

**TITLE 35: ENVIRONMENTAL PROTECTION**  
**SUBTITLE B: AIR POLLUTION**  
**CHAPTER I: POLLUTION CONTROL BOARD**  
**SUBCHAPTER c: EMISSION STANDARDS AND**  
**LIMITATIONS FOR STATIONARY SOURCES**

**PART 214**  
**SULFUR LIMITATIONS**

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**AUTHORITY:** Implementing Section 10 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/10 and 27].

**SOURCE:** Adopted as Chapter 2: Air Pollution, Rule 204: Sulfur Emission Standards and Limitations, R71-23, 4 PCB 191, filed and effective April 14, 1972; amended in R74-2 and R75-5, 32 PCB 295, at 3 Ill. Reg. 5, p. 777, effective February 3, 1979; amended in R74-2, R75-5, 38 PCB 129, at 4 Ill. Reg. 28, p. 417, effective June 26, 1980; amended in R78-17, 40 PCB 291, at 5 Ill. Reg. 1892, effective February 17, 1981; amended in R77-15, 44 PCB 267, at 6 Ill. Reg. 2146, effective January 28, 1982; amended and renumbered in R80-22(A), at 7 Ill. Reg. 4220, effective March 28, 1983; codified 7 Ill. Reg. 13579; amended in R80-22(B), at 8 Ill. Reg. 6172, effective April 24, 1984; amended in R84-28, at 10 Ill. Reg. 9806, effective May 20, 1986; amended in R86-31, at 12 Ill. Reg. 17387, effective October 14, 1988; amended in R86-30, at 12 Ill. Reg. 20778, effective December 5, 1988; amended in R87-31 at 15 Ill. Reg. 1017, effective January 15, 1991; amended in R02-21 at 27 Ill. Reg. 12101, effective July 11, 2003; amended in R04-12/20 at 30 Ill. Reg. 9671, effective May 15, 2006.

**SUBPART A: GENERAL PROVISIONS**

**Section 214.100 Scope and Organization**

- a) This Part sets standards and limitations for emission of sulfur from stationary sources.
- b) Permit for sources subject to this Part may be required pursuant to 35 Ill. Adm. Code 201.
- c) Notwithstanding the provisions of this Part, the air quality standards contained in 35 Ill. Adm. Code 243 may not be violated.
- d) This Part is divided into Subparts which are grouped as follows:
  - 1) Subpart A: General Provisions
  - 2) Subparts B - J: Fuel Combustion Emission Sources and Incinerators
  - 3) Subparts K - M: Process Emission Sources

- 4) Subparts N - End: Industry and site specific rules.
- e) These rules have been grouped for the convenience of the public; the scope of each is determined by its language and history.

### **Section 214.101 Measurement Methods**

A determination of non-compliance based on any subsection of this Section shall not be refuted by evidence of compliance with any other subsection.

- a) Sulfur Dioxide Measurement. Measurement of sulfur dioxide emissions from stationary sources shall be made according to an applicable method specified in 40 CFR 60, Appendix A, Method 6, 6A, 6B, or 6C, incorporated by reference in Section 214.104(a), or by measurement procedures established pursuant to 40 CFR 60.8(b), incorporated by reference in Section 214.104(b). (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1010.)
- b) Sulfuric Acid Mist and Sulfur Trioxide Measurement. Measurement of sulfuric acid mist and sulfur trioxide shall be according to the barium-thorin titration method specified in 40 CFR 60, Appendix A, Method 8, incorporated by reference in Section 214.104(a).
- c) Solid Fuel Averaging Measurement Daily Analysis Method. This subsection applies to sources at plants with total solid fuel-fired heat input capacity exceeding 439.5 MW (1500 million Btu/hr). If daily fuel analysis is used to demonstrate compliance or non-compliance with Sections 214.122, 214.141, 214.142(a) 214.162, 214.186 and 214.421, the sulfur dioxide emission rate to be compared to the emission limit shall be considered to be the result of averaging daily samples taken over any consecutive two-month period provided no more than 5 percent of the sample values are greater than 20 percent above the sample average. If samples from a source cannot meet this statistical criterion, each individual daily sample analysis for such source shall be compared to the source's emission limit to determine compliance. The specific ASTM procedures, incorporated by reference in Section 214.104(c), shall be used for solid fuel sampling, sulfur, and heating value determinations.
- e) Weekly Analysis Method. This subsection applies to sources at plants with total solid fuel-fired heat input capacity exceeding 146.5 MW (500 million Btu/hr) but not exceeding 439.5 MW (1500 million Btu/hr). These plants shall demonstrate compliance or non-compliance with Sections 214.122, 214.141, 214.142(a), 214.162, 214.186 and 214.421 by either an analysis of calendar weekly composites of daily fuel samples or by compliance with subsection (c) above, at the option of the plant. The

specific ASTM procedures incorporated by reference in Section 214.104(c), shall be used for sulfur and heating value determinations.

