

DECEMBER 1974

**IMPLEMENTATION PLAN REVIEW
FOR
KENTUCKY**

APPENDICES



U. S. ENVIRONMENTAL PROTECTION AGENCY

APPENDIX A

State Implementation Plan Background

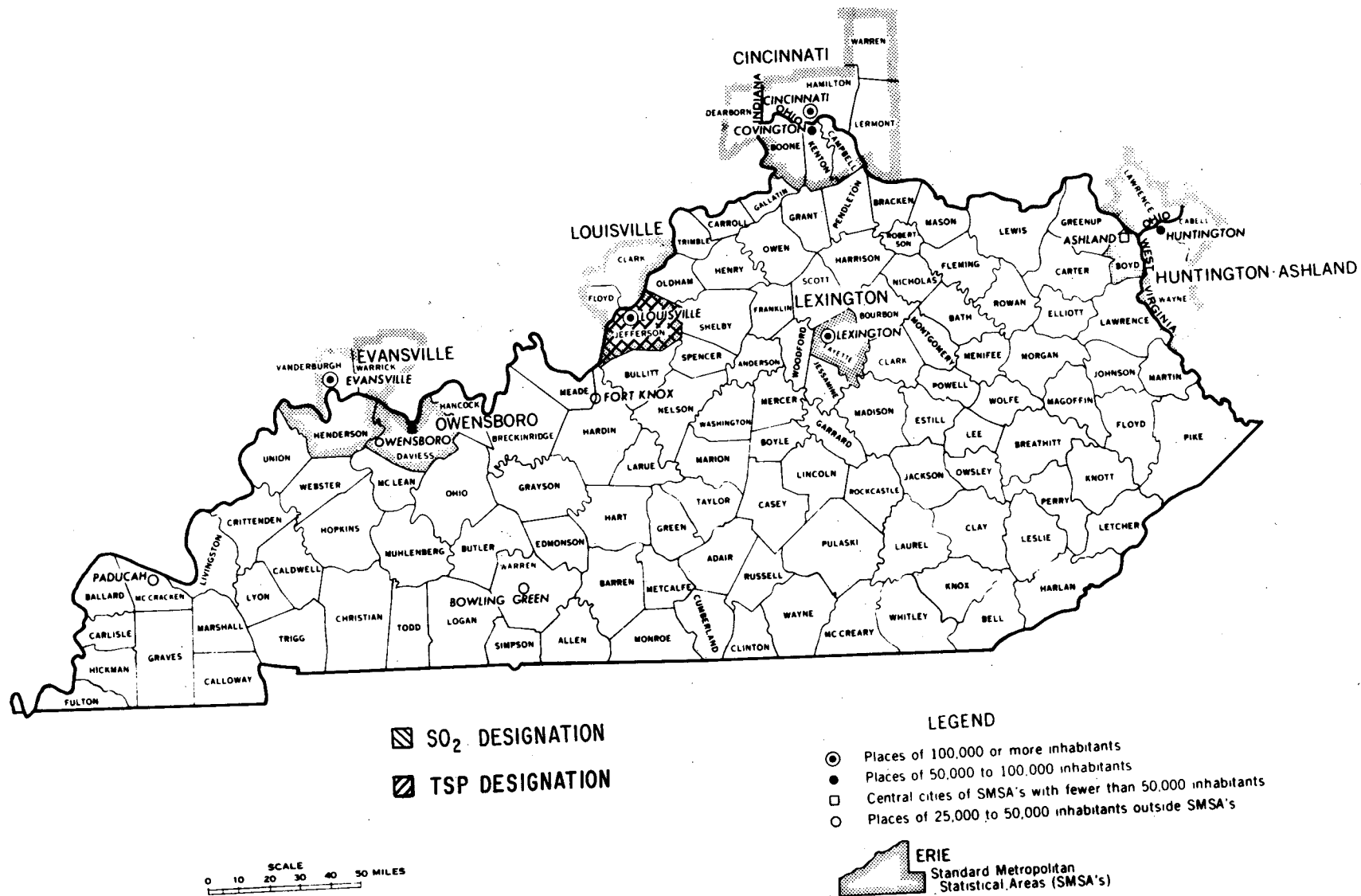


Figure A-1. Kentucky Proposed Air Quality Maintenance Area (AQMA) Designations

TABLE A-1. Kentucky Air Pollution Control Areas

<u>Air Quality Control Region</u>	<u>Federal Number</u>	<u>Priority Classification</u>			<u>Demographic Information</u>			<u>AQMA Proposed Designations</u>	
		<u>Parti- culates</u>	<u>SO_x</u>	<u>NO_x</u>	<u>Population 1970 (millions)</u>	<u>Area (square miles)</u>	<u>Population per square mile</u>	<u>TSP Counties</u>	<u>SO_x Counties</u>
1. Paducah-Cairo (Ill.)	72	I	II	III	0.41	8012	51	(0)	(0)
2. Evansville-Owensboro- Henderson (Ind.)	77	I	II	III	0.51	5704	89	(0)	(0)
3. Louisville (Ind.)	78	I	I	III	0.83	908	912	(1) Jefferson ^a	(1) Jefferson ^a
4. Metropolitan Cincinnati (Ohio, Ind.)	79	I	II	III	1.66	3816	435	(0)	(0)
5. Appalachian	101	II	III	III	0.43	7791	55	(0)	(0)
6. Bluegrass	102	II	III	III	0.46	4316	106	(0)	(0)
7. Huntington-Ashland- Portsmouth-Ironton (W.Va., Ohio)	103	I	III	III	0.60	8148	74	(0)	(0)
8. North Central Kentucky	104	II	III	III	0.27	4813	57	(0)	(0)
9. South Central Kentucky	105	III	III	III	0.33	7571	43	(0)	(0)

^aAs of November 26, 1974.

