CASE NUMBER:

99-056

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ALSO ADMITTED:
*FLORIDA
**INDIANA
†VIRGINIA
††DISTRICT OF COLUMBIA
□OHIO

May 18, 1999

Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
Frankfort, KY 40601

Re: In the Matter of: Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines
PSC Case No. 99-056

Dear Ms. Helton:

Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU) are submitting Supplemental Responses to the following information requests:

- PSC-12 and PSC-19—from Response to Commission's Orders dated March 16 and 19, 1999
- AG-4 and AG-25—from Response to Information Requested by the Attorney General
- PSC-S6—from Response to Commission's Order of April 9, 1999

The Supplemental Responses to PSC-19 and PSC-S6 clarify that if the Commission grants the requested Certificate of Convenience and Necessity and Certificate of Environmental Compatibility, LG&E and KU will obtain an independent third party appraisal of the constructed combustion turbines. The purpose of the appraisal will be to ascertain the fair market value of the combustion turbines to ensure that they will be transferred to LG&E and KU at the lesser of cost or fair market value, in accordance with the <u>Corporate Guidelines and Policies for InterCompany Transactions</u>. The Supplemental Responses to PSC-12 and AG-25 accompany information about the combustion turbines that has recently been provided to the Kentucky Division for Air Quality. The Supplemental Response to AG-4 corrects a clerical error.

Please accept these Supplemental Responses for filing in the record of Case No. 99-056. Thank you for your cooperation.

Sincerely,

Lauren Anderson

cc: Parties of Record

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

RECEIVED
MAY 18 1999
PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY FOR THE ACQUISITION OF TWO 164 MEGAWATT COMBUSTION TURBINES	))))))	CASE NO. 99-056

SUPPLEMENTAL RESPONSES TO

DATA REQUESTED IN

THE COMMISSION'S ORDERS DATED MARCH 16 & 19, 1999,

THE ATTORNEY GENERAL'S DATA REQUEST, AND

THE COMMISSION'S ORDER DATED APRIL 9, 1999

FILED: MAY 18, 1999

INDEX

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY
CASE NO. 99-056

SUPPLEMENTAL

Response to Commission's Order 1st Data Request Dated March 16&19, 1999

Question: **PSC-12** Responding Witness: Caryl M. Pfeiffer

Q-12. Refer to Exhibits 1 and 2 of the Application. These exhibits contain copies of various environmental approvals and permits KU secured in the early 1990s for the planned CTs at Brown.

a. Have any of the approvals or permits been modified, amended, or updated since the authorization date?

b. If yes, provide copies of the modification, amendment, or update, along with an explanation of the nature of the change. Also explain in detail why this information was not included in the Application.

A-12

a. No, LG&E and KU have provided copies of the most current environmental permits applicable to the E.W. Brown CT site. However, KU has submitted revised Title V permit application forms to the Kentucky Division for Air Quality (KYDAQ). The revised application reflects the installation of two ABB GT24 units in lieu of the three ABB 11N2 units originally planned for this portion of the E.W. Brown site. The revised application forms are attached. Also attached are the results of air dispersion modeling for the two new units, which KU has also submitted to the KYDAQ.

b. Please see the response to 12(a) above. This information had not been prepared at the time the Application was filed and was only submitted to the KYDAQ on April 23, 1999.

Kentucky Utilities Company One Quality Street Lexington, KY 40507-1462 Tel 606 255-2100

Kentucky Utilities Company

April 23, 1999

Roger S. Cook, Supervisor
Combustion Section
Permit Review Branch
Kentucky Division for Air Quality
803 Schenkel Lane
Frankfort, KY 40601

RE: Revised Information for Simple-Cycle Combustion Turbines
E. W. Brown Generating Station
Permit No. C-92-005 (Revised)
I.D. #102-2740-0001

Dear Mr. Cook:

I have attached revised information for the simple-cycle combustion turbines at Kentucky Utilities Company's E. W. Brown Generating Station for your review. This includes:

(1) revised Title V application forms to reflect installation of two ABB GT24 units in lieu of three ABB 11N2 units, and

(2) the results of air dispersion modeling, demonstrating that air quality impacts will be slightly less.

Please contact me at (606) 367-5658 if you have any questions.

Sincerely,

Glenn P. Gibian

Attachments

Cc: Caryl M. Pfeiffer

REVISED APPLICATION FORMS

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

(Submit copies of this form for each individual unit. Make additional copies as needed)

DEP7007A

INDIRECT HEAT EXCHANGER, TURBINE, INTERNAL COMBUSTION ENGINE

Emission Point # 6

Emission Unit # 6

1) Type of Unit (Make, Model, Etc.): Asea Brown Boveria GT24

Date Installed: Estimate Summer 1999 Cost of Unit: ______
(Date unit was installed, modified or reconstructed, whichever is later.)

Where more than one unit is present, identify with Company's identification or code for this unit:
CT 6

2a) Kind of Unit (Check One):
1. Indirect Heat Exchanger ______
2. Gas Turbine for Electricity Generation X
3. Pipe Line Compressor Engines:
   ______ Gas turbine
   ______ Reciprocating engines
   (a) 2-cycle lean burn ______
   (b) 4-cycle lean burn ______
   (c) 4-cycle rich burn ______
4. Industrial Engine ______

2b) Rated Capacity: (Refer to manufacturer's specifications)
1. Fuel input (mmBtu/hr): 1678 @ ISO standard conditions
2. Power output (hp): ______

SECTION 1. FUEL

3) TYPE OF PRIMARY FUEL (*Check*):

___ A. Coal X B. Fuel Oil # (*Check one*) ___ 1 X 2 ___ 3 ___ 4 ___ 5 ___ 6

___ C. Natural Gas ___ D. Propane ___ E. Butane ___ F. Wood

___ G. Gasoline ___ H. Diesel ___ I. Other (specify)

4) SECONDARY FUEL (*if any, specify type*): Natural Gas

5) FUEL COMPOSITION

TYPE	Percent Ash [a]	Percent Sulfur [b]	Heat Content Corresponding to: [c,d]	
	Maximum	Maximum	Maximum Ash	Maximum Sulfur
Primary	<0.01	0.26	140,000	140,000
Secondary	trace	trace	1,050	1,050

a. As received basis. Proximate Analysis for Ash. (May use values in your fuel contract)
b. As received basis. Ultimate Analysis for Sulfur. (May use values in your fuel contract)
c. Higher Heating Value, BTU/Unit. (May use values in your fuel contract)
d. Suggested units are: Pounds for solid fuel, gallon for liquid fuels, and cu. ft. for gaseous fuels. If other units are used, please specify.

6) MAXIMUM ANNUAL FUEL USAGE RATE (*Please specify unit*)*: Not Applicable

7) FUEL SOURCE OR SUPPLIER: Several.

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

NOTE: Values for percent ash and percent sulfur in item 5 are typical maximums, but should not be considered binding. Corresponding heat content values are minimum necessary to meet emission limits at stated maximum ash or sulfur content.

DEP7007A
continued

8) MAXIMUM OPERATING SCHEDULE FOR THIS UNIT*:

_______ hours/day _______ days/week _______ weeks/year 2500 hours/year

9) IF THIS UNIT IS MULTIPURPOSE, DESCRIBE PERCENT IN EACH USE CATEGORY: Not Applicable

Space Heat _______ %; Process Heat _______ %; Power _______ %

10) Control options for turbine/IC engine: (Check)

X (1) Water Injection
___ (2) Steam Injection
___ (3) Selective Catalytic Reduction (SCR)
___ (4) Non-Selective Catalytic Reduction (NSCR)
___ (5) Combustion Modification
X (6) Other (Specify) Combustor Design

IMPORTANT: Complete Form DEP7007N for Air Pollution Control Equipment and stack parameters. If there is no control equipment, complete only Section 1 of Form DEP7007N.

SECTION II | Complete only for Indirect Heat Exchangers

11) Coal-Fired Units

___ Pulverized Coal Fired:
___ Dry Bottom ___ Wall Fired
___ Wet Bottom ___ Tangentially Fired

Fly Ash Rejection: ___ Yes ___ No

___ Cyclone Furnace
___ Spreader Stoker
___ Overfeed Stoker
___ Underfeed Stoker
___ Fluidized Bed Combustor:
___ Circulating Bed
___ Bubbling Bed
___ Hand-fed
___ Other (Specify) ___________

12) OIL-FIRED UNIT

___ Tangentially (Corner) Fired ___ Horizontally Opposed (Normal) Fired

13) WOOD-FIRED UNIT

Fly Ash Reinjection: ___ Yes ___ No

___ Dutch Oven/Fuel Cell Oven ___ Stoker ___ Suspension Firing

___ Fluidized Bed Combustion (FBC)

14) NATURAL GAS-FIRED UNITS

___ Low NO_x Burners: ___ Yes ___ No
___ Flue Gas Recirculation: ___ Yes ___ No

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

EWB

DEP7007A
continued

15) COMBUSTION AIR Draft: ____ Natural ____ Induced

Forced pressure ______________ lbs/sq. in.

Percent excess air (air supplied in excess of theoretical air) ____________ %

SECTION III

16) ADDITIONAL STACK DATA

A. Are sampling ports provided? Yes _X_ No ___

B. If yes, are they located in accordance with 40 CFR 60*? Yes _X_ No ___

C. List other units vented to this stack ______________________________

17) ATTACH MANUFACTURER'S SPECIFICATIONS AND GUARANTEED PERFORMANCE DATA FOR THE INDIRECT HEAT EXCHANGER. INCLUDE INFORMATION CONCERNING FUEL INPUT, BURNERS AND COMBUSTION CHAMBER DIMENSIONS.

18) DESCRIBE FUEL TRANSPORT, STORAGE METHODS AND RELATED DUST CONTROL MEASURES; INCLUDING ASH DISPOSAL AND CONTROL.

Same as CT 8.

*Applicant assumes responsibility for proper location of sampling ports if the Division for Air Quality requires a compliance demonstration stack test.

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

(Submit copies of this form for each individual unit. Make additional copies as needed)

DEP7007A
INDIRECT HEAT EXCHANGER, TURBINE, INTERNAL COMBUSTION ENGINE

Emission Point # 7
Emission Unit # 7

1) Type of Unit (Make, Model, Etc.): Asea Brown Boveria GT24

Date Installed: Estimate Summer 1999 Cost of Unit: ______
(Date unit was installed, modified or reconstructed, whichever is later.)

Where more than one unit is present, identify with Company's identification or code for this unit:
CT 7

2a) Kind of Unit (Check One):
1. Indirect Heat Exchanger ______
2. Gas Turbine for Electricity Generation X
3. Pipe Line Compressor Engines:
   ______ Gas turbine
   ______ Reciprocating engines
   (a) 2-cycle lean burn ______
   (b) 4-cycle lean burn ______
   (c) 4-cycle rich burn ______
4. Industrial Engine ______

2b) Rated Capacity: (Refer to manufacturer's specifications)
1. Fuel input (mmBtu/hr): 1678 @ ISO standard conditions
2. Power output (hp): ______

SECTION 1. FUEL

3) TYPE OF PRIMARY FUEL (*Check*):

___ A. Coal   X B. Fuel Oil # (*Check one*) ___ 1 X 2 ___ 3 ___ 4 ___ 5 ___ 6

___ C. Natural Gas   ___ D. Propane   ___ E. Butane   ___ F. Wood

___ G. Gasoline   ___ H. Diesel   ___ I. Other (specify)

4) SECONDARY FUEL (*if any, specify type*): Natural Gas

5) FUEL COMPOSITION

TYPE	Percent Ash [a]	Percent Sulfur [b]	Heat Content Corresponding to: [c,d]	
	Maximum	Maximum	Maximum Ash	Maximum Sulfur
Primary	<0.01	0.26	140,000	140,000
Secondary	trace	trace	1,050	1,050

a. As received basis. Proximate Analysis for Ash. (May use values in your fuel contract)
b. As received basis. Ultimate Analysis for Sulfur. (May use values in your fuel contract)
c. Higher Heating Value, BTU/Unit. (May use values in your fuel contract)
d. Suggested units are: Pounds for solid fuel, gallon for liquid fuels, and cu. ft. for gaseous fuels. If other units are used, please specify.

6) MAXIMUM ANNUAL FUEL USAGE RATE (*Please specify unit*)*: Not Applicable

7) FUEL SOURCE OR SUPPLIER: Several.

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

NOTE: Values for percent ash and percent sulfur in item 5 are typical maximums, but should not be considered binding. Corresponding heat content values are minimum necessary to meet emission limits at stated maximum ash or sulfur content.

DEP7007A
continued

8) MAXIMUM OPERATING SCHEDULE FOR THIS UNIT*:

_______ hours/day _______ days/week _______ weeks/year 2500 hours/year

9) IF THIS UNIT IS MULTIPURPOSE, DESCRIBE PERCENT IN EACH USE CATEGORY: Not Applicable

Space Heat _______ %; Process Heat _______ %; Power _______ %

10) Control options for turbine/IC engine: (Check)

X (1) Water Injection
___ (2) Steam Injection
___ (3) Selective Catalytic Reduction (SCR)
___ (4) Non-Selective Catalytic Reduction (NSCR)
___ (5) Combustion Modification
X (6) Other (Specify) Combustor Design

IMPORTANT: Complete Form DEP7007N for Air Pollution Control Equipment and stack parameters. If there is no control equipment, complete only Section 1 of Form DEP7007N.

SECTION II Complete only for Indirect Heat Exchangers

11) Coal-Fired Units

___ Pulverized Coal Fired:
___ Dry Bottom ___ Wall Fired
___ Wet Bottom ___ Tangentially Fired

Fly Ash Rejection: ___ Yes ___ No

___ Cyclone Furnace

___ Spreader Stoker

___ Overfeed Stoker

___ Underfeed Stoker

___ Fluidized Bed Combustor:
___ Circulating Bed
___ Bubbling Bed

___ Hand-fed

___ Other (Specify) _______________

12) OIL-FIRED UNIT

___ Tangentially (Corner) Fired ___ Horizontally Opposed (Normal) Fired

13) WOOD-FIRED UNIT

Fly Ash Reinjection: ___ Yes ___ No

___ Dutch Oven/Fuel Cell Oven ___ Stoker ___ Suspension Firing

___ **Fluidized Bed Combustion (FBC)**

14) NATURAL GAS-FIRED UNITS

___ Low NO_x Burners: ___ Yes ___ No

___ Flue Gas Recirculation: ___ Yes ___ No

*Should be entered only if applicant requests operating restriction through federally enforceable limitations.

DEP7007A
continued

15) COMBUSTION AIR Draft: ____ Natural ____ Induced

Forced pressure ______________ lbs/sq. in.

Percent excess air (air supplied in excess of theoretical air) ___________ %

SECTION III

16) ADDITIONAL STACK DATA

A. Are sampling ports provided? Yes X No ___

B. If yes, are they located in accordance with 40 CFR 60*? Yes X No ___

C. List other units vented to this stack ______________________

17) ATTACH MANUFACTURER'S SPECIFICATIONS AND GUARANTEED PERFORMANCE DATA FOR THE INDIRECT HEAT EXCHANGER. INCLUDE INFORMATION CONCERNING FUEL INPUT, BURNERS AND COMBUSTION CHAMBER DIMENSIONS.

18) DESCRIBE FUEL TRANSPORT, STORAGE METHODS AND RELATED DUST CONTROL MEASURES; INCLUDING ASH DISPOSAL AND CONTROL.

Same as CT 8.

*Applicant assumes responsibility for proper location of sampling ports if the Division for Air Quality requires a compliance demonstration stack test.

EWB

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007N

STACK PARAMETERS, EMISSIONS AND AIR POLLUTION CONTROL EQUIPMENT

CTION I. SUMMARY SHEET *(Make additional copies, if necessary)*

		Control Equipment[1]			Stack Parameters					Fugitive Parameters		
ission 'oint umber	Facility Description	Type	Date Installed	Cost $	Height ft.	Diameter[2] ft.	Temp. °F	Flow ACFM	Exit[3] Velocity ft/sec.	Plume Height ft.	Plume Temp. °F	Control[4] Efficiency
01	Unit 1 Boiler	ESP	1973	1.2 million	344	13	296	430,000	54.0	—	—	98.5
		Low-NO_x Burners	1993	2.1 million								50.0
03	Unit 2 Boiler	ESP	1976	1.4 million	561	18	292	2,355,000	154.2	—	—	99.0
		Low-NO_x Burners	1994	2.8 million								35.0
03	Unit 3 Boiler	ESP	1976	2.4 million	(Points 03/02 and 03/03 share common stack)							99.0
		Low-NO_x Burners	1992	7.1 million								50.0
05	Combustion Turbine 05	Water Injection	Under Construction									
6 07	Combustion Turbines 06-07	Combustion Design	Under Construction	Included	125	17.4	1090	2,493,000	175	—	—	
08	Combustion Turbine 8	Water Injection	1996	Included in cost of turbine	175	16.5	952-975	2,115,600	164	—	—	
09	Combustion Turbine 9	Water Injection	1995	Included	175	16.5	952-975	2,115,600	164	—	—	
10	Combustion Turbine 10	Water Injection	1995	Included	175	16.5	952-975	2,115,600	164	—	—	
11	Combustion Turbine 11	Water Injection	1996	Included	175	16.5	952-975	2,115,600	164	—	—	
12	Coal Receiving Hoppers	Enclosure	1957	Included in coal handling system cost	—	—	—	—	—	—	—	90.0
13	Coal Crusher	Wet-Type Dust Collector	1957		—	—	—	—	—	—	—	99.0

: For emission points 08-11, values represent operation at 3°F ambient air temperature burning oil.
a facility has secondary control equipment in addition to primary control equipment, use a separate line and indicate, under type, that it is a secondary control.
the stack is rectangular, specify the dimensions. If there is no stack for a particular point, enter the minimum height of release under 'Height' and write NA (Not Applicable) under 'Diameter.'
the efficiency of the control device varies by pollutant, list the efficiency for each pollutant on separate lines.

EWB

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007N
STACK PARAMETERS, EMISSIONS AND AIR POLLUTION CONTROL EQUIPMENT

:TION I. SUMMARY SHEET *(Make additional copies, if necessary)*

		Control Equipment[1]			Stack Parameters					Fugitive Parameters		
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14	Coal Conveyors	Enclosure	1957		—	—	—	—	—	—	—	90.0
15	Coal Stockpile	Compaction, Wet Suppression	1957		—	—	—	—	—	—	—	70.0
16	Fly Ash Silo	Fabric Filter	1982	Included in cost of system	—	—	—	—	—	—	—	99.9

For emission points 08-11, values represent operation at 3°F ambient air temperature.
ı facility has secondary control equipment in addition to primary control equipment, use a separate line and indicate, under type, that it is a secondary control.
he stack is rectangular, specify the dimensions. If there is no stack for a particular point, enter the minimum height of release under 'Height' and write NA (Not Applicable) under 'Diameter.'
he efficiency of the control device varies by pollutant, list the efficiency for each pollutant on separate lines.

EWB

DEP7007N
(continued)

Emission Point No.	Capture[1] or Collection Efficiency %	Basis of Estimate	Name and Chemical Composition of Pollutants	Grain Loading (Grains/SCF at 68°F)		Amount Emitted		Basis of Estimate (Attach copies of calculations)
				Inlet	Outlet	Maximum Lb/Hr.	Maximum Tons/Yr.	
See Attachments								

...ture or collection efficiency is the efficiency with which the pollutants are collected at the emission source before being sent to the control device.

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007V
APPLICABLE REQUIREMENTS

This information may be provided in spreadsheet format.

EMISSIONS UNIT # 6

APPLICANT NAME: Kentucky Utilities Company - E. W. Brown Generating Station

EMISSIONS POINT # 6

1) Provide any restrictions on operation which affect emissions or operations: (e.g. Only one unit is operated at a time)

CT can operate only 2500 hours/year.

APPLICABLE REGULATIONS

2) Provide any specific emission standard(s) and limitation(s) set by regulation(s) which are applicable to this emission unit (e.g. volatile organic compound content of coating not to exceed 3.5 lb/gal):

CONTAMINANT(S)	APPLICABLE REGULATION	EMISSION EQUIPMENT STANDARD
Particulates	401 KAR 60:330	100.5 lbs/hr
Sulfur Dioxide	401 KAR 60:330	666 lbs/hr
Nitrogen Oxides	401 KAR 60:330	42 ppm @ 15% O_2 on oil
Nitrogen Oxides	401 KAR 60:330	25 ppm @ 15% O_2 on natural gas
Carbon Monoxide	401 KAR 60:330	112.5 lbs/hr
Volatile Organic Compounds	401 KAR 60:330	30.6 lbs/hr
Beryllium	401 KAR 60:330	5.06×10^{-3} lbs/hr

3) Provide any specific recordkeeping/regulation which is applicable to this emission unit:

CONTAMINANT(S)	RECORDKEEPING REGULATION	REQUIREMENT(S)
Sulfur Dioxide & Nitrogen Oxides	401 KAR 59:005.Sec. 3 & 40 CFR Part 75	Appendices D & E

4) Provide any specific reporting regulation which is applicable to this unit:

CONTAMINANT(S)	REPORTING REGULATION	REQUIREMENT(S)
Sulfur Dioxide & Nitrogen Oxides	40 CFR Part 75	Report emission calculations on a quarterly basis.

DEP7007V
(continued)

5) Provide any specific monitoring regulation which is applicable to this emission unit:

CONTAMINANT(S)	MONITORING REGULATION	REQUIREMENT(S)
Sulfur Dioxide & Nitrogen Oxides	40 CFR Part 75	Appendices D & E

6) Provide any specific testing regulation which is applicable to this emission unit:

CONTAMINANT(S)	TESTING REGULATION	REQUIREMENT(S)
Particulates, Sulfur Dioxide, Nitrogen Oxides, Carbon Monoxide, Volatile Organic Compounds & Beryllium	401 KAR 59:005.Sec. 2	Performance testing upon initial operation.

7) Does the emission unit qualify for an exemption of a standard or requirement from any applicable regulation?

_______ Yes _______ No

If yes, then list both the regulation from which it is exempt and the regulation which allows the exemption and provide a detailed explanation of why the exemption applies. Include detailed supporting data and calculations. Attach and label as exhibit or refer to other attachments which address and justify this exemption.

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007V
APPLICABLE REQUIREMENTS

This information may be provided in spreadsheet format.

EMISSIONS UNIT # 7

APPLICANT NAME: Kentucky Utilities Company - E. W. Brown Generating Station

EMISSIONS POINT # 7

1) Provide any restrictions on operation which affect emissions or operations: (e.g. Only one unit is operated at a time)

CT can operate only 2500 hours/year.

APPLICABLE REGULATIONS

2) Provide any specific emission standard(s) and limitation(s) set by regulation(s) which are applicable to this emission unit (e.g. volatile organic compound content of coating not to exceed 3.5 lb/gal):

CONTAMINANT(S)	APPLICABLE REGULATION	EMISSION EQUIPMENT STANDARD
Particulates	401 KAR 60:330	100.5 lbs/hr
Sulfur Dioxide	401 KAR 60:330	666 lbs/hr
Nitrogen Oxides	401 KAR 60:330	42 ppm @ 15% O_2 on oil
Nitrogen Oxides	401 KAR 60:330	25 ppm @ 15% O_2 on natural gas
Carbon Monoxide	401 KAR 60:330	112.5 lbs/hr
Volatile Organic Compounds	401 KAR 60:330	30.6 lbs/hr
Beryllium	401 KAR 60:330	5.06×10^{-3} lbs/hr

3) Provide any specific recordkeeping/regulation which is applicable to this emission unit:

CONTAMINANT(S)	RECORDKEEPING REGULATION	REQUIREMENT(S)
Sulfur Dioxide & Nitrogen Oxides	401 KAR 59:005.Sec. 3 & 40 CFR Part 75	Appendices D & E

4) Provide any specific reporting regulation which is applicable to this unit:

CONTAMINANT(S)	REPORTING REGULATION	REQUIREMENT(S)
Sulfur Dioxide & Nitrogen Oxides	40 CFR Part 75	Report emission calculations on a quarterly basis.

DEP7007V
(continued)

5) Provide any specific monitoring regulation which is applicable to this emission unit:

CONTAMINANT(S)	MONITORING REGULATION	REQUIREMENT(S)
Sulfur Dioxide & Nitrogen Oxides	40 CFR Part 75	Appendices D & E

6) Provide any specific testing regulation which is applicable to this emission unit:

CONTAMINANT(S)	TESTING REGULATION	REQUIREMENT(S)
Particulates, Sulfur Dioxide, Nitrogen Oxides, Carbon Monoxide, Volatile Organic Compounds & Beryllium	401 KAR 59:005.Sec. 2	Performance testing upon initial operation.

7) Does the emission unit qualify for an exemption of a standard or requirement from any applicable regulation?

________ Yes ________ No

If yes, then list both the regulation from which it is exempt and the regulation which allows the exemption and provide a detailed explanation of why the exemption applies. Include detailed supporting data and calculations. Attach and label as exhibit or refer to other attachments which address and justify this exemption.

EWB

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007W
EMISSIONS COMPARISON

ICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station

RIPTION OF OPERATING SCENARIO Operating Oil-Fired Combustion Turbines

EMISSIONS UNIT # 05 and 08-11

EMISSION POINT # 05 and 08-11

NON HAPS STACK EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

CONTAMINANT	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity)			**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)*		
		POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS		*REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
BON IOXIDE)	uncontr.	See Attachments				75 lb/hr	401 KAR 60:330	94
	actual							
APTED VOLATILE ANIC COMPOUNDS IVOC)	uncontr.					NA	NA	NA
	actual							
›	uncontr.					NA	NA	NA
	actual							
OGEN IES x)	uncontr.					65 ppm	401 KAR 60:330	NA
	actual							
ICULATE MATTER (T)	uncontr.					67 lb/hr	401 KAR 60:330	84
	actual							
ICULATE MATTER 10 MICROMETERS 10)	uncontr.					NA	NA	NA
	actual							
UR DIOXIDE 2)	uncontr.					0.3% for <6 Cts or 444 lbs/hr/CT 0.26% for 6 Cts or 444 lbs/hr/CT 0.23% for 7 Cts or 402 lbs/hr/CT	401 KAR 60:330	641
	actual							
ATILE ORGANIC IPOUND C)	uncontr.					20.4 lb/hr	401 KAR 60:330	26
	actual							
ER, SPECIFY: LLIUM	uncontr.					3.37E-03 lb/hr	401 KAR 60:330	4.23E-0
	actual							

ORTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

DEP7007W
(continued)

.ICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station (continued)

:RIPTION OF OPERATING SCENARIO

EMISSIONS UNIT # 05 and 08-11

EMISSION POINT # 05 and 08-11

NON HAPS FUGITIVE EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

Not Applicable

:ONTAMINANT	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity) POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)* *REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
ION OXIDE	uncontr.							
	actual							
IPTED VOLATILE \NIC COMPOUNDS VOC)	uncontr.							
	actual							
	uncontr.							
	actual							
)GEN ES :)	uncontr.							
	actual							
ICULATE TER r)	uncontr.							
	actual							
ICULATE MATTER 10 MICROMETERS 10)	uncontr.							
	actual							
UR IDE :)	uncontr.							
	actual							
TILE ORGANIC 'OUND :)	uncontr.							
	actual							
R, SPECIFY:	uncontr.							
	actual							

RTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
A - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007W
EMISSIONS COMPARISON

-ICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station

CRIPTION OF OPERATING SCENARIO Operating Oil-Fired Combustion Turbines

EMISSIONS UNIT # 05 and 08-11

EMISSION POINT # 05 and 08-11

HAPS STACK EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

IAZARDOUS AIR POLLUTANTS (list separately)	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity) POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)* *REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
	uncontr.	See Attachments						
	actual					NA	NA	NA
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							

)RTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
V - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

EW

DEP7007W
(continued)

LICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station (continued)

CRIPTION OF OPERATING SCENARIO ____________________

EMISSIONS UNIT # 05 and 08-11

EMISSION POINT # 05 and 08-11

HAPS FUGITIVE EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

Not Applicable

IAZARDOUS AIR POLLUTANTS (list separately)	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity) POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)* *REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							

ORTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
t actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007W
EMISSIONS COMPARISON

ICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station

RIPTION OF OPERATING SCENARIO Operating Gas-Fired Combustion Turbines

EMISSIONS UNIT # 05 and 08-11

EMISSION POINT # 05 and 08-11

NON HAPS STACK EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

CONTAMINANT	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity)			**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)*		
		POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS		*REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
ION OXIDE	uncontr.	See Attachments				75 lb/hr	401 KAR 60:330	94
	actual							
IPTED VOLATILE ANIC COMPOUNDS VOC)	uncontr.					NA	NA	NA
	actual							
	uncontr.					NA	NA	NA
	actual							
OGEN ES)	uncontr.					42 ppm	401 KAR 60:330	NA
	actual							
ICULATE TER)	uncontr.					67 lb/hr	401 KAR 60:330	84
	actual							
ICULATE MATTER 10 MICROMETERS 10)	uncontr.					NA	NA	NA
	actual							
JR DE)	uncontr.					NA	NA	NA
	actual							
TILE ORGANIC POUND)	uncontr.					20.4 lb/hr	401 KAR 60:330	26
	actual							
R, SPECIFY: LLIUM	uncontr.							
	actual					3.37E-03 lb/hr	401 KAR 60:330	4.23E-03

RTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
A - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

DEP7007W (continued)

LICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station (continued)

CRIPTION OF OPERATING SCENARIO

EMISSIONS UNIT # 05 and 08-11

EMISSION POINT # 05 and 08-11

NON HAPS FUGITIVE EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

Not Applicable

CONTAMINANT	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity) POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)* *REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
:BON VOXIDE)	uncontr.							
	actual							
MPTED VOLATILE ANIC COMPOUNDS NVOC)	uncontr.							
	actual							
)	uncontr.							
	actual							
ROGEN DES x)	uncontr.							
	actual							
TICULATE TTER T)	uncontr.							
	actual							
TICULATE MATTER 10 MICROMETERS 10)	uncontr.							
	actual							
FUR XIDE 2)	uncontr.							
	actual							
ATILE ORGANIC MPOUND C)	uncontr.							
	actual							
IER, SPECIFY:	uncontr.							
	actual							

ORTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W

(actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.

M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

EWE

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007W,
EMISSIONS COMPARISON

ːICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station

ːRIPTION OF OPERATING SCENARIO Operating Gas-Fired Combustion Turbines

EMISSIONS UNIT # 05 and 08-11

EMISSION POINT # 05 and 08-11

HAPS STACK EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

ːAZARDOUS AIR POLLUTANTS (list separately)	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity)				REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)*		
		POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	*REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
	uncontr.	See Attachments						
	actual							
	uncontr.					NA	NA	NA
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							

ːRTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
ː actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

DEP7007W
(continued)

LICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station (continued)

CRIPTION OF OPERATING SCENARIO

EMISSIONS UNIT # 05 and 08-11

EMISSION POINT # 05 and 08-11

HAPS FUGITIVE EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

Not Applicable

IAZARDOUS AIR POLLUTANTS (list separately)	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity)			**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)*		
		POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS		*REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							

ORTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
t actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007W
EMISSIONS COMPARISON

'LICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station

;CRIPTION OF OPERATING SCENARIO Operating Oil-Fired Combustion Turbines

EMISSIONS UNIT # 06-07

EMISSION POINT # 06-07

NON HAPS STACK EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

CONTAMINANT	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity)				REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)*		
		POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	*REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
BON MONOXIDE)	uncontr.	See Attachments				112.5 lb/hr	401 KAR 60:330	141
	actual							
MPTED VOLATILE ;ANIC COMPOUNDS NVOC)	uncontr.					NA	NA,	NA
	actual							
D	uncontr.					NA	NA	NA
	actual							
ROGEN DES)x)	uncontr.					42 ppm	401 KAR 60:330	NA
	actual							
ITICULATE TTER RT)	uncontr.					100.5 lb/hr	401 KAR 60:330	126
	actual							
;TICULATE MATTER 10 MICROMETERS 110)	uncontr.					NA	NA	NA
	actual							
FUR DIOXIDE 2)	uncontr.					0.26%s for 6 Cts or 666 lbs/hr/CT 0.23%s for 7 Cts or 604 lbs/hr/CT	401 KAR 60:330	962
	actual							
ATILE ORGANIC MPOUND C)	uncontr.					30.6 lb/hr	401 KAR 60:330	39
	actual							
IER, SPECIFY: YLLIUM	uncontr.					5.05E-03 lb/hr	401 KAR 60:330	6.35E-(
	actual							

ORTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
;t actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
)M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

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DEP7007W
(continued)

.ICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station (continued)

:RIPTION OF OPERATING SCENARIO ______

EMISSIONS UNIT # 06-07

EMISSION POINT # 06-07

NON HAPS FUGITIVE EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

Not Applicable

:ONTAMINANT	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity)				REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)*		
		POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	*REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
ION OXIDE	uncontr.							
	actual							
IPTED VOLATILE ANIC COMPOUNDS IVOC)	uncontr.							
	actual							
	uncontr.							
	actual							
OGEN ES ()	uncontr.							
	actual							
ICULATE TER T)	uncontr.							
	actual							
ICULATE MATTER 10 MICROMETERS 10)	uncontr.							
	actual							
UR IDE 2)	uncontr.							
	actual							
ATILE ORGANIC POUND C)	uncontr.							
	actual							
ER, SPECIFY:	uncontr.							
	actual							

)RTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W

actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.

M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

EW

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007W
EMISSIONS COMPARISON

LICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station

CRIPTION OF OPERATING SCENARIO Operating Oil-Fired Combustion Turbines

EMISSIONS UNIT # 06-07

EMISSION POINT # 06-07

HAPS STACK EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

IAZARDOUS AIR POLLUTANTS (list separately)	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity)			**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)*		
		POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS		*REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
	uncontr.	See Attachments						
	actual							
	uncontr.					NA	NA	NA
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							

)RTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

EWB

DEP7007W
(continued)

ːICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station (continued)

ːRIPTION OF OPERATING SCENARIO

EMISSIONS UNIT # 06-07

EMISSION POINT # 06-07

HAPS FUGITIVE EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

Not Applicable

AZARDOUS AIR POLLUTANTS (list separately)	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity) POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)* *REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							

ɔRTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007W
EMISSIONS COMPARISON

.ICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station

:RIPTION OF OPERATING SCENARIO Operating Gas-Fired Combustion Turbines

EMISSIONS UNIT # 06-07

EMISSION POINT # 06-07

NON HAPS STACK EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

CONTAMINANT	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity) POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)* *REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
ION OXIDE)	uncontr.	See Attachments				112.5 lb/hr	401 KAR 60:330	141
	actual							
APTED VOLATILE ANIC COMPOUNDS (VOC)	uncontr.					NA	NA	NA
	actual							
,	uncontr.					NA	NA	NA
	actual							
OGEN ES x)	uncontr.					25 ppm	401 KAR 60:330	NA
	actual							
ICULATE TER T)	uncontr.					100.5 lb/hr	401 KAR 60:330	126
	actual							
ICULATE MATTER 10 MICROMETERS 10)	uncontr.					NA	NA	NA
	actual							
UR IDE 2)	uncontr.					NA	NA	NA
	actual							
ATILE ORGANIC IPOUND C)	uncontr.					30.6 lb/hr	401 KAR 60:330	39
	actual							
ER, SPECIFY: ILLIUM	uncontr.					5.05E-03 lb/hr	401 KAR 60:330	6.35E-03
	actual							

)RTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
(actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

DEP7007W
(continued)

ːICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station (continued)

ːRIPTION OF OPERATING SCENARIO

EMISSIONS UNIT # 06-07

EMISSION POINT # 06-07

NON HAPS FUGITIVE EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

Not Applicable

ːONTAMINANT	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity) POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)* *REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
ːON OXIDE	uncontr.							
	actual							
ːPTED VOLATILE ːANIC COMPOUNDS ːVOC)	uncontr.							
	actual							
	uncontr.							
	actual							
ːOGEN ːES ː)	uncontr.							
	actual							
ːICULATE ːTER ːT)	uncontr.							
	actual							
ːICULATE MATTER ː10 MICROMETERS ː10)	uncontr.							
	actual							
ːUR ːIDE ː2)	uncontr.							
	actual							
ːTILE ORGANIC ːPOUND ːC)	uncontr.							
	actual							
ːR, SPECIFY:	uncontr.							
	actual							

ːRTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
ːA - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

EW

Commonwealth of Kentucky
Natural Resources & Environmental Protection Cabinet
Department for Environmental Protection

DIVISION FOR AIR QUALITY

DEP7007W.
EMISSIONS COMPARISON

...LICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station

...CRIPTION OF OPERATING SCENARIO Operating Gas-Fired Combustion Turbines

EMISSIONS UNIT # 06-07

EMISSION POINT # 06-07

HAPS STACK EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

...AZARDOUS AIR POLLUTANTS (list separately)	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity) POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)* *REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
	uncontr.	See Attachments				NA	NA	NA
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							

...ORTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
... actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
...M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

DEP7007W
(continued)

LICANT NAME Kentucky Utilities Company - E. W. Brown Generating Station (continued)

CRIPTION OF OPERATING SCENARIO ______

EMISSIONS UNIT # 06-07

EMISSION POINT # 06-07

HAPS FUGITIVE EMISSION INFORMATION

Note: provide maximum uncontrolled and maximum actual emissions

Not Applicable

AZARDOUS AIR POLLUTANTS (list separately)	MAX.	ACTUAL EMISSION RATE (@ Rated Capacity) POUNDS PER HOUR (LB/HR)	TONS PER YEAR (TPY)	*REGULATORY UNITS	**DM	REGULATORY ALLOWABLE EMISSION RATE @ Rated Capacity *(where applicable)* *REGULATORY UNITS	APPLICABLE REGULATION	TONS PER YEAR (TPY)
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							
	uncontr.							
	actual							

ORTANT: ATTACH ALL CALCULATIONS ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT DEP7007W
t actual and allowable emission rates in the same units that the standard is expressed in the applicable regulation.
M - Determination method: 1) Stack Test, 2) Material Balance, 3) Standard Emission Factor, 4)Engineering Estimate, 5) Special Emission Factor

AIR DISPERSION MODELING RESULTS

Kentucky Utilities Company

Revised Information for Simple-Cycle Combustion Turbines

at E. W. Brown Generating Station

Submitted to:
Division for Air Quality
Department for Environmental Protection
KY Natural Resources and Environmental Protection Cabinet

April 23, 1999

Background

On June 14, 1991, KU applied for a permit-to-construct up to 8 simple cycle combustion turbines at the E. W. Brown Generating Station, depending on the specific turbine selected (three types of combustion turbines were being considered at the time the application was submitted). Air quality modeling performed in conjunction with the application (based on a "worst-case" emission profile from the CTs under consideration) predicted exceedences of the 3-hr. National Ambient Air Quality Standard (NAAQS) for sulfur dioxide. These exceedences were predicted with or without the existence of the combustion turbines, as the coal-fired units at E. W. Brown were the primary contributors. A permit to construct was issued on March 10, 1992 with the condition that KU take measures to correct the predicted NAAQS exceedences. KU took measures by re-routing the flue gases of Unit 2 into the Unit 3 stack and by reducing the plant's allowable emission rate from 6.00 lb. SO_2/mmBtu to 5.15 lb. SO_2/mmBtu. Selection of specific combustion turbines, updated information, and corresponding air modeling obligated KU to apply for a revision to its permit-to-construct. Specifically, air modeling predicted that combustion of the previously approved sulfur content of fuel oil (0.3%) would result in SO_2 concentrations above the *de minimus* values for pre-construction ambient air monitoring. On October 30, 1992, KU requested that the allowable sulfur content be reduced to 0.26% upon construction of the seventh turbine and to 0.23% upon construction of the eighth turbine. A permit with these limitations was issued on May 17, 1993.

KU has installed four of the eight turbines; these are manufactured by ABB and are of the model type11N2 rated at 1368 mm/Btu heat input each. KU (through LG&E Capital Corp.) has secured two alternative turbines, model type GT24 rated at 1,678 mm/Btu heat input each, also manufactured by ABB. These two GT24s are under construction at the E. W. Brown site in lieu of three 11N2s.

Discussion

Emissions
The emissions from the two larger GT24 turbines will be less than the approved emissions from three of the smaller 11N2 turbines. An emission comparison is provided as Exhibit 1. This is due in part to the more efficient heat rate of the larger turbines; therefore, consuming less fuel.

Air Quality Impacts
Air quality modeling was conducted and, as might be expected from the lower emissions, air quality impacts are slightly less. Impacts were modeled using a total of seven turbines: four already-installed 11N2 units, two GT24 units, and an additional unit to be constructed by the year 2002. These are compared to the modeling results for the eight original 11N2 units. Modeling was done identically to that of the original eight turbines, using the ISC, COMPLEX (VALLEY), and CTSCREEN models and using meteorological data for 1983-1987. A comparison of previous results with current results is provided in Exhibits 2 and 3. Modeling confirms that National Ambient Air Quality Standards will continue to be met (because of the measures taken at the coal-fired units) and that impacts of the turbines continue to be less than the pre-construction ambient air monitoring *de minimus* values. Of note, the sulfur content of fuel oil must be reduced to 0.26% upon operation of the two units under construction at the E. W. Brown site. This is identical to that required under the current permit upon operation of the seventh turbine. Finally, the sulfur content must be reduced to 0.23% when construction of the final turbine is complete to result in the 24-hr. SO_2 PSD increment being held below 12.7ug/m^3 as approved and to keep the entire group of turbines below the 3216 lbs. SO_2/hr. permit limitation.

Printouts of the worst-case scenarios are included in Appendix A. All data files are included on diskette in Appendix B.

Appendix A

Further Modeling Discussion,
Receptor Locations,
And
Detailed Modeling Results

General:

Modeling efforts were generally identical to those used during application for the original air permit-to-construct; e.g. same models, same meteorological data, and same receptors. Emission data used in the models was updated to reflect the change in emission sources (substituting two GT24s for three GT11N2s). Finally, because a specific final (seventh) unit to be constructed has not been selected, this unit was modeled as consuming the remainder of the currently permitted emissions.

Worst-Case Scenario:

Worst-case emissions scenarios were used. These were represented by all units operating at full load under winter conditions (3° F). This occurs because the air is more dense, allowing a greater mass of air to be used for combustion, and therefore a greater amount of fuel to be combusted.