- e) **Monthly Analysis Method.** This subsection applies to sources at plants with total fuel-fired heat input capacity exceeding 14.65 MW (50 millions Btu/hr) but not exceeding 146.5 MW (500 million Btu/hr). These plants shall demonstrate compliance or non-compliance with Sections 214.122, 214.141, 214.142(a), 214.162, 214.186 and 214.421 by either an analysis of calendar monthly composites of daily fuel samples or by compliance with subsection (c) above, at the option of the plant. ASTM procedures incorporated by reference in Section 214.104(c), shall be used for sulfur and heating value determinations.
- f) **Small Source Alternative Method.** This subsection applies to sources at plants with total solid fuel-fired heat input capacity not exceeding 14.65 MW (50 million Btu/hr). Compliance or non-compliance with Sections 214.122, 214.141, 214.142(a), 214.162, 214.186 and 214.421 shall be demonstrated by a calendar month average sulfur dioxide emission rate.
- g) **Exemptions.** Subsections (c) through (f) shall not apply to sources controlling sulfur dioxide emissions by flue gas desulfurization equipment or by sorbent injection.
- h) **Hydrogen Sulfide Measurement.** For purposes of determining compliance with Section 214.382(c), the concentration of hydrogen sulfide in petroleum refinery fuel gas shall be measured using the Tutwiler Procedure specified in 40 CFR 60.648, incorporated by reference in Section 214.104(d).

(Source: Amended at 15 Ill. Reg. 1017, effective January 15, 1991)

**Section 214.102      Abbreviations and Units**

- a) The following abbreviations are used in this Part:

btu	British thermal units (60 F)
ft	foot
gr	grains
J	Joule
kg	kilogram
kg/MW-hr	kilograms per megawatt-hour
km	kilometer
lbs	pounds
lbs/mmbtu	pounds per million btu
m	meter
mg	milligram

Mg	megagram, metric ton or tonne
mi	mile
mmbtu	million British thermal units
mmbtu/hr	million British thermal units per hour
MW	megawatt; one million watts
MW-hr	megawatt-hour
ng	nanogram, one billionth of a gram by volume
ng/J	nanograms per Joule
ppm	parts per million
scf	standard cubic foot
scm	standard cubic meter
T	English ton

b) The following conversion factors have been used in this Part:

English	Metric
2.205 lb	1 kg
1 T	0.907 Mg
1 lb/T	0.500 kg/Mg
mmbtu/hr	0.293 MW
1 lb/mmbtu	1.548 kg/MW-hr
1 mi	1.61 km
1 gr/scf	2289 mg/scm

(Source: Amended at 12 Ill. Reg. 20778, effective December 5, 1988)

### **Section 214.103 Definitions**

The definitions of 35 Ill. Adm. Code 201 and 211 apply to this Part.

### **Section 214.104 Incorporations by Reference**

The following materials are incorporated by reference. These incorporations do not include any later amendments or editions.

- a) 40 CFR 60, Appendix A (1989):
- 1) Method 6: Determination of Sulfur Dioxide Emissions From Stationary Sources;
  - 2) Method 6A: Determination of Sulfur Dioxide, Moisture, and Carbon Dioxide Emissions From Fossil Fuel Combustion Sources;

- 3) Method 6B: Determination of Sulfur Dioxide and Carbon Dioxide Daily Average Emissions From Fossil Fuel Combustion Sources;
  - 4) Method 6C: Determination of Sulfur Dioxide Emissions From Stationary Sources (Instrumental Analyzer Procedure);
  - 5) Method 8: Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions From Stationary Sources.
- b) 40 CFR 60.8(b) (1989), Performance Tests.
- c) American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103:
- 1) For solid fuel sampling:  
ASTM D-2234 (1989)  
ASTM D-2013 (1986)
  - 2) For sulfur determinations:  
ASTM D-3177 (1984)  
ASTM D-2622 (1987)  
ASTM D-3180 (1984)  
ASTM D-4239 (1985)
  - 3) For heating value determinations:  
ASTM D-2015 (1985)  
ASTM D-3286 (1985)
- d) Tutwiler Procedure for hydrogen sulfide, 40 CFR 60.648 (1989).

(Source: Amended at 15 Ill. Reg. 1017, effective January 15, 1991)

## **SUBPART B: NEW FUEL COMBUSTION EMISSION SOURCES**

### **Section 214.120      Scope**

Subparts B through F contain general rules for sulfur emissions from fuel combustion emission sources. These may be modified by industry and site specific rules in Subparts N et seq.

