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REGULATIONS COMPILER

1 ENERGY AND ENVIRONMENT CABINET

2 Department for Environmental Protection

3 Division for Air Quality

4 (Amended After Comments)

5 401 KAR 59:015. New indirect heat exchangers.

6 RELATES TO: KRS 224.10, 40 C.F.R. Part 60, Subparts D, Da, Db, Dc, Appendices A,

7 [and] B, Part 63, Subparts DDDDD, UUUUU, JJJJJ

8 STATUTORY AUTHORITY: KRS 224.10-100(5)

9 NECESSITY, FUNCTION, AND CONFORMITY: KRS 224.10-100(5) requires the  
10 cabinet to promulgate administrative regulations for the prevention, abatement, and control of air  
11 pollution. This administrative regulation establishes requirements~~[provides]~~ for the control of  
12 emissions from new indirect heat exchangers.

13 Section 1. Definitions. (1) "Affected facility" means an indirect heat exchanger having a  
14 heat input capacity greater than one (1) million BTU per hour (MMBTU/hr).

15 ~~(2) ["CEMS" means continuous emissions monitoring system.~~

16 ~~(3) "Classification date" means:~~

17 ~~(a) August 17, 1971, for an affected facility with a capacity greater than 250 MMBTU/hr~~

18 ~~[(MMBTU/hr)] heat input; and[:~~

19 ~~1. For particulate emissions;~~

20 ~~2. For sulfur dioxide emissions; and~~

21 ~~3. For nitrogen oxide emissions, if fuels other than lignite are burned;]~~

1 (b) April 9, 1972, for an affected facility with a capacity of 250 MMBTU/hr heat input or  
2 less.

3 (3) "Fuel" means any material combusted for the purpose of creating useful heat.

4 (4) "GCV" means gross calorific value.~~[for particulate emissions and sulfur dioxide~~  
5 ~~emissions; and~~

6 ~~(e) December 22, 1976, for an affected facility with a capacity greater than 250~~  
7 ~~MMBTU/hr. heat input for nitrogen oxides if lignite fuel is burned.~~

8 ~~(4) "COMS" means continuous monitoring system for opacity.]~~

9 (5) "Indirect heat exchanger" means a piece of equipment, apparatus, or contrivance used  
10 for the combustion of fuel in which the energy produced is transferred to its point of usage through  
11 a medium that does not come in contact with or add to the products of combustion.

12 (6) "Shutdown period" means [the period]:

13 (a) For a source subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ,  
14 the period defined as "shutdown" in:

15 1. 40 C.F.R. 63.7575;

16 2. 40 C.F.R. 63.10042; or

17 3. 40 C.F.R. 63.11237; or

18 (b) For a source not subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or  
19 JJJJJ, the period~~[Beginning when, whichever occurs first]:~~

20 1. Beginning when whichever occurs first:

21 a. The affected facility no longer supplies useful thermal energy for heating, cooling,  
22 process purposes, or generation of electricity; or

23 b.[2.] Fuel is not being combusted in the affected facility; and

1 2. ~~(b)~~ Ending when:

2 a. ~~1.~~ The affected facility no longer supplies useful thermal energy for heating, cooling,  
3 process purposes, or generation of electricity; and

4 b. ~~2.~~ Fuel is not being combusted in the affected facility.

5 (7) "Startup period" means ~~the period~~:

6 (a) For a source subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ,  
7 the period defined as "startup" in:

8 1. 40 C.F.R. 63.7575;

9 2. 40 C.F.R. 63.10042; or

10 3. 40 C.F.R. 63.11237; or

11 (b) For a source not subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or  
12 JJJJJ, the period ~~Beginning with either~~:

13 1. Beginning with either:

14 a. The combustion of any fuel in an affected facility for the purpose of supplying useful  
15 thermal energy for heating, cooling, process purposes, or generation of electricity; or

16 b. ~~2.~~ The combustion of fuel in an affected facility for any purpose after a shutdown event;  
17 and

18 2. ~~(b)~~ Ending after the longest manufacturer-recommended time required to engage all  
19 control devices utilized by the affected facility applicable to the pollutant, not to exceed four (4)  
20 hours after any of the useful thermal energy from the affected facility is supplied for any purpose.

21 (8) "Useful thermal energy" means energy that meets the minimum operating temperature,  
22 flow, or pressure required by an energy use system that uses energy provided by the affected  
23 facility["PM-CEMS" means a particulate-matter continuous emissions monitoring system].

1 Section 2. Applicability. (1) This administrative regulation shall apply to an affected  
2 facility~~[facilities]~~ commenced on or after the applicable classification date.

3 (2) An affected facility subject to 40 C.F.R. 60.40 through~~[to]~~ 60.46 (Subpart D),~~[;]~~  
4 60.40Da through~~[to]~~ 60.52Da (Subpart Da),~~[;]~~ 60.40b through~~[to]~~ 60.49b (Subpart Db),~~[;]~~ or  
5 60.40c through~~[to]~~ 60.48c (Subpart Dc) shall be exempt from Sections 3 through 6 of this  
6 administrative regulation for each pollutant covered under this administrative regulation with a  
7 specific emission standard in the applicable New Source Performance Standard (NSPS) codified  
8 at 40 C.F.R. Part 60.

9 Section 3. Method for Determining Allowable Emission Rates. (1) Except as  
10 established~~[provided]~~ in subsection (3) of this section, the total rated heat input capacity of all  
11 affected facilities at a source, including those for which an application to construct, modify, or  
12 reconstruct has been submitted to the cabinet, shall be used as established~~[specified]~~ in Sections 4  
13 and 5 of this administrative regulation to determine the allowable emission rate in terms of  
14 lb/MMBTU~~[pounds per million BTU (lb/MMBTU)]~~ heat input.

15 (2) The permitted allowable emissions rate of an affected facility shall not be changed due  
16 to inclusion or shutdown of another affected facility at the source.

17 (3) A source~~[Sources]~~ may submit a request to~~[petition]~~ the cabinet for approval of~~[to~~  
18 ~~approve]~~ an allowable emission rate apportioned independently from individual heat input  
19 pursuant to this subsection, as established in paragraphs (a) through (f) of this  
20 subsection.~~[follows:]~~

21 (a) The following equation shall be used to determine the allowable emissions rate:  $F =$   
22  $(AB + DE)/C$ , in which:

1           1. A = allowable emission rate (in lb/MMBTU heat input) determined pursuant to  
2 subsection (1) of this section;

3           2. B = total rated heat input (in MMBTU/hr) of all affected facilities at the source  
4 commenced on or after the applicable classification date, including those for which an application  
5 to construct, modify, or reconstruct has been submitted to the cabinet;

6           3. C = total rated heat input (in MMBTU/hr) of all affected facilities at the source, including  
7 those for which an application to construct, modify, or reconstruct has been submitted to the  
8 cabinet;

9           4. D = allowable emission rate (in lb/MMBTU heat input) determined pursuant to 401 KAR  
10 61:015, Section 3(1);

11           5. E = total rated heat input (in MMBTU/hr) of all affected facilities at the source  
12 commenced before the applicable classification date; and

13           6. F = alternate allowable emission rate in lbs per actual MMBTU heat input.[;]

14           **(b) In determining an alternative allowable emission rate for sulfur dioxide, the formula**  
15 **established in paragraph (a) of this subsection shall utilize values for allowable emissions rates for**  
16 **an affected facility stated in terms of total rated heat input capacity based on the use of the same**  
17 **fuel category (solid, liquid, or gaseous fuel), which shall be determined by utilizing the formulas**  
18 **established in Section 5 of this administrative regulation.**

19           **(c) The total emissions in (lb/hr) from all affected facilities at the source subject to this**  
20 **administrative regulation divided by the total actual heat input (in MMBTU/hr) of the affected**  
21 **facilities shall not exceed the alternate allowable emission rate as determined in paragraph (a) of**  
22 **this subsection.**[;]

1           (d)[(e)] A source operating an affected facility that is not subject to a federal NSPS codified  
2 at 40 C.F.R. Part 60 only because the affected facility commenced construction prior to the NSPS  
3 classification date, shall not allow emissions of the affected facility to exceed the allowable  
4 emission rate determined pursuant to Sections 4 and 5 of this administrative regulation.[;]

5           (e)[(d)] The source shall demonstrate compliance with this subsection by conducting a  
6 performance test pursuant to 401 KAR 50:045 for each affected facility subject to this  
7 administrative regulation.[;and]

8           (f)[(e)] The source shall demonstrate that compliance with this subsection shall be  
9 maintained on a continuous[~~continual~~] basis.