TABLE A-2. Kentucky Ambient Air Quality Standards

		Total Suspended Particulate		All concentrations in $\mu\text{g}/\text{m}^3$ Sulfur Oxides			Nitrogen Dioxide
		Annual	24-Hour	Annual	24-Hour	3-Hour	Annual
Federal (Nov. 1972)	Primary	75 (G)	260 ^a	80 (A)	365 ^a	--	100 (A)
	Secondary	60 (G)	150 ^a	--	--	1300 ^a	100 (A)
State	Primary	75 (G)	260	80 (A)	365	--	100 (A)
	Secondary	60 (G)	150	60 (A) ^b	--	1300	100 (A)

^aNot to be exceeded more than once per year

(A) Arithmetic mean

(B) Geometric mean

^bThis standard was adopted based on original U.S. Environmental Protection Agency policy which was rescinded July, 1973.

TABLE A-3. Kentucky AQCR Air Quality Status, TSP^a

AQCR No.	Number Stations Reporting	TSP Concentration (ug/M ³)			Number of Stations Exceeding Ambient Air Quality Standards						% Reduction Required to Meet Standards ^d	Controlling Standard
		Highest Reading		2nd Highest Reading	Primary		Secondary					
		Annual	24-Hr		Annual	24-Hr ^c	Annual	%	24-Hr ^c	%		
72 ^b	19	75	303	220	0	0	4	21	7	37	+50	Annual
77 ^b	27	144	398	270	7	1	13	48	11	41	+85	Annual
78 ^b	21	162	514	437	6	5	8	38	12	57	+87	Annual
79 ^b	55	166	450	351	9	2	32	58	14	25	+88	Annual
101	5	74	168	152	0	0	2	40	1	20	+48	Annual
102	15	83	158	138	1	0	2	13	0	0	+61	Annual
103 ^b	40	96	349	239	5	0	12	30	8	20	+71	Annual
104	7	51	159	117	0 ^e	0 ^e	0 ^e	0 ^e	0 ^e	0 ^e	-46 ^e	24-Hr.
105	8	--	221	163	-	0	-	-	1	13	+11	24-Hr.

^a1973 air quality data in National Air Bank as of June 7, 1974

^bInterstate

^cViolations based on 2nd highest reading at any station

^dFormula: Maximum of

$$\left[\left(\frac{(\text{2nd Highest 24-Hr}) - (\text{24-Hr Secondary Standard})}{(\text{2nd Highest 24-Hr}) - (\text{Background})} \right) \times 100 \text{ or } \left(\frac{(\text{Annual}) - (\text{Annual Secondary Standard})}{(\text{Annual}) - (\text{Background})} \right) \times 100 \right]$$

where Kentucky particulate background = 45 $\mu\text{g}/\text{m}^3$.

Note that this is a first approximation. The U.S. Environmental Protection Agency no longer encourages the use of rollback calculations as a means of demonstrating NAAQS attainment. However, in the absence of dispersion modeling results, it is the only measure available and is, therefore, used here.

^eAlthough the SAROAD data bank indicate no violations, supplementary data from local sources indicates that the standard is being exceeded in this region.

TABLE A-4. Kentucky AQCR Air Quality Status, SO₂

AQCR No.	No. Stations Reporting		SO ₂ Concentration (µgm/m ³)			Number of Stations Exceeding Ambient Air Quality Standards			% Reduction Needed to Meet Standards ^d	Controlling Standard
	24-Hr	Cont.	Highest Reading		2nd Highest Reading	Primary		Secondary		
			Annual	24-Hr	24-Hr	Annual	24-Hr ^c	3-Hr ^c		
72 ^b	19	2	19	274	74	0 ^e	0 ^e	0 ^e	- 321 ^e	Annual
77 ^b	20	5	39	267	205	0	0	0	- 78	24-Hr
78 ^b	21	8	61	419	211	0 ^e	0 ^e	0 ^e	- 31 ^e	Annual
79 ^b	32	3	55	203	141	0	0	0	- 45	Annual
101	5	0	9	137	45	0	0	-	- 711	24-Hr
102	11	1	15	96	59	0	0	0	- 433	Annual
103 ^b	17	1	28	429	178	0	0	0	- 105	24-Hr
104	7	0	5	63	33	0	0	-	-1006	24-Hr
105	7	0	9	125	121	0	0	-	- 202	24-Hr

^a1973 air quality data in National Air Data Bank as of June 7, 1974.

^bInterstate.

^cViolations based on 2nd highest reading at any station.

^dFormula: Maximum of

$$\left[\left(\frac{[\text{2nd Highest 24-Hr}] - [\text{24-Hr Standard}]}{[\text{2nd Highest 24-Hr}]} \right) \times 100 \text{ or } \left(\frac{[\text{Annual}] - [\text{Annual Standard}]}{[\text{Annual}]} \right) \times 100 \right]$$

Note that this is a first approximation. The U.S. Environmental Protection Agency no longer encourages the use of rollback calculations as a means of demonstrating NAAQS attainment. However, in the absence of dispersion modeling results, it is the only measure available and is, therefore, used here.

^eAlthough the SAROAD data bank indicates no violations, supplementary data from local sources indicate that the standard is being exceeded in this region.

TABLE A-5. Kentucky Fuel Combustion Source Summary

AQCR No	Power Plants ^a	Other Fuel Combustion Point Sources ^b	Area Sources ^c	Total Emissions ^d (10 ³ tons/year)		% Emissions from Kentucky Fuel Combustion Sources	
				TSP	SO ₂	TSP	SO ₂
72 ^e	3	2	17	175	985	31	81
77 ^e	5	0	7	107	554	8	25
78 ^e	2 ^f	10	1	271 ⁱ	168 ⁱ	7 ⁱ	22 ⁱ
79 ^e	0 ^g	1	8	259	479	1	1
101	1	0	21	48	12	15	92
102	3	0	17	34	75	87	99
103 ^e	1 ^h	1	15	166	401	11	11
104	0	1	14	19	18	25	94
105	1	0	20	89	181	89	100
Total	16	15	120	1169	2872	19	45

^aKentucky fossil-fuel-fired power plants

^bKentucky plants contributing 90% of SO₂ emissions or emissions totaling 1000 tons/yr.