National Ambient Air Quality Standard Impacts:

The impacts on simple terrain were evaluated using the Industrial Source Complex (ISC) model and meteorological data from 1983-1987. Surface meteorological data is from Bluegrass Airport in Lexington Kentucky; Upper air data is from Dayton, Ohio.

The impacts on complex terrain (higher than stack height) were evaluated using the COMPLEX model in valley mode. Receptor locations are shown on Exhibits 4, 5, and 6.

PSD Impacts:

For PSD purposes, the impacts on simple terrain were evaluated similar to the NAAQS impacts using only the seven combustion turbines. For complex terrain, two models were used – identical to the original modeling effort. For all receptors except two (Bear Mountain and Sand Knob), the COMPLEX model in valley mode was used. For the two receptors, CTSCREEN was used.

Exhibit 1
Comparison of Emissions and Permit Limitations

Emissions from Two GT24's are less than the Permit Limits for Three 11N2 Turbines

	Permit Limit Emissions for one CT at Permit Limit	Emissions at Full Load for Three GT 11N2's	Emissions at Full Load Two GT24s 59 deg (ISO Conditions)
Natural Gas Hourly:			
NOx ppm	42	**42**	**42**
CO lb/hr	75	**225**	**77.6**
VOC lb/hr	20.4	**61.2**	**4.6**
TSP/PM10 lb/hr	67	**201**	**32.4**
Berylium lb/hr	0.00337	**0.01011**	**0**
mmBtu/hr	1,368	**4,104**	**3,356**
Natural Gas Annual (at 2500 hr/yr):			
CO ton/yr	93.8	**281.4**	**97.0**
VOC ton/yr	25.5	**76.5**	**5.8**
TSP/PM10 ton/yr	83.8	**251.4**	**40.5**
Berylium ton/yr	0.0042	**0.0126**	**0**
Oil Hourly:			
NOx ppm	65	65	65
CO lb/hr	75	225	95
VOC lb/hr	20.4	61.2	11.2
TSP/PM10 lb/hr	67	201	95
Berylium lb/hr	0.0034	0.0101	0.0083
SO2 (at 0.23%) lb/hr	444	1,332	792
mmBtu/hr	1,368	4,104	3,356
Oil Annual (at 2500 hr/yr):			
CO ton/yr	93.8	**281.4**	**119**
VOC ton/yr	25.5	**76.5**	**14**
TSP/PM10 ton/yr	83.75	**251.4**	**119**
Berylium ton/yr	0.0042	**0.0126**	**0.0103**
SO2 (at 0.23%) ton/yr	555	**1,665**	**1,091**

EXHIBIT 2

COMBUSTION TURBINE NAAQS COMPLIANCE MODELING:
Comparison of Predicted SO2 Concentrations with Previous Modeling and NAAQS Standards
CTs in Winter Operation with Power Augmentation

Averaging Period	Year	Day	Hour	Receptor Location East	Receptor Location North	Background Conc. (ug/m3)	Previously Predicted Concentration (ug/m3)	Currently Predicted Concentration (ug/m3)	Total Currently Predicted Concentration (ug/m3)	NAAQS (ug/m3)
Annual	1983	-	-	740682	4205111	15.7	22.30	22.18	37.88	80
	1984	-	-	740682	4205111	15.7	20.20	20.13	35.83	80
	1985	-	-	740682	4205111	15.7	23.50	23.37	39.07	80
	1986	-	-	740682	4205111	15.7	24.40	24.29	39.99	80
	1987	-	-	703182	4185611	15.7	22.70	22.70	38.40	80
	COMPLEX	-	-	740681	4165111	15.7	19.98	19.38	35.08	80
24-hr highest 2nd-highest	1983	190	1	703182	4183611	55.0	230.30	229.71	284.71	365
	1984	111	1	699932	4183611	55.0	189.00	189.01	244.01	365
	1985	208	1	699182	4182611	55.0	195.60	195.12	250.12	365
	1986	204	1	699932	4183611	55.0	221.10	221.09	276.09	365
	1987	80	1	700544	4183822	55.0	225.10	225.14	280.14	365
	COMPLEX	-	-	740681	4165111	55.0	203.89	197.79	252.79	365
3-hr highest 2nd-highest	1983	159	4	702454	4184747	104.8	1021.80	1012.10	1116.90	1300
	1984	348	5	701499	4185107	104.8	953.00	953.02	1057.82	1300
	1985	345	3	701499	4185107	104.8	1173.20	1173.23	1278.03	1300
	1986	189	4	703182	4184611	104.8	852.50	850.62	955.42	1300
	1987	201	4	700785	4183478	104.8	1191.90	1191.94	1296.74	1300
	COMPLEX	-	-	740681	4165111	104.8	309.91	300.64	405.44	1300

Notes:
This table shows the results from both ISCST and COMPLEX modeling. The ISCST results have the year of meteorological data used in the column labeled "Year"; the COMPLEX results have the word "COMPLEX" in this column (since COMPLEX does not use annual meteorological data).

Results for COMPLEX-I are highest predicted concentrations in all cases.
For COMPLEX-I, the Annual and 3-hr concentrations were calculated by multiplying the 24-hr concentrations by 0.098 and 1.52 respectively (ref. Technical Support Document).

EXHIBIT 3

PSD IMPACTS
RESULTS USING COMPLEX (VALLEY) OR CTSCREEN
24-HR AVERAGE
(HIGHEST 50 CONCENTRATIONS SHOWN)

The highest value from previous modeling was 12.7 ug/m3.

RECEPTOR NUMBER	RECEPTOR LOCATION East	North	COMPLEX CONC ug/m3	CTSCREEN CONC ug/m3
117	685.68	4155.11	16.66	10.91
140	742.27	4157.69	15.33	10.49
119	700.68	4155.11	13.25	10.91
142	744.27	4162.31	12.65	
101	690.68	4165.11	12.41	
145	701.68	4150.84	11.73	
135	700.68	4145.11	11.70	
143	744.61	4165.55	11.69	
141	743.49	4160.79	11.52	
96	680.68	4165.11	10.34	
161	750.68	4160.11	9.81	
158	725.68	4135.11	9.81	
139	740.68	4145.11	9.69	
123	730.68	4155.11	9.55	
133	680.68	4145.11	9.54	
144	704.51	4152.94	9.22	
137	720.68	4145.11	9.16	
160	750.68	4135.11	7.68	
121	715.68	4155.11	6.50	
156	700.68	4135.11	6.40	
112	670.68	4155.11	5.49	
129	660.68	4165.11	3.76	
132	660.68	4225.11	3.34	
107	720.68	4165.11	3.22	
89	705.68	4175.11	3.14	
56	695.68	4190.11	3.07	
128	660.68	4145.11	2.74	
154	675.68	4135.11	2.73	
111	720.68	4205.11	2.34	
103	700.68	4165.11	2.17	
106	710.68	4205.11	2.12	
105	710.68	4165.11	2.12	
126	730.68	4200.11	1.90	
124	730.68	4170.11	1.90	
146	740.68	4185.11	1.73	
127	730.68	4215.11	1.74	
48	703.18	4184.61	1.72	
63	705.68	4180.11	1.71	
147	740.68	4205.11	1.71	
47	703.18	4183.61	1.66	
150	650.68	4160.11	1.56	
163	750.68	4210.11	1.56	
35	698.18	4185.61	1.54	
122	715.68	4215.11	1.49	
80	690.68	4175.11	1.42	
94	710.68	4190.11	1.37	
85	695.68	4175.11	1.37	
90	705.68	4195.11	1.37	
76	708.18	4177.61	1.37	
74	703.18	4177.61	1.34	

EXHIBIT 4

E. W. Brown NAAQS Compliance Modeling

Boundary Receptors

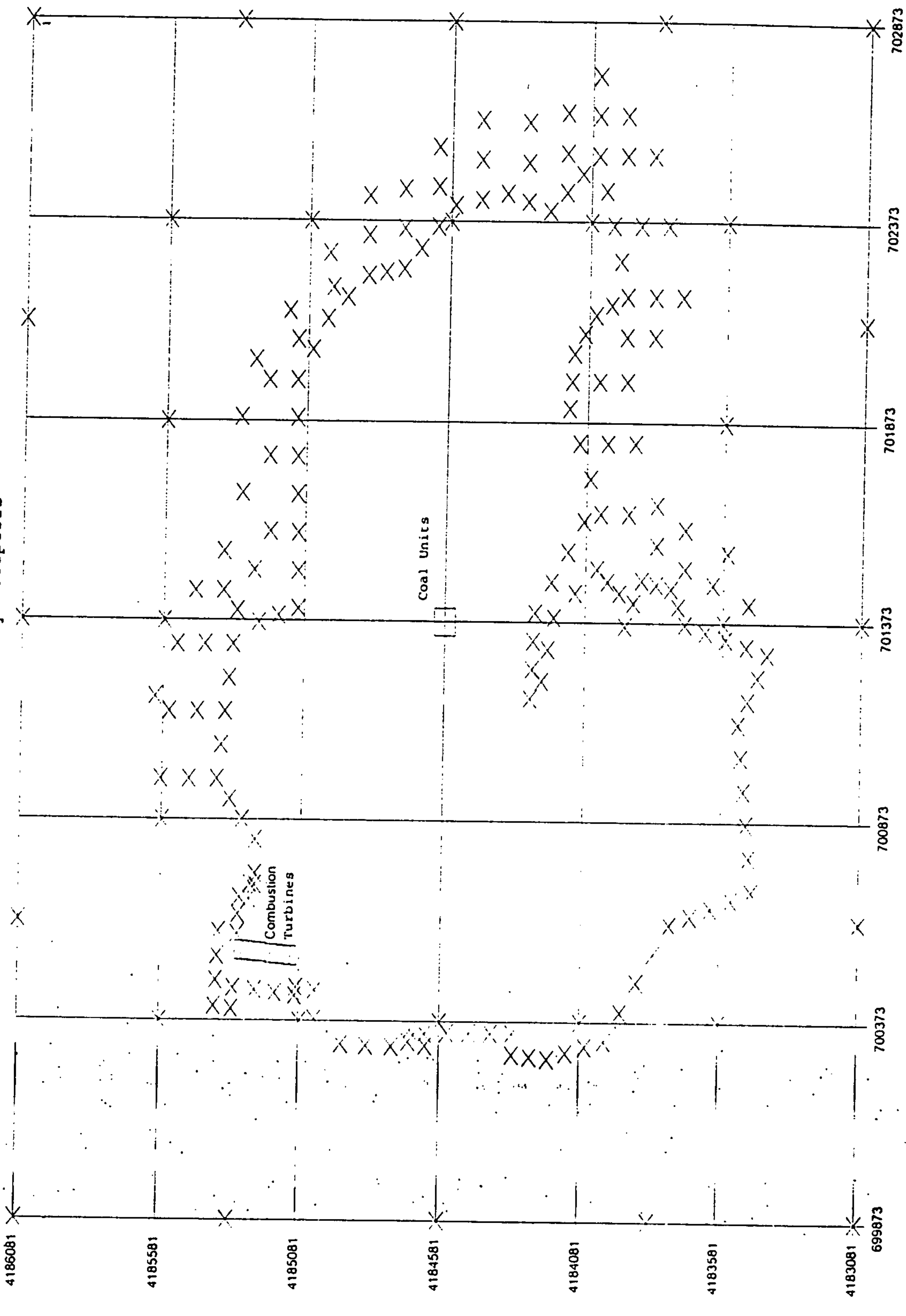


EXHIBIT 4b

E. W. Brown NAAQS Compliance Modeling

Receptors Out to 50 km

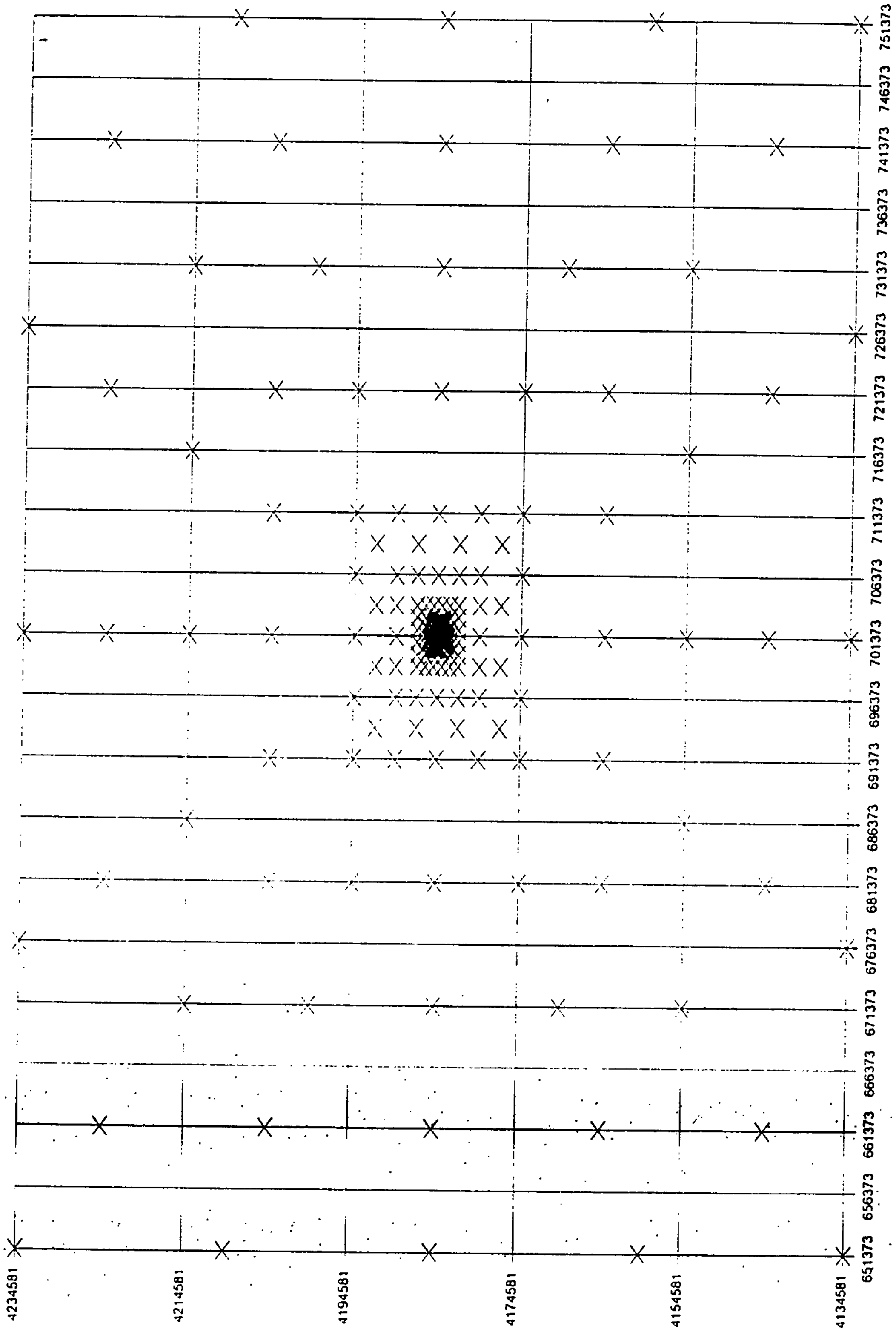
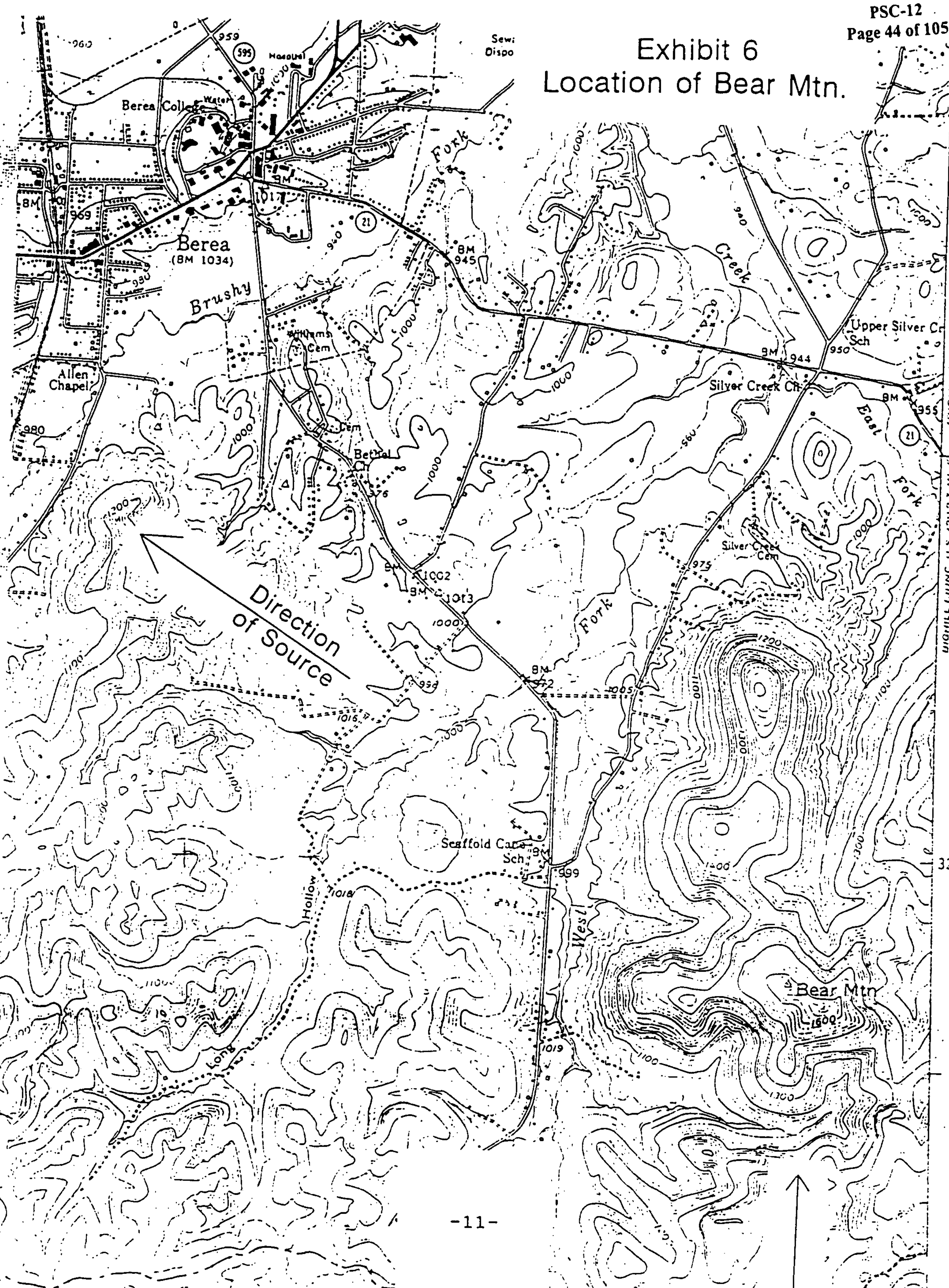


Exhibit 5
Location of Sand Knob

Exhibit 6
Location of Bear Mtn.



GTGA37.DAT
ISC INPUT FILE

```
KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987
 1 1 1 1 0 1 0 0 1 0 0 0 0 1 1 0 1 1 1 0 1 1 0 1 2 1 1 1 1 1
    40      0      0   346      1
    700280.  4184198.      900.0
    700286.  4184261.      900.0
    700291.  4184323.      900.0
    700295.  4184131.      910.0
    700309.  4184752.      870.0
    700311.  4184063.      920.0
    700311.  4184631.      880.0
    700312.  4184842.      880.0
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    700343.  4184632.      890.0
    700344.  4184478.      920.0
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    700346.  4184980.      860.0
    700351.  4184686.      890.0
    700377.  4185028.      860.0
    700399.  4183937.      920.0
    700472.  4183880.      930.0
    700544.  4183822.      940.0
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    700638.  4183690.      910.0
    700659.  4183616.      910.0
    700680.  4183541.      910.0
    700701.  4183467.      900.0
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    700785.  4183478.      880.0
    700824.  4185247.      930.0
    700868.  4183489.      870.0
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    700924.  4185341.      850.0
    700952.  4183500.      870.0
    700974.  4185387.      860.0
    700974.  4185487.      850.0
    700974.  4185587.      820.0
    701035.  4183511.      860.0
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    701313.  4185335.      850.0
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695682.	4195111.	900.0
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700682.	4195111.	900.0
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  100      1124.52 701297.4184555 266.7171.0 422.0    11.0 5.6    67.36 49.45 49.45
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  130      0.833   695200.4168100 304.8 41.0 505.00    7.0 1.80
  140      7.192   695200.4168100 304.8 21.0 450.00   10.0 0.60
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  160      19.99   740800.4196000 213.4 45.0 433.00    4.0 3.70
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  180      229.90  740800.4196000 213.4 45.0 444.00   11.0 3.70
  290      219.09  740800.4196000 213.4 45.0 427.00   10.0 3.70
  200      0.18    718900.4213100 304.8 15.0 422.00    6.0 1.70
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  220      9.062   718800.4212000 304.8 36.0 533.00   50.0 0.60
  230      9.09    719500.4212000 304.8 36.0 533.00    6.0 1.80
  240      1.456   719500.4212000 304.8 25.0 422.00    7.0 1.70
  250      1.456   719500.4212000 304.8 25.0 422.00    7.0 1.70
  260      0.04    719500.4212000 304.8 39.0 922.00   13.0 0.90
  270      0.04    718800.4211900 304.8  8.0 1033.0    9.0 0.40
  280      33.167  719500.4212000 304.8 21.0 450.00    6.0 1.80
  290      0.52    720000.4216400 304.8  9.0 477.00   13.0 0.30
  300      1.01    720000.4216400 304.8  2.0 700.00   6.01 0.10
  310      10.327  720000.4216400 304.8 10.0 533.00   20.0 0.90
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  340      10.327  720000.4216400 304.8 10.0 533.00   20.0 0.90
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  360      5.839   720000.4216400 304.8 10.0 533.00   13.0 0.90
  370      70.16   688800.4213200 213.4 51.0 422.00   13.0 2.50
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GTGA37. OUT
ISC OUTPUT FILE

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ie input file for this run was gtga37.dat
ie job started at 10:12:43
                    ISCST              (DATED 90346)

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.70244E+06	.41849E+07	.88000E+03
.70244E+06	.41844E+07	.82000E+03
.70245E+06	.41842E+07	.88000E+03
.70245E+06	.41840E+07	.85000E+03
.70245E+06	.41847E+07	.83000E+03
.70246E+06	.41846E+07	.88000E+03
.70249E+06	.41841E+07	.88000E+03
.70252E+06	.41843E+07	.86000E+03
.70253E+06	.41845E+07	.77000E+03
.70254E+06	.41839E+07	.78000E+03
.70254E+06	.41840E+07	.88000E+03
.70254E+06	.41841E+07	.85000E+03
.70255E+06	.41842E+07	.83000E+03
.70256E+06	.41846E+07	.83000E+03
.70262E+06	.41843E+07	.85000E+03
.70263E+06	.41845E+07	.88000E+03
.70264E+06	.41840E+07	.87000E+03
.70264E+06	.41841E+07	.80000E+03
.70265E+06	.41842E+07	.87000E+03
.70274E+06	.41841E+07	.85000E+03
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.70068E+06	.41853E+07	.89700E+03
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.70046E+06	.41851E+07	.88200E+03
.70045E+06	.41850E+07	.88200E+03
.70018E+06	.41846E+07	.85000E+03
.70018E+06	.41849E+07	.90000E+03
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.70068E+06	.41856E+07	.86000E+03
.70093E+06	.41856E+07	.89000E+03
.69968E+06	.41841E+07	.86000E+03
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.70018E+06	.41841E+07	.94000E+03
.70018E+06	.41861E+07	.93000E+03
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.70118E+06	.41861E+07	.87000E+03

.70168E+06	.41856E+07	.80000E+03
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.70318E+06	.41856E+07	.95000E+03
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.69568E+06	.41801E+07	.90000E+03
.69568E+06	.41826E+07	.10000E+04
.69568E+06	.41851E+07	.98000E+03
.69568E+06	.41876E+07	.10000E+04
.69568E+06	.41901E+07	.10700E+04
.69818E+06	.41801E+07	.90000E+03
.69818E+06	.41901E+07	.94000E+03
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.70068E+06	.41951E+07	.90000E+03
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.70568E+06	.41951E+07	.10000E+04
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.68568E+06	.42151E+07	.85300E+03
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.71568E+06	.42151E+07	.10170E+04
.73068E+06	.41551E+07	.13780E+04
.73068E+06	.41701E+07	.10500E+04
.73068E+06	.41851E+07	.98400E+03
.73068E+06	.42001E+07	.10500E+04
.73068E+06	.42151E+07	.10500E+04
.66068E+06	.41451E+07	.11500E+04
.66068E+06	.41651E+07	.11810E+04
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.66068E+06	.42251E+07	.11880E+04
.68068E+06	.41451E+07	.13910E+04
.68068E+06	.42251E+07	.92000E+03
.70068E+06	.41451E+07	.14200E+04
.70068E+06	.42251E+07	.92000E+03
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.72068E+06	.42251E+07	.98400E+03
.74068E+06	.41451E+07	.14760E+04
.73818E+06	.41726E+07	.99400E+03
.73818E+06	.41676E+07	.98400E+03
.73818E+06	.41626E+07	.12470E+04
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.74318E+06	.41576E+07	.16600E+04
.74068E+06	.41851E+07	.10500E+04
.74068E+06	.42051E+07	.10500E+04
.74068E+06	.42261E+07	.99700E+03
.65068E+06	.41351E+07	.10000E+04
.65068E+06	.41601E+07	.10500E+04
.65068E+06	.41851E+07	.78700E+03
.65068E+06	.42101E+07	.80700E+03

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.65068E+06    .42351E+07    .85300E+03
.67568E+06    .41351E+07    .11480E+04
.67568E+06    .42351E+07    .91900E+03
.70068E+06    .41351E+07    .13120E+04
.70068E+06    .42351E+07    .88000E+03
.72568E+06    .41351E+07    .14760E+04
.72568E+06    .42351E+07    .98800E+03
.75068E+06    .41351E+07    .14760E+04
.75068E+06    .41601E+07    .14760E+04
.75068E+06    .41851E+07    .98400E+03
.75068E+06    .42101E+07    .10500E+04
.75068E+06    .42351E+07    .91900E+03
2
 1   -40
.70100E+01    .00000E+00    .00000E+00    .00000E+00    .00000E+00    .00000E+00
.00000E+00    .00000E+00                                     0  0
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11111111111111111111111111111111111111111111111111111111111111111111111111111111
111111111111111111111111111111111111111111111
1820    87 13840    87
 1 0 0 0 0  4.954E+1  7.005E+5  4.185E+6  2.688E+2  5.334E+1  7.844E+2  4.998E+1  5.040E+0  2.210E+1  1.713E+2  1.713E+2
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.    1 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
 2 0 0 0 0  4.954E+1  7.005E+5  4.185E+6  2.688E+2  5.334E+1  7.844E+2  4.998E+1  5.040E+0  2.210E+1  1.713E+2  1.713E+2
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.    2 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
 3 0 0 0 0  4.954E+1  7.005E+5  4.185E+6  2.688E+2  5.334E+1  7.844E+2  4.998E+1  5.040E+0  2.210E+1  1.713E+2  1.713E+2
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.    3 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
 4 0 0 0 0  4.954E+1  7.005E+5  4.185E+6  2.688E+2  5.334E+1  7.844E+2  4.998E+1  5.040E+0  2.210E+1  1.713E+2  1.713E+2
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.    4 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
 5 0 0 0 0  6.007E+1  7.005E+5  4.185E+6  2.688E+2  3.810E+1  8.739E+2  5.334E+1  5.300E+0  2.210E+1  1.713E+2  1.713E+2
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.    5 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
 6 0 0 0 0  6.007E+1  7.005E+5  4.185E+6  2.688E+2  3.810E+1  8.739E+2  5.334E+1  5.300E+0  2.210E+1  1.713E+2  1.713E+2
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.    6 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
 7 0 0 0 0  1.000E-3  7.005E+5  4.185E+6  2.688E+2  5.334E+1  7.844E+2  4.998E+1  5.040E+0  2.210E+1  1.713E+2  1.713E+2
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.    7 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
 8 0 0 0 0  4.954E+1  7.005E+5  4.185E+6  2.688E+2  5.334E+1  7.844E+2  4.998E+1  5.040E+0  2.210E+1  1.713E+2  1.713E+2
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.    8 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
 9 0 0 0 0  8.176E+2  7.014E+5  4.185E+6  2.667E+2  1.050E+2  4.190E+2  1.600E+1  3.900E+0  6.736E+1  4.945E+1  4.945E+1
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.    9 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
10 0 0 0 0  1.125E+3  7.013E+5  4.185E+6  2.667E+2  1.710E+2  4.220E+2  1.100E+1  5.600E+0  6.736E+1  4.945E+1  4.945E+1
      NOTE THAT THE BUILDING DIMENSIONS ON CARD 6,1 FOR SOURCE NO.   10 DO NOT MEET THE SCHULMAN-SCIRE CRITERIA.
      THEREFORE, DIRECTION SPECIFIC BUILDING DIMENSIONS WILL NOT BE USED BY THE MODEL.
11 0 0 0 0  2.679E+3  7.013E+5  4.185E+6  2.667E+2  1.710E+2  4.220E+2  2.600E+1  5.600E+0  0.000E+0  0.000E+0  0.000E+0
12 0 0 0 0  1.098E+1  6.952E+5  4.168E+6  3.048E+2  4.100E+1  7.550E+2  6.000E+0  1.800E+0  0.000E+0  0.000E+0  0.000E+0
13 0 0 0 0  8.330E-1  6.952E+5  4.168E+6  3.048E+2  4.100E+1  5.050E+2  7.000E+0  1.800E+0  0.000E+0  0.000E+0  0.000E+0
14 0 0 0 0  7.192E+0  6.952E+5  4.168E+6  3.048E+2  2.100E+1  4.500E+2  1.000E+1  6.000E-1  0.000E+0  0.000E+0  0.000E+0
15 0 0 0 0  3.100E-2  6.952E+5  4.168E+6  3.048E+2  1.500E+1  3.110E+2  4.000E+0  5.000E-1  0.000E+0  0.000E+0  0.000E+0
16 0 0 0 0  1.999E+1  7.408E+5  4.196E+6  2.134E+2  4.500E+1  4.330E+2  4.000E+0  3.700E+0  0.000E+0  0.000E+0  0.000E+0
17 0 0 0 0  1.999E+1  7.408E+5  4.196E+6  2.134E+2  4.500E+1  4.330E+2  4.000E+0  3.700E+0  0.000E+0  0.000E+0  0.000E+0
18 0 0 0 0  2.299E+2  7.408E+5  4.196E+6  2.134E+2  4.500E+1  4.440E+2  1.100E+1  3.700E+0  0.000E+0  0.000E+0  0.000E+0
19 0 0 0 0  2.191E+2  7.408E+5  4.196E+6  2.134E+2  4.500E+1  4.270E+2  1.000E+1  3.700E+0  0.000E+0  0.000E+0  0.000E+0
20 0 0 0 0  1.800E-1  7.189E+5  4.213E+6  3.048E+2  1.500E+1  4.220E+2  6.000E+0  1.700E+0  0.000E+0  0.000E+0  0.000E+0
21 0 0 0 0  1.800E-1  7.195E+5  4.212E+6  3.048E+2  1.500E+1  4.220E+2  6.000E+0  1.700E+0  0.000E+0  0.000E+0  0.000E+0
22 0 0 0 0  9.062E+0  7.188E+5  4.212E+6  3.048E+2  3.600E+1  5.330E+2  5.000E+1  6.000E-1  0.000E+0  0.000E+0  0.000E+0
23 0 0 0 0  9.090E+0  7.195E+5  4.212E+6  3.048E+2  3.600E+1  5.330E+2  6.000E+0  1.800E+0  0.000E+0  0.000E+0  0.000E+0
24 0 0 0 0  1.456E+0  7.195E+5  4.212E+6  3.048E+2  2.500E+1  4.220E+2  7.000E+0  1.700E+0  0.000E+0  0.000E+0  0.000E+0
25 0 0 0 0  1.456E+0  7.195E+5  4.212E+6  3.048E+2  2.500E+1  4.220E+2  7.000E+0  1.700E+0  0.000E+0  0.000E+0  0.000E+0
26 0 0 0 0  4.000E-2  7.195E+5  4.212E+6  3.048E+2  3.900E+1  9.220E+2  1.300E+1  9.000E-1  0.000E+0  0.000E+0  0.000E+0
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27	0	0	0	0	4.000E-2	7.188E+5	4.212E+6	3.048E+2	8.000E+0	1.033E+3	9.000E+0	4.000E-1	0.000E+0	0.000E+0	0.000E+0
28	0	0	0	0	3.317E+1	7.195E+5	4.212E+6	3.048E+2	2.100E+1	4.500E+2	6.000E+0	1.800E+0	0.000E+0	0.000E+0	0.000E+0
29	0	0	0	0	5.200E-1	7.200E+5	4.216E+6	3.048E+2	9.000E+0	4.770E+2	1.300E+1	3.000E-1	0.000E+0	0.000E+0	0.000E+0
30	0	0	0	0	1.010E+0	7.200E+5	4.216E+6	3.048E+2	2.000E+0	7.000E+2	6.010E+0	1.000E-1	0.000E+0	0.000E+0	0.000E+0
31	0	0	0	0	1.033E+1	7.200E+5	4.216E+6	3.048E+2	1.000E+1	5.330E+2	2.000E+1	9.000E-1	0.000E+0	0.000E+0	0.000E+0
32	0	0	0	0	1.033E+1	7.200E+5	4.216E+6	3.048E+2	1.000E+1	5.330E+2	2.000E+1	9.000E-1	0.000E+0	0.000E+0	0.000E+0
33	0	0	0	0	1.033E+1	7.200E+5	4.216E+6	3.048E+2	1.000E+1	5.330E+2	2.000E+1	9.000E-1	0.000E+0	0.000E+0	0.000E+0
34	0	0	0	0	1.033E+1	7.200E+5	4.216E+6	3.048E+2	1.000E+1	5.330E+2	2.000E+1	9.000E-1	0.000E+0	0.000E+0	0.000E+0
35	0	0	0	0	1.033E+1	7.200E+5	4.216E+6	3.048E+2	1.000E+1	5.330E+2	2.000E+1	9.000E-1	0.000E+0	0.000E+0	0.000E+0
36	0	0	0	0	5.839E+0	7.200E+5	4.216E+6	3.048E+2	1.000E+1	5.330E+2	1.300E+1	9.000E-1	0.000E+0	0.000E+0	0.000E+0
37	0	0	0	0	7.016E+1	6.888E+5	4.213E+6	2.134E+2	5.100E+1	4.220E+2	1.300E+1	2.500E+0	0.000E+0	0.000E+0	0.000E+0
38	0	0	0	0	7.016E+1	6.888E+5	4.213E+6	2.134E+2	5.100E+1	4.220E+2	1.300E+1	2.500E+0	0.000E+0	0.000E+0	0.000E+0
39	0	0	0	0	2.214E+2	6.888E+5	4.213E+6	2.134E+2	5.100E+1	4.220E+2	1.700E+1	3.400E+0	0.000E+0	0.000E+0	0.000E+0
40	0	0	0	0	6.000E-1	6.888E+5	4.213E+6	2.134E+2	1.800E+1	4.500E+2	8.000E+0	3.000E-1	0.000E+0	0.000E+0	0.000E+0

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

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CALCULATE (CONCENTRATION=1,DEPOSITION=2)                           ISW(1) =  1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)            ISW(2) =  1
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)                   ISW(3) =  1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)                           ISW(4) =  1
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)                      ISW(5) =  0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)                   ISW(6) =  1

COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)
WITH THE FOLLOWING TIME PERIODS:
  HOURLY (YES=1,NO=0)                                              ISW(7) =  0
  2-HOUR (YES=1,NO=0)                                              ISW(8) =  0
  3-HOUR (YES=1,NO=0)                                              ISW(9) =  1
  4-HOUR (YES=1,NO=0)                                             ISW(10) =  0
  6-HOUR (YES=1,NO=0)                                             ISW(11) =  0
  8-HOUR (YES=1,NO=0)                                             ISW(12) =  0
  12-HOUR (YES=1,NO=0)                                            ISW(13) =  0
  24-HOUR (YES=1,NO=0)                                            ISW(14) =  1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)                               ISW(15) =  1

PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE
SPECIFIED BY ISW(7) THROUGH ISW(14):
  DAILY TABLES (YES=1,NO=0)                                       ISW(16) =  0
  HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)                    ISW(17) =  1
  MAXIMUM 50 TABLES (YES=1,NO=0)                                  ISW(18) =  1
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)         ISW(19) =  1
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3) ISW(20) =  0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)         ISW(21) =  1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)  ISW(22) =  1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)                 ISW(23) =  0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)             ISW(24) =  1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)       ISW(25) =  2
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)             ISW(26) =  1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)           ISW(27) =  1
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)                           ISW(28) =  1
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)                  ISW(29) =  1
DEBUG OPTION CHOSEN (YES=1,NO=2)                                  ISW(30) =  1
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)               ISW(31) =  0

NUMBER OF INPUT SOURCES                                            NSOURC =  40
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)                           NGROUP =  1
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)               IPERD =  0
NUMBER OF X (RANGE) GRID VALUES                                    NXPNTS =  0
NUMBER OF Y (THETA) GRID VALUES                                    NYPNTS =  0
NUMBER OF DISCRETE RECEPTORS                                       NXWYPT = 346
SOURCE EMISSION RATE UNITS CONVERSION FACTOR                           TK =.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED                   ZR =   7.01  METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA                           IMET =  9
DECAY COEFFICIENT FOR PHYSICAL OR CHEMICAL DEPLETION                DECAY = .000000E+00
SURFACE STATION NO.                                                   ISS = 93820
YEAR OF SURFACE DATA                                                  ISY = 87
UPPER AIR STATION NO.                                                 IUS = 13840
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YEAR OF UPPER AIR DATA                                 IUY = 87
ALLOCATED DATA STORAGE                               LIMIT = 70000 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN           MIMIT = 17418 WORDS
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*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

*** METEOROLOGICAL DAYS TO BE PROCESSED ***
(IF=1)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

*** NUMBER OF SOURCE NUMBERS REQUIRED TO DEFINE SOURCE GROUPS ***
(NSOGRP)

2,

*** SOURCE NUMBERS DEFINING SOURCE GROUPS ***
(IDSOR)

1, -40,

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

*** X,Y COORDINATES OF DISCRETE RECEPTORS ***
(METERS)

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( 700326.0,4183995.0), ( 700343.0,4184632.0), ( 700344.0,4184478.0), ( 700344.0,4184555.0), ( 700345.0,4184323.0),
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(750682.0,4235111.0), (

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* ELEVATION HEIGHTS IN METERS *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	ELE.	- X -	- Y -	ELE.	- X -	- Y -	ELE.
700280.0	4184198.0	274.32050	700286.0	4184261.0	274.32050	700291.0	4184323.0	274.32050
700295.0	4184131.0	277.36860	700309.0	4184752.0	265.17650	700311.0	4184063.0	280.41660
700311.0	4184631.0	268.22450	700312.0	4184842.0	268.22450	700315.0	4184931.0	265.17650
700322.0	4184691.0	268.22450	700326.0	4183995.0	280.41660	700343.0	4184632.0	271.27250
700344.0	4184478.0	280.41660	700344.0	4184555.0	277.36860	700345.0	4184323.0	280.41660
700345.0	4184400.0	280.41660	700346.0	4184980.0	262.12850	700351.0	4184686.0	271.27250
700377.0	4185028.0	262.12850	700399.0	4183937.0	280.41660	700472.0	4183880.0	283.46460
700544.0	4183822.0	286.51260	700617.0	4183764.0	280.41660	700638.0	4183690.0	277.36860
700659.0	4183616.0	277.36860	700680.0	4183541.0	277.36860	700701.0	4183467.0	274.32050
700739.0	4185246.0	283.46460	700785.0	4183478.0	268.22450	700824.0	4185247.0	283.46460
700868.0	4183489.0	265.17650	700874.0	4185294.0	274.32050	700924.0	4185341.0	259.08050
700952.0	4183500.0	265.17650	700974.0	4185387.0	262.12850	700974.0	4185487.0	259.08050
700974.0	4185587.0	249.93650	701035.0	4183511.0	262.12850	701059.0	4185374.0	271.27250
701119.0	4183522.0	259.08050	701144.0	4185361.0	277.36860	701144.0	4185461.0	271.27250
701144.0	4185561.0	265.17650	701177.0	4183489.0	256.03250	701182.0	4184277.0	228.60040
701182.0	4185611.0	262.12850	701224.0	4184236.0	228.60040	701228.0	4185348.0	277.36860
701236.0	4183455.0	252.98450	701254.0	4184272.0	228.60040	701294.0	4183421.0	246.88850
701304.0	4184216.0	228.60040	701313.0	4183497.0	252.98450	701313.0	4185335.0	259.08050
701313.0	4185435.0	265.17650	701313.0	4185535.0	252.98450	701325.0	4184267.0	228.60040
701332.0	4183572.0	259.08050	701350.0	4183648.0	259.08050	701364.0	4183939.0	228.60040
701369.0	4183723.0	256.03250	701369.0	4185245.0	164.59230	701384.0	4184196.0	228.60040
701386.0	4185175.0	164.59230	701397.0	4184262.0	228.60040	701398.0	4185322.0	164.59230
701403.0	4185104.0	164.59230	701414.0	4183749.0	249.93650	701419.0	4183489.0	243.84050
701422.0	4183910.0	228.60040	701446.0	4183962.0	228.60040	701446.0	4184120.0	228.60040
701448.0	4185372.0	158.49630	701448.0	4185472.0	243.84050	701459.0	4183775.0	231.64850
701469.0	4183623.0	243.84050	701469.0	4183828.0	228.60040	701474.0	4184205.0	228.60040
701477.0	4184003.0	228.60040	701479.0	4183881.0	228.60040	701499.0	4185107.0	158.49630
701501.0	4185263.0	167.64030	701507.0	4184043.0	228.60040	701509.0	4183725.0	228.60040
701548.0	4185372.0	182.88040	701549.0	4183568.0	228.60040	701551.0	4184147.0	228.60040
701569.0	4183828.0	228.60040	701594.0	4185109.0	158.49630	701598.0	4185207.0	207.26440
701609.0	4183725.0	228.60040	701628.0	4184090.0	228.60040	701646.0	4183931.0	228.60040
701646.0	4184031.0	228.60040	701669.0	4183828.0	228.60040	701690.0	4185112.0	158.49630
701693.0	4185310.0	237.74450	701733.0	4184071.0	228.60040	701786.0	4185114.0	158.49630
701787.0	4185213.0	237.74450	701821.0	4183910.0	228.60040	701821.0	4184010.0	228.60040
701821.0	4184110.0	228.60040	701881.0	4185117.0	158.49630	701882.0	4185316.0	243.84050
701908.0	4184150.0	228.60040	701977.0	4183943.0	231.64850	701977.0	4184043.0	228.60040
701977.0	4184143.0	228.60040	701977.0	4185119.0	158.49630	701977.0	4185219.0	243.84050
702027.0	4185269.0	259.08050	702046.0	4184135.0	228.60040	702053.0	4185068.0	158.49630

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* ELEVATION HEIGHTS IN METERS *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	ELE.	- X -	- Y -	ELE.	- X -	- Y -	ELE.
702077.0	4185119.0	158.49630	702087.0	4183846.0	243.84050	702087.0	4183946.0	228.60040
702094.0	4184098.0	228.60040	702129.0	4185017.0	158.49630	702142.0	4184060.0	228.60040

702149.0	4185150.0	265.17650	702165.0	4184003.0	228.60040	702182.0	4183611.0	280.41660
702183.0	4184946.0	277.36860	702187.0	4183746.0	274.32050	702187.0	4183846.0	295.65660
702187.0	4183946.0	280.41660	702207.0	4184997.0	158.49630	702237.0	4184874.0	243.84050
702246.0	4184811.0	231.64850	702254.0	4184747.0	228.60040	702275.0	4183973.0	158.49630
702293.0	4185012.0	158.49630	702307.0	4184687.0	158.49630	702337.0	4184874.0	158.49630
702354.0	4184747.0	228.60040	702360.0	4184628.0	265.17650	702363.0	4183801.0	158.49630
702363.0	4183901.0	240.79250	702363.0	4184001.0	234.69650	702400.0	4184231.0	213.36040
702413.0	4184568.0	234.69650	702422.0	4184308.0	243.84050	702428.0	4184476.0	246.88850
702437.0	4184874.0	268.22450	702443.0	4184384.0	249.93650	702446.0	4184172.0	268.22450
702451.0	4184028.0	259.08050	702454.0	4184747.0	252.98450	702460.0	4184628.0	268.22450
702493.0	4184114.0	268.22450	702522.0	4184308.0	262.12850	702528.0	4184476.0	234.69650
702539.0	4183855.0	237.74450	702539.0	4183955.0	268.22450	702539.0	4184055.0	259.08050
702546.0	4184172.0	252.98450	702560.0	4184628.0	252.98450	702622.0	4184308.0	259.08050
702628.0	4184476.0	268.22450	702639.0	4183955.0	265.17650	702639.0	4184055.0	243.84050
702646.0	4184172.0	265.17650	702739.0	4184055.0	259.08050	700710.0	4185246.0	273.40610
700713.0	4185264.0	273.40610	700676.0	4185267.0	273.40610	700679.0	4185301.0	273.40610
700637.0	4185306.0	273.40610	700589.0	4185308.0	273.40610	700594.0	4185374.0	272.79650
700533.0	4185378.0	271.27250	700472.0	4185382.0	268.83410	700408.0	4185386.0	268.83410
700402.0	4185324.0	268.83410	700454.0	4185319.0	268.83410	700448.0	4185241.0	268.83410
700442.0	4185170.0	268.83410	700435.0	4185097.0	268.83410	700455.0	4185094.0	268.83410
700449.0	4185027.0	268.83410	700182.0	4184611.0	259.08050	700182.0	4184861.0	274.32050
700182.0	4185111.0	265.17650	700182.0	4185361.0	262.12850	700182.0	4185611.0	271.27250
700432.0	4185611.0	265.17650	700682.0	4185611.0	262.12850	700932.0	4185611.0	271.27250
699682.0	4184111.0	262.12850	699682.0	4184611.0	280.41660	699682.0	4185111.0	286.51260
699682.0	4185611.0	268.22450	699682.0	4186111.0	280.41660	700182.0	4184111.0	286.51260
700182.0	4186111.0	283.46460	700682.0	4186111.0	277.36860	701182.0	4186111.0	265.17650
701682.0	4185611.0	243.84050	701682.0	4186111.0	265.17650	699182.0	4183611.0	289.56060
699182.0	4184361.0	268.22450	699182.0	4185111.0	274.32050	699182.0	4185861.0	259.08050
699182.0	4186611.0	292.60860	699932.0	4183611.0	292.60860	699932.0	4186611.0	292.60860
700682.0	4186611.0	289.56060	701432.0	4186611.0	259.08050	702182.0	4185861.0	289.56060
702182.0	4186611.0	289.56060	698182.0	4182611.0	265.17650	698182.0	4183611.0	262.12850
698182.0	4184611.0	292.60860	698182.0	4185611.0	304.80060	698182.0	4186611.0	301.75260
698182.0	4187611.0	292.60860	699182.0	4182611.0	286.51260	699182.0	4187611.0	289.56060
700182.0	4182611.0	292.60860	700182.0	4187611.0	283.46460	701182.0	4182611.0	268.22450
701182.0	4187611.0	282.24540	702182.0	4182611.0	280.41660	702182.0	4187611.0	262.12850
703182.0	4182611.0	295.65660	703182.0	4183611.0	307.84860	703182.0	4184611.0	307.84860

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* ELEVATION HEIGHTS IN METERS *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	ELE.	- X -	- Y -	ELE.	- X -	- Y -	ELE.
703182.0	4185611.0	289.56060	703182.0	4186611.0	295.65660	703182.0	4187611.0	292.60860
695682.0	4180111.0	274.32050	695682.0	4182611.0	304.80060	695682.0	4185111.0	298.70460
695682.0	4187611.0	304.80060	695682.0	4190111.0	326.13660	698182.0	4180111.0	274.32050
698182.0	4190111.0	286.51260	700682.0	4180111.0	289.56060	700682.0	4190111.0	283.46460
703182.0	4180111.0	304.80060	703182.0	4190111.0	295.65660	705682.0	4180111.0	310.89660
705682.0	4182611.0	289.56060	705682.0	4185111.0	286.51260	705682.0	4187611.0	295.65660
705682.0	4190111.0	286.51260	693182.0	4177611.0	274.32050	693182.0	4182611.0	304.80060
693182.0	4187611.0	304.80060	693182.0	4192611.0	274.32050	698182.0	4177611.0	274.32050
698182.0	4192611.0	274.32050	703182.0	4177611.0	304.80060	703182.0	4192611.0	274.32050
708182.0	4177611.0	304.80060	708182.0	4182611.0	295.65660	708182.0	4187611.0	283.46460
708182.0	4192611.0	274.32050	690682.0	4175111.0	304.80060	690682.0	4180111.0	274.32050
690682.0	4185111.0	274.32050	690682.0	4190111.0	274.32050	690682.0	4195111.0	274.32050
695682.0	4175111.0	304.80060	695682.0	4195111.0	274.32050	700682.0	4175111.0	274.32050
700682.0	4195111.0	274.32050	705682.0	4175111.0	329.18470	705682.0	4195111.0	304.80060
710682.0	4175111.0	277.36860	710682.0	4180111.0	289.56060	710682.0	4185111.0	284.98860
710682.0	4190111.0	304.80060	710682.0	4195111.0	274.32050	680682.0	4165111.0	399.89840
680682.0	4175111.0	284.68370	680682.0	4185111.0	288.03660	680682.0	4195111.0	280.11180
680682.0	4205111.0	280.11180	690682.0	4165111.0	399.89840	690682.0	4205111.0	282.85490
700682.0	4165111.0	320.04060	700682.0	4205111.0	299.92380	710682.0	4165111.0	320.04060

X	Y	ELE.	X	Y	ELE.	X	Y	ELE.
710682.0	4205111.0	320.04060	720682.0	4165111.0	339.85270	720682.0	4175111.0	299.92380
720682.0	4185111.0	299.92380	720682.0	4195111.0	299.92380	720682.0	4205111.0	326.13660
670682.0	4155111.0	380.08630	670682.0	4170111.0	299.92380	670682.0	4185111.0	239.87810
670682.0	4200111.0	280.11180	670682.0	4215111.0	279.80690	685682.0	4155111.0	449.88570
685682.0	4215111.0	259.99490	700682.0	4155111.0	420.62480	700682.0	4215111.0	299.92380
715682.0	4155111.0	380.08630	715682.0	4215111.0	309.98220	730682.0	4155111.0	420.01520
730682.0	4170111.0	320.04060	730682.0	4185111.0	299.92380	730682.0	4200111.0	320.04060
730682.0	4215111.0	320.04060	660682.0	4145111.0	350.52070	660682.0	4165111.0	359.96950
660682.0	4185111.0	259.99490	660682.0	4205111.0	250.85090	660682.0	4225111.0	362.10310
680682.0	4145111.0	423.97760	680682.0	4225111.0	280.41660	700682.0	4145111.0	432.81690
700682.0	4225111.0	280.41660	720682.0	4145111.0	420.62480	720682.0	4225111.0	299.92380
740682.0	4145111.0	449.88570	738182.0	4172611.0	302.97180	738182.0	4167611.0	299.92380
738182.0	4162611.0	380.08630	738182.0	4157611.0	407.82320	743182.0	4172611.0	299.92380
743182.0	4167611.0	452.01930	743182.0	4162611.0	473.05050	743182.0	4157611.0	505.96900
740682.0	4185111.0	320.04060	740682.0	4205111.0	320.04060	740682.0	4225111.0	303.88620
650682.0	4135111.0	304.80060	650682.0	4160111.0	320.04060	650682.0	4185111.0	239.87810
650682.0	4210111.0	245.97410	650682.0	4235111.0	259.99490	675682.0	4135111.0	349.91110
675682.0	4235111.0	280.11180	700682.0	4135111.0	399.89840	700682.0	4235111.0	268.22450
725682.0	4135111.0	449.88570	725682.0	4235111.0	301.14300	750682.0	4135111.0	449.88570

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* ELEVATION HEIGHTS IN METERS *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	ELE.	- X -	- Y -	ELE.	- X -	- Y -	ELE.
750682.0	4160111.0	449.88570	750682.0	4185111.0	299.92380	750682.0	4210111.0	320.04060
750682.0	4235111.0	280.11180						

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0	0	.49543E+02	700547.0	4185288.0	268.8	53.34	784.40	49.98	5.04	22.10	171.30	171.30
2	0	0	0	.49543E+02	700545.0	4185267.0	268.8	53.34	784.40	49.98	5.04	22.10	171.30	171.30
3	0	0	0	.49543E+02	700543.0	4185246.0	268.8	53.34	784.40	49.98	5.04	22.10	171.30	171.30
4	0	0	0	.49543E+02	700542.0	4185225.0	268.8	53.34	784.40	49.98	5.04	22.10	171.30	171.30
5	0	0	0	.60074E+02	700538.0	4185182.0	268.8	38.10	873.90	53.34	5.30	22.10	171.30	171.30
6	0	0	0	.60074E+02	700536.0	4185161.0	268.8	38.10	873.90	53.34	5.30	22.10	171.30	171.30
7	0	0	0	.10000E-02	700533.0	4185118.0	268.8	53.34	784.40	49.98	5.04	22.10	171.30	171.30
8	0	0	0	.49543E+02	700533.0	4185118.0	268.8	53.34	784.40	49.98	5.04	22.10	171.30	171.30
9	0	0	0	.81760E+03	701386.0	4184576.0	266.7	105.00	419.00	16.00	3.90	67.36	49.45	49.45
10	0	0	0	.11245E+04	701297.0	4184555.0	266.7	171.00	422.00	11.00	5.60	67.36	49.45	49.45
11	0	0	0	.26786E+04	701297.0	4184555.0	266.7	171.00	422.00	26.00	5.60	.00	.00	.00
12	0	0	0	.10977E+02	695200.0	4168100.0	304.8	41.00	755.00	6.00	1.80	.00	.00	.00
13	0	0	0	.83300E+00	695200.0	4168100.0	304.8	41.00	505.00	7.00	1.80	.00	.00	.00
14	0	0	0	.71920E+01	695200.0	4168100.0	304.8	21.00	450.00	10.00	.60	.00	.00	.00
15	0	0	0	.31000E-01	695200.0	4168100.0	304.8	15.00	311.00	4.00	.50	.00	.00	.00
16	0	0	0	.19990E+02	740800.0	4196000.0	213.4	45.00	433.00	4.00	3.70	.00	.00	.00
17	0	0	0	.19990E+02	740800.0	4196000.0	213.4	45.00	433.00	4.00	3.70	.00	.00	.00
18	0	0	0	.22990E+03	740800.0	4196000.0	213.4	45.00	444.00	11.00	3.70	.00	.00	.00
29	0	0	0	.21909E+03	740800.0	4196000.0	213.4	45.00	427.00	10.00	3.70	.00	.00	.00
20	0	0	0	.18000E+00	718900.0	4213100.0	304.8	15.00	422.00	6.00	1.70	.00	.00	.00
21	0	0	0	.18000E+00	719500.0	4212000.0	304.8	15.00	422.00	6.00	1.70	.00	.00	.00

22	0	0	0	.90620E+01	718800.0	4212000.0	304.8	36.00	533.00	50.00	.60	.00	.00	.00
23	0	0	0	.90900E+01	719500.0	4212000.0	304.8	36.00	533.00	6.00	1.80	.00	.00	.00
24	0	0	0	.14560E+01	719500.0	4212000.0	304.8	25.00	422.00	7.00	1.70	.00	.00	.00
25	0	0	0	.14560E+01	719500.0	4212000.0	304.8	25.00	422.00	7.00	1.70	.00	.00	.00
26	0	0	0	.40000E-01	719500.0	4212000.0	304.8	39.00	922.00	13.00	.90	.00	.00	.00
27	0	0	0	.40000E-01	718800.0	4211900.0	304.8	8.00	1033.00	9.00	.40	.00	.00	.00
28	0	0	0	.33167E+02	719500.0	4212000.0	304.8	21.00	450.00	6.00	1.80	.00	.00	.00
29	0	0	0	.52000E+00	720000.0	4216400.0	304.8	9.00	477.00	13.00	.30	.00	.00	.00
30	0	0	0	.10100E+01	720000.0	4216400.0	304.8	2.00	700.00	6.01	.10	.00	.00	.00
31	0	0	0	.10327E+02	720000.0	4216400.0	304.8	10.00	533.00	20.00	.90	.00	.00	.00
32	0	0	0	.10327E+02	720000.0	4216400.0	304.8	10.00	533.00	20.00	.90	.00	.00	.00
33	0	0	0	.10327E+02	720000.0	4216400.0	304.8	10.00	533.00	20.00	.90	.00	.00	.00
34	0	0	0	.10327E+02	720000.0	4216400.0	304.8	10.00	533.00	20.00	.90	.00	.00	.00
35	0	0	0	.10327E+02	720000.0	4216400.0	304.8	10.00	533.00	20.00	.90	.00	.00	.00
36	0	0	0	.58390E+01	720000.0	4216400.0	304.8	10.00	533.00	13.00	.90	.00	.00	.00
37	0	0	0	.70160E+02	688800.0	4213200.0	213.4	51.00	422.00	13.00	2.50	.00	.00	.00
38	0	0	0	.70160E+02	688800.0	4213200.0	213.4	51.00	422.00	13.00	2.50	.00	.00	.00
39	0	0	0	.22135E+03	688800.0	4213200.0	213.4	51.00	422.00	17.00	3.40	.00	.00	.00

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	PEAK	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
40	0	0	0	.60000E+00	688800.0	4213200.0	213.4	18.00	450.00	8.00	.30	.00	.00	.00

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SOURCE-RECEPTOR COMBINATIONS LESS THAN 001 METERS OR THREE BUILDING HEIGHTS IN DISTANCE. NO AVERAGE CONCENTRATION IS CALCULATED *

SOURCE NUMBER	- - RECEPTOR LOCATION - - X OR RANGE (METERS)	Y (METERS) OR DIRECTION (DEGREES)	DISTANCE BETWEEN (METERS)
1	700589.0	4185308.0	46.52
2	700589.0	4185308.0	60.14