### **Section 214.121      Large Sources**

This section applies to new fuel combustion emission sources with actual heat input greater than 73.2 MW (250 mmbtu/hr).

- a) Solid Fuel Burned Exclusively. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion emission source greater than 73.2 MW (250 mmbtu/hr), burning solid fuel exclusively, to exceed 1.86 kg of sulfur dioxide per MW-hr of actual heat input (1.2 lbs/mmbtu).  
(Board Note: This section was invalidated in Commonwealth Edison v. PCB, 25 Ill. App. 3d 271, 62 Ill.2d 494, 43 N.E.2d 459, 323 N.E. 2d 84, Ashland Chemical Corp. v. PCB, 64 Ill. App.3d 169, and Illinois State Chamber of Commerce v. PCB, 67 Ill. App.3d 839, 384 N.E.2d 922, 78 Ill.2d 1, 398 N.E.2d 9.)
- b) Liquid Fuel Burned Exclusively. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion emission source greater than 73.2 MW (250 mmbtu/hr), burning liquid fuel exclusively:
  - 1) To exceed 1.2 kg of sulfur dioxide per MW-hr of actual heat input when residual fuel oil is burned (0.8 lbs/mmbtu); and
  - 2) To exceed 0.46 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmbtu).

(Source: Amended at 7 Ill. Reg. 4219, effective March 28, 1983)

#### **Section 214.122      Small Sources**

This section applies to new fuel combustion emission sources with actual heat input smaller than, or equal to, 73.2 MW (250 mmbtu/hr).

- a) Solid Fuel Burned Exclusively. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source with actual heat input smaller than, or equal to, 73.2 MW (250 mmbtu/hr), burning solid fuel exclusively, to exceed 2.79 kg of sulfur dioxide per MW-hr of actual heat input (1.8 lbs/mmbtu).
- b) Liquid Fuel Burned Exclusively. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source with actual heat input smaller than, or equal to, 73.2 MW (250 mmbtu/hr), burning liquid fuel exclusively:
  - 1) To exceed 1.55 kg of sulfur dioxide per MW-hr of actual heat input when residential fuel oil is burned (1.0 lbs/mmbtu); and
  - 2) To exceed 0.46 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmbtu).



(Source: Amended at 4 Ill. Reg. 28, p. 417, effective June 26, 1980)

## **SUBPART C:EXISTING SOLID FUEL COMBUSTION EMISSION SOURCES**

### **Section 214.140      Scope**

This Subpart contains rules which establish general sulfur emissions standards for existing solid fuel emission sources. These may be modified by industry and site-specific rules in Subparts N, et seq.

(Source: Added at 10 Ill. Reg. 9806, effective May 20, 1986)

### **Section 214.141      Sources Located in Metropolitan Areas**

Except as otherwise provided in this Part, no person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion source, burning solid fuel exclusively, located in the Chicago, St. Louis (Illinois) or Peoria major metropolitan areas, to exceed 1.8 pounds of sulfur dioxide per mmBtu of actual heat input (774 nanograms per joule).

- a) Sources located in Kankakee or McHenry Counties shall not exceed 6.8 pounds of sulfur dioxide per mmBtu of actual heat input (2,924 nanograms per joule) in any one hour period.
- b) Existing industrial sources, not equipped with flue gas desulfurization systems as of December 1, 1980, located in the Peoria major metropolitan area, shall not exceed 5.5 pounds of sulfur dioxide per mmBtu of actual heat input (2,365 nanograms per joule) in any one hour period, provided the emissions from any such source located in the City of Peoria exit from a stack which is at least 154 feet (47 meters) in height.
- c) Sections 214.122 and 214.101(c) shall not apply to any fuel combustion emission sources equipped with flue gas desulfurization systems as of December 1, 1980, and located in the City of East Peoria as the city boundaries were then defined. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any such sources to exceed 1.4 pounds of sulfur dioxide per mmBtu of actual heat input (602 nanograms per joule).
- d) Sections 214.122 and 214.101(c) shall not apply to any fuel combustion emission sources which are capable of firing solid fuel at a heat input of more than 125 mmBtu per hour (36.6 megawatts) and which as of December 1, 1980, are equipped with flue gas desulfurization systems and are located in Hollis Township, Peoria County, as the township boundaries

were then defined. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any such sources to exceed 1.1 pounds of sulfur dioxide per mmBtu of actual heat input (473 nanograms per joule).