^cKentucky counties

^dAQCR total

^eInterstate

^fAdditional power plant (Mill Creek) scheduled for 1974-75

^gAdditional power plant (Ghent) scheduled for 1974-75

^hAdditional power plant (Ohio River #1) scheduled for 1976

ⁱThese data do not include power plant emissions

TABLE A-6. Kentucky Emissions Summary^a, TSP

AQCR	Total		Electricity Generation		Industrial/Commercial/ Institutional Point Source		Area Source	
	(10 ³ tons/year)	%	(10 ³ tons/year)	%	(10 ³ tons/year)	%	(10 ³ tons/year)	%
072 Kentucky	110	9	49	45	1	1	5	4
Other	65	6	51	79	0	0	1	1
Total	175	15	100	57	1	0	6	3
077 Kentucky	26	2	4	14	1	5	3	11
Other	80	7	38	47	29	36	6	7
Total	107	9	42	39	30	28	9	8
078 Kentucky	228	20	0 ^b	0 ^b	5	2	14	6
Other	42	3	2	5	28	67	3	7
Total	271	23	2	1	33	11	17	6
079 Kentucky	20	2	0	0	0	0	2	10
Other	239	20	123	51	39	16	49	21
Total	259	22	123	48	39	15	51	20
101	48	4	3	5	0	0	5	9
102	34	3	23	66	3	8	5	13
103 Kentucky	27	2	12	44	3	12	3	1
Other	140	12	86	62	5	4	6	4
Total	166	14	98	59	8	5	8	5
104	19	2	0	0	2	11	3	14
105	80	8	73	82	0	0	5	6
Total	1169	100	463	40	117	10	108	9

^aEmissions data from Reference 6.^bEmission data in Reference 6 in error since 2 power plants are in this region. No particulate emission data available.

TABLE A-7. Kentucky Emissions Summary^a, SO₂

AQCR	Total		Electricity Generation		Industrial/Commercial/ Institutional Point Source		Area Source	
	(10 ³ tons/year)	%	(10 ³ tons/year)	%	(10 ³ tons/year)	%	(10 ³ tons/year)	%
072 Kentucky	804	28	785	98	6	1	10	1
Other	182	6	175	96	4	2	3	1
Total	985	34	960	97	9	1	12	1
077 Kentucky	141	5	133	94	1	1	6	4
Other	413	14	231	56	171	41	10	2
Total	554	19	364	66	172	31	16	3
078 Kentucky	40	1	0 ^b	0 ^b	18	46	19	48
Other	128	5	110	85	13	10	4	3
Total	168	6	110	65	31	19	23	14
079 Kentucky	4	0	0	0	0	1	3	76
Other	475	17	397	83	33	7	24	5
Total	479	17	397	83	33	7	27	6
101	12	0	3	26	0	1	7	65
102	75	3	66	88	2	3	5	7
103 Kentucky	53	2	37	70	5	10	3	6
Other	348	12	328	94	10	3	6	2
Total	401	14	365	91	15	4	10	2
104	18	1	0	0	12	69	5	25
105	181	6	173	96	0	0	7	4
Total	2872	100	2437	85	275	10	112	4

^aEmissions data from Reference 6.^bEmission data in Reference 6 in error since 2 power plants are in this region. SO₂ emissions from these sources are approximately 139,000 tons/yr.

TABLE A-8. Kentucky AQCR Estimated Emission Reduction Required^a

AQCR	Estimated Particulate Emission Reduction Required		Estimated SO ₂ Emission Reduction Required	
	%	10 ³ tons/year	%	10 ³ tons/year
72 ^b	+50	+88	-321 ^c	-3163 ^c
77 ^b	+85	+91	-78	-432
78 ^b	+87	+236	-31 ^c	-52 ^c
79 ^b	+88	+228	-45	-216
101	+48	+23	-711	-82
102	+61	+21	-433	-325
103 ^b	+71	+118	-105	-421
104	-46 ^c	-9 ^c	-1006	-178
105	+11	+10	-202	-365

^aBased on a proportional change of emissions to air quality. Note that this is a first approximation. The U.S. Environmental Protection Agency no longer encourages the use of rollback calculations as a means of demonstrating NAAQS attainment. However, in the absence of dispersion modeling results, it is the only measure available and is, therefore, used here.

^bInterstate.

^cAlthough the SAROAD data bank indicates no violations, supplementary data from local sources indicate that the standard is being exceeded in this region.

Table A-9. Kentucky Fuel Combustion Emissions Regulations

SO ₂	<p style="text-align: center;"><u>New Facilities</u></p> <p>Liquid Fuel: Priority I Emission Limit: Figure A-2 Solid Fuel: Priority I Emission Limit: Figure A-3</p> <p>In addition: Maximum emission limit for new or modified sources: 500 tons/day. Maximum emissions from all sources (individually, 100 tons/yr or more) within a ten mile radius of a new or modified source: 750 tons/day.</p>	<p style="text-align: center;"><u>Existing Facilities</u></p> <p>Liquid Fuel: Priority Region Emission Limit: Figure A-2 Solid Fuel: Priority Region Emission Limit: Figure A-3</p>
Particulates	<p>Opacity: Ringleman No. 1 in Priority I regions Ringleman No. 2 in Priority II and III regions</p> <p style="text-align: center;"><u>New Facilities</u></p> <p>New Installation Emission Limit: Figure A-4</p>	<p style="text-align: center;"><u>Existing Facilities</u></p> <p>Priority Region Emission Limit: Figure A-4</p>
NO _x	<p style="text-align: center;"><u>New Facilities (>250x10⁶ Btu/hr)</u></p> <p>Gaseous Fuel: 0.2 lbs/10⁶ Btu Liquid Fuel: 0.3 lbs/10⁶ Btu Solid Fuel: 0.7 lbs/10⁶ Btu</p>	<p style="text-align: center;"><u>Existing Facilities (>300x10⁶ Btu/hr)</u></p> <p>Gaseous Fuel: 0.3 lbs/10⁶ Btu Liquid Fuel: 0.3 lbs/10⁶ Btu Solid Fuel: 0.7 lbs/10⁶ Btu</p>