```
CALM HOURS (=1) FOR DAY   3 *  0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY   8 *  0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
CALM HOURS (=1) FOR DAY   9 *  0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  21 *  0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  22 *  0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  28 *  0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1
CALM HOURS (=1) FOR DAY  35 *  0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  37 *  1 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  38 *  1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  40 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  42 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0
CALM HOURS (=1) FOR DAY  44 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0
CALM HOURS (=1) FOR DAY  45 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0
CALM HOURS (=1) FOR DAY  52 *  0 0 0 0 1 0 0 0 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  53 *  0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  54 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  55 *  0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  63 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0
CALM HOURS (=1) FOR DAY  65 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0
CALM HOURS (=1) FOR DAY  66 *  0 0 0 0 0 0 0 0 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY  72 *  0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

'ALM HOURS (=1) FOR DAY 79 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
'ALM HOURS (=1) FOR DAY 80 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
'ALM HOURS (=1) FOR DAY 85 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
'ALM HOURS (=1) FOR DAY 87 *	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 93 *	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 98 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
'ALM HOURS (=1) FOR DAY 106 *	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 109 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 110 *	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 111 *	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
'ALM HOURS (=1) FOR DAY 112 *	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 113 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0
'ALM HOURS (=1) FOR DAY 117 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 126 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 128 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 129 *	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
'ALM HOURS (=1) FOR DAY 130 *	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 136 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
'ALM HOURS (=1) FOR DAY 137 *	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 138 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 140 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 142 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 143 *	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 144 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 145 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 147 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
'ALM HOURS (=1) FOR DAY 149 *	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 151 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
'ALM HOURS (=1) FOR DAY 156 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
'ALM HOURS (=1) FOR DAY 157 *	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 159 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 160 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 176 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 177 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 178 *	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 179 *	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 182 *	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 184 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
'ALM HOURS (=1) FOR DAY 185 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 189 *	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 190 *	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 191 *	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 197 *	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
'ALM HOURS (=1) FOR DAY 198 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 199 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 200 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
'ALM HOURS (=1) FOR DAY 202 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
'ALM HOURS (=1) FOR DAY 203 *	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0
'ALM HOURS (=1) FOR DAY 204 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 205 *	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
'ALM HOURS (=1) FOR DAY 206 *	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
'ALM HOURS (=1) FOR DAY 207 *	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 208 *	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 210 *	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
'ALM HOURS (=1) FOR DAY 211 *	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 212 *	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 213 *	0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 214 *	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 224 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0
'ALM HOURS (=1) FOR DAY 230 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
'ALM HOURS (=1) FOR DAY 231 *	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 237 *	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 242 *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
'ALM HOURS (=1) FOR DAY 244 *	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 245 *	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'ALM HOURS (=1) FOR DAY 249 *	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
'ALM HOURS (=1) FOR DAY 250 *	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
'ALM HOURS (=1) FOR DAY 251 *	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

```
CALM HOURS (=1) FOR DAY 252 *  1 0 0 1 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0
CALM HOURS (=1) FOR DAY 253 *  0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 254 *  0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 262 *  0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 268 *  0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 269 *  0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
CALM HOURS (=1) FOR DAY 270 *  0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 274 *  0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 276 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
CALM HOURS (=1) FOR DAY 277 *  1 1 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 287 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 322 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1
CALM HOURS (=1) FOR DAY 323 *  1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 325 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 330 *  1 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 344 *  0 1 1 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 351 *  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
CALM HOURS (=1) FOR DAY 352 *  1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 355 *  0 0 0 0 1 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 356 *  0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 357 *  0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CALM HOURS (=1) FOR DAY 359 *  0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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'N'-DAY
365 DAYS
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	- X -	- Y -	CON.	- X -	- Y -	CON.
700280.0	4184198.0	8.96174	700286.0	4184261.0	8.56188	700291.0	4184323.0	7.95782
700295.0	4184131.0	10.48964	700309.0	4184752.0	5.32117	700311.0	4184063.0	12.68740
700311.0	4184631.0	6.69731	700312.0	4184842.0	5.60774	700315.0	4184931.0	5.75525
700322.0	4184691.0	5.90262	700326.0	4183995.0	14.28901	700343.0	4184632.0	7.01579
700344.0	4184478.0	8.41815	700344.0	4184555.0	8.24666	700345.0	4184323.0	8.89052
700345.0	4184400.0	8.21697	700346.0	4184980.0	5.51136	700351.0	4184686.0	6.17906
700377.0	4185028.0	5.93967	700399.0	4183937.0	14.96880	700472.0	4183880.0	15.30549
700544.0	4183822.0	16.00848	700617.0	4183764.0	11.26176	700638.0	4183690.0	10.94266
700659.0	4183616.0	11.03680	700680.0	4183541.0	10.10793	700701.0	4183467.0	9.41554
700739.0	4185246.0	12.28266	700785.0	4183478.0	9.00351	700824.0	4185247.0	13.53609
700868.0	4183489.0	8.40552	700874.0	4185294.0	10.17630	700924.0	4185341.0	6.64326
700952.0	4183500.0	7.81050	700974.0	4185387.0	7.47579	700974.0	4185487.0	7.63276
700974.0	4185587.0	6.80041	701035.0	4183511.0	7.54935	701059.0	4185374.0	11.68856
701119.0	4183522.0	6.36677	701144.0	4185361.0	16.54816	701144.0	4185461.0	14.24009
701144.0	4185561.0	12.50304	701177.0	4183489.0	5.96646	701182.0	4184277.0	2.28926
701182.0	4185611.0	12.07291	701224.0	4184236.0	2.44410	701228.0	4185348.0	20.18839
701236.0	4183455.0	5.96357	701254.0	4184272.0	2.28251	701294.0	4183421.0	5.13951
701304.0	4184216.0	2.19004	701313.0	4183497.0	5.34601	701313.0	4185335.0	12.01434
701313.0	4185435.0	13.50471	701313.0	4185535.0	9.82047	701325.0	4184267.0	2.07777
701332.0	4183572.0	5.57335	701350.0	4183648.0	5.39400	701364.0	4183939.0	2.84506
701369.0	4183723.0	5.05058	701369.0	4185245.0	2.47771	701384.0	4184196.0	2.16630
701386.0	4185175.0	2.17719	701397.0	4184262.0	2.04442	701398.0	4185322.0	2.57643
701403.0	4185104.0	2.51553	701414.0	4183749.0	4.68688	701419.0	4183489.0	4.67236
701422.0	4183910.0	2.95874	701446.0	4183962.0	2.78549	701446.0	4184120.0	2.28407
701448.0	4185372.0	2.46227	701448.0	4185472.0	7.58741	701459.0	4183775.0	3.24862
701469.0	4183623.0	4.19412	701469.0	4183828.0	2.91840	701474.0	4184205.0	2.09211
701477.0	4184003.0	2.67618	701479.0	4183881.0	2.80004	701499.0	4185107.0	2.12665
701501.0	4185263.0	2.42022	701507.0	4184043.0	2.45202	701509.0	4183725.0	3.14850
701548.0	4185372.0	2.78598	701549.0	4183568.0	3.46291	701551.0	4184147.0	2.29583
701569.0	4183828.0	2.85577	701594.0	4185109.0	1.91567	701598.0	4185207.0	2.94842
701609.0	4183725.0	3.14504	701628.0	4184090.0	2.51909	701646.0	4183931.0	2.76060
701646.0	4184031.0	2.69213	701669.0	4183828.0	3.02200	701690.0	4185112.0	2.21766

701693.0	4185310.0	6.06880	701733.0	4184071.0	2.90137	701786.0	4185114.0	2.33519
701787.0	4185213.0	6.31668	701821.0	4183910.0	3.50106	701821.0	4184010.0	3.20218
701821.0	4184110.0	3.07840	701881.0	4185117.0	3.07075	701882.0	4185316.0	8.10085
701908.0	4184150.0	3.67301	701977.0	4183943.0	4.24133	701977.0	4184043.0	3.98542
701977.0	4184143.0	4.01326	701977.0	4185119.0	4.02705	701977.0	4185219.0	8.65086
702027.0	4185269.0	11.32271	702046.0	4184135.0	4.29145	702053.0	4185068.0	4.44100

'N'-DAY
365 DAYS
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	- X -	- Y -	CON.	- X -	- Y -	CON.
702077.0	4185119.0	4.90383	702087.0	4183846.0	5.35341	702087.0	4183946.0	4.57298
702094.0	4184098.0	4.57117	702129.0	4185017.0	4.77045	702142.0	4184060.0	4.67079
702149.0	4185150.0	13.08963	702165.0	4184003.0	4.85874	702182.0	4183611.0	8.30769
702183.0	4184946.0	15.74591	702187.0	4183746.0	8.09485	702187.0	4183846.0	11.97908
702187.0	4183946.0	10.76380	702207.0	4184997.0	5.25036	702237.0	4184874.0	8.95612
702246.0	4184811.0	7.43389	702254.0	4184747.0	6.74237	702275.0	4183973.0	3.34589
702293.0	4185012.0	5.83983	702307.0	4184687.0	4.51823	702337.0	4184874.0	5.71686
702354.0	4184747.0	7.19444	702360.0	4184628.0	9.60771	702363.0	4183801.0	3.74166
702363.0	4183901.0	6.17932	702363.0	4184001.0	5.70136	702400.0	4184231.0	4.86221
702413.0	4184568.0	6.90207	702422.0	4184308.0	6.66634	702428.0	4184476.0	7.38306
702437.0	4184874.0	12.35706	702443.0	4184384.0	7.37563	702446.0	4184172.0	9.21425
702451.0	4184028.0	8.04817	702454.0	4184747.0	9.21997	702460.0	4184628.0	10.19337
702493.0	4184114.0	9.29060	702522.0	4184308.0	8.46404	702528.0	4184476.0	6.79459
702539.0	4183855.0	6.44819	702539.0	4183955.0	9.41512	702539.0	4184055.0	8.33480
702546.0	4184172.0	7.73171	702560.0	4184628.0	8.78260	702622.0	4184308.0	8.33838
702628.0	4184476.0	9.69724	702639.0	4183955.0	9.36735	702639.0	4184055.0	7.11389
702646.0	4184172.0	9.25871	702739.0	4184055.0	8.86336	700710.0	4185246.0	9.58835
700713.0	4185264.0	9.54556	700676.0	4185267.0	9.49415	700679.0	4185301.0	9.44374
700637.0	4185306.0	9.40586	700589.0	4185308.0	9.70216	700594.0	4185374.0	9.14269
700533.0	4185378.0	9.03468	700472.0	4185382.0	8.97909	700408.0	4185386.0	9.26659
700402.0	4185324.0	9.24798	700454.0	4185319.0	9.44904	700448.0	4185241.0	8.56584
700442.0	4185170.0	7.16131	700435.0	4185097.0	7.05523	700455.0	4185094.0	7.02718
700449.0	4185027.0	6.76916	700182.0	4184611.0	5.95933	700182.0	4184861.0	6.13281
700182.0	4185111.0	6.31894	700182.0	4185361.0	6.71176	700182.0	4185611.0	9.12896
700432.0	4185611.0	7.87053	700682.0	4185611.0	7.11964	700932.0	4185611.0	10.00319
699682.0	4184111.0	7.55069	699682.0	4184611.0	8.29137	699682.0	4185111.0	7.75930
699682.0	4185611.0	7.08937	699682.0	4186111.0	9.96501	700182.0	4184111.0	11.67818
700182.0	4186111.0	10.50810	700682.0	4186111.0	9.86621	701182.0	4186111.0	12.14118
701682.0	4185611.0	7.06564	701682.0	4186111.0	10.75266	699182.0	4183611.0	13.05962
699182.0	4184361.0	7.02811	699182.0	4185111.0	6.71485	699182.0	4185861.0	6.68201
699182.0	4186611.0	11.24552	699932.0	4183611.0	17.69977	699932.0	4186611.0	11.58058
700682.0	4186611.0	14.32265	701432.0	4186611.0	12.10582	702182.0	4185861.0	18.20075
702182.0	4186611.0	15.84411	698182.0	4182611.0	11.56255	698182.0	4183611.0	8.39966
698182.0	4184611.0	9.42742	698182.0	4185611.0	9.04605	698182.0	4186611.0	9.71633
698182.0	4187611.0	10.05542	699182.0	4182611.0	14.72496	699182.0	4187611.0	10.29808
700182.0	4182611.0	11.37805	700182.0	4187611.0	11.05401	701182.0	4182611.0	7.91737
701182.0	4187611.0	16.55503	702182.0	4182611.0	7.37962	702182.0	4187611.0	11.00307
703182.0	4182611.0	11.71558	703182.0	4183611.0	17.97731	703182.0	4184611.0	17.17756

'N'-DAY
365 DAYS
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	- X -	- Y -	CON.	- X -	- Y -	CON.
703182.0	4185611.0	22.67064	703182.0	4186611.0	22.61566	703182.0	4187611.0	18.03717
695682.0	4180111.0	9.99770	695682.0	4182611.0	10.36517	695682.0	4185111.0	8.40441
695682.0	4187611.0	8.20349	695682.0	4190111.0	11.52311	698182.0	4180111.0	8.52380
698182.0	4190111.0	8.56859	700682.0	4180111.0	8.89280	700682.0	4190111.0	13.68867
703182.0	4180111.0	8.77878	703182.0	4190111.0	13.41647	705682.0	4180111.0	11.29337
705682.0	4182611.0	13.71963	705682.0	4185111.0	12.83020	705682.0	4187611.0	20.15245
705682.0	4190111.0	15.15835	693182.0	4177611.0	8.48112	693182.0	4182611.0	7.98992
693182.0	4187611.0	6.38659	693182.0	4192611.0	7.15737	698182.0	4177611.0	7.06600
698182.0	4192611.0	7.92911	703182.0	4177611.0	7.91958	703182.0	4192611.0	10.66583
708182.0	4177611.0	9.88087	708182.0	4182611.0	11.43516	708182.0	4187611.0	14.99565
708182.0	4192611.0	11.97092	690682.0	4175111.0	9.65080	690682.0	4180111.0	7.29631
690682.0	4185111.0	6.15492	690682.0	4190111.0	5.88988	690682.0	4195111.0	6.64216
695682.0	4175111.0	8.11202	695682.0	4195111.0	7.18356	700682.0	4175111.0	6.43897
700682.0	4195111.0	11.44588	705682.0	4175111.0	8.51422	705682.0	4195111.0	12.00695
710682.0	4175111.0	7.85703	710682.0	4180111.0	11.40706	710682.0	4185111.0	9.51656
710682.0	4190111.0	15.32045	710682.0	4195111.0	11.09329	680682.0	4165111.0	11.37858
680682.0	4175111.0	5.65420	680682.0	4185111.0	5.27388	680682.0	4195111.0	4.89852
680682.0	4205111.0	7.76013	690682.0	4165111.0	11.30315	690682.0	4205111.0	6.97871
700682.0	4165111.0	6.25212	700682.0	4205111.0	12.81542	710682.0	4165111.0	5.19913
710682.0	4205111.0	12.27578	720682.0	4165111.0	5.83992	720682.0	4175111.0	8.38292
720682.0	4185111.0	10.00570	720682.0	4195111.0	12.10877	720682.0	4205111.0	11.12743
670682.0	4155111.0	7.44269	670682.0	4170111.0	5.25319	670682.0	4185111.0	3.35802
670682.0	4200111.0	5.51380	670682.0	4215111.0	4.05151	685682.0	4155111.0	8.63704
685682.0	4215111.0	8.89568	700682.0	4155111.0	5.95242	700682.0	4215111.0	10.20219
715682.0	4155111.0	4.77019	715682.0	4215111.0	14.41724	730682.0	4155111.0	4.91654
730682.0	4170111.0	6.60588	730682.0	4185111.0	8.47843	730682.0	4200111.0	10.47816
730682.0	4215111.0	9.77995	660682.0	4145111.0	4.99262	660682.0	4165111.0	5.94723
660682.0	4185111.0	3.54768	660682.0	4205111.0	2.71808	660682.0	4225111.0	3.96387
680682.0	4145111.0	6.45422	680682.0	4225111.0	6.08045	700682.0	4145111.0	4.85382
700682.0	4225111.0	9.36765	720682.0	4145111.0	4.19331	720682.0	4225111.0	11.14103
740682.0	4145111.0	3.87546	738182.0	4172611.0	6.15238	738182.0	4167611.0	5.32979
738182.0	4162611.0	6.07134	738182.0	4157611.0	6.19652	743182.0	4172611.0	4.84690
743182.0	4167611.0	6.42578	743182.0	4162611.0	6.23207	743182.0	4157611.0	6.17647
740682.0	4185111.0	7.18448	740682.0	4205111.0	20.67139	740682.0	4225111.0	9.14808
650682.0	4135111.0	3.56889	650682.0	4160111.0	4.28310	650682.0	4185111.0	2.97645
650682.0	4210111.0	2.05739	650682.0	4235111.0	2.30237	675682.0	4135111.0	3.79254
675682.0	4235111.0	4.10697	700682.0	4135111.0	3.20446	700682.0	4235111.0	7.50512
725682.0	4135111.0	3.36865	725682.0	4235111.0	7.60165	750682.0	4135111.0	3.06251

'N'-DAY
365 DAYS
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* 365-DAY AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	- X -	- Y -	CON.	- X -	- Y -	CON.
750682.0	4160111.0	5.35626	750682.0	4185111.0	5.98358	750682.0	4210111.0	9.80083
750682.0	4235111.0	5.04870						

HIGH
3-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
700280.0	4184198.0	1236.51000	(157, 5)	700286.0	4184261.0	1262.08500	(157, 5)
700291.0	4184323.0	1217.01900	(157, 5)	700295.0	4184131.0	1216.02100	(136, 4)
700309.0	4184752.0	1168.13300	(133, 4)	700311.0	4184063.0	1432.22000	(136, 4)
700311.0	4184631.0	1184.47900	(133, 4)	700312.0	4184842.0	991.51580	(133, 4)
700315.0	4184931.0	730.33480	(133, 4)	700322.0	4184691.0	1214.33200	(133, 4)
700326.0	4183995.0	1567.46800	(136, 4)	700343.0	4184632.0	1179.10000	(133, 4)
700344.0	4184478.0	847.90220	(157, 5)	700344.0	4184555.0	1044.14400	(133, 4)
700345.0	4184323.0	1253.06900	(157, 5)	700345.0	4184400.0	1095.13300	(157, 5)
700346.0	4184980.0	566.10080	(140, 5)	700351.0	4184686.0	1205.98500	(133, 4)
700377.0	4185028.0	586.12450	(140, 5)	700399.0	4183937.0	1574.38200	(136, 4)
700472.0	4183880.0	1405.15000	(136, 4)	700544.0	4183822.0	1094.19900	(136, 4)
700617.0	4183764.0	865.80100	(156, 4)	700638.0	4183690.0	1049.51600	(156, 4)
700659.0	4183616.0	1193.66300	(156, 4)	700680.0	4183541.0	1280.26100	(156, 4)
700701.0	4183467.0	1304.04400	(156, 4)	700739.0	4185246.0	682.05650	(133, 5)
700785.0	4183478.0	1255.38100	(156, 4)	700824.0	4185247.0	662.30770	(133, 5)
700868.0	4183489.0	1279.51300	(201, 4)	700874.0	4185294.0	676.15820	(133, 5)
700924.0	4185341.0	664.50960	(133, 5)	700952.0	4183500.0	1287.82800	(201, 4)
700974.0	4185387.0	696.99440	(133, 5)	700974.0	4185487.0	744.98750	(133, 5)
700974.0	4185587.0	710.75400	(133, 5)	701035.0	4183511.0	1187.26500	(201, 4)
701059.0	4185374.0	643.72640	(133, 5)	701119.0	4183522.0	988.47380	(201, 4)
701144.0	4185361.0	547.68760	(133, 5)	701144.0	4185461.0	608.31670	(157, 4)
701144.0	4185561.0	623.31760	(157, 4)	701177.0	4183489.0	814.13760	(201, 4)
701182.0	4184277.0	91.00574	(269, 3)	701182.0	4185611.0	628.25710	(134, 5)
701224.0	4184236.0	338.10520	(360, 2)	701228.0	4185348.0	677.81170	(142, 2)
701236.0	4183455.0	628.26320	(201, 4)	701254.0	4184272.0	283.51840	(360, 2)
701294.0	4183421.0	537.21590	(204, 5)	701304.0	4184216.0	91.67108	(269, 3)
701313.0	4183497.0	556.93430	(204, 5)	701313.0	4185335.0	415.08190	(206, 4)
701313.0	4185435.0	574.86350	(206, 4)	701313.0	4185535.0	612.92180	(206, 4)
701325.0	4184267.0	91.55831	(269, 3)	701332.0	4183572.0	552.70890	(204, 5)
701350.0	4183648.0	502.18340	(204, 5)	701364.0	4183939.0	105.34950	(116, 2)
701369.0	4183723.0	412.87960	(232, 5)	701369.0	4185245.0	1232.99900	(358, 6)
701384.0	4184196.0	91.92059	(269, 3)	701386.0	4185175.0	1134.60900	(358, 6)
701397.0	4184262.0	91.80386	(269, 3)	701398.0	4185322.0	527.55570	(358, 6)
701403.0	4185104.0	1244.18100	(303, 3)	701414.0	4183749.0	423.84070	(232, 5)
701419.0	4183489.0	596.64950	(204, 5)	701422.0	4183910.0	131.57180	(232, 5)
701446.0	4183962.0	91.28433	(269, 3)	701446.0	4184120.0	92.01445	(269, 3)
701448.0	4185372.0	277.88810	(123, 4)	701448.0	4185472.0	604.02770	(129, 4)
701459.0	4183775.0	382.65880	(232, 5)	701469.0	4183623.0	584.12020	(232, 5)

HIGH
3-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
701469.0	4183828.0	292.89040	(232, 5)	701474.0	4184205.0	92.12086	(269, 3)
701477.0	4184003.0	91.56033	(269, 3)	701479.0	4183881.0	206.47940	(232, 5)
701499.0	4185107.0	938.06740	(229, 3)	701501.0	4185263.0	1075.63000	(229, 3)
701507.0	4184043.0	91.79776	(269, 3)	701509.0	4183725.0	469.43290	(232, 5)
701548.0	4185372.0	422.39490	(150, 5)	701549.0	4183568.0	585.68030	(232, 5)
701551.0	4184147.0	224.54520	(114, 8)	701569.0	4183828.0	300.87570	(232, 5)
701594.0	4185109.0	335.16700	(358, 5)	701598.0	4185207.0	185.34780	(150, 5)
701609.0	4183725.0	429.03410	(232, 5)	701628.0	4184090.0	116.11250	(62, 8)
701646.0	4183931.0	178.87600	(179, 4)	701646.0	4184031.0	139.50140	(62, 8)
701669.0	4183828.0	370.17700	(179, 4)	701690.0	4185112.0	847.38170	(60, 2)
701693.0	4185310.0	632.99780	(150, 5)	701733.0	4184071.0	101.81820	(155, 5)
701786.0	4185114.0	808.36470	(297, 4)	701787.0	4185213.0	553.14450	(166, 5)
701821.0	4183910.0	494.62180	(179, 4)	701821.0	4184010.0	303.48290	(155, 5)
701821.0	4184110.0	169.42860	(155, 5)	701881.0	4185117.0	989.74480	(297, 4)

701882.0	4185316.0	942.54240	(166, 5)
701977.0	4183943.0	604.88420	(155, 5)
701977,0	4184143.0	357.69430	(201, 5)
701977.0	4185219.0	711.32130	(194, 4)
702046.0	4184135.0	429.43830	(201, 5)
702077.0	4185119.0	662.92640	(194, 4)
702087.0	4183946.0	621.32260	(201, 5)
702129.0	4185017.0	510.41690	(365, 7)
702149.0	4185150.0	932.42910	(194, 4)
702182.0	4183611.0	953.08070	(155, 5)
702187.0	4183746.0	870.01420	(155, 5)
702187.0	4183946.0	683.20090	(201, 5)
702237.0	4184874.0	1103.63800	(205, 4)
702254.0	4184747.0	999.35910	(190, 5)
702293.0	4185012.0	849.45570	(205, 4)
702337.0	4184874.0	968.61910	(205, 4)
702360.0	4184628.0	1368.76200	(190, 5)
702363.0	4183901.0	517.92140	(201, 5)
702400.0	4184231.0	689.75260	(207, 4)
702422.0	4184308.0	665.03970	(149, 4)
702437.0	4184874.0	1175.51500	(205, 4)
702446.0	4184172.0	730.04200	(207, 4)
702454.0	4184747.0	1333.78000	(190, 5)
702493.0	4184114.0	714.87650	(207, 4)

701908.0	4184150.0	251.90370	(201, 5)
701977.0	4184043.0	484.73170	(201, 5)
701977.0	4185119.0	562.63100	(297, 4)
702027.0	4185269.0	825.48140	(194, 4)
702053.0	4185068.0	529.48990	(194, 4)
702087.0	4183846.0	770.27000	(179, 4)
702094.0	4184098.0	504.43740	(201, 5)
702142.0	4184060.0	551.46970	(201, 5)
702165.0	4184003.0	599.25790	(201, 5)
702183.0	4184946.0	1067.70000	(205, 4)
702187.0	4183846.0	844.61330	(155, 5)
702207.0	4184997.0	703.41130	(205, 4)
702246.0	4184811.0	1048.04900	(205, 4)
702275.0	4183973.0	487.37160	(201, 5)
702307.0	4184687.0	1017.69300	(190, 5)
702354.0	4184747.0	1199.11300	(190, 5)
702363.0	4183801.0	550.07620	(116, 4)
702363.0	4184001.0	590.00850	(207, 4)
702413.0	4184568.0	1280.62600	(190, 5)
702428.0	4184476.0	1087.84100	(190, 5)
702443.0	4184384.0	808.71400	(190, 5)
702451.0	4184028.0	661.12120	(207, 4)
702460.0	4184628.0	1416.78100	(190, 5)
702522.0	4184308.0	672.09120	(149, 4)

HIGH

3-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
702528.0	4184476.0	1114.46100	(190, 5)	702539.0	4183855.0	489.48350	(207, 4)
702539.0	4183955.0	603.11010	(207, 4)	702539.0	4184055.0	682.12230	(207, 4)
702546.0	4184172.0	692.24670	(207, 4)	702560.0	4184628.0	1389.47300	(190, 5)
702622.0	4184308.0	672.96410	(197, 4)	702628.0	4184476.0	1116.33300	(190, 5)
702639.0	4183955.0	607.94120	(207, 4)	702639.0	4184055.0	660.28780	(207, 4)
702646.0	4184172.0	645.71590	(207, 4)	702739.0	4184055.0	630.21880	(207, 4)
700710.0	4185246.0	654.47120	(133, 5)	700713.0	4185264.0	677.94260	(133, 5)
700676.0	4185267.0	670.55960	(133, 5)	700679.0	4185301.0	706.00380	(133, 5)
700637.0	4185306.0	686.31760	(133, 5)	700589.0	4185308.0	649.56080	(133, 5)
700594.0	4185374.0	688.85600	(133, 5)	700533.0	4185378.0	630.23210	(133, 5)
700472.0	4185382.0	645.19400	(121, 4)	700408.0	4185386.0	695.44480	(121, 4)
700402.0	4185324.0	731.54460	(198, 4)	700454.0	4185319.0	690.34150	(198, 4)
700448.0	4185241.0	712.79880	(198, 4)	700442.0	4185170.0	689.16700	(198, 4)
700435.0	4185097.0	618.12740	(198, 4)	700455.0	4185094.0	607.15100	(198, 4)
700449.0	4185027.0	561.68400	(140, 5)	700182.0	4184611.0	1127.63100	(133, 4)
700182.0	4184861.0	1010.78900	(133, 4)	700182.0	4185111.0	618.53820	(140, 5)
700182.0	4185361.0	752.39400	(198, 4)	700182.0	4185611.0	632.19630	(121, 4)
700432.0	4185611.0	524.63190	(133, 5)	700682.0	4185611.0	683.29860	(133, 5)
700932.0	4185611.0	740.03550	(133, 5)	699682.0	4184111.0	689.35760	(157, 5)
699682.0	4184611.0	868.36490	(133, 4)	699682.0	4185111.0	615.00070	(133, 4)
699682.0	4185611.0	578.59130	(198, 4)	699682.0	4186111.0	604.55650	(232, 4)
700182.0	4184111.0	1147.34900	(136, 4)	700182.0	4186111.0	791.11760	(112, 4)
700682.0	4186111.0	429.93800	(133, 5)	701182.0	4186111.0	669.38240	(129, 4)
701682.0	4185611.0	884.58420	(150, 5)	701682.0	4186111.0	615.51580	(129, 4)
699182.0	4183611.0	799.27840	(136, 4)	699182.0	4184361.0	529.00480	(236, 4)
699182.0	4185111.0	715.49970	(82, 5)	699182.0	4185861.0	528.82610	(246, 5)
699182.0	4186611.0	643.26090	(232, 4)	699932.0	4183611.0	1378.05900	(136, 4)
699932.0	4186611.0	748.05520	(112, 4)	700682.0	4186611.0	445.75630	(270, 8)
701432.0	4186611.0	573.65490	(129, 4)	702182.0	4185861.0	781.34330	(141, 4)
702182.0	4186611.0	674.01860	(220, 4)	698182.0	4182611.0	809.08030	(136, 4)
698182.0	4183611.0	525.05250	(157, 5)	698182.0	4184611.0	481.96230	(133, 4)
698182.0	4185611.0	880.78070	(82, 5)	698182.0	4186611.0	558.92270	(230, 4)
698182.0	4187611.0	491.55820	(232, 4)	699182.0	4182611.0	772.53390	(136, 5)
699182.0	4187611.0	613.36940	(112, 4)	700182.0	4182611.0	880.81090	(156, 4)
700182.0	4187611.0	398.40940	(288, 5)	701182.0	4182611.0	412.47960	(79, 5)
701182.0	4187611.0	673.68230	(112, 5)	702182.0	4182611.0	548.14550	(63, 5)
702182.0	4187611.0	544.20020	(65, 4)	703182.0	4182611.0	821.97450	(155, 5)
703182.0	4183611.0	712.78880	(98, 5)	703182.0	4184611.0	1030.45600	(190, 5)

HIGH
3-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
703182.0	4185611.0	957.25040	(194, 4)	703182.0	4186611.0	690.40060	(146, 4)
703182.0	4187611.0	618.75480	(186, 5)	695682.0	4180111.0	471.15960	(56, 5)
695682.0	4182611.0	410.14910	(76, 5)	695682.0	4185111.0	469.58260	(82, 6)
695682.0	4187611.0	555.63180	(230, 4)	695682.0	4190111.0	394.61970	(247, 7)
698182.0	4180111.0	428.26410	(135, 6)	698182.0	4190111.0	361.13820	(319, 5)

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
700682.0	4180111.0	400.28050	(223, 4)	700682.0	4190111.0	454.54950	(100, 4)
703182.0	4180111.0	435.04960	(63, 5)	703182.0	4190111.0	506.87960	(65, 4)
705682.0	4180111.0	501.67030	(62, 5)	705682.0	4182611.0	505.50300	(192, 5)
705682.0	4185111.0	572.63090	(159, 5)	705682.0	4187611.0	746.59360	(122, 4)
705682.0	4190111.0	550.31150	(42, 5)	693182.0	4177611.0	359.00530	(56, 5)
693182.0	4182611.0	354.07790	(168, 6)	693182.0	4187611.0	286.85970	(82, 5)
693182.0	4192611.0	225.85780	(364, 5)	698182.0	4177611.0	401.09900	(115, 4)
698182.0	4192611.0	239.72230	(140, 6)	703182.0	4177611.0	483.94230	(111, 4)
703182.0	4192611.0	463.05800	(134, 6)	708182.0	4177611.0	332.56110	(213, 4)
708182.0	4182611.0	429.25860	(178, 5)	708182.0	4187611.0	478.99580	(190, 4)
708182.0	4192611.0	350.26650	(42, 5)	690682.0	4175111.0	273.69330	(56, 5)
690682.0	4180111.0	316.48720	(67, 4)	690682.0	4185111.0	288.17900	(55, 6)
690682.0	4190111.0	258.92020	(230, 4)	690682.0	4195111.0	190.75940	(364, 5)
695682.0	4175111.0	280.86310	(286, 4)	695682.0	4195111.0	229.97160	(155, 1)
700682.0	4175111.0	216.56410	(79, 5)	700682.0	4195111.0	316.34430	(112, 5)
705682.0	4175111.0	361.90290	(128, 6)	705682.0	4195111.0	264.67700	(164, 2)
710682.0	4175111.0	270.04240	(213, 4)	710682.0	4180111.0	338.98840	(196, 6)
710682.0	4185111.0	292.68660	(159, 4)	710682.0	4190111.0	425.60600	(258, 5)
710682.0	4195111.0	267.25800	(162, 5)	680682.0	4165111.0	597.30070	(133, 2)
680682.0	4175111.0	184.63620	(67, 4)	680682.0	4185111.0	220.11690	(77, 4)
680682.0	4195111.0	177.81670	(59, 4)	680682.0	4205111.0	269.64760	(56, 8)
690682.0	4165111.0	524.42020	(203, 2)	690682.0	4205111.0	293.67770	(329, 8)
700682.0	4165111.0	308.46250	(116, 2)	700682.0	4205111.0	249.01340	(32, 2)
710682.0	4165111.0	230.64190C	(224, 7)	710682.0	4205111.0	221.24900	(296, 1)
720682.0	4165111.0	238.44440	(53, 8)	720682.0	4175111.0	208.70970	(196, 6)
720682.0	4185111.0	339.09250	(103, 1)	720682.0	4195111.0	329.77560	(242, 2)
720682.0	4205111.0	288.78270	(72, 1)	670682.0	4155111.0	382.78090	(133, 2)
670682.0	4170111.0	165.37280	(249, 7)	670682.0	4185111.0	146.64270	(77, 4)
670682.0	4200111.0	202.04690	(111, 1)	670682.0	4215111.0	191.24770	(220, 2)