(Source: Amended at 10 Ill. Reg. 9806, effective May 20, 1986)

#### **Section 214.142 Small Sources Located Outside Metropolitan Areas**

This section applies to existing fuel combustion sources with actual heat input less than, or equal to, 73.2 MW (250 mmbtu/hr) located outside the Chicago, St. Louis (Illinois) or Peoria major metropolitan areas. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion source with actual heat input less than, or equal to, 73.2 MW (250 mmbtu/hr), burning solid fuel exclusively, located outside the Chicago, St. Louis (Illinois) or Peoria major metropolitan areas, to exceed either of the following, whichever such person determines shall apply:

- a) 10.5 kg of sulfur dioxide per MW-hr of actual heat input (6.8 lbs/mmbtu), provided such owner or operator complies with all applicable provisions of Section 214.186, or
- b) The emission limit provided by Subpart E.

(Source: Amended at 4 Ill. Reg. 28, p. 217, effective June 26, 1980)

#### **Section 214.143 Large Sources Located Outside Metropolitan Areas**

This section applies to existing fuel combustion sources with actual heat input greater than 73.2 MW (250 mmbtu/hr) located outside the Chicago, St. Louis (Illinois) or Peoria major metropolitan areas. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion source with actual heat input greater than 73.2 MW (250 mmbtu/hr), burning solid fuel exclusively, located outside the Chicago, St. Louis (Illinois) or Peoria major metropolitan areas, to exceed the emission limit provided by Subpart E.

(Source: Amended at 4 Ill. Reg. 28, p. 417, effective June 26, 1980)

### **SUBPART D: EXISTING LIQUID OR MIXED FUEL COMBUSTION EMISSION SOURCES**

#### **Section 214.161 Liquid Fuel Burned Exclusively**

No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion emission source, burning liquid fuel exclusively:

- a) To exceed 1.55 kg of sulfur dioxide per MW-hr of actual heat input when residual fuel oil is burned (1.0 lbs/mmbtu);
- b) To exceed 0.46 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmbtu).

**Section 214.162      Combination of Fuels**

- a) No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any fuel combustion emission source burning simultaneously any combination of solid, liquid and gaseous fuels to exceed the allowable emission rate determined by the following equation:

$$E = S_S H_S + S_d H_d + S_R H_R$$

- b) Symbols in the equation mean the following:

E = allowable sulfur dioxide emission rate;

S<sub>S</sub> = solid fuel sulfur dioxide emission standard which is applicable;

S<sub>d</sub> = distillate oil sulfur dioxide emission standard determined from the table in subsection (d);

S<sub>R</sub> = residual fuel oil sulfur dioxide emission standard which is applicable;

H<sub>S</sub> = actual heat input from solid fuel;

H<sub>d</sub> = actual heat input from distillate fuel oil;

H<sub>R</sub> = actual heat input from residual fuel oil;

- c) That portion of the actual heat input that is derived:
  - 1) From the burning of gaseous fuels produced by the gasification of solid fuels shall be included in H<sub>S</sub>;
  - 2) From the burning of gaseous fuels produced by the gasification of distillate fuel oil shall be included in H<sub>d</sub>;

- 3) From the burning of gaseous fuels produced by the gasification of residual fuel oil shall be included in  $H_R$ ;
  - 4) From the burning of gaseous fuels produced by the gasification of any other liquid fuel shall be included in  $H_R$ ; and,
  - 5) From the burning of by-product gases such as those produced from a blast furnace or a catalyst regeneration unit in a petroleum refinery shall be included in  $H_R$ .
- d) Metric or English units may be used in the equation of subsection (a) as follows:

Parameter	Metric	English
E	kg/hr	lbs/hr
$S_S, S_R$	kg/MW-hr	lbs/mmbtu
$S_d$	0.46 kg/MW-hr	0.3 lbs/mmbtu
$H_S, H_d, H_R$	MW	mmbtu/hr

(Source: Amended at 30 Ill. Reg. 9671, effective May 15, 2006)

## **SUBPART E: AGGREGATION OF SOURCES OUTSIDE METROPOLITAN AREAS**

### **Section 214.181      Dispersion Enhancement Techniques**

No owner or operator of an existing fuel combustion emission source shall comply with the emission standards of this Subpart by the use of dispersion enhancement techniques. Dispersion enhancement techniques shall include, but not be limited to, an intermittent control system or an increase of: stack height in excess of good engineering practice necessary to prevent downwash or fumigation conditions, stack diameter, exit gas velocity, or exit gas temperature, except as provided by Section 123 of the Clean Air Act (42 U.S.C. 7423) and regulations promulgated thereunder. Flue gas may be reheated where air pollution control equipment results in a reduction of flue gas temperature, provided that the degree of reheat does not exceed the temperature drop across such air pollution control equipment.