10           Section 4. Standard for Particulate Matter. Except as established[~~provided~~] in  
11 Sections[~~Section~~] 3(3) and 7 of this administrative regulation, an affected facility subject to this  
12 administrative regulation shall not cause emissions of particulate matter in excess of:

13           (1)(a) 0.56 lb/MMBTU actual heat input for sources with total heat input capacity totaling  
14 ten (10) MMBTU/hr or less for all affected facilities at the source;

15           (b) 0.10 lb/MMBTU actual heat input for sources with total heat input capacity totaling  
16 250 MMBTU/hr or more for all affected facilities at the source; and

17           (c) 0.9634 multiplied by the quantity obtained by raising the total heat input capacity (in  
18 MMBTU/hr) to the -0.2356 power for sources with heat input values totaling greater than ten (10)  
19 MMBTU/hr and less than 250 MMBTU/hr for all affected facilities at the source; and

20           (2) Twenty (20) percent opacity, except:

21           (a) For a source[~~sources~~] with heat input capacity totaling 250 MMBTU/hr or more for all  
22 affected facilities at the source, a maximum of twenty-seven (27) percent opacity shall be allowed  
23 for one (1) six (6) minute period in any sixty (60) consecutive minutes;

1 (b) For a source~~[sources]~~ with total heat input capacity of less than 250 MMBTU/hr for all  
2 affected facilities at the source, a maximum of forty (40) percent opacity shall be allowed for a  
3 maximum of six (6) consecutive minutes in any sixty (60) consecutive minutes during fire box  
4 cleaning or soot blowing; and

5 (c) For emissions from an affected facility caused by building a new fire, emissions during  
6 the period required to bring the boiler up to operating conditions shall be allowed, if the method  
7 used is recommended by the manufacturer and the time does not exceed the manufacturer's  
8 recommendations.

9 Section 5. Standard for Sulfur Dioxide. (1) Except as established~~[provided]~~ in  
10 Sections~~[Section]~~ 3(3) and 7 of this administrative regulation, an affected facility subject to this  
11 administrative regulation shall not cause emissions of gases that contain sulfur dioxide in excess  
12 of:

13 (a) For a source~~[sources]~~ with heat input capacity totaling ten (10) MMBTU/hr or less for  
14 all affected facilities at the source:

15 1. Three and zero-tenths (3.0) lb/MMBTU actual heat input for combustion of liquid and  
16 gaseous fuels; and

17 2. Five and zero-tenths (5.0) lb/MMBTU actual heat input for combustion of solid fuels;

18 (b) For sources with heat input capacity totaling 250 MMBTU/hr or more for all affected  
19 facilities at the source:

20 1. Eight-tenths (0.8) lb/MMBTU actual heat input for combustion of liquid and gaseous  
21 fuels; and

22 2. One and two-tenths (1.2) lb/MMBTU actual heat input for combustion of solid fuels;

23 and

1 (c) For a source[~~sources~~] with total heat input values greater than ten (10) MMBTU/hr and  
2 less than 250 MMBTU/hr for all affected facilities at the source, the standard, in lb/MMBTU actual  
3 heat input, shall be equal to:

4 1. For an affected facility combusting liquid fuels, the lesser of:

5 a. Three and zero-tenths (3.0) lb/MMBTU; or

6 b. The value of 7.7223 multiplied by the quantity obtained by raising to the -0.4106 power  
7 the total heat input capacity (in MMBTU/hr) of the affected facilities combusting liquid fuels;

8 2. For an affected facility combusting gaseous fuels, the lesser of:

9 a. Three and zero-tenths (3.0) lb/MMBTU; or

10 b. The value of 7.7223 multiplied by the quantity obtained by raising to the -0.4106 power  
11 the total heat input capacity (in MMBTU/hr) of the affected facilities combusting gaseous fuels;

12 and

13 3. For an affected facility combusting solid fuels, the lesser of:

14 a. Five and zero-tenths (5.0) lb/MMBTU; or

15 b. The value of 13.8781 multiplied by the quantity obtained by raising to the -0.4434 power  
16 the total heat input capacity (in MMBTU/hr) of the affected facility[~~facilities~~] combusting solid  
17 fuels.

18 (2) For simultaneously combusting[~~burning~~] different fuels in combination, the applicable  
19 standard shall be determined by prorating BTUs pursuant to the following equation: Allowable  
20 sulfur dioxide emission in lb/MMBTU[~~/hr-heat input~~] =  $\frac{[x(a) + y(b) + z(c)]}{(x + y + z)}$ [  
21  $\frac{\{y(a) + z(b)\}}{(y + z)}$ ], in which:

22 (a)  $x$ [ $y$ ] = percent total heat input derived from liquid[~~or gaseous~~] fuel;

23 (b)  $y$ [ $z$ ] = percent total heat input derived from gaseous[~~solid~~] fuel;

1 (c) z = percent total heat input derived from solid fuel;

2 (d) a = allowable sulfur dioxide emission in lb/MMBTU[~~hr heat input~~] derived from  
3 liquid[~~or gaseous~~] fuel; [and]

4 (e)[~~(d)~~] b = allowable sulfur dioxide emission in lb/MMBTU[~~hr~~] derived from  
5 gaseous[solid] fuel; and

6 (f) c = allowable sulfur dioxide emission in lb/MMBTU derived from solid fuel.

7 (3) Compliance shall be based on the total heat input from all fuels combusted[~~burned~~].

8 Section 6. [~~Standard for Nitrogen Oxides. (1) An affected facility with heat input capacity~~  
9 ~~of 250 MMBTU/hr or more shall not cause emissions of gases that contain nitrogen oxides~~  
10 ~~expressed as nitrogen dioxide in excess of:~~

11 (a) ~~0.20 lb/MMBTU heat input (0.36 grams per million calories (g/MMCal)) derived from~~  
12 ~~gaseous fuel;~~

13 (b) ~~0.30 lb/MMBTU heat input (0.54 g/MMCal) derived from liquid fuel;~~

14 (c) ~~0.70 lb/MMBTU heat input (1.26 g/MMCal) derived from solid fuel except lignite;~~

15 (d) ~~0.60 lb/MMBTU heat input (1.08 g/MMCal) derived from lignite or lignite and wood~~  
16 ~~residue except as provided in paragraph (e) of this subsection; and~~

17 (e) ~~0.80 lb/MMBTU derived from lignite that is mined in North Dakota, South Dakota, or~~  
18 ~~Montana and that is burned in a cyclone fired unit.~~

19 (2) ~~Except as provided in subsections (3) and (4) of this section, if different fuels are burned~~  
20 ~~simultaneously in any combination, the allowable nitrogen dioxide emission shall be prorated~~  
21 ~~using the following equation: Allowable nitrogen dioxide emission in lb/MMBTU/hr heat input~~  
22  ~~$\{x(0.20) + y(0.30) + w(0.60)\} + \{(x + y + z + w)\}$  in which:~~

23 (a) ~~x = percent of total heat input derived from gaseous fuel;~~

1 ~~(b) y = percent of total heat input derived from liquid fuel;~~

2 ~~(c) z = percent of total heat input derived from solid fuel (except lignite); and~~

3 ~~(d) w = percent of total heat input derived from lignite.~~

4 ~~(3) For fossil fuel containing at least twenty five (25) percent by weight coal refuse burned~~  
5 ~~in combination with gaseous, liquid, or other solid fossil fuel; wood residue; or biomass, the~~  
6 ~~standard for nitrogen oxides shall not apply.~~

7 ~~(4) A cyclone fired unit burning fuel containing at least twenty five (25) percent lignite~~  
8 ~~mined in North Dakota, South Dakota, or Montana shall be subject to subsection (1)(e) of this~~  
9 ~~section for all types of fuel combusted in combination with the lignite.~~