685682.0	4155111.0	523.83830	(66, 7)	685682.0	4215111.0	328.17690	(86, 2)
700682.0	4155111.0	901.91020	(116, 2)	700682.0	4215111.0	207.79510	(32, 2)
715682.0	4155111.0	332.66850	(196, 3)	715682.0	4215111.0	310.04980	(227, 1)
730682.0	4155111.0	324.41330	(53, 8)	730682.0	4170111.0	233.77080	(261, 7)

HIGH
3-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
730682.0	4185111.0	294.75180	(70, 2)	730682.0	4200111.0	304.23150	(288, 8)
730682.0	4215111.0	301.28430	(225, 1)	660682.0	4145111.0	228.52780	(56, 8)
660682.0	4165111.0	386.89430	(110, 2)	660682.0	4185111.0	136.73150	(77, 4)
660682.0	4205111.0	108.06520	(59, 4)	660682.0	4225111.0	172.34160	(326, 1)
680682.0	4145111.0	363.05860	(66, 7)	680682.0	4225111.0	235.92570	(166, 2)
700682.0	4145111.0	769.09690	(116, 2)	700682.0	4225111.0	171.42870	(122, 8)
720682.0	4145111.0	330.73060	(196, 3)	720682.0	4225111.0	234.19720	(42, 1)
740682.0	4145111.0	268.88180	(53, 8)	738182.0	4172611.0	328.76790	(224, 2)
738182.0	4167611.0	207.11170	(274, 1)	738182.0	4162611.0	291.08390	(310, 1)
738182.0	4157611.0	319.51570	(339, 6)	743182.0	4172611.0	173.18130	(280, 7)
743182.0	4167611.0	489.91400	(273, 1)	743182.0	4162611.0	377.72530	(261, 7)
743182.0	4157611.0	466.99820	(54, 2)	740682.0	4185111.0	590.93790	(116, 2)
740682.0	4205111.0	619.78690	(162, 8)	740682.0	4225111.0	290.69780	(162, 8)
650682.0	4135111.0	146.12240	(56, 8)	650682.0	4160111.0	183.42300	(110, 2)
650682.0	4185111.0	109.73000	(77, 4)	650682.0	4210111.0	112.10200	(82, 2)
650682.0	4235111.0	82.21964C	(145, 2)	675682.0	4135111.0	200.14290	(165, 8)
675682.0	4235111.0	149.04940	(134, 2)	700682.0	4135111.0	465.77760	(116, 2)
700682.0	4235111.0	224.34510	(188, 8)	725682.0	4135111.0	289.54180	(196, 3)
725682.0	4235111.0	157.89640	(233, 1)	750682.0	4135111.0	217.07590	(53, 8)
750682.0	4160111.0	416.65590	(92, 7)	750682.0	4185111.0	361.98560	(155, 2)
750682.0	4210111.0	225.56320	(131, 2)	750682.0	4235111.0	150.04750	(122, 2)

2ND HIGH

3-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
700280.0	4184198.0	959.08580	(136, 4)	700286.0	4184261.0	723.76380	(136, 4)
700291.0	4184323.0	503.81060	(136, 4)	700295.0	4184131.0	1148.19400	(157, 5)
700309.0	4184752.0	619.81470	(196, 4)	700311.0	4184063.0	991.05220	(157, 5)
700311.0	4184631.0	611.10140	(236, 4)	700312.0	4184842.0	608.15970	(196, 4)
700315.0	4184931.0	525.56300	(196, 4)	700322.0	4184691.0	579.43790	(196, 4)
700326.0	4183995.0	798.29630	(136, 5)	700343.0	4184632.0	605.08680	(236, 4)
700344.0	4184478.0	812.30900	(133, 4)	700344.0	4184555.0	639.05250	(236, 4)
700345.0	4184323.0	543.29370	(269, 1)	700345.0	4184400.0	546.91410	(133, 4)
700346.0	4184980.0	549.85450	(133, 4)	700351.0	4184686.0	567.98530	(196, 4)
700377.0	4185028.0	510.68860	(198, 4)	700399.0	4183937.0	872.84120	(136, 5)
700472.0	4183880.0	916.48270	(136, 5)	700544.0	4183822.0	921.80660	(136, 5)
700617.0	4183764.0	857.69870	(136, 5)	700638.0	4183690.0	922.27330	(198, 5)
700659.0	4183616.0	965.97690	(198, 5)	700680.0	4183541.0	967.94890	(198, 5)
700701.0	4183467.0	1052.88600	(201, 4)	700739.0	4185246.0	597.28290	(226, 8)
700785.0	4183478.0	1191.94300	(201, 4)	700824.0	4185247.0	607.46950	(117, 1)
700868.0	4183489.0	1136.42000	(156, 4)	700874.0	4185294.0	494.41300	(166, 2)
700924.0	4185341.0	254.22730	(157, 4)	700952.0	4183500.0	963.82280	(202, 4)
700974.0	4185387.0	388.63910	(157, 4)	700974.0	4185487.0	493.24110	(157, 4)
700974.0	4185587.0	526.25960	(157, 4)	701035.0	4183511.0	884.57910	(202, 4)
701059.0	4185374.0	526.68080	(199, 8)	701119.0	4183522.0	733.66560	(202, 4)
701144.0	4185361.0	544.84800	(158, 2)	701144.0	4185461.0	606.43030	(133, 5)
701144.0	4185561.0	603.88780	(134, 5)	701177.0	4183489.0	620.55570	(202, 4)
701182.0	4184277.0	79.71744	(120, 3)	701182.0	4185611.0	600.30830	(206, 4)
701224.0	4184236.0	221.23690	(120, 3)	701228.0	4185348.0	565.25270	(254, 8)
701236.0	4183455.0	506.39400	(165, 4)	701254.0	4184272.0	117.53320	(125, 3)
701294.0	4183421.0	457.09470	(201, 4)	701304.0	4184216.0	84.98045	(360, 3)
701313.0	4183497.0	449.36140	(232, 5)	701313.0	4185335.0	400.38390	(112, 5)
701313.0	4185435.0	539.19810	(112, 5)	701313.0	4185535.0	599.30310	(129, 4)
701325.0	4184267.0	66.77909	(175, 2)	701332.0	4183572.0	475.32040	(232, 5)
701350.0	4183648.0	464.99190	(232, 5)	701364.0	4183939.0	102.59180	(360, 4)
701369.0	4183723.0	410.80830	(204, 5)	701369.0	4185245.0	421.86970	(358, 5)
701384.0	4184196.0	74.47197	(360, 3)	701386.0	4185175.0	317.06330	(358, 5)
701397.0	4184262.0	67.46030	(175, 2)	701398.0	4185322.0	356.54430	(358, 5)
701403.0	4185104.0	911.55830	(358, 6)	701414.0	4183749.0	403.58370	(155, 4)
701419.0	4183489.0	564.56470	(232, 5)	701422.0	4183910.0	124.15190	(72, 1)
701446.0	4183962.0	85.49919	(72, 1)	701446.0	4184120.0	70.12834	(175, 2)
701448.0	4185372.0	265.26670	(130, 4)	701448.0	4185472.0	553.91850	(130, 4)
701459.0	4183775.0	364.58940	(155, 4)	701469.0	4183623.0	562.33610	(155, 4)

2ND HIGH
3-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
701469.0	4183828.0	277.57000	(155, 4)	701474.0	4184205.0	69.08960	(175, 2)
701477.0	4184003.0	72.57456	(27, 1)	701479.0	4183881.0	194.27210	(155, 4)
701499.0	4185107.0	479.19670	(358, 5)	701501.0	4185263.0	354.79730	(358, 5)
701507.0	4184043.0	70.97931	(175, 2)	701509.0	4183725.0	450.42250	(155, 4)
701548.0	4185372.0	361.05400	(129, 4)	701549.0	4183568.0	568.56630	(155, 4)

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
701551.0	4184147.0	92.21921	(269, 3)	701569.0	4183828.0	286.75050	(155, 4)
701594.0	4185109.0	320.08660	(186, 3)	701598.0	4185207.0	178.91480	(358, 5)
701609.0	4183725.0	414.55690	(219, 4)	701628.0	4184090.0	92.09640	(269, 3)
701646.0	4183931.0	133.49780	(219, 4)	701646.0	4184031.0	100.55070	(243, 8)
701669.0	4183828.0	296.50770	(219, 4)	701690.0	4185112.0	530.66120	(85, 3)
701693.0	4185310.0	607.01620	(166, 5)	701733.0	4184071.0	100.67280	(71, 7)
701786.0	4185114.0	243.53310	(85, 3)	701787.0	4185213.0	433.35550	(150, 5)
701821.0	4183910.0	384.67830	(155, 5)	701821.0	4184010.0	279.23270	(179, 4)
701821.0	4184110.0	152.99600	(201, 5)	701881.0	4185117.0	277.03880	(194, 4)
701882.0	4185316.0	695.39390	(141, 4)	701908.0	4184150.0	190.13980	(155, 5)
701977.0	4183943.0	591.89040	(179, 4)	701977.0	4184043.0	437.89600	(155, 5)
701977.0	4184143.0	251.31570	(39, 5)	701977.0	4185119.0	501.82030	(194, 4)
701977.0	4185219.0	683.38620	(127, 5)	702027.0	4185269.0	784.47850	(127, 5)
702046.0	4184135.0	318.57380	(207, 4)	702053.0	4185068.0	494.20060	(365, 7)
702077.0	4185119.0	564.39670	(365, 7)	702087.0	4183846.0	744.57840	(155, 5)
702087.0	4183946.0	586.74110	(155, 5)	702094.0	4184098.0	379.10260	(143, 5)
702129.0	4185017.0	489.11600	(205, 4)	702142.0	4184060.0	424.45990	(143, 5)
702149.0	4185150.0	760.05800	(214, 5)	702165.0	4184003.0	474.82670	(230, 5)
702182.0	4183611.0	856.11270	(179, 4)	702183.0	4184946.0	709.46150	(200, 4)
702187.0	4183746.0	808.60810	(179, 4)	702187.0	4183846.0	743.09160	(179, 4)
702187.0	4183946.0	617.62500	(155, 5)	702207.0	4184997.0	466.50200	(199, 4)
702237.0	4184874.0	855.66910	(200, 4)	702246.0	4184811.0	902.42270	(200, 4)
702254.0	4184747.0	952.66770	(205, 4)	702275.0	4183973.0	454.03680	(143, 5)
702293.0	4185012.0	556.23050	(200, 4)	702307.0	4184687.0	769.23580	(200, 4)
702337.0	4184874.0	804.02750	(200, 4)	702354.0	4184747.0	1046.13200	(200, 4)
702360.0	4184628.0	1025.59000	(200, 4)	702363.0	4183801.0	492.48680	(201, 5)
702363.0	4183901.0	457.86710	(207, 4)	702363.0	4184001.0	537.99630	(143, 5)
702400.0	4184231.0	613.00240	(149, 4)	702413.0	4184568.0	852.28870	(200, 4)
702422.0	4184308.0	625.55010	(207, 4)	702428.0	4184476.0	711.08540	(197, 4)
702437.0	4184874.0	1074.86100	(200, 4)	702443.0	4184384.0	685.15420	(197, 4)
702446.0	4184172.0	620.14130	(149, 4)	702451.0	4184028.0	581.28330	(143, 5)
702454.0	4184747.0	1108.39000	(200, 4)	702460.0	4184628.0	1017.73800	(200, 4)
702493.0	4184114.0	591.38680	(143, 5)	702522.0	4184308.0	659.60110	(197, 4)

2ND HIGH
3-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
702528.0	4184476.0	738.66690	(197, 4)	702539.0	4183855.0	461.28970	(143, 5)
702539.0	4183955.0	555.73890	(143, 5)	702539.0	4184055.0	580.90920	(143, 5)
702546.0	4184172.0	616.75240	(149, 4)	702560.0	4184628.0	934.66870	(200, 4)
702622.0	4184308.0	654.34330	(190, 5)	702628.0	4184476.0	745.39840	(197, 4)
702639.0	4183955.0	560.26710	(143, 5)	702639.0	4184055.0	549.55130	(143, 5)
702646.0	4184172.0	624.75920	(149, 4)	702739.0	4184055.0	532.16740	(149, 4)
700710.0	4185246.0	447.93150	(226, 8)	700713.0	4185264.0	433.24900	(226, 8)
700676.0	4185267.0	429.05170	(149, 4)	700679.0	4185301.0	412.10810	(226, 8)
700637.0	4185306.0	471.91330	(121, 4)	700589.0	4185308.0	541.59100	(121, 4)
700594.0	4185374.0	499.07550	(121, 4)	700533.0	4185378.0	579.55460	(121, 4)
700472.0	4185382.0	627.63630	(198, 4)	700408.0	4185386.0	689.36910	(198, 4)
700402.0	4185324.0	715.41740	(121, 4)	700454.0	4185319.0	683.90700	(121, 4)
700448.0	4185241.0	677.17840	(121, 4)	700442.0	4185170.0	629.14470	(121, 4)
700435.0	4185097.0	591.94490	(149, 4)	700455.0	4185094.0	598.73650	(149, 4)
700449.0	4185027.0	523.93460	(149, 4)	700182.0	4184611.0	605.94600	(236, 4)
700182.0	4184861.0	594.86830	(196, 4)	700182.0	4185111.0	578.07280	(198, 4)
700182.0	4185361.0	707.75360	(121, 4)	700182.0	4185611.0	612.28190	(198, 4)
700432.0	4185611.0	482.00340	(121, 4)	700682.0	4185611.0	347.60800	(112, 4)
700932.0	4185611.0	500.49240	(157, 4)	699682.0	4184111.0	508.92580	(136, 4)
699682.0	4184611.0	535.18230	(236, 4)	699682.0	4185111.0	610.50270	(82, 5)
699682.0	4185611.0	527.23890	(121, 4)	699682.0	4186111.0	526.72190	(112, 4)
700182.0	4184111.0	1123.45200	(157, 5)	700182.0	4186111.0	377.64280	(166, 1)

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
700682.0	4186111.0	399.22530	(199, 8)	701182.0	4186111.0	599.02760	(112, 5)
701682.0	4185611.0	749.42210	(129, 4)	701682.0	4186111.0	602.01640	(150, 5)
699182.0	4183611.0	706.10580	(161, 5)	699182.0	4184361.0	433.18560	(133, 4)
699182.0	4185111.0	641.96970	(133, 4)	699182.0	4185861.0	501.51410	(230, 4)
699182.0	4186611.0	521.13040	(112, 4)	699932.0	4183611.0	882.99320	(136, 5)
699932.0	4186611.0	418.64980	(166, 2)	700682.0	4186611.0	433.52440	(129, 4)
701432.0	4186611.0	518.22910	(112, 5)	702182.0	4185861.0	755.94800	(166, 5)
702182.0	4186611.0	548.11160	(142, 4)	698182.0	4182611.0	610.65310	(125, 4)
698182.0	4183611.0	521.61340	(161, 5)	698182.0	4184611.0	478.19640	(236, 4)
698182.0	4185611.0	567.83830	(247, 4)	698182.0	4186611.0	511.91380	(246, 5)
698182.0	4187611.0	400.08830	(112, 4)	699182.0	4182611.0	771.60680	(136, 4)
699182.0	4187611.0	474.27890	(319, 4)	700182.0	4182611.0	750.52580	(201, 4)
700182.0	4187611.0	390.93600	(44, 4)	701182.0	4182611.0	410.81780	(201, 4)
701182.0	4187611.0	593.59660	(100, 4)	702182.0	4182611.0	384.84120	(219, 4)
702182.0	4187611.0	447.92630	(256, 4)	703182.0	4182611.0	622.93030	(231, 5)
703182.0	4183611.0	707.12650	(102, 5)	703182.0	4184611.0	871.43230	(159, 4)

2ND HIGH
3-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
703182.0	4185611.0	860.74680	(137, 4)	703182.0	4186611.0	686.63420	(131, 4)
703182.0	4187611.0	534.15890	(220, 4)	695682.0	4180111.0	453.94920	(136, 4)
695682.0	4182611.0	392.20800	(67, 4)	695682.0	4185111.0	416.51010	(36, 5)
695682.0	4187611.0	296.11080	(103, 5)	695682.0	4190111.0	338.11800	(72, 8)
698182.0	4180111.0	406.80760	(201, 4)	698182.0	4190111.0	325.67680	(341, 5)
700682.0	4180111.0	399.80360	(79, 5)	700682.0	4190111.0	427.01580	(112, 5)
703182.0	4180111.0	427.35260	(128, 6)	703182.0	4190111.0	498.34720	(134, 6)
705682.0	4180111.0	463.87850	(231, 6)	705682.0	4182611.0	450.86790	(102, 5)
705682.0	4185111.0	558.87420	(267, 4)	705682.0	4187611.0	659.76890	(194, 4)
705682.0	4190111.0	549.79810	(181, 4)	693182.0	4177611.0	282.08080	(136, 4)
693182.0	4182611.0	322.41840	(56, 4)	693182.0	4187611.0	241.27720	(230, 4)
693182.0	4192611.0	211.86730	(352, 4)	698182.0	4177611.0	338.25570	(202, 4)
698182.0	4192611.0	228.56100	(288, 5)	703182.0	4177611.0	405.32400	(26, 5)
703182.0	4192611.0	414.16630	(134, 3)	708182.0	4177611.0	315.19070	(62, 5)
708182.0	4182611.0	428.59900	(344, 5)	708182.0	4187611.0	383.86620	(181, 5)
708182.0	4192611.0	348.25160	(181, 4)	690682.0	4175111.0	239.51120	(209, 7)
690682.0	4180111.0	199.04560	(19, 2)	690682.0	4185111.0	276.18090	(218, 4)
690682.0	4190111.0	208.51850	(59, 4)	690682.0	4195111.0	173.18570	(247, 7)
695682.0	4175111.0	227.64460	(69, 2)	695682.0	4195111.0	227.37130	(226, 3)
700682.0	4175111.0	206.79690	(175, 5)	700682.0	4195111.0	252.35170	(100, 4)
705682.0	4175111.0	358.51940	(128, 2)	705682.0	4195111.0	244.54340	(270, 4)
710682.0	4175111.0	206.04080	(62, 5)	710682.0	4180111.0	286.58180	(102, 6)
710682.0	4185111.0	283.28710	(281, 5)	710682.0	4190111.0	310.19970	(1, 5)
710682.0	4195111.0	237.19930	(42, 5)	680682.0	4165111.0	444.99750	(56, 8)
680682.0	4175111.0	163.23090	(19, 2)	680682.0	4185111.0	145.56520	(218, 4)
680682.0	4195111.0	161.01170	(353, 7)	680682.0	4205111.0	254.92620	(133, 2)
690682.0	4165111.0	492.30430	(127, 7)	690682.0	4205111.0	261.26170	(71, 8)
700682.0	4165111.0	198.62140	(313, 6)	700682.0	4205111.0	211.85460	(162, 7)
710682.0	4165111.0	227.59570	(196, 3)	710682.0	4205111.0	205.00870	(322, 2)
720682.0	4165111.0	191.41460	(236, 7)	720682.0	4175111.0	198.51100	(273, 4)
720682.0	4185111.0	237.24660	(70, 1)	720682.0	4195111.0	328.70340	(82, 2)
720682.0	4205111.0	226.76810	(93, 1)	670682.0	4155111.0	328.41750	(56, 8)
670682.0	4170111.0	143.02570	(51, 1)	670682.0	4185111.0	101.11680	(55, 6)
670682.0	4200111.0	170.79360	(132, 8)	670682.0	4215111.0	146.95620	(88, 1)
685682.0	4155111.0	518.34680	(165, 8)	685682.0	4215111.0	316.45680	(59, 5)
700682.0	4155111.0	382.83590	(110, 7)	700682.0	4215111.0	197.56180	(162, 7)
715682.0	4155111.0	331.33440	(78, 7)	715682.0	4215111.0	282.63610	(250, 1)
730682.0	4155111.0	272.18990	(114, 2)	730682.0	4170111.0	184.05860	(206, 7)

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SECOND HIGHEST 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
730682.0	4185111.0	248.38990	(79, 8)	730682.0	4200111.0	300.40350C	(87, 2)
730682.0	4215111.0	285.81640C	(199, 1)	660682.0	4145111.0	221.19390	(133, 2)
660682.0	4165111.0	224.23460	(249, 7)	660682.0	4185111.0	107.53310	(86, 5)
660682.0	4205111.0	99.96621	(121, 2)	660682.0	4225111.0	170.20910	(72, 8)
680682.0	4145111.0	354.35410	(165, 8)	680682.0	4225111.0	202.30750	(281, 7)
700682.0	4145111.0	347.59690	(27, 1)	700682.0	4225111.0	166.72400	(205, 8)
720682.0	4145111.0	329.69610	(78, 7)	720682.0	4225111.0	216.10690	(166, 2)
740682.0	4145111.0	250.01900	(114, 2)	738182.0	4172611.0	215.32650	(274, 1)
738182.0	4167611.0	206.24050	(273, 1)	738182.0	4162611.0	261.49760	(329, 8)
738182.0	4157611.0	240.32600	(54, 1)	743182.0	4172611.0	149.16730	(11, 4)
743182.0	4167611.0	428.30330	(272, 8)	743182.0	4162611.0	371.60090C	(211, 1)
743182.0	4157611.0	331.16150	(310, 1)	740682.0	4185111.0	252.43260	(27, 1)
740682.0	4205111.0	608.15900	(206, 1)	740682.0	4225111.0	206.37950	(206, 1)
650682.0	4135111.0	108.84270	(133, 2)	650682.0	4160111.0	162.39760	(56, 1)
650682.0	4185111.0	93.11522	(86, 5)	650682.0	4210111.0	95.16906	(242, 2)
650682.0	4235111.0	80.50279	(201, 2)	675682.0	4135111.0	142.62790	(217, 8)
675682.0	4235111.0	136.52410	(141, 3)	700682.0	4135111.0	223.54170	(27, 1)
700682.0	4235111.0	177.07140	(159, 8)	725682.0	4135111.0	288.79140	(78, 7)
725682.0	4235111.0	155.58370	(121, 8)	750682.0	4135111.0	201.20190	(114, 2)
750682.0	4160111.0	398.07420	(26, 7)	750682.0	4185111.0	286.28290	(154, 8)
750682.0	4210111.0	225.38630	(262, 2)	750682.0	4235111.0	117.30570	(131, 8)

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* 50 MAXIMUM 3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM SOURCES: 1, -40,

RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y (METERS) OR DIRECTION (DEGREES)	RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y (METERS) OR DIRECTION (DEGREES)
1	1574.38200	4	136	700399.0	4183937.0	26	1193.66300	4	156	700659.0	4183616.0
2	1567.46800	4	136	700326.0	4183995.0	27	1191.94300	4	201	700785.0	4183478.0
3	1432.22000	4	136	700311.0	4184063.0	28	1187.26500	4	201	701035.0	4183511.0
4	1416.78100	5	190	702460.0	4184628.0	29	1184.47900	4	133	700311.0	4184631.0
5	1405.15000	4	136	700472.0	4183880.0	30	1179.10000	4	133	700343.0	4184632.0
6	1389.47300	5	190	702560.0	4184628.0	31	1175.51500	4	205	702437.0	4184874.0
7	1378.05900	4	136	699932.0	4183611.0	32	1168.13300	4	133	700309.0	4184752.0
8	1368.76200	5	190	702360.0	4184628.0	33	1148.19400	5	157	700295.0	4184131.0
9	1333.78000	5	190	702454.0	4184747.0	34	1147.34900	4	136	700182.0	4184111.0
10	1304.04400	4	156	700701.0	4183467.0	35	1136.42000	4	156	700868.0	4183489.0
11	1287.82800	4	201	700952.0	4183500.0	36	1134.60900	6	358	701386.0	4185175.0
12	1280.62600	5	190	702413.0	4184568.0	37	1127.63100	4	133	700182.0	4184611.0
13	1280.26100	4	156	700680.0	4183541.0	38	1123.45200	5	157	700182.0	4184111.0
14	1279.51300	4	201	700868.0	4183489.0	39	1116.33300	5	190	702628.0	4184476.0
15	1262.08500	5	157	700286.0	4184261.0	40	1114.46100	5	190	702528.0	4184476.0
16	1255.38100	4	156	700785.0	4183478.0	41	1108.39000	4	200	702454.0	4184747.0
17	1253.06900	5	157	700345.0	4184323.0	42	1103.63800	4	205	702237.0	4184874.0

18	1244.18100	3	303	701403.0	4185104.0		43	1095.13300	5	157	700345.0	4184400.0
19	1236.51000	5	157	700280.0	4184198.0		44	1094.19900	4	136	700544.0	4183822.0
20	1232.99900	6	358	701369.0	4185245.0		45	1087.84100	5	190.	702428.0	4184476.0
21	1217.01900	5	157	700291.0	4184323.0		46	1075.63000	3	229	701501.0	4185263.0
22	1216.02100	4	136	700295.0	4184131.0		47	1074.86100	4	200	702437.0	4184874.0
23	1214.33200	4	133	700322.0	4184691.0		48	1067.70000	4	205	702183.0	4184946.0
24	1205.98500	4	133	700351.0	4184686.0		49	1052.88600	4	201	700701.0	4183467.0
25	1199.11300	5	190.	702354.0	4184747.0		50	1049.51600	4	156	700638.0	4183690.0

HIGH
24-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
700280.0	4184198.0	203.82040C	(157, 1)	700286.0	4184261.0	209.19600C	(157, 1)
700291.0	4184323.0	200.41600C	(157, 1)	700295.0	4184131.0	266.47170C	(136, 1)
700309.0	4184752.0	151.50200	(133, 1)	700311.0	4184063.0	341.51380C	(136, 1)
700311.0	4184631.0	175.03210	(133, 1)	700312.0	4184842.0	130.31870	(133, 1)
700315.0	4184931.0	100.96740	(133, 1)	700322.0	4184691.0	161.28510	(133, 1)
700326.0	4183995.0	362.49700C	(136, 1)	700343.0	4184632.0	176.43950	(133, 1)
700344.0	4184478.0	128.16300C	(157, 1)	700344.0	4184555.0	148.41300	(133, 1)
700345.0	4184323.0	211.40660C	(157, 1)	700345.0	4184400.0	172.87200C	(157, 1)
700346.0	4184980.0	82.44974	(133, 1)	700351.0	4184686.0	161.22080	(133, 1)
700377.0	4185028.0	82.68538C	(149, 1)	700399.0	4183937.0	423.68480C	(136, 1)
700472.0	4183880.0	363.44750C	(136, 1)	700544.0	4183822.0	303.83760C	(136, 1)
700617.0	4183764.0	211.59360C	(136, 1)	700638.0	4183690.0	195.19780C	(156, 1)
700659.0	4183616.0	228.38240C	(156, 1)	700680.0	4183541.0	202.90390C	(156, 1)
700701.0	4183467.0	190.82360C	(156, 1)	700739.0	4185246.0	167.28720	(320, 1)
700785.0	4183478.0	182.29800C	(156, 1)	700824.0	4185247.0	219.81020	(320, 1)
700868.0	4183489.0	173.56410	(201, 1)	700874.0	4185294.0	132.25590	(320, 1)
700924.0	4185341.0	85.81731	(133, 1)	700952.0	4183500.0	174.27760	(201, 1)
700974.0	4185387.0	89.85397	(133, 1)	700974.0	4185487.0	95.80519	(133, 1)
700974.0	4185587.0	92.98697C	(157, 1)	701035.0	4183511.0	161.72860	(201, 1)
701059.0	4185374.0	100.13610	(271, 1)	701119.0	4183522.0	137.19590	(201, 1)
701144.0	4185361.0	169.60480C	(130, 1)	701144.0	4185461.0	175.17200C	(130, 1)
701144.0	4185561.0	139.49050C	(130, 1)	701177.0	4183489.0	115.37570	(201, 1)
701182.0	4184277.0	29.33623C	(269, 1)	701182.0	4185611.0	117.61040C	(129, 1)
701224.0	4184236.0	58.61725	(360, 1)	701228.0	4185348.0	152.84420C	(130, 1)
701236.0	4183455.0	92.37057	(201, 1)	701254.0	4184272.0	44.19675	(360, 1)
701294.0	4183421.0	82.77126C	(143, 1)	701304.0	4184216.0	29.13142C	(269, 1)
701313.0	4183497.0	82.33543C	(143, 1)	701313.0	4185335.0	99.00902C	(129, 1)
701313.0	4185435.0	129.14100C	(129, 1)	701313.0	4185535.0	121.56690C	(129, 1)
701325.0	4184267.0	29.20974C	(269, 1)	701332.0	4183572.0	79.13892C	(143, 1)
701350.0	4183648.0	75.74968	(155, 1)	701364.0	4183939.0	28.18263C	(269, 1)
701369.0	4183723.0	73.18590	(155, 1)	701369.0	4185245.0	207.93880	(358, 1)
701384.0	4184196.0	29.02997C	(269, 1)	701386.0	4185175.0	182.35930	(358, 1)
701397.0	4184262.0	29.18895C	(269, 1)	701398.0	4185322.0	111.92410	(358, 1)
701403.0	4185104.0	155.99300	(303, 1)	701414.0	4183749.0	75.37629	(155, 1)
701419.0	4183489.0	90.81624	(155, 1)	701422.0	4183910.0	28.94049	(155, 1)
701446.0	4183962.0	28.24189C	(269, 1)	701446.0	4184120.0	28.80947C	(269, 1)
701448.0	4185372.0	40.08715	(123, 1)	701448.0	4185472.0	98.94042C	(129, 1)
701459.0	4183775.0	57.15096	(155, 1)	701469.0	4183623.0	85.86944	(155, 1)

HIGH
24-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
701469.0	4183828.0	44.82620	(155, 1)	701474.0	4184205.0	29.05518C	(269, 1)
701477.0	4184003.0	28.39282C	(269, 1)	701479.0	4183881.0	33.82517	(155, 1)
701499.0	4185107.0	117.46130	(229, 1)	701501.0	4185263.0	134.67760	(229, 1)
701507.0	4184043.0	28.53486C	(269, 1)	701509.0	4183725.0	66.92722	(155, 1)
701548.0	4185372.0	58.05590C	(129, 1)	701549.0	4183568.0	84.27782	(155, 1)
701551.0	4184147.0	28.88277C	(269, 1)	701569.0	4183828.0	47.81332	(155, 1)
701594.0	4185109.0	44.57391	(358, 1)	701598.0	4185207.0	26.75898	(150, 1)
701609.0	4183725.0	67.44477	(155, 1)	701628.0	4184090.0	28.67815C	(269, 1)
701646.0	4183931.0	38.49559	(155, 1)	701646.0	4184031.0	28.44869C	(269, 1)
701669.0	4183828.0	70.37125C	(179, 1)	701690.0	4185112.0	105.92270	(60, 1)
701693.0	4185310.0	80.45696	(166, 1)	701733.0	4184071.0	44.23523	(309, 1)
701786.0	4185114.0	102.50690	(297, 1)	701787.0	4185213.0	89.79509	(166, 1)
701821.0	4183910.0	116.11490C	(179, 1)	701821.0	4184010.0	69.63210C	(179, 1)
701821.0	4184110.0	34.75322	(155, 1)	701881.0	4185117.0	125.41820	(297, 1)
701882.0	4185316.0	156.72880	(166, 1)	701908.0	4184150.0	45.60226	(201, 1)
701977.0	4183943.0	154.52240C	(179, 1)	701977.0	4184043.0	98.01263C	(179, 1)
701977.0	4184143.0	58.67744	(201, 1)	701977.0	4185119.0	87.71310	(365, 1)
701977.0	4185219.0	143.26340	(166, 1)	702027.0	4185269.0	164.59000	(166, 1)
702046.0	4184135.0	67.52096	(201, 1)	702053.0	4185068.0	84.85431	(365, 1)
702077.0	4185119.0	98.03731	(365, 1)	702087.0	4183846.0	201.38480C	(179, 1)
702087.0	4183946.0	153.58600C	(179, 1)	702094.0	4184098.0	76.83366	(201, 1)
702129.0	4185017.0	102.40340	(365, 1)	702142.0	4184060.0	90.47217C	(179, 1)
702149.0	4185150.0	124.40950	(194, 1)	702165.0	4184003.0	115.49610C	(179, 1)
702182.0	4183611.0	215.46090C	(179, 1)	702183.0	4184946.0	178.59550C	(224, 1)
702187.0	4183746.0	212.49200C	(179, 1)	702187.0	4183846.0	201.57820C	(179, 1)
702187.0	4183946.0	157.95270C	(179, 1)	702207.0	4184997.0	115.92540C	(224, 1)
702237.0	4184874.0	171.22990C	(224, 1)	702246.0	4184811.0	154.31480C	(224, 1)
702254.0	4184747.0	137.17440C	(190, 1)	702275.0	4183973.0	89.77063C	(179, 1)
702293.0	4185012.0	133.73770C	(224, 1)	702307.0	4184687.0	139.05750C	(190, 1)
702337.0	4184874.0	139.91510C	(224, 1)	702354.0	4184747.0	164.51660C	(190, 1)
702360.0	4184628.0	187.14380C	(190, 1)	702363.0	4183801.0	122.82360C	(179, 1)
702363.0	4183901.0	111.30320C	(179, 1)	702363.0	4184001.0	92.06377C	(207, 1)
702400.0	4184231.0	95.63377C	(207, 1)	702413.0	4184568.0	174.94500C	(190, 1)
702422.0	4184308.0	112.29890C	(197, 1)	702428.0	4184476.0	148.63010C	(190, 1)
702437.0	4184874.0	171.50110C	(224, 1)	702443.0	4184384.0	125.33750C	(197, 1)
702446.0	4184172.0	136.13190C	(197, 1)	702451.0	4184028.0	111.23920C	(207, 1)
702454.0	4184747.0	183.65480C	(190, 1)	702460.0	4184628.0	193.78970C	(190, 1)
702493.0	4184114.0	125.05190C	(197, 1)	702522.0	4184308.0	139.27640C	(197, 1)

HIGH
24-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
702528.0	4184476.0	152.27080C	(190, 1)	702539.0	4183855.0	94.11105C	(207, 1)
702539.0	4183955.0	115.85480C	(207, 1)	702539.0	4184055.0	115.69130C	(207, 1)
702546.0	4184172.0	128.68500C	(197, 1)	702560.0	4184628.0	190.03420C	(190, 1)
702622.0	4184308.0	146.46020C	(197, 1)	702628.0	4184476.0	152.55180C	(190, 1)
702639.0	4183955.0	118.74380C	(207, 1)	702639.0	4184055.0	110.38780C	(207, 1)
702646.0	4184172.0	151.96490C	(197, 1)	702739.0	4184055.0	144.06960C	(197, 1)
700710.0	4185246.0	124.80970	(226, 1)	700713.0	4185264.0	119.28230	(226, 1)
700676.0	4185267.0	132.00050	(226, 1)	700679.0	4185301.0	123.36060	(226, 1)
700637.0	4185306.0	136.60710	(226, 1)	700589.0	4185308.0	145.53910	(226, 1)
700594.0	4185374.0	133.84400	(226, 1)	700533.0	4185378.0	143.60210	(226, 1)
700472.0	4185382.0	140.09960	(226, 1)	700408.0	4185386.0	133.65380	(226, 1)
700402.0	4185324.0	122.90500	(226, 1)	700454.0	4185319.0	125.56780	(226, 1)
700448.0	4185241.0	110.73160	(226, 1)	700442.0	4185170.0	96.43192C	(198, 1)

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
700435.0	4185097.0	97.47545C	(149, 1)	700455.0	4185094.0	96.22253C	(149, 1)
700449.0	4185027.0	102.24130C	(149, 1)	700182.0	4184611.0	162.79070	(133, 1)
700182.0	4184861.0	134.16270	(133, 1)	700182.0	4185111.0	84.44698C	(140, 1)
700182.0	4185361.0	106.64860C	(198, 1)	700182.0	4185611.0	141.42100	(226, 1)
700432.0	4185611.0	112.11290	(226, 1)	700682.0	4185611.0	88.31717	(133, 1)
700932.0	4185611.0	97.98488C	(199, 1)	699682.0	4184111.0	125.21920C	(136, 1)
699682.0	4184611.0	149.06090	(133, 1)	699682.0	4185111.0	113.54260	(247, 1)
699682.0	4185611.0	107.97060	(226, 1)	699682.0	4186111.0	140.33870	(226, 1)
700182.0	4184111.0	251.38390C	(136, 1)	700182.0	4186111.0	128.15800	(320, 1)
700682.0	4186111.0	98.72599C	(199, 1)	701182.0	4186111.0	188.27950C	(129, 1)
701682.0	4185611.0	124.98990	(150, 1)	701682.0	4186111.0	125.93400C	(129, 1)
699182.0	4183611.0	223.12700C	(136, 1)	699182.0	4184361.0	81.81427C	(55, 1)
699182.0	4185111.0	143.67310	(82, 1)	699182.0	4185861.0	98.57234	(226, 1)
699182.0	4186611.0	131.92970	(226, 1)	699932.0	4183611.0	407.11100C	(136, 1)
699932.0	4186611.0	119.34240	(320, 1)	700682.0	4186611.0	141.42050C	(270, 1)
701432.0	4186611.0	122.01080C	(129, 1)	702182.0	4185861.0	154.57150C	(130, 1)
702182.0	4186611.0	126.83150C	(129, 1)	698182.0	4182611.0	200.61910C	(136, 1)
698182.0	4183611.0	160.36630	(161, 1)	698182.0	4184611.0	138.95240C	(55, 1)
698182.0	4185611.0	161.18060	(82, 1)	698182.0	4186611.0	108.09420	(226, 1)
698182.0	4187611.0	91.14386	(226, 1)	699182.0	4182611.0	225.83310C	(136, 1)
699182.0	4187611.0	115.55430	(319, 1)	700182.0	4182611.0	181.19600	(120, 1)
700182.0	4187611.0	139.44280C	(270, 1)	701182.0	4182611.0	124.14350	(235, 1)
701182.0	4187611.0	144.43100C	(129, 1)	702182.0	4182611.0	110.59190	(155, 1)
702182.0	4187611.0	117.53700	(134, 1)	703182.0	4182611.0	248.86240C	(231, 1)
703182.0	4183611.0	183.32380C	(197, 1)	703182.0	4184611.0	220.03630C	(159, 1)

HIGH
24-HR
SGROUP# 1

*** KU • EWBrown CT. 0.23%S; 5011N2; 20GT24A; NAAQS /1987 ***

* HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
703182.0	4185611.0	189.52740C	(137, 1)	703182.0	4186611.0	193.93950	(146, 1)
703182.0	4187611.0	204.91520	(186, 1)	695682.0	4180111.0	116.41620C	(136, 1)
695682.0	4182611.0	111.44180	(161, 1)	695682.0	4185111.0	126.98870C	(55, 1)
695682.0	4187611.0	111.51200C	(230, 1)	695682.0	4190111.0	141.41120	(320, 1)
698182.0	4180111.0	129.64740	(120, 1)	698182.0	4190111.0	79.94394	(319, 1)
700682.0	4180111.0	104.49040	(235, 1)	700682.0	4190111.0	130.71670C	(129, 1)
703182.0	4180111.0	109.89340	(62, 1)	703182.0	4190111.0	127.46070	(134, 1)
705682.0	4180111.0	184.14700C	(231, 1)	705682.0	4182611.0	151.80170	(102, 1)
705682.0	4185111.0	153.56260C	(159, 1)	705682.0	4187611.0	147.50270C	(176, 1)
705682.0	4190111.0	137.79720	(186, 1)	693182.0	4177611.0	85.81173C	(136, 1)
693182.0	4182611.0	133.08980	(161, 1)	693182.0	4187611.0	83.41521C	(230, 1)
693182.0	4192611.0	77.93253	(320, 1)	698182.0	4177611.0	104.11890	(115, 1)
698182.0	4192611.0	77.73910C	(270, 1)	703182.0	4177611.0	98.00328C	(111, 1)
703182.0	4192611.0	136.24580	(134, 1)	708182.0	4177611.0	126.89940C	(231, 1)
708182.0	4182611.0	179.59520C	(178, 1)	708182.0	4187611.0	103.88690C	(190, 1)
708182.0	4192611.0	104.50310	(181, 1)	690682.0	4175111.0	81.80542C	(136, 1)
690682.0	4180111.0	68.72356	(125, 1)	690682.0	4185111.0	79.06216C	(55, 1)
690682.0	4190111.0	61.17138	(59, 1)	690682.0	4195111.0	76.26575	(320, 1)
695682.0	4175111.0	93.67128	(115, 1)	695682.0	4195111.0	63.68395	(104, 1)
700682.0	4175111.0	75.09013	(314, 1)	700682.0	4195111.0	81.39349C	(112, 1)
705682.0	4175111.0	116.76450C	(128, 1)	705682.0	4195111.0	89.96745	(327, 1)
710682.0	4175111.0	76.79272C	(231, 1)	710682.0	4180111.0	82.00101	(102, 1)
710682.0	4185111.0	78.33693C	(159, 1)	710682.0	4190111.0	99.67919	(333, 1)
710682.0	4195111.0	78.03481	(181, 1)	680682.0	4165111.0	149.75080C	(80, 1)
680682.0	4175111.0	53.32137	(361, 1)	680682.0	4185111.0	76.83694	(77, 1)
680682.0	4195111.0	46.96376	(59, 1)	680682.0	4205111.0	57.68005	(320, 1)
690682.0	4165111.0	109.96730	(217, 1)	690682.0	4205111.0	58.84550	(71, 1)
700682.0	4165111.0	69.11865	(314, 1)	700682.0	4205111.0	63.50143	(162, 1)
710682.0	4165111.0	62.10986	(195, 1)	710682.0	4205111.0	67.30809	(327, 1)
720682.0	4165111.0	54.26879	(309, 1)	720682.0	4175111.0	67.92596	(273, 1)

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
720682.0	4185111.0	60.17563	(92, 1)	720682.0	4195111.0	75.60222	(333, 1)
