quality Monitoring Networks	5

SECTION 1

INTRODUCTION

In October of 1982, EPA published the results of a comprehensive evaluation of eight rural air quality simulation models using ambient SO_2, meteorological, and source data for the Clifty Creek Power Plant.[1] The evaluation was based on recommendations by the American Meteorological Society (AMS) regarding the use of statistical methods for comparing observed air quality with model predictions.[2] EPA later published an addendum to the Clifty Creek report summarizing the performance of 4 of the original 9 models using a similar data base available for the Muskingum River Power Plant.[3] The purpose of this addendum is to provide analogous statistical information on model performance based on SO_2 data collected by the Electric Power Research Institute (EPRI) for the Kincaid Generating Station.

The Kincaid SO_2 data base has been used previously by EPRI[4,5,6] to conduct a comprehensive operational and diagnostic evaluation of selected rural models, two of which (TEM-8A and CRSTER/MPTER) are also evaluated by EPA. While the EPRI evaluation also included results using a tracer gas, this addendum focuses only on SO_2. The results presented in this addendum supplement those obtained by EPRI in the following ways (1) it includes two additional models (see paragraph below), (2) It presents results in a standardized format recommemded by the AMS and used in previous evaluations, and (3) it establishes a framework for including results for new models as they are developed and evaluated.

As in the Muskingum evaluation, only four of the original 9 models have been evaluated. The four models are the following: (1) CRSTER/MPTER developed

by EPA, (2) MPSDM developed by ERT, Inc., (3) TEM-8A developed by the Texas Air Control Board, and (4) PPSP developed by the Martin Marietta Corporation. This evaluation is confined to these four models since they essentially span the range of technology represented by the rural models as a group. The five models not applied here all use the Pasquill-Gifford dispersion curves as defined in the MPTER model, although their other features may differ somewhat from each other and from MPTER. The principal technical features of the MPTER/CRSTER model and technical differences between it and the other three models as run for this study are:

- MPTER/CRSTER (EPA)

  Full terrain subtraction
  Briggs final plume rise
  Uses stability classes A, B, C, D, E, F
  Stability class restriction (G replaced with F)
  Pasquill-Gifford σ_y and σ_z
  Mixing height (L) used for all stability classes
  Uniform mixing beyond where σ_z exceeds 1.6L
  Full plume penetration. When H >L, then ground-level concentration (χ) = 0
  Wind profile power-law coefficients of 0.10, 0.15, 0.20, 0.25, 0.30 and 0.30 for stability classes A-F.

- MPSDM (ERT)

  ASME (1979) dispersion coefficients
  Terrain treatment (1/2 height, unstable and neutral; full terrain subtraction, stable)
  Transitional plume rise
  5 stability classes (F used for all stable)
  Stack-tip downwash
  Buoyancy enhanced dispersion (σ_y and σ_z)
  Mixing height not used for stable conditions
  Uniform mixing not assumed
  Briggs partial plume penetration
  Wind profile power law coefficients (.09, .11, .12, .14, .20)

- TEM-8A (Texas Air Control Board)

  Flat terrain assumed
  Horizontal dispersion for 60-minute averages ($\sigma_y = C_i\ \sigma_y PG$;

  where C = 3.35, 2.70, 2.14, 1.71, 1.37, 1.37 for stabilities 1-6)

  Transitional plume rise
  Mixing height not used for stable conditions
  Uniform mixing at 2 times the distance beyond where $\sigma_z = 0.47L$
  Full plume penetration when H >2L; then $\chi = 0$.

- PPSP (Martin Marietta)

  Briggs dispersion coefficients
  Stability class selection based on (1) convective theory of scaling for daytime and (2) the Turner algorithm for nighttime
  Partial penetration of buoyant plume into the capping inversion
  Briggs plume rise formulas, including the "breakup" and "touchdown" models
  No terrain adjustments

It should be noted that EPA did not directly solicit input from the model developers prior to this evaluation. This is due to the fact that the environmental and meteorological features around the Kincaid plant are less complex than those for Clifty Creek and Muskingum River, for which developer input had already been received. The reader should refer to the Clifty Creek and Muskingum reports for a more detailed description of the models and options used.

Since two of the models, CRSTER/MPTER and TEM-8A, were evaluated as part of EPRI's validation effort, the reader should be aware of minor differences between this study and the EPRI study that leads to small but perceptible differences in performance results. These study differences, which are discussed in Section 2, are primarily related to how the model input data was processed and minor differences in treatment of SO_2 background concentrations.

SECTION 2

AIR QUALITY DATA BASE AND STATISTICAL APPROACH

The Kincaid Generating station, located in central Illinois, is operated by the Commonwealth Edison Company (CECo). The plant is a coal-fired base load facility with two 660-MW generators; emissions are vented through a single stack having a height of 187 meters. The plant is relatively isolated from other major sources and is surrounded by flat terrain. The data base was assembled by EPRI during 1980-1981 as part of a major study to evaluate the operational performance of selected rural models. The source, ambient and meteorological data were collected on-site and supplemented with additional meteorological information for nearby NWS stations. Descriptions of the data base, monitoring network design, quality assurance procedure and model performance results are documented in several EPRI publications.[4,5,6]

The ambient SO_2 data base was aquired at a total of 30 stations, 20 which were deployed specifically for the EPRI Plume Model Validation study and 10 which are routinely operated by CECo. The network of stations (Figure 1) was fixed during the study period except for brief periods during which portable SO_2 monitors at sites 3 and 12 were moved during "special" events. The ambient data used in this evaluation consisted only of periods during which monitors were fixed as indicated in Figure 1.

For purposes of this evaluation, the meteorological data used was "Level Ib" as defined in the EPRI Report.[4] It consists primarily of on-site measurements taken to correspond with meteorological data commonly

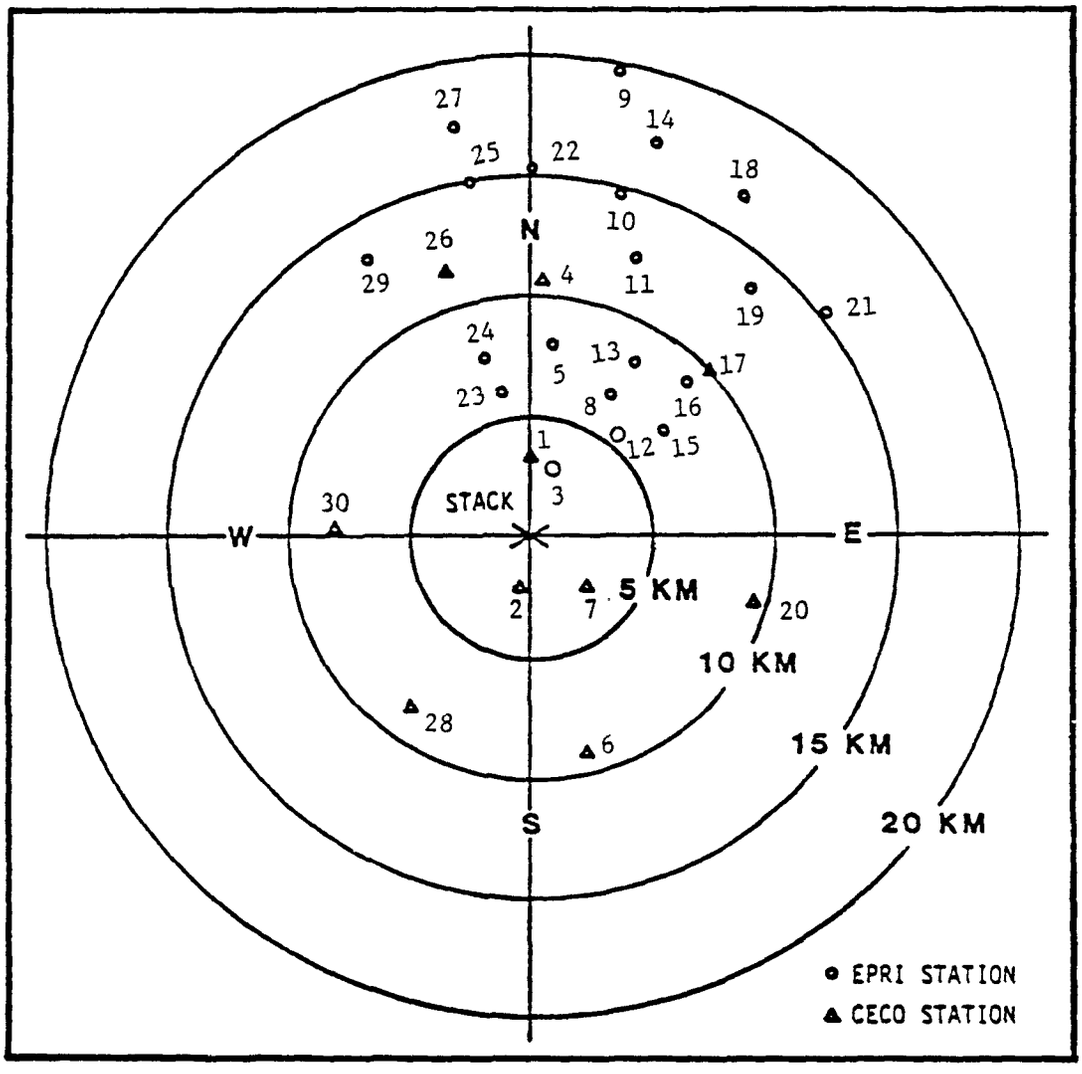

FIGURE 1. EPRI PMV&D Project And CECo Air Quality Monitoring Networks.

(Adapted From Figure 3-3 in Reference 4)

available for model applications. The on-site measurements include wind speed, wind direction and air temperature recorded at a height of 10 meters. Missing values were filled with values from the 50 meter level on-site. Stability class was determined using the Turner method from on-site winds as above, and cloud cover observations from the Springfield National Weather Service (NWS) station, which is located approximately 25 miles northwest of the plant. If an NWS cloud cover observation was missing, stability was determined from on-site data. Mixing heights were determined from on-site t-sonde data when possible using the Holzworth method. When t-sounde data were missing, mixing heights were determined from NWS upper air stations at Peoria.

Stack information consisted of hourly averages of SO_2 emission rate, exit gas velocity and gas temperature. Although emissions and temperature data were measured continuously, engineering estimates based on plant operating information were substituted during the EPRI study when stack monitoring equipment was not providing accurate data.

The performance statistics resulting from the evaluation are documented in Appendices A through D to this report. Upper and lower 95 percent confidence limits for the difference between the averages of the 25 highest observed and predicted values are enclosed in parenthesis. The tables shown in the appendices to this report were generated with a software package that was specifically designed for model evaluation. The system, Model Evaluation Support System (MESS), was created to aid in formatting and handling meteorological, air quality and source characteristic data.[7] A statistical package incorporated into MESS calculates and outputs the AMS performance statistics in the prescribed format.[8] Hourly background values were computed using the

same approach described in the Clifty Creek and Muskingum reports, i.e., a background concentration for each hour was calculated as the average of values at monitor locations outside the 90° sector downwind from the Kincaid Plant.

As indicated in the INTRODUCTION, performance results for TEM-8A and MPTER differ slightly from results presented by EPRI. Several factors involving data input to the models and the treatment of background concentrate contribute to the differences. A summary of these factors is listed below:

- Background Adjustments For this study, the EPA method was used and this resulted in slightly lower air quality estimates. Differences in highest measured concentrations are usually less than 1-2 percent. Also direct comparison of concentrations resulting from this evaluation and those reported by EPRI are difficult since EPRI computed concentrations in units of parts per billion (ppb) while for this study, concentrations are reported in micrograms per cubic meter ($\mu g/m^3$).
- Additional Ambient Monitoring Stations For this study, data taken at the two "portable" SO_2 stations (stations 3 and 12) were included. This results in additional data values included in the nign 25 statistical summaries (unpaired in space and time) which would cause a slight upward shift in average values.
- Wind Directions For this study, the model preprocessor was adapted to use on-site wind-directions measured to the nearest degree. The EPRI study rounded wind direction to the nearest ten degrees which were then randomized to the nearest degree as used in routine applications

of CRSTER/MPTER. This difference could affect highest hourly predicted values, unpaired in space or time, by 3-5 percent.

- Source Data For this study, stack data (emission rate, exit velocity and temperature) were input for each hour. For EPRI's study weekly average stack parameters were input for MPTER/CRSTER. Also the formula used to convert stack units from ppb to $\mu g/m^3$ differed slightly in that standard pressure was used in this study while EPRI adjusted by hourly atmospheric pressure. The resulting impact on individual hourly concentrations should be less than a few percent.

SECTION 3

MODEL PERFORMANCE RESULTS

The performance statistics for the four rural models using the combined 1980 and 1981 data are presented in detail in the Appendices. Because the material is too voluminous to discuss easily, a series of summary tables analogous to those presented in the Clifty Creek and Muskingum River reports are shown. Table 1, which is derived from the information contained in Appendix A, compares the bias of each model for the 25 highest observed and predicted concentrations. Table 2, which was derived from Appendix B, compares the bias of each model using all concentration data. Table 3, which was derived from Appendix C and Appendix D, compares the ability of each model to predict the highest concentrations.

Table 1A compares the bias of each model for the 25 highest 1-hour averages. PPSP overpredicts for each data category, frequently by a factor of 3 or more. MPSDM also tends to overpredict the highest 25 observed 1-hour values but not as frequently nor by the magnitude of overprediction by PPSP. Both TEM and MPTER tend to be relatively unbiased; TEM slightly underpredicts the all station/all event category but exhibits an equal number of stations with over and underpredictions. MPTER also slightly underpredicts the all station/all event category but tends to consistently underpredict the high 25 concentrations (26 of 30 stations underpredicted). Results within wind speed and stability categories vary from model to model; however, the middle wind speed categories (2.5 m/s to 5.0 m/s) and unstable conditions (Class C) are associated with overprediction for all four models.

Both TEM and MPTER are relatively unbiased (slight underpredictions) for very unstable conditions (stability categories A and B). The models (except PPSP) tend to underpredict for very stable conditions (class E and F). Table 1B and Table 1C present similar information for 3-hour and 24-hour averages respectively. The general trend is for less overprediction (MPSPM and PPSP) as averaging period increases. For MPTER and TEM, underpredictions noted for 1 hour averages do not appreciably change for 3-hour and 24-hour averaging periods.

The statistics presented in Table 1 for PPSP clearly indicate overprediction; however, comparisons between PPSP and the other three models should be made with the knowledge that a number of hours of "missing" PPSP concentrations occurred because solar insolation data required by PPSP were not available. The probable effect is for understatement of PPSP overpredictions since increasing the number of (non-missing) valid predictions can only result in a higher value of the average of the highest 25 PPSP estimates, and not a lower value. The corresponding average of the 25 highest observed concentrations would be unaffected since all valid observed values were used in the calculation including events when PPSP estimates were not possible.

Table 2A presents results for the all data categories, i.e., all valid data values within a data category paired in time. The number of events and average observed values are for MPTER; differences in these two values occur among the models due to the threshold imposed for computation of meaningful performance measures. For 1-hour averages (Table 2A), MPSDM and TEM appear to have little overall bias. The number of stations being overpredicted or underpredicted is about equal for both models. PPSP tends to overpredict

the average 1-hour observed values by a considerable amount at most stations; however, it slightly underpredicts at 2 stations. MPTER tends to underpredict the average 1-hour observed value for each of the data categories shown. Similar results were obtained for 3-hour averages (Table 2B) and 24-hour averages (Table 2C). Note that average observed 24-hour concentrations are very low and frequently near the threshold concentration (5 $\mu g/m^2$) which should be considered when interpreting results in Table 2C.

Table 3 compares the maximum observed and predicted concentration using both the single highest values over all events and locations and the average of maximum values for each station. The comparisons of average maximum values should be more meaningful of the two since maximums from 30 stations are involved. Basically the results are consistent with those presented in Table 1. For 1-hour averages, PPSP and MPSDM clearly overpredict peak values. MPTER and TEM tend to be relatively unbiased, underpredicting the average of maximum observed values (597 $\mu g/m^2$) by only 22 and 89 $\mu g/m^3$ respectively. For 3-hour averages and 24-hour averages, the margin of overprediction by PPSP and MPSDM is smaller than for 1-hour averages; MPTER and MPSDM shift toward greater underprediction of the observed peaks.

From a regulatory point of view, the ability of the models to estimate the highest 3-hour and 24-hour average concentrations is of particular concern. From Table 3B and 3C, both MPTER and TEM underestimate the highest observed value by approximately a factor of two for both the 3-hour and 24-hour averaging periods. While MPSDM overpredicts the highest 3-hour and 24-hour observed values, the magnitude of the overpredictions is small (i.e.

3 percent for 3-hour averages and 22 percent for 24-hour averages). PPSP overpredicts the highest 3-hour and 24-hour averages by over a factor of five.

A more robust measure of the ability of each model to estimate the highest concentrations is obtained by comparing the highest (or second highest) observed and predicted values at each of the stations in the network(See Appendix C). For example, the ratio, R, of the root mean square error of the difference between the second highest estimated and observed values is a useful guage of how well each model duplicates the value usually used in determining NAAQS attainment. The value of R for 3-hour value ranges from 40 percent for TEM-8A to over 300 percent for PPSP while for 24-hour average, R ranges from 54 percent for TEM-8A to over 900 percent for PPSP. Overall these results indicate that the better performing models are capable of estimating the highest 3-hour and 24-hour values well within a factor of two and the second highest value at each station within approximately 50 percent.

TABLE 1A. DIFFERENCE OF OBSERVED AND PREDICTED AVERAGES OF THE 25 HIGHEST SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
		MPTER	MPSDM	PPSP	TEM-8A
1. ALL STATIONS/ALL EVENTS (A-4A)	760	37 (-74, 148)	-418 (-505, -331)	-3361 (-3700, -3021)	76 (6, 147)
2. BY STATION/ALL EVENTS (A-4B)					
STATION 1	344	-5 (-97, 87)	-592 (-712, -473)	-3745 (-4098, -3392)	-176 (-245, -108)
STATION 2	422	221 (35, 406)	-42 (-199, 115)	-828 (-1115, -540)	14 (-131, 158)
STATION 3	318	255 (164, 346)	-107 (-286, 72)	-778 (-1042, -514)	59 (-65, 182)
STATION 4	332	-21 (-85, 42)	-150 (-216, -84)	-1399 (-1642, -1157)	4 (-49, 57)
STATION 5	238	-89 (-145, -33)	-108 (-148, -68)	-185 (-243, -128)	-2 (-42, 37)
STATION 6	291	19 (-57, 94)	-116 (-215, -18)	-314 (-397, -232)	31 (-36, 98)
STATION 7	241	3 (-102, 107)	-368 (-469, -267)	-1015 (-1182, -849)	-199 (-266, -132)
STATION 8	341	20 (-44, 83)	-156 (-239, -73)	-451 (-560, -342)	-48 (-115, 19)
STATION 9	192	64 (27, 101)	15 (-22, 51)	-26 (-68, 17)	40 (7, 74)
STATION10	276	51 (11, 90)	1 (-39, 40)	-72 (-114, -31)	37 (1, 73)
STATION11	271	4 (-59, 68)	-41 (-91, 9)	-176 (-236, -116)	25 (-27, 77)
STATION12	233	38 (-53, 129)	-148 (-267, -30)	-545 (-677, -413)	-79 (-148, -10)
STATION13	330	84 (10, 159)	1 (-80, 83)	-105 (-196, -14)	68 (-6, 142)
STATION14	227	77 (43, 112)	16 (-12, 44)	-59 (-100, -17)	37 (3, 71)
STATION15	163	-17 (-98, 65)	-103 (-173, -32)	-350 (-435, -266)	-99 (-152, -46)
STATION16	217	4 (-56, 64)	-163 (-241, -85)	-231 (-293, -170)	-48 (-93, -3)
STATION17	258	29 (-28, 85)	-151 (-230, -73)	-241 (-367, -116)	-6 (-48, 36)
STATION18	222	96 (51, 140)	63 (19, 108)	1 (-51, 53)	64 (16, 112)
STATION19	184	6 (-51, 62)	-91 (-157, -25)	-208 (-272, -145)	-11 (-54, 33)
STATION20	220	86 (35, 137)	-110 (-179, -41)	-91 (-174, -7)	-85 (-141, -29)
STATION21	187	75 (33, 118)	-3 (-51, 45)	-62 (-117, -7)	41 (9, 73)
STATION22	224	71 (20, 122)	-74 (-131, -18)	-241 (-301, -180)	-1 (-47, 44)
STATION23	293	48 (-9, 105)	-300 (-428, -172)	-584 (-801, -367)	-56 (-126, 14)
STATION24	330	41 (-40, 123)	-175 (-265, -84)	-418 (-506, -331)	-60 (-123, 3)
STATION25	219	95 (44, 146)	-88 (-195, 19)	-101 (-232, 30)	18 (-36, 71)
STATION26	366	109 (35, 184)	-115 (-217, -12)	-218 (-294, -143)	90 (49, 131)
STATION27	251	115 (42, 188)	-59 (-155, 37)	-153 (-270, -36)	66 (-5, 137)
STATION28	453	305 (226, 384)	99 (5, 192)	-53 (-151, 46)	202 (130, 273)
STATION29	339	233 (181, 285)	86 (17, 155)	-18 (-95, 59)	147 (94, 199)
STATION30	300	56 (-5, 117)	-241 (-350, -133)	-311 (-441, -181)	-9 (-72, 53)

(CONTINUED)

TABLE 1A. DIFFERENCE OF OBSERVED AND PREDICTED AVERAGES OF THE 25 HIGHEST SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
		MPTER	MPSDM	PPSP	TEM-8A
3. BY METEOROLOGICAL CONDITION (A-5)					
A. WIND SPEED					
< 2.5 M/SEC	681	213 (113, 312)	-470 (-571, -369)	-2132 (-2285, -1979)	97 (9, 185)
2.5 TO 5.0	603	-64 (-173, 45)	-223 (-311, -135)	-3345 (-3773, -2916)	-21 (-82, 40)
> 5.0 M/SEC	407	9 (-49, 67)	53 (6, 99)	-603 (-841, -365)	74 (21, 126)
B. STABILITY GROUP					
CLASS A & B	745	75 (-43, 193)	-320 (-408, -232)	-1646 (-1939, -1354)	77 (1, 153)
CLASS C	478	-34 (-102, 35)	-500 (-602, -398)	-2042 (-2297, -1787)	-58 (-107, -9)
CLASS D	340	238 (211, 265)	-235 (-330, -140)	-1680 (-2111, -1250)	174 (127, 221)
CLASS E & F	256	250 (196, 304)	255 (201, 309)	-3235 (-3739, -2732)	203 (144, 263)

TABLE 1B. DIFFERENCE OF OBSERVED AND PREDICTED AVERAGES OF THE 25 HIGHEST SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
		MPTER	MPSDM	PPSP	TEM-8A
1. ALL STATIONS/ALL EVENTS (A-4A)	430	121 (54, 189)	-185 (-289, -81)	-2294 (-2757, -1831)	56 (-13, 126)
2. BY STATION/ALL EVENTS (A-4B)					
STATION 1	162	29 (-17, 75)	-225 (-347, -103)	-2521 (-2992, -2050)	-83 (-135, -30)
STATION 2	181	119 (18, 219)	12 (-87, 111)	-320 (-456, -183)	41 (-56, 138)
STATION 3	142	124 (67, 181)	52 (-41, 146)	-251 (-382, -121)	82 (19, 146)
STATION 4	157	18 (-20, 55)	-78 (-116, -40)	-622 (-821, -422)	-13 (-43, 17)
STATION 5	69	23 (-16, 62)	3 (-37, 44)	11 (-36, 57)	5 (-32, 41)
STATION 6	130	34 (-16, 83)	-24 (-80, 31)	-143 (-205, -80)	5 (-39, 50)
STATION 7	119	38 (-4, 79)	-136 (-206, -66)	-446 (-613, -279)	-76 (-130, -22)
STATION 8	124	11 (-38, 59)	-72 (-118, -25)	-202 (-258, -145)	-64 (-117, -11)
STATION 9	73	54 (36, 72)	46 (26, 66)	42 (22, 62)	48 (31, 66)
STATION10	126	43 (6, 80)	20 (-17, 57)	-23 (-59, 13)	37 (2, 72)
STATION11	116	28 (-14, 70)	-21 (-63, 20)	-92 (-147, -38)	-5 (-39, 28)
STATION12	103	45 (2, 88)	-34 (-106, 37)	-244 (-338, -150)	-15 (-62, 31)
STATION13	122	64 (14, 114)	38 (-12, 88)	-29 (-93, 35)	29 (-22, 80)
STATION14	65	49 (25, 73)	31 (2, 61)	15 (-23, 53)	15 (-14, 43)
STATION15	64	27 (-14, 68)	-4 (-46, 37)	-133 (-191, -76)	-21 (-63, 22)
STATION16	77	40 (9, 70)	17 (-16, 51)	-42 (-95, 10)	2 (-30, 34)
STATION17	122	43 (10, 76)	-41 (-85, 4)	-78 (-130, -27)	-12 (-40, 16)
STATION18	84	58 (29, 86)	48 (20, 76)	18 (-15, 52)	19 (-11, 50)
STATION19	66	17 (-11, 44)	-27 (-59, 6)	-58 (-86, -30)	-12 (-34, 9)
STATION20	87	40 (14, 65)	-41 (-74, -8)	-40 (-81, 2)	-44 (-71, -16)
STATION21	79	50 (26, 74)	16 (-13, 45)	-4 (-30, 22)	20 (-6, 45)
STATION22	95	53 (27, 79)	6 (-30, 42)	-78 (-121, -34)	3 (-24, 30)
STATION23	121	67 (26, 103)	27 (-20, 74)	-123 (-188, -58)	11 (-32, 53)
STATION24	144	48 (-3, 98)	-40 (-90, 10)	-191 (-258, -124)	-23 (-75, 30)
STATION25	94	44 (18, 70)	-11 (-66, 45)	2 (-28, 32)	23 (-5, 50)
STATION26	181	89 (50, 129)	-7 (-60, 45)	-78 (-120, -35)	36 (1, 71)
STATION27	110	59 (23, 96)	24 (-13, 61)	-40 (-86, 6)	28 (-8, 64)
STATION28	215	163 (119, 208)	70 (26, 114)	9 (-40, 59)	99 (60, 139)
STATION29	122	97 (58, 137)	51 (4, 98)	23 (-31, 77)	50 (10, 90)
STATION30	127	48 (3, 94)	-92 (-164, -20)	-119 (-175, -64)	-8 (-44, 28)

(CONTINUED)

TABLE 1B. DIFFERENCE OF OBSERVED AND PREDICTED AVERAGES OF THE 25 HIGHEST SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
		MPTER	MPSDM	PPSP	TEM-8A
3. BY METEOROLOGICAL CONDITION (A-5)					
A. WIND SPEED					
< 2.5 M/SEC	386	226 (152, 301)	-154 (-266, -42)	-1301 (-1571, -1031)	108 (30, 187)
2.5 TO 5.0	298	-1 (-35, 33)	-115 (-188, -43)	-2028 (-2558, -1498)	-37 (-78, 4)
> 5.0 M/SEC	227	84 (43, 125)	79 (39, 119)	-406 (-576, -237)	55 (13, 98)
B. STABILITY GROUP					
CLASS A & B	415	127 (56, 198)	-121 (-231, -11)	-874 (-1081, -666)	65 (-8, 139)
CLASS C	259	36 (-1, 74)	-126 (-205, -47)	-1377 (-1687, -1068)	-20 (-60, 19)
CLASS D	167	78 (53, 102)	-99 (-143, -55)	-677 (-896, -459)	46 (20, 72)
CLASS E & F	108	105 (79, 130)	42 (4, 80)	-2035 (-2562, -1508)	95 (69, 121)

TABLE 1C. DIFFERENCE OF OBSERVED AND PREDICTED AVERAGES OF THE 25 HIGHEST SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) AVERAGING TIME: 24 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
		MPTER	MPSDM	PPSP	TEM-8A
1. ALL STATIONS/ALL EVENTS (A-4A)	85	28 (16, 41)	-29 (-51, -7)	-768 (-1034, -502)	11 (-1, 24)
2. BY STATION/ALL EVENTS (A-4B)					
STATION 1	25	9 (-1, 20)	-36 (-61, -11)	-818 (-1087, -549)	-17 (-29, -5)
STATION 2	27	18 (-1, 37)	7 (-12, 25)	-46 (-80, -11)	9 (-9, 27)
STATION 3	24	23 (12, 35)	15 (-1, 32)	-11 (-35, 14)	22 (11, 34)
STATION 4	28	8 (-2, 18)	-12 (-25, 1)	-112 (-159, -65)	-8 (-18, 2)
STATION 5	1	1 (0, 2)	1 (0, 2)	1 (0, 2)	1 (0, 2)
STATION 6	24	11 (4, 19)	0 (-9, 9)	-19 (-33, -5)	3 (-4, 10)
STATION 7	19	10 (2, 18)	-16 (-30, -3)	-62 (-103, -21)	-11 (-21, -1)
STATION 8	23	4 (-5, 14)	-14 (-24, -4)	-34 (-51, -16)	-16 (-28, -4)
STATION 9	4	3 (-1, 8)	4 (-1, 8)	3 (-2, 7)	3 (-1, 7)
STATION10	18	11 (1, 21)	8 (-3, 18)	-3 (-15, 10)	4 (-6, 15)
STATION11	16	5 (-4, 14)	-3 (-13, 8)	-6 (-20, 7)	-1 (-10, 8)
STATION12	23	16 (7, 25)	14 (4, 24)	-13 (-32, 6)	13 (3, 23)
STATION13	5	3 (-3, 9)	2 (-4, 8)	2 (-5, 9)	2 (-5, 8)
STATION14	1	0 (0, 1)	0 (0, 1)	0 (-1, 1)	0 (-2, 2)
STATION15	7	5 (-1, 12)	4 (-3, 11)	-4 (-16, 8)	4 (-3, 11)
STATION16	3	1 (-4, 6)	1 (-4, 6)	-3 (-10, 4)	1 (-3, 6)
STATION17	19	10 (1, 18)	-3 (-15, 8)	-13 (-29, 3)	-2 (-10, 7)
STATION18	4	3 (-2, 8)	3 (-2, 8)	4 (-1, 9)	3 (-3, 8)
STATION19	11	6 (1, 11)	-1 (-8, 5)	-7 (-16, 1)	-3 (-7, 2)
STATION20	14	8 (4, 12)	-2 (-10, 5)	0 (-7, 7)	-9 (-17, -1)
STATION21	22	19 (13, 25)	15 (8, 22)	15 (9, 22)	15 (8, 22)
STATION22	12	7 (1, 12)	-3 (-11, 5)	-21 (-38, -4)	-5 (-13, 2)
STATION23	8	5 (-2, 11)	0 (-9, 9)	-19 (-40, 2)	-1 (-9, 7)
STATION24	28	15 (3, 26)	-2 (-14, 9)	-35 (-59, -11)	-7 (-19, 4)
STATION25	12	6 (1, 11)	-3 (-17, 12)	2 (-4, 8)	1 (-6, 8)
STATION26	29	17 (7, 27)	0 (-11, 11)	-15 (-30, -1)	4 (-6, 13)
STATION27	13	8 (3, 12)	-1 (-7, 4)	-14 (-25, -4)	-4 (-9, 1)
STATION28	35	29 (17, 40)	16 (3, 29)	2 (-14, 18)	19 (7, 31)
STATION29	6	6 (1, 10)	5 (0, 9)	3 (-3, 9)	4 (-1, 9)
STATION30	19	9 (-1, 19)	-15 (-35, 5)	-27 (-40, -13)	-5 (-15, 5)