10 ~~Section 7. Emission and Fuel Monitoring.~~

11 ~~(1) Except as provided in subsection (2) of this section, sources shall install, calibrate,~~  
12 ~~maintain, and operate a continuous monitoring system for measuring:~~

13 ~~(a) Opacity of emissions;~~

14 ~~(b) Sulfur dioxide emissions;~~

15 ~~(c) Nitrogen oxides emissions; and~~

16 ~~(d) Oxygen or carbon dioxide emissions.~~

17 ~~(2) Subsection (1) of this section shall not apply as follows:~~

18 ~~(a) For an affected facility burning only gaseous fuel, a continuous monitoring system for~~  
19 ~~opacity (COMS) shall not be required.~~

20 ~~(b) For an affected facility burning only natural gas, wood, wood residue, or biomass; or a~~  
21 ~~combination of natural gas, wood, wood residue, or biomass, a continuous emissions monitoring~~  
22 ~~system (CEMS) for sulfur dioxide emissions shall not be required.~~

1 ~~(c)1. For nitrogen oxides, installation of CEMS may be delayed until after the initial~~  
2 ~~performance tests required by 401 KAR 59:005, Sections 2 and 4(2); and~~

3 ~~2. If the initial performance test results show nitrogen oxide emissions:~~

4 ~~a. Are less than seventy (70) percent of the applicable standard in Section 6 of this~~  
5 ~~administrative regulation, CEMS for nitrogen oxides shall not be required; or~~

6 ~~b. Are equal to or greater than seventy (70) percent of the applicable standard in Section 6~~  
7 ~~of this administrative regulation, the source shall install CEMS for nitrogen oxides within one (1)~~  
8 ~~year after the date of the initial performance tests.~~

9 ~~(d) For a source exempt from installing CEMS for sulfur oxides and nitrogen oxides~~  
10 ~~pursuant to paragraphs (b) and (c) of this subsection, a continuous monitoring system for~~  
11 ~~measuring oxygen or carbon dioxide shall not be required.~~

12 ~~(e) For an affected facility not using a flue gas desulfurization device, CEMS for sulfur~~  
13 ~~dioxide emissions shall not be required if the source monitors sulfur dioxide emissions by fuel~~  
14 ~~sampling and analysis pursuant to subsection (5) of this section.~~

15 ~~(3) For performance evaluations subject to 401 KAR 59:005, Section 4(3), and calibration~~  
16 ~~checks subject to 401 KAR 59:005, Section 4(4):~~

17 ~~(a) Reference Methods 6-6C or 7-7E, incorporated by reference in 401 KAR 50:015, as~~  
18 ~~applicable, shall be used for conducting performance evaluations of CEMS for sulfur dioxide and~~  
19 ~~nitrogen oxides;~~

20 ~~(b) Sulfur dioxide or nitric oxide, as applicable, shall be used for preparing calibration gas~~  
21 ~~mixtures pursuant to 40 C.F.R. Part 60, Appendix B, Performance Specification 2;~~

22 ~~(c) The span value for a continuous monitoring system:~~

1 ~~1. For an affected facility burning fossil fuels, shall be eighty (80), ninety (90), or 100~~  
2 ~~percent; and~~

3 ~~2. For systems measuring sulfur oxides or nitrogen oxides, shall be determined pursuant to~~  
4 ~~the following table:~~

DETERMINATION OF SPAN VALUE (in parts per million)		
Fossil Fuel	Span Value for Sulfur Dioxide	Span Value for Nitrogen Oxides
Gas	*	500
Liquid	1,000	500
Solid	1,500	500
Combinations	$1,000y + 1,500z$	$500(x + y) + 1,000z$

5 In which:

6 a. \* shall indicate that a value shall not be applicable;

7 b. ~~x = fraction of total heat input derived from gaseous fossil fuel;~~

8 c. ~~y = fraction of total heat input derived from liquid fossil fuel; and~~

9 d. ~~z = fraction of total heat input derived from solid fossil fuel;~~

10 ~~(d) Span values computed pursuant to paragraph (c) of this subsection for burning~~  
11 ~~combinations of fuels shall be rounded to the nearest 500 parts per million (ppm); and~~

12 ~~(e) The source shall submit the proposed CEMS span value for cabinet approval pursuant~~  
13 ~~to 40 C.F.R. 60.13(d) and this subsection, for all affected facilities that simultaneously burn fossil~~  
14 ~~fuel and non fossil fuel.~~

1           ~~(4) For continuous monitoring systems installed pursuant to subsection (1) of this section,~~  
2 ~~the following conversion procedures shall be used to convert the continuous monitoring data into~~  
3 ~~units of the applicable requirement in nanograms/joule (ng/J) or lb/MMBTU:~~

4           ~~(a) For continuous monitoring systems measuring oxygen, the pollutant concentration and~~  
5 ~~oxygen concentration shall be measured on a consistent wet or dry basis as follows:~~

6           ~~1. Procedures approved by the cabinet and the U. S. EPA pursuant to 40 C.F.R. Part 60,~~  
7 ~~Appendix B, shall be used for wet basis measurements; and~~

8           ~~2. For dry basis measurements, the following conversion procedure shall be used:~~

9            ~~$E = (20.9CF)/(20.9 - \text{percent oxygen})$  in which E, C, F, and percent oxygen shall be~~  
10 ~~determined pursuant to subsection (5) of this section; and~~

11           ~~(b) For continuous monitoring systems measuring carbon dioxide, the pollutant~~  
12 ~~concentration and carbon dioxide concentration shall be measured on a consistent wet or dry basis~~  
13 ~~and the following conversion procedure shall be used:  $E = (100 CF_o)/(\text{percent carbon dioxide})$ , in~~  
14 ~~which E, C, F<sub>o</sub>, and percent carbon dioxide shall be determined pursuant to subsection (5) of this~~  
15 ~~section.~~

16           ~~(5) The values used in the equations in subsection (4)(a) and (b) of this section shall be~~  
17 ~~derived as follows:~~

18           ~~(a) E = pollutant emissions in grams per million calorie (g/MMCal) or lb/MMBTU;~~

19           ~~(b) C = pollutant concentration in grams per dry cubic meter at standard conditions~~  
20 ~~(g/dsem) or pounds per dry cubic feet at standard conditions (lb/dsef) determined by multiplying~~  
21 ~~the average concentration (ppm) for each one (1) hour period by 0.0000415 M (g/dsem)/ppm or~~  
22 ~~(lb/dsef)/ppm; multiplied by two and five tenths (2.5) multiplied by ten (10) raised to the negative~~  
23 ~~ninth (9) power; and multiplied by M (g/dsem)/ppm or (lb/dsef)/ppm in which M equals:~~

1 ~~1. Pollutant molecular weight in grams per gram-mole (g/g-mole) or pounds/pound-mole~~  
2 ~~(lb/lb-mole); or~~

3 ~~2. 64.07 for sulfur dioxide and 46.01 for nitrogen-oxides;~~

4 ~~(c) F, Fe = a factor representing a ratio of the volume of dry flue-gases generated to the~~  
5 ~~calorific value of the fuel combusted (F), and a factor representing a ratio of the volume of carbon~~  
6 ~~dioxide generated to the calorific value of the fuel combusted (Fe), respectively, pursuant to the~~  
7 ~~applicable American Society for Testing and Materials (ASTM) standard from the Book of ASTM~~  
8 ~~Standards incorporated by reference in 401 KAR 50:015 as follows:~~

9 ~~1. For anthracite coal as classified according to ASTM D388-66(72), F equals 10,140~~  
10 ~~dscf/MMBTU and Fe equals 1,980 standard cubic feet (scf) CO<sub>2</sub>/MMBTU;~~

11 ~~2. For subbituminous and bituminous coal as classified according to ASTM D388-66(72),~~  
12 ~~F equals 9,820 dscf/MMBTU and Fe equals 1,810 scf CO<sub>2</sub>/MMBTU;~~

13 ~~3. For liquid fossil fuels including crude, residual, and distillate oils, F equals 9,220~~  
14 ~~dscf/MMBTU and Fe equals 1,430 scf CO<sub>2</sub>/MMBTU;~~