(Source: Amended at 3 Ill. Reg. 5, p. 777, effective February 3, 1979)

### **Section 214.182      Prohibition**

No person shall cause or allow the total emissions of sulfur dioxide into the atmosphere in any one hour period from all fuel combustion emission sources, located outside of the Chicago, St. Louis (Illinois) or Peoria major metropolitan areas, owned or operated by such person and located within a one mile radius (1.6 km) from the center point of any

such fuel combustion emission source to exceed the emissions determined by the following Sections 214.183 through 214.185, whichever is applicable.

**Section 214.183      General Formula**

- a)      The general formula is:

$$E = \frac{(H_A)^{0.11}(H_E)^2}{128} \quad (\text{in English units})$$

$$E = 0.04347(H_A)^{0.11}(H_E)^2 \quad (\text{in Metric units})$$

- b)      Symbols used in the general formula mean the following:

E = Total allowable emission of sulfur dioxide (in lbs/hr or kg/hr) into the atmosphere in any one-hour period from all fuel combustion emission sources owned or operated by such person and located within a 1.6 km (1 mile) radius from the center point of any such emission source.

H<sub>A</sub> =      Average actual stack height as determined by method outlined in Appendix C.

H<sub>E</sub> =      Effective height of effluent release as determined by method outlined in Appendix C.

(Source: Amended at 30 Ill. Reg. 9671, effective May 15, 2006)

**Section 214.184      Special Formula**

- a)      If the maximum total emissions of sulfur dioxide into the atmosphere in any one hour period from all fuel combustion emission sources owned or operated by any person and located within a 1 mile (1.6 km) radius from the center point of any such fuel combustion emission sources exceed, during normal cyclical variations in firing rate and fuel, the emissions allowed under Section 214.183 but, as of April 1, 1978, were in compliance with either the formula detailed below or a Pollution Control Board (Board) order, then the owner or operator of the emission sources shall not cause or allow such emissions to exceed the emissions allowed under Section 214.183 or the formula detailed below, whichever the owner or operator of the emission sources determines shall apply.

- b)

$$E = 20,000 \left( \frac{H_s}{300} \right)^2 \quad (\text{in English units})$$

$$E = 4.8824 \times 20,000 \left( \frac{H_s}{300} \right)^2 \quad (\text{in Metric units})$$

$$H = P_1 H_1 + P_2 H_2 + \dots P_n H_n$$

(Note:  $P_1 + P_2 \dots P_n = 1$ )

c) As used in these equations, symbols mean the following:

E = total emission of sulfur dioxide (in lbs/hr or kg/hr) into the atmosphere in any one hour period from all fuel combustion emission sources owned or operated by such person and located within a 1 mile (1.6 km) radius from the center point of any such emission source;

$P_i$  = (for  $i=1, 2, \dots, n$ ) percentage of total emissions E emitted from source i expressed as decimal equivalents (e.g., 21% = 0.21), and

$H_i$  = (for  $i=1, 2, \dots, n$ ) physical height (in feet or meters) above grade of stack i.

(Source: Amended at 30 Ill. Reg. 9671, effective May 15, 2006)

### **Section 214.185 Alternative Emission Rate**

Any owner or operator of a fuel combustion emission source may petition the Board for approval of an emission rate applicable to any one hour period for all fuel combustion emission sources owned or operated by such person and located within a one mile (1.6 km) radius from the center point of any such fuel combustion emission source. Such person shall prove in an adjudicative hearing before the Board that the proposed emission rate will not under any foreseeable operating conditions and potential meteorological conditions cause or contribute to a violation of any applicable primary or secondary sulfur dioxide ambient air quality standard or violate any applicable prevention of significant deterioration (PSD) increment. An emission rate approved pursuant to this Section shall be a substitute for that standard determined by Section 214.183 or 214.184.

- a) Every owner or operator of a fuel combustion emission source petitioning the Board for approval of an emission standard pursuant to this Section shall follow the applicable procedures described in 35 Ill. Adm. Code Subtitle A, Chapter I.

- b) Any emission standard approved pursuant to this Section shall be included as a condition to operating permits issued pursuant to 35 Ill. Adm. Code 201. Any owner or operator of a fuel combustion emission source who receives Board approval of an emission standard pursuant to this Section shall apply to the Illinois Environmental Agency (Agency) within 30 days of approval of such standard for a revision of its operating permit for such source.
- c) The Agency shall impose as a condition to a permit to operate a source pursuant to an emission standard approved pursuant to this Section an ambient sulfur dioxide monitoring and dispersion modeling program designed to verify that such emission standard will not cause or contribute to violations of any applicable primary or secondary sulfur dioxide ambient air quality standard. Such ambient monitoring and dispersion modeling program shall be operated for at least one year commencing no later than 6 months after the date of approval of an emission rate pursuant to this Section.
- d) No more than 15 months after the commencement of the ambient monitoring and dispersion modeling program of subsection (c) the owner or operator shall apply for a new operating permit. The owner or operator shall submit, at the time of the application, a report containing the results of the ambient monitoring and dispersion modeling program.