TABLE 2A. AVERAGE DIFFERENCE BETWEEN OBSERVED AND PREDICTED CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE(Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
			MPTER	MPSDM	PPSP	TEM-8A
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	1946	121.2	66.0(58.0, 74.0)	-7.6(-17.9, 2.7)	-325.6(-350.0,-301.2)	27.3(19.3, 35.3)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	5172	86.6	48.7(44.9, 52.5)	-3.3(-8.0, 1.3)	-159.9(-169.4,-150.4)	-1.9(-5.1, 1.3)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	224	95.8	40.9(18.9, 62.9)	-83.7(-116.3, -51.0)	-584.7(-628.0,-541.4)	-40.2(-59.7, -20.7)
STATION 2	149	116.4	83.1(43.6, 122.6)	12.4(-23.8, 48.5)	-162.4(-216.4,-108.4)	20.4(-13.0, 53.9)
STATION 3	219	83.7	76.8(60.9, 92.7)	27.2(0.8, 53.6)	-120.8(-164.3, -77.4)	49.7(29.7, 69.8)
STATION 4	300	85.7	37.0(20.9, 53.0)	-16.5(-34.2, 1.2)	-223.6(-268.9,-178.4)	-9.3(-21.4, 2.7)
STATION 5	113	88.1	0.4(-31.1, 31.9)	-34.2(-62.2, -6.3)	-79.0(-113.2, -44.8)	-18.8(-39.1, 1.5)
STATION 6	208	73.5	29.4(10.5, 48.3)	-7.9(-29.7, 13.8)	-76.5(-101.3, -51.8)	-4.3(-18.5, 9.9)
STATION 7	154	83.5	41.4(16.8, 65.9)	-47.8(-81.4, -14.2)	-191.9(-246.3,-137.5)	-31.4(-54.0, -8.9)
STATION 8	167	93.8	26.9(1.0, 52.8)	-39.0(-67.0, -10.9)	-142.7(-177.5,-108.0)	-48.1(-67.2, -29.1)
STATION 9	192	67.6	45.5(34.5, 56.5)	30.1(18.0, 42.1)	9.4(-5.0, 23.7)	24.0(13.7, 34.3)
STATION10	196	78.4	34.1(17.5, 50.8)	6.5(-10.3, 23.3)	-52.4(-69.2, -35.5)	-1.6(-15.3, 12.2)
STATION11	176	84.9	30.3(9.7, 50.8)	-6.7(-26.4, 13.0)	-61.8(-83.9, -39.7)	-9.2(-24.0, 5.7)
STATION12	275	66.1	48.3(35.9, 60.7)	22.9(6.0, 39.8)	-61.4(-89.0, -33.8)	17.5(5.0, 30.1)
STATION13	154	101.0	50.8(25.7, 75.9)	17.8(-8.3, 44.0)	-36.0(-67.3, -4.8)	4.0(-17.3, 25.3)
STATION14	123	85.0	47.5(28.7, 66.3)	18.6(-0.8, 37.9)	-20.8(-44.1, 2.5)	4.4(-11.7, 20.6)
STATION15	86	71.3	19.5(-12.1, 51.1)	-15.0(-46.3, 16.3)	-119.1(-159.5, -78.6)	-31.8(-54.2, -9.4)
STATION16	135	82.1	40.2(18.9, 61.5)	-10.7(-37.9, 16.6)	-59.8(-87.4, -32.2)	-10.3(-27.4, 6.8)
STATION17	139	95.3	48.5(25.8, 71.2)	-10.7(-38.9, 17.4)	-59.6(-91.4, -27.9)	-13.8(-30.5, 2.8)
STATION18	139	82.2	51.3(33.7, 68.9)	36.2(18.2, 54.1)	-4.7(-27.1, 17.7)	13.2(-2.4, 28.9)
STATION19	141	67.4	33.9(16.2, 51.7)	-2.0(-22.1, 18.1)	-47.6(-70.7, -24.4)	-3.8(-16.8, 9.3)
STATION20	132	73.2	44.0(25.7, 62.3)	-10.9(-34.7, 12.9)	-28.8(-54.6, -3.0)	-29.0(-47.4, -10.6)

(CONTINUED)

TABLE 2A. AVERAGE DIFFERENCE BETWEEN OBSERVED AND PREDICTED CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE(Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
			MPTER	MPSDM	PPSP	TEM-8A
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION21	131	74.6	52.0(36.9, 67.0)	29.1(11.5, 46.7)	-10.9(-31.3, 9.5)	21.5(8.0, 34.9)
STATION22	158	79.5	47.7(31.4, 64.0)	3.4(-16.5, 23.3)	-69.2(-91.8, -46.6)	-2.8(-16.3, 10.7)
STATION23	162	97.2	51.4(29.7, 73.1)	-35.8(-71.0, -0.5)	-137.1(-175.3, -98.9)	-19.8(-39.5, -0.1)
STATION24	201	88.6	44.2(22.7, 65.8)	-23.8(-48.8, 1.2)	-105.8(-131.0, -80.6)	-26.6(-43.9, -9.2)
STATION25	182	68.8	40.8(26.9, 54.6)	3.6(-17.8, 25.1)	-16.2(-39.3, 6.9)	9.0(-4.3, 22.2)
STATION26	239	97.8	60.1(41.5, 78.6)	3.0(-19.5, 25.4)	-57.5(-80.9, -34.1)	10.5(-3.9, 24.9)
STATION27	180	75.5	49.9(33.4, 66.4)	5.0(-15.3, 25.2)	-46.0(-67.4, -24.5)	4.4(-8.2, 16.9)
STATION28	184	140.6	119.5(95.5, 143.6)	63.9(36.6, 91.1)	-9.7(-38.6, 19.2)	54.8(33.0, 76.7)
STATION29	169	105.0	89.0(70.2, 107.8)	51.8(30.3, 73.4)	5.5(-18.6, 29.6)	41.0(23.5, 58.6)
STATION30	153	95.1	47.7(24.3, 71.2)	-40.5(-72.8, -8.1)	-97.2(-126.9, -67.5)	-12.4(-30.6, 5.9)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	1194	109.4	88.2(79.6, 96.9)	-34.9(-47.5, -22.2)	-223.3(-243.1,-203.6)	13.8(6.0, 21.6)
2.5 TO 5.0	2480	88.0	39.5(33.7, 45.4)	-2.8(-8.9, 3.2)	-169.1(-184.2,-154.0)	-19.9(-24.4, -15.4)
> 5.0 M/SEC	1498	66.1	32.4(27.3, 37.6)	28.2(23.2, 33.2)	-66.0(-75.2, -56.7)	22.4(17.9, 26.9)
B. STABILITY GROUP						
CLASS A & B	1894	115.8	61.8(53.8, 69.9)	-24.1(-33.2, -15.1)	-134.0(-149.6,-118.4)	-20.1(-25.8, -14.5)
CLASS C	1588	78.7	28.6(22.2, 35.0)	-13.9(-22.1, -5.6)	-135.8(-152.3,-119.3)	-16.7(-22.1, -11.4)
CLASS D	1328	61.4	50.7(47.1, 54.2)	27.3(21.9, 32.7)	-121.4(-136.2,-106.5)	47.6(43.9, 51.3)
CLASS E & F	362	61.2	61.2(54.3, 68.2)	61.2(54.3, 68.2)	-301.0(-333.8,-268.2)	56.5(49.4, 63.7)

TABLE 2B. AVERAGE DIFFERENCE BETWEEN OBSERVED AND PREDICTED CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE(Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
			MPTER	MPSDM	PPSP	TEM-8A
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	563	100.0	55.6(45.3, 65.9)	-6.1(-19.1, 6.9)	-307.5(-349.6,-265.4)	17.8(7.5, 28.2)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	1510	72.7	41.8(36.9, 46.7)	-1.8(-7.6, 3.9)	-142.8(-158.3,-127.4)	0.4(-3.9, 4.8)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	83	74.9	30.5(7.7, 53.3)	-62.6(-98.6, -26.6)	-580.4(-660.0,-500.8)	-33.5(-55.0, -12.1)
STATION 2	46	111.5	78.6(19.9, 137.4)	10.4(-35.4, 56.2)	-123.7(-178.8, -68.6)	21.7(-23.5, 67.0)
STATION 3	67	75.9	70.4(46.1, 94.6)	39.6(6.1, 73.2)	-83.6(-132.2, -34.9)	50.7(25.4, 76.0)
STATION 4	107	67.0	27.5(10.2, 44.7)	-15.7(-34.3, 2.8)	-171.8(-223.0,-120.6)	-9.2(-23.2, 4.7)
STATION 5	23	73.0	24.5(-17.6, 66.5)	2.2(-38.2, 42.6)	-11.0(-71.0, 48.9)	3.6(-32.7, 39.9)
STATION 6	65	67.5	29.7(4.5, 54.8)	-3.0(-28.5, 22.4)	-60.4(-87.9, -33.0)	-0.2(-19.8, 19.4)
STATION 7	47	74.7	32.6(4.2, 61.1)	-54.0(-94.0, -14.0)	-169.4(-242.8, -96.0)	-37.4(-67.1, -7.6)
STATION 8	53	70.4	16.9(-13.8, 47.7)	-36.7(-64.7, -8.8)	-104.2(-137.0, -71.4)	-39.7(-62.7, -16.7)
STATION 9	36	57.6	44.7(29.6, 59.8)	38.6(22.4, 54.8)	35.7(17.1, 54.3)	42.5(27.5, 57.5)
STATION10	53	70.9	31.4(6.2, 56.5)	16.3(-8.6, 41.2)	-38.3(-59.0, -17.7)	14.1(-6.7, 34.9)
STATION11	43	75.7	24.0(-7.0, 55.0)	-11.8(-39.5, 15.8)	-58.0(-89.0, -26.9)	-11.9(-33.8, 10.0)
STATION12	78	57.1	39.1(22.6, 55.5)	13.3(-12.0, 38.7)	-63.5(-101.3, -25.7)	16.5(-1.7, 34.7)
STATION13	32	100.0	55.1(13.0, 97.1)	34.5(-7.7, 76.6)	-24.0(-79.6, 31.5)	22.8(-17.9, 63.6)
STATION14	18	83.3	62.1(33.5, 90.7)	35.8(1.6, 70.0)	-0.4(-47.2, 46.3)	15.6(-14.8, 46.0)
STATION15	23	65.4	27.8(-17.3, 72.9)	-4.5(-46.4, 37.3)	-90.6(-138.4, -42.7)	-17.2(-55.1, 20.8)
STATION16	35	61.1	34.5(10.5, 58.5)	18.3(-7.6, 44.3)	-26.2(-64.0, 11.6)	8.6(-16.0, 33.3)
STATION17	50	74.8	35.6(11.3, 59.9)	-14.7(-43.5, 14.1)	-42.2(-72.1, -12.4)	-13.2(-33.4, 7.0)
STATION18	30	74.0	53.3(28.2, 78.5)	43.3(18.5, 68.1)	8.0(-23.9, 39.8)	18.0(-7.8, 43.8)
STATION19	40	47.7	17.7(-2.4, 37.9)	-9.1(-30.6, 12.5)	-34.6(-57.7, -11.5)	-6.0(-22.6, 10.7)
STATION20	51	52.1	30.2(13.0, 47.5)	-12.9(-34.7, 9.0)	-25.7(-47.9, -3.5)	-22.8(-39.1, -6.6)

(CONTINUED)

TABLE 2B. AVERAGE DIFFERENCE BETWEEN OBSERVED AND PREDICTED CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE(Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
			MPTER	MPSDM	PPSP	TEM-8A
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION21	40	56.9	40.8(22.9, 58.6)	15.7(-4.5, 35.9)	-5.9(-25.7, 13.8)	16.0(-2.5, 34.5)
STATION22	42	65.2	41.1(20.5, 61.6)	10.1(-14.9, 35.0)	-53.3(-77.7, -29.0)	1.7(-18.0, 21.4)
STATION23	41	81.8	49.9(19.4, 80.3)	23.0(-10.7, 56.6)	-75.8(-116.4, -35.3)	4.0(-24.4, 32.3)
STATION24	62	74.4	36.2(8.7, 63.7)	-14.7(-41.8, 12.4)	-82.4(-113.0, -51.9)	-17.1(-39.5, 5.3)
STATION25	54	53.2	31.1(13.9, 48.3)	1.9(-25.3, 29.1)	-3.8(-21.7, 14.1)	12.6(-4.5, 29.7)
STATION26	88	79.3	52.1(32.1, 72.0)	5.6(-17.2, 28.5)	-44.2(-68.4, -20.1)	8.0(-8.7, 24.8)
STATION27	58	59.2	38.0(17.6, 58.4)	14.4(-4.9, 33.7)	-28.8(-51.3, -6.4)	9.4(-7.3, 26.1)
STATION28	61	117.3	97.2(68.2, 126.2)	42.1(12.7, 71.5)	-10.2(-39.2, 18.9)	44.5(18.6, 70.4)
STATION29	36	92.0	76.2(44.8, 107.7)	38.8(5.0, 72.6)	-2.6(-37.4, 32.3)	31.6(4.0, 59.2)
STATION30	48	78.7	39.0(9.1, 68.9)	-41.0(-78.6, -3.3)	-76.8(-104.6, -49.1)	-15.2(-35.7, 5.3)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	374	88.3	70.5(58.9, 82.1)	-21.8(-35.7, -8.0)	-170.8(-197.5,-144.1)	10.3(0.2, 20.3)
2.5 TO 5.0	753	72.3	32.8(25.9, 39.8)	-2.1(-9.6, 5.4)	-158.2(-183.7,-132.7)	-12.7(-18.5, -6.9)
> 5.0 M/SEC	383	58.5	31.4(24.1, 38.6)	26.6(19.3, 33.8)	-58.7(-75.8, -41.5)	21.7(14.5, 28.9)
B. STABILITY GROUP						
CLASS A & B	557	96.0	55.7(45.4, 66.1)	-8.8(-20.5, 2.9)	-107.7(-130.8, -84.6)	-6.9(-15.4, 1.5)
CLASS C	533	65.0	28.9(21.6, 36.2)	-4.1(-12.7, 4.5)	-129.5(-155.2,-103.8)	-9.0(-15.2, -2.7)
CLASS D	320	51.4	35.6(29.9, 41.4)	4.1(-4.1, 12.2)	-96.2(-118.0, -74.5)	22.6(16.8, 28.4)
CLASS E & F	100	52.5	52.5(43.6, 61.4)	32.7(21.3, 44.2)	-255.0(-305.4,-204.6)	51.2(42.3, 60.2)

TABLE 2C. AVERAGE DIFFERENCE BETWEEN OBSERVED AND PREDICTED CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE(Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)			
			MPTER	MPSDM	PPSP	TEM-8A
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	157	31.7	16.7(11.5, 21.8)	-2.5(-9.9, 5.0)	-203.8(-277.7,-129.8)	4.3(-1.2, 9.8)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	767	17.0	10.6(9.0, 12.1)	0.4(-1.6, 2.4)	-48.0(-61.2, -34.7)	1.1(-0.5, 2.7)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	38	17.6	7.8(0.0, 15.5)	-19.0(-32.8, -5.3)	-401.5(-538.7,-264.2)	-10.2(-18.2, -2.2)
STATION 2	31	23.2	15.8(0.5, 31.2)	5.3(-6.7, 17.3)	-28.7(-51.2, -6.1)	7.2(-5.2, 19.5)
STATION 3	25	23.8	23.3(11.8, 34.8)	16.2(-0.8, 33.1)	-14.2(-39.4, 10.9)	23.0(11.1, 35.0)
STATION 4	51	16.8	7.0(0.7, 13.2)	-4.7(-12.6, 3.2)	-66.6(-96.5, -36.7)	-3.7(-10.2, 2.8)
STATION 5	* * * * * * * *		INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS			* * * * * *
STATION 6	47	15.9	9.2(4.2, 14.3)	2.8(-3.0, 8.6)	-11.7(-21.9, -1.5)	3.7(-1.2, 8.7)
STATION 7	34	15.0	8.5(2.2, 14.9)	-8.4(-17.5, 0.7)	-40.6(-69.0, -12.1)	-5.6(-13.1, 1.8)
STATION 8	34	17.9	4.4(-4.0, 12.7)	-9.5(-17.9, -1.0)	-30.0(-44.8, -15.1)	-11.3(-19.8, -2.9)
STATION 9	4	21.4	18.1(-8.7, 45.0)	19.4(-8.2, 46.9)	13.5(-14.4, 41.5)	17.4(-9.4, 44.2)
STATION10	30	15.6	10.0(1.4, 18.5)	7.2(-1.4, 15.7)	-8.2(-16.6, 0.1)	4.5(-3.9, 13.0)
STATION11	22	17.3	5.1(-5.1, 15.2)	-3.2(-14.1, 7.7)	-12.1(-26.5, 2.2)	-1.6(-11.0, 7.8)
STATION12	42	16.3	12.2(6.2, 18.3)	11.0(4.5, 17.5)	-5.0(-17.5, 7.5)	10.0(3.8, 16.3)
STATION13	4	29.3	15.0(-16.4, 46.5)	10.4(-20.8, 41.5)	6.6(-49.0, 62.2)	9.5(-23.3, 42.3)
STATION14	* * * * * * * *		INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS			* * * * * *
STATION15	8	20.3	15.7(-4.2, 35.6)	9.0(-7.8, 25.7)	-8.6(-32.0, 14.8)	7.1(-6.8, 21.0)
STATION16	4	18.4	4.3(-28.7, 37.3)	1.7(-23.5, 26.8)	-13.5(-36.0, 9.1)	7.6(-24.5, 39.8)
STATION17	26	17.8	9.1(0.7, 17.5)	-2.7(-12.5, 7.2)	-14.1(-29.0, 0.8)	-1.0(-9.1, 7.0)
STATION18	* * * * * * * *		INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS			* * * * * *
STATION19	40	9.0	5.4(2.1, 8.7)	1.1(-3.2, 5.4)	-6.2(-13.3, 1.0)	0.3(-3.3, 3.9)
STATION20	42	10.5	7.7(5.0, 10.5)	1.1(-3.6, 5.8)	0.0(-5.5, 5.5)	2.5(-7.3, 2.3)

(CONTINUED)

TABLE 2C. AVERAGE DIFFERENCE BETWEEN OBSERVED AND PREDICTED CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE(Co) (UG/M**3)	DIFFERENCE OF AVERAGES (Co - Cp) FOR EACH MODEL (UG/M**3)											
			MPTER			MPSDM			PPSP			TEM-8A		
3. ALL CONCENTRATIONS, BY STATION (B-1)														
STATION21	33	17.5	15.5(	10.2,	20.9)|	12.1(	6.2,	18.1)|	11.9(	4.8,	19.1)|	13.2(	7.3,	19.1)|
STATION22	20	14.4	7.6(	1.1,	14.0)|	-3.1(	-11.4,	5.3)|	-25.9(	-43.6,	-8.3)|	-5.1(	-12.4,	2.1)|
STATION23	10	18.4	11.1(	-2.6,	24.8)|	-0.1(	-18.3,	18.1)|	-43.4(	-84.5,	-2.3)|	-2.0(	-16.3,	12.4)|
STATION24	53	17.3	11.3(	5.1,	17.4)|	2.8(	-4.5,	10.0)|	-22.0(	-38.5,	-5.4)|	-0.7(	-7.6,	6.2)|
STATION25	23	12.0	6.8(	1.1,	12.5)|	-2.2(	-17.0,	12.5)|	0.0(	-5.9,	5.8)|	1.4(	-5.2,	8.0)|
STATION26	45	19.2	12.6(	5.9,	19.3)|	1.8(	-5.5,	9.2)|	-12.5(	-23.5,	-1.5)|	3.0(	-3.2,	9.3)|
STATION27	34	10.9	6.9(	3.4,	10.4)|	0.4(	-4.1,	4.8)|	-13.5(	-23.1,	-3.9)|	-1.3(	-5.9,	3.2)|
STATION28	33	27.8	23.0(	13.2,	32.9)|	12.2(	1.9,	22.5)|	-2.1(	-14.7,	10.5)|	14.6(	4.7,	24.4)|
STATION29	7	18.9	17.6(	3.8,	31.5)|	13.1(	0.2,	25.9)|	3.5(	-15.5,	22.5)|	9.5(	-2.5,	21.6)|
STATION30	22	20.2	9.5(	-1.8,	20.8)|	-13.2(	-31.2,	4.9)|	-24.6(	-36.6,	-12.6)|	-4.3(	-13.3,	4.7)|

TABLE 3A. COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM PREDICTED CONCENTRATION VALUES

KINCAID (1980 & 1981) AVERAGING TIME: 1 HOUR

MODEL	HIGHEST OBSERVED VALUE OVER ALL EVENTS AND LOCATIONS CoMAX (UG/M**3)	HIGHEST PREDICTED VALUE OVER ALL EVENTS AND LOCATIONS CpMAX (UG/M**3)	DIFFERENCE OF MAXIMUM VALUES Co - Cp (UG/M**3)	AVERAGE OF MAXIMUM VALUES OBSERVED AT EACH STATION Co (UG/M**3)	AVERAGE OF MAXIMUM VALUES PREDICTED AT EACH STATION Cp (UG/M**3)	AVERAGE DIFFERENCE Co - Cp (UG/M**3)
MPTER	1182.2	1422.0	-239.8	596.6	575.1	21.5
MPSDM	1182.2	1554.0	-371.8	596.6	829.2	-232.6
PPSP	1182.2	6219.0	-5036.8	596.6	1484.0	-887.4
TEM-8A	1182.2	870.0	312.2	596.6	508.0	88.6

TABLE 3B. COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM PREDICTED CONCENTRATION VALUES

KINCAID (1980 & 1981) AVERAGING TIME: 3 HOUR

MODEL	HIGHEST OBSERVED VALUE OVER ALL EVENTS AND LOCATIONS CoMAX (UG/M**3)	HIGHEST PREDICTED VALUE OVER ALL EVENTS AND LOCATIONS CpMAX (UG/M**3)	DIFFERENCE OF MAXIMUM VALUES Co - Cp (UG/M**3)	AVERAGE OF MAXIMUM VALUES OBSERVED AT EACH STATION Co (UG/M**3)	AVERAGE OF MAXIMUM VALUES PREDICTED AT EACH STATION Cp (UG/M**3)	AVERAGE DIFFERENCE Co - Cp (UG/M**3)
MPTER	1094.9	479.3	615.6	350.1	239.4	110.7
MPSDM	1094.9	1127.0	-32.1	350.1	410.7	-60.6
PPSP	1094.9	5441.7	-4346.7	350.1	765.1	-415.0
TEM-8A	1094.9	564.3	530.6	350.1	277.0	73.1

TABLE 3C. COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM PREDICTED CONCENTRATION VALUES

KINCAID (1980 & 1981) AVERAGING TIME: 24 HOUR

MODEL	HIGHEST OBSERVED VALUE OVER ALL EVENTS AND LOCATIONS CoMAX (UG/M**3)	HIGHEST PREDICTED VALUE OVER ALL EVENTS AND LOCATIONS CpMAX (UG/M**3)	DIFFERENCE OF MAXIMUM VALUES Co - Cp (UG/M**3)	AVERAGE OF MAXIMUM VALUES OBSERVED AT EACH STATION Co (UG/M**3)	AVERAGE OF MAXIMUM VALUES PREDICTED AT EACH STATION Cp (UG/M**3)	AVERAGE DIFFERENCE Co - Cp (UG/M**3)
MPTER	189.5	89.9	99.6	64.7	40.3	24.3
MPSDM	189.5	231.7	-42.2	64.7	74.9	-10.2
PPSP	189.5	3249.0	-3059.6	64.7	239.1	-174.5
TEM-8A	189.5	119.6	69.9	64.7	51.7	13.0

SECTION IV

CONCLUSIONS

The SO_2 data base collected at the Kincaid Power Plant during 1980/1981 was used to evaluate the performance or 4 rural models which had been previously evaluated from data collected in 1975/1976 at Clifty Creek and Muskingum River. Overall results were similar in many ways to results reported earlier. PPSP clearly overpredicted concentrations in almost every data category while MPSDM, MPTER and TEM exhibited relatively small but detectable biases depending on averaging period and data category.

Among the latter three models, MPSDM tended to overpredict the 25 highest observed concentrations while TEM and MPTER tended to underpredict the 25 highest observed values. For MPSDM, overpredictions tended to decrease noticeably with increasing averaging period with 1-hour values being overpredicted by the greatest extent. For MPTER and TEM, there was no obvious trend toward greater underprediction with averaging period increases. The most noticeable contrast with results from previous studies occured for MPTER; overpredictions of 1-hour values were obvious for Clifty Creek and Muskingum River which were not apparent here, especially for the more unstable conditions.

Results presented previously by EPRI and those presented in this addendum are quite close and only differ quantitatively due to slight differences in the way the data were processed. The reader is referred to Appendix E which compares the performance of CRSTER/MPTER reported by EPRI with results obtained from this study for selected data categories.

EPA plans to continue the evaluation of rural models using the tracer data base collected at Kincaid and other high quality data bases as they become available. EPA is also in the process of evaluating the results from various rural studies and plans in the future to issue additional reports summarizing the performance of rural models across data bases. Hopefully a format can be developed that is amenable for quantitatively distinquishing differences in performance levels among the models and among data bases.

From a regulatory point of view, the ability of the models to estimate the highest 3-hour and 24-hour average concentrations is of particular interest. MPTER, MPSDM and TEM-8A were all successful in estimating the network-wide highest observed 3-hour and 24-hour observed values within approximately a factor of two. A more robust comparison using the second highest 3-hour and second highest 24-hour value from each of the 30 stations indicated that the better performing models were able to estimate the second highest values at individual stations within approximately 50 percent.

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APPENDIX A

Statistics For 25 Highest Values

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	760	723	37 (-74, 148)	82 (0, 131)	0.48 (0.21, 1.10)	-0.44(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	344	348	-5 (-97, 87)	23 (-39, 74)	0.46 (0.20, 1.05)	-0.24(0.385)
STATION 2	422	201	221 (35, 406)	207 (113, 281)	0.92 (0.40, 2.08)	-0.64(0.385)
STATION 3	318	63	255 (164, 346)	231 (187, 270)	1.77 (0.78, 4.02)	-0.96(0.385)
STATION 4	332	354	-21 (-85, 42)	-20 (-79, 46)	0.73 (0.32, 1.66)	0.16(0.385)
STATION 5	238	327	-89 (-145, -33)	-77 (-121, -28)	0.42 (0.19, 0.96)	0.48(0.385)
STATION 6	291	272	19 (-57, 94)	-9 (-52, 80)	1.20 (0.53, 2.72)	-0.16(0.385)
STATION 7	241	238	3 (-102, 107)	91 (5, 115)	0.12 (0.05, 0.26)	-0.52(0.385)
STATION 8	341	321	20 (-44, 83)	29 (-35, 74)	1.41 (0.62, 3.19)	-0.24(0.385)
STATION 9	192	127	64 (27, 101)	81 (37, 93)	1.31 (0.58, 2.97)	-0.56(0.385)
STATION10	276	225	51 (11, 90)	53 (21, 84)	0.79 (0.35, 1.79)	-0.52(0.385)
STATION11	271	267	4 (-59, 68)	-21 (-47, 49)	0.92 (0.40, 2.08)	-0.20(0.385)
STATION12	233	195	38 (-53, 129)	47 (11, 120)	0.34 (0.15, 0.78)	-0.56(0.385)
STATION13	330	246	84 (10, 159)	68 (10, 109)	3.40 (1.50, 7.71)	-0.40(0.385)
STATION14	227	150	77 (43, 112)	78 (50, 111)	0.66 (0.29, 1.50)	-0.64(0.385)
STATION15	163	180	-17 (-98, 65)	7 (-44, 74)	0.30 (0.13, 0.68)	-0.40(0.385)
STATION16	217	213	4 (-56, 64)	11 (-30, 72)	0.28 (0.12, 0.64)	-0.36(0.385)
STATION17	258	229	29 (-28, 85)	55 (-16, 84)	0.53 (0.23, 1.19)	-0.48(0.385)
STATION18	222	127	96 (51, 140)	47 (41, 122)	3.66 (1.61, 8.30)	-0.60(0.385)
STATION19	184	178	6 (-51, 62)	9 (-30, 53)	0.65 (0.29, 1.48)	-0.28(0.385)
STATION20	220	134	86 (35, 137)	67 (37, 129)	1.56 (0.69, 3.54)	-0.44(0.385)
STATION21	187	112	75 (33, 118)	84 (56, 116)	0.43 (0.19, 0.99)	-0.76(0.385)
STATION22	224	153	71 (20, 122)	45 (31, 94)	1.05 (0.46, 2.38)	-0.64(0.385)
STATION23	293	246	48 (-9, 105)	-10 (-24, 100)	1.40 (0.62, 3.17)	-0.32(0.385)
STATION24	330	289	41 (-40, 123)	86 (-8, 117)	0.49 (0.22, 1.12)	-0.36(0.385)
STATION25	219	125	95 (44, 146)	89 (65, 102)	3.88 (1.71, 8.80)	-0.80(0.385)
STATION26	366	256	109 (35, 184)	153 (86, 185)	0.28 (0.13, 0.65)	-0.64(0.385)
STATION27	251	136	115 (42, 188)	73 (47, 99)	7.99 (3.52,18.14)	-0.68(0.385)
STATION28	453	148	305 (226, 384)	273 (235, 357)	2.09 (0.92, 4.74)	-0.88(0.385)
STATION29	339	106	233 (181, 286)	247 (173, 284)	2.58 (1.14, 5.86)	-0.92(0.385)
STATION30	300	244	56 (-5, 117)	60 (-3, 99)	1.80 (0.79, 4.08)	-0.28(0.385)