15 ~~4a. For gaseous fossil fuels, F equals 8,740 dscf/MMBTU;~~

16 ~~b. For natural gas, Fe equals 1,040 scf CO<sub>2</sub>/MMBTU; for propane, Fe equals 1,200 scf~~  
17 ~~CO<sub>2</sub>/MMBTU; and for butane Fe equals 1,260 scf CO<sub>2</sub>/MMBTU;~~

18 ~~5a. For bark, F equals 9,575 dscf/MMBTU and Fe equals 1,927 scf CO<sub>2</sub>/MMBTU;~~

19 ~~b. For wood residue other than bark, F equals 9,233 dscf/MMBTU, and Fe equals 1,842~~  
20 ~~scf CO<sub>2</sub>/MMBTU; and~~

21 ~~6. For lignite coal as classified according to ASTM D388-66(72), F equals 9,900~~  
22 ~~dscf/MMBTU and Fe equals 1,920 scf CO<sub>2</sub>/MMBTU;~~

1           ~~(d) The source may use the equation given in subparagraph 1 of this paragraph to determine~~  
2 ~~an F factor (dsem/MMCal, or dsef/MMBTU) on a dry basis or Fe factor (standard cubic meters~~  
3 ~~(sem) CO<sub>2</sub>/MMCal, or standard cubic feet (sef) CO<sub>2</sub>/MMBTU) on either wet or dry basis in lieu~~  
4 ~~of the F or Fe factors specified in paragraph (c) of this subsection; where~~

5           ~~1. The F or Fe Factor shall be determined by the following:~~

6           ~~a.  $F = \{227.2 (\%H) + 95.5 (\%C) + 35.6 (\%S) + 8.7 (\%N) - 28.7 (\%O)\} / GCV$  (metric~~  
7 ~~units);~~

8           ~~b.  $F = 10^6 \{3.64 (\%H) + 1.53 (\%C) + 0.57 (\%S) + 0.14 (\%N) - 0.46 (\%O)\} / GCV$  (English~~  
9 ~~units);~~

10           ~~c.  $Fe = \{2.0 \times 10^{-5} (\%C)\} / GCV$  (metric units); and~~

11           ~~d.  $Fe = \{3.21 \times 10^5 (\%C)\} / GCV$  (English units);~~

12           ~~2. H, C, S, N, and O shall be content by weight of hydrogen, carbon, sulfur, nitrogen, and~~  
13 ~~oxygen (expressed as percent), respectively, as determined on the same basis as GCV by ultimate~~  
14 ~~analysis of the fuel fired using ASTM method D3178-73 or D3176-74 (solid fuels) or computed~~  
15 ~~from results using ASTM methods D1137-53(75), D1945-64(73), or D1946-67(72) (gaseous~~  
16 ~~fuels) as applicable; and~~

17           ~~3. GCV shall be the gross calorific value (Cal/g or BTU/lb) of the fuel combusted~~  
18 ~~determined by ASTM test methods D2015-66(72) for solid fuels and D1826-64(70) for gaseous~~  
19 ~~fuels as applicable; and~~

20           ~~(e) For an affected facility firing a combination of fuels, the F or Fe factors determined by~~  
21 ~~paragraphs (c) and (d) of this subsection shall be prorated in accordance with the applicable~~  
22 ~~formula as follows:~~

23           ~~1.  $F = xF_1 + yF_2 + zF_3$ , where:~~

1 a. ~~x, y, z = the fraction of total heat input derived from gaseous, liquid, and solid fuels,~~  
2 ~~respectively; and~~

3 b. ~~F<sub>1</sub>, F<sub>2</sub>, F<sub>3</sub> = the value of F for gaseous, liquid, and solid fuels, respectively, pursuant to~~  
4 ~~subsection (5)(c) and (d) of this section; or~~

5 ~~$$2. Fc = \frac{\sum_{i=1}^y X_i (Fc)_i}{\sum_{i=1}^y X_i}$$~~

6 ~~where:~~

7 a. ~~X<sub>i</sub> = fraction of total heat input derived from each type fuel; and~~

8 b. ~~(Fc)<sub>i</sub> = applicable Fc factor for each fuel type determined pursuant to subsection (5)(c)~~  
9 ~~and (d) of this section.~~

10 ~~(6) For reports required pursuant to 401 KAR 59:005, Section 3(3), periods of excess~~  
11 ~~emissions required to be reported shall be as follows:~~

12 ~~(a) Excess emissions shall be any six (6) minute period during which the average opacity~~  
13 ~~of emissions exceeds twenty (20) percent opacity, except that one (1) six (6) minute average per~~  
14 ~~hour of up to twenty seven (27) percent opacity shall not be required to be reported;~~

15 ~~(b) For sulfur dioxide, excess emissions shall be any three (3) hour period during which~~  
16 ~~the average emissions (arithmetic average of three (3) contiguous one (1) hour periods) of sulfur~~  
17 ~~dioxide as measured by a continuous monitoring system exceed an applicable standard in Section~~  
18 ~~5 of this administrative regulation; and~~

19 ~~(c) For nitrogen oxides, excess emissions shall be any three (3) hour period during which~~  
20 ~~the average emissions (arithmetic average of three (3) contiguous one (1) hour periods) of nitrogen~~  
21 ~~oxides as measured by a continuous monitoring system exceed an applicable standard in Section~~  
22 ~~6 of this administrative regulation.~~

1           ~~(7) The source may request approval to install a Particulate Matter Continuous Emissions~~  
2 ~~Monitoring System (PM CEMS) as an alternative to subsection (1)(a) of this section as follows:~~

3           ~~(a) The request for approval shall be made in writing to the cabinet;~~

4           ~~(b) if the PM CEMS request is approved, the source:~~

5           ~~1. Shall be subject to a federally enforceable PM limit of 0.030 lb/MMBTU/hr or less;~~

6           ~~2. Shall comply with 40 C.F.R. 60.42Da(a); and~~

7           ~~3. Shall follow the compliance and monitoring provisions of 40 C.F.R. 60.48Da and~~  
8 ~~60.49Da that are applicable to particulate matter, excluding 40 C.F.R. 60.48Da(e) and (g)(3);~~

9           ~~(c) Excess emissions for an affected facility using PM CEMS shall be determined by a~~  
10 ~~boiler operating day, as defined by 40 C.F.R. 60.41Da, in which the average emissions (arithmetic~~  
11 ~~average of all operating one (1) hour periods) exceed the applicable standard pursuant to 40 C.F.R.~~  
12 ~~60.42Da; and~~

13           ~~(d) For calculating average emissions and determining compliance:~~

14           ~~1. The boiler operating day shall have at least eighteen (18) hours of unit operation during~~  
15 ~~which the standard shall apply; and~~

16           ~~2. All valid hourly emission rates of the boiler operating day not meeting the minimum~~  
17 ~~eighteen (18) hours valid data daily average requirement shall be averaged with the valid hourly~~  
18 ~~emission rates of the next boiler operating day with eighteen (18) hours or more of valid PM CEMS~~  
19 ~~data.~~

20           ~~Section 8.]~~ Test Methods and Procedures. (1) Except as established~~[provided]~~ in 401 KAR  
21 50:045, the reference methods established~~[specified]~~ in 40 C.F.R. Part 60, Appendix A, shall be  
22 used to determine compliance with Sections 4 and 5~~[, 5, and 6]~~ of this administrative regulation as  
23 established in paragraphs (a) through (e) of this subsection.~~[follows:]~~

1 (a) Reference Method 1 shall be used for the selection of sampling site and sample  
2 traverses.[;]

3 (b) Reference Method 3 shall be used for gas analysis in applying Reference Methods 5  
4 and 6.[~~6, and 7~~][;]

5 (c) Reference Method 5 shall be used for concentration of particulate matter and the  
6 associated moisture content.[;]

7 (d) Reference Method 6 shall be used for the concentration of sulfur dioxide.[;] and

8 (e) [~~Reference Method 7 shall be used for the concentration of nitrogen oxides; and~~

9 (~~8~~)]Reference Method 9 shall be used for visible emissions.