(Source: Amended at 4 Ill. Reg. 28, p. 417, effective June 26, 1980)

### **Section 214.186      New Operating Permits**

No owner or operator of a fuel combustion emission source whose sulfur dioxide emission limitation is determined by Section 214.142, 214.183 or 214.184 shall cause or allow the total emissions of sulfur dioxide into the atmosphere from all fuel combustion emission sources owned or operated by such person and located within 1 mile radius (1.6 km) from the center point of any such fuel combustion source to exceed the level of sulfur dioxide emission allowed under the previous Rule 204 (effective April 14, 1972 until December 14, 1978) without first obtaining a new operating permit from the Agency. The application for a new operating permit shall include a demonstration that such total emissions will not violate any applicable PSD increment.

(Source: Amended at 4 Ill. Reg. 28, p. 417, effective June 26, 1980)

## **SUBPART F: ALTERNATIVE STANDARDS FOR SOURCES INSIDE METROPOLITAN AREAS**

### **Section 214.201      Alternative Standards for Sources in Metropolitan Areas**

Any owner or operator of an existing fuel combustion emission source located in the Chicago, St. Louis (Illinois) or Peoria major metropolitan areas may petition the Board for approval of an alternate emission rate specified in emissions of pounds of sulfur dioxide per mmbtu of actual heat input for any such fuel combustion emission source, up to a maximum of 6.8 pounds of sulfur dioxide per mmbtu of actual heat input (10.5 kg/MW-hr). Such person shall prove in an adjudicative hearing before the Board that the proposed emission rate will not, under predictable worst case conditions cause or contribute to a violation of any applicable primary or secondary sulfur dioxide ambient air quality standard or of any applicable prevention of significant deterioration increment. An emission rate approved pursuant to this Section shall be a substitute for that standard otherwise required by this Part.

- a) Every owner or operator of an existing fuel combustion emission source so petitioning the Board for approval of an emission standard shall follow the applicable procedures described in 35 Ill. Adm. Code, Subtitle A, Chapter I.
- b) Any emission standard so approved shall be included as a condition in operating permits issued pursuant to 35 Ill. Adm. Code 201. Any owner or operator of a fuel combustion emission source who receives Board approval of such an emission standard shall apply to the Agency within 30 days of approval of such standard for a revision of its operating permit for such source.
- c) No owner or operator of an existing fuel combustion emission source shall seek such an exemption or comply with the emission standard so granted by the use of dispersion enhancement techniques referred to in Section 214.202.

(Source: Adopted at 7 Ill. Reg. 4219, effective March 28, 1983)

#### **Section 214.202      Dispersion Enhancement Techniques**

No owner or operator of an existing fuel combustion emission source shall comply with the emission standards of this Subpart by the use of dispersion enhancement techniques. Dispersion enhancement techniques shall include, but not be limited to, an intermittent control system or an increase of: stack height in excess of good engineering practice necessary to prevent downwash or fumigation conditions, stack diameter, exit gas velocity, or exit gas temperature, except as provided by Section 123 of the Clean Air Act (42 U.S.C.A. 7423) and regulations promulgated thereunder. Flue gas may be reheated where air pollution control equipment results in a reduction of flue gas temperature, provided that the degree of reheat does not exceed the temperature drop across such air pollution control equipment.

(Source: Amended at 7 Ill. Reg. 4219, effective March 28, 1983)



## **SUBPART K: PROCESS EMISSION SOURCES**

### **Section 214.300 Scope**

Subpart K contains general rules for sulfur emissions from process sources. These may be modified by industry and site specific rules in Subparts N et seq.

### **Section 214.301 General Limitation**

Except as further provided by this Part, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

(Source: Amended at 7 Ill. Reg. 4219, effective March 28, 1983)

### **Section 214.302 Exception for Air Pollution Control Equipment**

Section 214.301 shall not apply to processes designed to remove sulfur compounds from the flue gases of fuel combustion emission sources.

(Source: Amended at 7 Ill. Reg. 4219, effective March 28, 1983)

### **Section 214.303 Use of Sulfuric Acid**

With the exception of fuel combustion emission sources and acid manufacturing, no person using sulfuric acid shall cause or allow the emission of sulfuric acid and/or sulfur trioxide from all other similar emission sources at a plant or premises to exceed:

- a) 45.4 grams in any one hour period for sulfuric acid usage less than 1180 Mg/yr (100 percent acid basis) (0.10 lbs/hr up to 1300 T/yr);
- b) 250 grams per metric ton of acid used for sulfuric acid usage greater than or equal to 1180 Mg/yr (100 percent acid basis) (0.50 lbs/T over 1300 T/yr).