(CONTINUED)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
3. BY METEOROLOGICAL CONDITION (A-5)						
A. WIND SPEED						
< 2.5 M/SEC	681	468	213 (113, 312)	181 (122, 286)	1.29 (0.57, 2.93)	-0.64(0.385)
2.5 TO 5.0	603	667	-64 (-173, 45)	-4 (-83, 53)	0.29 (0.13, 0.65)	-0.20(0.385)
> 5.0 M/SEC	407	398	9 (-49, 67)	-5 (-36, 52)	1.00 (0.44, 2.26)	-0.16(0.365)
B. STABILITY GROUP						
CLASS A & B	745	670	75 (-43, 193)	99 (37, 167)	0.49 (0.22, 1.12)	-0.52(0.385)
CLASS C	478	511	-34 (-102, 35)	-2 (-72, 30)	0.48 (0.21, 1.10)	0.24(0.385)
CLASS D	340	102	238 (211, 265)	221 (204, 232)	34.81 (15.34,78.99)	-1.00(0.385)
CLASS E & F	256	6	250 (196, 304)	228 (198, 239)	2936 (1294, 6661)	-1.00(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	430	309	121 (54, 189)	73 (62, 119)	9.20 (4.05,20.87)	-0.76(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	162	132	29 (-17, 75)	38 (-3, 57)	1.14 (0.50, 2.59)	-0.40(0.385)
STATION 2	181	62	119 (18, 219)	116 (52, 124)	3.26 (1.43, 7.39)	-0.68(0.385)
STATION 3	142	18	124 (67, 181)	101 (73, 115)	6.50 (2.86,14.75)	-0.96(0.385)
STATION 4	157	139	18 (-20, 55)	42 (3, 55)	0.36 (0.16, 0.82)	-0.52(0.385)
STATION 5	69	46	23 (-16, 62)	23 (5, 47)	0.84 (0.37, 1.91)	-0.48(0.385)
STATION 6	130	97	34 (-16, 83)	41 (-3, 66)	1.50 (0.66, 3.40)	-0.36(0.385)
STATION 7	119	81	38 (-4, 79)	78 (24, 88)	0.25 (0.11, 0.58)	-0.60(0.385)
STATION 8	124	114	11 (-38, 59)	-15 (-35, 37)	1.80 (0.79, 4.08)	-0.20(0.385)
STATION 9	73	19	54 (36, 72)	62 (36, 66)	2.27 (1.00, 5.14)	-0.72(0.385)
STATION10	126	84	43 (6, 80)	39 (-2, 69)	2.61 (1.15, 5.91)	-0.32(0.385)
STATION11	116	88	28 (-14, 70)	42 (12, 65)	0.50 (0.22, 1.13)	-0.48(0.385)
STATION12	103	58	45 (2, 88)	61 (40, 72)	0.49 (0.21, 1.11)	-0.64(0.385)
STATION13	122	58	64 (14, 114)	35 (17, 80)	2.72 (1.20, 6.18)	-0.48(0.385)
STATION14	65	16	49 (25, 73)	36 (18, 66)	3.90 (1.72, 8.66)	-0.72(0.385)
STATION15	64	37	27 (-14, 68)	42 (20, 47)	0.96 (0.42, 2.19)	-0.72(0.385)
STATION16	77	37	40 (9, 70)	64 (29, 65)	1.16 (0.51, 2.63)	-0.64(0.385)
STATION17	122	80	43 (10, 76)	56 (24, 77)	0.39 (0.17, 0.89)	-0.56(0.385)
STATION18	84	27	58 (29, 86)	54 (30, 63)	4.38 (1.93, 9.94)	-0.60(0.385)
STATION19	66	50	17 (-11, 44)	33 (5, 49)	0.24 (0.10, 0.54)	-0.52(0.385)
STATION20	87	48	40 (14, 65)	36 (16, 52)	2.18 (0.96, 4.95)	-0.52(0.385)
STATION21	79	29	50 (26, 74)	50 (32, 56)	2.05 (0.90, 4.66)	-0.68(0.385)
STATION22	95	42	53 (27, 79)	71 (35, 78)	0.89 (0.39, 2.02)	-0.68(0.385)
STATION23	121	54	67 (26, 108)	48 (28, 93)	1.96 (0.87, 4.46)	-0.60(0.385)
STATION24	144	96	48 (-3, 98)	46 (3, 73)	1.92 (0.84, 4.35)	-0.40(0.385)
STATION25	94	50	44 (18, 70)	31 (19, 54)	2.99 (1.32, 6.79)	-0.48(0.385)
STATION26	181	91	89 (50, 129)	102 (63, 123)	1.08 (0.48, 2.45)	-0.68(0.385)
STATION27	110	51	59 (23, 96)	24 (16, 72)	4.90 (2.16,11.13)	-0.48(0.385)
STATION28	215	52	163 (119, 208)	155 (127, 187)	1.76 (0.78, 4.00)	-0.84(0.385)
STATION29	122	25	97 (58, 137)	101 (47, 112)	8.10 (3.57,18.39)	-0.76(0.385)
STATION30	127	79	48 (3, 94)	63 (18, 84)	0.94 (0.41, 2.13)	-0.48(0.385)

(CONTINUED)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
3. BY METEOROLOGICAL CONDITION (A-5)						
A. WIND SPEED						
< 2.5 M/SEC	386	159	226 (152, 301)	197 (160, 229)	8.02 (3.53,18.19)	-0.96(0.385)
2.5 TO 5.0	298	299	-1 (-35, 33)	-24 (-34, 18)	1.61 (0.71, 3.65)	0.24(0.385)
> 5.0 M/SEC	227	143	84 (43, 125)	62 (48, 100)	2.66 (1.17, 6.04)	-0.76(0.385)
B. STABILITY GROUP						
CLASS A & B	415	288	127 (56, 198)	94 (65, 132)	6.05 (2.66,13.72)	-0.68(0.385)
CLASS C	259	222	36 (-1, 74)	46 (2, 65)	2.30 (1.01, 5.21)	-0.40(0.385)
CLASS D	167	89	78 (53, 102)	70 (57, 86)	2.03 (0.90, 4.61)	-0.88(0.385)
CLASS E & F	108	3	105 (79, 130)	88 (62, 99)	569 (251, 1292)	-1.00(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 24 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	85	57	28 (16, 41)	26 (17, 32)	3.18 (1.40, 7.22)	-0.72(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	25	15	9 (-1, 20)	7 (1, 14)	1.78 (0.78, 4.03)	-0.48(0.385)
STATION 2	27	9	18 (-1, 37)	13 (7, 17)	3.08 (1.36, 6.99)	-0.76(0.385)
STATION 3	24	1	23 (12, 35)	15 (10, 22)	283 (125, 642)	-0.92(0.385)
STATION 4	28	20	8 (-2, 18)	4 (1, 15)	1.05 (0.46, 2.38)	-0.36(0.385)
STATION 5	1	0	1 (0, 2)	0 (0, 0)	0.00 (0.00, 0.00)	-0.12(0.385)
STATION 6	24	13	11 (4, 19)	12 (6, 17)	0.75 (0.33, 1.71)	-0.60(0.385)
STATION 7	19	9	10 (2, 18)	13 (6, 15)	0.65 (0.29, 1.48)	-0.64(0.385)
STATION 8	23	19	4 (-5, 14)	0 (-4, 11)	1.05 (0.46, 2.39)	-0.36(0.385)
STATION 9	4	1	3 (-1, 8)	0 (0, 0)	15.18 (6.69,34.46)	-0.28(0.385)
STATION10	18	7	11 (1, 21)	10 (5, 11)	4.70 (2.07,10.68)	-0.64(0.385)
STATION11	16	11	5 (-4, 14)	7 (3, 12)	0.50 (0.22, 1.12)	-0.52(0.385)
STATION12	23	7	16 (7, 25)	15 (10, 19)	1.07 (0.47, 2.43)	-0.76(0.385)
STATION13	5	2	3 (-3, 9)	0 (0, 0)	3.09 (1.36, 7.00)	-0.16(0.385)
STATION14	1	0	0 (0, 1)	0 (0, 0)	9.83 (4.33,22.30)	-0.08(0.385)
STATION15	7	2	5 (-1, 12)	0 (0, 2)	15.70 (6.92,35.63)	-0.40(0.385)
STATION16	3	2	1 (-4, 6)	0 (0, 0)	1.79 (0.79, 4.06)	-0.24(0.385)
STATION17	19	9	10 (1, 18)	12 (5, 15)	1.18 (0.52, 2.67)	-0.52(0.385)
STATION18	4	0	3 (-2, 8)	0 (0, 0)	91.08 (40.14, 207)	-0.12(0.385)
STATION19	11	6	6 (1, 11)	9 (7, 9)	0.20 (0.09, 0.45)	-0.72(0.385)
STATION20	14	6	8 (4, 12)	9 (6, 11)	0.97 (0.43, 2.20)	-0.76(0.385)
STATION21	22	3	19 (13, 25)	16 (13, 19)	8.76 (3.86,19.88)	-0.84(0.385)
STATION22	12	6	7 (1, 12)	7 (2, 9)	2.21 (0.98, 5.03)	-0.52(0.385)
STATION23	8	3	5 (-2, 11)	1 (0, 4)	2.19 (0.97, 4.98)	-0.44(0.385)
STATION24	28	13	15 (3, 26)	12 (8, 18)	1.45 (0.64, 3.30)	-0.72(0.385)
STATION25	12	6	6 (1, 11)	3 (2, 6)	1.74 (0.77, 3.94)	-0.60(0.385)
STATION26	29	12	17 (7, 27)	14 (11, 21)	1.76 (0.77, 3.98)	-0.68(0.385)
STATION27	13	6	8 (3, 12)	12 (7, 12)	0.38 (0.17, 0.87)	-0.72(0.385)
STATION28	35	6	29 (17, 40)	31 (11, 46)	7.07 (3.11,16.04)	-0.72(0.385)
STATION29	6	0	6 (1, 10)	2 (0, 4)	71.43 (31.48, 162)	-0.48(0.385)
STATION30	19	9	9 (-1, 19)	10 (4, 13)	1.47 (0.65, 3.34)	-0.60(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	760	1179	-418 (-505, -331)	-457 (-512, -350)	1.10 (0.49, 2.51)	0.88(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	344	936	-592 (-712, -473)	-602 (-717, -457)	0.24 (0.10, 0.54)	0.92(0.385)
STATION 2	422	464	-42 (-199, 115)	-80 (-165, 6)	2.06 (0.91, 4.67)	0.44(0.385)
STATION 3	318	425	-107 (-286, 72)	-63 (-158, 87)	0.20 (0.09, 0.46)	-0.40(0.385)
STATION 4	332	483	-150 (-216, -84)	-139 (-196, -84)	0.64 (0.28, 1.46)	0.68(0.385)
STATION 5	238	346	-108 (-143, -68)	-105 (-145, -75)	1.34 (0.59, 3.05)	0.72(0.385)
STATION 6	291	407	-116 (-215, -18)	-74 (-147, -24)	0.47 (0.21, 1.07)	0.48(0.385)
STATION 7	241	609	-368 (-469, -267)	-252 (-520, -208)	0.13 (0.06, 0.29)	0.80(0.385)
STATION 8	341	496	-156 (-239, -73)	-143 (-215, -68)	0.51 (0.23, 1.16)	0.48(0.385)
STATION 9	192	177	15 (-22, 51)	30 (-17, 47)	1.41 (0.62, 3.20)	-0.24(0.385)
STATION10	276	275	1 (-39, 40)	-8 (-25, 31)	0.78 (0.34, 1.76)	0.12(0.385)
STATION11	271	313	-41 (-91, 9)	-67 (-95, -24)	3.53 (1.56, 8.02)	0.56(0.385)
STATION12	233	382	-148 (-267, -30)	-99 (-199, -12)	0.18 (0.08, 0.41)	0.36(0.385)
STATION13	330	329	1 (-83, 83)	-30 (-66, 48)	1.74 (0.77, 3.96)	0.24(0.385)
STATION14	227	211	16 (-12, 44)	22 (-13, 39)	1.57 (0.69, 3.55)	-0.16(0.385)
STATION15	163	266	-103 (-173, -32)	-131 (-156, -29)	0.44 (0.19, 0.99)	0.44(0.385)
STATION16	217	380	-163 (-241, -85)	-136 (-204, -67)	0.15 (0.07, 0.34)	0.60(0.385)
STATION17	258	409	-151 (-230, -73)	-102 (-181, -56)	0.22 (0.10, 0.50)	0.60(0.385)
STATION18	222	159	63 (19, 108)	27 (9, 85)	3.44 (1.51, 7.80)	-0.36(0.385)
STATION19	184	275	-91 (-157, -25)	-68 (-101, -37)	0.41 (0.18, 0.94)	0.56(0.385)
STATION20	220	330	-110 (-179, -41)	-110 (-166, -35)	0.48 (0.21, 1.09)	0.40(0.385)
STATION21	187	190	-3 (-51, 45)	25 (-28, 54)	0.31 (0.14, 0.71)	-0.36(0.385)
STATION22	224	299	-74 (-131, -18)	-105 (-123, -25)	0.73 (0.32, 1.66)	0.52(0.385)
STATION23	293	593	-300 (-428, -172)	-228 (-297, -152)	0.13 (0.06, 0.30)	0.80(0.385)
STATION24	330	505	-175 (-265, -84)	-105 (-205, -78)	0.37 (0.16, 0.84)	0.64(0.385)
STATION25	219	307	-88 (-195, 19)	-3 (-94, 34)	0.22 (0.10, 0.50)	-0.36(0.385)
STATION26	366	480	-115 (-217, -12)	-14 (-113, 4)	0.14 (0.06, 0.31)	0.24(0.385)
STATION27	251	311	-59 (-156, 37)	-88 (-122, -20)	0.96 (0.42, 2.18)	0.44(0.385)
STATION28	453	354	99 (5, 192)	69 (31, 166)	0.91 (0.40, 2.06)	-0.44(0.385)
STATION29	339	253	86 (17, 155)	100 (26, 158)	0.70 (0.31, 1.59)	-0.44(0.385)
STATION30	300	542	-241 (-350, -133)	-171 (-323, -111)	0.26 (0.11, 0.59)	0.60(0.385)

(CONTINUED)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
3. BY METEOROLOGICAL CONDITION (A-5)						
A. WIND SPEED						
< 2.5 M/SEC	681	1151	-470 (-571, -369)	-512 (-571, -382)	1.20 (0.53, 2.71)	0.92(0.385)
2.5 TO 5.0	603	826	-223 (-311, -135)	-241 (-310, -127)	0.50 (0.22, 1.15)	0.72(0.385)
> 5.0 M/SEC	407	354	53 (6, 99)	25 (3, 74)	3.47 (1.53, 7.87)	-0.32(0.385)
B. STABILITY GROUP						
CLASS A & B	745	1065	-320 (-408, -232)	-345 (-404, -259)	1.47 (0.65, 3.34)	0.84(0.385)
CLASS C	478	978	-500 (-602, -398)	-435 (-535, -376)	0.18 (0.08, 0.41)	1.00(0.385)
CLASS D	340	575	-235 (-330, -140)	-247 (-305, -74)	0.09 (0.04, 0.20)	0.68(0.385)
CLASS E & F	256	1	255 (201, 309)	232 (204, 243)	***** (*****,*****)	-1.00(0.385)

***** - MAGNITUDE EXCEEDS PRINT LIMITS OR VALUE CANNOT BE COMPUTED

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	430	615	-185 (-289, -81)	-170 (-226, -90)	0.59 (0.26, 1.33)	0.68(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	162	387	-225 (-347, -103)	-130 (-195, -69)	0.09 (0.04, 0.19)	0.68(0.385)
STATION 2	181	169	12 (-87, 111)	17 (-59, 33)	3.71 (1.64, 8.42)	0.24(0.385)
STATION 3	142	90	52 (-41, 146)	73 (44, 90)	0.46 (0.20, 1.05)	-0.80(0.385)
STATION 4	157	235	-78 (-116, -40)	-67 (-116, -33)	0.36 (0.16, 0.81)	0.52(0.385)
STATION 5	69	66	3 (-37, 44)	3 (-23, 35)	0.72 (0.32, 1.62)	-0.32(0.385)
STATION 6	130	155	-24 (-80, 31)	-13 (-61, 16)	0.92 (0.40, 2.09)	0.40(0.385)
STATION 7	119	255	-136 (-206, -66)	-116 (-179, -32)	0.08 (0.03, 0.18)	0.52(0.385)
STATION 8	124	196	-72 (-118, -25)	-90 (-119, -49)	2.26 (0.99, 5.12)	0.64(0.385)
STATION 9	73	27	46 (26, 66)	57 (32, 62)	1.29 (0.57, 2.93)	-0.68(0.385)
STATION10	126	106	20 (-17, 57)	9 (-25, 47)	2.55 (1.13, 5.80)	-0.20(0.385)
STATION11	116	137	-21 (-63, 20)	-2 (-41, 20)	0.50 (0.22, 1.14)	0.16(0.385)
STATION12	103	137	-34 (-106, 37)	5 (-54, 41)	0.14 (0.06, 0.32)	-0.44(0.385)
STATION13	122	84	38 (-12, 88)	14 (-11, 58)	2.48 (1.09, 5.63)	-0.32(0.385)
STATION14	65	34	31 (2, 61)	33 (14, 52)	1.07 (0.47, 2.42)	-0.56(0.385)
STATION15	64	68	-4 (-46, 37)	1 (-35, 29)	0.93 (0.41, 2.11)	-0.40(0.385)
STATION16	77	60	17 (-16, 51)	25 (-10, 44)	0.80 (0.35, 1.83)	-0.44(0.385)
STATION17	122	163	-41 (-85, 4)	-10 (-56, 7)	0.19 (0.08, 0.43)	0.32(0.385)
STATION18	84	36	48 (20, 76)	24 (17, 54)	4.09 (1.80, 9.29)	-0.48(0.385)
STATION19	66	93	-27 (-59, 6)	-7 (-26, 8)	0.16 (0.07, 0.36)	0.20(0.385)
STATION20	87	128	-41 (-74, -8)	-45 (-68, -9)	0.69 (0.30, 1.56)	0.44(0.385)
STATION21	79	63	16 (-13, 45)	7 (-2, 34)	0.78 (0.34, 1.77)	-0.36(0.385)
STATION22	95	90	6 (-30, 42)	24 (-14, 46)	0.34 (0.15, 0.78)	-0.44(0.385)
STATION23	121	94	27 (-20, 74)	5 (-14, 55)	1.03 (0.46, 2.35)	-0.32(0.385)
STATION24	144	184	-40 (-90, 10)	-47 (-80, -20)	2.00 (0.88, 4.54)	0.60(0.385)
STATION25	94	104	-11 (-66, 45)	11 (-9, 30)	0.20 (0.09, 0.45)	-0.20(0.385)
STATION26	181	188	-7 (-60, 45)	10 (-21, 40)	0.42 (0.18, 0.95)	-0.28(0.385)
STATION27	110	86	24 (-13, 61)	-6 (-14, 37)	3.73 (1.64, 8.47)	-0.20(0.385)
STATION28	215	146	70 (26, 114)	39 (23, 93)	1.85 (0.82, 4.20)	-0.44(0.385)
STATION29	122	71	51 (4, 98)	61 (14, 83)	1.62 (0.72, 3.69)	-0.44(0.385)
STATION30	127	219	-92 (-164, -20)	-64 (-111, -25)	0.24 (0.11, 0.55)	0.48(0.385)

(CONTINUED)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
3. BY METEOROLOGICAL CONDITION (A-5)						
A. WIND SPEED						
< 2.5 M/SEC	386	540	-154 (-266, -42)	-126 (-215, -42)	0.62 (0.27, 1.41)	0.48(0.385)
2.5 TO 5.0	298	413	-115 (-188, -43)	-114 (-139, -34)	0.16 (0.07, 0.37)	0.52(0.385)
> 5.0 M/SEC	227	148	79 (39, 119)	54 (37, 96)	3.14 (1.38, 7.13)	-0.68(0.385)
B. STABILITY GROUP						
CLASS A & B	415	536	-121 (-231, -11)	-71 (-162, -22)	0.54 (0.24, 1.23)	0.44(0.385)
CLASS C	259	384	-126 (-205, -47)	-92 (-141, -47)	0.19 (0.08, 0.43)	0.52(0.385)
CLASS D	167	266	-99 (-143, -55)	-103 (-125, -53)	0.26 (0.12, 0.60)	0.64(0.385)
CLASS E & F	103	65	42 (4, 80)	44 (16, 65)	0.78 (0.34, 1.76)	-0.64(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO_2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 24 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	85	114	-29 (-51, -7)	-15 (-35, -7)	0.34 (0.15, 0.77)	0.48(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	25	60	-36 (-61, -11)	-15 (-30, -10)	0.13 (0.06, 0.28)	0.60(0.385)
STATION 2	27	21	7 (-12, 25)	2 (-8, 8)	3.88 (1.71, 8.80)	-0.28(0.385)
STATION 3	24	9	15 (-1, 32)	15 (7, 19)	0.87 (0.38, 1.97)	-0.76(0.385)
STATION 4	28	40	-12 (-25, 1)	-13 (-18, 0)	0.41 (0.18, 0.94)	0.36(0.385)
STATION 5	1	0	1 (0, 2)	0 (0, 0)	0.00 (0.00, 0.00)	-0.12(0.385)
STATION 6	24	24	0 (-9, 9)	2 (-5, 9)	0.43 (0.19, 0.97)	-0.40(0.385)
STATION 7	19	35	-16 (-30, -3)	-13 (-26, 0)	0.17 (0.08, 0.39)	0.36(0.385)
STATION 8	23	37	-14 (-24, -4)	-20 (-25, -6)	1.13 (0.50, 2.56)	0.48(0.385)
STATION 9	4	0	4 (-1, 8)	0 (0, 0)	38.64 (17.03,87.69)	-0.32(0.385)
STATION10	18	10	8 (-3, 18)	7 (0, 10)	3.60 (1.58, 8.16)	-0.56(0.385)
STATION11	16	19	-3 (-13, 8)	-1 (-6, 7)	0.34 (0.15, 0.76)	-0.32(0.385)
STATION12	23	9	14 (4, 24)	12 (9, 16)	0.80 (0.35, 1.81)	-0.72(0.385)
STATION13	5	3	2 (-4, 8)	0 (0, 0)	2.30 (1.02, 5.23)	-0.16(0.385)
STATION14	1	0	0 (0, 1)	0 (0, 0)	9.83 (4.33,22.30)	-0.08(0.385)
STATION15	7	3	4 (-3, 11)	0 (0, 2)	5.04 (2.22,11.43)	-0.28(0.385)
STATION16	3	3	1 (-4, 6)	0 (0, 0)	2.07 (0.91, 4.69)	-0.16(0.385)
STATION17	19	22	-3 (-15, 8)	4 (-7, 8)	0.46 (0.20, 1.05)	-0.20(0.385)
STATION18	4	1	3 (-2, 8)	0 (0, 0)	26.22 (11.55,59.50)	-0.08(0.385)
STATION19	11	13	-1 (-6, 5)	1 (-2, 6)	0.11 (0.05, 0.24)	-0.44(0.385)
STATION20	14	16	-2 (-10, 5)	3 (-3, 6)	0.15 (0.07, 0.34)	-0.48(0.385)
STATION21	22	7	15 (8, 22)	15 (9, 16)	1.98 (0.87, 4.50)	-0.68(0.385)
STATION22	12	15	-3 (-11, 5)	-1 (-7, 5)	0.47 (0.21, 1.07)	-0.20(0.385)
STATION23	8	8	0 (-9, 9)	1 (0, 2)	0.56 (0.25, 1.27)	-0.28(0.385)
STATION24	28	30	-2 (-14, 9)	-10 (-14, 6)	1.18 (0.52, 2.68)	0.36(0.385)
STATION25	12	14	-3 (-17, 12)	1 (0, 5)	0.09 (0.04, 0.20)	-0.44(0.385)
STATION26	29	30	0 (-11, 11)	-3 (-8, 7)	0.96 (0.42, 2.18)	-0.20(0.385)
STATION27	13	15	-1 (-7, 4)	-2 (-7, 6)	0.24 (0.10, 0.54)	-0.40(0.385)
STATION28	35	19	16 (3, 29)	14 (1, 31)	2.35 (1.03, 5.33)	-0.40(0.385)
STATION29	6	2	5 (0, 9)	2 (0, 3)	8.41 (3.70,19.03)	-0.36(0.385)
STATION30	19	34	-15 (-35, 5)	-8 (-15, 1)	0.18 (0.08, 0.41)	0.28(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	760	4121	-3361 (-3700, -3021)	-3618 (-3698, -2904)	0.04 (0.02, 0.08)	1.00(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	344	4088	-3745 (-4098, -3392)	-4006 (-4080, -3337)	0.02 (0.01, 0.05)	1.00(0.385)
STATION 2	422	1250	-823 (-1115, -540)	-773 (-918, -502)	0.25 (0.11, 0.58)	0.72(0.385)
STATION 3	318	1096	-778 (-1042, -514)	-755 (-908, -448)	0.08 (0.04, 0.19)	0.88(0.385)
STATION 4	332	1732	-1399 (-1642, -1157)	-1121 (-1420, -1037)	0.03 (0.01, 0.07)	1.00(0.385)
STATION 5	238	423	-185 (-243, -128)	-165 (-221, -121)	0.39 (0.17, 0.89)	0.88(0.385)
STATION 6	291	605	-314 (-397, -232)	-333 (-385, -246)	0.84 (0.37, 1.91)	0.88(0.385)
STATION 7	241	1256	-1015 (-1182, -849)	-931 (-1235, -734)	0.04 (0.02, 0.10)	1.00(0.385)
STATION 8	341	792	-451 (-560, -342)	-397 (-511, -317)	0.25 (0.11, 0.56)	0.92(0.385)
STATION 9	192	217	-26 (-68, 17)	-14 (-58, 15)	0.73 (0.32, 1.66)	0.28(0.385)
STATION10	276	348	-72 (-114, -31)	-74 (-108, -32)	0.67 (0.29, 1.51)	0.52(0.385)
STATION11	271	447	-176 (-236, -116)	-216 (-241, -130)	1.17 (0.52, 2.66)	0.76(0.385)
STATION12	233	778	-545 (-677, -413)	-454 (-518, -400)	0.14 (0.06, 0.32)	0.96(0.385)
STATION13	330	435	-105 (-195, -14)	-108 (-174, -30)	1.04 (0.46, 2.37)	0.48(0.385)
STATION14	227	286	-59 (-100, -17)	-64 (-99, -12)	0.39 (0.17, 0.88)	0.44(0.385)
STATION15	163	514	-350 (-435, -266)	-346 (-381, -279)	0.27 (0.12, 0.62)	0.92(0.385)
STATION16	217	448	-231 (-293, -170)	-197 (-308, -146)	0.26 (0.11, 0.59)	0.80(0.385)
STATION17	258	499	-241 (-367, -116)	-159 (-208, -127)	0.08 (0.03, 0.18)	0.80(0.385)
STATION18	222	221	1 (-51, 53)	-12 (-38, 34)	1.33 (0.59, 3.02)	0.16(0.385)
STATION19	184	392	-208 (-272, -145)	-198 (-235, -150)	0.46 (0.20, 1.04)	0.84(0.385)
STATION20	220	311	-91 (-174, -7)	-44 (-136, 7)	0.29 (0.13, 0.66)	0.28(0.385)
STATION21	187	249	-62 (-117, -7)	-59 (-91, -9)	0.22 (0.10, 0.51)	0.44(0.385)
STATION22	224	465	-241 (-301, -180)	-284 (-300, -179)	0.58 (0.26, 1.32)	0.80(0.385)
STATION23	293	873	-524 (-681, -367)	-545 (-637, -334)	0.04 (0.02, 0.10)	0.92(0.385)
STATION24	330	748	-418 (-505, -331)	-368 (-505, -312)	0.40 (0.18, 0.91)	0.96(0.385)
STATION25	219	321	-101 (-232, 30)	-22 (-59, 9)	0.14 (0.06, 0.31)	0.28(0.385)
STATION26	356	584	-213 (-284, -143)	-147 (-248, -133)	0.28 (0.12, 0.63)	0.68(0.385)
STATION27	251	404	-153 (-270, -36)	-135 (-211, -84)	0.50 (0.22, 1.14)	0.76(0.385)
STATION28	453	506	-53 (-151, 46)	-54 (-135, 36)	0.75 (0.33, 1.71)	0.28(0.385)
STATION29	339	358	-18 ([illegible], 59)	-6 (-88, 71)	0.49 (0.22, 1.12)	0.16(0.385)
STATION30	300	611	-311 (-441, -181)	-216 (-299, -196)	0.17 (0.07, 0.38)	0.84(0.385)

(CONTINUED)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
3. BY METEOROLOGICAL CONDITION (A-5)						
A. WIND SPEED						
< 2.5 M/SEC	681	2813	-2132 (-2285, -1979)	-1975 (-2315, -1952)	0.32 (0.14, 0.72)	1.00(0.385)
2.5 TO 5.0	603	3947	-3345 (-3773, -2916)	-3758 (-3828, -3067)	0.02 (0.01, 0.03)	1.00(0.385)
> 5.0 M/SEC	407	1010	-603 (-841, -365)	-468 (-505, -360)	0.03 (0.01, 0.07)	0.96(0.385)
B. STABILITY GROUP						
CLASS A & B	745	2391	-1646 (-1939, -1354)	-1590 (-1785, -1291)	0.06 (0.03, 0.13)	1.00(0.385)
CLASS C	478	2520	-2042 (-2297, -1787)	-2027 (-2133, -1896)	0.03 (0.01, 0.06)	1.00(0.385)
CLASS D	340	2021	-1680 (-2111, -1250)	-1236 (-1488, -1112)	0.00 (0.00, 0.01)	1.00(0.385)
CLASS E & F	256	3491	-3235 (-3739, -2732)	-2900 (-4083, -2412)	0.01 (0.01, 0.03)	1.00(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	430	2724	-2294 (-2757, -1831)	-2152 (-2390, -1796)	0.02 (0.01, 0.05)	1.00(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	162	2682	-2521 (-2992, -2050)	-2349 (-2633, -1737)	0.01 (0.00, 0.01)	1.00(0.385)
STATION 2	181	500	-320 (-456, -183)	-328 (-454, -176)	0.69 (0.31, 1.57)	0.80(0.385)
STATION 3	142	393	-251 (-382, -121)	-175 (-274, -113)	0.20 (0.09, 0.45)	0.76(0.385)
STATION 4	157	779	-622 (-821, -422)	-477 (-567, -345)	0.01 (0.00, 0.02)	1.00(0.385)
STATION 5	69	58	11 (-36, 57)	21 (-8, 42)	0.47 (0.21, 1.07)	-0.44(0.385)
STATION 6	130	273	-143 (-205, -80)	-110 (-189, -84)	0.62 (0.27, 1.40)	0.68(0.385)
STATION 7	119	565	-446 (-613, -279)	-292 (-411, -178)	0.01 (0.01, 0.03)	0.92(0.385)
STATION 8	124	326	-202 (-258, -145)	-203 (-251, -156)	0.88 (0.39, 2.01)	0.88(0.385)
STATION 9	73	31	42 (22, 62)	44 (26, 58)	1.28 (0.57, 2.91)	-0.68(0.385)
STATION10	126	149	-23 (-59, 13)	-37 (-67, 2)	2.99 (1.32, 6.78)	0.44(0.385)
STATION11	116	208	-92 (-147, -38)	-77 (-119, -27)	0.24 (0.11, 0.56)	0.48(0.385)
STATION12	103	347	-244 (-339, -150)	-209 (-287, -124)	0.08 (0.03, 0.17)	0.80(0.385)
STATION13	122	151	-29 (-93, 35)	-13 (-75, 21)	0.77 (0.34, 1.75)	0.32(0.385)
STATION14	65	50	15 (-23, 53)	5 (-3, 40)	0.45 (0.20, 1.03)	-0.48(0.385)
STATION15	64	197	-133 (-191, -76)	-115 (-185, -62)	0.35 (0.15, 0.78)	0.68(0.385)
STATION16	77	119	-42 (-95, 10)	-24 (-52, 0)	0.23 (0.10, 0.53)	0.32(0.385)
STATION17	122	201	-78 (-130, -27)	-42 (-95, -13)	0.14 (0.06, 0.31)	0.36(0.385)
STATION18	84	66	18 (-15, 52)	15 (-8, 37)	1.29 (0.57, 2.92)	-0.32(0.385)
STATION19	66	125	-58 (-86, -30)	-60 (-79, -24)	0.22 (0.10, 0.49)	0.60(0.385)
STATION20	87	127	-40 (-81, 2)	-12 (-52, 4)	0.34 (0.15, 0.78)	0.28(0.385)
STATION21	79	83	-4 (-30, 22)	-11 (-23, 10)	1.29 (0.57, 2.93)	0.28(0.385)
STATION22	95	173	-78 (-121, -34)	-44 (-84, -30)	0.22 (0.09, 0.49)	0.48(0.385)
STATION23	121	244	-123 (-188, -58)	-111 (-145, -64)	0.36 (0.16, 0.81)	0.60(0.385)
STATION24	144	335	-191 (-258, -124)	-175 (-231, -138)	0.60 (0.26, 1.36)	0.88(0.385)
STATION25	94	91	2 (-28, 32)	3 (-17, 21)	1.22 (0.54, 2.77)	-0.20(0.385)
STATION26	181	258	-78 (-120, -35)	-81 (-116, -39)	0.81 (0.36, 1.83)	0.52(0.385)
STATION27	110	150	-40 (-85, 6)	-57 (-78, -8)	1.02 (0.45, 2.30)	0.44(0.385)
STATION28	215	206	9 (-40, 59)	3 (-27, 41)	1.07 (0.47, 2.42)	-0.12(0.385)
STATION29	122	99	23 (-31, 77)	49 (-5, 67)	0.88 (0.39, 2.01)	-0.44(0.385)
STATION30	127	246	-119 (-175, -64)	-92 (-140, -70)	0.48 (0.21, 1.08)	0.76(0.385)