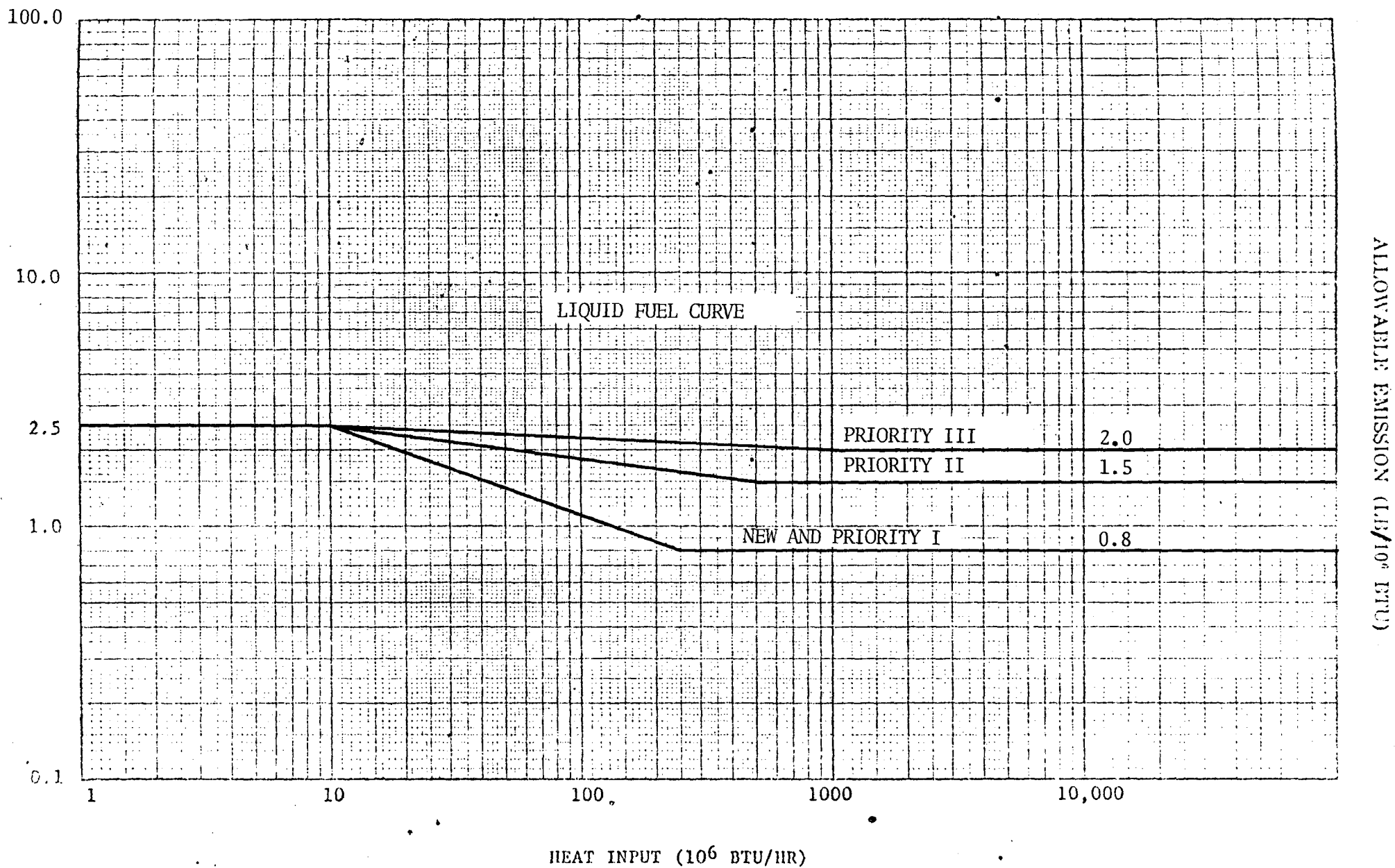


Figure A-2. Kentucky Allowable Sulfur Dioxide Emissions Based on Heat Input Capacity