(Source: Amended at 7 Ill. Reg. 4219, effective March 28, 1983)

### **Section 214.304 Fuel Burning Process Emission Source**

The emissions from the burning of fuel at process emission sources located in the Chicago or St. Louis (Illinois) major metropolitan areas shall comply with applicable Subparts B through F, except as follows: No person shall cause or allow the emissions of sulfur into the atmosphere in any one hour period from burning tea leaves as fuel to exceed 0.70 pounds of sulfur dioxide per mmbtu of actual heat input.

(Source: Added at 7 Ill. Reg. 4219, effective March 28, 1983)

**SUBPART O:            PETROLEUM REFINING, PETROCHEMICAL AND  
CHEMICAL MANUFACTURING**

**Section 214.380        Scope**

- a)     This Subpart contains rules which modify the general sulfur emission rules of Subparts A through M as applied to a given industry or at a given site. General rules include:
  - 1)     Subparts B through I, fuel combustion emission sources and incinerators;
  - 2)     Subparts K through M, process emission sources.
  
- b)     These rules have been grouped for the convenience of the public; the scope of each is determined by its language and history. Rules placed in this Subpart include those which appear to be primarily directed at the following major industry groups:
  - 1)     Chemicals and allied products;
  - 2)     Petroleum refining and related industries;
  - 3)     Rubber and miscellaneous plastics products.

**Section 214.381        Sulfuric Acid Manufacturing**

- a)     No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any new sulfuric acid manufacturing plant to exceed 4.0 pounds of sulfur dioxide per ton of acid produced (2.0 kg/Mg).
  
- b)     No person shall cause or allow the emission of sulfuric acid mist into the atmosphere from any process emission source to exceed 0.15 pounds of acid mist per ton of acid manufactured (75 g/Mg).
  
- c)     No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any sulfuric acid manufacturing process in the City of Chicago to exceed 500 ppm.

(Source: Amended at 7 Ill. Reg. 4219, effective March 28, 1983)

**Section 214.382        Petroleum and Petrochemical Processes**

- a) Section 214.301 shall not apply to existing processes designed to remove sulfur compounds from the flue gases of petroleum and petrochemical processes.
- b) No person shall cause or allow the emission of more than 1,000 ppm of sulfur dioxide into the atmosphere from any process emission source in the St. Louis (Illinois) major metropolitan area designed to remove sulfur compounds from the flue gases of petroleum and petrochemical processes.
- c) The following limitations apply to any petroleum refinery in the Village of Roxana:
  - 1) No person shall cause or allow the combustion of refinery flasher pitch containing more than 3.0% (three percent) sulfur by weight. This shall be demonstrated by daily sampling of refinery flasher pitch.
  - 2) No person shall burn petroleum refinery fuel gas in any fuel gas combustion device if that refinery fuel gas contains more than 39 grains hydrogen sulfide per 100 dry standard cubic feet (893 mg/scm). This shall be demonstrated by sampling the refinery fuel gas once every eight hours, pursuant to the Tutwiler Procedure (Section 214.104(c)).
  - 3) No person shall cause or allow the total emission of sulfur dioxide into the atmosphere from the following source groupings to exceed the following amounts:
    - A) All process heaters at distilling unit No. 1 - 459 lbs/hr (208 kg/hr).
    - B) All process heaters at distilling unit No. 2 - 1260 lbs/hr (571 kg/hr).
    - C) All gas plant process heaters - 159 lbs/hr (72.1 kg/hr).
    - D) All vacuum flasher unit heaters - 378 lbs/hr (171 kg/hr).
    - E) All process heaters at the alkylation, benzene extraction unit and catalytic feed hydrotreating units - 346 lbs/hr (157 kg/hr).
    - F) All boilers generating steam for general plant use - 2,400 lbs/hr (1,090 kg/hr).

- G) All heaters serving the hydrocracker unit catalytic reformer No. 1, and the saturates gas plant - 1,660 lbs/hr (753 kg/hr).
  - H) All process heaters at the aromatics east process - 768 lbs/hr (348 kg/hr).
  - I) All catalytic cracking units - 3,430 lbs/hr (1,560 kg/hr).
  - J) All asphalt converters, distilling unit No. 1, the aromatics east process, all boilers generating steam for general plant use, and all gas plant process heaters - 2,710 lbs/hr (1,230 kg/hr).
- d) Compliance with the emission limitations of subsections (b) and (c)(3) of this Section shall be demonstrated on a three-hour block average basis. Such demonstrations shall require, as a permit condition, that data as required by the Illinois Environmental Protection Agency (35 Ill. Adm. Code 201.161) be maintained in order to adequately determine the sulfur dioxide emission rate from each source operations group.
- e) Sources in the Village of Roxana are not subject to the emission limitations of Section 214.162 when burning refinery flasher pitch or refinery fuel gas.
- f) Individual process emission sources in the Village of Roxana are still subject to the emission limitation of Section 214.301 notwithstanding their inclusion in a source operations group.
- g) Notwithstanding the provisions of 35 Ill. Adm. Code 201.102 of this Chapter, any physical change in any emission source subject to subsection (b), (c), (d), or (e) of this Section which alters the height of release, temperature or volumetric flow rate of the effluent gases of such source, or alters the diameter of the exit stack, shall be deemed a modification for the purposes of 35 Ill. Adm. Code 201.142 of this Chapter.