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TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
3. BY METEOROLOGICAL CONDITION (A-5)						
A. WIND SPEED						
< 2.5 M/SEC	386	1687	-1301 (-1571, -1031)	-1042 (-1185, -938)	0.07 (0.03, 0.17)	1.00(0.385)
2.5 TO 5.0	298	2325	-2028 (-2558, -1498)	-1307 (-2216, -1186)	0.00 (0.00, 0.01)	1.00(0.385)
> 5.0 M/SEC	227	633	-406 (-576, -237)	-379 (-400, -272)	0.05 (0.02, 0.10)	0.92(0.385)
B. STABILITY GROUP						
CLASS A & B	415	1288	-874 (-1081, -666)	-789 (-875, -660)	0.11 (0.05, 0.26)	0.96(0.385)
CLASS C	259	1636	-1377 (-1687, -1068)	-1051 (-1237, -967)	0.01 (0.00, 0.02)	1.00(0.385)
CLASS D	167	844	-677 (-896, -459)	-555 (-596, -475)	0.01 (0.00, 0.02)	1.00(0.385)
CLASS E & F	108	2143	-2035 (-2562, -1508)	-1447 (-1542, -1298)	0.00 (0.00, 0.01)	1.00(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 24 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	85	853	-768 (-1034, -502)	-570 (-681, -489)	0.00 (0.00, 0.00)	1.00(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	25	843	-818 (-1087, -549)	-626 (-740, -549)	0.00 (0.00, 0.00)	1.00(0.385)
STATION 2	27	73	-46 (-80, -11)	-37 (-51, -14)	0.29 (0.13, 0.66)	0.64(0.385)
STATION 3	24	35	-11 (-35, 14)	8 (-14, 12)	0.27 (0.12, 0.61)	-0.48(0.385)
STATION 4	28	140	-112 (-159, -65)	-87 (-134, -40)	0.02 (0.01, 0.05)	0.80(0.385)
STATION 5	1	0	1 (0, 2)	0 (0, 0)	0.00 (0.00, 0.00)	-0.12(0.385)
STATION 6	24	43	-19 (-33, -5)	-12 (-31, -1)	0.15 (0.07, 0.35)	0.40(0.385)
STATION 7	19	81	-62 (-103, -21)	-37 (-64, -7)	0.02 (0.01, 0.04)	0.52(0.385)
STATION 8	23	57	-34 (-51, -16)	-32 (-48, -8)	0.19 (0.09, 0.44)	0.44(0.385)
STATION 9	4	1	3 (-2, 7)	0 (0, 0)	3.16 (1.39, 7.17)	-0.28(0.385)
STATION10	18	21	-3 (-15, 10)	-5 (-11, 6)	1.00 (0.44, 2.27)	-0.32(0.385)
STATION11	16	22	-6 (-20, 7)	-1 (-6, 7)	0.18 (0.08, 0.41)	-0.28(0.385)
STATION12	23	36	-13 (-32, 6)	-11 (-18, 10)	0.14 (0.06, 0.32)	-0.36(0.385)
STATION13	5	3	2 (-5, 9)	0 (0, 0)	1.54 (0.68, 3.49)	-0.20(0.385)
STATION14	1	0	0 (-1, 1)	0 (0, 0)	3.17 (1.40, 7.19)	-0.08(0.385)
STATION15	7	11	-4 (-16, 8)	0 (-2, 1)	0.42 (0.18, 0.95)	-0.16(0.385)
STATION16	3	6	-3 (-10, 4)	0 (0, 0)	0.50 (0.22, 1.12)	0.16(0.385)
STATION17	19	31	-13 (-29, 3)	-2 (-17, 4)	0.19 (0.08, 0.43)	0.28(0.385)
STATION18	4	0	4 (-1, 9)	0 (0, 0)	0.00 (0.00, 0.00)	-0.16(0.385)
STATION19	11	19	-7 (-16, 1)	-7 (-9, 3)	0.06 (0.03, 0.13)	0.36(0.385)
STATION20	14	14	0 (-7, 7)	3 (-1, 6)	0.17 (0.07, 0.38)	-0.48(0.385)
STATION21	22	6	15 (9, 22)	15 (9, 17)	2.70 (1.19, 6.12)	-0.68(0.385)
STATION22	12	34	-21 (-38, -4)	-12 (-22, 0)	0.08 (0.03, 0.17)	0.36(0.385)
STATION23	8	26	-19 (-40, 2)	1 (-7, 1)	0.07 (0.03, 0.16)	-0.28(0.385)
STATION24	28	63	-35 (-59, -11)	-25 (-40, -8)	0.16 (0.07, 0.37)	0.56(0.385)
STATION25	12	10	2 (-4, 8)	0 (-2, 5)	0.84 (0.37, 1.90)	-0.40(0.385)
STATION26	29	45	-15 (-30, -1)	-12 (-22, -1)	0.42 (0.18, 0.94)	0.32(0.385)
STATION27	13	27	-14 (-25, -4)	-10 (-24, 4)	0.05 (0.02, 0.11)	0.48(0.385)
STATION28	35	33	2 (-14, 18)	7 (-10, 19)	0.78 (0.34, 1.77)	-0.28(0.385)
STATION29	6	3	3 (-3, 9)	2 (0, 3)	1.13 (0.50, 2.57)	-0.40(0.385)
STATION30	19	45	-27 (-40, -13)	-28 (-35, -13)	0.48 (0.21, 1.08)	0.64(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	760	684	76 (6, 147)	20 (-10, 108)	4.46 (1.97,10.13)	-0.32(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	344	520	-176 (-245, -108)	-170 (-237, -131)	1.31 (0.58, 2.98)	0.80(0.385)
STATION 2	422	409	14 (-131, 158)	-108 (-163, 46)	4.11 (1.81, 9.32)	0.36(0.385)
STATION 3	318	259	59 (-65, 182)	92 (15, 155)	0.53 (0.23, 1.20)	-0.52(0.385)
STATION 4	332	328	4 (-49, 57)	17 (-44, 50)	1.49 (0.66, 3.38)	0.32(0.385)
STATION 5	238	240	-2 (-42, 37)	0 (-36, 30)	1.43 (0.63, 3.24)	0.24(0.385)
STATION 6	291	260	31 (-36, 98)	13 (-35, 67)	2.19 (0.96, 4.97)	-0.16(0.385)
STATION 7	241	440	-199 (-266, -132)	-156 (-232, -125)	0.34 (0.15, 0.77)	0.76(0.385)
STATION 8	341	388	-48 (-115, 19)	-24 (-102, 15)	1.07 (0.47, 2.43)	0.40(0.385)
STATION 9	192	151	40 (7, 74)	48 (8, 62)	2.22 (0.98, 5.04)	-0.40(0.385)
STATION10	276	239	37 (1, 73)	36 (4, 66)	1.08 (0.47, 2.44)	-0.40(0.385)
STATION11	271	247	25 (-27, 77)	12 (-23, 46)	2.48 (1.09, 5.63)	0.16(0.385)
STATION12	233	312	-79 (-148, -10)	-107 (-139, -23)	0.79 (0.35, 1.80)	0.40(0.385)
STATION13	330	262	68 (-6, 142)	54 (-12, 95)	3.39 (1.49, 7.70)	-0.32(0.385)
STATION14	227	190	37 (3, 71)	57 (11, 71)	0.70 (0.31, 1.59)	-0.44(0.385)
STATION15	163	262	-99 (-152, -46)	-134 (-149, -60)	1.14 (0.50, 2.59)	0.64(0.385)
STATION16	217	265	-48 (-93, -3)	-66 (-89, -7)	0.63 (0.28, 1.42)	0.32(0.385)
STATION17	258	264	-6 (-48, 36)	-15 (-49, 16)	1.63 (0.72, 3.71)	0.24(0.385)
STATION18	222	158	64 (16, 112)	26 (18, 96)	1.99 (0.88, 4.52)	-0.44(0.385)
STATION19	184	194	-11 (-54, 33)	-15 (-49, 13)	2.02 (0.89, 4.59)	0.28(0.385)
STATION20	220	305	-85 (-141, -29)	-82 (-126, -36)	0.96 (0.42, 2.18)	0.56(0.385)
STATION21	187	146	41 (9, 73)	52 (20, 68)	1.07 (0.47, 2.44)	-0.56(0.385)
STATION22	224	226	-1 (-47, 44)	-46 (-59, 25)	1.86 (0.82, 4.23)	0.32(0.385)
STATION23	293	349	-56 (-126, 14)	-62 (-105, 11)	0.62 (0.28, 1.42)	0.28(0.385)
STATION24	330	390	-60 (-123, 3)	-33 (-122, 6)	1.25 (0.55, 2.83)	0.32(0.385)
STATION25	219	202	18 (-35, 71)	5 (-24, 37)	2.40 (1.06, 5.45)	-0.24(0.385)
STATION26	366	276	90 (49, 131)	87 (42, 127)	2.76 (1.22, 6.27)	-0.52(0.385)
STATION27	251	185	66 (-5, 137)	13 (-11, 46)	13.49 (5.95,30.62)	-0.20(0.385)
STATION28	453	251	202 (130, 273)	152 (113, 239)	4.82 (2.13,10.95)	-0.88(0.385)
STATION29	339	193	147 (94, 199)	157 (85, 194)	2.58 (1.14, 5.85)	-0.64(0.385)
STATION30	300	310	-9 (-72, 53)	-13 (-75, 37)	1.56 (0.69, 3.53)	0.24(0.385)

(CONTINUED)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 1 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
3. BY METEOROLOGICAL CONDITION (A-5)						
A. WIND SPEED						
< 2.5 M/SEC	681	584	97 (9, 185)	89 (1, 155)	2.69 (1.19, 6.11)	-0.28(0.385)
2.5 TO 5.0	603	624	-21 (-82, 40)	-37 (-79, 11)	2.34 (1.03, 5.30)	0.28(0.385)
> 5.0 M/SEC	407	333	74 (21, 126)	72 (34, 100)	1.56 (0.69, 3.54)	-0.60(0.385)
B. STABILITY GROUP						
CLASS A & B	745	668	77 (1, 153)	21 (-15, 120)	4.06 (1.79, 9.22)	-0.32(0.385)
CLASS C	478	536	-58 (-107, -9)	-49 (-102, -25)	1.80 (0.79, 4.07)	0.56(0.385)
CLASS D	340	166	174 (127, 221)	190 (144, 220)	0.46 (0.20, 1.05)	-0.88(0.385)
CLASS E & F	256	53	203 (144, 263)	210 (146, 219)	3.97 (1.75, 9.02)	-0.88(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	430	374	56 (-13, 126)	2 (-9, 61)	5.44 (2.40,12.34)	-0.40(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	162	244	-83 (-135, -30)	-84 (-124, -34)	0.70 (0.31, 1.58)	0.44(0.385)
STATION 2	181	140	41 (-56, 136)	1 (-39, 46)	5.26 (2.32,11.94)	0.16(0.385)
STATION 3	142	60	82 (19, 146)	85 (51, 96)	2.23 (0.98, 5.06)	-0.72(0.385)
STATION 4	157	170	-13 (-43, 17)	-4 (-32, 12)	0.73 (0.32, 1.67)	0.20(0.385)
STATION 5	69	64	5 (-32, 41)	-5 (-24, 31)	1.09 (0.48, 2.47)	-0.20(0.385)
STATION 6	130	125	5 (-39, 50)	-4 (-38, 32)	2.92 (1.29, 6.63)	0.40(0.385)
STATION 7	119	195	-76 (-130, -22)	-39 (-96, -8)	0.14 (0.06, 0.31)	0.36(0.385)
STATION 8	124	188	-64 (-117, -11)	-52 (-92, -30)	1.15 (0.51, 2.61)	0.56(0.385)
STATION 9	73	25	48 (31, 66)	47 (30, 57)	2.99 (1.32, 6.79)	-0.76(0.385)
STATION10	126	90	37 (2, 72)	21 (-7, 58)	3.97 (1.75, 9.00)	-0.32(0.385)
STATION11	116	122	-5 (-39, 28)	-11 (-32, 21)	1.08 (0.48, 2.46)	0.16(0.385)
STATION12	103	118	-15 (-62, 31)	-9 (-37, 27)	0.39 (0.17, 0.88)	-0.32(0.385)
STATION13	122	93	29 (-22, 80)	19 (-10, 47)	2.37 (1.05, 5.38)	-0.24(0.385)
STATION14	65	50	15 (-14, 43)	2 (-11, 35)	1.25 (0.55, 2.85)	-0.24(0.385)
STATION15	64	84	-21 (-63, 22)	-10 (-47, 13)	0.86 (0.38, 1.95)	0.28(0.385)
STATION16	77	75	2 (-30, 34)	11 (-19, 24)	0.98 (0.43, 2.22)	-0.24(0.385)
STATION17	122	135	-12 (-40, 16)	4 (-30, 16)	0.62 (0.27, 1.42)	0.20(0.385)
STATION18	84	65	19 (-11, 50)	8 (-10, 32)	2.11 (0.93, 4.78)	-0.36(0.385)
STATION19	66	79	-12 (-34, 9)	-10 (-28, 9)	0.44 (0.19, 1.00)	0.28(0.385)
STATION20	87	131	-44 (-71, -16)	-57 (-74, -24)	1.34 (0.59, 3.05)	0.60(0.385)
STATION21	79	59	20 (-6, 45)	17 (3, 29)	1.34 (0.59, 3.04)	-0.44(0.385)
STATION22	95	93	3 (-24, 30)	17 (-20, 27)	0.83 (0.37, 1.88)	-0.20(0.385)
STATION23	121	111	11 (-32, 53)	-1 (-28, 40)	1.57 (0.69, 3.56)	-0.24(0.385)
STATION24	144	167	-23 (-75, 30)	-23 (-66, 9)	1.58 (0.70, 3.59)	0.32(0.385)
STATION25	94	71	23 (-5, 50)	26 (1, 37)	1.83 (0.81, 4.15)	-0.32(0.385)
STATION26	181	145	36 (1, 71)	30 (0, 61)	1.87 (0.82, 4.23)	-0.36(0.385)
STATION27	110	82	28 (-8, 64)	-7 (-13, 41)	5.93 (2.61,13.45)	-0.24(0.385)
STATION28	215	116	99 (60, 139)	78 (51, 111)	4.59 (2.02,10.41)	-0.76(0.385)
STATION29	122	72	50 (10, 90)	37 (2, 69)	6.54 (2.88,14.83)	-0.40(0.385)
STATION30	127	135	-8 (-40, 28)	-4 (-49, 15)	3.26 (1.44, 7.40)	0.36(0.385)

(CONTINUED)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 3 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
3. BY METEOROLOGICAL CONDITION (A-5)						
A. WIND SPEED						
< 2.5 M/SEC	386	277	108 (30, 187)	109 (42, 133)	4.02 (1.77, 9.12)	-0.64(0.385)
2.5 TO 5.0	298	335	-37 (-78, 4)	-34 (-59, -9)	0.77 (0.34, 1.75)	0.48(0.385)
> 5.0 M/SEC	227	172	55 (13, 98)	37 (13, 76)	2.05 (0.90, 4.65)	-0.52(0.385)
B. STABILITY GROUP						
CLASS A & B	415	349	65 (-8, 139)	35 (0, 79)	4.08 (1.80, 9.27)	-0.40(0.385)
CLASS C	259	279	-20 (-60, 19)	-24 (-61, 1)	1.65 (0.73, 3.75)	0.40(0.385)
CLASS D	167	120	46 (20, 72)	40 (26, 58)	1.50 (0.66, 3.40)	-0.60(0.385)
CLASS E & F	108	12	95 (69, 121)	82 (54, 93)	21.29 (9.38,48.31)	-0.96(0.385)

TABLE A. COMPARISON OF 25 HIGHEST OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES (UNPAIRED IN TIME OR LOCATION)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 24 HOUR

DATA SETS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	DIFFERENCE OF MEDIANS (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (FOBS-FPRED) (FRACTION)
1. ALL STATIONS/ALL EVENTS (A-4A)	85	74	11 (-1, 24)	7 (0, 13)	4.35 (1.92, 9.86)	-0.36(0.385)
2. BY STATION/ALL EVENTS (A-4B)						
STATION 1	25	42	-17 (-29, -5)	-13 (-29, -7)	0.82 (0.36, 1.87)	0.48(0.385)
STATION 2	27	18	9 (-9, 27)	1 (-7, 8)	5.96 (2.63,13.52)	-0.36(0.385)
STATION 3	24	2	22 (11, 34)	15 (10, 21)	32.19 (14.18,73.05)	-0.92(0.385)
STATION 4	28	36	-8 (-13, 2)	-10 (-15, -2)	1.02 (0.45, 2.31)	0.36(0.385)
STATION 5	1	0	1 (0, 2)	0 (0, 0)	0.00 (0.00, 0.00)	-0.12(0.385)
STATION 6	24	21	3 (-4, 10)	1 (-3, 8)	1.12 (0.50, 2.55)	-0.24(0.385)
STATION 7	19	30	-11 (-21, -1)	-7 (-16, -1)	0.37 (0.16, 0.83)	0.32(0.385)
STATION 8	23	39	-16 (-28, -4)	-16 (-22, -6)	0.55 (0.24, 1.25)	0.52(0.385)
STATION 9	4	1	3 (-1, 7)	0 (0, 0)	12.18 (5.37,27.65)	-0.24(0.385)
STATION10	18	13	4 (-6, 15)	3 (-2, 8)	2.16 (0.95, 4.91)	-0.44(0.385)
STATION11	16	17	-1 (-10, 8)	-3 (-5, 6)	0.50 (0.22, 1.14)	-0.16(0.385)
STATION12	23	10	13 (3, 23)	10 (8, 16)	0.81 (0.36, 1.84)	-0.64(0.385)
STATION13	5	3	2 (-5, 8)	0 (0, 0)	1.87 (0.82, 4.23)	-0.08(0.385)
STATION14	1	1	0 (-2, 2)	0 (0, 0)	0.23 (0.10, 0.52)	0.04(0.385)
STATION15	7	3	4 (-3, 11)	0 (0, 1)	6.81 (3.00,15.46)	-0.12(0.385)
STATION16	3	2	1 (-3, 6)	0 (0, 0)	4.12 (1.82, 9.35)	-0.16(0.385)
STATION17	19	20	-2 (-10, 7)	0 (-8, 5)	0.96 (0.42, 2.18)	0.12(0.385)
STATION18	4	1	3 (-3, 8)	0 (0, 0)	9.13 (4.03,20.73)	-0.08(0.385)
STATION19	11	14	-3 (-7, 2)	-2 (-4, 3)	0.22 (0.10, 0.50)	-0.32(0.385)
STATION20	14	23	-9 (-17, -1)	-5 (-9, 1)	0.14 (0.06, 0.31)	0.28(0.385)
STATION21	22	7	15 (8, 22)	13 (9, 16)	2.77 (1.22, 6.29)	-0.72(0.385)
STATION22	12	18	-5 (-13, 2)	-5 (-11, 1)	0.62 (0.27, 1.40)	0.24(0.385)
STATION23	8	8	-1 (-9, 7)	1 (-1, 2)	0.78 (0.34, 1.76)	-0.28(0.385)
STATION24	28	35	-7 (-19, 4)	-11 (-16, -1)	1.37 (0.60, 3.10)	0.44(0.385)
STATION25	12	11	1 (-6, 8)	1 (-2, 5)	0.63 (0.28, 1.43)	-0.44(0.385)
STATION26	29	26	4 (-6, 13)	-4 (-6, 8)	2.21 (0.97, 5.00)	-0.24(0.385)
STATION27	13	17	-4 (-9, 1)	-6 (-9, 3)	0.24 (0.11, 0.55)	0.32(0.385)
STATION28	35	16	19 (7, 31)	19 (3, 34)	4.81 (2.12,10.91)	-0.44(0.385)
STATION29	6	2	4 (-1, 9)	2 (0, 3)	4.60 (2.03,10.44)	-0.36(0.385)
STATION30	19	24	-5 (-15, 5)	-11 (-14, 0)	1.44 (0.63, 3.26)	0.40(0.385)