10 (2) For Reference Method 5:

11 (a) Reference Method 1 shall be used to select the sampling site and the number of traverse  
12 sampling points;

13 (b) The sampling time for each run shall be at least sixty (60) minutes, and the minimum  
14 sampling volume shall be 0.85 dscm (thirty (30) dscf), except smaller sampling times or volumes,  
15 if necessitated by process variables or other factors, may be requested by the source; and

16 (c) The probe and filter holder heating systems in the sampling train shall be set to provide  
17 a gas temperature not greater than 160 degrees Centigrade (320 degrees Fahrenheit).

18 (3) For Reference Method 6[~~Methods 6 and 7~~]:

19 (a) The sampling site shall be the same as the site selected for Reference Method 5;

20 (b) The sampling point in the duct shall be at the centroid of the cross section or at a point  
21 no closer to the walls than one (1) meter (3.28 ft); [~~and~~]

22 (c) [~~For Reference Method 6,~~]The sample shall be extracted at a rate proportional to the  
23 gas velocity at the sampling point;[-]

1       ~~[(4) For Reference Method 6:]~~

2       (d)~~[(a)]~~ The minimum sampling time shall be twenty (20) minutes, and the minimum  
3 sampling volume shall be 0.02 dscm (0.71 dscf) for each sample;

4       (e)~~[(b)]~~ The arithmetic mean of two (2) samples shall constitute one (1) run; and

5       (f)~~[(e)]~~ Samples shall be taken at approximately thirty (30) minute intervals.

6       ~~(4)~~~~[(5) For Reference Method 7:~~

7       ~~(a) Each run shall consist of at least four (4) grab samples taken at approximately fifteen~~  
8 ~~(15) minute intervals; and~~

9       ~~(b) The arithmetic mean of the samples shall constitute the run value.~~

10       (6) For each run using the methods established~~[specified]~~ by subsection (1)~~[(a), (b), and~~  
11 ~~(e)]~~ of this section, the emissions expressed in g/MMcal~~[g/MMCal]~~ (lb/MMBTU) shall be  
12 determined by the following procedure:

$$E = \frac{20.9CF}{20.9 - \%O_2}$$

14       [E = 20.9CF/(20.9 — percent oxygen)], in which:

15       (a) E = pollutant emission, g/MMcal~~[g/MMCal]~~ (lb/MMBTU);

16       (b) C = pollutant concentration, g/dscm (lb/dscf), as determined by Reference Methods 5

17 or 6~~[, 6, or 7]~~;

18       (c) Percent oxygen:

19       1. Shall equal oxygen content by volume (expressed as a percent), dry basis; and

20       2. Shall be determined using the integrated or grab sampling and analysis procedures of

21 Reference Method 3.~~[:]~~

22       a. For determination of sulfur dioxide ~~[and nitrogen oxides]~~ emissions, the oxygen sample  
23 shall be obtained simultaneously at the same point in the duct as used to obtain the samples for

1 Reference Method 6.~~[Methods 6 and 7]~~ determinations~~[, respectively, with the oxygen sample for~~  
2 ~~reference Method 7 obtained using the grab sampling and analysis procedures of Reference~~  
3 ~~Method 3; and]~~

4 b. For determination of particulate emissions, the oxygen sample shall be obtained  
5 simultaneously by traversing the duct at the same sampling location used for each run of Reference  
6 Method 5 pursuant to subsection (2) of this section, using Reference Method 1 for selection of the  
7 number of traverse points, except that not more than twelve (12) points shall be required; and

8 (d)  $F = a$  factor as determined in 40 CFR 60.45(f)~~[Section 7(5) of this administrative~~  
9 ~~regulation]~~.

10 (5)~~(7)~~ If an affected facility fires a combination of ~~[fossil]~~ fuels, the heat input, expressed  
11 in cal/hr~~[Cal/hr]~~ (BTU/hr), shall be determined during each testing period by multiplying the  
12 GCV~~[gross calorific value]~~ of each fuel fired by the rate of each fuel combusted~~[burned]~~, in which:

13 (a) GCV~~[Gross calorific value]~~ shall be determined in accordance with the applicable  
14 ASTM methods D2015-66(72) (solid fuels), D240-76 (liquid fuels), or D1826-64(75)~~[D1826-~~  
15 ~~64(70)]~~ (gaseous fuels), incorporated by reference in 401 KAR 50:015~~[as applicable]~~; and

16 (b) The rate of fuels combusted~~[burned]~~ during each testing period shall be determined by  
17 the applicable method and shall be confirmed by a material balance over the steam generation  
18 system.

19 Section 7. Standards During a Startup Period or a Shutdown Period. During a startup  
20 period or a shutdown period, an owner or operator shall comply with the work practice standards  
21 established in this section.

22 (1)(a) The owner or operator shall comply with 401 KAR 50:055, Section 2(5)~~[At all~~  
23 ~~times, the owner or operator of each affected facility shall operate the affected facility and~~

1 all applicable control devices in a manner consistent with good air pollution control practices  
2 for minimizing emissions];

3 (b) The frequency and duration of startup periods or shutdown periods shall be minimized  
4 by the affected facility;

5 (c) All reasonable[possible] steps shall be taken by the owner or operator to minimize the  
6 impact of emissions on ambient air quality from the affected facility during startup periods and  
7 shutdown periods;

8 (d) The actions, including duration of the startup period, of the owner or operator of each  
9 affected facility during startup periods and shutdown periods, shall be documented by signed,  
10 contemporaneous logs or other relevant evidence; and

11 (e) Startups and shutdowns shall be conducted according to either:

12 1. The manufacturer's recommended procedures; or

13 2. Recommended procedures for a unit of similar design, for which manufacturer's  
14 recommended procedures are available, as approved by the cabinet based on documentation  
15 provided by the owner or operator of the affected facility; or[and]

16 (2)(a) An affected facility subject to 40 C.F.R. 63.7500 shall meet the work practice  
17 standards established in [Table 3 to Subpart DDDDD of] 40 C.F.R. Part 63, Table 3 to Subpart  
18 DDDDD, as established in 401 KAR 63:002, Section 2(4)(iiii);

19 (b) An affected facility subject to 40 C.F.R. 63.9991 shall meet the work practice standards  
20 established in [Table 3 to Subpart UUUUU of] 40 C.F.R. Part 63, Table 3 to Subpart UUUUU,  
21 as established in 401 KAR 63:002, Section 2(4)(yyyy); or

1           (c) An affected facility subject to 40 C.F.R. 63.11201 shall meet the work practice  
2 standards established in [Table 2 to Subpart JJJJJ of] 40 C.F.R. Part 63, Table 2 to Subpart  
3 JJJJJ, as established in 401 KAR 63:002, Section 2(4)(jjjj).

401 KAR 59:015 approved for filing.

12/12/2017  
Date

Charles G. Snavely  
Charles G. Snavely, Secretary  
Energy and Environment Cabinet

## REGULATORY IMPACT ANALYSIS AND TIERING STATEMENT

Administrative Regulation: 401 KAR 59:015

Contact person: Cassandra Jobe

Phone: (502) 782-6670

E-mail: [Cassandra.Job@ky.gov](mailto:Cassandra.Job@ky.gov)

- (1) Provide a brief summary of:
  - (a) What this administrative regulation does: This administrative regulation provides for the control of emissions of criteria pollutants from new indirect heat exchangers.
  - (b) The necessity of this administrative regulation: This administrative regulation is necessary to control the emissions of criteria pollutants from new indirect heat exchangers. This administrative regulation is necessary for the Energy and Environment Cabinet (Cabinet) to protect human health and the environment by establishing emission limits for criteria pollutants for new indirect heat exchangers.
  - (c) How this administrative regulation conforms to the content of the authorizing statutes: KRS 224.10-100(5) authorizes the Cabinet to promulgate administrative regulations for the prevention, abatement, and control of air pollution. This administrative regulation provides for the control of emissions from new indirect heat exchangers. This administrative regulation is part of the Kentucky State Implementation Plan (SIP).
  - (d) How this administrative regulation currently assists or will assist in the effective administration of the statutes: This administrative regulation will enable the Cabinet to continue to implement and enforce the control of emissions from new indirect heat exchangers, resulting in the protection of human health and the environment and attainment of the National Ambient Air Quality Standards (NAAQS).
- (2) If this is an amendment to an existing administrative regulation, provide a brief summary of:
  - (a) How the amendment will change this existing administrative regulation: This amendment clarifies the definitions of startup period and shutdown period to be consistent with federal definitions. The amendment also clarifies the requirements for work practice standards for indirect heat exchangers.
  - (b) The necessity of the amendment to this administrative regulation: This amendment is necessary to clarify definitions for consistency with federal regulations. The amendment also provides clarity for the work practice standards.
  - (c) How the amendment conforms to the content of the authorizing statutes: The amendment conforms to the content of the authorizing statute by providing clarity and consistency with federal regulations.