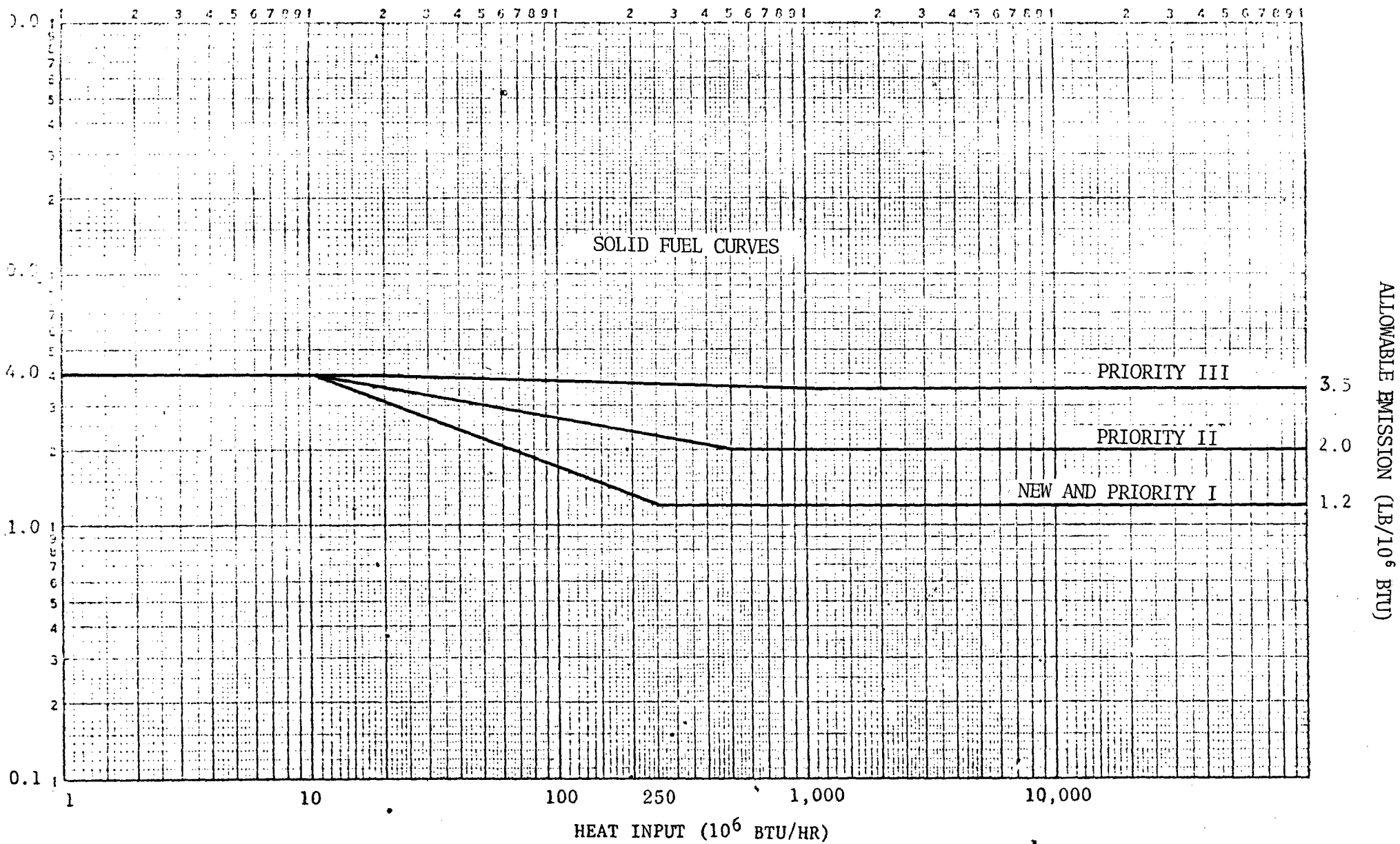


Figure A-3. Kentucky Allowable Sulfur Dioxide Emissions Based on Heat Input Capacity

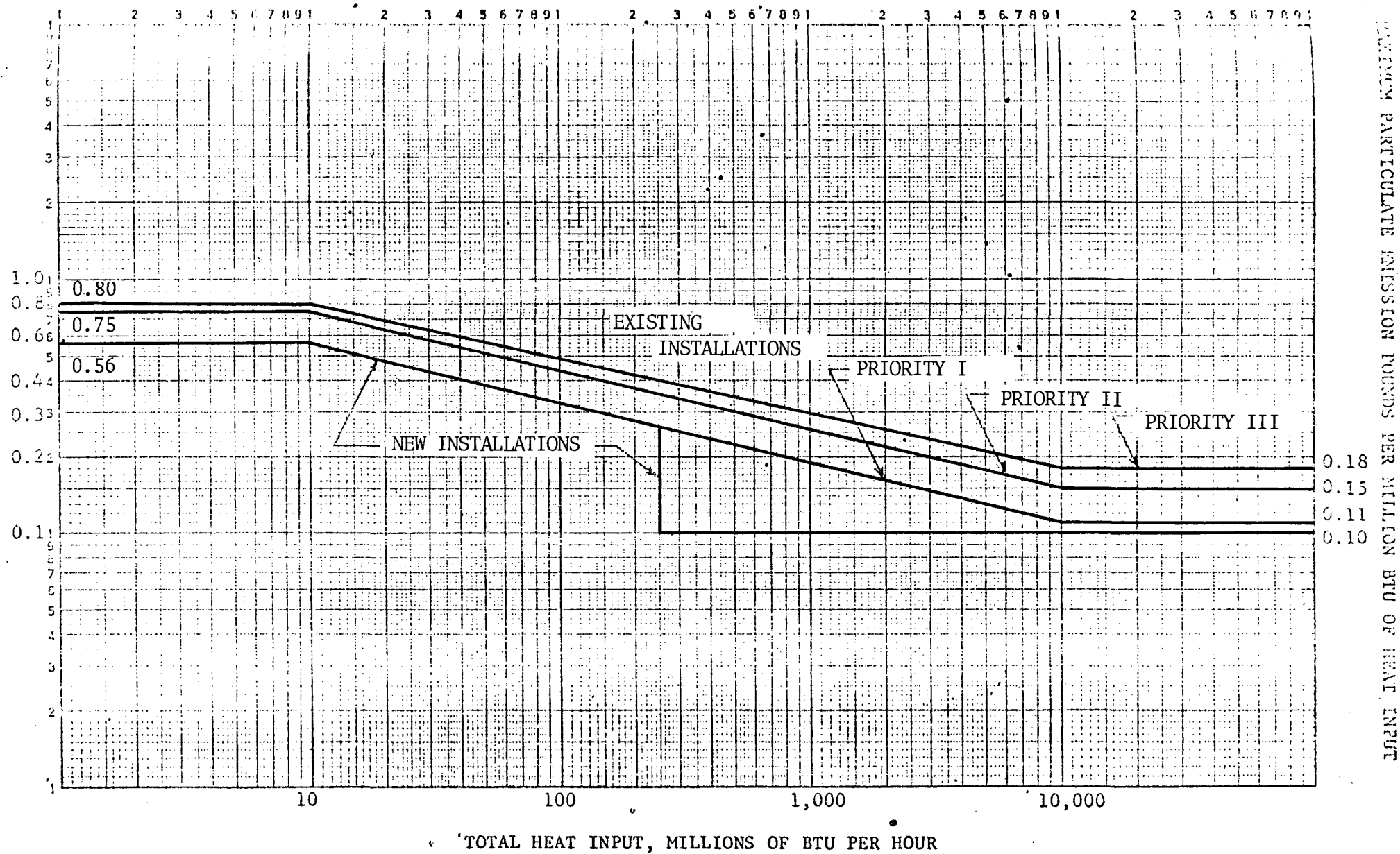


Figure A-4. Kentucky Maximum Emission of Particulate Matter for Fuel Burning Installations