APPENDIX B

Statistics For All Events

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	1946	121.2	55.3	66.0 (58.0, 74.0)	1.20 (1.10, 1.31)	-0.62 (0.044)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	5172	86.6	37.9	48.7 (44.9, 52.5)	1.21 (1.14, 1.27)	-0.60 (0.027)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	224	95.8	54.9	40.9 (18.9, 62.9)	0.75 (0.58, 0.98)	-0.56 (0.129)
STATION 2	149	116.4	33.3	83.1 (43.6, 122.6)	1.53 (1.11, 2.11)	-0.85 (0.158)
STATION 3	219	83.7	6.9	76.8 (60.9, 92.7)	4.91 (3.76, 6.41)	-0.91 (0.130)
STATION 4	300	85.7	48.7	37.0 (20.9, 53.0)	0.80 (0.64, 1.01)	-0.47 (0.111)
STATION 5	113	89.1	87.7	0.4 (-31.1, 31.9)	0.44 (0.30, 0.64)	-0.32 (0.181)
STATION 6	208	73.5	44.1	29.4 (10.5, 48.3)	1.00 (0.76, 1.31)	-0.53 (0.133)
STATION 7	154	83.5	42.2	41.4 (16.8, 65.9)	0.42 (0.31, 0.58)	-0.66 (0.155)
STATION 8	167	93.8	66.9	26.9 (1.0, 52.8)	0.97 (0.72, 1.32)	-0.50 (0.149)
STATION 9	192	67.6	22.1	45.5 (34.5, 56.5)	1.56 (1.17, 2.07)	-0.68 (0.139)
STATION10	196	78.4	44.3	34.1 (17.5, 50.8)	1.24 (0.94, 1.65)	-0.47 (0.137)
STATION11	176	84.9	54.7	30.3 (9.7, 50.8)	0.87 (0.64, 1.17)	-0.46 (0.145)
STATION12	275	66.1	17.8	48.3 (35.9, 60.7)	0.69 (0.55, 0.88)	-0.89 (0.116)
STATION13	154	101.0	50.1	50.8 (25.7, 75.9)	1.67 (1.21, 2.29)	-0.61 (0.155)
STATION14	123	85.0	37.5	47.5 (28.7, 66.3)	1.58 (1.11, 2.26)	-0.49 (0.173)
STATION15	86	71.3	51.8	19.5 (-12.1, 51.1)	0.41 (0.27, 0.63)	-0.64 (0.207)
STATION16	135	82.1	41.9	40.2 (18.9, 61.5)	0.60 (0.43, 0.84)	-0.71 (0.166)
STATION17	139	95.3	46.8	48.5 (25.8, 71.2)	0.88 (0.63, 1.23)	-0.58 (0.163)
STATION18	130	82.2	30.9	51.3 (33.7, 68.9)	2.52 (1.78, 3.57)	-0.58 (0.169)
STATION19	141	67.4	33.5	33.9 (16.2, 51.7)	0.73 (0.52, 1.01)	-0.67 (0.162)
STATION20	132	73.2	29.2	44.0 (25.7, 62.3)	1.98 (1.40, 2.79)	-0.50 (0.167)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	131	74.6	22.6	52.0 (36.9, 67.0)	1.30 (0.92, 1.83)	-0.71 (0.168)
STATION22	158	79.5	31.8	47.7 (31.4, 64.0)	1.51 (1.10, 2.07)	-0.53 (0.153)
STATION23	162	97.2	45.8	51.4 (29.7, 73.1)	1.19 (0.87, 1.62)	-0.60 (0.151)
STATION24	201	88.6	44.4	44.2 (22.7, 65.8)	0.95 (0.72, 1.25)	-0.67 (0.136)
STATION25	182	68.8	28.0	40.8 (26.9, 54.6)	2.76 (2.06, 3.69)	-0.49 (0.143)
STATION26	239	97.8	37.7	60.1 (41.5, 78.6)	1.39 (1.08, 1.80)	-0.56 (0.124)
STATION27	160	75.5	25.7	49.9 (33.4, 66.4)	3.55 (2.65, 4.76)	-0.58 (0.143)
STATION28	184	140.6	21.0	119.5 (95.5, 143.6)	5.56 (4.16, 7.43)	-0.80 (0.142)
STATION29	169	105.0	16.0	89.0 (70.2, 107.8)	6.36 (4.70, 8.62)	-0.78 (0.148)
STATION30	153	95.1	47.3	47.7 (24.3, 71.2)	1.29 (0.94, 1.78)	-0.61 (0.155)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	1194	109.4	21.2	88.2 (79.6, 96.9)	2.48 (2.22, 2.78)	-0.82 (0.056)
2.5 TO 5.0	2480	88.0	48.5	39.5 (33.7, 45.4)	0.86 (0.80, 0.93)	-0.58 (0.039)
> 5.0 M/SEC	1498	66.1	33.6	32.4 (27.3, 37.6)	1.13 (1.02, 1.25)	-0.47 (0.050)
B. STABILITY GROUP						
CLASS A & B	1894	115.8	54.0	61.8 (53.8, 69.9)	1.21 (1.11, 1.32)	-0.57 (0.044)
CLASS C	1588	78.7	50.1	28.6 (22.2, 35.0)	0.80 (0.73, 0.89)	-0.49 (0.048)
CLASS D	1328	61.4	10.7	50.7 (47.1, 54.2)	7.02 (6.30, 7.81)	-0.70 (0.053)
CLASS E & F	362	61.2	0.0	61.2 (54.3, 68.2)	44912 (36527,55221)	-1.00 (0.101)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	1946	66.0 (55.6, 76.3)	0.80	162(158, 168)	175	115.1	0.19 (0.15, 0.23)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	5172	48.7 (43.3, 54.1)	0.79	142(139, 145)	150	102.0	-0.05 (-0.07,-0.02)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	224	40.9 (11.7, 70.1)	0.76	170(156, 188)	174	124.7	-0.03 (-0.16, 0.10)
STATION 2	149	83.1 (16.1, 150.1)	0.90	248(223, 281)	261	136.3	-0.03 (-0.19, 0.13)
STATION 3	219	76.8 (49.8, 103.7)	0.96	115(106, 128)	138	85.1	0.09 (-0.04, 0.22)
STATION 4	300	37.0 (17.5, 56.5)	0.74	144(133, 157)	148	102.4	-0.03 (-0.14, 0.08)
STATION 5	113	0.4 (-50.2, 51.0)	0.62	186(165, 214)	186	136.1	-0.22 (-0.39,-0.04)
STATION 6	208	29.4 (8.6, 50.2)	0.77	121(111, 135)	125	84.0	0.23 (0.10, 0.36)
STATION 7	154	41.4 (13.9, 68.8)	0.82	156(141, 176)	161	102.6	-0.02 (-0.18, 0.14)
STATION 8	167	26.9 (-4.2, 58.0)	0.71	168(152, 189)	170	119.5	0.02 (-0.13, 0.17)
STATION 9	192	45.5 (29.0, 62.0)	0.80	86(78, 96)	97	75.7	-0.24 (-0.37,-0.10)
STATION10	196	34.1 (5.8, 62.5)	0.72	125(114, 139)	129	96.2	-0.11 (-0.25, 0.03)
STATION11	176	30.3 (0.4, 60.2)	0.70	144(131, 161)	147	103.0	-0.08 (-0.23, 0.07)
STATION12	275	48.3 (33.8, 62.7)	0.93	101(93, 110)	112	73.0	0.07 (-0.05, 0.19)
STATION13	154	50.8 (19.1, 82.6)	0.81	158(142, 178)	165	110.5	0.01 (-0.15, 0.16)
STATION14	123	47.5 (23.1, 71.9)	0.72	114(102, 131)	123	94.6	-0.17 (-0.34, 0.00)
STATION15	86	19.5 (-19.7, 58.8)	0.77	155(135, 182)	155	105.1	-0.10 (-0.31, 0.11)
STATION16	135	40.2 (11.5, 68.9)	0.83	132(118, 150)	138	97.4	-0.11 (-0.28, 0.06)
STATION17	139	48.5 (18.5, 78.5)	0.78	147(131, 166)	154	115.6	-0.16 (-0.32, 0.00)
STATION18	130	51.3 (26.5, 76.1)	0.75	112(100, 128)	123	90.8	-0.24 (-0.40,-0.07)
STATION19	141	33.9 (7.2, 60.6)	0.83	121(108, 137)	125	90.0	-0.27 (-0.42,-0.11)
STATION20	132	44.0 (19.1, 69.0)	0.76	117(104, 133)	125	94.6	-0.21 (-0.37,-0.04)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	131	52.0 (30.8, 73.2)	0.83	96(86, 110)	109	82.9	-0.21 (-0.37,-0.04)
STATION22	158	47.7 (20.4, 75.0)	0.78	112(101, 127)	122	89.9	-0.17 (-0.32,-0.02)
STATION23	162	51.4 (18.4, 84.4)	0.79	146(132, 164)	154	115.3	-0.08 (-0.23, 0.08)
STATION24	201	44.2 (12.7, 75.8)	0.80	157(144, 175)	163	110.1	-0.03 (-0.17, 0.11)
STATION25	182	40.8 (15.4, 66.1)	0.69	107(97, 119)	114	85.1	-0.31 (-0.43,-0.17)
STATION26	239	60.1 (33.0, 87.1)	0.77	151(139, 166)	162	115.2	-0.07 (-0.20, 0.06)
STATION27	180	49.9 (24.8, 74.9)	0.78	123(111, 137)	132	90.8	-0.23 (-0.37,-0.09)
STATION28	184	119.5 (83.7, 155.4)	0.91	170(155, 190)	208	145.5	-0.08 (-0.22, 0.07)
STATION29	169	89.0 (62.2, 115.8)	0.88	124(112, 139)	152	106.4	-0.01 (-0.16, 0.15)
STATION30	153	47.7 (14.9, 80.6)	0.78	140(126, 159)	148	104.5	0.09 (-0.07, 0.25)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)							
A. WIND SPEED							
< 2.5 M/SEC	1194	88.2 (76.3, 100.1)	0.91	156(150, 163)	179	121.0	-0.05 (-0.11, 0.00)
2.5 TO 5.0	2480	39.5 (32.1, 47.0)	0.77	151(147, 155)	156	107.9	-0.04 (-0.08, 0.00)
> 5.0 M/SEC	1498	32.4 (25.6, 39.3)	0.74	104(100, 107)	109	77.3	-0.05 (-0.10, 0.00)
B. STABILITY GROUP							
CLASS A & B	1894	61.8 (50.7, 72.9)	0.77	187(181, 193)	197	138.8	-0.10 (-0.14,-0.05)
CLASS C	1588	28.6 (19.9, 37.2)	0.73	135(131, 140)	138	99.6	-0.08 (-0.13,-0.03)
CLASS D	1328	50.7 (45.7, 55.6)	0.85	70(67, 73)	86	63.6	-0.20 (-0.25,-0.14)
CLASS E & F	362	61.2 (53.2, 69.2)	1.00	67(63, 72)	91	61.2	-0.03 (-0.13, 0.08)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	563	100.0	44.4	55.6 (45.3, 65.9)	1.77 (1.50, 2.09)	-0.54 (0.081)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	1510	72.7	31.0	41.8 (36.9, 46.7)	1.71 (1.55, 1.89)	-0.54 (0.049)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	83	74.9	44.4	30.5 (7.7, 53.3)	1.08 (0.70, 1.67)	-0.48 (0.211)
STATION 2	46	111.5	32.9	78.6 (19.9, 137.4)	3.54 (1.96, 6.40)	-0.76 (0.284)
STATION 3	67	75.9	5.6	70.4 (46.1, 94.6)	8.66 (5.32,14.09)	-0.96 (0.235)
STATION 4	107	67.0	39.6	27.5 (10.2, 44.7)	0.76 (0.52, 1.12)	-0.43 (0.186)
STATION 5	23	73.0	48.5	24.5 (-17.6, 66.5)	0.82 (0.35, 1.93)	-0.39 (0.401)
STATION 6	65	67.5	37.9	29.7 (4.5, 54.8)	1.34 (0.82, 2.20)	-0.54 (0.239)
STATION 7	47	74.7	42.0	32.6 (4.2, 61.1)	0.57 (0.32, 1.03)	-0.53 (0.281)
STATION 8	53	70.4	53.5	16.9 (-13.8, 47.7)	1.24 (0.72, 2.15)	-0.42 (0.264)
STATION 9	36	57.6	13.0	44.7 (29.6, 59.8)	3.02 (1.54, 5.92)	-0.69 (0.321)
STATION10	53	70.9	39.5	31.4 (6.2, 56.5)	2.02 (1.17, 3.50)	-0.45 (0.264)
STATION11	43	75.7	51.7	24.0 (-7.0, 55.0)	0.75 (0.41, 1.39)	-0.35 (0.293)
STATION12	78	57.1	18.0	39.1 (22.6, 55.5)	0.72 (0.46, 1.13)	-0.85 (0.218)
STATION13	32	100.0	45.0	55.1 (13.0, 97.1)	2.75 (1.34, 5.64)	-0.53 (0.340)
STATION14	18	83.3	21.3	62.1 (33.5, 90.7)	2.90 (1.08, 7.74)	-0.67 (0.453)
STATION15	23	65.4	37.6	27.8 (-17.3, 72.9)	0.97 (0.41, 2.28)	-0.65 (0.401)
STATION16	35	61.1	26.6	34.5 (10.5, 58.5)	1.31 (0.66, 2.59)	-0.69 (0.325)
STATION17	50	74.8	39.2	35.6 (11.3, 59.9)	0.86 (0.49, 1.52)	-0.46 (0.272)
STATION18	30	74.0	20.6	53.3 (28.2, 78.5)	4.23 (2.01, 8.89)	-0.67 (0.351)
STATION19	40	47.7	30.0	17.7 (-2.4, 37.9)	0.41 (0.22, 0.78)	-0.58 (0.304)
STATION20	51	52.1	21.9	30.2 (13.0, 47.5)	2.16 (1.23, 3.79)	-0.47 (0.269)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	40	56.9	16.2	40.8 (22.9, 58.6)	2.45 (1.29, 4.63)	-0.67 (0.304)
STATION22	42	65.2	24.2	41.1 (20.5, 61.6)	1.45 (0.78, 2.70)	-0.55 (0.297)
STATION23	41	81.8	31.9	49.9 (19.4, 80.3)	2.34 (1.25, 4.38)	-0.51 (0.300)
STATION24	62	74.4	38.2	36.2 (8.7, 63.7)	1.69 (1.02, 2.81)	-0.61 (0.244)
STATION25	54	53.2	22.1	31.1 (13.9, 48.3)	2.64 (1.53, 4.54)	-0.57 (0.262)
STATION26	88	79.3	27.3	52.1 (32.1, 72.0)	2.04 (1.34, 3.11)	-0.56 (0.205)
STATION27	58	59.2	21.2	38.0 (17.6, 58.4)	3.99 (2.36, 6.74)	-0.57 (0.253)
STATION28	61	117.3	20.2	97.2 (68.2, 126.2)	4.24 (2.54, 7.07)	-0.75 (0.246)
STATION29	36	92.0	15.8	76.2 (44.8, 107.7)	9.14 (4.66,17.92)	-0.69 (0.321)
STATION30	48	78.7	39.7	39.0 (9.1, 68.9)	1.17 (0.66, 2.09)	-0.52 (0.278)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	374	88.3	17.8	70.5 (58.9, 82.1)	5.30 (4.33, 6.49)	-0.71 (0.099)
2.5 TO 5.0	753	72.3	39.4	32.8 (25.9, 39.8)	0.91 (0.79, 1.05)	-0.53 (0.070)
> 5.0 M/SEC	383	58.5	27.1	31.4 (24.1, 38.6)	2.09 (1.71, 2.55)	-0.43 (0.098)
B. STABILITY GROUP						
CLASS A & B	557	96.0	40.3	55.7 (45.4, 66.1)	1.88 (1.60, 2.23)	-0.54 (0.081)
CLASS C	533	65.0	36.2	28.9 (21.6, 36.2)	1.15 (0.97, 1.36)	-0.47 (0.083)
CLASS D	320	51.4	15.8	35.6 (29.9, 41.4)	2.43 (1.95, 3.03)	-0.59 (0.108)
CLASS E & F	100	52.5	0.0	52.5 (43.6, 61.4)	20041 (13485,29786)	-1.00 (0.192)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	563	55.6 (44.1, 67.1)	0.81	108(102, 115)	121	82.3	0.26 (0.18, 0.34)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	1510	41.8 (36.1, 47.4)	0.77	97(94, 101)	106	76.5	0.00 (-0.05, 0.05)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	83	30.5 (0.6, 60.4)	0.69	109(95, 129)	113	86.7	-0.07 (-0.28, 0.15)
STATION 2	46	78.6 (-1.3, 158.5)	0.85	204(169, 257)	217	118.9	-0.06 (-0.34, 0.24)
STATION 3	67	70.4 (44.3, 96.4)	0.99	96(82, 115)	118	72.9	0.13 (-0.12, 0.35)
STATION 4	107	27.5 (8.6, 46.3)	0.75	91(80, 105)	94	75.1	0.00 (-0.19, 0.19)
STATION 5	23	24.5 (-23.6, 72.6)	0.65	103(79, 145)	103	80.7	-0.06 (-0.46, 0.36)
STATION 6	65	29.7 (14.5, 44.9)	0.77	81(69, 98)	86	61.9	0.38 (0.14, 0.57)
STATION 7	47	32.6 (8.5, 56.7)	0.79	94(78, 118)	99	77.2	0.08 (-0.21, 0.36)
STATION 8	53	16.9 (-12.8, 46.7)	0.62	99(84, 123)	100	75.2	0.23 (-0.05, 0.47)
STATION 9	36	44.7 (23.2, 66.1)	0.81	51(41, 67)	67	58.8	-0.32 (-0.59, 0.01)
STATION10	53	31.4 (-0.8, 63.6)	0.72	97(81, 120)	101	80.1	-0.11 (-0.37, 0.16)
STATION11	43	24.0 (-16.9, 64.9)	0.70	109(90, 139)	111	82.2	-0.14 (-0.42, 0.17)
STATION12	78	39.1 (18.8, 59.3)	0.88	71(61, 84)	80	61.7	0.08 (-0.14, 0.30)
STATION13	32	55.1 (12.1, 98.0)	0.69	106(85, 141)	118	77.2	0.23 (-0.13, 0.53)
STATION14	18	62.1 (39.6, 84.6)	0.94	45(34, 67)	76	63.7	0.49 (0.03, 0.78)
STATION15	23	27.8 (-12.2, 67.7)	0.78	109(84, 155)	110	82.4	-0.04 (-0.44, 0.38)
STATION16	35	34.5 (13.9, 55.1)	0.80	74(59, 96)	80	62.4	-0.07 (-0.39, 0.27)
STATION17	50	35.6 (3.1, 63.1)	0.74	89(75, 111)	95	79.8	-0.06 (-0.34, 0.22)
STATION18	30	53.3 (23.4, 83.3)	0.87	66(53, 89)	84	65.5	0.07 (-0.30, 0.42)
STATION19	40	17.7 (-9.2, 44.7)	0.75	75(61, 96)	76	62.1	-0.41 (-0.64,-0.11)
STATION20	51	30.2 (8.1, 52.4)	0.71	72(61, 90)	78	65.9	-0.39 (-0.60,-0.13)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	40	40.8 (20.4, 61.2)	0.82	64(53, 83)	75	61.8	-0.32 (-0.58,-0.01)
STATION22	42	41.1 (13.9, 68.2)	0.81	74(61, 94)	84	67.3	-0.22 (-0.49, 0.09)
STATION23	41	49.9 (15.0, 84.7)	0.78	94(77, 121)	106	79.8	0.08 (-0.24, 0.38)
STATION24	62	36.2 (5.8, 66.6)	0.71	109(93, 132)	114	83.5	0.01 (-0.24, 0.25)
STATION25	54	31.1 (0.7, 61.5)	0.67	74(62, 92)	80	62.6	-0.41 (-0.61,-0.16)
STATION26	83	52.1 (31.2, 73.0)	0.77	96(84, 113)	109	84.0	-0.04 (-0.25, 0.17)
STATION27	58	38.0 (8.9, 67.1)	0.74	88(75, 108)	95	68.2	-0.34 (-0.55,-0.09)
STATION28	61	97.2 (71.9, 122.4)	0.85	115(98, 140)	150	114.6	-0.03 (-0.28, 0.22)
STATION29	36	76.2 (42.9, 109.5)	0.86	97(79, 127)	122	87.9	-0.13 (-0.44, 0.21)
STATION30	48	39.0 (10.4, 67.7)	0.83	98(81, 122)	104	73.8	0.12 (-0.17, 0.39)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)							
A. WIND SPEED							
< 2.5 M/SEC	374	70.5 (57.3, 83.7)	0.86	118(110, 127)	137	94.5	-0.08 (-0.18, 0.02)
2.5 TO 5.0	753	32.8 (24.9, 40.7)	0.75	95(90, 100)	100	76.7	0.06 (-0.01, 0.13)
> 5.0 M/SEC	383	31.4 (22.6, 40.1)	0.74	73(68, 78)	79	58.4	-0.01 (-0.11, 0.09)
B. STABILITY GROUP							
CLASS A & B	557	55.7 (44.5, 66.9)	0.76	126(119, 134)	137	99.5	-0.03 (-0.11, 0.06)
CLASS C	533	28.9 (20.2, 37.5)	0.72	88(83, 94)	93	72.1	-0.06 (-0.14, 0.03)
CLASS D	320	35.6 (29.2, 42.1)	0.82	55(51, 59)	65	51.2	-0.11 (-0.22, 0.00)
CLASS E & F	100	52.5 (42.2, 62.8)	1.00	45(39, 52)	69	52.5	***** (*****,*****)

***** - MAGNITUDE EXCEEDS PRINT LIMITS OR VALUE CANNOT BE COMPUTED

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	157	31.7	15.0	16.7 (11.5, 21.8)	1.78 (1.30, 2.44)	-0.45 (0.153)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	767	17.0	6.4	10.6 (9.0, 12.1)	1.98 (1.72, 2.29)	-0.61 (0.069)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	38	17.6	9.8	7.8 (-0.0, 15.5)	1.77 (0.92, 3.40)	-0.47 (0.312)
STATION 2	31	23.2	7.4	15.8 (0.5, 31.2)	3.14 (1.51, 6.51)	-0.81 (0.345)
STATION 3	25	23.8	0.5	23.3 (11.8, 34.8)	285 (126, 648)	-0.92 (0.385)
STATION 4	51	16.8	9.9	7.0 (0.7, 13.2)	1.14 (0.65, 1.99)	-0.47 (0.269)
STATION 5	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION 6	47	15.9	6.7	9.2 (4.2, 14.3)	1.10 (0.61, 1.97)	-0.66 (0.281)
STATION 7	34	15.0	6.5	8.5 (2.2, 14.9)	0.82 (0.41, 1.63)	-0.62 (0.330)
STATION 8	34	17.9	13.5	4.4 (-4.0, 12.7)	1.05 (0.53, 2.11)	-0.35 (0.330)
STATION 9	4	21.4	3.2	18.1 (-8.7, 45.0)	7.56 (0.49, 117)	-0.75 (0.962)
STATION10	30	15.6	5.7	10.0 (1.4, 18.5)	4.56 (2.17, 9.59)	-0.67 (0.351)
STATION11	22	17.3	12.2	5.1 (-5.1, 15.2)	0.47 (0.19, 1.13)	-0.41 (0.410)
STATION12	42	16.3	4.1	12.2 (6.2, 18.3)	1.43 (0.77, 2.66)	-0.83 (0.297)
STATION13	4	29.3	14.2	15.0 (-16.4, 46.5)	1.94 (0.13,29.92)	-0.50 (0.962)
STATION14	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION15	8	20.3	4.5	15.7 (-4.2, 35.6)	14.08 (2.82,70.33)	-0.63 (0.680)
STATION16	4	18.4	14.1	4.3 (-28.7, 37.3)	1.92 (0.12,29.64)	0.25 (0.962)
STATION17	26	17.8	8.7	9.1 (0.7, 17.5)	1.24 (0.56, 2.77)	-0.46 (0.377)
STATION18	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION19	40	9.0	3.6	5.4 (2.1, 8.7)	0.31 (0.17, 0.59)	-0.73 (0.304)
STATION20	42	10.5	2.8	7.7 (5.0, 10.5)	1.20 (0.65, 2.24)	-0.76 (0.297)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	33	17.5	2.0	15.5 (10.2, 20.9)	10.85 (5.36,21.97)	-0.82 (0.335)
STATION22	20	14.4	6.8	7.6 (1.1, 14.0)	2.20 (0.87, 5.57)	-0.35 (0.430)
STATION23	10	18.4	7.3	11.1 (-2.6, 24.8)	1.42 (0.35, 5.71)	-0.60 (0.608)
STATION24	53	17.3	6.0	11.3 (5.1, 17.4)	1.65 (0.95, 2.86)	-0.75 (0.264)
STATION25	23	12.0	5.2	6.8 (1.1, 12.5)	1.59 (0.68, 3.76)	-0.61 (0.401)
STATION26	45	19.2	6.7	12.6 (5.9, 19.3)	2.17 (1.19, 3.95)	-0.64 (0.287)
STATION27	34	10.9	4.0	6.9 (3.4, 10.4)	0.60 (0.30, 1.20)	-0.74 (0.330)
STATION28	33	27.8	4.7	23.0 (13.2, 32.9)	8.52 (4.21,17.26)	-0.67 (0.335)
STATION29	7	18.9	1.3	17.6 (3.8, 31.5)	42.11 (7.23, 245)	-0.86 (0.727)
STATION30	22	20.2	10.7	9.5 (-1.8, 20.8)	1.47 (0.61, 3.55)	-0.55 (0.410)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	157	16.7 (11.8, 21.5)	0.79	28(25, 31)	32	22.7	0.31 (0.16, 0.45)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	767	10.6 (9.0, 12.1)	0.81	20(19, 21)	23	15.8	0.17 (0.10, 0.23)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	38	7.8 (-1.8, 17.4)	0.68	24(19, 31)	25	18.2	0.01 (-0.31, 0.33)
STATION 2	31	15.8 (-1.8, 33.4)	0.87	42(33, 56)	44	24.0	0.04 (-0.32, 0.39)
STATION 3	25	23.3 (10.9, 35.7)	0.96	28(22, 39)	36	23.8	-0.20 (-0.55, 0.21)
STATION 4	51	7.0 (1.0, 12.9)	0.71	19(16, 24)	20	15.0	0.27 (-0.01, 0.51)
STATION 5	* * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * *
STATION 6	47	9.2 (6.4, 12.1)	0.83	12(10, 15)	15	12.0	0.52 (0.28, 0.70)
STATION 7	34	8.5 (5.5, 11.5)	0.88	10(8, 13)	13	11.1	0.71 (0.49, 0.84)
STATION 8	34	4.4 (-4.0, 12.7)	0.59	20(17, 27)	21	15.7	0.30 (-0.04, 0.58)
STATION 9	4	18.1 (2.5, 33.8)	1.00	21(12, 77)	26	18.1	-0.31 (-0.98, 0.93)
STATION10	30	10.0 (0.3, 19.6)	0.80	22(17, 29)	24	14.2	0.15 (-0.23, 0.48)
STATION11	22	5.1 (-6.9, 17.1)	0.73	23(18, 33)	23	16.2	0.05 (-0.38, 0.46)
STATION12	42	12.2 (7.7, 16.8)	0.95	18(14, 22)	21	15.0	0.21 (-0.10, 0.48)
STATION13	4	15.0 (-1.3, 31.4)	0.75	15(9, 57)	20	18.6	0.66 (-0.82, 0.99)
STATION14	* * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * *
STATION15	8	15.7 (0.7, 30.8)	0.75	23(15, 46)	26	19.3	0.26 (-0.54, 0.82)
STATION16	4	4.3 (-39.3, 47.8)	0.50	33(19, 122)	29	23.2	-0.58 (-0.99, 0.86)
STATION17	26	9.1 (-0.4, 18.6)	0.73	20(16, 28)	22	16.1	0.10 (-0.30, 0.47)
STATION18	* * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * *
STATION19	40	5.4 (1.9, 8.9)	0.82	11(9, 14)	12	9.5	-0.12 (-0.42, 0.20)
STATION20	42	7.7 (4.1, 11.3)	0.88	9(8, 12)	12	10.2	-0.11 (-0.40, 0.20)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	33	15.5 (10.5, 20.5)	0.91	16(12, 21)	22	16.9	-0.09 (-0.42, 0.26)
STATION22	20	7.6 (0.3, 14.9)	0.65	17(13, 25)	18	14.6	-0.43 (-0.73, 0.01)
STATION23	10	11.1 (1.2, 21.0)	0.80	24(17, 44)	26	20.9	-0.40 (-0.82, 0.31)
STATION24	53	11.3 (6.3, 16.2)	0.87	18(16, 23)	22	16.3	0.34 (0.08, 0.56)
STATION25	23	6.8 (0.2, 13.4)	0.74	14(11, 20)	16	12.3	-0.13 (-0.52, 0.30)
STATION26	45	12.6 (7.5, 17.7)	0.80	19(16, 25)	23	18.0	0.28 (-0.02, 0.53)
STATION27	34	6.9 (3.3, 10.5)	0.82	12(10, 16)	14	12.2	-0.44 (-0.68,-0.12)
STATION28	33	23.0 (14.2, 31.9)	0.91	25(20, 33)	34	24.1	0.33 (-0.01, 0.61)
STATION29	7	17.6 (7.0, 28.3)	0.86	16(11, 36)	23	18.0	-0.62 (-0.94, 0.25)
STATION30	22	9.5 (-0.4, 19.4)	0.73	22(17, 32)	24	17.4	0.29 (-0.15, 0.63)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	2091	113.1	120.7	-7.6 (-17.9, 2.7)	0.43 (0.40, 0.47)	-0.37 (0.042)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	6009	74.9	78.3	-3.3 (-8.0, 1.3)	0.41 (0.39, 0.43)	-0.35 (0.025)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	310	69.8	153.5	-83.7 (-116.3, -51.0)	0.14 (0.11, 0.17)	0.16 (0.109)
STATION 2	186	93.6	81.2	12.4 (-23.8, 48.5)	0.98 (0.74, 1.31)	-0.46 (0.141)
STATION 3	243	76.0	48.8	27.2 (0.8, 53.6)	0.35 (0.27, 0.44)	-0.70 (0.123)
STATION 4	356	72.6	89.1	-16.5 (-34.2, 1.2)	0.41 (0.34, 0.51)	-0.24 (0.102)
STATION 5	133	75.1	109.3	-34.2 (-62.2, -6.3)	0.46 (0.33, 0.65)	0.16 (0.167)
STATION 6	238	64.6	72.5	-7.9 (-29.7, 13.8)	0.44 (0.34, 0.57)	-0.34 (0.125)
STATION 7	190	67.8	115.6	-47.8 (-81.4, -14.2)	0.14 (0.11, 0.19)	-0.29 (0.140)
STATION 8	209	75.4	114.3	-39.0 (-67.0, -10.9)	0.43 (0.33, 0.57)	0.15 (0.133)
STATION 9	204	63.7	33.7	30.1 (18.0, 42.1)	0.94 (0.71, 1.23)	-0.57 (0.135)
STATION10	223	69.4	62.9	6.5 (-10.3, 23.3)	0.84 (0.65, 1.09)	-0.30 (0.129)
STATION11	203	74.2	80.9	-6.7 (-26.4, 13.0)	0.72 (0.54, 0.94)	-0.24 (0.135)
STATION12	294	62.1	39.2	22.9 (6.0, 39.8)	0.26 (0.20, 0.32)	-0.75 (0.112)
STATION13	172	90.9	73.1	17.8 (-8.3, 44.0)	0.96 (0.71, 1.29)	-0.40 (0.147)
STATION14	139	75.7	57.2	18.6 (-0.8, 37.9)	1.01 (0.72, 1.41)	-0.32 (0.163)
STATION15	97	63.3	78.3	-15.0 (-46.3, 16.3)	0.34 (0.23, 0.51)	-0.35 (0.195)
STATION16	155	72.0	82.7	-10.7 (-37.9, 16.6)	0.24 (0.18, 0.33)	-0.45 (0.154)
STATION17	165	80.5	91.2	-10.7 (-38.9, 17.4)	0.34 (0.25, 0.46)	-0.26 (0.150)
STATION18	138	77.7	41.5	36.2 (18.2, 54.1)	1.77 (1.26, 2.48)	-0.45 (0.164)
STATION19	165	58.2	60.2	-2.0 (-22.1, 18.1)	0.37 (0.27, 0.50)	-0.45 (0.150)
STATION20	161	60.2	71.1	-10.9 (-34.7, 12.9)	0.42 (0.31, 0.57)	-0.21 (0.152)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	141	69.7	40.5	29.1 (11.5, 46.7)	0.63 (0.45, 0.87)	-0.56 (0.162)
STATION22	180	69.9	66.5	3.4 (-16.5, 23.3)	0.53 (0.39, 0.71)	-0.31 (0.143)
STATION23	190	83.1	118.8	-35.8 (-71.0, -0.5)	0.20 (0.15, 0.27)	-0.29 (0.140)
STATION24	244	73.8	97.6	-23.8 (-48.8, 1.2)	0.37 (0.29, 0.48)	-0.38 (0.123)
STATION25	197	63.6	59.9	3.6 (-17.8, 25.1)	0.38 (0.29, 0.50)	-0.34 (0.137)
STATION26	230	83.9	80.9	3.0 (-19.5, 25.4)	0.47 (0.37, 0.59)	-0.31 (0.115)
STATION27	212	64.5	59.5	5.0 (-15.3, 25.2)	0.68 (0.52, 0.89)	-0.37 (0.132)
STATION28	206	125.7	61.8	63.9 (36.6, 91.1)	1.33 (1.01, 1.75)	-0.54 (0.134)
STATION29	187	95.7	43.8	51.8 (30.3, 73.4)	1.33 (1.00, 1.77)	-0.58 (0.141)
STATION30	191	76.7	117.1	-40.5 (-72.8, -8.1)	0.28 (0.21, 0.37)	-0.28 (0.139)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	1580	83.2	118.1	-34.9 (-47.5, -22.2)	0.28 (0.26, 0.31)	-0.34 (0.048)
2.5 TO 5.0	2896	75.8	78.6	-2.8 (-8.9, 3.2)	0.53 (0.49, 0.57)	-0.33 (0.036)
> 5.0 M/SEC	1533	64.7	36.5	28.2 (23.2, 33.2)	1.19 (1.08, 1.32)	-0.43 (0.049)
B. STABILITY GROUP						
CLASS A & B	2369	93.1	117.2	-24.1 (-33.2, -15.1)	0.47 (0.43, 0.51)	-0.19 (0.040)
CLASS C	1812	69.3	83.2	-13.9 (-22.1, -5.6)	0.29 (0.26, 0.32)	-0.32 (0.045)
CLASS D	1466	55.9	28.6	27.3 (21.9, 32.7)	0.50 (0.45, 0.56)	-0.52 (0.050)
CLASS E & F	362	61.2	0.0	61.2 (54.3, 68.2)	44912 (36527,55221)	-1.00 (0.101)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	2091	-7.6 (-22.8, 7.5)	0.64	222(215, 229)	222	137.8	0.16 (0.12, 0.20)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	6009	-3.3 (-10.4, 3.7)	0.66	194(191, 198)	194	123.7	-0.11 (-0.14,-0.09)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	310	-83.7 (-141.8, -25.5)	0.53	309(287, 336)	320	192.7	-0.18 (-0.29,-0.07)
STATION 2	186	12.4 (-58.1, 82.9)	0.73	271(246, 302)	270	159.6	-0.17 (-0.30,-0.02)
STATION 3	243	27.2 (-12.4, 66.8)	0.83	215(198, 236)	216	111.9	-0.07 (-0.19, 0.06)
STATION 4	356	-16.5 (-42.5, 9.6)	0.59	179(167, 193)	179	123.6	-0.12 (-0.22,-0.01)
STATION 5	133	-34.2 (-73.8, 5.3)	0.49	172(153, 196)	175	135.1	-0.11 (-0.28, 0.06)
STATION 6	238	-7.9 (-37.8, 21.9)	0.67	169(156, 186)	169	104.8	0.02 (-0.11, 0.14)
STATION 7	190	-47.8 (-99.2, 3.7)	0.65	252(229, 281)	256	158.1	-0.23 (-0.36,-0.09)
STATION 8	209	-39.0 (-72.2, -5.7)	0.55	211(192, 233)	214	144.3	-0.05 (-0.19, 0.08)
STATION 9	204	30.1 (11.3, 48.8)	0.73	99(91, 110)	104	82.0	-0.30 (-0.42,-0.17)
STATION10	223	6.5 (-21.1, 34.1)	0.62	139(127, 153)	138	104.5	-0.17 (-0.30,-0.04)
STATION11	203	-6.7 (-33.4, 19.9)	0.57	149(136, 165)	149	109.1	-0.09 (-0.23, 0.05)
STATION12	294	22.9 (-0.7, 46.4)	0.85	152(141, 165)	153	86.8	-0.08 (-0.19, 0.04)
STATION13	172	17.8 (-12.7, 48.3)	0.69	172(156, 193)	173	117.4	0.03 (-0.12, 0.18)
STATION14	139	18.6 (-7.5, 44.7)	0.63	130(116, 147)	131	102.4	-0.26 (-0.41,-0.10)
STATION15	97	-15.0 (-57.5, 27.5)	0.63	163(143, 190)	163	110.9	-0.10 (-0.30, 0.10)
STATION16	155	-10.7 (-48.5, 27.2)	0.68	186(167, 209)	185	120.9	-0.20 (-0.35,-0.04)
STATION17	165	-10.7 (-54.5, 33.0)	0.61	203(184, 228)	203	137.5	-0.26 (-0.40,-0.11)
STATION18	138	36.2 (12.5, 59.9)	0.70	117(105, 133)	122	91.8	-0.20 (-0.36,-0.04)
STATION19	165	-2.0 (-33.8, 29.8)	0.69	148(134, 167)	148	103.5	-0.31 (-0.44,-0.17)
STATION20	161	-10.9 (-47.8, 26.0)	0.60	167(151, 188)	167	116.7	-0.20 (-0.34,-0.04)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	141	29.1 (4.1, 54.1)	0.77	119(107, 135)	122	90.4	-0.27 (-0.42,-0.11)
STATION22	160	3.4 (-23.9, 30.6)	0.65	145(131, 162)	144	104.4	-0.15 (-0.29, 0.00)
STATION23	190	-35.8 (-88.7, 17.2)	0.63	248(226, 277)	250	152.5	-0.02 (-0.16, 0.13)
STATION24	244	-23.8 (-58.1, 10.4)	0.63	204(187, 224)	205	136.4	-0.06 (-0.18, 0.07)
STATION25	197	3.6 (-28.8, 36.0)	0.62	168(153, 186)	167	106.3	-0.22 (-0.35,-0.09)
STATION26	280	3.0 (-29.3, 35.2)	0.63	206(190, 225)	206	138.7	-0.17 (-0.28,-0.06)
STATION27	212	5.0 (-27.8, 37.8)	0.65	168(153, 185)	167	110.0	-0.25 (-0.38,-0.12)
STATION28	206	63.9 (27.0, 100.7)	0.78	210(191, 232)	219	153.3	-0.11 (-0.24, 0.03)
STATION29	187	51.8 (21.8, 81.9)	0.78	155(141, 173)	163	113.3	-0.07 (-0.22, 0.07)
STATION30	191	-40.5 (-80.8, -0.1)	0.57	218(199, 243)	221	141.8	0.09 (-0.05, 0.23)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)							
A. WIND SPEED							
< 2.5 M/SEC	1580	-34.9 (-53.4, -16.3)	0.64	275(266, 285)	277	176.3	-0.18 (-0.22,-0.13)
2.5 TO 5.0	2896	-2.8 (-11.7, 6.1)	0.63	174(170, 179)	174	119.8	-0.09 (-0.13,-0.06)
> 5.0 M/SEC	1533	28.2 (21.3, 35.1)	0.71	102(99, 106)	106	76.9	-0.05 (-0.10,-0.00)
B. STABILITY GROUP							
CLASS A & B	2369	-24.1 (-37.7, -10.6)	0.57	240(233, 247)	241	166.1	-0.16 (-0.20,-0.12)
CLASS C	1812	-13.9 (-24.3, -3.4)	0.63	190(184, 196)	190	121.3	-0.14 (-0.19,-0.10)
CLASS D	1466	27.3 (20.3, 34.3)	0.76	114(110, 119)	118	73.7	-0.19 (-0.24,-0.14)
CLASS E & F	362	61.2 (53.3, 69.2)	1.00	67(63, 72)	91	61.2	-0.02 (-0.13, 0.03)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	636	89.2	95.3	-6.1 (-19.1, 6.9)	0.53 (0.45, 0.62)	-0.27 (0.076)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	1846	60.2	62.0	-1.8 (-7.6, 3.9)	0.54 (0.49, 0.59)	-0.24 (0.045)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	125	50.6	113.2	-62.6 (-93.6, -26.6)	0.14 (0.10, 0.20)	0.19 (0.172)
STATION 2	66	77.9	67.5	10.4 (-35.4, 56.2)	2.17 (1.33, 3.54)	-0.21 (0.237)
STATION 3	76	68.5	28.9	39.6 (6.1, 73.2)	0.61 (0.38, 0.95)	-0.72 (0.221)
STATION 4	135	53.9	69.6	-15.7 (-34.3, 2.8)	0.41 (0.29, 0.57)	-0.11 (0.166)
STATION 5	26	64.7	62.5	2.2 (-38.2, 42.6)	0.75 (0.34, 1.68)	-0.19 (0.377)
STATION 6	79	56.3	59.4	-3.0 (-28.5, 22.4)	0.73 (0.47, 1.14)	-0.24 (0.216)
STATION 7	67	53.0	107.0	-54.0 (-94.0, -14.0)	0.15 (0.09, 0.25)	0.19 (0.235)
STATION 8	72	52.5	89.3	-36.7 (-64.7, -8.8)	0.74 (0.46, 1.18)	0.29 (0.227)
STATION 9	37	56.5	17.9	38.6 (22.4, 54.8)	1.74 (0.90, 3.38)	-0.65 (0.316)
STATION10	58	65.2	48.9	16.3 (-8.6, 41.2)	1.54 (0.91, 2.61)	-0.36 (0.253)
STATION11	57	58.6	70.4	-11.8 (-39.5, 15.8)	0.63 (0.37, 1.07)	-0.16 (0.255)
STATION12	85	53.2	39.8	13.3 (-12.0, 38.7)	0.19 (0.13, 0.30)	-0.71 (0.209)
STATION13	34	94.3	59.8	34.5 (-7.7, 76.6)	2.11 (1.05, 4.22)	-0.38 (0.330)
STATION14	20	76.9	41.0	35.8 (1.6, 70.0)	0.91 (0.36, 2.30)	-0.55 (0.430)
STATION15	26	57.8	62.4	-4.5 (-46.4, 37.3)	0.93 (0.42, 2.07)	-0.31 (0.377)
STATION16	37	58.4	40.0	18.3 (-7.6, 44.3)	0.84 (0.43, 1.62)	-0.46 (0.316)
STATION17	62	60.9	75.6	-14.7 (-43.5, 14.1)	0.38 (0.23, 0.63)	0.13 (0.244)
STATION18	32	69.6	26.3	43.3 (18.5, 68.1)	3.60 (1.76, 7.37)	-0.53 (0.340)
STATION19	51	38.1	47.2	-9.1 (-30.6, 12.5)	0.27 (0.15, 0.47)	-0.27 (0.269)
STATION20	63	42.8	55.7	-12.9 (-34.7, 9.0)	0.48 (0.29, 0.80)	0.17 (0.242)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	47	48.8	33.1	15.7 (-4.5, 35.9)	0.91 (0.51, 1.63)	-0.34 (0.281)
STATION22	49	56.0	46.0	10.1 (-14.9, 35.0)	0.56 (0.32, 0.99)	-0.29 (0.275)
STATION23	44	76.3	53.3	23.0 (-10.7, 56.6)	1.12 (0.61, 2.05)	-0.32 (0.290)
STATION24	78	60.5	75.2	-14.7 (-41.8, 12.4)	0.85 (0.54, 1.33)	-0.29 (0.218)
STATION25	61	48.0	46.0	1.9 (-25.3, 29.1)	0.33 (0.20, 0.54)	-0.39 (0.246)
STATION26	106	66.5	60.8	5.6 (-17.2, 28.5)	0.68 (0.46, 1.00)	-0.28 (0.187)
STATION27	70	49.6	35.2	14.4 (-4.9, 33.7)	2.08 (1.29, 3.35)	-0.36 (0.230)
STATION28	74	97.3	55.2	42.1 (12.7, 71.5)	1.82 (1.14, 2.89)	-0.32 (0.224)
STATION29	42	79.4	40.6	38.8 (5.0, 72.6)	1.76 (0.95, 3.28)	-0.40 (0.297)
STATION30	67	56.8	97.8	-41.0 (-78.6, -3.3)	0.29 (0.18, 0.47)	0.21 (0.235)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	549	61.2	83.1	-21.8 (-35.7, -8.0)	0.50 (0.42, 0.59)	-0.15 (0.082)
2.5 TO 5.0	901	61.0	63.1	-2.1 (-9.6, 5.4)	0.51 (0.45, 0.58)	-0.24 (0.064)
> 5.0 M/SEC	396	56.9	30.3	26.6 (19.3, 33.8)	1.89 (1.55, 2.30)	-0.39 (0.097)
B. STABILITY GROUP						
CLASS A & B	696	77.6	86.4	-8.8 (-20.5, 2.9)	0.62 (0.53, 0.71)	-0.12 (0.073)
CLASS C	640	54.8	58.9	-4.1 (-12.7, 4.5)	0.44 (0.38, 0.52)	-0.24 (0.076)
CLASS D	396	42.2	38.1	4.1 (-4.1, 12.2)	0.39 (0.32, 0.47)	-0.31 (0.097)
CLASS E & F	114	46.2	13.5	32.7 (21.3, 44.2)	1.13 (0.78, 1.63)	-0.77 (0.180)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	636	-6.1 (-21.1, 8.9)	0.58	157(149, 166)	157	97.5	0.13 (0.05, 0.20)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	1846	-1.8 (-9.3, 5.6)	0.59	131(127, 136)	131	87.1	-0.08 (-0.13,-0.04)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	125	-62.6 (-109.7, -15.5)	0.42	214(191, 245)	222	127.5	-0.16 (-0.33, 0.01)
STATION 2	66	10.4 (-64.6, 85.5)	0.61	206(175, 248)	204	125.4	-0.21 (-0.43, 0.03)
STATION 3	76	39.6 (2.3, 77.0)	0.86	147(127, 176)	152	81.1	0.01 (-0.22, 0.23)
STATION 4	135	-15.7 (-41.2, 9.7)	0.53	114(102, 130)	115	85.2	-0.10 (-0.27, 0.07)
STATION 5	26	2.2 (-32.9, 37.3)	0.50	89(70, 123)	87	71.1	0.25 (-0.15, 0.58)
STATION 6	79	-3.0 (-26.1, 20.0)	0.59	110(95, 130)	109	73.7	0.08 (-0.14, 0.30)
STATION 7	67	-54.0 (-105.9, -2.0)	0.52	180(154, 217)	187	128.4	-0.30 (-0.50,-0.06)
STATION 8	72	-36.7 (-60.7, -12.8)	0.38	111(96, 133)	116	89.8	0.14 (-0.09, 0.36)
STATION 9	37	33.6 (14.7, 62.5)	0.76	58(47, 75)	69	59.7	-0.38 (-0.63,-0.07)
STATION10	58	16.3 (-15.3, 47.9)	0.66	101(85, 123)	101	80.1	-0.11 (-0.35, 0.15)
STATION11	57	-11.8 (-39.3, 15.6)	0.51	102(86, 125)	102	75.4	0.06 (-0.21, 0.31)
STATION12	85	13.3 (-16.5, 43.2)	0.79	124(107, 146)	124	75.6	-0.13 (-0.34, 0.08)
STATION13	34	34.5 (0.2, 68.7)	0.62	104(84, 137)	108	79.2	0.30 (-0.04, 0.58)
STATION14	20	35.8 (-3.7, 75.4)	0.80	77(59, 113)	84	69.8	-0.05 (-0.48, 0.40)
STATION15	26	-4.5 (-64.9, 55.8)	0.58	108(85, 150)	106	80.3	-0.04 (-0.42, 0.35)
STATION16	37	18.3 (-7.0, 43.7)	0.73	80(65, 104)	81	58.8	-0.02 (-0.34, 0.31)
STATION17	62	-14.7 (-62.5, 33.2)	0.56	127(107, 154)	126	92.2	-0.25 (-0.47,-0.00)
STATION18	32	43.3 (17.0, 69.6)	0.78	66(53, 87)	78	62.8	0.14 (-0.22, 0.47)
STATION19	51	-9.1 (-39.9, 21.7)	0.57	89(75, 111)	89	65.3	-0.42 (-0.62,-0.16)
STATION20	63	-12.9 (-43.9, 18.2)	0.54	102(87, 124)	102	81.8	-0.33 (-0.58,-0.15)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	47	15.7 (-5.8, 37.2)	0.66	75(62, 94)	76	58.2	-0.16 (-0.43, 0.14)
STATION22	49	10.1 (-21.7, 41.8)	0.65	87(72, 108)	86	67.3	0.03 (-0.26, 0.31)
STATION23	44	23.0 (-6.0, 51.9)	0.70	108(90, 137)	110	82.6	0.07 (-0.23, 0.36)
STATION24	78	-14.7 (-51.8, 22.4)	0.51	126(109, 150)	126	95.8	-0.08 (-0.30, 0.14)
STATION25	61	1.9 (-43.5, 47.3)	0.56	114(97, 139)	113	73.4	-0.16 (-0.40, 0.09)
STATION26	106	5.6 (-16.2, 27.5)	0.59	126(111, 146)	125	91.4	-0.11 (-0.30, 0.08)
STATION27	70	14.4 (-15.7, 44.6)	0.60	95(82, 114)	96	70.4	-0.39 (-0.57,-0.17)
STATION28	74	42.1 (12.4, 71.8)	0.66	129(111, 154)	135	102.6	-0.02 (-0.25, 0.21)
STATION29	42	38.8 (-1.1, 78.7)	0.71	124(102, 159)	129	95.1	-0.29 (-0.55, 0.01)
STATION30	67	-41.0 (-83.5, 6.6)	0.46	141(121, 171)	146	93.3	0.20 (-0.04, 0.42)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)							
A. WIND SPEED							
< 2.5 M/SEC	549	-21.8 (-39.4, -4.3)	0.53	178(169, 190)	180	118.7	-0.17 (-0.25,-0.09)
2.5 TO 5.0	901	-2.1 (-11.3, 7.1)	0.58	114(109, 120)	114	80.8	0.00 (-0.06, 0.07)
> 5.0 M/SEC	396	26.6 (18.0, 35.1)	0.70	73(69, 79)	78	57.6	-0.00 (-0.10, 0.09)
B. STABILITY GROUP							
CLASS A & B	696	-8.8 (-22.7, 5.2)	0.54	164(156, 173)	164	110.1	-0.09 (-0.16,-0.02)
CLASS C	640	-4.1 (-14.9, 6.7)	0.58	119(113, 126)	119	81.7	-0.15 (-0.22,-0.07)
CLASS D	396	4.1 (-6.4, 14.6)	0.64	93(87, 100)	93	64.0	-0.29 (-0.38,-0.20)
CLASS E & F	114	32.7 (17.2, 48.3)	0.88	69(61, 79)	76	57.6	-0.24 (-0.40,-0.06)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	158	31.5	33.9	-2.5 (-9.9, 5.0)	0.45 (0.33, 0.61)	-0.22 (0.153)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	876	15.1	14.7	0.4 (-1.6, 2.4)	0.52 (0.45, 0.59)	-0.33 (0.065)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	54	12.8	31.8	-19.0 (-32.8, -5.3)	0.14 (0.08, 0.24)	0.30 (0.262)
STATION 2	41	17.8	12.5	5.3 (-6.7, 17.3)	3.11 (1.66, 5.83)	-0.46 (0.300)
STATION 3	24	24.8	8.7	16.2 (-0.8, 33.1)	0.85 (0.37, 1.97)	-0.79 (0.393)
STATION 4	57	15.2	19.9	-4.7 (-12.6, 3.2)	0.41 (0.24, 0.69)	-0.25 (0.255)
STATION 5	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION 6	54	14.2	11.4	2.8 (-3.0, 8.6)	0.53 (0.31, 0.91)	-0.44 (0.262)
STATION 7	45	11.7	20.1	-8.4 (-17.5, 0.7)	0.19 (0.11, 0.35)	-0.24 (0.287)
STATION 8	41	14.9	24.4	-9.5 (-17.9, -1.0)	0.68 (0.36, 1.28)	0.29 (0.300)
STATION 9	4	21.4	2.0	19.4 (-8.2, 46.9)	19.21 (1.24, 297)	-1.00 (0.962)
STATION10	31	15.1	8.0	7.2 (-1.4, 15.7)	3.29 (1.59, 6.83)	-0.58 (0.345)
STATION11	24	15.9	19.2	-3.2 (-14.1, 7.7)	0.35 (0.15, 0.80)	-0.25 (0.393)
STATION12	42	16.3	5.3	11.0 (4.5, 17.5)	1.04 (0.56, 1.94)	-0.81 (0.297)
STATION13	4	29.3	18.9	10.4 (-20.8, 41.5)	2.19 (0.14,33.78)	0.25 (0.962)
STATION14	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION15	10	16.5	7.5	9.0 (-7.8, 25.7)	5.12 (1.27,20.59)	-0.40 (0.608)
STATION16	5	14.7	13.1	1.7 (-23.5, 26.8)	3.19 (0.33,30.60)	0.20 (0.860)
STATION17	31	15.1	17.7	-2.7 (-12.5, 7.2)	0.50 (0.24, 1.03)	-0.16 (0.345)
STATION18	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION19	43	8.5	7.4	1.1 (-3.2, 5.4)	0.16 (0.09, 0.29)	-0.51 (0.293)
STATION20	49	9.2	8.1	1.1 (-3.6, 5.8)	0.22 (0.12, 0.38)	-0.49 (0.275)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	34	17.1	5.0	12.1 (6.2, 18.1)	2.41 (1.20, 4.82)	-0.68 (0.330)
STATION22	24	12.4	15.4	-3.1 (-11.4, 5.3)	0.50 (0.22, 1.16)	-0.21 (0.393)
STATION23	11	16.8	16.9	-0.1 (-18.3, 18.1)	0.44 (0.12, 1.65)	-0.27 (0.580)
STATION24	54	17.0	14.3	2.8 (-4.5, 10.0)	0.78 (0.45, 1.35)	-0.50 (0.262)
STATION25	25	11.3	13.5	-2.2 (-17.0, 12.5)	0.09 (0.04, 0.21)	-0.48 (0.385)
STATION26	53	16.6	14.8	1.8 (-5.5, 9.2)	0.86 (0.50, 1.49)	-0.36 (0.264)
STATION27	37	10.2	9.8	0.4 (-4.1, 4.8)	0.31 (0.16, 0.60)	-0.38 (0.316)
STATION28	37	24.9	12.7	12.2 (1.9, 22.5)	2.46 (1.27, 4.77)	-0.32 (0.316)
STATION29	8	17.0	3.9	13.1 (0.2, 25.9)	5.66 (1.13,28.29)	-0.63 (0.680)
STATION30	29	15.8	29.0	-13.2 (-31.2, 4.9)	0.19 (0.09, 0.41)	0.24 (0.357)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	158	-2.5 (-11.2, 6.3)	0.58	40(36, 45)	40	25.6	0.32 (0.17, 0.45)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	876	0.4 (-1.9, 2.6)	0.62	28(27, 30)	28	17.8	0.12 (0.05, 0.18)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	54	-19.0 (-32.8, -5.2)	0.37	52(43, 64)	55	30.9	-0.07 (-0.33, 0.21)
STATION 2	41	5.3 (-11.3, 21.9)	0.63	41(34, 53)	41	24.5	-0.17 (-0.46, 0.14)
STATION 3	24	16.2 (0.1, 32.2)	0.88	40(31, 56)	42	26.9	0.06 (-0.35, 0.45)
STATION 4	57	-4.7 (-12.9, 3.4)	0.51	29(24, 35)	29	18.8	0.09 (-0.18, 0.34)
STATION 5	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION 6	54	2.8 (-2.0, 7.6)	0.67	17(14, 21)	17	12.3	0.40 (0.15, 0.61)
STATION 7	45	-8.4 (-21.2, 4.3)	0.51	30(25, 38)	31	20.5	0.03 (-0.27, 0.32)
STATION 8	41	-9.5 (-19.1, 0.2)	0.37	23(19, 30)	25	19.0	0.27 (-0.04, 0.53)
STATION 9	4	19.4 (3.0, 35.7)	1.00	19(11, 72)	26	19.4	-0.31 (-0.98, 0.93)
STATION10	31	7.2 (-2.5, 16.9)	0.74	23(18, 30)	23	14.4	0.11 (-0.25, 0.45)
STATION11	24	-3.2 (-17.9, 11.5)	0.54	24(18, 33)	23	17.1	0.22 (-0.20, 0.57)
STATION12	42	11.0 (6.0, 16.0)	0.90	19(15, 24)	22	15.0	0.21 (-0.10, 0.49)
STATION13	4	10.4 (5.5, 15.2)	0.50	16(9, 59)	17	13.2	0.62 (-0.84, 0.99)
STATION14	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION15	10	9.0 (-9.0, 27.0)	0.70	25(17, 45)	25	18.8	-0.04 (-0.65, 0.60)
STATION16	5	1.7 (-26.5, 29.8)	0.40	25(15, 71)	22	17.2	-0.15 (-0.91, 0.84)
STATION17	31	-2.7 (-14.8, 9.5)	0.58	28(22, 38)	28	19.3	-0.05 (-0.40, 0.31)
STATION18	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION19	43	1.1 (-2.7, 4.9)	0.74	13(11, 17)	13	9.8	0.14 (-0.17, 0.42)
STATION20	49	1.1 (-4.4, 6.6)	0.69	16(14, 20)	16	12.5	0.02 (-0.27, 0.30)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 24 HOUR