- (d) How the amendment will assist in the effective administration of statutes: The amendment clarifies the work practice standards for existing indirect heat exchangers.
- (3) List the type and number of individuals, businesses, organizations, or state and local governments affected by this administrative regulation.  
Owners and operators of new indirect heat exchangers will be affected by this administrative regulation.
- (4) Provide an analysis of how the entities identified in question (3) will be impacted by either the implementation of this administrative regulation, if new, or by the change, if it is an amendment, including:
- (a) List the actions that each of the regulated entities identified in question (3) will have to take to comply with this administrative regulation or amendment: Regulated entities will have clarification in definitions and the work practice standards.
- (b) In complying with this administrative regulation or amendment, how much will it cost each of the entities identified in question (3): There is no additional cost to the regulated entities to comply with this amendment. This amendment clarifies how regulated entities comply with the work practice standards.
- (c) As a result of compliance, what benefits will accrue to the entities identified in question (3): As a result of compliance, the sources will have clarity on how to meet the work practice standards.
- (5) Provide an estimate of how much it will cost to implement this administrative regulation:
- (a) Initially: The Division for Air Quality will not incur any additional costs for the implementation of this administrative regulation initially.
- (b) On a continuing basis: The Division for Air Quality will not incur any additional costs for the implementation of this administrative regulation on a continual basis.
- (6) What is the source of the funding to be used for the implementation and enforcement of this administrative regulation: The Division for Air Quality's current operating budget will be used for the implementation and enforcement of the amendment to this administrative regulation.
- (7) Provide an assessment of whether an increase in fees or funding will be necessary to implement this administrative regulation, if new, or by the change if it is an amendment. No increase in fees or funding is necessary to implement this administrative regulation.

- (8) State whether or not this administrative regulation establishes any fees or directly or indirectly increases any fees. This administrative regulation does not establish any fees, nor does it directly or indirectly increase any fees.
- (9) TIERING: Is tiering applied? (Explain why or why not) Yes. Emission limits for affected facilities apply based on the capacity of the new indirect heat exchanger.

## FISCAL NOTE ON STATE AND LOCAL GOVERNMENT

Administrative Regulation: 401 KAR 59:015

Contact person: Cassandra Jobe

Phone Number: (502) 782-6670

E-mail: Cassandra.Job@ky.gov

1. What units, parts or divisions of state or local government (including cities, counties, fire departments, or school districts) will be impacted by this administrative regulation?  
This administrative regulation has the potential to affect any unit, part, or division of state or local government operating a new indirect heat exchanger. The Division for Air Quality will continue to permit sources in accordance with this administrative regulation.
2. Identify each state or federal statute or federal regulation that requires or authorizes action taken by the administrative regulation.  
KRS 224.10-100(5), 224.20-120, 42 U.S.C. 7410, 7411, and 40 C.F.R. Part 60
3. Estimate the effect of this administrative regulation on the expenditures and revenues of a state or local government agency (including cities, counties, fire departments, or school districts) for the first full year the regulation is to be in effect.
  - (a) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for the first year?  
The proposed administrative regulation will not generate revenue in the first year.
  - (b) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for subsequent years?  
The proposed administrative regulation will not generate revenue in subsequent years.
  - (c) How much will it cost to administer this program for the first year?  
The Division for Air Quality's current operating budget will be used to administer this program for the first year.
  - (d) How much will it cost to administer this program for subsequent years?  
The Division for Air Quality's operating budget will be used to administer this program for subsequent years.

Note: If specific dollar estimates cannot be determined, provide a brief narrative to explain the fiscal impacts of the administrative regulation.

Revenues (+/-):	There is no known effect on current revenues.
Expenditures (+/-):	There is no known effect on current expenditures.
Other Explanation:	There is no further explanation.

## FEDERAL MANDATE ANALYSIS COMPARISON

Administrative Regulation: 401 KAR 59:015

Contact person: Cassandra Jobe

Phone: (502) 782-6670

E-mail: Cassandra.Job@ky.gov

1. Federal statute or regulation constituting the federal mandate.

The federal mandate for this administrative regulation is in 40 C.F.R. Part 60 and 42 U.S.C. 7411.

2. State compliance standards.

This administrative regulation provides for the control of emissions from new indirect heat exchangers.

3. Minimum or uniform standards contained in the federal mandate.

42 U.S.C. 7411 requires that the U.S. EPA promulgate emission standards for new stationary sources.

4. Will this administrative regulation impose stricter requirements, or additional or different responsibilities or requirements, than those required by the federal mandate?

Yes. This administrative regulation establishes work practice standards that are not part of the federal mandate.

5. Justification for the imposition of the stricter standard, or additional or different responsibilities or requirements.

The work practice standards were requested as an alternative way to address emissions during periods of startup and shutdown.

**STATEMENT OF CONSIDERATION RELATING TO  
401 KAR 59:015 and 401 KAR 61:015  
Amended After Comments**

Energy and Environment Cabinet  
Department for Environmental Protection  
Division for Air Quality

I. The public hearing on 401 KAR 59:015 and 61:015 scheduled for October 30, 2017 at 10:00 a.m. in Conference Room 111 at 300 Sower Boulevard, Frankfort, Kentucky, 40601 was cancelled in accordance with KRS 13A.270(7). However, written comments were received during the public comment period.

II. The following individuals submitted written comments:

<u>Name and Title</u>	<u>Affiliation</u>
Brenda E. Brickhouse, Vice President, Environment and Energy Policy	Tennessee Valley Authority (TVA)
Jerry Purvis, Vice President, Environmental Affairs	East Kentucky Power Cooperative (EKPC)
Carolyn Brown, Counsel	Utility Information Exchange of Kentucky (UIEK)

III. The following individuals responded to comments:

<u>Name and Title</u>	<u>Affiliation</u>
Sean Alteri, Director	Division for Air Quality
Cassandra Jobe*, Supervisor, PPA	Division for Air Quality

\*Cabinet representative

IV. **Summary of Comments and Responses**

**401 KAR 59:015 and 401 KAR 61:015**

(1) **Subject Matter: Work practice standards**

(a) **Comment: Carolyn Brown, UIEK; Brenda E. Brickhouse, TVA; Jerry Purvis, EKPC**

We support the proposed adoption of the EPA Mercury and Air Toxics Rule work practice standards for coal and oil-fired electric generating units in lieu of numeric limits, during startup and shutdown periods.

- (b) **Response:**  
The Cabinet acknowledges these comments.
- (2) **Subject Matter: Support for Comments**  
(a) **Comment: Brenda E. Brickhouse, TVA; Jerry Purvis, EKPC**  
We support the comments provided to the Cabinet by the Utility Information Exchange of Kentucky (UIEK).
- (b) **Response:**  
The Cabinet acknowledges these comments.
- (3) **Subject Matter: Separate Definitions of Startup Period**  
(a) **Comment: Carolyn Brown, UIEK; Brenda E. Brickhouse, TVA; Jerry Purvis, EKPC**  
The definition for startup period should reference the specific subpart of the applicable 40 C.F.R. Part 63 regulation.
- (b) **Response:**  
The Cabinet concurs and amends the proposed administrative regulations to include a reference to the applicable 40 C.F.R. Part 63 regulatory definitions.
- (4) **Subject Matter: Definition of Startup Period**  
(a) **Comment: Carolyn Brown, UIEK; Brenda E. Brickhouse, TVA**  
The general startup definition should be retained for sources not subject to requirements under 40 C.F.R. Part 63. The imposition of a 4-hour time limit is inappropriate and should be deleted.
- (b) **Response:**  
The Cabinet concurs in part. The Cabinet agrees that the general definition of startup is necessary for sources not subject to requirements under 40 C.F.R. Part 63. The language in the general definition of startup period for these sources is consistent with the startup definitions from 40 C.F.R. Part 63 regulations.
- Regarding the 4-hour time limit for startup period, the general definition only applies to a subset of area sources, which are not covered by the 40 C.F.R. Part 63 regulations. The startup periods for these area sources are typically shorter in duration than the 4-hour time limit. Therefore, the Cabinet retains the 4-hour limit to be consistent with startup requirements in federal regulations.
- (5) **Subject Matter: Definition of Startup Period**  
(a) **Comment: Carolyn Brown, UIEK**  
The general startup definition should be retained for sources not subject to requirements under 40 C.F.R. Part 63. The language “applicable to the pollutant” is not needed and should be deleted.