720682.0	4205111.0	49.75356C	(93, 1)	670682.0	4155111.0	74.18938	(69, 1)
670682.0	4170111.0	47.74876	(47, 1)	670682.0	4185111.0	53.74184	(77, 1)
670682.0	4200111.0	50.61713	(5, 1)	670682.0	4215111.0	41.00803	(320, 1)
685682.0	4155111.0	123.01600	(165, 1)	685682.0	4215111.0	130.54080	(59, 1)
700682.0	4155111.0	118.61160	(116, 1)	700682.0	4215111.0	61.07391	(162, 1)
715682.0	4155111.0	59.54495	(195, 1)	715682.0	4215111.0	98.03013C	(269, 1)
730682.0	4155111.0	46.88354	(89, 1)	730682.0	4170111.0	60.06017	(273, 1)

HIGH
24-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
730682.0	4185111.0	56.16506	(223, 1)	730682.0	4200111.0	62.03492	(333, 1)
730682.0	4215111.0	53.40661	(122, 1)	660682.0	4145111.0	51.06987	(56, 1)
660682.0	4165111.0	79.56468C	(110, 1)	660682.0	4185111.0	52.41247	(77, 1)
660682.0	4205111.0	35.23682C	(269, 1)	660682.0	4225111.0	44.69685C	(249, 1)
680682.0	4145111.0	88.68572	(165, 1)	680682.0	4225111.0	47.89274	(104, 1)
700682.0	4145111.0	113.23010	(116, 1)	700682.0	4225111.0	41.24278	(162, 1)
720682.0	4145111.0	59.18963	(62, 1)	720682.0	4225111.0	53.07590C	(137, 1)
740682.0	4145111.0	37.67192	(89, 1)	738182.0	4172611.0	57.08346C	(224, 1)
738182.0	4167611.0	59.78192	(273, 1)	738182.0	4162611.0	59.62231C	(54, 1)
738182.0	4157611.0	60.93431C	(54, 1)	743182.0	4172611.0	47.84031C	(178, 1)
743182.0	4167611.0	78.71059	(273, 1)	743182.0	4162611.0	62.81260C	(211, 1)
743182.0	4157611.0	98.14857C	(54, 1)	740682.0	4185111.0	78.68719	(116, 1)
740682.0	4205111.0	171.22200	(162, 1)	740682.0	4225111.0	69.93240	(41, 1)
650682.0	4135111.0	35.43793	(56, 1)	650682.0	4160111.0	41.81613	(56, 1)
650682.0	4185111.0	43.93342	(77, 1)	650682.0	4210111.0	29.51126	(82, 1)
650682.0	4235111.0	23.19142	(320, 1)	675682.0	4135111.0	40.05824	(165, 1)
675682.0	4235111.0	35.74827	(306, 1)	700682.0	4135111.0	62.19211	(116, 1)
700682.0	4235111.0	47.95728C	(159, 1)	725682.0	4135111.0	53.16403	(62, 1)
725682.0	4235111.0	39.91525C	(140, 1)	750682.0	4135111.0	30.57628	(89, 1)
750682.0	4160111.0	63.15287C	(213, 1)	750682.0	4185111.0	77.30186	(92, 1)
750682.0	4210111.0	70.39487	(131, 1)	750682.0	4235111.0	39.52366	(122, 1)

2ND HIGH
24-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
700280.0	4184198.0	193.36150C	(136, 1)	700286.0	4184261.0	146.75280C	(136, 1)
700291.0	4184323.0	107.07740C	(269, 1)	700295.0	4184131.0	198.36100C	(157, 1)
700309.0	4184752.0	91.05879	(196, 1)	700311.0	4184063.0	190.37250C	(157, 1)
700311.0	4184631.0	87.69160	(236, 1)	700312.0	4184842.0	89.70486	(196, 1)
700315.0	4184931.0	79.45647	(196, 1)	700322.0	4184691.0	85.97205	(196, 1)
700326.0	4183995.0	176.87620C	(157, 1)	700343.0	4184632.0	86.56206	(236, 1)
700344.0	4184478.0	121.10550	(82, 1)	700344.0	4184555.0	114.84330	(82, 1)
700345.0	4184323.0	141.46170C	(269, 1)	700345.0	4184400.0	83.48637	(201, 1)
700346.0	4184980.0	77.29235C	(140, 1)	700351.0	4184686.0	84.58271	(196, 1)
700377.0	4185028.0	80.02228C	(140, 1)	700399.0	4183937.0	168.46930C	(202, 1)
700472.0	4183880.0	190.31170C	(202, 1)	700544.0	4183822.0	225.14310C	(80, 1)
700617.0	4183764.0	185.32140C	(202, 1)	700638.0	4183690.0	181.59350C	(202, 1)
700659.0	4183616.0	177.51990C	(202, 1)	700680.0	4183541.0	173.65780C	(202, 1)

700701.0	4183467.0	170.21420C	(202, 1)	700739.0	4185246.0	140.80110	(226, 1)
700785.0	4183478.0	168.60520C	(202, 1)	700824.0	4185247.0	119.43780C	(198, 1)
700868.0	4183489.0	165.62090C	(156, 1)	700874.0	4185294.0	92.23817	(166, 1)
700924.0	4185341.0	55.57127	(320, 1)	700952.0	4183500.0	156.72030C	(202, 1)
700974.0	4185387.0	70.93256C	(199, 1)	700974.0	4185487.0	83.34278C	(157, 1)
700974.0	4185587.0	91.45061	(133, 1)	701035.0	4183511.0	144.87000C	(156, 1)
701059.0	4185374.0	100.06520C	(157, 1)	701119.0	4183522.0	115.34460C	(202, 1)
701144.0	4185361.0	132.27360C	(157, 1)	701144.0	4185461.0	132.01650C	(157, 1)
701144.0	4185561.0	120.37360C	(157, 1)	701177.0	4183489.0	98.31908C	(143, 1)
701182.0	4184277.0	23.23853C	(55, 1)	701182.0	4185611.0	100.92100C	(157, 1)
701224.0	4184236.0	34.79651	(120, 1)	701228.0	4185348.0	127.26900	(228, 1)
701236.0	4183455.0	91.86786C	(143, 1)	701254.0	4184272.0	30.40816C	(269, 1)
701294.0	4183421.0	78.22996C	(204, 1)	701304.0	4184216.0	23.67476C	(55, 1)
701313.0	4183497.0	79.75251C	(204, 1)	701313.0	4185335.0	80.90673	(295, 1)
701313.0	4185435.0	100.05870C	(157, 1)	701313.0	4185535.0	93.43986C	(206, 1)
701325.0	4184267.0	23.52197C	(55, 1)	701332.0	4183572.0	78.18026C	(204, 1)
701350.0	4183648.0	70.31496C	(204, 1)	701364.0	4183939.0	24.52473C	(55, 1)
701369.0	4183723.0	57.15877C	(204, 1)	701369.0	4185245.0	24.93026	(288, 1)
701384.0	4184196.0	23.87096C	(55, 1)	701386.0	4185175.0	19.56957	(229, 1)
701397.0	4184262.0	23.66045C	(55, 1)	701398.0	4185322.0	34.40696	(123, 1)
701403.0	4185104.0	135.60330	(358, 1)	701414.0	4183749.0	54.64890	(232, 1)
701419.0	4183489.0	83.43376C	(204, 1)	701422.0	4183910.0	28.03524C	(269, 1)
701446.0	4183962.0	24.57535C	(55, 1)	701446.0	4184120.0	24.19854C	(55, 1)
701448.0	4185372.0	38.47581C	(129, 1)	701448.0	4185472.0	93.06542C	(130, 1)
701459.0	4183775.0	49.42514	(232, 1)	701469.0	4183623.0	74.51360	(232, 1)

2ND HIGH
24-HR
SGROUP# 1

*** KU · EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

· SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) ·
· FROM SOURCES: 1, -40,
· FOR THE DISCRETE RECEPTOR POINTS ·

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
701469.0	4183828.0	38.25011	(232, 1)	701474.0	4184205.0	23.98081C	(55, 1)
701477.0	4184003.0	24.52948C	(55, 1)	701479.0	4183881.0	27.87685C	(269, 1)
701499.0	4185107.0	94.45236	(358, 1)	701501.0	4185263.0	55.99057	(358, 1)
701507.0	4184043.0	24.47857C	(55, 1)	701509.0	4183725.0	60.19712	(232, 1)
701548.0	4185372.0	53.99483	(150, 1)	701549.0	4183568.0	74.62983	(232, 1)
701551.0	4184147.0	28.10078	(114, 1)	701569.0	4183828.0	39.23421	(232, 1)
701594.0	4185109.0	40.25388	(186, 1)	701598.0	4185207.0	24.35133	(358, 1)
701609.0	4183725.0	65.13162C	(179, 1)	701628.0	4184090.0	24.52393C	(55, 1)
701646.0	4183931.0	34.29824C	(179, 1)	701646.0	4184031.0	27.01634	(62, 1)
701669.0	4183828.0	58.73668	(155, 1)	701690.0	4185112.0	69.62321C	(85, 1)
701693.0	4185310.0	83.55518	(150, 1)	701733.0	4184071.0	28.59437C	(269, 1)
701786.0	4185114.0	38.19442	(365, 1)	701787.0	4185213.0	64.97169	(150, 1)
701821.0	4183910.0	63.06454	(155, 1)	701821.0	4184010.0	49.62061	(155, 1)
701821.0	4184110.0	32.85721	(201, 1)	701881.0	4185117.0	57.79370	(365, 1)
701882.0	4185316.0	98.84774	(150, 1)	701908.0	4184150.0	42.44085	(39, 1)
701977.0	4183943.0	90.09365	(155, 1)	701977.0	4184043.0	73.94258	(201, 1)
701977.0	4184143.0	46.86756C	(179, 1)	701977.0	4185119.0	72.37295	(297, 1)
701977.0	4185219.0	99.55868	(194, 1)	702027.0	4185269.0	119.95740	(194, 1)
702046.0	4184135.0	56.25003C	(179, 1)	702053.0	4185068.0	66.35141	(194, 1)
702077.0	4185119.0	83.09286	(194, 1)	702087.0	4183846.0	112.94920	(155, 1)
702087.0	4183946.0	90.77178	(201, 1)	702094.0	4184098.0	74.51925C	(179, 1)
702129.0	4185017.0	85.69555C	(224, 1)	702142.0	4184060.0	82.80766	(201, 1)
702149.0	4185150.0	123.36180	(166, 1)	702165.0	4184003.0	88.88177	(201, 1)
702182.0	4183611.0	172.14720	(155, 1)	702183.0	4184946.0	158.99030C	(205, 1)
702187.0	4183746.0	157.42700	(155, 1)	702187.0	4183846.0	134.15310	(155, 1)
702187.0	4183946.0	110.53340	(201, 1)	702207.0	4184997.0	103.61900	(227, 1)
702237.0	4184874.0	158.82680C	(205, 1)	702246.0	4184811.0	150.29670C	(205, 1)
702254.0	4184747.0	136.46320C	(205, 1)	702275.0	4183973.0	75.01450C	(143, 1)
702293.0	4185012.0	121.94420C	(205, 1)	702307.0	4184687.0	105.58790C	(200, 1)
702337.0	4184874.0	138.58760C	(205, 1)	702354.0	4184747.0	144.79150C	(200, 1)

702360.0	4184628.0	142.59540C	(200, 1)	702363.0	4183801.0	88.97641	(39, 1)
702363.0	4183901.0	84.04521	(201, 1)	702363.0	4184001.0	88.86705C	(143, 1)
702400.0	4184231.0	89.16455C	(143, 1)	702413.0	4184568.0	118.16260C	(200, 1)
702422.0	4184308.0	97.34149C	(149, 1)	702428.0	4184476.0	119.21620C	(197, 1)
702437.0	4184874.0	169.84530C	(205, 1)	702443.0	4184384.0	110.56730C	(190, 1)
702446.0	4184172.0	115.79540C	(207, 1)	702451.0	4184028.0	97.37762C	(143, 1)
702454.0	4184747.0	155.26840C	(200, 1)	702460.0	4184628.0	142.79890C	(200, 1)
702493.0	4184114.0	118.65040C	(207, 1)	702522.0	4184308.0	98.81847C	(149, 1)

2ND HIGH
24-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,PER.)	- X -	- Y -	CON.	(DAY,PER.)
702528.0	4184476.0	123.38750C	(197, 1)	702539.0	4183855.0	79.97752C	(179, 1)
702539.0	4183955.0	94.25802C	(143, 1)	702539.0	4184055.0	104.14040C	(197, 1)
702546.0	4184172.0	108.80890C	(207, 1)	702560.0	4184628.0	131.73890C	(200, 1)
702622.0	4184308.0	95.78017C	(149, 1)	702628.0	4184476.0	138.07830C	(197, 1)
702639.0	4183955.0	108.08370C	(197, 1)	702639.0	4184055.0	107.56950C	(197, 1)
702646.0	4184172.0	109.49110C	(207, 1)	702739.0	4184055.0	114.47580C	(207, 1)
700710.0	4185246.0	104.66660	(133, 1)	700713.0	4185264.0	113.72420	(133, 1)
700676.0	4185267.0	102.34860	(133, 1)	700679.0	4185301.0	117.03740	(133, 1)
700637.0	4185306.0	104.00560	(133, 1)	700589.0	4185308.0	106.04090C	(198, 1)
700594.0	4185374.0	109.89360	(133, 1)	700533.0	4185378.0	103.96290C	(198, 1)
700472.0	4185382.0	120.01200C	(198, 1)	700408.0	4185386.0	127.82470C	(198, 1)
700402.0	4185324.0	115.92080C	(198, 1)	700454.0	4185319.0	121.33330C	(198, 1)
700448.0	4185241.0	103.46350C	(198, 1)	700442.0	4185170.0	91.11638	(226, 1)
700435.0	4185097.0	86.04727C	(198, 1)	700455.0	4185094.0	84.55667C	(198, 1)
700449.0	4185027.0	76.68961C	(140, 1)	700182.0	4184611.0	87.95457	(236, 1)
700182.0	4184861.0	87.88747	(196, 1)	700182.0	4185111.0	81.60580C	(198, 1)
700182.0	4185361.0	106.61740	(226, 1)	700182.0	4185611.0	121.47650C	(198, 1)
700432.0	4185611.0	96.41147	(121, 1)	700682.0	4185611.0	62.24911	(320, 1)
700932.0	4185611.0	95.21313	(133, 1)	699682.0	4184111.0	120.72900C	(157, 1)
699682.0	4184611.0	96.07536C	(55, 1)	699682.0	4185111.0	107.78400	(82, 1)
699682.0	4185611.0	83.25124C	(198, 1)	699682.0	4186111.0	103.82990C	(198, 1)
700182.0	4184111.0	192.27320C	(157, 1)	700182.0	4186111.0	109.18870C	(112, 1)
700682.0	4186111.0	82.62384	(226, 1)	701182.0	4186111.0	95.57153C	(112, 1)
701682.0	4185611.0	123.02200C	(129, 1)	701682.0	4186111.0	101.46010	(166, 1)
699182.0	4183611.0	199.76750	(161, 1)	699182.0	4184361.0	78.78424	(236, 1)
699182.0	4185111.0	104.45280	(247, 1)	699182.0	4185861.0	84.76152	(246, 1)
699182.0	4186611.0	98.50313	(232, 1)	699932.0	4183611.0	154.01350	(81, 1)
699932.0	4186611.0	109.46970	(319, 1)	700682.0	4186611.0	118.57640C	(129, 1)
701432.0	4186611.0	99.69235C	(112, 1)	702182.0	4185861.0	147.03700	(166, 1)
702182.0	4186611.0	123.05340C	(138, 1)	698182.0	4182611.0	159.51540	(125, 1)
698182.0	4183611.0	123.47370	(168, 1)	698182.0	4184611.0	114.39110	(133, 1)
698182.0	4185611.0	152.84330	(247, 1)	698182.0	4186611.0	96.06857C	(230, 1)
698182.0	4187611.0	81.06486	(232, 1)	699182.0	4182611.0	177.78700	(108, 1)
699182.0	4187611.0	101.02860	(320, 1)	700182.0	4182611.0	141.67760	(115, 1)
700182.0	4187611.0	86.40444C	(140, 1)	701182.0	4182611.0	76.13495C	(143, 1)
701182.0	4187611.0	131.80360C	(112, 1)	702182.0	4182611.0	103.66230C	(156, 1)
702182.0	4187611.0	110.16870C	(65, 1)	703182.0	4182611.0	196.90590	(155, 1)
703182.0	4183611.0	173.71780	(102, 1)	703182.0	4184611.0	141.55720C	(190, 1)

2ND HIGH
24-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
703182.0	4185611.0	187.28880	(180, 1)	703182.0	4186611.0	172.30680C	(214, 1)
703182.0	4187611.0	162.89710C	(130, 1)	695682.0	4180111.0	98.91654C	(268, 1)
695682.0	4182611.0	104.96740	(125, 1)	695682.0	4185111.0	120.05380	(82, 1)
695682.0	4187611.0	93.06956	(59, 1)	695682.0	4190111.0	97.58372C	(249, 1)
698182.0	4180111.0	86.11620	(115, 1)	698182.0	4190111.0	73.55135	(104, 1)
700682.0	4180111.0	91.20238C	(63, 1)	700682.0	4190111.0	104.53910	(100, 1)
703182.0	4180111.0	108.94810C	(128, 1)	703182.0	4190111.0	90.74452	(278, 1)
705682.0	4180111.0	122.06450	(155, 1)	705682.0	4182611.0	122.84790C	(197, 1)
705682.0	4185111.0	134.79100	(267, 1)	705682.0	4187611.0	142.48870	(180, 1)
705682.0	4190111.0	131.46160	(181, 1)	693182.0	4177611.0	78.95769C	(268, 1)
693182.0	4182611.0	115.11270	(168, 1)	693182.0	4187611.0	68.03803	(82, 1)
693182.0	4192611.0	50.47792C	(355, 1)	698182.0	4177611.0	92.23795C	(110, 1)
698182.0	4192611.0	55.07911C	(242, 1)	703182.0	4177611.0	90.73630	(26, 1)
703182.0	4192611.0	77.22465C	(65, 1)	708182.0	4177611.0	86.44756C	(213, 1)
708182.0	4182611.0	70.84106C	(197, 1)	708182.0	4187611.0	102.07510C	(189, 1)
708182.0	4192611.0	84.62131	(186, 1)	690682.0	4175111.0	80.78207	(4, 1)
690682.0	4180111.0	60.59724	(67, 1)	690682.0	4185111.0	61.59036	(77, 1)
690682.0	4190111.0	59.74216C	(230, 1)	690682.0	4195111.0	51.21069C	(249, 1)
695682.0	4175111.0	71.71890C	(110, 1)	695682.0	4195111.0	39.43389	(155, 1)
700682.0	4175111.0	58.95635	(235, 1)	700682.0	4195111.0	63.12397	(100, 1)
705682.0	4175111.0	94.28293	(62, 1)	705682.0	4195111.0	73.53618	(278, 1)
710682.0	4175111.0	60.08770C	(213, 1)	710682.0	4180111.0	80.73180	(273, 1)
710682.0	4185111.0	68.37407C	(98, 1)	710682.0	4190111.0	96.82544	(349, 1)
710682.0	4195111.0	65.41925	(146, 1)	680682.0	4165111.0	107.52770	(69, 1)
680682.0	4175111.0	49.20974	(47, 1)	680682.0	4185111.0	48.47130C	(55, 1)
680682.0	4195111.0	37.94008	(83, 1)	680682.0	4205111.0	54.76307C	(330, 1)
690682.0	4165111.0	109.50100	(284, 1)	690682.0	4205111.0	54.41747	(104, 1)
700682.0	4165111.0	59.68047	(26, 1)	700682.0	4205111.0	60.44281	(343, 1)
710682.0	4165111.0	50.93940C	(63, 1)	710682.0	4205111.0	62.77090	(238, 1)
720682.0	4165111.0	49.92461	(89, 1)	720682.0	4175111.0	61.41542	(275, 1)
720682.0	4185111.0	47.58773	(10, 1)	720682.0	4195111.0	68.64980	(82, 1)
720682.0	4205111.0	49.60470	(41, 1)	670682.0	4155111.0	70.44403C	(80, 1)
670682.0	4170111.0	46.69438	(361, 1)	670682.0	4185111.0	32.18316C	(55, 1)
670682.0	4200111.0	40.55387C	(79, 1)	670682.0	4215111.0	40.28744	(340, 1)
685682.0	4155111.0	95.16387	(217, 1)	685682.0	4215111.0	96.32610	(83, 1)
700682.0	4155111.0	72.53767C	(79, 1)	700682.0	4215111.0	54.85160	(32, 1)
715682.0	4155111.0	59.51707	(62, 1)	715682.0	4215111.0	83.69257C	(55, 1)
730682.0	4155111.0	43.16086C	(53, 1)	730682.0	4170111.0	52.22456C	(143, 1)

2ND HIGH
24-HR
SGROUP# 1

*** KU * EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* SECOND HIGHEST 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM SOURCES: 1, -40,
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY, PER.)	- X -	- Y -	CON.	(DAY, PER.)
730682.0	4185111.0	54.64486C	(330, 1)	730682.0	4200111.0	60.66794C	(250, 1)
730682.0	4215111.0	47.96790C	(214, 1)	660682.0	4145111.0	49.45502	(69, 1)
660682.0	4165111.0	62.59132	(81, 1)	660682.0	4185111.0	32.37109	(348, 1)
660682.0	4205111.0	28.86716C	(55, 1)	660682.0	4225111.0	39.49280C	(355, 1)
680682.0	4145111.0	67.13385	(217, 1)	680682.0	4225111.0	47.88420C	(45, 1)
700682.0	4145111.0	55.29755C	(110, 1)	700682.0	4225111.0	40.51034	(312, 1)
720682.0	4145111.0	49.90891	(107, 1)	720682.0	4225111.0	51.51809	(307, 1)
740682.0	4145111.0	35.74848C	(53, 1)	738182.0	4172611.0	52.66454	(280, 1)
738182.0	4167611.0	42.94303C	(143, 1)	738182.0	4162611.0	58.28705	(96, 1)
738182.0	4157611.0	56.98558C	(40, 1)	743182.0	4172611.0	45.01380	(280, 1)
743182.0	4167611.0	62.95137	(324, 1)	743182.0	4162611.0	58.36104C	(351, 1)
743182.0	4157611.0	79.09191C	(212, 1)	740682.0	4185111.0	51.11475	(92, 1)
740682.0	4205111.0	148.02380	(263, 1)	740682.0	4225111.0	67.22942	(162, 1)

650682.0	4135111.0	34.55674 (69, 1)		650682.0	4160111.0	40.34417C (110, 1)	
650682.0	4185111.0	28.37279 (348, 1)		650682.0	4210111.0	28.86731 (348, 1)	
650682.0	4235111.0	22.19939C (355, 1)		675682.0	4135111.0	39.67572 (16, 1)	
675682.0	4235111.0	33.79164 (104, 1)		700682.0	4135111.0	39.18653C (93, 1)	
700682.0	4235111.0	39.09392C (145, 1)		725682.0	4135111.0	47.13583C (63, 1)	
725682.0	4235111.0	33.45708 (278, 1)		750682.0	4135111.0	29.80447C (106, 1)	
750682.0	4160111.0	60.43773C (177, 1)		750682.0	4185111.0	59.72680 (154, 1)	
750682.0	4210111.0	69.48248C (206, 1)		750682.0	4235111.0	37.01520C (214, 1)	

MAX 50
24-HR
SGROUP# 1

*** KU · EWBrown CT. 0.23%S; 5@11N2; 2@GT24A; NAAQS /1987 ***

* 50 MAXIMUM 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *

* FROM SOURCES: 1, -40,

RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y (METERS) OR DIRECTION (DEGREES)	RANK	CON.	PER.	DAY	X OR RANGE (METERS)	Y (METERS) OR DIRECTION (DEGREES)
1	423.68480C	1	136	700399.0	4183937.0	26	201.38480C	1	179	702087.0	4183846.0
2	407.11100C	1	136	699932.0	4183611.0	27	200.61910C	1	136	698182.0	4182611.0
3	363.44750C	1	136	700472.0	4183880.0	28	200.41600C	1	157	700291.0	4184323.0
4	362.49700C	1	136	700326.0	4183995.0	29	199.76750	1	161	699182.0	4183611.0
5	341.51380C	1	136	700311.0	4184063.0	30	198.36100C	1	157	700295.0	4184131.0
6	303.83760C	1	136	700544.0	4183822.0	31	196.90590	1	155	703182.0	4182611.0
7	266.47170C	1	136	700295.0	4184131.0	32	195.71410C	1	202	700544.0	4183822.0
8	251.38390C	1	136	700182.0	4184111.0	33	195.19780C	1	156	700638.0	4183690.0
9	248.86240C	1	231	703182.0	4182611.0	34	193.93950	1	146	703182.0	4186611.0
10	228.38240C	1	156	700659.0	4183616.0	35	193.78970C	1	190	702460.0	4184628.0
11	225.83310C	1	136	699182.0	4182611.0	36	193.36150C	1	136	700280.0	4184198.0
12	225.14310C	1	80	700544.0	4183822.0	37	192.27320C	1	157	700182.0	4184111.0
13	223.12700C	1	136	699182.0	4183611.0	38	190.82360C	1	156	700701.0	4183467.0
14	220.03630C	1	159	703182.0	4184611.0	39	190.37250C	1	157	700311.0	4184063.0
15	219.81020	1	320	700824.0	4185247.0	40	190.31170C	1	202	700472.0	4183880.0
16	215.46090C	1	179	702182.0	4183611.0	41	190.03420C	1	190	702560.0	4184628.0
17	212.49200C	1	179	702187.0	4183746.0	42	189.52740C	1	137	703182.0	4185611.0
18	211.59360C	1	136	700617.0	4183764.0	43	188.27950C	1	129	701182.0	4186111.0
19	211.40660C	1	157	700345.0	4184323.0	44	187.28880	1	180	703182.0	4185611.0
20	209.19600C	1	157	700286.0	4184261.0	45	187.14380C	1	190	702360.0	4184628.0
21	207.93880	1	358	701369.0	4185245.0	46	185.32140C	1	202	700617.0	4183764.0
22	204.91520	1	186	703182.0	4187611.0	47	184.14700C	1	231	705682.0	4180111.0
23	203.82040C	1	157	700280.0	4184198.0	48	183.65480C	1	190	702454.0	4184747.0
24	202.90390C	1	156	700680.0	4183541.0	49	183.32380C	1	197	703182.0	4183611.0
25	201.57820C	1	179	702187.0	4183846.0	50	182.35930	1	358	701386.0	4185175.0

Job finished at 10:57:43

PA3REF.OUT

COMPLEX OUTPUT FILE

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                    COMPLEX I (DATED 90095)

MPLEX1 - PSD; 4@11N2; 2@GT24; 1 future; 3 DEG; 125'STCK;
R RECEPTORS Refined (SO2 is 1000 times assumes 0.23%S)
**************

                    GENERAL INPUT INFORMATION

HIS RUN OF COMPLEX I/VALLEY OPTION IS FOR THE POLLUTANT SO2  FOR  16 WIND DIRECTIONS.
 FACTOR OF      1.0000000 HAS BEEN SPECIFIED TO CONVERT USER LENGTH UNITS TO KILOMETERS.
 SIGNIFICANT SOURCES ARE TO BE CONSIDERED.
IS RUN WILL NOT CONSIDER ANY POLLUTANT LOSS.
IGH-FIVE SUMMARY 24-HOUR AVERAGE CONCENTRATION TABLES WILL BE OUTPUT FOR EACH RECEPTOR.
A FACTOR OF       .3048000 HAS BEEN SPECIFIED TO CONVERT USER HEIGHT UNITS TO METERS.

PTION        OPTION LIST                        OPTION SPECIFICATION : 0= IGNORE OPTION
                                                                       1= USE OPTION
                       TECHNICAL OPTIONS
  1          TERRAIN ADJUSTMENTS                                        1
  2          DO NOT INCLUDE STACK DOWNWASH CALCULATIONS                 0
  3          DO NOT INCLUDE GRADUAL PLUME RISE CALCULATIONS             0
  4          CALCULATE INITIAL PLUME SIZE                               1
                       INPUT OPTIONS
  5          READ MET DATA FROM CARDS                                   1
  6          READ HOURLY EMISSIONS                                      0
  7          SPECIFY SIGNIFICANT SOURCES                                0
  8          READ RADIAL DISTANCES TO GENERATE RECEPTORS                0
                       PRINTED OUTPUT OPTIONS
  9          DELETE EMISSIONS WITH HEIGHT TABLE                         0
 10          DELETE MET DATA SUMMARY FOR AVG PERIOD                     1
 11          DELETE HOURLY CONTRIBUTIONS                                1
 12          DELETE MET DATA ON HOURLY CONTRIBUTIONS                    1
 13          DELETE FINAL PLUME RISE CALC ON HRLY CONTRIBUTIONS         0
 14          DELETE HOURLY SUMMARY                                      1
 15          DELETE MET DATA ON HRLY SUMMARY                            1
 16          DELETE FINAL PLUME RISE CALC ON HRLY SUMMARY               1
 17          DELETE AVG-PERIOD CONTRIBUTIONS                            1
 18          DELETE AVERAGING PERIOD SUMMARY                            1
 19          DELETE AVG CONCENTRATIONS AND HI-5 TABLES                  0
                       OTHER CONTROL AND OUTPUT OPTIONS
 20          RUN IS PART OF A SEGMENTED RUN                             0
 21          WRITE PARTIAL CONC TO DISK OR TAPE                         0
 22          WRITE HOURLY CONC TO DISK OR TAPE                          0
 23          WRITE AVG-PERIOD CONC TO DISK OR TAPE                      0
 24          PUNCH AVG-PERIOD CONC ONTO CARDS                           0
 25          COMPLEX TERRAIN OPTION                                     0
 26          CALM PROCESSING OPTION                                     0
 27          VALLEY SCREENING OPTION                                    1

EMOMETER HEIGHT IS:      10.00
PONENTS FOR POWER- LAW WIND INCREASE WITH HEIGHT ARE: .00, .00, .00, .00, .00, .00
RRAIN ADJUSTMENTS ARE:  .500, .500, .500, .500, .000, .000 ZMIN IS  10.0
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ECAUSE THE VALLEY OPTION HAS BEEN SELECTED, THE FOLLOWING
TIONS AND PARAMETERS HAVE BEEN SET BY THE MODEL, OVERRIDING VALUES
OVIDED BY THE USER:

      IOPT(5), IOPT(10), IOPT(12), IOPT(15), IOPT(17), IOPT(18) = 1
      IOPT(6), IOPT(20) THRU IOPT(26) = 0
      NAVG = 1              NAV5 = 0
      IHSTRT = 1            CONTER(6) = 0.
      ZMIN = 10.            IKST = 6
      QU = 2.5              QHL = 9999.
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POINT SOURCE INFORMATION

	SOURCE	EAST COORD (USER	NORTH COORD UNITS)	SO2 (G/SEC) EMISSIONS	PART (G/SEC) EMISSIONS	STACK HT (M)	STACK TEMP (K)	STACK DIAM (M)	STACK VEL (M/SEC)	GRD-LVL ELEV USER HT UNITS	BUOY FLUX F M**4/S**3
1	10 GT24	700.55	4185.29	58250.00	.00	38.1	861.7	5.0	49.9	882.00	2052.42
2	20 GT24	700.55	4185.29	58250.00	.00	38.1	861.7	5.0	49.9	882.00	2052.42
3	30 Future	700.55	4185.29	90538.00	.00	38.1	861.7	5.0	49.9	882.00	2052.42
4	40 blnk	700.55	4185.29	1.00	.00	38.1	861.7	5.0	49.9	882.00	2052.42
5	50 11N2	700.54	4185.22	49543.00	.00	53.3	784.4	5.0	50.0	882.00	1949.81
6	60 11N2	700.54	4185.22	49543.00	.00	53.3	784.4	5.0	50.0	882.00	1949.81
7	70 11N2	700.54	4185.22	49543.00	.00	53.3	784.4	5.0	50.0	882.00	1949.81
8	80 11N2	700.54	4185.22	49543.00	.00	53.3	784.4	5.0	50.0	882.00	1949.81

TOTAL S02 EMISSION AND CUMULATIVE FRACTION ACCORDING TO HEIGHT

IGHT (M)	TOTAL POINT EMISSIONS (G/S)	CUMULATIVE FRACTION
5	.00	.000
10	.00	.000
15	.00	.000
20	.00	.000
25	.00	.000
30	.00	.000
35	.00	.000
40	********	.511
45	.00	.511
50	.00	.511
55	********	1.000
60	.00	1.000
65	.00	1.000
70	.00	1.000
75	.00	1.000
80	.00	1.000
85	.00	1.000
90	.00	1.000
95	.00	1.000
100	.00	1.000

TAL 405211.00

ADDITIONAL INFORMATION ON SOURCES.

EMISSION INFORMATION FOR 8 (NPT) POINT SOURCES HAS BEEN INPUT
8 SIGNIFICANT POINT SOURCES(NSIGP) ARE TO BE USED FOR THIS RUN
HE ORDER OF SIGNIFICANCE(IMPS) FOR 25 OR LESS POINT SOURCES USED IN THIS RUN AS LISTED BY POINT SOURCE NUMBER:
3 1 2 5 6 7 8 4

RECEPTOR INFORMATION

ECEPTOR	IDENTIFICATION	EAST COORD (USER	NORTH COORD UNITS)	ABV	RECEPTOR HT LOCAL GRD LVL (METERS)	RECEPTOR GROUND LEVEL ELEVATION (USER HT UNITS)
1	291	700.449	4185.027		.0	882.0
2	1101	700.182	4184.611		.0	850.0
3	1102	700.182	4184.861		.0	900.0
4	1103	700.182	4185.111		.0	870.0
5	1104	700.182	4185.361		.0	860.0
6	1105	700.182	4185.611		.0	890.0
7	1107	700.432	4185.611		.0	870.0
8	1109	700.682	4185.611		.0	860.0
9	1111	700.932	4185.611		.0	890.0

1201	699.682	4184.111	.0	860.0
1202	699.682	4184.611	.0	920.0
1203	699.682	4185.111	.0	940.0
1204	699.682	4185.611	.0	880.0
1205	699.682	4186.111	.0	920.0
1206	700.182	4184.111	.0	940.0
1207	700.182	4186.111	.0	930.0
1209	700.682	4186.111	.0	910.0
1211	701.182	4186.111	.0	870.0
1215	701.682	4185.611	.0	800.0
1216	701.682	4186.111	.0	870.0
1301	699.182	4183.611	.0	950.0
1302	699.182	4184.361	.0	880.0
1303	699.182	4185.111	.0	900.0
1304	699.182	4185.861	.0	850.0
1305	699.182	4186.611	.0	960.0
1306	699.932	4183.611	.0	960.0
1307	699.932	4186.611	.0	960.0
1309	700.682	4186.611	.0	950.0
1311	701.432	4186.611	.0	850.0
1315	702.182	4185.861	.0	950.0
1316	702.182	4186.611	.0	950.0
1401	698.182	4182.611	.0	870.0
1402	698.182	4183.611	.0	860.0
1403	698.182	4184.611	.0	960.0
1404	698.182	4185.611	.0	1000.0
1405	698.182	4186.611	.0	990.0
1406	698.182	4187.611	.0	960.0
1407	699.182	4182.611	.0	940.0
1408	699.182	4187.611	.0	950.0
1409	700.182	4182.611	.0	960.0
1410	700.182	4187.611	.0	930.0
1411	701.182	4182.611	.0	880.0
1412	701.182	4187.611	.0	926.0
1413	702.182	4182.611	.0	920.0
1414	702.182	4187.611	.0	860.0
1415	703.182	4182.611	.0	970.0
1416	703.182	4183.611	.0	1010.0
1417	703.182	4184.611	.0	1010.0
1418	703.182	4185.611	.0	950.0
1419	703.182	4186.611	.0	970.0
1420	703.182	4187.611	.0	960.0
1501	695.682	4180.111	.0	900.0
1502	695.682	4182.611	.0	1000.0
1503	695.682	4185.111	.0	980.0
1504	695.682	4187.611	.0	1000.0
1505	695.682	4190.111	.0	1070.0
1506	698.182	4180.111	.0	900.0
1507	698.182	4190.111	.0	940.0
1508	700.682	4180.111	.0	950.0
1509	700.682	4190.111	.0	930.0
1510	703.182	4180.111	.0	1000.0
1511	703.182	4190.111	.0	970.0
1512	705.682	4180.111	.0	1020.0
1513	705.682	4182.611	.0	950.0
1514	705.682	4185.111	.0	940.0
1515	705.682	4187.611	.0	970.0
1516	705.682	4190.111	.0	940.0
1601	693.182	4177.611	.0	900.0
1602	693.182	4182.611	.0	1000.0
1603	693.182	4187.611	.0	1000.0
1604	693.182	4192.611	.0	900.0
1605	698.182	4177.611	.0	900.0
1606	698.182	4192.611	.0	900.0

76	1609	708.182	4177.611	.0	1000.0
77	1610	708.182	4182.611	.0	970.0
78	1611	708.182	4187.611	.0	930.0
79	1612	708.182	4192.611	.0	900.0
80	1701	690.682	4175.111	.0	1000.0
81	1702	690.682	4180.111	.0	900.0
82	1703	690.682	4185.111	.0	900.0
83	1704	690.682	4190.111	.0	900.0
84	1705	690.682	4195.111	.0	900.0
85	1706	695.682	4175.111	.0	1000.0
86	1707	695.682	4195.111	.0	900.0
87	1708	700.682	4175.111	.0	900.0
88	1709	700.682	4195.111	.0	900.0
89	1710	705.682	4175.111	.0	1080.0
90	1711	705.682	4195.111	.0	1000.0
91	1712	710.682	4175.111	.0	910.0
92	1713	710.682	4180.111	.0	950.0
93	1714	710.682	4185.111	.0	935.0
94	1715	710.682	4190.111	.0	1000.0
95	1716	710.682	4195.111	.0	900.0
96	1801	680.682	4165.111	.0	1312.0
97	1802	680.682	4175.111	.0	934.0
98	1803	680.682	4185.111	.0	945.0
99	1804	680.682	4195.111	.0	919.0
100	1805	680.682	4205.111	.0	919.0
101	1806	690.682	4165.111	.0	1312.0
102	1807	690.682	4205.111	.0	928.0
103	1808	700.682	4165.111	.0	1050.0
104	1809	700.682	4205.111	.0	984.0
105	1810	710.682	4165.111	.0	1050.0
106	1811	710.682	4205.111	.0	1050.0
107	1812	720.682	4165.111	.0	1115.0
108	1813	720.682	4175.111	.0	984.0
109	1814	720.682	4185.111	.0	984.0
110	1815	720.682	4195.111	.0	984.0
111	1816	720.682	4205.111	.0	1070.0
112	1901	670.682	4155.111	.0	1247.0
113	1902	670.682	4170.111	.0	984.0
114	1903	670.682	4185.111	.0	787.0
115	1904	670.682	4200.111	.0	919.0
116	1905	670.682	4215.111	.0	918.0
117	1906	685.682	4155.111	.0	1476.0
118	1907	685.682	4215.111	.0	853.0
119	1908	700.682	4155.111	.0	1380.0
120	1909	700.682	4215.111	.0	984.0
121	1910	715.682	4155.111	.0	1247.0
122	1911	715.682	4215.111	.0	1017.0
123	1912	730.682	4155.111	.0	1378.0
124	1913	730.682	4170.111	.0	1050.0
125	1914	730.682	4185.111	.0	984.0
126	1915	730.682	4200.111	.0	1050.0
127	1916	730.682	4215.111	.0	1050.0
128	2001	660.682	4145.111	.0	1150.0
129	2002	660.682	4165.111	.0	1181.0
130	2003	660.682	4185.111	.0	853.0
131	2004	660.682	4205.111	.0	823.0
132	2005	660.682	4225.111	.0	1188.0
133	2006	680.682	4145.111	.0	1391.0
134	2007	680.682	4225.111	.0	920.0
135	2008	700.682	4145.111	.0	1420.0
136	2009	700.682	4225.111	.0	920.0
137	2010	720.682	4145.111	.0	1380.0
138	2011	720.682	4225.111	.0	984.0
139	2012	740.682	4145.111	.0	1476.0
140	BearMt	742.274	4157.685	.0	1660.0
141	WPinn	743.490	4160.790	.0	1487.0

142	RobeMt	744.270	4162.310	.0	1527.0
143	JoeLick	744.610	4165.550	.0	1483.0
144	B'ville	704.506	4152.939	.0	1312.0
145	Gruenhm	701.682	4150.842	.0	1380.0
146	2014	740.682	4185.111	.0	1050.0
147	2015	740.682	4205.111	.0	1050.0
148	2016	740.682	4225.111	.0	997.0
149	2101	650.682	4135.111	.0	1000.0
150	2102	650.682	4160.111	.0	1050.0
151	2103	650.682	4185.111	.0	787.0
152	2104	650.682	4210.111	.0	807.0
153	2105	650.682	4235.111	.0	853.0
154	2106	675.682	4135.111	.0	1148.0
155	2107	675.682	4235.111	.0	919.0
156	2108	700.682	4135.111	.0	1312.0
157	2109	700.682	4235.111	.0	880.0
158	2110	725.682	4135.111	.0	1476.0
159	2111	725.682	4235.111	.0	988.0
160	2112	750.682	4135.111	.0	1476.0
161	2113	750.682	4160.111	.0	1476.0
162	2114	750.682	4185.111	.0	984.0
163	2115	750.682	4210.111	.0	1050.0
164	2116	750.682	4235.111	.0	919.0

VALLEY METEOROLOGICAL INPUT DATA