		PERFORMANCE MEASURES - PAIRED COMPARISONS					
		BIAS		CHARACTERISTIC DISCREPANCIES			
DATA SETS	NUMBER OF EVENTS	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	34	12.1 (6.5, 17.8)	0.85	16(13, 21)	20	16.0	0.12 (-0.23, 0.44)
STATION22	24	-3.1 (-13.3, 7.2)	0.42	19(15, 27)	19	15.2	0.10 (-0.31, 0.49)
STATION23	11	-0.1 (-20.3, 20.1)	0.64	18(13, 32)	17	14.8	0.65 (0.08, 0.90)
STATION24	54	2.8 (-3.5, 9.0)	0.67	22(18, 27)	22	16.8	0.34 (0.08, 0.55)
STATION25	25	-2.2 (-15.8, 11.3)	0.64	35(27, 49)	34	17.6	0.10 (-0.31, 0.47)
STATION26	53	1.8 (-4.0, 7.6)	0.57	21(17, 26)	21	15.7	0.41 (0.16, 0.61)
STATION27	37	0.4 (-4.5, 5.2)	0.62	16(13, 21)	16	13.3	-0.49 (-0.70,-0.20)
STATION28	37	12.2 (3.6, 20.8)	0.73	25(20, 33)	28	19.7	0.39 (0.07, 0.63)
STATION29	8	13.1 (1.7, 24.5)	0.63	19(13, 39)	22	17.6	-0.62 (-0.92, 0.16)
STATION30	29	-13.2 (-35.0, 8.6)	0.34	36(29, 49)	38	22.2	0.59 (0.28, 0.78)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	2461	81.0	406.6	-325.6 (-350.0,-301.2)	0.04 (0.04, 0.04)	0.40 (0.039)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	7461	51.6	211.5	-159.9 (-169.4,-150.4)	0.05 (0.05, 0.05)	0.29 (0.022)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	1150	16.8	601.5	-584.7 (-628.0,-541.4)	0.01 (0.01, 0.01)	0.82 (0.057)
STATION 2	257	65.3	227.7	-162.4 (-216.4,-103.4)	0.14 (0.11, 0.18)	0.31 (0.120)
STATION 3	282	53.6	174.5	-120.8 (-164.3, -77.4)	0.07 (0.06, 0.09)	0.28 (0.115)
STATION 4	425	48.6	272.3	-223.6 (-268.9,-178.4)	0.03 (0.03, 0.04)	0.35 (0.093)
STATION 5	123	66.1	145.1	-79.0 (-113.2, -44.8)	0.31 (0.21, 0.44)	0.25 (0.173)
STATION 6	267	50.5	127.1	-76.5 (-101.3, -51.8)	0.24 (0.19, 0.30)	0.27 (0.118)
STATION 7	226	54.7	246.6	-191.9 (-246.3,-137.5)	0.04 (0.03, 0.05)	0.28 (0.128)
STATION 8	238	58.5	201.3	-142.7 (-177.5,-108.0)	0.19 (0.15, 0.24)	0.39 (0.125)
STATION 9	188	56.6	47.3	9.4 (-5.0, 23.7)	0.60 (0.45, 0.80)	-0.39 (0.140)
STATION10	237	45.9	98.3	-52.4 (-69.2, -35.5)	0.36 (0.28, 0.47)	0.28 (0.125)
STATION11	221	58.5	120.3	-61.8 (-83.9, -39.7)	0.34 (0.26, 0.44)	0.23 (0.129)
STATION12	311	51.4	112.8	-61.4 (-89.0, -33.8)	0.06 (0.05, 0.08)	-0.55 (0.109)
STATION13	166	88.1	124.1	-36.0 (-67.3, -4.8)	0.58 (0.43, 0.79)	-0.19 (0.149)
STATION14	133	65.7	86.5	-20.8 (-44.1, 2.5)	0.48 (0.34, 0.67)	-0.16 (0.167)
STATION15	122	48.8	167.8	-119.1 (-159.5, -78.6)	0.12 (0.09, 0.18)	0.34 (0.174)
STATION16	166	60.2	119.9	-59.8 (-87.4, -32.2)	0.21 (0.15, 0.28)	0.20 (0.149)
STATION17	183	65.9	125.5	-59.6 (-91.4, -27.9)	0.20 (0.15, 0.27)	0.18 (0.142)
STATION18	126	71.1	75.8	-4.7 (-27.1, 17.7)	0.99 (0.69, 1.40)	-0.17 (0.171)
STATION19	179	48.0	96.5	-47.6 (-70.7, -24.4)	0.23 (0.17, 0.30)	-0.22 (0.144)
STATION20	144	54.3	83.6	-28.8 (-54.6, -3.0)	0.38 (0.28, 0.53)	0.14 (0.160)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	144	59.1	70.0	-10.9 (-31.3, 9.5)	0.40 (0.29, 0.56)	-0.30 (0.160)
STATION22	214	47.5	116.7	-69.2 (-91.8, -46.6)	0.21 (0.16, 0.27)	0.21 (0.131)
STATION23	259	52.5	189.6	-137.1 (-175.3, -98.9)	0.09 (0.07, 0.12)	0.33 (0.120)
STATION24	328	49.9	155.7	-105.8 (-131.0, -80.6)	0.16 (0.13, 0.20)	0.34 (0.106)
STATION25	193	53.1	69.3	-16.2 (-39.3, 6.9)	0.19 (0.14, 0.25)	-0.23 (0.138)
STATION26	294	64.0	121.5	-57.5 (-80.9, -34.1)	0.33 (0.26, 0.41)	0.19 (0.112)
STATION27	233	44.9	90.8	-46.0 (-67.4, -24.5)	0.31 (0.24, 0.41)	0.21 (0.126)
STATION28	233	101.7	111.4	-9.7 (-33.6, 19.2)	0.73 (0.57, 0.95)	-0.16 (0.126)
STATION29	186	75.2	69.7	5.5 (-18.6, 29.6)	0.59 (0.44, 0.79)	-0.39 (0.141)
STATION30	233	52.7	149.9	-97.2 (-126.9, -67.5)	0.16 (0.12, 0.20)	0.27 (0.126)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	2126	51.0	274.4	-223.3 (-243.1,-203.6)	0.05 (0.05, 0.06)	0.35 (0.042)
2.5 TO 5.0	3550	53.1	222.2	-169.1 (-184.2,-154.0)	0.04 (0.04, 0.04)	0.29 (0.032)
> 5.0 M/SEC	1785	49.5	115.5	-66.0 (-75.2, -56.7)	0.14 (0.13, 0.15)	0.23 (0.046)
B. STABILITY GROUP						
CLASS A & B	2330	81.6	215.6	-134.0 (-149.6,-118.4)	0.11 (0.10, 0.12)	0.21 (0.040)
CLASS C	1999	53.3	189.1	-135.8 (-152.3,-119.3)	0.05 (0.04, 0.05)	0.26 (0.043)
CLASS D	1857	37.4	158.8	-121.4 (-136.2,-106.5)	0.03 (0.03, 0.03)	0.30 (0.045)
CLASS E & F	1275	15.0	316.0	-301.0 (-333.8,-268.2)	0.00 (0.00, 0.01)	0.59 (0.054)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	2461	-325.6 (-392.7,-258.5)	0.27	612(595, 629)	693	375.1	0.05 (0.01, 0.09)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	7461	-159.9 (-184.4,-135.4)	0.39	430(423, 437)	458	229.3	-0.13 (-0.16,-0.11)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	1150	-584.7 (-761.9,-407.5)	0.04	750(721, 782)	951	593.2	-0.04 (-0.10, 0.02)
STATION 2	257	-162.4 (-242.1, -82.8)	0.37	454(418, 493)	482	255.8	-0.10 (-0.22, 0.02)
STATION 3	282	-120.8 (-176.1, -65.6)	0.46	373(344, 407)	391	196.4	-0.02 (-0.13, 0.10)
STATION 4	425	-223.6 (-300.0,-147.3)	0.33	485(455, 521)	534	284.8	-0.14 (-0.23,-0.04)
STATION 5	123	-79.0 (-137.0, -21.0)	0.41	200(178, 229)	214	161.2	-0.10 (-0.27, 0.08)
STATION 6	267	-76.5 (-112.0, -41.1)	0.44	205(190, 225)	219	137.7	0.01 (-0.11, 0.13)
STATION 7	226	-191.9 (-289.4, -94.4)	0.40	428(392, 472)	468	256.7	-0.16 (-0.29,-0.03)
STATION 8	238	-142.7 (-183.6,-101.9)	0.31	276(253, 304)	310	204.3	-0.03 (-0.16, 0.10)
STATION 9	188	9.4 (-11.6, 30.3)	0.64	110(100, 123)	110	85.0	-0.22 (-0.35,-0.08)
STATION10	237	-52.4 (-79.4, -25.3)	0.42	144(132, 159)	153	114.6	-0.22 (-0.33,-0.09)
STATION11	221	-61.8 (-94.8, -28.7)	0.40	175(160, 194)	185	128.0	-0.12 (-0.24, 0.02)
STATION12	311	-61.4 (-100.5, -22.2)	0.68	256(237, 278)	263	141.6	-0.14 (-0.25,-0.03)
STATION13	166	-36.0 (-71.5, -0.6)	0.51	188(170, 211)	191	132.4	0.16 (0.01, 0.31)
STATION14	133	-20.8 (-56.6, 15.0)	0.50	156(139, 177)	157	117.0	-0.33 (-0.47,-0.17)
STATION15	122	-119.1 (-177.4, -60.7)	0.40	236(209, 270)	263	179.3	-0.14 (-0.31, 0.04)
STATION16	166	-59.8 (-100.5, -19.1)	0.45	187(169, 210)	196	131.5	-0.10 (-0.25, 0.05)
STATION17	183	-59.6 (-115.3, -4.0)	0.49	236(215, 264)	243	158.2	-0.24 (-0.37,-0.09)
STATION18	126	-4.7 (-39.0, 20.6)	0.49	127(113, 145)	126	97.0	0.01 (-0.16, 0.19)
STATION19	179	-47.6 (-81.9, -13.3)	0.51	172(156, 192)	178	121.3	-0.25 (-0.38,-0.11)
STATION20	144	-28.8 (-69.9, 12.2)	0.50	173(155, 196)	175	118.0	-0.24 (-0.33,-0.08)

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TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	144	-10.9 (-40.5, 18.7)	0.54	136(122, 154)	136	98.9	-0.23 (-0.38,-0.06)
STATION22	214	-69.2 (-110.7, -27.7)	0.40	188(172, 208)	200	141.5	-0.33 (-0.45,-0.21)
STATION23	259	-137.1 (-186.2, -88.0)	0.34	315(291, 346)	343	196.1	-0.03 (-0.15, 0.09)
STATION24	328	-105.8 (-143.7, -67.9)	0.38	243(226, 263)	265	172.6	-0.14 (-0.24,-0.03)
STATION25	193	-16.2 (-42.0, 9.5)	0.53	176(161, 196)	177	106.1	-0.23 (-0.36,-0.10)
STATION26	294	-57.5 (-91.9, -23.1)	0.46	222(205, 241)	229	155.1	-0.20 (-0.31,-0.09)
STATION27	233	-46.0 (-72.6, -19.3)	0.44	184(169, 202)	189	121.5	-0.25 (-0.37,-0.13)
STATION28	233	-9.7 (-49.2, 29.8)	0.57	240(220, 264)	239	168.1	-0.14 (-0.27,-0.01)
STATION29	186	5.5 (-30.7, 41.8)	0.64	176(160, 196)	176	118.5	-0.12 (-0.26, 0.03)
STATION30	233	-97.2 (-135.0, -59.3)	0.42	240(220, 264)	259	168.1	-0.13 (-0.25, 0.00)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)							
A. WIND SPEED							
< 2.5 M/SEC	2126	-223.3 (-262.8,-183.9)	0.35	480(466, 495)	530	300.4	-0.16 (-0.20,-0.12)
2.5 TO 5.0	3550	-169.1 (-212.9,-125.3)	0.39	470(459, 481)	499	237.0	-0.13 (-0.16,-0.09)
> 5.0 M/SEC	1785	-66.0 (-87.8, -44.1)	0.45	209(202, 216)	219	129.4	-0.14 (-0.18,-0.09)
B. STABILITY GROUP							
CLASS A & B	2330	-134.0 (-163.6,-104.3)	0.44	399(388, 411)	421	242.6	-0.13 (-0.17,-0.09)
CLASS C	1999	-135.8 (-166.0,-105.6)	0.42	387(376, 400)	410	203.7	-0.14 (-0.18,-0.10)
CLASS D	1857	-121.4 (-151.5, -91.3)	0.42	337(327, 349)	359	173.4	-0.20 (-0.24,-0.15)
CLASS E & F	1275	-301.0 (-395.3,-206.7)	0.21	604(581, 628)	674	326.7	-0.17 (-0.22,-0.11)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	752	63.1	370.6	-307.5 (-349.6,-265.4)	0.03 (0.02, 0.03)	0.45 (0.070)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	2330	40.8	183.6	-142.8 (-158.3,-127.4)	0.03 (0.03, 0.03)	0.34 (0.040)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	348	15.9	596.2	-580.4 (-660.0,-500.8)	0.00 (0.00, 0.00)	0.81 (0.103)
STATION 2	96	53.7	177.4	-123.7 (-178.8, -68.6)	0.31 (0.21, 0.46)	0.40 (0.196)
STATION 3	93	49.0	132.6	-83.6 (-132.2, -34.9)	0.14 (0.09, 0.21)	0.28 (0.199)
STATION 4	160	36.6	208.4	-171.8 (-223.0,-120.6)	0.03 (0.02, 0.04)	0.46 (0.152)
STATION 5	19	64.3	75.4	-11.0 (-71.0, 48.9)	0.52 (0.20, 1.34)	0.21 (0.441)
STATION 6	101	39.8	100.2	-60.4 (-87.9, -33.0)	0.32 (0.22, 0.47)	0.36 (0.191)
STATION 7	81	42.1	211.5	-169.4 (-242.8, -96.0)	0.03 (0.02, 0.05)	0.38 (0.214)
STATION 8	87	39.0	143.2	-104.2 (-137.0, -71.4)	0.29 (0.19, 0.45)	0.51 (0.206)
STATION 9	31	57.6	21.9	35.7 (17.1, 54.3)	1.41 (0.68, 2.91)	-0.61 (0.345)
STATION10	67	35.0	73.3	-38.3 (-59.0, -17.7)	0.59 (0.36, 0.96)	0.36 (0.235)
STATION11	66	43.9	101.9	-58.0 (-89.0, -26.9)	0.26 (0.16, 0.42)	0.38 (0.237)
STATION12	98	42.0	105.5	-63.5 (-101.3, -25.7)	0.06 (0.04, 0.09)	-0.46 (0.194)
STATION13	33	91.2	115.3	-24.0 (-79.6, 31.5)	0.73 (0.36, 1.48)	0.24 (0.335)
STATION14	19	64.0	64.5	-0.4 (-47.2, 46.3)	0.39 (0.15, 1.03)	-0.32 (0.441)
STATION15	39	38.8	129.4	-90.6 (-138.4, -42.7)	0.24 (0.13, 0.46)	0.44 (0.308)
STATION16	40	48.9	75.1	-26.2 (-64.0, 11.6)	0.23 (0.12, 0.44)	0.23 (0.304)
STATION17	70	48.5	90.7	-42.2 (-72.1, -12.4)	0.30 (0.19, 0.49)	0.26 (0.230)
STATION18	30	61.4	53.4	8.0 (-23.9, 39.8)	1.31 (0.63, 2.76)	-0.30 (0.351)
STATION19	49	35.8	70.4	-34.6 (-57.7, -11.5)	0.25 (0.14, 0.44)	0.31 (0.275)
STATION20	65	33.1	58.8	-25.7 (-47.9, -3.5)	0.36 (0.22, 0.53)	0.20 (0.239)