- (b) **Response:**  
The Cabinet concurs in part. The Cabinet agrees that the general definition of startup is necessary for sources not subject to requirements under 40 C.F.R. Part 63. The language in the general definition of startup period for these sources is consistent with the startup definitions from 40 C.F.R. Part 63 regulations.

To clarify, control devices are pollutant specific, and the time necessary to fully engage a control device based on manufacturer's specifications varies. Therefore, the Cabinet retains the language "applicable to the pollutant" as part of the general startup period definition.

(6) **Subject Matter: Definition of Shutdown Period**

(a) **Comment: Carolyn Brown, UIEK; Jerry Purvis, EKPC**

In order for the revised provisions of 401 KAR 59:015 and 401 KAR 61:015 to work seamlessly with 40 C.F.R. Part 63 regulations, the definition of shutdown should be revised to reference the applicable 40 C.F.R. Part 63 regulations.

(b) **Response:**

The Cabinet concurs and amends the proposed administrative regulations to include a reference to the 40 C.F.R. Part 63 regulatory definitions.

(7) **Subject Matter: Standards During Startup and Shutdown**

(a) **Comment: Carolyn Brown, UIEK; Brenda E. Brickhouse, TVA**

Section 7 of 401 KAR 59:015 and Section 9 of 401 KAR 61:015 also include troubling general language that could be the basis for assertion that compliance with the specific NEHSAP work practice standards and manufacturers recommended procedures is 'not enough' in some cases. It should be clarified that Section 7(1) of 401 KAR 59:015 and Section 9(1) of 401 KAR 61:015 apply to non-NESHAP sources and that Section 7(2) of 401 KAR 59:015 and Section 9(2) of 401 KAR 61:015 apply to NESHAP sources.

(b) **Response:**

The Cabinet amends the proposed administrative regulations to clarify that sources are expected to comply with either subsection (1) or subsection (2). This clarifies that subsection (1) is for sources not subject to requirements under 40 C.F.R. Part 63, and subsection (2) is for sources subject to requirements under 40 C.F.R. Part 63.

(8) **Subject Matter: Standards During Startup and Shutdown for Non-NESHAP Sources**

(a) **Comment: Carolyn Brown, UIEK**

"Additionally, for indirect heat exchangers that are not subject to one of the identified NESHAP subparts, Section 7(1)(a) of 401 KAR 59:015 and Section 9(1)(a) of 61:015 are duplicative of 401 KAR 50:055 Section 2(5) and therefore should be deleted."

**(b) Response:**  
The Cabinet concurs the language is duplicative. Therefore, the Cabinet amends Sections 7(1)(a) and 9(1)(a) to reference 401 KAR 50:055, Section 2(5).

**(9) Subject Matter: Work practice standards general language**

**(a) Comment: Carolyn Brown, UIEK; Brenda E. Brickhouse, TVA**

“Similarly, Section 7(1)(c) of 401 KAR 59:015 and Section 9(1)(c) of 401 KAR 61:015 use the term ‘all possible steps’ which is vague and provides little direction to the regulated community. Therefore, for indirect heat exchangers that will be subject to these general provisions, UIEK requests that the Division revise the language to simply state that ‘steps shall be taken...’.”

**(b) Response:**

The Cabinet concurs in part with the comment. To be consistent with language in 401 KAR 50:055, Section 1(4), the Cabinet amends the proposed administrative regulations to “All reasonable steps....”.

**401 KAR 59:015 Only**

**(10) Subject Matter: Applicability of 401 KAR 59:015**

**(a) Comment: Carolyn Brown, UIEK**

“UIEK does not object to revising this section to provide that the exemption is limited to Sections 3-6 of 401 KAR 59:015, provided that any revision to permits to reflect this change would not occur until the first renewal following approval of these changes into the State Implementation Plan (SIP). UIEK requests confirmation that amendment of the regulation as proposed would not trigger reopening or revision of existing permits by the Division under 401 KAR 52:020 prior to renewal as noted above.”

**(b) Response:**

The Cabinet concurs in part. Once the administrative regulation becomes effective, the Cabinet does not intend to ‘reopen’ permits pursuant to 401 KAR 52:020, Section 19. However, the Cabinet will incorporate these requirements into permits as the cabinet processes applications for modifications, renewals, reconstruction, or new sources prior to EPA’s final approval into the Kentucky State Implementation Plan.

## **V. Summary of Action Taken by Promulgating Agency**

**401 KAR 59:015: Comments were considered and the following amendments are proposed:**

**Page 1**

**RELATES TO**

**Lines 6 and 7**

After “Appendices A”, insert a comma.

Delete “and”.

**Page 1**

**NECESSITY, FUNCTION, AND CONFORMITY**

**Line 11**

After “This administrative regulation”, insert “establishes requirements”.  
Delete “provides”.

**Page 2**

**Section 1(6)**

**Line 12**

After “means” delete “the period”.

**Line 13**

After “(a)”, insert:

For a source subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ, the period defined as “shutdown” in:

1. 40 C.F.R. 63.7575;

2. 40 C.F.R. 63.10042; or

3. 40 C.F.R. 63.11237; or

(b) For a source not subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ, the period

Delete “Beginning when, whichever occurs first”.

**Line 14**

After “1.”, insert:

Beginning when whichever occurs first:

a.

**Line 16**

Insert, “b.”, delete “2.”.

**Line 17**

Insert, “2.”, delete “(b)”.

**Line 18**

Insert, “a.”, delete “1.”.

**Line 20**

Insert, “b.”, delete “2.”.

**Page 2**

**Section 1(7)**

**Line 21**

After “means” delete “the period”.

**Line 22**

After “(a)”, insert:

For a source subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ, the period defined as “startup” in:

1. 40 C.F.R. 63.7575;

2. 40 C.F.R. 63.10042; or

3. 40 C.F.R. 63.11237; or

(b) For a source not subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ, the period

Delete "Beginning with either".

**Page 3**

**Section 1(7)**

**Line 1**

After "1.", insert:

Beginning with either:

a.

**Line 3**

Insert, "b.", delete "2.".

**Line 5**

Insert, "2.", delete "(b)".

**Page 3**

**Section 2(2)**

**Line 13**

After "40 C.F.R. 60.40", insert "through".

Delete "to".

After "60.40Da", insert "through".

Delete "to".

**Line 14**

After "60.40b", insert "through".

Delete "to".

After "60.40c", insert "through".

Delete "to".

**Page 4**

**Section 3(3)**

**Line 5**

After "to this subsection, as", insert the following:

established in paragraphs (a) through (f) of this subsection.

Delete "follows:".

**Page 17**

**Section 6(1)**

**Lines 5 and 6**

After "administrative regulation as", insert the following:

established in paragraphs (a) through (e) of this subsection.

Delete "follows:".

**Page 17**

**Section 6(1)(a)**

**Lines 7 and 8**

After "and sample traverses", insert a period.

Delete the semicolon.

**Page 17**  
**Section 6(1)(b)**  
**Lines 9 and 10**

After “Methods 5 and 6”, insert a period.  
Delete the semicolon.

**Page 17**  
**Section 6(1)(c)**  
**Line 12**

After “associated moisture control”, insert a period.  
Delete the semicolon.

**Page 17**  
**Section 6(1)(d)**  
**Line 13**

After “of sulfur dioxide”, insert a period.  
Delete the semicolon.

**Page 20**  
**Section 7(1)(a)**  
**Line 7**

After “(1)(a)”, insert  
The owner or operator shall comply with 401 KAR 50:055, Section 2(5);  
Delete the remainder of Section 7(1)(a) except the semicolon.