APPENDIX B

Regional Air Quality Assessment

TABLE B-1. Kentucky AQCR Candidacy Assessment for Particulate Regulation Relaxation

Air Quality Control Region	Federal Number	Stations with Particulate Air Quality Violations ^a	Expected Attainment Date	Counties with Proposed AQMA Designations	Total Part. Emissions (10 ³ tons/yr)	% Emissions from Kentucky Fuel Combustion	Estimated Emission Reduction Required for NAAQS (10 ³ tons/yr)	Particulate Priority
Paducah-Cairo (Ill.)	72	7	4/75	0	175	31	+ 88	1
Evansville-Owensboro-Henderson (Ind.)	77	16	4/75	0	107	8	+ 91	1
Louisville (Ind.)	78	14	4/75	0	271	7	+ 236	1
Metropolitan Cincinnati (Ohio, Ind.)	79	34	4/75	0	259	1	+ 228	1
Appalachian	101	2	4/75	0	48	15	+ 23	2
Bluegrass	102	2	4/75	0	34	87	+ 21	2
Huntington-Ashland Portsmouth-Ironton (W.Va., Ohio)	103	17	4/75	0	166	11	+ 118	1
North Central Kentucky	104	0 ^b	--	0	19	25	- 9 ^b	2
South Central Kentucky	105	1	--	0	89	89	+ 10	3

^aTotal number of stations given in Table A-3.

^bAlthough the SAROAD data bank indicates no violations, supplementary data from local sources indicates that the standard is being exceeded in this region.

TABLE B-2. Kentucky AQCR Candidacy Assessment for SO₂ Regulation Relaxation

Air Quality Control Region	Federal Number	Stations with SO ₂ Air Quality Violations ^a	Expected Attainment Date	Counties with Proposed AQMA Designations	Total SO ₂ Emissions (10 ³ tons/yr)	Emissions from Kentucky Fuel Combustion	Estimated Emission Reduction Required for NAAQS (10 ³ tons/yr)	SO ₂ Priority
Paducah-Cairo (Ill.)	72	0 ^b	--	0	985	81	- 3163 ^b	2
Evansville-Owensboro-Henderson (Ind.)	77	0	--	0	554	25	- 432	2
Louisville (Ind.)	78	0 ^b	7/77 ^c	1	168	22	- 52 ^b	1
Metropolitan Cincinnati (Ohio, Ind.)	79	0	--	0	479	1	- 216	2
Appalachian	101	0	--	0	12	92	- 82	3
Bluegrass	102	0	--	0	75	99	- 325	3
Huntington-Ashland-Portsmouth-Ironton (W. Va., Ohio)	103	0	--	0	401	11	- 421	3
North Central Kentucky	104	0	--	0	18	94	- 178	3
South Central Kentucky	105	0	--	0	181	100	- 365	3

^aTotal number of stations given in Table A-3.

^bAlthough the SAROAD data bank indicates no violations, supplementary data from local sources indicate that the standard is being exceeded in this region.

^cEstimated attainment date is 7/77.

APPENDIX C

Power Plant Assessment

Table C-1. Kentucky Power Plant Assessment

AQCR	Plant	Final Compliance Date Capacity Mw	Estimated Fuel	Final Compliance Date Fuel Use Quantity ^a	Regulations % S	Allowable ^b % S
72 ^d	Green River	263.6	Coal	657	1.2	2-3%
	Paradise	2558.2	Coal Oil	6,094 2,268	1.1 1.2	2-3% N.A.
	Shawnee	1750.0	Coal	4,827	1.1	1-2%
77 ^d	Coleman	521.0	Coal Gas	1,476 553	1.1 —	> 3%
	Robert Reid	431.6	Coal Oil	1,419 42	0.7 0.7	> 3% N.A.
	Henderson	384.6	Coal	667	1.1	> 3%
	Elmer Smith	400.0	Coal Oil	1,149 27	0.8 0.7	> 3% N.A.
	Owensboro #1	52.5	Coal	102	1.1	> 3%
78 ^c	Cane Run	1016.7	Coal Gas	2,036 5,120	0.7 —	< 1%
	Paddy's Run	337.5	Coal Gas	227 3,254	0.7 —	< 1%
	Mill Creek	780.5	Coal	1,756	0.7	N.A.
79 ^d	Ghent	1010.0	Coal	2,895	0.7	> 3%
101 ^e	Pineville	37.5	Coal	46	2.1	N.A. ^f
			Oil	44	1.8	N.A.
102 ^e	Dale	196.0	Coal	242	0.9	N.A.
	E. W. Brown	724.1	Coal	1,124	2.2	> 3%
			Oil	1,235	1.7	N.A.
	Tyrone	137.5	Coal	153	1.0	N.A.
			Oil	1,454	1.7	N.A.
103 ^e	Big Sandy	1096.8	Coal	2,491	1.1	> 3%
			Oil	8,476	1.7	N.A.
	Ohio River #1	300.0	Coal	674	0.7	N.A. ^f
104 ^e	No Power Plants					
105 ^e	Cooper	344.0	Coal	772	2.0	N.A. ^f
			Oil	115	1.7	N.A.

Table C-1. Kentucky Power Plant Assessment (Contd.)