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TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	48	40.9	46.9	-5.9 (-25.7, 13.8)	0.96 (0.54, 1.71)	-0.19 (0.278)
STATION22	69	30.7	84.0	-53.3 (-77.7, -29.0)	0.23 (0.14, 0.37)	0.36 (0.232)
STATION23	59	48.5	124.3	-75.8 (-116.4, -35.3)	0.25 (0.15, 0.43)	0.39 (0.250)
STATION24	105	41.0	123.4	-82.4 (-113.0, -51.9)	0.22 (0.15, 0.33)	0.39 (0.188)
STATION25	60	39.3	43.1	-3.8 (-21.7, 14.1)	0.73 (0.44, 1.22)	-0.30 (0.248)
STATION26	108	51.1	95.4	-44.2 (-68.4, -20.1)	0.47 (0.32, 0.68)	0.26 (0.185)
STATION27	74	35.9	64.7	-28.8 (-51.3, -6.4)	0.54 (0.34, 0.85)	0.27 (0.224)
STATION28	88	76.3	86.5	-10.2 (-39.2, 18.9)	1.10 (0.72, 1.68)	0.17 (0.205)
STATION29	44	54.3	56.9	-2.6 (-37.4, 32.3)	0.76 (0.42, 1.40)	-0.23 (0.290)
STATION30	83	37.2	114.0	-76.8 (-104.6, -49.1)	0.26 (0.17, 0.41)	0.46 (0.211)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	758	36.8	207.6	-170.8 (-197.5,-144.1)	0.05 (0.04, 0.06)	0.44 (0.070)
2.5 TO 5.0	1116	42.1	200.3	-158.2 (-183.7,-132.7)	0.02 (0.02, 0.02)	0.32 (0.058)
> 5.0 M/SEC	456	44.4	103.0	-58.7 (-75.8, -41.5)	0.10 (0.09, 0.12)	0.25 (0.090)
B. STABILITY GROUP						
CLASS A & B	661	68.7	176.4	-107.7 (-130.8, -84.6)	0.11 (0.09, 0.13)	0.22 (0.075)
CLASS C	726	43.0	172.5	-129.5 (-155.2,-103.8)	0.03 (0.02, 0.03)	0.28 (0.071)
CLASS D	459	30.5	126.8	-96.2 (-118.0, -74.5)	0.03 (0.02, 0.03)	0.35 (0.090)
CLASS E & F	484	9.2	264.2	-255.0 (-305.4,-204.6)	0.00 (0.00, 0.00)	0.72 (0.087)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	752	-307.5 (-411.2,-203.8)	0.22	582(555, 614)	658	337.5	0.06 (-0.01, 0.13)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	2330	-142.8 (-178.8,-106.9)	0.33	387(376, 398)	412	188.2	-0.11 (-0.15,-0.07)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	348	-580.4 (-775.0,-385.7)	0.04	757(705, 819)	953	586.4	-0.05 (-0.15, 0.06)
STATION 2	96	-123.7 (-204.5, -42.9)	0.28	284(249, 331)	308	192.2	-0.09 (-0.29, 0.11)
STATION 3	93	-83.6 (-139.4, -27.8)	0.41	236(206, 276)	249	145.1	0.01 (-0.19, 0.21)
STATION 4	160	-171.8 (-232.3,-111.2)	0.24	334(302, 376)	375	205.4	-0.12 (-0.27, 0.04)
STATION 5	19	-11.0 (-59.9, 37.9)	0.42	108(81, 159)	105	84.0	0.31 (-0.17, 0.67)
STATION 6	101	-60.4 (-90.9, -30.0)	0.37	136(120, 158)	148	101.2	0.06 (-0.14, 0.25)
STATION 7	81	-169.4 (-270.8, -68.0)	0.32	339(294, 401)	377	210.9	-0.13 (-0.34, 0.09)
STATION 8	87	-104.2 (-134.6, -73.8)	0.24	142(124, 167)	176	128.6	0.19 (-0.03, 0.38)
STATION 9	31	35.7 (12.5, 58.9)	0.77	56(45, 75)	66	59.4	-0.18 (-0.50, 0.19)
STATION10	67	-38.3 (-62.1, -14.6)	0.34	92(78, 110)	99	80.1	-0.15 (-0.38, 0.09)
STATION11	66	-58.0 (-92.1, -23.9)	0.30	122(104, 148)	134	94.6	0.09 (-0.15, 0.33)
STATION12	98	-63.5 (-107.0, -20.0)	0.56	196(172, 228)	205	123.1	-0.18 (-0.36, 0.02)
STATION13	33	-24.0 (-69.9, 21.8)	0.48	131(105, 173)	131	90.7	0.33 (-0.01, 0.61)
STATION14	19	-0.4 (-50.4, 49.6)	0.63	106(80, 156)	103	74.7	-0.14 (-0.56, 0.34)
STATION15	39	-90.6 (-155.0, -26.1)	0.36	154(126, 198)	177	133.5	-0.08 (-0.39, 0.24)
STATION16	40	-26.2 (-74.4, 22.0)	0.47	123(101, 158)	124	79.8	-0.08 (-0.38, 0.24)
STATION17	70	-42.2 (-91.0, 6.6)	0.44	137(117, 164)	142	104.8	-0.21 (-0.42, 0.03)
STATION18	30	8.0 (-14.7, 30.6)	0.60	67(53, 90)	66	53.6	0.41 (0.06, 0.67)
STATION19	49	-34.6 (-68.4, -0.8)	0.39	90(75, 112)	95	74.7	-0.28 (-0.52,-0.00)
STATION20	65	-25.7 (-51.7, 0.3)	0.40	100(85, 121)	102	73.6	-0.24 (-0.46,-0.00)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	48	-5.9 (-29.9, 18.1)	0.46	67(56, 84)	66	54.0	0.06 (-0.23, 0.34)
STATION22	69	-53.3 (-97.3, -9.4)	0.30	117(100, 140)	127	94.2	-0.39 (-0.58,-0.17)
STATION23	59	-75.8 (-114.7, -37.0)	0.39	162(137, 198)	178	122.0	-0.09 (-0.34, 0.17)
STATION24	105	-82.4 (-117.3, -47.5)	0.31	167(147, 193)	185	129.7	-0.14 (-0.33, 0.05)
STATION25	60	-3.8 (-29.9, 22.3)	0.47	79(67, 97)	79	63.3	-0.29 (-0.50,-0.04)
STATION26	108	-44.2 (-72.4, -16.1)	0.39	136(120, 157)	143	110.4	-0.16 (-0.34, 0.03)
STATION27	74	-28.8 (-60.9, 3.2)	0.39	112(97, 134)	115	83.9	-0.34 (-0.53,-0.12)
STATION28	88	-10.2 (-41.1, 20.8)	0.48	129(112, 151)	128	99.9	0.14 (-0.07, 0.34)
STATION29	44	-2.6 (-41.6, 36.4)	0.55	131(108, 166)	130	91.1	-0.27 (-0.53, 0.02)
STATION30	83	-76.8 (-107.5, -46.1)	0.30	131(114, 155)	152	109.4	-0.07 (-0.28, 0.15)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)							
A. WIND SPEED							
< 2.5 M/SEC	758	-170.8 (-226.1,-115.5)	0.27	383(365, 404)	419	220.2	-0.11 (-0.18,-0.04)
2.5 TO 5.0	1116	-158.2 (-217.2, -99.2)	0.34	440(423, 460)	468	199.3	-0.10 (-0.16,-0.04)
> 5.0 M/SEC	456	-58.7 (-86.4, -31.0)	0.42	192(181, 206)	201	107.7	-0.11 (-0.20,-0.02)
B. STABILITY GROUP							
CLASS A & B	661	-107.7 (-140.9, -74.4)	0.41	309(293, 326)	327	180.6	-0.07 (-0.14, 0.01)
CLASS C	726	-129.5 (-173.5, -85.5)	0.39	361(343, 381)	383	178.1	-0.15 (-0.22,-0.07)
CLASS D	459	-96.2 (-136.8, -55.6)	0.35	245(230, 262)	263	130.9	-0.20 (-0.28,-0.11)
CLASS E & F	484	-255.0 (-373.9,-136.2)	0.13	568(534, 606)	622	267.9	-0.14 (-0.22,-0.05)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	128	29.7	233.4	-203.8 (-277.7,-129.8)	0.00 (0.00, 0.01)	0.50 (0.170)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	798	12.9	60.8	-48.0 (-61.2, -34.7)	0.01 (0.01, 0.01)	0.28 (0.068)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	63	9.5	411.0	-401.5 (-538.7,-264.2)	0.00 (0.00, 0.00)	0.78 (0.242)
STATION 2	43	15.5	44.1	-28.7 (-51.2, -6.1)	0.25 (0.13, 0.45)	0.42 (0.293)
STATION 3	24	21.8	36.0	-14.2 (-39.4, 10.9)	0.26 (0.11, 0.59)	-0.42 (0.393)
STATION 4	49	10.9	77.5	-66.6 (-96.5, -36.7)	0.02 (0.01, 0.03)	0.55 (0.275)
STATION 5	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION 6	45	12.8	24.5	-11.7 (-21.9, -1.5)	0.18 (0.10, 0.33)	-0.31 (0.287)
STATION 7	39	11.5	52.1	-40.6 (-69.0, -12.1)	0.02 (0.01, 0.03)	0.33 (0.308)
STATION 8	35	12.8	42.8	-30.0 (-44.8, -15.1)	0.18 (0.09, 0.36)	0.49 (0.325)
STATION 9	4	21.4	7.8	13.5 (-14.4, 41.5)	1.67 (0.11,25.86)	-0.75 (0.962)
STATION10	30	8.8	17.0	-8.2 (-16.6, 0.1)	0.05 (0.02, 0.11)	-0.40 (0.351)
STATION11	23	11.5	23.6	-12.1 (-26.5, 2.2)	0.14 (0.05, 0.32)	0.30 (0.401)
STATION12	43	15.8	20.8	-5.0 (-17.5, 7.5)	0.16 (0.09, 0.30)	-0.53 (0.293)
STATION13	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION14	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION15	12	13.7	22.3	-8.6 (-32.0, 14.8)	0.43 (0.12, 1.43)	0.25 (0.555)
STATION16	7	9.1	22.6	-13.5 (-36.0, 9.1)	0.84 (0.14, 4.87)	0.71 (0.727)
STATION17	28	13.8	27.9	-14.1 (-29.0, 0.8)	0.22 (0.10, 0.48)	0.25 (0.363)
STATION18	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION19	33	7.9	14.0	-6.2 (-13.3, 1.0)	0.07 (0.04, 0.15)	-0.36 (0.335)
STATION20	37	8.7	8.7	-0.0 (-5.5, 5.5)	0.19 (0.10, 0.36)	-0.38 (0.316)

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TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	25	18.0	6.0	11.9 (4.8, 19.1)	2.97 (1.31, 6.75)	-0.56 (0.385)
STATION22	24	8.9	34.8	-25.9 (-43.6, -8.3)	0.05 (0.02, 0.12)	0.42 (0.393)
STATION23	11	16.3	59.8	-43.4 (-84.5, -2.3)	0.07 (0.02, 0.27)	0.45 (0.580)
STATION24	43	15.5	37.4	-22.0 (-38.5, -5.4)	0.15 (0.08, 0.28)	0.37 (0.293)
STATION25	26	9.0	9.1	-0.0 (-5.9, 5.8)	0.72 (0.32, 1.61)	-0.38 (0.377)
STATION26	43	15.0	27.5	-12.5 (-23.5, -1.5)	0.38 (0.21, 0.70)	0.26 (0.293)
STATION27	30	9.1	22.6	-13.5 (-23.1, -3.9)	0.04 (0.02, 0.09)	0.43 (0.351)
STATION28	37	20.3	22.5	-2.1 (-14.7, 10.5)	0.76 (0.39, 1.48)	0.22 (0.316)
STATION29	7	13.3	9.8	3.5 (-15.5, 22.5)	0.43 (0.07, 2.49)	-0.43 (0.727)
STATION30	32	11.8	36.4	-24.6 (-36.6, -12.6)	0.26 (0.13, 0.54)	0.53 (0.340)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	128	-203.8 (-308.3, -99.2)	0.23	417(371, 475)	462	210.1	0.23 (0.05, 0.38)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	798	-48.0 (-69.5, -26.4)	0.41	190(181, 200)	196	59.0	0.00 (-0.07, 0.07)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	63	-401.5 (-572.2,-230.7)	0.10	544(463, 661)	673	403.2	0.04 (-0.21, 0.28)
STATION 2	43	-28.7 (-56.4, -1.0)	0.35	75(62, 95)	79	47.5	-0.03 (-0.33, 0.27)
STATION 3	24	-14.2 (-32.5, 4.1)	0.54	52(41, 74)	53	34.0	0.31 (-0.10, 0.64)
STATION 4	49	-66.6 (-99.9, -33.3)	0.24	104(87, 130)	123	72.8	-0.00 (-0.28, 0.28)
STATION 5	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION 6	45	-11.7 (-22.0, -1.4)	0.47	30(25, 38)	32	22.6	0.29 (0.00, 0.54)
STATION 7	39	-40.6 (-80.8, -0.3)	0.36	87(71, 112)	95	48.5	0.06 (-0.26, 0.37)
STATION 8	35	-30.0 (-46.7, -13.2)	0.20	42(34, 54)	51	34.3	0.14 (-0.21, 0.45)
STATION 9	4	13.5 (-1.0, 28.1)	0.75	26(15, 97)	26	21.1	-0.34 (-0.98, 0.92)
STATION10	30	-8.2 (-19.1, 2.6)	0.53	22(17, 29)	23	16.5	0.17 (-0.20, 0.50)
STATION11	23	-12.1 (-34.8, 10.6)	0.43	33(26, 47)	35	22.3	0.03 (-0.39, 0.43)
STATION12	43	-5.0 (-20.2, 10.3)	0.70	37(31, 47)	37	22.5	0.23 (-0.07, 0.50)
STATION13	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION14	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION15	12	-8.6 (-35.6, 18.4)	0.50	42(30, 72)	41	30.5	-0.21 (-0.70, 0.41)
STATION16	7	-13.5 (-23.5, 11.5)	0.14	22(14, 48)	24	16.5	0.37 (-0.53, 0.88)
STATION17	28	-14.1 (-33.4, 5.2)	0.39	40(32, 55)	42	27.4	-0.11 (-0.46, 0.28)
STATION18	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION19	33	-6.2 (-12.2, -0.1)	0.48	20(16, 27)	21	13.7	0.02 (-0.33, 0.36)
STATION20	37	-0.0 (-6.1, 6.1)	0.65	17(14, 23)	17	12.1	-0.10 (-0.41, 0.23)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	25	11.9 (7.2, 16.7)	0.80	16(13, 23)	20	14.9	0.19 (-0.22, 0.54)
STATION22	24	-25.9 (-66.4, 14.5)	0.21	44(34, 62)	50	34.0	-0.22 (-0.58, 0.20)
STATION23	11	-43.4 (-89.3, 2.5)	0.18	52(36, 91)	66	49.1	0.60 (0.00, 0.88)
STATION24	43	-22.0 (-42.3, -1.6)	0.44	51(42, 64)	55	34.3	0.19 (-0.12, 0.46)
STATION25	26	-0.0 (-5.4, 5.4)	0.54	15(12, 21)	15	12.0	-0.09 (-0.46, 0.31)
STATION26	43	-12.5 (-22.1, -2.9)	0.40	30(25, 38)	32	23.7	0.36 (0.07, 0.60)
STATION27	30	-13.5 (-24.2, -2.7)	0.47	27(22, 37)	30	22.2	-0.28 (-0.58, 0.09)
STATION28	37	-2.1 (-14.8, 10.5)	0.46	27(22, 35)	27	17.6	0.51 (0.23, 0.72)
STATION29	7	3.5 (-29.3, 36.3)	0.57	26(17, 58)	25	18.7	-0.40 (-0.83, 0.51)
STATION30	32	-24.6 (-33.1, -11.1)	0.25	32(26, 42)	40	29.8	0.13 (-0.23, 0.46)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	2069	114.4	87.1	27.3 (19.3, 35.3)	1.00 (0.92, 1.09)	-0.37 (0.042)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	6983	65.0	66.9	-1.9 (-5.1, 1.3)	0.95 (0.91, 1.00)	-0.14 (0.023)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	332	65.5	105.7	-40.2 (-59.7, -20.7)	0.44 (0.36, 0.55)	0.15 (0.106)
STATION 2	185	94.4	74.0	20.4 (-13.0, 53.9)	1.40 (1.05, 1.88)	-0.41 (0.141)
STATION 3	233	79.0	29.2	49.7 (29.7, 69.8)	0.90 (0.70, 1.17)	-0.78 (0.126)
STATION 4	421	62.0	71.3	-9.3 (-21.4, 2.7)	0.95 (0.79, 1.16)	0.09 (0.094)
STATION 5	148	67.7	86.5	-18.8 (-39.1, 1.5)	1.06 (0.76, 1.46)	0.20 (0.158)
STATION 6	280	55.5	59.8	-4.3 (-18.5, 9.9)	1.24 (0.98, 1.56)	-0.13 (0.115)
STATION 7	215	60.2	91.6	-31.4 (-54.0, -8.9)	0.30 (0.23, 0.39)	-0.11 (0.131)
STATION 8	269	59.0	107.1	-48.1 (-67.2, -29.1)	0.76 (0.60, 0.96)	0.32 (0.117)
STATION 9	226	58.0	34.0	24.0 (13.7, 34.3)	1.40 (1.08, 1.83)	-0.38 (0.128)
STATION10	257	61.2	62.8	-1.6 (-15.3, 12.2)	1.23 (0.96, 1.57)	-0.12 (0.120)
STATION11	240	64.0	73.1	-9.2 (-24.0, 5.7)	1.31 (1.02, 1.69)	0.18 (0.124)
STATION12	319	57.6	40.1	17.5 (5.0, 30.1)	0.50 (0.40, 0.62)	-0.61 (0.108)
STATION13	193	81.3	77.3	4.0 (-17.3, 25.3)	1.64 (1.24, 2.18)	0.12 (0.138)
STATION14	164	64.9	60.4	4.4 (-11.7, 20.6)	1.37 (1.01, 1.86)	0.11 (0.150)
STATION15	127	49.0	80.8	-31.8 (-54.2, -9.4)	0.49 (0.34, 0.69)	0.19 (0.171)
STATION16	187	60.6	70.9	-10.3 (-27.4, 6.8)	0.63 (0.47, 0.84)	-0.15 (0.141)
STATION17	211	63.4	77.3	-13.8 (-30.5, 2.8)	1.02 (0.78, 1.34)	0.17 (0.132)
STATION18	166	64.8	51.6	13.2 (-2.4, 28.9)	1.92 (1.41, 2.60)	-0.10 (0.149)
STATION19	199	49.0	52.7	-3.8 (-16.8, 9.3)	0.95 (0.72, 1.25)	-0.18 (0.136)
STATION20	198	49.3	78.2	-29.0 (-47.4, -10.6)	0.56 (0.42, 0.74)	0.18 (0.137)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	159	62.2	40.7	21.5 (8.0, 34.9)	1.36 (1.00, 1.87)	-0.28 (0.153)
STATION22	230	55.1	57.9	-2.8 (-16.3, 10.7)	1.12 (0.87, 1.46)	0.09 (0.127)
STATION23	230	69.0	88.8	-19.8 (-39.5, -0.1)	0.70 (0.54, 0.90)	0.18 (0.127)
STATION24	296	61.9	88.4	-26.6 (-43.9, -9.2)	0.70 (0.55, 0.87)	0.22 (0.112)
STATION25	227	55.8	46.8	9.0 (-4.3, 22.2)	1.35 (1.04, 1.76)	-0.19 (0.128)
STATION26	326	72.2	61.7	10.5 (-3.9, 24.9)	1.64 (1.32, 2.04)	-0.07 (0.107)
STATION27	271	51.0	46.6	4.4 (-8.2, 16.9)	2.32 (1.83, 2.95)	-0.14 (0.117)
STATION28	231	112.4	57.5	54.8 (33.0, 76.7)	3.15 (2.43, 4.09)	-0.26 (0.127)
STATION29	211	85.0	44.0	41.0 (23.5, 58.6)	2.65 (2.02, 3.47)	-0.36 (0.132)
STATION30	232	63.6	76.0	-12.4 (-30.6, 5.9)	1.00 (0.77, 1.30)	0.19 (0.126)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	1639	80.3	66.5	13.8 (6.0, 21.6)	1.22 (1.11, 1.35)	-0.23 (0.048)
2.5 TO 5.0	3681	60.4	80.2	-19.9 (-24.4, -15.4)	0.78 (0.73, 0.83)	0.15 (0.032)
> 5.0 M/SEC	1663	60.0	37.6	22.4 (17.9, 26.9)	1.50 (1.36, 1.65)	-0.26 (0.047)
B. STABILITY GROUP						
CLASS A & B	3063	72.7	92.8	-20.1 (-25.8, -14.5)	1.16 (1.08, 1.25)	0.21 (0.035)
CLASS C	2202	57.8	74.5	-16.7 (-22.1, -11.4)	0.67 (0.62, 0.73)	0.12 (0.041)
CLASS D	1345	60.7	13.1	47.6 (43.9, 51.3)	4.14 (3.72, 4.61)	-0.65 (0.052)
CLASS E & F	373	59.5	2.9	56.5 (49.4, 63.7)	10.00 (8.16,12.26)	-0.94 (0.100)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	2069	27.3 (17.0, 37.6)	0.70	164(159, 169)	166	113.7	0.23 (0.18, 0.27)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	6983	-1.9 (-7.0, 3.2)	0.55	142(140, 144)	142	98.7	-0.08 (-0.10,-0.05)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	332	-40.2 (-73.2, -7.2)	0.47	194(180, 210)	198	136.0	-0.16 (-0.26,-0.05)
STATION 2	185	20.4 (-38.0, 78.8)	0.69	236(214, 263)	236	137.1	-0.04 (-0.18, 0.11)
STATION 3	233	49.7 (23.9, 75.5)	0.88	158(145, 174)	165	96.0	-0.03 (-0.16, 0.10)
STATION 4	421	-9.3 (-29.5, 10.8)	0.49	133(125, 143)	134	99.6	-0.12 (-0.21,-0.02)
STATION 5	148	-18.8 (-47.1, 9.6)	0.44	130(117, 147)	131	103.5	-0.07 (-0.23, 0.09)
STATION 6	280	-4.3 (-24.8, 16.2)	0.56	123(113, 134)	123	83.0	-0.03 (-0.15, 0.08)
STATION 7	215	-31.4 (-70.1, 7.3)	0.54	169(154, 187)	171	116.2	-0.02 (-0.15, 0.12)
STATION 8	269	-48.1 (-75.1, -21.2)	0.40	158(146, 173)	165	119.1	0.01 (-0.11, 0.13)
STATION 9	226	24.0 (7.7, 40.4)	0.65	87(80, 96)	90	71.6	-0.23 (-0.35,-0.10)
STATION10	257	-1.6 (-27.6, 24.5)	0.52	118(109, 130)	118	90.0	-0.12 (-0.24, 0.00)
STATION11	240	-9.2 (-33.2, 14.9)	0.47	118(109, 130)	118	88.9	-0.02 (-0.14, 0.11)
STATION12	319	17.5 (-4.1, 39.1)	0.77	119(111, 129)	120	81.4	-0.10 (-0.20, 0.01)
STATION13	193	4.0 (-22.0, 30.0)	0.58	143(131, 160)	143	99.5	0.09 (-0.05, 0.23)
STATION14	164	4.4 (-18.8, 27.7)	0.53	109(99, 123)	109	85.6	-0.09 (-0.24, 0.07)
STATION15	127	-31.8 (-70.4, 6.8)	0.45	133(119, 152)	137	98.9	-0.09 (-0.26, 0.09)
STATION16	187	-10.3 (-34.0, 13.4)	0.54	122(111, 136)	123	89.9	-0.06 (-0.20, 0.08)
STATION17	211	-13.8 (-43.6, 15.9)	0.44	134(122, 148)	134	103.2	-0.18 (-0.31,-0.05)
STATION18	165	13.2 (-6.5, 33.0)	0.55	106(96, 119)	106	78.9	-0.07 (-0.22, 0.09)
STATION19	199	-3.8 (-24.1, 16.6)	0.52	103(94, 114)	102	76.7	-0.21 (-0.33,-0.07)
STATION20	198	-29.0 (-58.9, 0.9)	0.46	143(130, 158)	145	106.2	-0.18 (-0.31,-0.04)