**Page 20**  
**Section 7(1)(c)**  
**Line 12**

After “(c) All”, insert “reasonable”.  
Delete “possible”.

**Page 20**  
**Section 7(1)(e)2.**  
**Line 22**

After “of the affected facility;” insert “or”.  
Delete “and”.

**Page 21**  
**Section 7(2)(a)**  
**Line 2**

After “standards established in”, delete the following:  
Table 3 to Subpart DDDDD of  
After “40 C.F.R. Part 63,” insert the following:  
Table 3 to Subpart DDDDD.

**Page 21**  
**Section 7(2)(b)**  
**Line 5**

After “established in”, delete the following:  
Table 3 to Subpart UUUUU of  
After “40 C.F.R. Part 63,” insert the following:  
Table 3 to Subpart UUUUU.

**Page 21**  
**Section 7(2)(c)**  
**Line 8**

After “standards established in”, delete the following:  
Table 2 to Subpart JJJJJ of  
After “40 C.F.R. Part 63,” insert the following:  
Table 2 to Subpart JJJJJ.

**401 KAR 61:015: Comments were considered and the following amendments are proposed:**

**Page 1**  
**NECESSITY, FUNCTION, AND CONFORMITY**  
**Line 11**

After “This administrative regulation”, insert “establishes requirements”.  
Delete “provides”.

**Page 2**  
**Section 1(6)**  
**Line 11**

After “means” delete “the period”.

**Line 12**

After “(a)”, insert:

For a source subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ, the period defined as “shutdown” in:

1. 40 C.F.R. 63.7575;
2. 40 C.F.R. 63.10042; or
3. 40 C.F.R. 63.11237; or

(b) For a source not subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ, the period

Delete “Beginning when, whichever occurs first”.

**Line 13**

After “1.”, insert:

Beginning when whichever occurs first:

a.

**Line 15**

Insert, “b.”, delete “2.”.

**Line 16**

Insert, “2.”, delete “(b)”.

**Line 17**

Insert, "a.", delete "1."

**Line 19**

Insert, "b.", delete "2."

**Page 2**

**Section 1(7)**

**Line 20**

After "Startup", insert "period", delete "periods".

**Line 21**

After "(a)", insert:

For a source subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ, the period defined as "startup" in:

1. 40 C.F.R. 63.7575;

2. 40 C.F.R. 63.10042; or

3. 40 C.F.R. 63.11237; or

(b) For a source not subject to 40 C.F.R. Part 63, Subpart DDDDD, UUUUU, or JJJJJ, the period

Delete "Beginning with either".

**Line 22**

After "1.", insert:

Beginning with either:

a.

**Page 3**

**Section 1(7)**

**Line 1**

Insert, "b.", delete "2."

**Line 5**

Insert, "2.", delete "(b)".

**Page 5**

**Section 3(3)(b)**

**Line 1**

After "or gaseous fuel)", insert a comma.

**Page 7**

**Section 4(1)(b)3.**

**Line 2**

After "to operating conditions", insert "if".

Delete "provided".

**Page 7**

**Section 4(1)(c)3.**

**Line 17**

After "to operating conditions", insert "if".

Delete “provided”.

**Page 7**

**Section 4(2)**

**Line 20**

After “The emission limitations”, insert “established”.

Delete “contained”.

**Page 8**

**Section 4(2)**

**Lines 6 and 7**

After “to the standard”, insert “established”.

Delete “contained”.

**Page 9**

**Section 5(4)**

**Lines 10**

After “input greater than”, insert “1,500”.

Delete “1500”.

**Page 9**

**Section 5(5)**

**Line 15**

After “input greater than”, insert “1,500”.

Delete “1500”.

**Line 18**

After “average of eight”, insert “and zero-tenths”.

**Page 10**

**Section 6(3)**

**Line 3**

After “(3)”, insert “(a)”.

**Lines 3 and 4**

After “intervals and recorded.”, insert “(b)”.

**Lines 4 and 5**

After “week and recorded.”, insert “(c)”.

**Page 10**

**Section 6(5)**

**Line 13**

After “heat input”, insert a comma.

**Page 10**

**Section 6(6)**

**Line 16**

After “dioxide emissions”, insert “shall not be”.

Delete "is not".

**Page 11**

**Section 7(1)(e)**

**Line 6**

Capitalize the "M" in "Reference method".

**Page 11**

**Section 7(2)(a)**

**Line 10**

After "sampling points", insert a semicolon.

Delete the period.

**Page 11**

**Section 7(2)(b)**

**Lines 13 and 14**

After "by the source", insert "; and".

Delete the period.

**Page 11**

**Section 7(3)**

**Line 17**

After "Reference Methods 6", insert a colon.

Delete the semicolon.

**Page 11**

**Section 7(3)(a)**

**Line 18**

After "Reference Method 5", insert a semicolon.

Delete the period.

**Page 11**

**Section 7(3)(b)**

**Line 20**

After "(3.28 ft.)", insert a semicolon.

Delete the period.

**Page 11**

**Section 7(3)(c)**

**Line 22**

After "the sampling point", insert a semicolon.

Delete the period.

**Page 12**

**Section 7(3)(d)**

**Line 1**

After “twenty (20) minutes”, insert a comma.

**Line 2**

After “for each sample”, insert a semicolon.  
Delete the period.

**Page 12**

**Section 7(3)(e)**

**Line 3**

After “one (1) run”, insert “; and”.  
Delete the period.

**Page 12**

**Sections 7(3)(f) and 7(4)**

**Lines 4 and 5**

After “(30) minute intervals., insert “(4)”.  
Delete “(5)”.

**Page 12**

**Section 7(5)(a)1.**

**Line 13**

After “(lb/MMBTU)”, insert a semicolon.  
Delete the period.

**Page 12**

**Section 7(5)(a)2.**

**Lines 14 and 15**

After “Method 5, or 6”, insert a semicolon.  
Delete the period.

**Page 12**

**Section 7(5)(a)3.**

**Line 16**

After “60.45(f)”, insert “; and”.  
Delete the period.

**Page 12**

**Section 7(5)(a)4.**

**Line 19**

After “be obtained as”, insert the following:  
established in paragraphs (b) and (c) of this subsection.  
Delete “follows:”.

**Page 13**

**Section 7(5)(c)**

**Line 1**

After "(c)", insert "1.".

**Line 3**

After "Method 5", insert "pursuant to".

Delete "under".

After "of this section.", insert "2.".

**Page 13**

**Sections 7(5)(c) and 7(6)**

**Lines 4 and 5**

After "shall be required.", insert "(5)".

Delete "(6)".

**Page 13**

**Section 7(6)**

**Line 7**

After "each fuel burned", insert "GCV".

Delete "GVC".

**Page 15**

**Section 9(1)(a)**

**Line 17**

After "(1)(a)", insert

The owner or operator shall comply with 401 KAR 50:055, Section 2(5);

Delete the remainder of Section 7(1)(a) except the semicolon.

**Page 16**

**Section 9(1)(c)**

**Line 1**

After "(c) All", insert "reasonable".

Delete "possible".

**Page 16**

**Section 9(1)(e)2.**

**Line 11**

After "of the affected facility;" insert "or".

Delete "and".

**Page 16**

**Section 9(2)(a)**

**Line 2**

After "standards established in", delete the following:

Table 3 to Subpart DDDDD of

After "C.F.R. Part 63," insert the following:

Table 3 to Subpart DDDDD,

**Page 16**  
**Section 9(2)(b)**  
**Lines 4 and 5**

After “standards established in”, delete the following:  
Table 3 to Subpart UUUUU of  
After “C.F.R. Part 63,”, insert the following:  
Table 3 to Subpart UUUUU,

**Page 16**  
**Section 9(2)(c)**  
**Line 8**

After “standards established in”, delete the following:  
Table 2 to Subpart JJJJJ of  
After “C.F.R. Part 63,”, insert the following:  
Table 2 to Subpart JJJJJ,

**Page 19**  
**Appendix B**  
**Line 2**

After “All standards”, insert “shall be”.  
Delete “are”.

**Page 19**  
**Appendix B**  
**Title, Row 1**

After “actual heat input)”, insert “shall be”.  
Delete “is”.