```
PRESET BY MODEL:
      MIXING HEIGHT (M) = 9999
      STABILITY = 6
      WIND SPEED (M/SEC) = 2.5

INPUT BY USER:
      TEMPERATURE (K) =  257.0
      WIND DIRECTIONS (DEG) =   22.5  45.0  67.5  90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
```

VALLEY: FIVE HIGHEST 24-HOUR SO2 CONCENTRATIONS (WIND DIRECTION)
(MICROGRAMS/M**3)

RECEPTOR	1	2	3	4	5
1(700.45,4185.03)	819.09 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
2(700.18,4184.61)	185.90 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
3(700.18,4184.86)	611.47 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
4(700.18,4185.11)	442.25 (67.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
5(700.18,4185.36)	287.06 (90.0)	94.12 (112.5)	.00 (.0)	.00 (.0)	.00 (.0)
6(700.18,4185.61)	545.36 (135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
7(700.43,4185.61)	489.26 (157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
8(700.68,4185.61)	395.29 (202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
9(700.93,4185.61)	533.99 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
10(699.68,4184.11)	164.71 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
11(699.68,4184.61)	562.29 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
12(699.68,4185.11)	654.66 (67.5)	257.78 (90.0)	.00 (.0)	.00 (.0)	.00 (.0)
13(699.68,4185.61)	293.64 (112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
14(699.68,4186.11)	533.06 (135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
15(700.18,4184.11)	754.30 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
16(700.18,4186.11)	745.58 (157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
17(700.68,4186.11)	543.54 (180.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
18(701.18,4186.11)	227.51 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
19(701.68,4185.61)	54.35 (247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
20(701.68,4186.11)	200.52 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
21(699.18,4183.61)	725.35 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
22(699.18,4184.36)	167.30 (45.0)	63.43 (67.5)	.00 (.0)	.00 (.0)	.00 (.0)
23(699.18,4185.11)	350.72 (90.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
24(699.18,4185.86)	135.48 (112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
25(699.18,4186.61)	882.44 (135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
26(699.93,4183.61)	901.79 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
27(699.93,4186.61)	967.93 (157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
28(700.68,4186.61)	852.48 (180.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
29(701.43,4186.61)	133.27 (202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
30(702.18,4185.86)	769.45 (247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
31(702.18,4186.61)	729.41 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
32(698.18,4182.61)	188.00 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
33(698.18,4183.61)	156.28 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
34(698.18,4184.61)	824.37 (67.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
35(698.18,4185.61)	1539.08 (90.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
36(698.18,4186.61)	1280.68 (112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
37(698.18,4187.61)	785.79 (135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
38(699.18,4182.61)	586.73 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
39(699.18,4187.61)	693.06 (157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
40(700.18,4182.61)	810.77 (360.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
41(700.18,4187.61)	512.37 (180.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
42(701.18,4182.61)	219.19 (337.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
43(701.18,4187.61)	477.95 (202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
44(702.18,4182.61)	425.16 (337.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
45(702.18,4187.61)	156.22 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
46(703.18,4182.61)	896.22 (315.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
47(703.18,4183.61)	1663.91 (292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
48(703.18,4184.61)	1721.62 (292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
49(703.18,4185.61)	694.57 (270.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
50(703.18,4186.61)	934.52 (247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
51(703.18,4187.61)	779.34 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
52(695.68,4180.11)	360.28 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
53(695.68,4182.61)	1326.35 (67.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
54(695.68,4185.11)	1015.27 (90.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
55(695.68,4187.61)	1327.35 (112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
56(695.68,4190.11)	3073.37 (135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
57(698.18,4180.11)	331.67 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
58(698.18,4190.11)	584.59 (157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
59(700.68,4180.11)	669.13 (360.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)

62(703.18,4190.11)	889.32 (202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
63(705.68,4180.11)	1707.27 (315.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
64(705.68,4182.61)	679.58 (292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
65(705.68,4185.11)	580.39 (270.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
66(705.68,4187.61)	890.90 (247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
67(705.68,4190.11)	621.18 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
68(693.18,4177.61)	418.60 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
69(693.18,4182.61)	1340.70 (67.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
70(693.18,4187.61)	1340.74 (112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
71(693.18,4192.61)	414.91 (135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
72(698.18,4177.61)	374.43 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
73(698.18,4192.61)	370.01 (157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
74(703.18,4177.61)	1341.48 (337.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
75(703.18,4192.61)	371.38 (202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
76(708.18,4177.61)	1367.97 (315.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
77(708.18,4182.61)	930.87 (292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
78(708.18,4187.61)	557.93 (247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
79(708.18,4192.61)	418.32 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
80(690.68,4175.11)	1416.46 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
81(690.68,4180.11)	427.55 (67.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
82(690.68,4185.11)	405.51 (90.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
83(690.68,4190.11)	425.20 (112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
84(690.68,4195.11)	477.29 (135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
85(695.68,4175.11)	1373.86 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
86(695.68,4195.11)	425.11 (157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
87(700.68,4175.11)	410.43 (360.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
88(700.68,4195.11)	405.31 (180.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
89(705.68,4175.11)	3138.71 (337.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
90(705.68,4195.11)	1372.44 (202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
91(710.68,4175.11)	542.50 (315.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
92(710.68,4180.11)	784.48 (292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
93(710.68,4185.11)	634.47 (270.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
94(710.68,4190.11)	1374.07 (247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
95(710.68,4195.11)	480.70 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
96(680.68,4165.11)	10338.07 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
97(680.68,4175.11)	752.08 (67.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
98(680.68,4185.11)	827.96 (90.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
99(680.68,4195.11)	649.80 (112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
100(680.68,4205.11)	673.13 (135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
101(690.68,4165.11)	12406.84 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
102(690.68,4205.11)	709.36 (157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
103(700.68,4165.11)	2167.81 (360.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
104(700.68,4205.11)	1203.73 (180.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
105(710.68,4165.11)	2115.26 (337.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
106(710.68,4205.11)	2121.22 (202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
107(720.68,4165.11)	3221.87 (315.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
108(720.68,4175.11)	1197.78 (292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
109(720.68,4185.11)	1202.96 (270.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
110(720.68,4195.11)	1198.18 (247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
111(720.68,4205.11)	2337.86 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
112(670.68,4155.11)	5475.91 (45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
113(670.68,4170.11)	1154.38 (67.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
114(670.68,4185.11)	192.10 (90.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
115(670.68,4200.11)	675.51 (112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
116(670.68,4215.11)	659.34 (135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
117(685.68,4155.11)	*16662.02 (22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
118(685.68,4215.11)	374.93 (157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
119(700.68,4155.11)	13251.54 (360.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
120(700.68,4215.11)	1182.34 (180.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
121(715.68,4155.11)	6498.83 (337.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
122(715.68,4215.11)	1491.35 (202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
123(730.68,4155.11)	9546.14 (315.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
124(730.68,4170.11)	1899.58 (292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
125(730.68,4185.11)	1180.71 (270.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
126(730.68,4200.11)	1902.46 (247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
127(730.68,4215.11)	1741.73 (225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)

128(660.68,4145.11)	2741.28	(45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
129(660.68,4165.11)	3758.34	(67.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
130(660.68,4185.11)	382.35	(90.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
131(660.68,4205.11)	298.42	(112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
132(660.68,4225.11)	3338.15	(135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
133(680.68,4145.11)	9543.04	(22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
134(680.68,4225.11)	666.81	(157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
135(700.68,4145.11)	11703.49	(360.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
136(700.68,4225.11)	673.14	(180.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
137(720.68,4145.11)	9156.57	(337.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
138(720.68,4225.11)	1079.95	(202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
139(740.68,4145.11)	9691.56	(315.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
140(742.27,4157.69)	15332.52	(292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
141(743.49,4160.79)	11517.82	(292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
142(744.27,4162.31)	12654.29	(292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
143(744.61,4165.55)	11687.34	(292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
144(704.51,4152.94)	9217.75	(360.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
145(701.68,4150.84)	11725.09	(360.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
146(740.68,4185.11)	1779.33	(270.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
147(740.68,4205.11)	1705.08	(247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
148(740.68,4225.11)	1106.19	(225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
149(650.68,4135.11)	1024.09	(45.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
150(650.68,4160.11)	1557.90	(67.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
151(650.68,4185.11)	223.02	(90.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
152(650.68,4210.11)	270.53	(112.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
153(650.68,4235.11)	380.79	(135.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
154(675.68,4135.11)	2730.33	(22.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
155(675.68,4235.11)	646.00	(157.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
156(700.68,4135.11)	6395.85	(360.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
157(700.68,4235.11)	483.84	(180.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
158(725.68,4135.11)	9813.59	(337.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
159(725.68,4235.11)	1046.07	(202.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
160(750.68,4135.11)	7683.73	(315.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
161(750.68,4160.11)	9814.47	(292.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
162(750.68,4185.11)	1048.41	(270.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
163(750.68,4210.11)	1556.66	(247.5)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)
164(750.68,4235.11)	606.43	(225.0)	.00 (.0)	.00 (.0)	.00 (.0)	.00 (.0)

:op - Program terminated.

B3.5um
CTSCREEN OUTPUT FILE
(BEAR MT)

UMMARY FOR ALL STABLE HOURS

REC #	CONC UG/M**3	WD	WS M/S	SIGV M/S	SIGW M/S	DTHDZ DEG/M	ZI M	USTAR M/S	EL M
69	69.94	303.3	2.0	.30	.15	.035	50.0	.1	5.0

UMMARY FOR ALL UNSTABLE HOURS

REC #	CONC UG/M**3	WD	WS M/S	SIGV M/S	SIGW M/S	DTHDZ DEG/M	ZI M	USTAR M/S	EL M
25	38.68	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0

UMMARY FOR ALL HOURS

REC #	CONC UG/M**3	3HR UG/M**3	24HR UG/M**3	ANNUAL UG/M**3
69	69.94	48.95	10.49	2.10

ECEPTOR SUMMARY FOR STABLE HOURS

REC #	CONC UG/M**3	WD	WS M/S	SIGV M/S	SIGW M/S	DTHDZ DEG/M	ZI M	USTAR M/S	EL M
1	34.37	303.2	4.0	.30	.30	.035	50.0	.1	5.0
2	34.20	303.3	2.0	.30	.30	.035	50.0	.1	5.0
3	43.65	303.1	5.0	.30	.30	.035	50.0	.1	5.0
4	50.71	303.1	5.0	.30	.30	.035	50.0	.1	5.0
5	53.12	303.1	5.0	.30	.30	.035	50.0	.1	5.0
6	54.29	303.1	5.0	.30	.30	.035	50.0	.1	5.0
7	51.37	303.1	5.0	.30	.30	.035	50.0	.1	5.0
8	45.34	303.1	5.0	.30	.30	.035	50.0	.1	5.0
9	37.89	303.1	5.0	.30	.30	.035	50.0	.1	5.0
10	33.67	303.3	2.0	.30	.30	.035	50.0	.1	5.0
11	39.81	303.1	5.0	.30	.30	.035	50.0	.1	5.0
12	46.25	303.1	5.0	.30	.30	.035	50.0	.1	5.0
13	46.71	303.1	5.0	.30	.30	.035	50.0	.1	5.0
14	50.75	303.1	5.0	.30	.30	.035	50.0	.1	5.0
15	53.70	303.1	5.0	.30	.30	.035	50.0	.1	5.0
16	54.89	303.1	5.0	.30	.30	.035	50.0	.1	5.0
17	56.08	303.1	5.0	.30	.30	.035	50.0	.1	5.0
18	54.16	303.1	5.0	.30	.30	.035	50.0	.1	5.0
19	53.09	303.1	5.0	.30	.30	.035	50.0	.1	5.0
20	50.37	303.1	5.0	.30	.30	.035	50.0	.1	5.0
21	49.73	303.1	5.0	.30	.30	.035	50.0	.1	5.0
22	41.66	303.1	5.0	.30	.30	.035	50.0	.1	5.0
23	47.09	303.1	5.0	.30	.30	.035	50.0	.1	5.0
24	50.07	303.1	5.0	.30	.30	.035	50.0	.1	5.0
25	41.14	303.1	5.0	.30	.30	.035	50.0	.1	5.0
26	48.52	303.2	4.0	.30	.15	.035	50.0	.1	5.0
27	47.80	303.2	4.0	.30	.15	.035	50.0	.1	5.0
28	54.18	303.2	4.0	.30	.15	.035	50.0	.1	5.0
29	57.94	303.2	4.0	.30	.15	.035	50.0	.1	5.0
30	61.35	303.2	4.0	.30	.15	.035	50.0	.1	5.0
31	62.50	303.2	4.0	.30	.15	.035	50.0	.1	5.0
32	60.58	303.2	4.0	.30	.15	.035	50.0	.1	5.0
33	55.84	303.2	4.0	.30	.15	.035	50.0	.1	5.0
34	48.99	303.2	4.0	.30	.15	.035	50.0	.1	5.0
35	42.19	303.2	4.0	.30	.15	.035	50.0	.1	5.0
36	49.15	303.2	4.0	.30	.15	.035	50.0	.1	5.0
37	55.31	303.2	4.0	.30	.15	.035	50.0	.1	5.0
38	57.10	303.2	4.0	.30	.15	.035	50.0	.1	5.0
39	59.86	303.2	4.0	.30	.15	.035	50.0	.1	5.0
40	61.07	303.2	4.0	.30	.15	.035	50.0	.1	5.0
41	63.52	303.2	4.0	.30	.15	.035	50.0	.1	5.0
42	65.01	303.2	4.0	.30	.15	.035	50.0	.1	5.0
43	63.84	303.2	4.0	.30	.15	.035	50.0	.1	5.0

44	61.43	303.2	4.0	.30	.15	.035	50.0	.1	5.0
45	60.57	303.2	4.0	.30	.15	.035	50.0	.1	5.0
46	55.55	303.2	4.0	.30	.15	.035	50.0	.1	5.0
47	53.93	303.2	4.0	.30	.15	.035	50.0	.1	5.0
48	58.53	303.2	4.0	.30	.15	.035	50.0	.1	5.0
49	55.59	303.2	4.0	.30	.15	.035	50.0	.1	5.0
50	54.14	303.2	4.0	.30	.15	.035	50.0	.1	5.0
51	57.84	303.3	3.0	.30	.15	.035	50.0	.1	5.0
52	60.75	303.3	3.0	.30	.15	.035	50.0	.1	5.0
53	64.23	303.3	3.0	.30	.15	.035	50.0	.1	5.0
54	65.80	303.3	3.0	.30	.15	.035	50.0	.1	5.0
55	67.69	303.3	3.0	.30	.15	.035	50.0	.1	5.0
56	68.05	303.3	3.0	.30	.15	.035	50.0	.1	5.0
57	68.94	303.3	3.0	.30	.15	.035	50.0	.1	5.0
58	68.20	303.3	3.0	.30	.15	.035	50.0	.1	5.0
59	66.93	303.3	3.0	.30	.15	.035	50.0	.1	5.0
60	65.51	303.3	3.0	.30	.15	.035	50.0	.1	5.0
61	65.53	303.3	3.0	.30	.15	.035	50.0	.1	5.0
62	66.04	303.3	3.0	.30	.15	.035	50.0	.1	5.0
63	63.04	303.3	3.0	.30	.15	.035	50.0	.1	5.0
64	62.74	303.3	3.0	.30	.15	.035	50.0	.1	5.0
65	69.59	303.4	2.0	.30	.04	.035	50.0	.1	5.0
66	69.48	303.4	2.0	.30	.04	.035	50.0	.1	5.0
67	69.41	303.4	2.0	.30	.04	.035	50.0	.1	5.0
68	69.89	303.3	2.0	.30	.15	.035	50.0	.1	5.0
69	69.94	303.3	2.0	.30	.15	.035	50.0	.1	5.0
70	69.51	303.4	2.0	.30	.08	.035	50.0	.1	5.0
71	69.33	303.4	2.0	.30	.04	.035	50.0	.1	5.0
72	69.12	303.4	2.0	.30	.04	.035	50.0	.1	5.0
73	69.34	303.4	2.0	.30	.04	.035	50.0	.1	5.0
74	69.47	303.4	2.0	.30	.04	.035	50.0	.1	5.0
75	69.58	303.4	2.0	.30	.04	.035	50.0	.1	5.0
76	69.53	303.4	2.0	.30	.04	.035	50.0	.1	5.0
77	69.49	303.4	2.0	.30	.04	.035	50.0	.1	5.0
78	69.44	303.4	2.0	.30	.04	.035	50.0	.1	5.0
79	69.39	303.4	2.0	.30	.04	.035	50.0	.1	5.0
80	69.35	303.4	2.0	.30	.04	.035	50.0	.1	5.0
81	69.34	303.4	2.0	.30	.04	.035	50.0	.1	5.0
82	69.37	303.4	2.0	.30	.04	.035	50.0	.1	5.0
83	69.42	303.4	2.0	.30	.04	.035	50.0	.1	5.0
84	69.46	303.4	2.0	.30	.04	.035	50.0	.1	5.0
85	69.51	303.4	2.0	.30	.04	.035	50.0	.1	5.0
86	69.49	303.4	2.0	.30	.04	.035	50.0	.1	5.0

RECEPTOR SUMMARY FOR UNSTABLE HOURS

REC #	CONC UG/M**3	WD	WS M/S	SIGV M/S	SIGW M/S	DTHDZ DEG/M	ZI M	USTAR M/S	EL M
1	38.35	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
2	37.70	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
3	37.93	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
4	38.20	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
5	38.10	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-90.0
6	37.84	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
7	38.04	303.1	1,0	-999.90	-999.00	.000	355.7	.1	-50.0
8	37.44	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
9	36.54	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
10	35.64	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
11	36.40	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
12	37.10	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
13	37.02	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
14	37.44	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
15	37.54	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-90.0
16	37.61	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
17	37.42	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
18	37.21	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
19	37.42	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0

20	37.57	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
21	37.81	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
22	38.01	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
23	38.19	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
24	38.25	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
25	38.68	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
26	38.26	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
27	37.82	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
28	38.23	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
29	38.31	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
30	37.95	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
31	37.75	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-90.0
32	37.99	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
33	37.59	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
34	36.84	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
35	35.81	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
36	36.59	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
37	37.23	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
38	37.24	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
39	37.66	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
40	37.80	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
41	37.68	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
42	37.41	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
43	37.37	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
44	37.46	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-90.0
45	37.75	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-90.0
46	37.92	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
47	38.16	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
48	38.09	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
49	38.38	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-90.0
50	38.66	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
51	38.18	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
52	38.10	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
53	38.29	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
54	38.19	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-90.0
55	37.83	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
56	37.68	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
57	37.34	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
58	37.53	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
59	37.66	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-90.0
60	37.96	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
61	37.99	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
62	38.12	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
63	38.59	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
64	38.37	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
65	37.96	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
66	37.86	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
67	37.79	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
68	37.74	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
69	37.63	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
70	37.58	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
71	37.61	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
72	37.56	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
73	37.65	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
74	37.79	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
75	37.94	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
76	37.90	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
77	37.87	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
78	37.80	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
79	37.74	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
80	37.70	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
81	37.65	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
82	37.67	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
83	37.73	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
84	37.79	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
85	37.85	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0
86	37.85	303.1	1.0	-999.90	-999.00	.000	355.7	.1	-50.0

S3.OUT
CT SCREEN OUTPUT FILE
(SAND. KNOB)

:UMMARY FOR ALL STABLE HOURS

REC #	CONC UG/M**3	WD	WS M/S	SIGV M/S	SIGW M/S	DTHDZ DEG/M	ZI M	USTAR M/S	EL M
65	72.75	21.8	3.0	.30	.30	.035	50.0	.1	5.0

:UMMARY FOR ALL UNSTABLE HOURS

REC #	CONC UG/M**3	WD	WS M/S	SIGV M/S	SIGW M/S	DTHDZ DEG/M	ZI M	USTAR M/S	EL M
13	45.74	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0

:UMMARY FOR ALL HOURS

REC #	CONC UG/M**3	3HR UG/M**3	24HR UG/M**3	ANNUAL UG/M**3
65	72.75	50.93	10.91	2.18

:ECEPTOR SUMMARY FOR STABLE HOURS

REC #	CONC UG/M**3	WD	WS M/S	SIGV M/S	SIGW M/S	DTHDZ DEG/M	ZI M	USTAR M/S	EL M
1	38.28	21.8	2.0	.30	.30	.035	50.0	.1	5.0
2	38.23	21.8	2.0	.30	.30	.035	50.0	.1	5.0
3	38.37	21.8	2.0	.30	.30	.035	50.0	.1	5.0
4	38.52	21.8	2.0	.30	.30	.035	50.0	.1	5.0
5	40.34	21.8	3.0	.30	.30	.035	50.0	.1	5.0
6	45.86	21.8	3.0	.30	.30	.035	50.0	.1	5.0
7	41.88	21.8	3.0	.30	.30	.035	50.0	.1	5.0
8	38.88	21.8	2.0	.30	.30	.035	50.0	.1	5.0
9	41.21	21.8	3.0	.30	.30	.035	50.0	.1	5.0
10	48.49	21.8	4.0	.30	.30	.035	50.0	.1	5.0
11	57.88	21.8	4.0	.30	.30	.035	50.0	.1	5.0
12	59.65	21.8	4.0	.30	.30	.035	50.0	.1	5.0
13	58.77	21.8	4.0	.30	.30	.035	50.0	.1	5.0
14	51.71	21.8	4.0	.30	.30	.035	50.0	.1	5.0
15	40.05	21.8	2.0	.30	.30	.035	50.0	.1	5.0
16	40.00	21.8	2.0	.30	.30	.035	50.0	.1	5.0
17	39.92	21.8	2.0	.30	.30	.035	50.0	.1	5.0
18	39.84	21.8	2.0	.30	.30	.035	50.0	.1	5.0
19	39.73	21.8	2.0	.30	.30	.035	50.0	.1	5.0
20	39.68	21.8	2.0	.30	.30	.035	50.0	.1	5.0
21	39.55	21.8	2.0	.30	.30	.035	50.0	.1	5.0
22	39.41	21.8	2.0	.30	.30	.035	50.0	.1	5.0
23	39.66	21.8	2.0	.30	.30	.035	50.0	.1	5.0
24	39.89	21.8	2.0	.30	.30	.035	50.0	.1	5.0
25	40.25	21.8	3.0	.30	.30	.035	50.0	.1	5.0
26	44.01	21.8	3.0	.30	.30	.035	50.0	.1	5.0
27	46.11	21.8	3.0	.30	.30	.035	50.0	.1	5.0
28	42.55	21.8	3.0	.30	.30	.035	50.0	.1	5.0
29	44.77	21.8	4.0	.30	.30	.035	50.0	.1	5.0
30	49.32	21.8	4.0	.30	.30	.035	50.0	.1	5.0
31	53.31	21.8	4.0	.30	.30	.035	50.0	.1	5.0
32	50.67	21.8	3.0	.30	.30	.035	50.0	.1	5.0
33	55.90	21.8	4.0	.30	.30	.035	50.0	.1	5.0
34	59.39	21.8	4.0	.30	.30	.035	50.0	.1	5.0
35	59.32	21.8	4.0	.30	.30	.035	50.0	.1	5.0
36	59.28	21.8	4.0	.30	.30	.035	50.0	.1	5.0
37	60.67	21.8	4.0	.30	.30	.035	50.0	.1	5.0
38	58.68	21.8	4.0	.30	.30	.035	50.0	.1	5.0
39	56.12	21.8	4.0	.30	.30	.035	50.0	.1	5.0
40	48.52	21.8	3.0	.30	.30	.035	50.0	.1	5.0
41	61.23	21.8	3.0	.30	.30	.035	50.0	.1	5.0
42	66.10	21.8	3.0	.30	.30	.035	50.0	.1	5.0
43	65.95	21.8	3.0	.30	.30	.035	50.0	.1	5.0

44	71.44	21.8	3.0	.30	.30	.035	50.0	.1	5.0
45	70.88	21.8	3.0	.30	.30	.035	50.0	.1	5.0
46	72.32	21.8	3.0	.30	.30	.035	50.0	.1	5.0
47	71.56	21.8	3.0	.30	.30	.035	50.0	.1	5.0
48	69.59	21.8	3.0	.30	.30	.035	50.0	.1	5.0
49	71.48	21.8	3.0	.30	.30	.035	50.0	.1	5.0
50	51.56	21.8	4.0	.30	.30	.035	50.0	.1	5.0
51	68.45	21.8	3.0	.30	.30	.035	50.0	.1	5.0
52	72.10	21.8	3.0	.30	.30	.035	50.0	.1	5.0
53	69.99	21.8	3.0	.30	.30	.035	50.0	.1	5.0
54	64.75	21.8	3.0	.30	.30	.035	50.0	.1	5.0
55	60.85	21.8	3.0	.30	.30	.035	50.0	.1	5.0
56	59.90	21.8	3.0	.30	.30	.035	50.0	.1	5.0
57	53.44	21.8	3.0	.30	.30	.035	50.0	.1	5.0
58	51.38	21.8	3.0	.30	.30	.035	50.0	.1	5.0
59	50.69	21.8	3.0	.30	.30	.035	50.0	.1	5.0
60	54.01	21.8	3.0	.30	.30	.035	50.0	.1	5.0
61	63.79	21.8	3.0	.30	.30	.035	50.0	.1	5.0
62	69.02	21.8	3.0	.30	.30	.035	50.0	.1	5.0
63	66.58	21.8	3.0	.30	.30	.035	50.0	.1	5.0
64	71.33	21.8	3.0	.30	.30	.035	50.0	.1	5.0
65	72.75	21.8	3.0	.30	.30	.035	50.0	.1	5.0
66	72.73	21.8	3.0	.30	.30	.035	50.0	.1	5.0
67	72.40	21.8	3.0	.30	.30	.035	50.0	.1	5.0
68	71.35	21.8	3.0	.30	.30	.035	50.0	.1	5.0
69	72.25	21.8	3.0	.30	.30	.035	50.0	.1	5.0
70	68.09	21.8	3.0	.30	.30	.035	50.0	.1	5.0
71	68.76	21.8	3.0	.30	.30	.035	50.0	.1	5.0
72	71.85	21.8	3.0	.30	.30	.035	50.0	.1	5.0
73	72.16	21.8	3.0	.30	.30	.035	50.0	.1	5.0
74	70.58	21.8	3.0	.30	.30	.035	50.0	.1	5.0
75	71.56	21.8	3.0	.30	.30	.035	50.0	.1	5.0
76	71.31	21.8	3.0	.30	.30	.035	50.0	.1	5.0
77	71.54	21.8	3.0	.30	.30	.035	50.0	.1	5.0
78	71.31	21.8	3.0	.30	.30	.035	50.0	.1	5.0
79	71.02	21.8	3.0	.30	.30	.035	50.0	.1	5.0
80	70.65	21.8	3.0	.30	.30	.035	50.0	.1	5.0
81	69.84	21.8	3.0	.30	.30	.035	50.0	.1	5.0
82	69.21	21.8	3.0	.30	.30	.035	50.0	.1	5.0
83	69.49	21.8	3.0	.30	.30	.035	50.0	.1	5.0
84	69.33	21.8	3.0	.30	.30	.035	50.0	.1	5.0
85	67.83	21.8	3.0	.30	.30	.035	50.0	.1	5.0
86	64.75	21.8	3.0	.30	.30	.035	50.0	.1	5.0
87	62.67	21.8	3.0	.30	.30	.035	50.0	.1	5.0
88	66.40	21.8	3.0	.30	.30	.035	50.0	.1	5.0
89	64.74	21.8	3.0	.30	.30	.035	50.0	.1	5.0
90	66.64	21.8	3.0	.30	.30	.035	50.0	.1	5.0
91	63.21	21.8	3.0	.30	.30	.035	50.0	.1	5.0
92	66.22	21.8	3.0	.30	.30	.035	50.0	.1	5.0
93	62.54	21.8	3.0	.30	.30	.035	50.0	.1	5.0
94	58.86	21.8	3.0	.30	.30	.035	50.0	.1	5.0
95	56.19	21.8	3.0	.30	.30	.035	50.0	.1	5.0
96	58.00	21.8	3.0	.30	.30	.035	50.0	.1	5.0
97	57.32	21.8	3.0	.30	.30	.035	50.0	.1	5.0
98	58.80	21.8	3.0	.30	.30	.035	50.0	.1	5.0
99	52.10	21.8	3.0	.30	.30	.035	50.0	.1	5.0
100	50.97	21.8	3.0	.30	.30	.035	50.0	.1	5.0
101	45.78	21.8	3.0	.30	.30	.035	50.0	.1	5.0
102	44.91	21.8	3.0	.30	.30	.035	50.0	.1	5.0
103	38.92	21.8	2.0	.30	.30	.035	50.0	.1	5.0
104	39.15	21.8	2.0	.30	.30	.035	50.0	.1	5.0
105	39.17	21.8	2.0	.30	.30	.035	50.0	.1	5.0
106	38.93	21.8	2.0	.30	.30	.035	50.0	.1	5.0
107	38.87	21.8	2.0	.30	.30	.035	50.0	.1	5.0
108	42.15	21.8	3.0	.30	.30	.035	50.0	.1	5.0
109	46.67	21.8	3.0	.30	.30	.035	50.0	.1	5.0
110	52.30	21.8	3.0	.30	.30	.035	50.0	.1	5.0
111	43.96	21.8	3.0	.30	.30	.035	50.0	.1	5.0

112	53.31	21.8	3.0	.30	.30	.035	50.0	.1	5.0
113	53.34	21.8	3.0	.30	.30	.035	50.0	.1	5.0
114	58.13	21.8	3.0	.30	.30	.035	50.0	.1	5.0
115	56.36	21.8	3.0	.30	.30	.035	50.0	.1	5.0
116	57.43	21.8	3.0	.30	.30	.035	50.0	.1	5.0
117	55.43	21.8	3.0	.30	.30	.035	50.0	.1	5.0
118	63.25	21.8	3.0	.30	.30	.035	50.0	.1	5.0
119	55.75	21.8	3.0	.30	.30	.035	50.0	.1	5.0
120	56.74	21.8	3.0	.30	.30	.035	50.0	.1	5.0
121	55.56	21.8	3.0	.30	.30	.035	50.0	.1	5.0
122	63.37	21.8	3.0	.30	.30	.035	50.0	.1	5.0
123	54.69	21.8	3.0	.30	.30	.035	50.0	.1	5.0
124	55.87	21.8	3.0	.30	.30	.035	50.0	.1	5.0
125	68.51	21.8	2.0	.30	.30	.035	50.0	.1	5.0
126	70.00	21.8	2.0	.30	.30	.035	50.0	.1	5.0
127	70.56	21.8	2.0	.30	.30	.035	50.0	.1	5.0
128	70.12	21.8	2.0	.30	.30	.035	50.0	.1	5.0
129	70.35	21.8	2.0	.30	.30	.035	50.0	.1	5.0
130	71.02	21.8	2.0	.30	.30	.035	50.0	.1	5.0
131	71.05	21.8	2.0	.30	.30	.035	50.0	.1	5.0
132	69.45	21.8	2.0	.30	.30	.035	50.0	.1	5.0
133	70.17	21.8	2.0	.30	.30	.035	50.0	.1	5.0
134	64.03	21.8	3.0	.30	.30	.035	50.0	.1	5.0
135	63.88	21.8	3.0	.30	.30	.035	50.0	.1	5.0
136	64.04	21.8	3.0	.30	.30	.035	50.0	.1	5.0
137	64.18	21.8	3.0	.30	.30	.035	50.0	.1	5.0
138	63.27	21.8	3.0	.30	.30	.035	50.0	.1	5.0
139	61.98	21.8	3.0	.30	.30	.035	50.0	.1	5.0
140	61.18	21.8	3.0	.30	.30	.035	50.0	.1	5.0
141	60.44	21.8	3.0	.30	.30	.035	50.0	.1	5.0
142	61.01	21.8	3.0	.30	.30	.035	50.0	.1	5.0
143	59.99	21.8	3.0	.30	.30	.035	50.0	.1	5.0
144	56.93	21.8	3.0	.30	.30	.035	50.0	.1	5.0
145	55.21	21.8	3.0	.30	.30	.035	50.0	.1	5.0
146	56.22	21.8	3.0	.30	.30	.035	50.0	.1	5.0
147	53.09	21.8	3.0	.30	.30	.035	50.0	.1	5.0
148	49.27	21.8	3.0	.30	.30	.035	50.0	.1	5.0
149	54.43	21.8	3.0	.30	.30	.035	50.0	.1	5.0
150	50.96	21.8	3.0	.30	.30	.035	50.0	.1	5.0
151	57.38	21.8	3.0	.30	.30	.035	50.0	.1	5.0
152	56.77	21.8	3.0	.30	.30	.035	50.0	.1	5.0
153	51.76	21.8	3.0	.30	.30	.035	50.0	.1	5.0
154	56.81	21.8	3.0	.30	.30	.035	50.0	.1	5.0
155	59.29	21.8	3.0	.30	.30	.035	50.0	.1	5.0
156	59.71	21.8	3.0	.30	.30	.035	50.0	.1	5.0
157	59.49	21.8	3.0	.30	.30	.035	50.0	.1	5.0
158	58.79	21.8	3.0	.30	.30	.035	50.0	.1	5.0
159	58.39	21.8	3.0	.30	.30	.035	50.0	.1	5.0
160	58.42	21.8	3.0	.30	.30	.035	50.0	.1	5.0
161	58.64	21.8	3.0	.30	.30	.035	50.0	.1	5.0
162	58.49	21.8	3.0	.30	.30	.035	50.0	.1	5.0
163	58.19	21.8	3.0	.30	.30	.035	50.0	.1	5.0
164	58.21	21.8	3.0	.30	.30	.035	50.0	.1	5.0
165	58.19	21.8	3.0	.30	.30	.035	50.0	.1	5.0
166	57.82	21.8	3.0	.30	.30	.035	50.0	.1	5.0
167	57.83	21.8	3.0	.30	.30	.035	50.0	.1	5.0

ECEPTOR SUMMARY FOR UNSTABLE HOURS

REC #	CONC UG/M**3	WD	WS M/S	SIGV M/S	SIGW M/S	DTHDZ DEG/M	ZI M	USTAR M/S	EL M
1	20.76	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-10.0
2	25.18	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
3	25.15	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
4	24.50	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
5	29.32	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
6	32.10	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0

7	31.45	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
8	34.86	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
9	38.07	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
10	41.76	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
11	43.86	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
12	44.68	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
13	45.74	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
14	44.27	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
15	38.99	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
16	35.93	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
17	34.22	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
18	30.97	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
19	31.43	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
20	29.97	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
21	32.29	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
22	35.23	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
23	35.39	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
24	38.98	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
25	37.41	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
26	39.41	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
27	39.80	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
28	40.52	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
29	41.96	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
30	43.73	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
31	43.30	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
32	41.23	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
33	43.41	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
34	44.23	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
35	44.26	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
36	43.63	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
37	43.18	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
38	42.33	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
39	41.24	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
40	39.45	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
41	37.40	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
42	39.75	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
43	41.37	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
44	41.07	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
45	40.22	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
46	41.08	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
47	41.97	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
48	42.08	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
49	41.51	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
50	40.86	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
51	40.60	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
52	40.75	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
53	40.21	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
54	38.86	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
55	37.72	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
56	37.02	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
57	34.80	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
58	33.69	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
59	33.16	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
60	34.20	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
61	37.65	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
62	39.21	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
63	37.87	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
64	38.91	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
65	39.99	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
66	39.77	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
67	39.06	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
68	38.66	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
69	38.59	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
70	37.46	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
71	37.48	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
72	38.14	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
73	38.32	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
74	38.26	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0

75	37.89	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
76	37.37	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
77	37.19	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
78	36.82	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
79	36.43	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
80	35.97	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
81	35.51	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
82	35.05	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
83	35.58	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
84	36.10	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
85	35.66	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
86	34.28	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
87	34.13	21.8	1.0	-999.80	-999.00	.000	273.9	.1	-50.0
88	35.62	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
89	35.37	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
90	36.23	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
91	35.38	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
92	36.85	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
93	35.46	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
94	33.66	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
95	33.20	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
96	34.22	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
97	34.15	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
98	35.11	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
99	32.63	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
100	32.26	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
101	29.71	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
102	29.61	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
103	25.72	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
104	25.03	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
105	20.49	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
106	22.92	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
107	25.70	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
108	28.13	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
109	29.89	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
110	31.86	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
111	28.47	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
112	31.85	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
113	31.53	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
114	32.95	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
115	31.97	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
116	32.18	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
117	31.28	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
118	33.12	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
119	31.13	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
120	31.25	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
121	30.68	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
122	32.75	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
123	30.22	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
124	30.36	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
125	33.13	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
126	33.93	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
127	33.72	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
128	33.39	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
129	33.64	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-90.0
130	33.96	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
131	34.22	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
132	34.39	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
133	34.61	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
134	34.96	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
135	35.38	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
136	35.50	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
137	35.02	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
138	34.77	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
139	34.23	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
140	34.33	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
141	34.54	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
142	35.37	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0

143	34.77	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
144	33.78	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
145	33.87	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
146	34.62	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
147	34.23	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
148	32.67	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
149	33.56	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
150	31.96	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
151	33.29	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
152	32.84	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
153	31.29	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
154	32.57	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
155	32.78	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
156	33.13	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
157	32.88	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
158	32.78	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
159	32.85	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
160	33.04	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
161	33.03	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
162	32.86	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
163	32.90	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
164	32.98	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
165	32.96	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
166	32.92	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0
167	32.97	21.8	1.0	-999.90	-999.00	.000	273.9	.1	-50.0

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY
CASE NO. 99-056

SUPPLEMENTAL

Response to Commission's Order 1st Data Request Dated March 16 & 19, 1999

Question: **PSC-19** Responding Witness: Ronald L. Willhite

Q-19 Refer to the testimony of Ronald L. Willhite, Page 9. LG&E Energy Corp.'s Corporate Policies and Guidelines for InterCompany Transactions ("Transaction Guidelines") clearly state that, "Transfers or sales of assets will be priced at the greater of cost or fair market value for transfers or sales from LG&E or KU to LG&E Energy or other subsidiaries and at the lower of cost or fair market value for transfers or sales made to LG&E or KU from LG&E Energy or any of LG&E Energy's non-utility subsidiaries." Explain why Mr. Willhite states on Page 9 of his testimony that, if the Commission grants the certificate requested by LG&E and KU, LG&E Capital Corp. will transfer title of ownership of the two new CTs to LG&E and KU at cost.