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TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 1 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	159	21.5 (1.3, 41.6)	0.65	92(83, 104)	94	71.3	-0.14 (-0.29, 0.02)
STATION22	230	-2.8 (-22.7, 17.1)	0.51	110(101, 121)	110	84.4	-0.11 (-0.24, 0.02)
STATION23	230	-19.8 (-49.8, 10.2)	0.50	153(140, 168)	154	111.0	-0.01 (-0.14, 0.12)
STATION24	296	-26.6 (-54.1, 0.9)	0.48	157(145, 171)	159	112.9	-0.06 (-0.17, 0.05)
STATION25	227	9.0 (-11.6, 29.5)	0.51	109(100, 121)	110	78.6	-0.16 (-0.28,-0.03)
STATION26	326	10.5 (-12.6, 33.6)	0.53	140(131, 152)	141	105.3	-0.13 (-0.24,-0.02)
STATION27	271	4.4 (-18.1, 26.8)	0.48	118(109, 129)	118	82.3	-0.28 (-0.38,-0.16)
STATION28	231	54.8 (22.9, 86.8)	0.68	173(159, 191)	181	125.6	-0.06 (-0.19, 0.07)
STATION29	211	41.0 (14.6, 67.5)	0.68	135(123, 149)	141	98.2	-0.09 (-0.22, 0.05)
STATION30	232	-12.4 (-36.3, 11.5)	0.51	146(134, 161)	146	106.5	-0.06 (-0.19, 0.06)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)							
A. WIND SPEED							
< 2.5 M/SEC	1639	13.8 (2.3, 25.2)	0.62	167(162, 173)	168	116.9	-0.08 (-0.12,-0.03)
2.5 TO 5.0	3681	-19.9 (-26.6, -13.2)	0.47	145(142, 148)	146	103.7	-0.09 (-0.12,-0.06)
> 5.0 M/SEC	1663	22.4 (15.6, 29.1)	0.65	95(92, 98)	98	69.7	-0.04 (-0.08, 0.01)
B. STABILITY GROUP							
CLASS A & B	3063	-20.1 (-28.6, -11.7)	0.42	167(163, 171)	168	120.2	-0.09 (-0.12,-0.05)
CLASS C	2202	-16.7 (-24.7, -8.8)	0.48	135(131, 139)	136	97.3	-0.12 (-0.16,-0.08)
CLASS D	1345	47.6 (42.7, 52.5)	0.84	72(70, 75)	86	62.2	-0.14 (-0.19,-0.09)
CLASS E & F	373	56.5 (48.0, 65.0)	0.97	72(68, 78)	92	62.3	-0.12 (-0.22,-0.02)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	630	90.0	72.2	17.8 (7.5, 28.2)	1.25 (1.07, 1.46)	-0.27 (0.077)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	2023	55.3	54.8	0.4 (-3.9, 4.8)	1.16 (1.06, 1.27)	-0.13 (0.043)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	124	50.7	84.3	-33.5 (-55.0, -12.1)	0.52 (0.36, 0.74)	0.22 (0.173)
STATION 2	63	82.0	60.3	21.7 (-23.5, 67.0)	3.20 (1.94, 5.29)	-0.22 (0.242)
STATION 3	73	70.1	19.5	50.7 (25.4, 76.0)	2.51 (1.58, 4.00)	-0.78 (0.225)
STATION 4	146	50.5	59.7	-9.2 (-23.2, 4.7)	0.85 (0.61, 1.17)	0.10 (0.159)
STATION 5	26	64.9	61.3	3.6 (-32.7, 39.9)	1.12 (0.50, 2.50)	-0.12 (0.377)
STATION 6	87	51.8	52.0	-0.2 (-19.8, 19.4)	1.55 (1.01, 2.37)	0.17 (0.206)
STATION 7	70	50.7	88.0	-37.4 (-67.1, -7.6)	0.29 (0.18, 0.47)	0.21 (0.230)
STATION 8	91	41.9	81.6	-39.7 (-62.7, -16.7)	0.73 (0.48, 1.11)	0.38 (0.202)
STATION 9	36	57.6	15.2	42.5 (27.5, 57.5)	3.20 (1.63, 6.28)	-0.67 (0.321)
STATION10	66	58.3	44.2	14.1 (-6.7, 34.9)	2.55 (1.56, 4.16)	-0.20 (0.237)
STATION11	63	53.6	65.5	-11.9 (-33.8, 10.0)	1.15 (0.69, 1.90)	0.30 (0.242)
STATION12	90	50.5	34.0	16.5 (-1.7, 34.7)	0.42 (0.28, 0.64)	-0.61 (0.203)
STATION13	36	89.2	66.4	22.8 (-17.9, 63.6)	2.08 (1.06, 4.08)	-0.17 (0.321)
STATION14	24	64.7	49.1	15.6 (-14.8, 46.0)	1.23 (0.53, 2.84)	-0.25 (0.393)
STATION15	31	48.9	66.0	-17.2 (-55.1, 20.8)	0.80 (0.39, 1.67)	0.23 (0.345)
STATION16	40	54.8	46.2	8.6 (-16.0, 33.3)	0.84 (0.44, 1.58)	-0.35 (0.304)
STATION17	72	52.6	65.7	-13.2 (-33.4, 7.0)	0.89 (0.56, 1.42)	0.21 (0.227)
STATION18	36	62.6	44.6	18.0 (-7.8, 43.8)	1.70 (0.87, 3.33)	-0.31 (0.321)
STATION19	50	38.8	44.8	-6.0 (-22.6, 10.7)	0.57 (0.33, 1.01)	0.14 (0.272)
STATION20	83	32.9	55.7	-22.8 (-39.1, -6.6)	0.65 (0.42, 1.00)	0.23 (0.211)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	46	50.3	34.3	16.0 (-2.5, 34.5)	1.33 (0.74, 2.41)	-0.24 (0.284)
STATION22	56	49.8	48.1	1.7 (-18.0, 21.4)	0.96 (0.56, 1.64)	-0.09 (0.257)
STATION23	53	63.8	59.9	4.0 (-24.4, 32.3)	1.38 (0.80, 2.39)	0.13 (0.264)
STATION24	93	51.6	68.7	-17.1 (-39.5, 5.3)	1.02 (0.67, 1.54)	0.28 (0.199)
STATION25	61	47.6	35.0	12.6 (-4.5, 29.7)	1.66 (1.00, 2.77)	-0.33 (0.246)
STATION26	123	57.6	49.5	8.0 (-8.7, 24.8)	1.59 (1.11, 2.27)	-0.15 (0.173)
STATION27	80	43.9	34.5	9.4 (-7.3, 26.1)	2.69 (1.73, 4.20)	-0.26 (0.215)
STATION28	78	93.0	48.4	44.5 (18.6, 70.4)	3.47 (2.21, 5.43)	-0.24 (0.218)
STATION29	48	70.4	38.8	31.6 (4.0, 59.2)	3.87 (2.17, 6.90)	-0.31 (0.278)
STATION30	78	49.4	64.6	-15.2 (-35.7, 5.3)	1.46 (0.93, 2.29)	0.24 (0.218)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)						
A. WIND SPEED						
< 2.5 M/SEC	537	62.4	52.1	10.3 (0.2, 20.3)	1.90 (1.60, 2.25)	-0.12 (0.083)
2.5 TO 5.0	1072	51.9	64.6	-12.7 (-18.5, -6.9)	0.80 (0.71, 0.90)	0.13 (0.059)
> 5.0 M/SEC	414	54.7	33.0	21.7 (14.5, 28.9)	1.65 (1.36, 2.01)	-0.28 (0.095)
B. STABILITY GROUP						
CLASS A & B	806	67.4	74.4	-6.9 (-15.4, 1.5)	1.44 (1.25, 1.65)	0.16 (0.068)
CLASS C	757	47.0	55.9	-9.0 (-15.2, -2.7)	0.88 (0.76, 1.02)	0.11 (0.070)
CLASS D	359	46.3	23.8	22.6 (16.8, 28.4)	1.60 (1.30, 1.97)	-0.38 (0.102)
CLASS E & F	101	52.0	0.8	51.2 (42.3, 60.2)	43.34 (29.22,64.29)	-0.98 (0.191)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	630	17.8 (6.0, 29.7)	0.64	114(108, 121)	116	82.5	0.26 (0.18, 0.33)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	2023	0.4 (-5.0, 5.8)	0.53	101(98, 105)	101	73.4	-0.03 (-0.07, 0.02)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	124	-33.5 (-59.7, -7.4)	0.39	127(113, 145)	131	95.3	-0.10 (-0.27, 0.07)
STATION 2	63	21.7 (-36.4, 79.9)	0.59	187(159, 227)	187	106.6	-0.09 (-0.33, 0.17)
STATION 3	73	50.7 (21.1, 80.2)	0.88	107(92, 128)	118	74.7	0.04 (-0.19, 0.27)
STATION 4	146	-9.2 (-27.6, 9.2)	0.49	89(80, 101)	89	71.2	-0.08 (-0.24, 0.08)
STATION 5	26	3.6 (-23.4, 30.6)	0.54	73(57, 101)	72	51.9	0.38 (-0.01, 0.67)
STATION 6	87	-0.2 (-17.9, 17.5)	0.52	89(73, 105)	89	63.0	0.07 (-0.14, 0.28)
STATION 7	70	-37.4 (-73.1, -1.6)	0.43	129(111, 155)	133	93.8	-0.07 (-0.30, 0.17)
STATION 8	91	-39.7 (-64.2, -15.2)	0.33	101(88, 118)	108	79.8	0.18 (-0.03, 0.37)
STATION 9	36	42.5 (24.4, 60.6)	0.81	47(38, 62)	63	53.3	-0.13 (-0.44, 0.20)
STATION10	66	14.1 (-21.4, 49.6)	0.53	91(78, 110)	92	71.5	-0.16 (-0.39, 0.09)
STATION11	63	-11.9 (-42.9, 19.0)	0.41	87(76, 103)	89	72.3	-0.03 (-0.28, 0.22)
STATION12	90	16.5 (-7.0, 40.0)	0.74	91(79, 107)	92	65.9	-0.09 (-0.29, 0.12)
STATION13	36	22.8 (-5.3, 51.0)	0.64	99(81, 130)	101	75.4	0.36 (0.04, 0.62)
STATION14	24	15.6 (-23.7, 55.0)	0.71	85(66, 119)	84	71.4	-0.32 (-0.64, 0.10)
STATION15	31	-17.2 (-77.4, 43.1)	0.48	107(85, 142)	106	81.9	-0.02 (-0.37, 0.34)
STATION16	40	8.6 (-15.4, 32.6)	0.65	75(61, 96)	74	55.4	0.09 (-0.23, 0.39)
STATION17	72	-13.2 (-43.8, 17.5)	0.43	95(81, 113)	95	76.8	-0.19 (-0.40, 0.04)
STATION18	36	18.0 (-2.6, 38.7)	0.61	71(58, 93)	72	56.8	0.16 (-0.17, 0.47)
STATION19	50	-6.0 (-23.3, 11.3)	0.56	69(57, 86)	68	55.3	-0.36 (-0.58,-0.10)
STATION20	83	-22.8 (-43.1, -2.6)	0.37	83(72, 98)	86	69.3	-0.24 (-0.43,-0.02)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 3 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	46	16.0 (-5.2, 37.2)	0.65	61(51, 77)	63	46.0	0.06 (-0.23, 0.35)
STATION22	56	1.7 (-28.5, 31.8)	0.52	75(63, 92)	75	61.2	-0 02 (-0.29, 0.24)
STATION23	53	4.0 (-21.7, 29.6)	0.53	97(81, 119)	96	75.0	0.14 (-0.13, 0.40)
STATION24	93	-17.1 (-45.5, 11.2)	0.43	110(96, 128)	111	82.3	-0.01 (-0.21, 0.20)
STATION25	61	12.6 (-16.1, 41.3)	0.52	74(63, 90)	75	56.8	-0.22 (-0.45, 0.03)
STATION26	123	8.0 (-9.4, 25.5)	0.53	95(85, 109)	95	76.3	-0.02 (-0.19, 0.16)
STATION27	80	9.4 (-18.3, 37.2)	0.50	87(75, 103)	87	62.0	-0.36 (-0.54,-0.15)
STATION28	78	44.5 (21.1, 68.0)	0.65	107(93, 127)	116	83.4	0.16 (-0.06, 0.37)
STATION29	48	31.6 (4.6, 58.6)	0.63	105(87, 131)	108	78.1	-0.24 (-0.49, 0.05)
STATION30	78	-15.2 (-38.9, 8.6)	0.41	90(78, 107)	91	73.8	0.04 (-0.19, 0.26)
4. BY METEOROLOGICAL CONDITION, ALL STATIONS (B-4)							
A. WIND SPEED							
< 2.5 M/SEC	537	10.3 (-1.6, 22.2)	0.54	124(117, 132)	124	85.3	-0.10 (-0.18,-0.01)
2.5 TO 5.0	1072	-12.7 (-19.8, -5.7)	0.47	95(92, 100)	97	74.2	0.03 (-0.03, 0.09)
> 5.0 M/SEC	414	21.7 (13.2, 30.3)	0.67	75(70, 80)	78	55.7	-0.01 (-0.11, 0.08)
B. STABILITY GROUP							
CLASS A & B	806	-6.9 (-15.9, 2.0)	0.45	123(117, 129)	123	87.7	-0.01 (-0.08, 0.06)
CLASS C	757	-9.0 (-17.1, -0.8)	0.46	93(89, 98)	93	71.4	-0.14 (-0.21,-0.07)
CLASS D	359	22.6 (15.5, 29.6)	0.71	62(58, 67)	66	51.4	-0.24 (-0.33,-0.14)
CLASS E & F	101	51.2 (40.7, 61.7)	0.99	46(41, 54)	69	52.5	-0.12 (-0.31, 0.08)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	160	31.1	26.8	4.3 (-1.2, 9.8)	1.26 (0.92, 1.72)	-0.18 (0.152)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	904	14.7	13.5	1.1 (-0.5, 2.7)	1.03 (0.90, 1.17)	-0.26 (0.064)
3. ALL CONCENTRATIONS, BY STATION (B-1)						
STATION 1	54	12.7	22.9	-10.2 (-18.2, -2.2)	0.56 (0.33, 0.97)	0.26 (0.262)
STATION 2	38	19.1	12.0	7.2 (-5.2, 19.5)	4.60 (2.39, 8.85)	-0.37 (0.312)
STATION 3	24	24.8	1.8	23.0 (11.1, 35.0)	31.34 (13.56,72.45)	-0.92 (0.393)
STATION 4	58	14.9	18.6	-3.7 (-10.2, 2.8)	0.71 (0.42, 1.20)	-0.19 (0.253)
STATION 5	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION 6	53	14.5	10.8	3.7 (-1.2, 8.7)	0.95 (0.55, 1.64)	-0.38 (0.264)
STATION 7	43	12.2	17.8	-5.6 (-13.1, 1.8)	0.34 (0.18, 0.62)	-0.28 (0.293)
STATION 8	46	13.5	24.8	-11.3 (-19.8, -2.9)	0.50 (0.28, 0.91)	0.35 (0.284)
STATION 9	4	21.4	4.0	17.4 (-9.4, 44.2)	6.57 (0.43, 101)	-0.75 (0.962)
STATION10	34	14.2	9.7	4.5 (-3.9, 13.0)	1.95 (0.97, 3.90)	-0.44 (0.330)
STATION11	24	16.0	17.6	-1.6 (-11.0, 7.8)	0.52 (0.22, 1.20)	0.13 (0.393)
STATION12	44	15.7	5.7	10.0 (3.8, 16.3)	1.08 (0.59, 1.97)	-0.68 (0.290)
STATION13	4	29.3	19.8	9.5 (-23.3, 42.3)	1.41 (0.09,21.76)	-0.50 (0.962)
STATION14	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION15	12	13.8	6.7	7.1 (-6.8, 21.0)	7.95 (2.29,27.62)	-0.25 (0.555)
STATION16	4	18.4	10.8	7.6 (-24.5, 39.8)	6.32 (0.41,97.53)	0.25 (0.962)
STATION17	32	14.7	15.7	-1.0 (-9.1, 7.0)	0.91 (0.45, 1.87)	0.09 (0.340)
STATION18	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS				* * * * * * * *
STATION19	43	8.5	8.2	0.3 (-3.3, 3.9)	0.25 (0.13, 0.45)	-0.40 (0.293)
STATION20	55	8.3	10.8	-2.5 (-7.3, 2.3)	0.19 (0.11, 0.32)	-0.35 (0.259)

(CONTINUED)

TABLE B. (PART 1) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	PERFORMANCE MEASURES - UNPAIRED COMPARISONS: DIFFERENCE OF AVERAGES (CO - CP) (UG/M**3)	VARIANCE COMPARISON (SO**2/SP**2)	FREQUENCY DISTRIBUTION COMPARISON (F(CO) - F(CP)) MAX (FRACTION)
STATION21	32	18.0	4.8	13.2 (7.3, 19.1)	3.03 (1.48, 6.20)	-0.66 (0.340)
STATION22	27	11.0	16.1	-5.1 (-12.4, 2.1)	0.63 (0.29, 1.37)	0.22 (0.370)
STATION23	12	15.3	17.3	-2.0 (-16.3, 12.4)	0.80 (0.23, 2.78)	0.17 (0.555)
STATION24	59	15.9	16.6	-0.7 (-7.6, 6.2)	0.75 (0.44, 1.26)	-0.37 (0.250)
STATION25	26	11.0	9.7	1.4 (-5.2, 8.0)	0.62 (0.28, 1.38)	-0.46 (0.377)
STATION26	56	15.7	12.6	3.0 (-3.2, 9.3)	1.50 (0.88, 2.55)	-0.27 (0.257)
STATION27	38	9.9	11.3	-1.3 (-5.9, 3.2)	0.28 (0.15, 0.54)	-0.34 (0.312)
STATION28	36	25.5	10.9	14.6 (4.7, 24.4)	4.41 (2.25, 8.65)	-0.31 (0.321)
STATION29	9	15.4	5.9	9.5 (-2.5, 21.6)	3.77 (0.85,16.73)	-0.56 (0.641)
STATION30	32	14.6	18.8	-4.3 (-13.3, 4.7)	1.20 (0.59, 2.46)	0.31 (0.340)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED
SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
1. HIGHEST CONCENTRATION, EVENT-BY-EVENT (A-1)	160	4.3 (-2.1, 10.7)	0.61	30(27, 34)	30	21.6	0.27 (0.12, 0.41)
2. ALL CONCENTRATIONS, ALL STATIONS (PAIRED IN TIME AND LOCATION) (B-3)	904	1.1 (-0.7, 3.0)	0.58	22(21, 23)	22	15.6	0.17 (0.10, 0.23)
3. ALL CONCENTRATIONS, BY STATION (B-1)							
STATION 1	54	-10.2 (-19.4, -1.1)	0.33	28(24, 35)	30	21.1	0.11 (-0.16, 0.36)
STATION 2	38	7.2 (-6.3, 20.7)	0.63	35(28, 45)	35	19.8	0.21 (-0.11, 0.50)
STATION 3	24	23.0 (11.1, 34.9)	0.96	29(22, 40)	36	23.3	-0.05 (-0.44, 0.36)
STATION 4	58	-3.7 (-10.9, 3.6)	0.47	23(20, 28)	23	16.8	0.15 (-0.11, 0.39)
STATION 5	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION 6	53	3.7 (-0.4, 7.9)	0.66	14(12, 17)	14	11.3	0.41 (0.15, 0.61)
STATION 7	43	-5.6 (-13.8, 2.5)	0.56	22(18, 28)	22	16.2	0.24 (-0.07, 0.50)
STATION 8	46	-11.3 (-20.3, -2.3)	0.33	24(20, 30)	26	18.7	0.32 (0.03, 0.56)
STATION 9	4	17.4 (1.9, 32.9)	0.75	21(12, 79)	25	18.0	-0.34 (-0.98, 0.92)
STATION10	34	4.5 (-4.9, 13.9)	0.65	24(19, 31)	24	14.7	0.09 (-0.26, 0.41)
STATION11	24	-1.6 (-15.0, 11.8)	0.58	21(16, 30)	21	14.6	0.16 (-0.26, 0.53)
STATION12	44	10.0 (5.2, 14.9)	0.89	19(16, 25)	22	15.0	0.14 (-0.16, 0.42)
STATION13	4	9.5 (3.1, 15.9)	0.75	20(11, 74)	20	17.2	0.45 (-0.90, 0.98)
STATION14	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION15	12	7.1 (-4.4, 18.6)	0.50	21(15, 35)	21	15.1	0.25 (-0.37, 0.72)
STATION16	4	7.6 (-15.2, 30.4)	0.75	17(9, 62)	16	13.5	0.69 (-0.80, 0.99)
STATION17	32	-1.0 (-12.0, 10.0)	0.59	22(18, 30)	22	16.4	0.03 (-0.32, 0.38)
STATION18	* * * * * * * *	INSUFFICIENT DATA TO CALCULATE RELIABLE STATISTICS					* * * * * * * *
STATION19	43	0.3 (-3.0, 3.5)	0.65	11(9, 15)	11	8.8	0.05 (-0.25, 0.35)
STATION20	55	-2.5 (-8.1, 3.1)	0.53	17(14, 21)	17	12.5	0.16 (-0.11, 0.41)

(CONTINUED)

TABLE B. (PART 2) COMPARISON OF OBSERVED AND PREDICTED SO2 CONCENTRATION VALUES EVENT-BY-EVENT (PAIRED IN TIME)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 24 HOUR

DATA SETS	NUMBER OF EVENTS	PERFORMANCE MEASURES - PAIRED COMPARISONS: BIAS: AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	BIAS: FRACTION OF POSITIVE RESIDUALS (CO > CP)	CHARACTERISTIC DISCREPANCIES: NOISE (SD) (UG/M**3)	CHARACTERISTIC DISCREPANCIES: ROOT MEAN SQUARE ERROR (UG/M**3)	CHARACTERISTIC DISCREPANCIES: AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
STATION21	32	13.2 (8.0, 18.4)	0.91	13(11, 18)	19	14.8	0.43 (0.09, 0.68)
STATION22	27	-5.1 (-15.0, 4.7)	0.37	18(14, 25)	18	15.3	0.08 (-0.31, 0.45)
STATION23	12	-2.0 (-17.2, 13.3)	0.42	19(13, 32)	18	14.7	0.40 (-0.23, 0.79)
STATION24	59	-0.7 (-6.7, 5.3)	0.56	24(20, 29)	24	16.9	0.21 (-0.05, 0.44)
STATION25	26	1.4 (-5.1, 7.9)	0.58	15(12, 21)	15	11.7	0.18 (-0.23, 0.53)
STATION26	56	3.0 (-2.3, 8.4)	0.55	19(16, 23)	19	14.9	0.38 (0.13, 0.58)
STATION27	38	-1.3 (-6.7, 4.1)	0.50	16(13, 20)	16	12.8	-0.33 (-0.59,-0.01)
STATION28	36	14.6 (5.9, 23.3)	0.78	22(18, 29)	26	17.9	0.54 (0.25, 0.74)
STATION29	9	9.5 (-3.4, 22.4)	0.56	21(14, 39)	22	17.7	-0.66 (-0.92, 0.01)
STATION30	32	-4.3 (-12.8, 4.2)	0.41	20(16, 26)	20	15.4	0.40 (0.06, 0.66)

APPENDIX C

Statistics For Highest Concentrations At Each Station

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 1 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
596.6	575.1	21.5 (-74, 117)	0.60	255 (203, 343)	252	199.9	0.44 (0.10, 0.69)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 1 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
492.0	440.2	51.8 (-18, 121)	0.60	186 (148, 250)	190	137.2	0.46 (0.11, 0.70)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 3 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
350.1	239.4	110.7 (55, 167)	0.77	150 (119, 202)	184	139.1	0.56 (0.24, 0.76)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 3 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
261.5	184.3	77.1 (42, 112)	0.67	94 (74, 126)	120	93.6	0.43 (0.09, 0.69)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 24 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
64.7	40.3	24.3 (11, 37)	0.83	35 (28, 47)	42	30.7	0.43 (0.09, 0.69)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPTER AVERAGING TIME: 24 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
44.3	26.3	18.0 (11, 25)	0.90	18 (14, 24)	25	18.8	0.67 (0.41, 0.83)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 1 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
596.6	829.2	-232.6 (-340, -125)	0.20	288 (230, 388)	367	298.5	0.51 (0.19, 0.74)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 1 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
492.0	710.5	-218.6 (-323, -114)	0.30	279 (222, 376)	351	272.5	0.38 (0.03, 0.65)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 3 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
350.1	410.7	-60.6 (-154, 32)	0.43	249 (198, 335)	252	180.8	0.33 (-0.03, 0.62)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 3 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
261.5	305.7	-44.2 (-113, 25)	0.50	185 (147, 249)	187	123.7	0.25 (-0.12, 0.56)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 24 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
64.7	74.9	-10.2 (-31, 11)	0.47	56 (44, 75)	56	39.8	0.37 (0.01, 0.64)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: MPSDM AVERAGING TIME: 24 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
44.3	48.0	-3.7 (-17, 10)	0.47	36 (28, 48)	35	23.0	0.53 (0.21, 0.75)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 1 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
596.6	1484.0	-887.4 (-1322, -453)	0.10	1164 (927,1564)	1448	892.1	0.55 (0.24, 0.76)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 1 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
492.0	1110.0	-618.1 (-973, -263)	0.10	951 (757,1278)	1121	630.2	0.39 (0.03, 0.66)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 3 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
350.1	765.1	-415.0 (-781, -49)	0.23	979 (780,1316)	1048	435.8	0.24 (-0.13, 0.55)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 3 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
261.5	616.0	-354.5 (-657, -52)	0.23	810 (645,1089)	872	364.8	0.17 (-0.20, 0.50)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 24 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
64.7	239.1	-174.5 (-389, 40)	0.27	573 (457, 771)	590	184.1	0.25 (-0.12, 0.56)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: PPSP AVERAGING TIME: 24 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
44.3	159.1	-114.9 (-265, 35)	0.33	401 (319, 539)	411	124.0	0.33 (-0.03, 0.62)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 1 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
596.6	508.0	88.6 (25, 152)	0.77	171 (136, 230)	190	144.8	0.51 (0.19, 0.74)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 1 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
492.0	460.3	31.6 (-32, 96)	0.63	171 (136, 230)	171	130.4	0.47 (0.13, 0.71)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 3 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
350.1	277.0	73.1 (10, 136)	0.80	168 (134, 226)	180	116.4	0.41 (0.06, 0.67)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 3 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
261.5	230.3	31.2 (-6, 69)	0.67	101 (80, 135)	104	81.9	0.42 (0.07, 0.67)

TABLE C

COMPARISON OF MAXIMUM OBSERVED AND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 24 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
64.7	51.7	13.0 (-2, 28)	0.63	40 (32, 54)	41	29.7	0.26 (-0.11, 0.57)

COMPARISON OF SECOND MAXIMUM OBSERVED AND SECOND MAXIMUM
PREDICTED CONCENTRATION VALUES, PAIRED BY STATION (A - 2)

KINCAID (1980 & 1981) MODEL: TEM-8A AVERAGING TIME: 24 HOUR

		PERFORMANCE MEASURES					
		BIAS		CHARACTERISTIC DISCREPANCIES			
AVERAGE OBSERVED VALUE (CO) (UG/M**3)	AVERAGE PREDICTED VALUE (CP) (UG/M**3)	AVERAGE DIFFERENCE (CO - CP) (UG/M**3)	FRACTION OF POSITIVE RESIDUALS (CO > CP)	NOISE (SD) (UG/M**3)	ROOT MEAN SQUARE ERROR (UG/M**3)	AVERAGE ABSOLUTE DIFFERENCE (UG/M**3)	CORRELATION COEFFICIENT
44.3	37.5	6.7 (-2, 15)	0.60	23 (18, 31)	24	17.3	0.52 (0.20, 0.74)

APPENDIX D

Comparisons Of Highest Values For Various Pairings

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:MPTER AVERAGING TIME: 1 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	1182.2 (2,116,15)	1422.0 (2,205,11)	-239.8
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	1182.2 (2,116,15)	.0 (2,116,15)	1182.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	1182.2 (2,116,15)	51.0 (28,116,15)	1131.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	1182.2 (2,116,15)	1422.0 (2,205,11)	-239.8
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	3.3 (2,205,11)	1422.0 (2,205,11)	-1418.7
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	140.3 (28,205,11)	1422.0 (2,205,11)	-1281.7
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	1182.2 (2,147,11)	1422.0 (2,205,11)	-239.8

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:MPTER AVERAGING TIME: 3 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	1094.9 (2,116, 5)	479.3 (2,205, 4)	615.6
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	1094.9 (2,116, 5)	.0 (2,116, 5)	1094.9
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	1094.9 (2,116, 5)	19.7 (28,116, 5)	1075.3
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	1094.9 (2,116, 5)	479.3 (2,205, 4)	615.6
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	44.2 (2,205, 4)	479.3 (2,205, 4)	-435.1
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	170.5 (28,205, 4)	479.3 (2,205, 4)	-308.8
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	1094.9 (2,147, 4)	479.3 (2,205, 4)	615.6

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:MPTER AVERAGING TIME: 24 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	189.5 (2,116, 1)	89.9 (4,217, 1)	99.6
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	189.5 (2,116, 1)	.0 (2,116, 1)	189.5
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	189.5 (2,116, 1)	5.8 (28,116, 1)	183.7
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	189.5 (2,116, 1)	89.6 (2,216, 1)	99.8
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	39.8 (4,217, 1)	89.9 (4,217, 1)	-50.1
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	81.5 (10,217, 1)	89.9 (4,217, 1)	-8.4
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	76.2 (4,131, 1)	89.9 (4,217, 1)	-13.7

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:MPSDM AVERAGING TIME: 1 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	1182.2 (2,116,15)	1554.0 (3,123, 8)	-371.8
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	1182.2 (2,116,15)	6.0 (2,116,15)	1176.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	1182.2 (2,116,15)	47.0 (28,116,15)	1135.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	1182.2 (2,116,15)	850.0 (2,147,10)	332.2
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	39.7 (3,123, 8)	1554.0 (3,123, 8)	-1514.3
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	39.7 (3,123, 8)	1554.0 (3,123, 8)	-1514.3
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	931.0 (3,116,11)	1554.0 (3,123, 8)	-623.0

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:MPSDM AVERAGING TIME: 3 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	1094.9 (2,116, 5)	1127.0 (1,107, 4)	-32.1
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	1094.9 (2,116, 5)	2.0 (2,116, 5)	1092.9
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	1094.9 (2,116, 5)	26.7 (28,116, 5)	1068.3
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	1094.9 (2,116, 5)	488.0 (2,147, 4)	606.9
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	27.1 (1,107, 4)	1127.0 (1,107, 4)	-1099.9
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	27.1 (1,107, 4)	1127.0 (1,107, 4)	-1099.9
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	470.7 (1,173, 5)	1127.0 (1,107, 4)	-656.3

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:MPSDM AVERAGING TIME: 24 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	189.5 (2,116, 1)	231.7 (1,107, 1)	-42.2
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	189.5 (2,116, 1)	5.6 (2,116, 1)	183.8
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	189.5 (2,116, 1)	25.4 (28,116, 1)	164.0
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	189.5 (2,116, 1)	76.5 (2,152, 1)	112.9
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	10.0 (1,107, 1)	231.7 (1,107, 1)	-221.7
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	62.1 (26,107, 1)	231.7 (1,107, 1)	-169.6
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	95.5 (1,173, 1)	231.7 (1,107, 1)	-136.2

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:PPSP AVERAGING TIME: 1 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	1182.2 (2,116,15)	6219.0 (1,202,24)	-5036.8
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	1182.2 (2,116,15)	441.0 (2,116,15)	741.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	1182.2 (2,116,15)	845.0 (1,116,15)	337.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	1182.2 (2,116,15)	3177.0 (2,211,22)	-1994.8
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	.0 (1,202,24)	6219.0 (1,202,24)	-6219.0
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	16.6 (10,202,24)	6219.0 (1,202,24)	-6202.4
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	851.7 (1, 96,11)	6219.0 (1,202,24)	-5367.3

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:PPSP AVERAGING TIME: 3 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	1094.9 (2,116, 5)	5441.7 (1,202, 8)	-4346.7
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	1094.9 (2,116, 5)	148.3 (2,116, 5)	946.6
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	1094.9 (2,116, 5)	845.0 (1,116, 5)	249.9
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	1094.9 (2,116, 5)	1059.0 (2,211, 8)	35.9
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	.7 (1,202, 8)	5441.7 (1,202, 8)	-5441.0
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	11.6 (10,202, 8)	5441.7 (1,202, 8)	-5430.1
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	470.7 (1, 96, 4)	5441.7 (1,202, 8)	-4971.0

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:PPSP AVERAGING TIME: 24 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	189.5 (2,116, 1)	3249.0 (1,202, 1)	-3059.6
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	189.5 (2,116, 1)	56.1 (2,116, 1)	133.3
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	189.5 (2,116, 1)	759.0 (1,116, 1)	-569.6
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	189.5 (2,116, 1)	376.1 (2,152, 1)	-186.6
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	.8 (1,202, 1)	3249.0 (1,202, 1)	-3248.3
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	17.8 (8,202, 1)	3249.0 (1,202, 1)	-3231.2
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	95.5 (1,173, 1)	3249.0 (1,202, 1)	-3153.5

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:TEM-8A AVERAGING TIME: 1 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	1182.2 (2,116,15)	870.0 (3,107,12)	312.2
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	1182.2 (2,116,15)	4.0 (2,116,15)	1178.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	1182.2 (2,116,15)	135.0 (28,116,15)	1047.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	1182.2 (2,116,15)	730.0 (2,147,11)	452.2
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	5.3 (3,107,12)	870.0 (3,107,12)	-864.7
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	356.3 (29,107,12)	870.0 (3,107,12)	-513.7
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	931.0 (3,116,11)	870.0 (3,107,12)	61.0

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:TEM-8A AVERAGING TIME: 3 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	1094.9 (2,116, 5)	564.3 (7,211, 4)	530.6
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	1094.9 (2,116, 5)	1.3 (2,116, 5)	1093.6
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	1094.9 (2,116, 5)	124.7 (28,116, 5)	970.3
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	1094.9 (2,116, 5)	419.3 (2,147, 4)	675.6
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	26.9 (7,211, 4)	564.3 (7,211, 4)	-537.4
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	191.0 (26,211, 4)	564.3 (7,211, 4)	-373.3
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	222.7 (7,210, 5)	564.3 (7,211, 4)	-341.7

TABLE D. COMPARISONS OF HIGHEST OBSERVED AND PREDICTED CONCENTRATION VALUES FOR DIFFERENT TIME AND SPACE PAIRINGS (A - 3)

KINCAID (1980 & 1981) MODEL:TEM-8A AVERAGING TIME: 24 HOUR

SO2 CONCENTRATIONS (UG/M**3)
(STATION,DAY,TIME PERIOD)

	OBSERVED	PREDICTED	DIFFERENCE
MAX CO AND MAX CP	189.5 (2,116, 1)	119.6 (8,202, 1)	69.9
MAX CO AND PREDICTED VALUE FOR SAME EVENT AND LOCATION AS MAX CO	189.5 (2,116, 1)	29.3 (2,116, 1)	160.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME EVENT AS MAX CO (ANY LOCATION)	189.5 (2,116, 1)	29.3 (2,116, 1)	160.2
MAX CO AND HIGHEST PREDICTED VALUE FOR SAME LOCATION AS MAX CO (ANY EVENT)	189.5 (2,116, 1)	54.7 (2, 77, 1)	134.8
MAX CP AND OBSERVED VALUE FOR SAME EVENT AND LOCATION AS MAX CP	17.8 (8,202, 1)	119.6 (8,202, 1)	-101.8
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME EVENT AS MAX CP (ANY LOCATION)	17.8 (8,202, 1)	119.6 (8,202, 1)	-101.8
MAX CP AND HIGHEST OBSERVED VALUE FOR SAME LOCATION AS MAX CP (ANY EVENT)	61.5 (8,238, 1)	119.6 (8,202, 1)	-58.1

APPENDIX E

Comparison Of Model Performance Obtained By EPA And By EPRI For The MPTER Model

Comparisons Of Model Performance Obtained By EPA And By EPRI

For MPTER--Ratio Of Measured To Predicted Concentrations

Average of 25 Highest Values(1)					
	All Met Stabilities	A-B	C	D	E-F
EPA	1.05	1.11	0.94	3.33	43
EPRI	1.03	1.06	0.95	3.02	∞*

Maximum Concentration (Unpaired in Space or Time(1))			
	1 Hr.	3 Hr.	24 Hr
EPA	0.83	2.29	2.11
EPRI	0.76	2.17	1.98

All Data (Paired in Space and Time (2))			
	1 Hr.	3 Hr.	24 Hr
EPA	1.78	1.74	1.60
EPRI	2.27	2.52	2.13

* Average of predicted values equal zero

(1) EPA Ratios of measured to predicted values are higher primarily due to lower peak concentration estimates by EPA. The differences are relatively small and probably due to differences in the way winds are processed. See discussion in Section II of the report.

(2) EPA Ratios of measured to predicted values are lower primarily due to higher background estimates by the EPA method. See discussion in Section II of the report.

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(Please read Instructions on the reverse before completing)

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

This addendum provides additional information regarding the performance of four rural air quality simulation models using SO2 air quality and a modelers data base assembled for the Kincaid Power Plant. The report contains numerous tabulations of each model's performance in terms of statistical measures recommended by the AMS. The four models evaluated included MPTER (EPA), PPSP (Martin Marietta Corp), MPSDM (ERT) and TEM-8A (Texas Air Control Board). Results from this evaluation were similar in many ways to those obtained fro Clifty Creek and Muskingum River. PPSP clearly over-predicted concentrations in almost every data category while MPSDM, MPTER, and TEM exhibited relatively small but detectable biases depending on averaging period and data category.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
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