^a Coal quantity is 10^3 tons/yr, oil quantity is 10^3 gal/yr, gas quantity is 10^6 ft³/yr. Estimates are based on 1971 fuel use patterns except for the Coleman plant, which was based on the 1972 fuel use pattern and the Ohio River #1 and Mill Creek plants, which are based on average coal use for Kentucky power plants in 1972.

^b Data from U.S. Environmental Protection Agency Region IV Office.

^c Final compliance date for the control of sulfur oxide emissions for this AQCR is July 1, 1977.

^d Final compliance date for the control of sulfur oxide emissions for this AQCR is July 1, 1978.

^e Final compliance date for the control of sulfur oxide emissions for this AQCR is July 1, 1979.

^f Modeling results not available for this AQCR.

Table C-2. Kentucky Power Plant Evaluation Summary

AQCR	Fuel	Compliance Date Fuel Required by Existing Regulations ^a				Compliance Date Fuel Required by Modified Regulations ^b			
		< 1% S	1-2% S	2-3% S	> 3% S	< 1% S	1-2% S	2-3% S	> 3% S
72 ^d	Coal Oil Gas		11,578 2,268				4,827	6,751	
77 ^d	Coal Oil Gas	2,568 69	2,245						4,813
78 ^e	Coal Oil Gas	4,019				2,263 ^f			
79 ^d	Coal Oil Gas	2,895							2,895
101 ^e	Coal Oil Gas		44	46		No modeling results available.			
102 ^e	Coal Oil Gas	242	153 2,689	1,124					1,124 ^f
103 ^e	Coal Oil Gas	674	2,491 8,476						2,491 ^f
104 ^e	Coal Oil Gas	No Power Plants				No Power Plants			

Table C-2. Kentucky Power Plant Evaluation Summary (Cont'd.)

AQCR	Fuel	Compliance Date Fuel Required by Existing Regulations ^a				Compliance Date Fuel Required by Modified Regulations ^b			
		< 1% S	1-2% S	2-3% S	> 3% S	< 1% S	1-2% S	2-3% S	> 3% S
105 ^e	Coal Oil Gas		772 115			No modeling results available.			
Kentucky Total	Coal Oil Gas	10,398 69	17,239 13,592	1,170		2,263 ^f	4,827 ^f	6,751 ^f	11,323 ^f

^aFuel requirements based on 1971 fuel use patterns at compliance date consumption rates (except for the Coleman Plant which is based on the 1972 fuel use and the Ohio River #1 and Mill Creek plants, which are based on average coal use for Kentucky power plants in 1972).

^bMaximum allowable % S was determined by U.S. Environmental Protection Agency Region IV Office.

^cFinal compliance date for the control of sulfur oxide emissions for this AQCR is July 1, 1977.

^dFinal compliance date for the control of sulfur oxide emissions for this AQCR is July 1, 1978.

^eFinal compliance date for the control of sulfur oxide emissions for this AQCR is July 1, 1979.

^fAlthough modeling results are incomplete, these data give an indication of minimum clean fuels savings.

APPENDIX D

Industrial, Commercial, Institutional Point Source Assessment

Table D-1. Kentucky Industrial/Commercial/Institutional Source Assessment

AQCR	Plant	Fuel	Estimated Fuel Consumption ^a	SIP Regulations % S
72	GAF Corp.	Coal	32	1.6
		Oil	255	2.1
	Air Products & Chemicals	Coal	27	1.6
77	No plants ^b			
78	B. F. Goodrich	Coal	42	0.96
	General Electric	Coal	126	0.7
	International Harvester	Coal	35	1.02
	Early Times Dist. Co.	Coal	11	1.6
		Oil	191	2.1
	Falls City Brewing Co.	Coal	6	1.9
	American Standard	Coal	16	1.4
	J. E. Seagram & Sons	Coal	9	1.7
	Phillip Morris, Inc.	Oil	26,879	0.7
	Old Fitzgerald Dist.	Coal	9	1.7
	Lorillard Co.	Coal	5	2.2
79	Interlake Steel	Oil	1,783	2.8
101	No plants ^b			
102	No plants ^b			
103	Ashland Oil, Inc.	Coal	89	2.1
		Oil	58,217	1.7
104	Olin Corp.	Coal	206	2.1
105	No plants ^b			

^aCoal in 10^3 tons/yr, oil in 10^3 gals/yr, gas in 10^6 ft³/yr.

^bNo plants contributing to 90% of the AQCR emissions or emitting 1000 tons per year.

Table D-2. Kentucky Industrial/Commercial/Institutional Source Evaluation Summary

AQCR	Fuel	<u>Fuel Required by Existing Regulations^a</u>			
		< 1% S	1-2% S	2-3% S	> 3% S
72	Coal Oil		59	255	
77	No plants ^b				
78	Coal Oil	168 26,879	86	5 191	
79	Oil			1,783	
101	No plants ^b				
102	No plants ^b				
103	Coal Oil		58,217	89	
104	Coal			206	
105	No plants ^b				

^a Does not include all fuel use. Includes only fuel use listed for sources in Table D-1.
Coal in 10³ tons/yr, oil in 10³ gals/yr.

^b No plants contributing to 90% of the AQCR emissions or emitting 1000 tons per year.