A-19 LG&E and KU expect that the cost of the CTs at the time of the transfer will be less than the fair market value. Therefore, the transfer of the CTs at cost is appropriate under the Corporate Policies and Guidelines for InterCompany Transactions.

If the Commission grants the requested CCN and CEC, the Companies will obtain an independent appraisal of the fair market value of the constructed CTs before the assets are transferred to the books of LG&E and KU.

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY
CASE NO. 99-056

SUPPLEMENTAL

Response to Attorney General's 1st Data Request Dated April 1, 1999

Question: AG-4 Responding Witness: Michael D. Robinson

Q-4 Please provide a detailed description of all compensation LG&E Capital will receive if this transaction goes through, including but not limited to financing costs during construction. At what interest rate is the project being financed during construction?

A-4 LG&E Capital Corp. will receive reimbursement of its cost for the construction as well as costs to finance construction of the two CTs. Components of the construction cost, excluding interest, are included on pages 4 and 5 of the Application filed on February 11, 1999. Financing costs during construction are based on LG&E Capital Corp's average monthly commercial paper rate which was 5.330% when construction began in October 1998 and 5.027% in February 1999. From October 1998 through February 1999, LG&E Capital Corp. incurred $1,096,529.82 of financing costs on construction of the CTs.

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY
CASE NO. 99-056

SUPPLEMENTAL

Response to Attorney General's 1st Data Request Dated April 1, 1999

Question: AG-25 Responding Witness: Caryl M. Pfeiffer

Q-25 Exhibit 2 to the application includes various permits in the name of KU which support the Companies position that they have the necessary permits for the installation of the two CTs. Those permits are held solely in the name of KU.

a. Please explain the process by which LG&E Capital Corp. is entitled to the use of permits granted to KU for the building and operation of its CTs. Are these permits transferable in part? If so, on what basis, and by what means?

b. What has LG&E Capital Corp. paid to KU for the benefit of the permits? Please supply all supporting paperwork.

A-25. a. The Kentucky Division for Air Quality (KYDAQ) has recognized that ownership of the CTs by LG&E Capital Corp. is subject to the pending Application and has not requested an amendment to the permit at this time. If the KYDAQ subsequently requests such an amendment to the permit, KU will file such an administrative permit amendment. Please see the attached letter of April 21, 1999 to the KYDAQ.

b. At the time the combustion turbines were available on the market, the demand for this type of equipment exceeded the supply for the next several years. LG&E Capital Corp.'s purchase and construction of the combustion turbines was done to allow LG&E and KU the opportunity to apply for the CCN and CEC while protecting LG&E or KU and their customers from any adverse impact from the risks undertaken by LG&E Capital Corp.

The application of LG&E and KU demonstrates that the acquisition of the two combustion turbines is the most reasonable and economical way for the companies to meet their reserve margin. LG&E and KU and their customers will benefit from the acquisition of the combustion turbines. LG&E Capital Corp. will not benefit from the permits at this time because LG&E Capital Corp. is not holding and constructing the combustion turbines for the purpose of owning them in the future but for the benefit of LG&E and KU and their customers. If the Commission denies the application of LG&E and KU for a CCN and a CEC, then it would be appropriate for LG&E Capital Corp. to pay KU for the benefit, if any, from the permits.

Kentucky Utilities Company One Quality Street Lexington, KY 40507-1462 Tel 606 255-2100

KU®
Kentucky
Utilities
Company

April 21, 1999

Daniel J. Gray, Manager
Permit Review Branch
Kentucky Division for Air Quality
803 Schenkel Lane
Frankfort, KY 40601

RE: Phased Construction of Two Turbines
E. W. Brown Generating Station
Permit No. C-92-005 (Revised)
I.D. #102-2740-0001

Dear Mr. Gray:

This is to respond to your letter dated March 22, 1999, in which you raise certain questions related to ownership of the combustion turbines (CTs) being constructed at the E. W. Brown Generating Station and review of the Best Available Control Technology (BACT) determination for the remaining CTs to be installed at the site.

A. Ownership of the CTs

As background, our corporate structure consists of LG&E Energy Corp. as a holding company with three direct subsidiaries: Louisville Gas and Electric Company (a regulated utility); Kentucky Utilities Company (a regulated utility); and LG&E Capital Corp. (for enterprises not regulated by the Public Service Commission). See the attached organization chart (Attachment A). This basic structure has been adopted for both business and regulatory purposes and all of these enterprises are separate corporations with substantial assets. This type of corporate structure is common among utilities and other similar industries.

As a result of the price volatility in the wholesale power market experienced last summer, KU (and LG&E) determined that their plans to rely on purchased power to meet peak load needs in 1999 should be reviewed. Thus in July of 1998, we began discussions with Black & Veatch (the architectural engineering firm used for construction on the first four CTs at the E. W. Brown site) as to the availability of CTs that could be placed in service by summer 1999. In late August, we received a CT acquisition proposal from Asea Brown Boveri (ABB). Based on that data and our analysis, the CTs are the least-cost alternative for meeting the combined needs of the customers of KU and LG&E. However, the legal requirements associated with KU and LG&E (as regulated utilities) under the Kentucky Public Service Commission (KYPSC) regulations restrict KU and LG&E from acquiring the CTs until the Commission grants appropriate regulatory authorization.

At the time the CTs were available for purchase, the demand for this type of equipment exceeded the supply for the next several years. In an effort to prevent the loss of the CT acquisition opportunity, LG&E Capital Corp. (as a non-PSC regulated entity) entered into a contract with ABB to purchase the CTs. LG&E Capital's purchase of the CTs was done to allow KU (and LG&E) the opportunity to apply for the necessary regulatory approvals from the KYPSC while protecting the regulated utilities and their customers from any adverse impacts and complying with KYPSC regulations. KU (and LG&E) have applied to the KYPSC for authority to acquire the CTs by July 1, 1999. The application is pending. A hearing is scheduled for June 1, 1999, and an Order is expected shortly thereafter.

As a result, the two CTs under construction at the E. W. Brown site are currently owned by LG&E Capital Corp. The future ownership of the CTs by LG&E Capital Corp. is subject to KU's (and LG&E's) pending application for a Certificate of Convenience and Necessity before the KYPSC. It has always been our objective and expectation that KU would be the permanent owner of the CTs, but that is for the KYPSC to decide. If the KYPSC denies the application, then KU believes it would be appropriate to file the KYDAQ's one-page agreement for administrative permit amendment to transfer "owner" status at the E. W. Brown site, for these two CTs only, to LG&E Capital Corp. However, if the KYDAQ believes that an administrative permit amendment is necessary at this time, KU will file the appropriate paperwork immediately.

B. Review of BACT Determination

At your request, KU has conducted a review of recent BACT determinations for similar facilities to address the NOx emission limitations applicable to the two CTs under construction and the last CT to be installed at the E. W. Brown site pursuant to the existing air permit to construct.

NOx emissions result from a combination of nitrogen sources. Nitrogen in the fuel and in the combustion air both contribute to the formation of NOx. NOx formation rates are a function of both thermodynamic and kinetic considerations. Since No. 2 fuel oil has very low levels of fuel-bound nitrogen and natural gas has negligible nitrogen, nearly all of the NOx emissions from the CTs result from the formation of thermal NOx. Thus, as general rule, lower combustion temperatures inhibit the formation of NOx. There are two generic types of NOx controls employed during the combustion process in CTs: wet controls using steam or water injection and dry controls using advanced combustor design which both reduce combustion temperatures and suppress NOx formation.

Over the past few years, the control of NOx emissions from simple-cycle CTs has advanced to the point where lower emission rates than those of the four existing CTs installed at the E. W. Brown site are achievable as an integral part of the burner design. The two new CTs under construction at the E. W. Brown site employ an advanced burner design technology to significantly reduce the formation of NOx emissions during combustion. The GT24s utilize ABB's Environmental (EV) Burner to limit the formation of NOx while at the same time increasing energy efficiency.

The design of the EV Burner itself is basically an axially split cone, with the two halves offset to give two constant-width inlet slots. The combustion air flows into the combustion zone through these slots. See the attached schematic of the EV Burner design (Attachment B).

When burning No. 2 fuel oil, the fuel is sprayed in through an atomizer nozzle at the apex of the cone. A high-speed vortex then develops within the cone, creating a lean mixture which is fed into the flame. When burning natural gas, the fuel flows through two lengthwise arranged channels, and is then injected through rows of fine holes at the edges of the slots into the burner, where the fuel mixes with air (resulting in a lean mixture of air and fuel).

Excess air is also a feature of the EV Burner design providing a flame temperature approximately 900°F lower than in a comparable diffusion burner. This results in a very low NOx emission rate. In addition, during operation on No. 2 fuel oil, water is injected into the fuel to further reduce NOx emissions.

Because of the advanced burner design and combustion control technology, the ABB GT24 CTs have guaranteed NOx emission rates of 42 ppm when burning No. 2 fuel oil and 25 ppm when burning natural gas. In comparison, the earlier generation of ABB CTs installed at the E. W. Brown site achieve NOx emission rates of 65 ppm when burning No. 2 fuel oil and 42 ppm when burning natural gas.

As explained in the attached letter from ABB (Attachment C), additional combustion or post-combustion controls for NOx are not feasible on these combustion turbines. Increased water injection rates (when burning No. 2 fuel oil) would result in increased CO emissions and instability in the combustion process resulting in increased air emissions, loss of energy efficiency, and safety concerns. Water injection in combination with the dry, EV Burners (when burning natural gas) is unproven and would require considerable development effort. Add-on or post-combustion controls are also not feasible on these simple-cycle combustion turbines. As discussed by ABB in their attached letter, this is because Selective Catalytic Reduction (SCR) NOx removal technology is only operational at temperatures around 600-800°F, while the exhaust temperature of simple-cycle combustion turbines is in excess of 1100°F.

The USEPA recognizes that SCR is not applicable to high temperature exhaust gas streams, such as simple-cycle combustion turbines, and provides the following description in 3.1.4.3 (Selective Catalytic Systems on Stationary Gas Turbines for Electricity Generation) of their Compilation of Air Pollution Emission Factors (AP42):

"Selective catalytic reduction systems selectively reduce NO_x emissions by injecting ammonia (NH_3) into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, NH_3, and O_2 react on the surface of the catalyst to form N_2 and

H_2O. The exhaust gas must contain a minimum amount of O_2 and be within a particular temperature range (typically 450 to 850°F) in order for the SCR system to operate properly. The range is dictated by the catalyst, typically made from noble metals, base metal oxides such as vanadium and titanium, or zeolite-based material. Exhaust gas temperatures greater than the upper limit (850°F) will cause NO_x and NH_3 to pass through the catalyst unreacted. Ammonia emissions, called NH_3 slip, may be a consideration when specifying a SCR system." [emphasis added]

The attached review of new source determinations for Internal Combustion sources, from the USEPA's RACT/BACT/LAER Clearinghouse (Attachment D), confirms that SCR has only been required for CTs configured as combined-cycle or cogeneration facilities. This is because these facilities include a separate heat exchanger (Heat Recovery Steam Generator) installed for the purpose of producing steam for the generation of additional electricity or for process use, which reduces exhaust gas temperatures to the range where SCR is effective. Further, because combined-cycle or cogeneration units typically operate more hours per year (compared to peaking units restricted to 2,500 hours per year), the economics of capital intensive control technologies like SCR are more favorable. SCR has not been required for simple-cycle CTs under BACT or even LAER determinations.

The attached list of recent new source determinations also demonstrates that NOx emission limitations, in the range of 65 ppm and 42 ppm, when burning No. 2 fuel oil and natural gas, respectively (i.e., those imposed in the existing air permit to construct for the E. W. Brown site) to 42 ppm and 25 ppm, when burning No. 2 fuel oil and natural gas, respectively, are being imposed on simple-cycle CTs.

In summary, while we believe that the timeliness of a BACT "re-review" is in question, our review of recent BACT determinations confirms that the NOx emission limitations in the existing air permit to construct are still applicable to simple-cycle combustion turbines being installed today. While we are not waiving any objections as to timeliness, if the KYDAQ believes that lower NOx emission rates are justified in light of the advances made by ABB in their CT burner design and combustion control technologies, then KU is willing to agree to lower NOx emission rates of 42 ppm and 25 ppm when burning No. 2 fuel oil and natural gas, respectively.

If you have any additional questions or need additional information, please feel free to contact me at (502) 627-2774 or Glenn Gibian of my staff at (606) 367-5658.

Very truly yours,

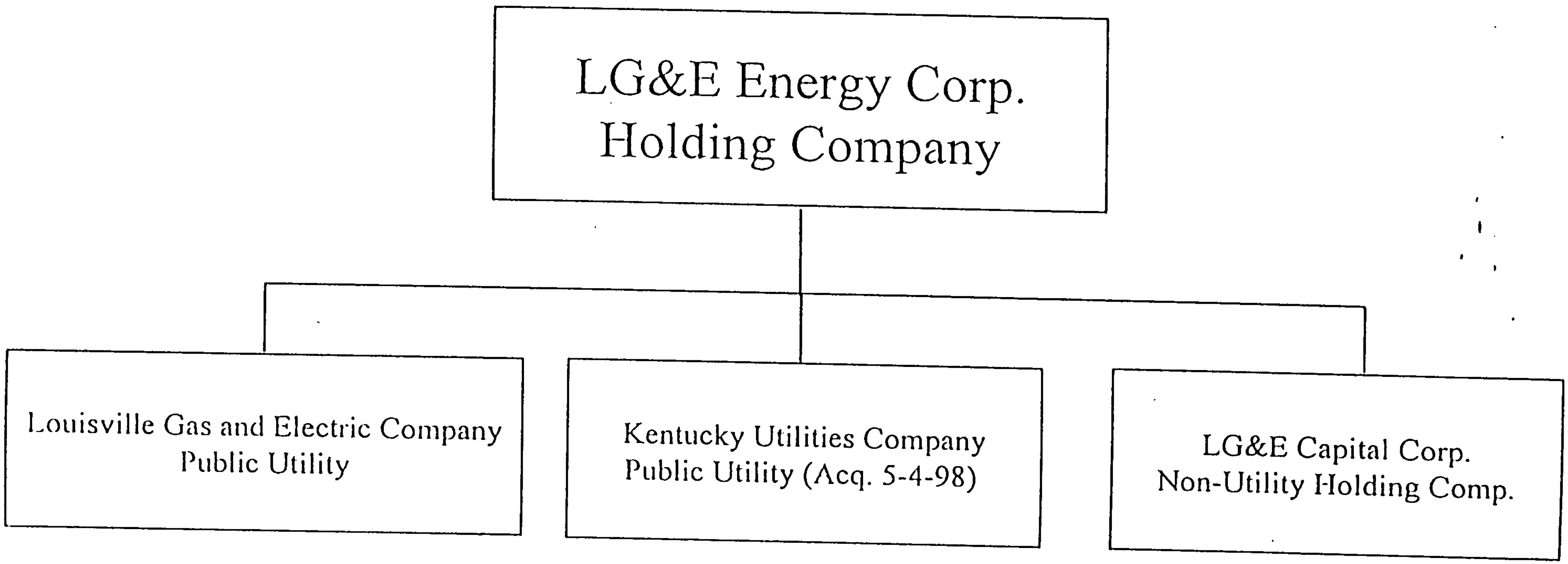
Caryl M. Pfeiffer
by Glenn P. Gibian

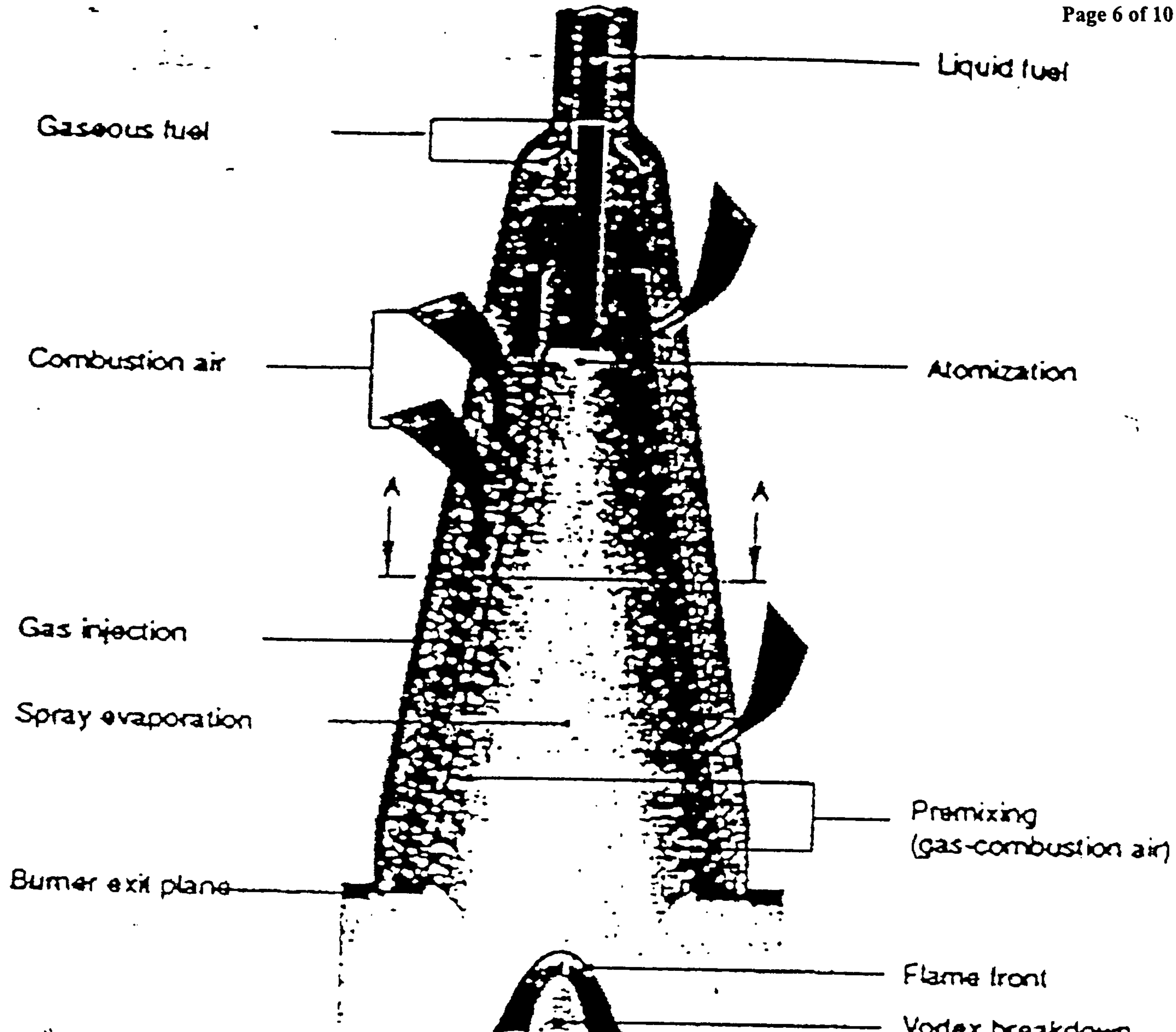
Caryl M. Pfeiffer
Director, Environmental Affairs

Attachments

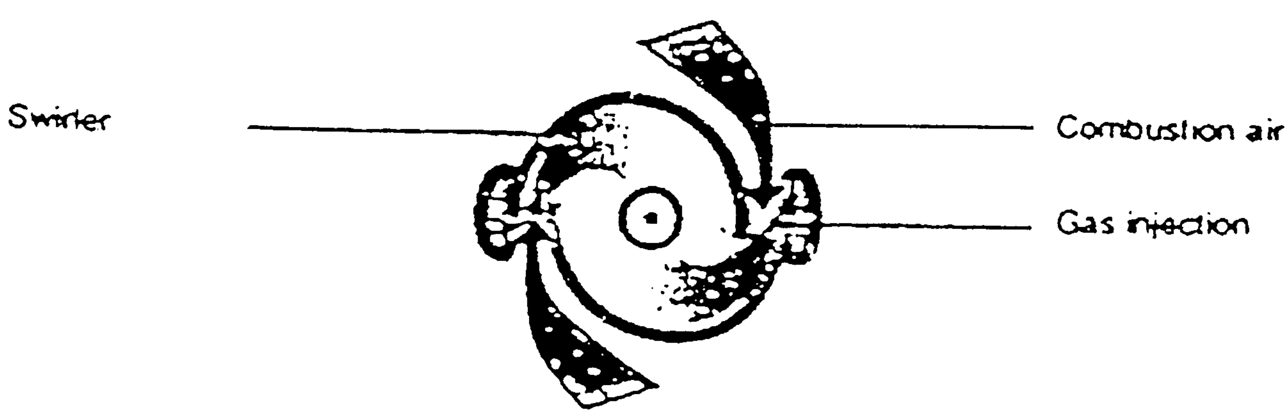
Cc: Roger S. Cook
William A. Clements

LG&E Energy Corp.
April 1999




Liquid fuel
Gaseous fuel
Combustion air
Atomization
A
A
Gas injection
Spray evaporation
Premixing
(gas-combustion air)
Burner exit plane
Flame front
Vortex breakdown

A - A


Swirler
Combustion air
Gas injection

ABB

Kentucky Utilities Company
Attn. Mr. Noel W. Lively
815 Dix Dam Rd.
Burgin, KY 40310

ABB Power Generation Inc.
5309 Commonwealth Centre Parkway
Midlothian, VA 23112

LG&E Burgin

Please contact
Albrecht Mayer
Telephone (direct)
0 00 1 804 763 2127
Telefax (direct)
0 00 1 804 763 2062
Filing information
1111.2 USPGE to LG&E

Your reference	Your letter dated	Our reference number (please quote)	Date
		PGE/KUC/0044	04/20/99

Subject : Emissions Guarantee for the Burgin Project

Dear Mr. Lively:

with reference to our recent phone conversation we would like to give some background information to the NOx emissions guarantees for ABB's simple cycle GT24 Combustion Gas Turbine.

- The expectations for emissions are based on measurements during combustor tests including tests on an engine of the same design.
- Primary control technologies like water or steam injection to lower NOx emissions on gas operation with a dry LowNox burner are considered unproven technology and would require considerable development effort.
- In oil operation the values including water consumption are based on measurements taken on the same engine design. Any increase in water injection to achieve lower NOx emissions would raise CO emissions and could impact the stability of combustion adversely.
- Secondary control technologies applied into the exhaust system are commercially available, however applied only in combined cycle operation for this class of engines. These technologies are integrated in the HRSG unit at a temperature level between 600 and 800 F. The temperature level of the flue gases in an open cycle are considerably higher, app. 1140 F at design conditions. ABB has no experience with secondary control technologies at this temperature level. In addition any additional equipment in the exhaust system could influence noise levels and will have a negative impact on the performance of the engine. An increase in other emissions like particulates can't be excluded. Like primary control technologies application of flue gas treatment would require a development program.

We hope this clarifies your questions. Please let me know if I can be of further assistance.

If you have any questions please call me at (804) 763-2127.

Sincerely,

Albrecht H. Mayer
Project Manager
ABB Power Genertion Inc.

Methodology for Review of BACT Determinations for Simple-Cycle Combustion Turbines

The USEPA RACT/BACT/LAER Clearinghouse (RBLC) database was searched for Internal Combustion sources (process type code 15.000) installed since June 1991; the query reported 337 matching process records. This list was reduced by eliminating processes other than combustion turbines (e.g. internal combustion engines, boilers, small diesel generators, etc.) and those with permit dates earlier than 1996. The final result was 18 entries that included review of NOx (e.g. CAS Number 10102). Combined-cycle units were included for informational purposes.

Emission limitations are expressed in several measurement units in the USEPA database: parts per million (ppm), lb/hr, and others. These were converted to measurement units that may be compared to the ABB GT24 combustion turbines. For example, if the limitation was expressed in lb/hr, this value was divided by the heat input of the facility (lb/mmBtu) to provide a value of lb/mmBtu. These converted emission limitations are shown in the column "KU – Comparable Units" on the table as follows:

1. For facilities where the emission limit is expressed in lb/hr and the heat input (mmBtu/hr) is provided, these emission limits were converted to lb/mmBtu; e.g. (lb/hr) / (mmBtu/hr) = lb/mmBtu.
2. For facilities where the emission limit is expressed in lb/hr and the capacity of the facility is provided in MW, the capacity was converted to a heat input (mmBtu) assuming a heat rate of 11 mmBtu/MWH for simple-cycle facilities and 8 mmBtu/MWH for combined-cycle facilities.
3. For facilities where the emission is expressed in tons/yr and the capacity of the facility is provided in MW, the capacity was converted to a heat input (mmBtu/hr) as described in item 2 and it was assumed that the facility operated for 8760 hours per year – an assumption which results in calculating the lowest possible emission rate.
4. For one facility (VA-0238) where insufficient information was available, the contact person provided in the RBLC was consulted. According to this source, each of the three combustion turbines have a heat input capacity of 1439 mmBtu/hr ISO and an emission limit of 400 lb/hr. This was converted to 0.278 lb/mmBtu as described in item 1 above.

Thus, emission limits for all facilities are expressed in either ppm or lb/mmBtu. For comparison, the ABB GT24 units will emit at:

25 ppm gas & 42 ppm oil
0.095 lb/mmBtu gas & 0.195 lb/mmBtu oil

BACT Determinations for CTs Since 1996

RBLCID	FACILITY	PERMIT DATE	PROCESS	THRUPUT	THRUPUT UNT	PRIM EMISS	PRIMEUNIT	CTRLDESC	KU - Comparable units	KU - Notes
LA-0091	GEORGIA GULF CORPORATION	03/26/96	GENERATOR, NATURAL GAS FIRED TURBINE	1123	MM BTU/HR	25	PPMV-CORR. TO 15%O2	CONTROL NOX USING STEAM INJECTION	25 ppm	
NC-0059	CAROLINA POWER & LIGHT	04/11/96	COMBUSTION TURBINE, 4 EACH	1908	MMBTU/HR	158	LB/HR	WATER INJECTION	0.083 lb/mmBtu gas	
NC-0059	CAROLINA POWER & LIGHT	04/11/96	COMBUSTION TURBINE, 4 EACH	1908	MMBTU/HR	512.3	LB/HR	WATER INJECTION, FUEL SPEC: 0.04% N FUEL OIL	0.269 lb/mmBtu oil	
SC-0038	GENERAL ELECTRIC GAS TURBINES	04/19/96	I.C. TURBINE	2700	MMBTU/HR	885.3	LB/HR	GOOD COMBUSTION PRACTICES TO MINIMIZE EMISSIONS	0.328 lb/mmBtu	
VA-0238	COMMONWEALTH CHESAPEAKE CORPORATION	05/21/96	3 COMBUSTION TURBINES (OIL-FIRED)	6000	HRS/YR	1218.3	TPY	NOX (WATER INJECTION)	0.278 lb/mmBtu	
AK-0028	CITY OF UNALASKA	06/21/96	POWER GENERATION, DIESEL	6.5	MW	632.6	TPY	LIMIT OF OPERATION HOURS AND AFTERCOOLERS	2.020 lb/mmBtu	
AK-0030	CITY OF UNALASKA	06/21/96	INTERNAL COMBUSTION	6.5	MW	632.6	TPY	LIMIT OF OPERATION HOURS AND AFTERCOOLERS	2.020 lb/mmBtu	
PA-0148	BLUE MOUNTAIN POWER, LP	07/31/96	COMBUSTION TURBINE WITH HEAT RECOVERY BOILER	153	MW	4	PPM @ 15% O2	DRY LNB WITH SCR WATER INJECTION IN PLACE WHEN FIRING OIL. OIL FIRING LIMITS SET TO 8.4 PPM @15% O2	4 ppm	combined-cycle
PR-0004	ECOELECTRICA, L.P.	10/01/96	TURBINES, COMBINED-CYCLE COGENERATION	461	MW	60	LB/HR	STEAM/WATER INJECTION AND SELECTIVE CATALYTIC REDUCTION (SCR).	0.016 lb/mmBtu	combined-cycle
PR-0004	ECOELECTRICA, L.P.	10/01/96	TURBINES, COMBINED-CYCLE COGENERATION	461	MW	73	LB/HR	STEAM/WATER INJECTION AND SELECTIVE CATALYTIC REDUCTION (SCR).	0.020 lb/mmBtu	combined-cycle
CA-0794	CALRESOURCES LLC	01/10/97	SOLAR MODEL 1100 SATURN GAS TURBINE	13.6	MMBTU/HR	69	PPMVD @15% O2	NO CONTROL	69 ppm	
LA-0093	FORMOSA PLASTICS CORPORATION, BATON ROUGE PLANT	03/07/97	TURBINE/HSRG, GAS COGENERATION	450	MM BTU/HR	9	PPMV	DRY LOW NOX BURNER/COMBUSTION DESIGN AND CONSTRUCTION.	9 ppm	combined-cycle
PA-0149	BUCKNELL UNIVERSITY	11/26/97	NG FIRED TURBINE, SOLAR TAURUS T-7300S	5	MW	25	PPMV@15%O2	SOLONOX BURNER: LOW NOX BURNER	25 ppm	
AL-0115	ALABAMA POWER COMPANY	12/17/97	COMBUSTION TURBINE W/ DUCT BURNER (COMBINED CYCLE)	100	MW	15	PPM	DRY LOW NOX BURNERS	15 ppm	combined-cycle
CO-0018	BRUSH COGENERATION PARTNERSHIP		TURBINE	350	MMBTU/H	25	PPM @ 15% O2	DRY LOW NOX BURNER	25 ppm	not issued
CO-0019	COLORADO POWER PARTNERSHIP		TURBINES, 2 NAT GAS & 2 DUCT BURNERS	385	MMBTU/H E	42	PPM @ 15% O2	WATER INJECTION	42 ppm	not issued
MD-0019	BALTIMORE GAS & ELECTRIC - PERRYMAN PLANT		TURBINE, 140 MW NATURAL GAS FIRED ELECTRIC	140	MW	15	PPM @ 15% O2	DRY BURN LOW NOX BURNERS	15 ppm	combined-cycle/ not issued
MD-0019	BALTIMORE GAS & ELECTRIC - PERRYMAN PLANT		TURBINE, 140 MW OIL FIRED ELECTRIC	140	MW	65	PPM @ 15% O2	WATER INJECTION	65 ppm	combined-cycle/ not issued

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY
CASE NO. 99-056

SUPPLEMENTAL

Response to Public Service Commission's Order Dated April 9, 1999 - Data Request #2

Question: **PSC-S6** Responding Witness: Lonnie Bellar

Q-6. Refer to the response to the Commission's March 16 and 19, 1999 Orders, Item 19. The response includes the statement, "The cost of the CTs at the time of the transfer will be less than the fair market value."

a. Has KU or LG&E determined the fair market value of the CTs? If yes, provide the fair market value and explain in detail how the amount was determined.

b. If the fair market value of the CTs has not been determined, explain in detail how KU and LG&E have reached the conclusion that the cost of the CTs at the time of transfer will be less than fair market value.

A-6. a. No.

b. KU and LG&E concluded that the cost of the CTs at the time of transfer will be less than fair market value because KU and LG&E expect the costs of CTs to continue to rise. Please see the response to AG-13a (attached to original response).

In addition, if the Commission grants the requested CCN and CEC, the Companies will obtain an independent appraisal of the fair market value of the constructed CTs before the assets are transferred to the books of LG&E and KU.

themselves throughout the period in which they install that capacity. We've got about 1,100 megawatts of merchant capacity that's being proposed here for the State of Kentucky, and they are all predicated on what they think the forward markets will bring.

Q. As I understand it, if this certificate is not approved, then these two CTs will be also merchant plants; is that correct?

A. That's correct. That's my understanding as well.

Q. So they're being built and sustained at that same price that the other merchant plants are being built and sustained?

A. You would only have to make that assumption that certainly two of the biggest players, the biggest market participants in the country, are building those plants. So you would assume they're smart enough that they're making a good investment.

MS. BLACKFORD:

Thank you. That's all of my questions.

A. Uh-huh.

CROSS EXAMINATION

BY MR. RAFF:

Q. Mr. Kasey, do you know what the installed cost of these combustion turbines is projected to be?

A. No, I'm not aware of the specific numbers. I know the ball park, but I don't know the specific numbers.

Q. Well, what was your understanding of the ball park?

A. I think they're in the $250 to $350 range a kw.

Q. That's a wide range; is it not?

A. Yes, it is, but, because of the supply and demand in the market currently, that range is rather broad.

Q. Do you know what other combustion turbines are costing in today's market on a kilowatt basis?

A. It really depends, you know. Part of the problem - it's very difficult to compare. Part of the problem is an awful lot of the plants that are being proposed are greenfield plants, and, because they are greenfield plants, generally the cost is going to be much greater to provide the infrastructure to interconnect to the gas pipeline and also to the transmission systems, and, obviously, most of the merchant facilities that are being proposed, they're looking at both of those very carefully to mitigate that to the extent they can, but a new greenfield plant would probably be somewhere in the neighborhood, if we're talking about simple-cycle combustion turbines, we're talking about up to $500 a kw.

Q. There should be a cost advantage if that combustion turbine were to be installed in an existing generating plant where there are already combustion turbines, and there's already the gas pipeline, and the electrical substations, and all that other sundry equipment; is that correct?

A. That certainly would have some advantages; yes.

Q. Okay. And - I'm sorry - the name of the company that you now work for?

A. Is The ERORA Group, E-R-O-R-A.

Q. And is that in any way affiliated with LG&E?

A. It is not.

Q. Is that out of Louisville or . . .

A. Yes, it is in Louisville.

Q. And your relationship with LG&E was just being for this case; is that what you're saying?

A. That's correct. I obviously put in the testimony when I was Senior Vice President of LG&E Energy Marketing, and, upon retirement, I made a commitment to continue to support the pricing of the wholesale market which I'm currently in as well with my clients.

MR. RAFF:

Thank you very much. I have no further questions.

HEARING OFFICER SHAPIRO:

Any redirect?

MR. RIGGS:

None, Your Honor.

HEARING OFFICER SHAPIRO:

Thank you, Mr. Kasey.

WITNESS SWORN

The witness, LONNIE E. BELLAR, after having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. RIGGS:

Q. Please state your name, position, and business address.

A. Lonnie E. Bellar. My position is the Manager of Generation Systems Planning for KU and LG&E. My business address is 220 West Main Street, Louisville, Kentucky.

HEARING OFFICER SHAPIRO:

Mr. Bellar, will you spell your last name for the Reporter, please?

A. Yes, B-e-l-l-a-r.

Q. Did you cause to be prepared and filed with the Commission on February 11, 1999, written testimony consisting of nine written pages, an appendix marked "A," and two Exhibits?

A. Yes, sir.

Q. Do you affirm and adopt your testimony today?
A. Yes, sir.
Q. Mr. Bellar, could you comment on the status of your request for proposals for combustion turbines that's referenced in your Response to the AG's Request for Information, No. 11?
A. Yes, I will. The companies sent out a Request For Proposal for combustion turbines on April 1, and we were trying to assess the CT market for our future needs . . .
MR. RAFF:
I'm sorry. Is that April 1 of . . .
A. Of 1999, yes, sir, and we requested that the major turbine manufacturers respond to us within a two week time frame. So that would have put responses due April 15. At that time, on April 15, we had only received a response from one vendor, and, after contacting the other vendors, they let us know that they needed additional time to respond given their workload that they had, and so we extended the time for two more weeks to April 29, and, at that time, we did receive bids from the major turbine manufacturers. After reviewing those bids, though, we determined that they were incomplete in scope. They weren't as detailed as historically we had seen. Historically, you were able

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to tell exactly what was in the bids and what you were getting for what they were quoting, and these bids were very, very minimal in terms of detail. Also, and probably more concerning in terms of being able to do an accurate evaluation, none of the prices that were quoted were firm. Each manufacturer quoted budgetary pricing. So it's kind of difficult to do a comparison when you don't have firm quotes. Historically, bids were presented with firm quotes, and we had several months to do our evaluation, and we knew what we were going to get when we paid for it. In terms of our review, we started our review of the bids, but, given that they were incomplete and they had budgetary numbers in them, we decided it would be the best course of action to engage Black & Veatch, an outside consultant, to review those bids and prepare a comparative analysis for the companies, and we have done that, and we expect that analysis to be complete by the end of the week, and we would file that with the Commission under confidentiality. A couple of things I could share with you from the bids without voiding the confidentiality or maybe just from my perspective of what I've seen in the bids is that the pricing has not declined. The pricing that we've seen in the bids, as near as we can tell at this point, is at or above what was paid for the combustion turbines that are being installed at the Brown facility, and I guess the assessment of how tight the CT market is there aren't any CTs available until 2001, and, at that point, there's only one manufacturer that has one type of machine available for that in-service. The other manufacturers won't have machines available for in-service until 2002 and 2003.

Q. Mr. Bellar, have there been any changes to the estimate of the cost of constructing the combustion turbines since the application and testimony was filed with the Commission?

A. Yes, sir, there have. In the certificate filing, the application, we had estimated, at that point, that the total combined cost would be $125 million or $381 per kw based on the summer rating of the machines, and, as we've progressed through the project, we now expect the total cost to be $118 million and that would be $360 a kw, again, based on the summer rating.

Q. Mr. Bellar, is the construction of the combustion turbines on schedule?

A. Yes, it is. There are two turbines, as we've been discussing, being constructed. The first turbine is CT Unit No. 7. It's expected to begin on-line testing in the middle of June for a mid-July in-service, and the

CT 6 is the second combustion turbine and that turbine now is, let's say, two to three weeks behind the first turbine.

Q. Mr. Bellar, the Attorney General asked Mr. Kasey some questions in connection with Table 1 of Appendix A, Page 5 of 10 of your Exhibit. Could you briefly clarify the relationship of that table to Mr. Kasey's testimony?

A. Sure. Mr. Kasey's testimony centered around the underlying product pricing and the option pricing that was used in the analysis. The table that was just mentioned, Table 1 of Appendix A, did not represent that. This table represents spot market prices that we anticipate to occur. These are different than options or what we call the underlying product of power. These are what you would pay on an hourly basis, a projection of that, and these were utilized in the analysis but not to the extent that they affected the comparison of the options that we were using to compare to the combustion turbines, and those option prices, which would be applicable to the comparison, were submitted under confidentiality, and those prices do show a decline, as Ms. Blackford was mentioning. They do show a decline in future years.

MR. RIGGS:

Thank you, Mr. Bellar. Mr. Bellar is available for any questions.

HEARING OFFICER SHAPIRO:

Ms. Blackford.

CROSS EXAMINATION

BY MS. BLACKFORD:

Q. Educate me, please. I don't understand what a budgetary price is.

A. I would think that each turbine manufacturer would have their own opinion of that also, but, in my mind, they provide those numbers just to give you a ball park, and the reason they do that is because they don't have the time or have not taken the time to sit down and understand exactly what you want, and so they're unsure. They don't want to give you a firm price that they might have to change as they go into the analysis. So I would view budgetary as a nonfirm pricing subject to change as you get into negotiations with the individual vendors.

Q. So it's essentially a price range that perhaps includes the minimum and maximum parameters?

A. They did not provide us with a range in the specific bids. It was a single number, but I would think that the number could go up or down, yes, as a result of

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negotiations.

Q. The RFPs were for installation when?

A. For combustion turbines? Given the status of the CT market and how tight it is, we didn't specify a specific time. We just asked that they quote us the machines that they had available as soon as they were available, and we would, you know, make our assessment based on the results of that.

Q. I asked this question of Mr. Willhite and he deferred it to you. In Response to the Attorney General's Information Request, Item 10, you were asked results of your RFP to determine the present cost of combustion turbines to see if you're correct that the cost of those turbines has continued to rise since you bought the ones at issue in this case, and the response was that the information is confidential, but, without violating the confidentiality, can we determine, in general, whether the prices are higher or lower than the $280 per kilowatt paid to ABB for these two units?

A. The $280 per kw, could you tell me the source of that number? I haven't calculated that particular number.

Q. Just a moment.

A. Sure.

Q. On the Application itself, . . .

A. Uh-huh.

Q. . . . Page 4, at the bottom of the page, there is Item (A), combustion turbines, priced at $91,800,000.
A. Okay. So you just took the $91,800,000 and divided by 328; okay. As I said in my introduction, I guess, the bids are budgetary, but, based on that, the pricing is higher for combustion turbines than what was paid in this case and that will be evident when we make that filing.
Q. In your Resource Assessment contained in LEB-2, you looked only at the options of buying combustion turbines or building other turbines in future years; is that correct?
A. In this specific Resource Assessment, yes.
Q. Did you consider long-term power purchases or buying capacities from other parties?
A. Define long-term power purchases.
Q. As you would standardly use it, as you would use it in your lexicon.
A. We evaluated in the Resource Assessment arrangements that we thought could be made with other counterparties and that was reflected by our estimation of the option premium market. As Mr. Kasey testified, those numbers did decline over time, and I think they've been in various parts of the record, and, to the extent that we could sign up multiple years at those prices, that was

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the assumption that we made; yes.

Q. Did you consider buying capacity from other parties?

A. We used the option premium to represent that . . .

Q. That capacity?

A. . . . capacity; yes.

Q. Am I correct in understanding that Dynergy is building a CT facility in Oldham County? It will be inter-connecting to the transmission . . .

A. Yes.

Q. . . . capacity of LG&E?

A. Yes.

Q. Was consideration given to buying power from Dynergy?

A. We specifically did not contact Dynergy, but we did send out a Request For Proposal for purchased power, and they obviously were on that list, and they did provide a response. Now, to the extent that it would come from that facility, I don't know. Dynergy has many resources, I'm sure.

Q. So some pricing information was received from Dynergy and like parties?

A. Yes.

Q. In your Response to the Attorney General Information Request, Item 3, you have characterized the failure of the ABB 11N2 combustion turbine as a problem. Am I correct in stating that the problem that occurred was that the blades in the fourth stage fell off and tore up one of the turbines?

A. We did have a blade failure at that unit. I'm not aware that it damaged the rest of the turbine. I inspected the site after the event, and there was significant damage to the machine, but I wouldn't characterize it as damaging the rest of the turbine.

Q. Was the machine . . .

A. The fourth stage blade is the last set of blades on the machine. So therefore the damage would not be back on the machine.

Q. Did it render the machine nonfunctional?

A. Yes.

Q. Could I correctly characterize this as a major failure akin to losing the engine of your car?

A. Yes.

Q. Given that this was a major failure, why did LG&E immediately go back to the same manufacturer for its next turbines?

A. These are different machines, as responded to in AG 3, than the machines that you're discussing now. These machines are not one of the first machines produced as the 11N2s were, and, as we mentioned here, we were confident with ABB as a supplier of this type of equipment, and we felt that it was prudent to consider them for a supplier of future combustion turbines.

Q. So there is no concern about the quality of this equipment?

A. None more than any other vendor that we would have installing any equipment.

Q. Would you please turn to your Response to the Attorney General's Information Request, Item 12? The last page of that Response contains a generation expansion plan that was attached to the Minutes of the Operating Committee Meeting of February 2, 1999.

A. Yes, it does.

Q. Is this the generation expansion plan presented to Mr. Lucas, Mr. Wood, Mr. Hewett, and others to justify the filing of this case on February 11?

A. Yes.

Q. Do I correctly understand that the expansion plan shows the two units that are at issue here and all combined-cycle units in future years?

A. The Exhibit that you're referencing does show one additional simple-cycle combustion turbine being constructed in 2002. That would be Brown Unit 5. That would be the last unit that we both have physical ability and environmental permit ability to install at the site, and then, after that, it shows simple-cycle combustion turbines being constructed in a phased

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fashion culminating in the installation of a combined-cycle unit in 2004.

Q. And in all years beyond that?

A. Yes.

Q. Can you tell me whether you assumed the addition of Brown 6 and 7 as a factor in the computer simulation and constrained the computer to add the units or whether the computer selected the options on its own?

A. In what particular analysis are you referencing?

Q. In the analysis giving rise to this expansion.

A. This expansion plan?

Q. Uh-huh.

A. In this particular expansion plan, we were assessing the short-term needs for '99 and comparing that to the option premium, the analysis that you're referencing here that was presented to the Operating Committee, and . . .

Q. Uh-huh.

A. . . . therefore we manually put those alternatives in and moved them around in the computer simulation.

Q. So it was a constrained simulation?

A. Yes.

Q. Your years out, other than the Brown 5, show that what will be needed is intermediate capacity; is that correct?

A. Repeat the question, please.
Q. Other than the other Brown, the one you referred to as Brown 5, . . .
A. Uh-huh.
Q. . . . the final simple-cycle turbine, the years out show that what's needed is intermediate capacity; is that correct?
A. This particular expansion plan does. Since this one was developed and presented as a part of this Resource Assessment and as referenced in one of the Responses - I don't recall off the top of my head - we have done further analysis that suggest that additional combustion turbines be installed before we move toward combined cycle. So, if you were to ask me what I think the expansion plan will be in our 1999 Integrated Resource Plan, my answer would be, in terms of construction alternatives, that combined cycles would not be needed as soon as reflected in this particular Exhibit.
Q. All right. This is the most recent expansion plan that you have as evidence in this case; right?
A. No. There is another expansion plan in the record. We can try to find it if you're - I can't recall what Response that we provided that expansion plan, but there is another expansion plan in the record that

shows additional simple-cycle combustion turbines before we go to combined cycles, but it is in the record. In the Resource Assessment, my Exhibit, I reference where preliminary studies have suggested that to be the case.

Q. There is another expansion plan in Response to AG 17(a) and (b), Page 1 of 1.

A. Yes.

Q. Is that the other one you're referencing? It appears to be a month earlier.

A. Yes, it is.

Q. So this one in Response to PSC 1, Page 6, which is dated February of '99, is the latest; is that correct?