APPENDIX E

Area Source Assessment

Table E-1. Kentucky Area Source Fuel Use

AQCR	Coal (10 ³ tons/yr)	Distillate Oil (10 ³ gals/yr)	Residual Oil (10 ³ gals/yr)	Natural Gas (10 ⁶ ft ³ /yr)
72 ^a	159	32,810	7,070	19,600
77a	137	48,960	3,850	43,570
78 ^a	380	81,440	14,260	64,350
79 ^a	678	218,400	2,070	131,990
101	212	35,450	1,550	19,120
102	195	42,210	5,410	29,790
103 ^a	179	58,350	5,090	51,320
104	80	30,060	1,760	11,030
105	141	31,060	3,340	13,290
Total	2,161	578,740	44,400	384,060

^aInterstate

APPENDIX F
Fuels Assessment

Table F-1. Kentucky Clean Fuels Analysis Summary

AQCR	Fuel	Existing Regulations Clean Fuel Requirements ^a				Minimum Clean Fuels Savings Thru Regulations Modification ^b	
		< 1% S	1-2% S	2-3% S	> 3% S	< 1% S	1-2% S
72	Coal Oil		11,637 2,268	255			6,751
77	Coal Oil	2,568 69	2,245			2,568	2,245
78	Coal Oil	4,187 26,879	86	5 191			
79	Coal Oil	2,895		1,783		2,895	
101	Coal Oil		44	46			
102	Coal Oil	242	153 2,689	1,124			
103	Coal Oil	674	2,491 66,693	89			2,491
104	Coal Oil	0 0	0 0	206			
105	Coal Oil		772 115				
State Total	Coal Oil	10,566 26,948	17,384 71,809	1,470 2,229		5,463	11,487

^aFrom power plants (Table C-1) and industrial/commercial/institutional point sources (Table D-1 only). Coal in 10³ tons/yr, oil in 10³ gals/yr.

^bBased on available modeling results for power plants only.

APPENDIX G

Additional Data Received from Local Sources

TABLE G-1.

KENTUCKY AQCR AIR QUALITY STATUS (1973)
TOTAL SUSPENDED PARTICULATES

AQCR	NUMBER OF STATIONS REPORTING	NUMBER OF STATIONS SHOWING VIOLATION			
		ANNUAL STANDARD		24-HOUR STANDARD	
		PRIMARY	SECONDARY	PRIMARY	SECONDARY
72	25	11	19	0	7
77	19	10	15	1	9
78	23	12	17	2	9
79	22	5	15	0	3
101	5	3	4	0	1
102	12	1	4	0	0
103	14	7	9	0	4
104	7	0	2	0	0
105	9	1	3	0	0

KENTUCKY AQCR AIR QUALITY STATUS (1973)
SULFUR DIOXIDE

AQCR	NUMBER OF STATIONS REPORTING	NUMBER OF STATIONS SHOWING VIOLATION		
		ANNUAL STD	24-HOUR	3-HOUR
		(PRIMARY)	(PRIMARY)	(SECONDARY)
72	24	0	0	0
77	18	0	0	0
78	29	2	0	0
79	16	0	0	0
101	4	0	0	0
102	10	0	0	0
103	15	0	0	0
104	7	0	0	0
105	6	0	0	0

TABLE G-2.

KENTUCKY EMISSION SUMMARY^aREGIONAL RELATIVE CONTRIBUTION OF SOURCE CATEGORIES

Source Category	Region								
	72	77	78	79	101	102	103	104	105
<u>Particulates</u>									
Fuel Combustion	13.4	14.8	73.8	1.2	2.0	19.9	10.2	4.1	10.1
Process Losses	80.6	81.5	10.7	95.9	74.2	76.9	86.6	93.2	88.0
Solid Waste	1.4	1.0	11.5	1.6	2.6	2.3	1.3	1.3	1.1
Transportation	1.2	1.7	4.0	1.3	0.6	0.8	0.9	1.1	0.5
Misc. Area Sources	3.4	0.9	---	---	20.6	0.1	1.0	0.3	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<u>Sulfur Oxides</u>									
Fuel Combustion	98.2	97.6	98.3	62.4	10.3	96.7	94.0	93.8	97.1
Process Losses	3.4	0.2	0.7	---	---	---	4.2	---	---
Solid Waste	---	0.1	0.4	5.3	0.4	0.7	0.2	0.8	0.4
Transportation	0.2	1.0	0.6	32.3	2.3	2.6	1.6	5.4	1.8
Misc. Area Sources	1.2	1.1	---	---	87.0	0	---	---	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

^aData Taken From Original Kentucky State Implementation Plan.

TABLE G-3.

KENTUCKY POWER PLANT EVALUATION SUMMARY

AQCR	Fuel	Fuel Sulfur Content Required By Existing Regulations ^a (Coal - 1000 tons/yr.) (Oil - 1000 gal./yr.)				Fuel Sulfur Content Required By Modified Regulations ^b (Coal - 1000 tons/yr.) (Oil - 1000 gal./yr.)			
		<1% S	1-2% S	2-3% S	3% S	<1% S	1-2% S	2-3% S	3% S
72	Coal Oil		11,764			4,282			7,482
77	Coal Oil		3,544						3,544
78	Coal Oil	3,799				3,799			
79	Coal Oil	3,200	1,450			3,200			1,450
101	Coal Oil			35		35			
102	Coal Oil			2,097 1,020			631 1,020		1,466
103	Coal Oil			2,442					2,442

^aFuel requirements based upon 1973 fuel use patterns from Federal Power Commission data (except for new facilities, not operating in 1973, where fuel tonnage was estimated from megawatt rating through 1978).

^bMaximum allowable % S was estimated from modeling results by U.S. Environmental Protection Agency, Region IV Office.

TABLE G-3. (cont.)

KENTUCKY POWER PLANT EVALUATION SUMMARY

AQCR	Fuel	Fuel Sulfur Content Required By Existing Regulations ^a (Coal - 1000 tons/yr.) (Oil - 1000 gal./yr.)				Fuel Sulfur Content Required By Modified Regulations ^b (Coal - 1000 tons/yr.) (Oil - 1000 gal./yr.)			
		< 1% S	1-2% S	2-3% S	3% S	< 1% S	1-2% S	2-3% S	3% S
104	Coal Oil	No Power Plants				No Power Plants			
105	Coal Oil		658			658			
Kentucky Total	Coal Oil	6,999	17,416	4,574 1,020	0	11,974	631 1,020	0	16,384

^aFuel requirements based upon 1973 fuel use patterns from Federal Power Commission data (except for new facilities, not operating in 1973, where fuel tonnage was estimated from megawatt rating).

^bMaximum allowable % S was estimated from modeling results by U.S. Environmental Protection Agency, Region IV Office.

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