A. Back on AG 6, is that what you - no. Let me see. AG 12.

Q. On AG 12, yes.

A. Okay.

Q. Its pagination is Item No. PSC 1, Page 6.

A. Okay. Yeah. The expansion plan in Response to AG 12 was the one used in the Resource Assessment, and it was the one used in presenting the information consistent with the Resource Assessment to the Operating Committee.

Q. But you're saying there's a third expansion plan somewhere in this filing that's more recent?

A. No. No. I was going to finish my statement in saying that the second expansion plan, as a Response to AG 17, was the one that was being referenced in the Resource Assessment. In order to develop the Resource Assessment, we depended on the preliminary expansion plans of the two combined companies and proceeded with that, but, while that assessment was ongoing, we continued to do studies and we continue to do those studies today in preparation for our 1999 IRP. The expansion plan in Response to AG 17 is our preliminary results from that.

Q. But, again, the one that's filed in Response to AG 12 is your most recent one?

A. It was the one that was used in the Resource Assessment. I would present the Response to AG 17 as being more reflective of the company's views at this point today, and I know the dates on those are different, but I would represent AG 17 as being more like the expansion plan the company will file in its 1999 Integrated Resource Plan.

Q. You haven't filed any of your more recent assessment plans as evidence in this case?

A. No, we have not.

MS. BLACKFORD:

Thank you. That's all of my questions.

CROSS EXAMINATION

BY MR. RAFF:

Q. Mr. Bellar, let me ask you a couple of questions to begin with that Mr. Willhite referred to you. During the time frame of August/September, 1998, was LG&E's and KU's internal analysis developed in sufficient detail to have supported the application at the Commission for a Certificate Convenience and Necessity?

A. No, it was not. At that time, in terms of a case sufficient for filing, we had not prepared that. We had done a preliminary revenue requirements analysis, at that point, that, as we have stated, showed that these combustion turbines appeared to be the most economical resource.

Q. Were the individuals who prepared the limited and preliminary analysis for LG&E and KU in August of 1998 the same individuals who prepared the LG&E Energy Corp. analysis in September?

A. Some of the same individuals prepared both of those analyses. The teams that had involvement in preparing and supplying information for the Resource Assessment and the analysis that you just mentioned, some of those members are different, but, with respect to the personnel under my responsibility, we participated in both analyses.

MR. RAFF:

I've got a number of other questions, but they all relate to the confidential filing. So, if we can ask that, I guess, anybody that isn't with LG&E and KU to . . .

HEARING OFFICER SHAPIRO:

Okay. You're going to ask some questions about the confidential material?

MR. RAFF:

Yes.

HEARING OFFICER SHAPIRO:

This part of the transcript then will be sealed.

MS. BLACKFORD:

We didn't sign it.

MR. RAFF:

You've not agreed to sign a confidentiality?

HEARING OFFICER SHAPIRO:

You haven't signed it?

MS. BLACKFORD:

We haven't signed it.

MR. RAFF:

Okay.

MS. BLACKFORD:

We haven't seen a need to, to this point.

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HEARING OFFICER SHAPIRO:

Well, let's take about ten minutes and . . .

MR. RIGGS:

Fine.

HEARING OFFICER SHAPIRO:

. . . I'll let you all work that out amongst yourselves.

OFF THE RECORD

HEARING OFFICER SHAPIRO:

We'll proceed with the confidential portion at this time. It's my understanding that Ms. Blackford has signed the confidentiality agreement but Mr. Kinloch has not, and Mr. Kinloch is not present in the room nor is - there's one other individual here who is not a party to this proceeding, but everybody else is either a member of the Commission staff or is an employee of the applicant; is that right?

MR. RIGGS:

That is correct, Your Honor.

OFF THE RECORD

(CONFIDENTIAL PORTION CONTAINED IN SEPARATE TRANSCRIPT CONSISTING OF 28 PAGES)

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HEARING OFFICER SHAPIRO:

Early in the proceeding, we discussed the fact that one of the people who furnished information for the Data Request was Mr. Robinson, . . .

MR. RIGGS:

Yes, that's correct, Your Honor.

HEARING OFFICER SHAPIRO:

. . . and he would be subject to cross examination. You haven't filed any testimony for him, but I assume they want to question him on some of the information.

MR. RIGGS:

Yes.

HEARING OFFICER SHAPIRO:

So why don't we call him at this time?

MR. RIGGS:

Yes. We'll be pleased to call Mr. Robinson to the stand.

MR. RAFF:

Are we done with all the other witnesses?

MR. RIGGS:

Yes. That concludes the presentation of our testimony and I would ask that Mr. Bellar's testimony be admitted into the record.

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HEARING OFFICER SHAPIRO:

So ordered.

MR. RIGGS:

Thank you, Your Honor.

WITNESS SWORN

The witness, MICHAEL ROBINSON, after having been first duly sworn, testified as follows:

EXAMINATION

BY HEARING OFFICER SHAPIRO:

Q. Let me first ask the witness to identify himself.

A. Yes. I am Michael Robinson, Vice President and Controller for LG&E Corp., Kentucky Utilities, and Louisville Gas and Electric.

Q. And what is your address, Mr. Robinson?

A. It's 220 West Main Street, Louisville, Kentucky 40202.

HEARING OFFICER SHAPIRO:

Okay. Ms. Blackford, do you have any questions of this witness?

MS. BLACKFORD:

No, I do not.

HEARING OFFICER SHAPIRO:

Mr. Raff?

MR. RAFF:

Thank you.

CROSS EXAMINATION

BY MR. RAFF:

Q. Mr. Robinson, even though LG&E Capital Corp., which is an unregulated affiliate, is constructing the combustion turbines, are the construction costs being capitalized consistently with the requirements of the FERC Uniform System of Accounts?

A. Yes, they are.

Q. Under the Uniform System of Accounts, when would a project, like the combustion turbines, be considered completed and construction finished?

A. I think that when they are ready to serve the load, once the testing is complete and they're ready to be synchronized with the grid and serve the load.

Q. Would this point in time be the same as the in-service date?

A. Generally speaking, I would view those the same date.

Q. Do you know the approximate date when the construction of the combustion turbines will be considered completed for accounting purposes?

A. Right now, it's anticipated to be sometime during the month of July. I think, in our application, we indicated it was August 1 we were shooting for, but, right now, we're on plans to hopefully complete the testing and have them ready for commercial operation

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sometime in the month of July if we can. So it's somewhere in the July to August time frame.

Q. I believe the testimony was that one of the units was about two weeks ahead or two weeks behind the other; is that correct?

A. I've heard that; yes. My understanding is that one is a little bit further along than the other one.

Q. So will there then be a different date for each unit; do you know?

A. Yes, it would be.

Q. Now, regarding the test energy, is it correct that, before the turbine construction is considered finished, the units will undergo operational testing, and the electricity will be sold during that period of time?

A. Yes, that would be pretty standard routine for this type of testing and these assets.

Q. And the sale of that energy will be by LG&E Capital Corp.; is that true?

A. If, at that time, the ownership hasn't been transferred, Capital Corp. would be the one that would take on the responsibility of testing those units for operational efficiency and effectiveness; yes.

Q. And, assuming the energy is sold by LG&E Capital Corp., would it be fair to assume that it will incur some transmission costs?

A. Yes, I think that would be a fair assumption.
Q. And those are probably on the KU system?
A. I believe that Capital Corp. would have to enter into transmission requirements under the OATT.
Q. Under the Uniform System of Accounts, is it correct that the revenue from the test energy sales and any transmission costs would be included as components of the construction costs?
A. Yes, it would. That's very standard.
Q. And, similarly, would any revenues from the sale of test energy be included as a construction cost for LG&E Capital?
A. Yes. It would be credited and reduce the construction costs. The revenues derived from that test energy would reduce the capital costs on Capital Corp.'s books; yes. Now, once again, that's very routine and standard for this type of operation.
Q. Do you know whether the impact of the revenues and expenses associated with test energy have been reflected in what has previously been the estimated project cost of $125 million?
A. I do not know.
Q. In Response to the Commission's Data Requests of March 16 and 19, 1999, Item 18d), . . .
A. You said "b" as in boy?

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Q. "D" as in dog.
A. "D" as in dog?
Q. Is it correct that, by charging the work orders to Account No. 107, construction work in progress, these costs will be reflected on KU's balance sheet but not its income statement?
A. That's correct.
Q. The total of these costs listed in the Response, as of February 28, 1999, is $208,226. Do you know what the current total is?
A. Yes. As of the end of April, '99, which is the end of our most recent calender month because May we haven't closed yet, that was $921,804.
Q. If we assume that the Commission approves the request by LG&E and KU to acquire the turbines and if we also assume that the actual construction cost is lower than the fair market value, will the construction costs incurred by KU, which have been tracked by work orders, be transferred to LG&E Capital Corp. and then transferred back to KU and LG&E as part of the acquisition costs?
A. My preference would be not to. I think, since the decision is pending, I think we would hold up any transfer costs until a final decision is rendered by this Commission, would be the preferred method.

Q. So, if we assume that the Commission does approve the request, after a Commission Order is issued approving the acquisition, what would take place then? Would the work orders be transferred to LG&E Capital Corp. and then transferred back, or would there be no transfer at all?

A. If the Commission approves the request, there would be no transfer necessary. It will just stay on the utility's books as incurred, and it would then be billed to Louisville Gas and Electric, its share of those costs, based on the 62-38 joint ownership requirement.

Q. If you would refer for a moment, please, to the Response to the Commission's April 9, 1999, Order, Item 1a., the last paragraph of the Response indicates that, if the Commission does not grant the Certificate of Public Convenience and Necessity, it would be appropriate for KU and LG&E Capital Corp. to enter into a Lease and Service Agreement for the portion of KU's property where the turbines are located. Is there a reason why a Lease Agreement would be more desirable than a sale of that particular parcel of property?

A. I think that would probably be desirable for the utility to maintain ownership of the land and then to lease that land to Capital Corp. and maintain ownership

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of the land. So that's why I think a lease for the land would be more appropriate than an outright sale of the land.

Q. Under your corporate policies and guidelines for intercompany transactions, there's some discussion of transfer of sale of assets between regulated and unregulated affiliates, but the guidelines do not specifically discuss leases. Could you describe what factors would have to be considered in structuring a lease arrangement that would conform to the requirements of the guidelines?

A. I think that a lease arrangement should be based on what the fair value of that asset is that's being leased. If you're leasing an asset, I think the lease arrangement ought to be very similar to having actually sold that asset, and you would lease it under the economics that would be based on fair value, and you would come up with a lease arrangement in accordance with the value of the item being leased at its net replacement cost or at its fair market value.

Q. So would you envision having to obtain an appraisal of the property?

A. I would believe that would be a strong basis just to support the value of the land, yes, and, under an affiliate leasing arrangement, that would probably be necessary.

Q. Regarding the securing of Exempt Wholesale Generator status from FERC for LG&E Capital Corp., can you tell us what costs have been incurred to date for that effort?

A. Yeah, I have inquired with our legal staff as far as the status of that process and the costs, and I don't believe all the costs have come in yet, but it's anticipated it will probably be in the $10,000 to $20,000 range, is the view of the legal staff that I inquired of as far as what might be the anticipated costs of that EWG filing.

Q. If LG&E or KU had to incur a similar type of cost while constructing a turbine, would such cost be a component of the construction cost and capitalized?

A. I believe so. I think it's a valid cost that's necessary in order to make that asset operational.

Q. Would it be similar to the cost incurred in obtaining a Certificate of Convenience and Necessity?

A. Yes, sir.

Q. Will the cost incurred for obtaining EWG status be capitalized as a part of the construction cost by LG&E Capital Corp.?

A. Yes, it will.

Q. If you know, will LG&E Capital Corp. be operating the turbines pending the Commission's ruling in this case, or will there be a facility's operation agreement with an LG&E Energy Corp. affiliate?

A. Well, I think the legal operation will be by Capital Corp.

MR. RAFF:

Thank you, Mr. Robinson. We have no further questions.

HEARING OFFICER SHAPIRO:

Mr. Riggs?

MR. RIGGS:

No redirect, Your Honor. Thank you.

HEARING OFFICER SHAPIRO:

Thank you, Mr. Robinson. That concludes the case for the applicant; is that correct?

MR. RIGGS:

That does conclude the case for the applicant, Your Honor.

HEARING OFFICER SHAPIRO:

Let's go off the record a minute.

OFF THE RECORD

HEARING OFFICER SHAPIRO:

Okay. Let's go back on the record. Ms. Blackford, do you want to call your witness, please?

MS. BLACKFORD:

I'm sorry; yes.

HEARING OFFICER SHAPIRO:

Do you want to call your witness?

MS. BLACKFORD:

Yes, David Brown Kinloch, please.

HEARING OFFICER SHAPIRO:

Okay.

WITNESS SWORN

The witness, DAVID H. BROWN KINLOCH, after having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MS. BLACKFORD:

Q. Mr. Brown Kinloch, would you state your full name and address for the record, please?

A. My name is David H. Brown Kinloch. My address is 414 South Wenzel Street, Louisville, Kentucky 40204.

Q. Are you the same David H. Brown Kinloch who has prepared testimony on behalf of the Attorney General and prefiled that testimony in April of '99?

A. Yes, I am.

Q. Do you have any amendments or corrections to that testimony?

A. No, I do not.

Q. Do you affirm and adopt the testimony as filed here today?

A. Yes, I do.

MS. BLACKFORD:

The witness is available for cross.

HEARING OFFICER SHAPIRO:

Do you wish to introduce it into the record? Ms. Blackford, do you wish to make it a part of the record?

MS. BLACKFORD:

Yes.

HEARING OFFICER SHAPIRO:

So ordered.

MR. RIGGS:

May I proceed?

HEARING OFFICER SHAPIRO:

Yes.

CROSS EXAMINATION

BY MR. RIGGS:

Q. Good afternoon, Mr. Kinloch.

A. Good afternoon, Mr. Riggs.

Q. As I read your testimony, your testimony addresses what you describe as the "problems created by the non-conventional approach," of the applicants in this case; is that a fair statement?

A. That's a good characterization; yes.

Q. Now, your testimony does not address the load forecast of the companies; does it?
A. That's correct.
Q. So your testimony does not take exception to the load forecast?
A. No. I just take that as a given.
Q. Will you agree with me that, subject to checking the evidence in the record in this case, that the forecast shows the companies have a joint need for 470 megawatts of peaking capacity beginning in the summer of 1999?
A. I don't know if I would agree with that. They have a need for 470 megawatts of capacity. I'm not sure I would agree that it's peaking capacity.
Q. Okay. And, if the Commission grants LG&E and KU the acquisition of the two 164 megawatt combustion turbines, the companies will still have an additional 142 megawatts of capacity that they'll need this summer?
A. Including the reserves, yes, to meet the reserve need.
Q. And, if the Commission denies the requested certificate, the companies will still have a joint need for 470 megawatts of capacity this summer?
A. Including the reserve margin, yes.
Q. In preparing your testimony, you stated that you reviewed the most recent Integrated Resource Plans of

LG&E and KU; is that not true?

A. That's correct.

Q. Isn't it true, Mr. Kinloch, that the expansion plans in each of the companies' IRPs show the installation of simple-cycle combustion turbines as the next physical asset addition?

A. Next physical asset addition - I would have to go back and look. The KU one did, but the LG&E one had a number of different ways of meeting the load, including direct load control, standby generation by customers. It had an upgrade of the hydro facility. It had a battery - using batteries for peaking.

Q. Is it not true, though, that LG&E's most recent IRP or Integrated Resource Plan showed that LG&E planned to add a 108 megawatt combustion turbine in Trimble County in 1999?

A. Subject to check. I've got it over there if you want to look, but that sounds about right.

Q. Okay.

A. It did have some other things coming on before that, including buying power and direct load control, before 1999.

Q. Your testimony at Page 9, Lines 7 and 8, states that "LG&E Capital purchased the only units available from the only supplier that had units available for sale";

is that not true?
A. Yes.
Q. Your testimony at the same Page 9, Lines 10 and 11, states that it was a seller's market when LG&E Capital purchased the combustion turbines following the summer of 1998; is that not true?
A. Right.
Q. At Page 11 of your testimony, Lines 19 and 20, you state it is just as likely that the prices for combustion turbines - I'm paraphrasing just a little - may moderate somewhat when a number of suppliers have equipment and are able to bid; is that not true?
A. That's correct; yes.
Q. There are only three suppliers of combustion turbines in the market at this time, ABB, GE, and Siemens/ Westinghouse; is that your understanding?
A. That is - of the units the size that you're talking about. There are some people that make smaller units.
Q. But of the units the size that is the subject of the case that we're talking about today . . .
A. Those are the three major vendors; that's right.
Q. Right. Now, your testimony did not present any evidence that those suppliers had combustion turbines available today for purchase and installation; did it?
A. No. I think that the purpose of me bringing this up

was the fact that - was the question of whether this was the best option now or whether it or something else should be done in the future instead.

Q. And your testimony presented no evidence or analysis of when the combustion turbine manufacturers can have machines available in the future; did it?

A. That's correct.

Q. Would you agree with me that, in a seller's market, the seller does not have to accept conditional sales and can demand its own terms for a sale?

A. That may be the situation. It depends. I don't know. A seller's market could be just about anything.

Q. Would you agree with me that, in a seller's market, the seller has the position to tell the buyer that the buyer can take it or leave it, purchase the goods or the service on the seller's terms?

A. The seller is in a better position in a seller's market.

Q. And that better position allows the seller to refuse to accept conditions the buyer, in a buyer's market, would typically request and receive; isn't that true?

A. It may. It depends on the particular seller. The seller is still trying to sell. It depends on whether the seller would accept those conditions, whatever they may be, or not. I can't presuppose what it would be.

Q. And the fashionable behavior by a seller in a seller's market would be to negotiate from what you characterize is a better position as the seller?
A. They're negotiating from a stronger position.
Q. And that stronger position or that strength allows them to negotiate terms that they would not have to accept if they did not have that strength; isn't that true?
A. I don't know. It's not necessarily true. I mean, the hope is that they could take their commodity they're trying to sell, in this case a combustion turbine, to another particular buyer, but, at some point, the seller is trying to sell the thing, whatever they're trying to sell, in this case a combustion turbine, and they will agree to terms with someone if they actually do want to sell that piece of equipment.
Q. The terms on which the seller agrees will be terms based upon what you've previously stated is the strength of the seller's position?
A. It would have a better negotiating position, but the terms would end up being whatever the buyer and the seller came to agreement upon.
Q. You testified in the combustion turbine case several years ago brought by Kentucky Utilities for a Certificate of Convenience and Necessity to acquire or install combustion turbines at the Brown site; did you

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not?

A. That's correct.

Q. Do you recall the vendor of Westinghouse sitting in the lobby of the Hearing Room that day and then submitting a bid outside the bid timelines after the hearing was closed to the company?

A. I do not remember that; no.

Q. If the record of evidence showed that in that case, you would accept that; would you not?

A. If the record showed that, yeah.

Q. Okay. Are you familiar with the 1999 summer assessment of load and capacity for the East Central Area of Reliability Coordination Agreement?

A. No, I'm not familiar with that.

Q. Are you generally familiar with what ECAR is?

A. Oh, yes.

Q. Okay. And what is that, please?

A. It's a region of the country in which there are a group of utilities, including the applicants, that are together for reliability reasons and other reasons.

Q. Do you know whether or not ECAR has published a report on its assessment of the summer of 1999?

A. No, I don't, but I imagine they may have. It's the kind of thing they do.

Q. It's a typical report that they would issue in connection with their responsibilities towards one another and as part of their ECAR agreement; isn't it?

A. If you say so. I mean, I know they have particular forecasts. They pull together the different data from the different utilities in their region.

Q. Would you agree with me that it is of concern that ECAR's May, 1999, report states that it will likely need to use supplemental capacity resources to meet its projected peak demand and that severe weather conditions or unexpected generator outages and the unavailability of power from outside the region could make it necessary to curtail additional load beyond contractually interruptible loads in demand-side management?

A. If that's what it says. I mean, I don't have the report. I haven't read the report, Mr. Riggs.

Q. Okay. One of the complications you describe in your testimony is the price the applicants paid; is that not true?

A. That's correct.

Q. Your testimony states that the applicants paid a premium for the combustion turbines; is that not true?

A. I stated that it's a premium over what was in the previous IRPs as far as the cost that they would expect to pay for combustion turbines.

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Q. In arriving at that portion of your testimony, in which you state that the applicants paid a premium for the current combustion turbines, you compared the price of the combustion turbines in the 1996 KU Integrated Resource Plan with the price of the combustion turbines that was identified in the applicants' application in this case; did you not?
A. That's exactly it; yes.
Q. And, to make those prices comparable, you restated them on a per kw basis; did you not?
A. That's correct.
Q. And the price of the combustion turbine that you identified as being contained in the 1996 KU Integrated Resource Plan, I believe, was $198 a kilowatt; is that correct?
A. That's right, and I think it was for, like, a 110 megawatt machine.
Q. Now, would you agree with me that the $198 a kilowatt is stated in terms of 1995 dollars?
A. I believe that's correct; yes.
Q. Would you further agree with me that the KU 1996 Integrated Resource Plan uses or contains an escalation rate of approximately .037 percent?
A. I'm not sure if that's what it contains.
Q. I'm sorry. I misspoke, Mr. Kinloch. It's 3.7 percent.

Let me, with permission of your counsel, show you Volume III of the Integrated Resource Plan of Kentucky Utilities Company filed with the Commission on April 22, 1996, marked "Technical Appendix." Page 1 of Appendix A, Optimal Generation Expansion Strategy Analysis, March, 1996, Page 1 of that and in the section describing the data items used in the generation planning models, I'll ask whether or not that shows a construction escalation rate of 3.7 percent.

A. Yes, it does. It was an assumption that was in that model.

Q. Would you agree with me, to compare the $198 a kilowatt with the value of the combustion turbine in this case, which you calculated to be $381 a kilowatt, that you would need to escalate the 1995 dollars by that construction rate to state them in terms of 1998 or 1999 dollars?

A. Not necessarily.

Q. You think it's appropriate to compare 1995 dollars to 1999 dollars without escalating the change over time for inflation?

A. Well, I didn't say that. It's just a question of using the figure you have there. Inflation has been lower than 3.7 percent over the three years since then. So

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I'm not necessarily saying that 3.7 percent - it would probably be escalated but not necessarily by the numbers you have in there. That was just a projection that KU had made on what they expected those costs to rise at.

Q. You do agree that it was the escalation rate contained in the KU 1996 IRP, and, in that IRP, you selected the value of $198 a kilowatt-hour as a reasonable value for a combustion turbine?

A. That was the figure that was in there for the combustion turbines to be added at the Brown site. That figure came right out of the IRP.

Q. Now, you said that the escalation rate for construction contained in the IRP may or may not an appropriate value, but you would agree with me that, to accurately compare the price of the combustion turbines in this case with the value contained in the KU Integrated Resource Plan, you would have to escalate the estimate of 1995 so that it would be restated in 1996 dollars; would you not?

A. You mean 1998 dollars.

Q. You could do it either way. You would agree with me it has to be escalated?

A. It could - yeah, I mean, that's a way you could do it. I think, you know, we're talking about I was making the

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point that the price was twice what it had been in there and, if you escalate it by a couple percent inflation for three years, that's a 6 percent increase compared to a 100 percent increase. There's not much of a comparison.

Q. Do you agree with me that inflation does not necessarily track the construction inflation rate, the general rate of inflation does not track the escalation rate that you would use for construction?

A. Not necessarily. I mean, a lot of your construction cost is labor which tends to move with inflation. It doesn't track it exactly, but I think it's pretty close.

Q. And you did not escalate the dollars in your analysis to restate the 1995 dollars in terms of 1998 or 1999 dollars; did you?

A. No. As I stated to you before, I was making a comparison that something that's jumped by about 100 percent is not going to be made up by inflation over a three year period.

Q. Would you accept, subject to check of the following mathematics, that, if you took the construction escalation rate of 3.7 percent and the KU 1996 IRP and escalated that to 1999 dollars, that that would mathematically make the $198 a kilowatt into $229 a kilowatt?

A. Mathematically, yes, but I don't know why you would do that, Mr. Riggs, because you bought these combustion turbines in 1998; not 1999. You wouldn't put it in 1999 prices for a good comparison. Then you would be having the same problem.

Q. You nevertheless would agree with me that, to make the values comparable, that you would need to adjust the dollar values?

A. You could. I mean, if you assumed, say, 3 percent for three years, that's about 10 percent. That would be about $220 compared to $381. That's still roughly double.

Q. I believe your testimony also indicates that there is a difference in efficiency or heat rate between the combustion turbine identified in the 1996 KU IRP versus the combustion turbines that are the subject of this case.

A. That was taken from a Response given by the applicants; yes.

Q. And, in your testimony, I believe you generally approximated the value of that efficiency to be about 10 percent. In other words, the difference between the cost of the combustion turbine identified in the '96 KU IRP and the cost of the combustion turbines in this

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case, in part, can be explained by the increased deficiencies that the combustion turbines in this case have?

A. That's correct, and that was based on figures from the IRP. The '96 IRP looked both at the smaller 110 megawatt unit and a larger unit, I think, like 150, which the larger the units get they tend to be more efficient.

Q. Yeah, and would you agree with me that, to make the proper comparison, that the heat rate efficiencies and the price paid to achieve those higher efficiencies would need to be taken into account as part of this comparison?

A. Yeah. I think that's the reason I put that in my testimony, that that does need to be considered; yes.

Q. Would you further agree with me that the value of $198 a kilowatt, identified in the '96 KU IRP, was based upon the cost of the combustion turbine without the cost of constructing that turbine?

A. No. The price was taken as the total cost, including the construction of the turbine. That was the full price. It's not just the price of the turbines. It's the completed installed price.

Q. Would you agree with me that the scope of the work to complete the combustion turbine in this case is different than the scope of the work that was assumed for purposes of identifying the price of the combustion turbine in the '96 KU IRP?

A. No, I don't . . .

Q. Do you know?

A. There's no reason for me to believe there would be any difference.

Q. Would you also agree with me that the current combustion turbines in this proceeding will require a demineralizer and that cost was not taken into account along with other differences between these combustion turbines and the combustion turbines in the '96 IRP?

A. I'm not sure, Mr. Riggs. In the 1996 IRP, they had an installed cost for the combustion turbines and that is what it is, and you would have to check with your people to see what was in there and what wasn't. They had a price in there for the actual machines and then a price for it installed at the Brown site.

Q. Now, Mr. Kinloch, you also cite the fact that the units being built at the Brown site is a complicating factor in your testimony; do you not?

A. Repeat that.

Q. Sure. In your testimony, you cite the fact that the combustion turbines are being built at the Brown generation station is another complicating factor; do you not?

A. Right. The fact that a site that the preparation work has been done and the site is ready to put in a KU combustion turbine, being used by an unregulated affiliate, that site is being used, yes, that's a complicating factor; yes, sir.

Q. You testimony further urges that a greenfield site should be used in such instances; does it not?

A. That's correct.

Q. Isn't it true, Mr. Kinloch, that greenfield sites would take 24 to 36 months more to complete and may require different environmental permits than an established site, such as the Brown site?

A. That's correct.

Q. During that period of time, if a greenfield site was undertaken, customers would not have the benefit of that combustion turbine while it was being constructed; would they?

A. They wouldn't have the use of it. Now, the question whether there's a benefit is another issue.

Q. Isn't it true, Mr. Kinloch, that the Trimble County Generating Station of the Louisville Gas and Electric Company is another brownfield site available to the companies in the future; that the Brown Generating Station is not the only brownfield site available to the joint applicants?

A. Well, I mean, the company could put turbines at a number of sites. I imagine they could probably put it at the Cane Run site. I'm sure that's always an option. The difference is that, at the Brown site, the site had already been prepared. There are already combustion turbines there. They already had a substation there specifically for use of the combustion turbines. If you go to it, like the Trimble County site, there would still have to be some preparation work. I'm not sure if there's a gas line laid specifically sized to the site that could service them. So a site like that I guess I would characterize somewheres between a greenfield site and a brownfield site, as you defined it, because it's not as ready for combustion turbines as what Brown was where they had already sited and were ready to go with combustion turbines.

Q. You do agree with me, though, that the joint applicants have at least one, if not more, potential brownfield sites or generating stations that would allow the construction of combustion turbines in the future?

A. Right, but I'm not sure that they've got all the air permits and the substations and gas lines ready to go at those sites.

Q. Mr. Kinloch, I come to the end of your testimony and read that you cannot recommend for or against the Commission granting the Certificate of Convenience and Necessity in this case, that what you do recommend is that, if the Commission grants the certificate, you have attached a condition to it that the cost of obtaining exempt wholesale generation status not be included as part of the cost of the project; is that true?

A. That's right. The cost that you wouldn't have if the company had gone through the normal procedure of getting the certificate before such time they began construction.

Q. And you agree with me that, under the current regulation of Kentucky, the companies could not obtain the combustion turbines in time for the summer of 1999?

A. Not if you started when you did. I mean, if you had started back in, I guess, about early 1998, you could have gotten your certificate in time.

Q. At that time, we did not have experience of the summer of 1998; did we?

A. No, you didn't.

Q. Okay. Those are all the questions I have. Thank you.

A. But I might add you did have the ECAR forecast which showed that capacity was tightening up.

Q. Would you agree with me that the price volatility we saw in the summer of 1998 had never been experienced before?
A. Not on that scale; no.
Q. I'm . . .
A. No, not on that scale. You hadn't seen that before.
MR. RIGGS:
Thank you. Those are all the questions I have, Your Honor.
MR. RAFF:
If we could have just a moment, please, Your Honor.
OFF THE RECORD
MR. RAFF:
I have one question.

CROSS EXAMINATION

BY MR. RAFF:
Q. Over at Page 12 of your testimony, at the bottom, you talk about the current projected cost of the combustion turbine of $381 versus what had been projected in KU's 1996 IRP and the significant increase, and then you go on, Lines 21 through 23, to talk about other peaking options, such as battery storage and compressed air storage, are now in a similar price range. Do you see that?

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A. Yes, sir.
Q. If you would turn to your Exhibit 1, please, which of the columns here talk about the battery storage and the compressed air?
A. If you go down to the bottom of the page, the options across the bottom, the fifth column over and the sixth column are battery storage, and the eighth column over is compressed air storage.
Q. It looks like "Adv Bat 3hr" and "Adv BAT 5hr"; is that the two?
A. Yes.
Q. And then you skip on, and then there's a "CAES"?
A. Yes.
Q. Okay. And then which of the costs - I mean, what numbers are reflected here as something that you would say was the equivalent for the capacity costs as expressed for the dollars per kilowatt? Is there such a cost?
A. It's not simply the capacity cost, Mr. Raff. These technologies that you have here are storing energy off system when power can be bought very cheap compared to the cost of running a combustion turbine which is expensive natural gas. So it's not only the fixed cost, the capacity cost, but also the variable cost that has to be looked at to get a comparison. That's

partly the purpose of my testimony. It's to say that all the analysis hasn't been done, and I find the Commission in a very difficult position having to make a decision considering a lot of these alternatives that have a lot lower variable cost and capital cost somewhat in the same range haven't been analyzed.

Q. Well, can you tell from these figures what the capital costs are?

A. Yes. The three-hour battery storage, it's got the total generic unit cost of I think that's $468, the five-hour storage at $640, and the compressed air storage at $435.

Q. Okay. And the batteries, are they for 20 megawatts? Am I reading that correctly?

A. Let's see here. Twenty, yes, and the compressed air storage is 350.

Q. And this, similarly, was based on January, 1995, dollars?

A. That's correct.

MR. RAFF:

Thank you very much. I have no further questions.

HEARING OFFICER SHAPIRO:

Mr. Riggs?

MR. RIGGS:

Brief. One question.

HEARING OFFICER SHAPIRO:

Well, wait, wait. Ms. Blackford, do you have any redirect?

MS. BLACKFORD:

No.

HEARING OFFICER SHAPIRO:

Okay.

MR. RIGGS:

May I be permitted one question, Your Honor?

HEARING OFFICER SHAPIRO:

Yeah.

RECROSS EXAMINATION

BY MR. RIGGS:

Q. Mr. Kinloch, on the Exhibit 6(a) from the KU IRP that you have attached to your testimony as Exhibit DHBK-1, the developmental rating of the batteries, the technical developmental rating for the two battery scenarios, is indicated as being pilot; is that not right?

A. That's correct, and the compressed air storage is commercial actual numbers from the project, I believe, in Alabama.

MR. RIGGS:

Thank you. That's all the questions I have.

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HEARING OFFICER SHAPIRO:

Okay. Thank you, Mr. Kinloch.

A. Thank you.

HEARING OFFICER SHAPIRO:

Does that conclude the case?

MS. BLACKFORD:

Yes.

HEARING OFFICER SHAPIRO:

There was a procedural Order in here, but I don't believe it had anything in it - it doesn't provide for filing of briefs; does it? Do the parties wish to file briefs?

MS. BLACKFORD:

No.

MR. RIGGS:

Yes, we do, Your Honor.

HEARING OFFICER SHAPIRO:

One does. Do you wish to file a brief?

MR. RAFF:

She indicated no. So do you want to reconsider or . . .

MR. RIGGS:

We are interested in filing a brief. We do not ask for much time, and we do not anticipate . . .

HEARING OFFICER SHAPIRO:

Okay. How much time do you need?

MR. RIGGS:

Pardon?

HEARING OFFICER SHAPIRO:

How much time do you need?

MR. RIGGS:

June 10. We can limit the page limit if you want to.

MS. BLACKFORD:

Go right ahead.

MR. RIGGS:

Okay.

MS. BLACKFORD:

I indicated I'm not interested in filing one.

HEARING OFFICER SHAPIRO:

Oh, you're not going to file one anyway?

MS. BLACKFORD:

No.

HEARING OFFICER SHAPIRO:

You're not going to file a brief, . . .

MS. BLACKFORD:

No.

HEARING OFFICER SHAPIRO:

. . . or do you just want to leave the option open?

MS. BLACKFORD:

I'll leave the option open.

HEARING OFFICER SHAPIRO:

Okay. Will June 10, then, be acceptable to you? Okay. The briefs will be due, then, June 10, if either party wishes to file them. Anything else that needs to come before the Commission?

MR. RAFF:

We need a date. We had asked for a couple of items. Maybe June 10, also.

MR. RIGGS:

Or sooner, yes.

HEARING OFFICER SHAPIRO:

Well, we'll probably need them sooner because, if Ms. Blackford wants to file a brief, she'll probably need that information as well.

MS. BLACKFORD:

Well, I would probably need a date for brief filing that would include a transcript were I to file one.

HEARING OFFICER SHAPIRO:

Well, the transcript will be filed the . . .

MR. RIGGS:

Your Honor, I . . .

HEARING OFFICER SHAPIRO:

Well, it wouldn't take you that long to get that information.

MR. RIGGS:

No, sir. I think we could file our information by this Friday.

HEARING OFFICER SHAPIRO:

Okay. That should be enough time. Okay. What date is that? That's the 3rd?

MR. RIGGS:

That would be June 4.

HEARING OFFICER SHAPIRO:

June 4?

MR. RIGGS:

Yes, sir.

HEARING OFFICER SHAPIRO:

Okay. And the briefs will be due the following week.

MR. RIGGS:

Yes, June 10.

HEARING OFFICER SHAPIRO:

Let's make it June 11. That will be on a Friday.

MR. RIGGS:

Okay.

HEARING OFFICER SHAPIRO:

Okay. Anything else?

MR. RIGGS:

Nothing, Your Honor.

HEARING OFFICER SHAPIRO:

Okay. The hearing is adjourned.

MR. RIGGS:

Thank you, Your Honor.

FURTHER THE WITNESSES SAITH NOT

HEARING ADJOURNED

OFF THE RECORD

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STATE OF KENTUCKY

COUNTY OF FRANKLIN

I, Connie Sewell, the undersigned Notary Public, in and for the State of Kentucky at Large, do hereby certify the foregoing transcript is a complete and accurate transcript, to the best of my ability, of the hearing taken down by me in this matter, as styled on the first page of this transcript; that said hearing was first taken down by me in shorthand and mechanically recorded and later transcribed under my supervision; that the witnesses were first duly sworn before testifying.

My commission will expire November 19, 2001.

Given under my hand at Frankfort, Kentucky, this the 15th day of June, 1999.

Connie Sewell

Connie Sewell, Notary Public
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