(Source: Amended at 12 Ill. Reg. 20778, effective December 5, 1988)

### **Section 214.383      Chemical Manufacturing**

Section 214.301 shall not apply to existing hydrogen sulfide flares at a chemical manufacturing plant provided:

- a) Said flares are operative on existing batch type processes; and

- b) The hydrogen sulfide emissions being flared are not, as of September 11, 1975, passed through existing processes designed to remove sulfur compounds from the flue gases as provided in Section 214.382(a); and
- c) The emission of sulfur dioxide into the atmosphere from said flares does not exceed 500 pounds per hour and 3500 pounds per eight-hour period (230 kg/hr and 1590 kg/8 hrs); and
- d) Provided, however, that if emission controls for said flares become economically reasonable and technically feasible the owner/operator of such hydrogen sulfide flares shall install such controls.

(Source: Amended at 7 Ill. Reg. 4219, effective March 28, 1983)

#### **Section 214.384 Sulfate and Sulfite Manufacturing**

Section 214.301 shall not apply to sodium aluminum sulfate and sodium sulfite manufacturing process emission sources in the St. Louis (Illinois) major metropolitan area.

(Source: Adopted at 7 Ill. Reg. 4219, effective March 28, 1983)

### **SUBPART P: STONE, CLAY, GLASS AND CONCRETE PRODUCTS**

#### **Section 214.400 Scope**

- a) This Subpart contains rules which modify the general sulfur emission rules of Subparts A through M as applied to a given industry or at a given site. General rules include:
  - 1) Subparts B through I, fuel combustion emission sources and incinerators;
  - 2) Subparts K through M, process emission sources.
- b) These rules have been grouped for the convenience of the public; the scope of each is determined by its language and history. Rules placed in this Subpart include those which appear to be primarily directed at the following major industry group: stone, clay, glass and concrete products.

#### **Section 214.401 Glass Melting and Heat Treating**

Section 214.301 shall not apply to:

- a) Glass melting furnaces in the Chicago or St. Louis (Illinois) major metropolitan areas.
- b) Glass heat treating with sulfur dioxide in the St. Louis (Illinois) major metropolitan area.

(Source: Adopted at 7 Ill. Reg. 4219, effective March 28, 1983)

**Section 214.402 Lime Kilns**

Section 214.304 notwithstanding, lime kilns (Standard Industrial Code 32) are not subject to limitations for sulfur dioxide emission.

(Source: Adopted at 7 Ill. Reg. 4219, effective March 28, 1983)

**SUBPART Q: PRIMARY AND SECONDARY METAL MANUFACTURING**

**Section 214.420 Scope**

- a) This Subpart contains rules which modify the general sulfur emission rules of Subparts A through M as applied to a given industry or at a given site. General rules include:
  - 1) Subparts B through I, fuel combustion emission sources and incinerators;
  - 2) Subparts K through M, process emission sources.
- b) These rules have been grouped for the convenience of the public; the scope of each is determined by its language and history. Rules placed in this Subpart include those which appear to be primarily directed at the following major industry groups:
  - 1) Primary metal industries (including primary and secondary production of ferrous and nonferrous metals);
  - 2) Fabricated metal products.

**Section 214.421 Combination of Fuels at Steel Mills in Metropolitan Areas**

- a) Section 214.162 notwithstanding, no person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any existing fuel combustion emission source at a steel mill located in the Chicago or St. Louis (Illinois) major metropolitan area burning any

solid, liquid or gaseous fuel, or any combination thereof, to exceed the allowable emission rate determined by the following equation:

$$E = S_S H_S + S_d H_d + S_R H_R + S_G H_G$$

b) Symbols in the equation mean the following:

- E = allowable sulfur dioxide emission rate;
- S<sub>S</sub> = solid fuel sulfur dioxide emission standard which is applicable;
- S<sub>d</sub> = distillate oil sulfur dioxide emission standard determined from the table in subsection (d);
- S<sub>R</sub> = residual oil sulfur dioxide emission standard which is applicable;
- S<sub>G</sub> = maximum by-product gas sulfur dioxide emissions which would result if the applicable by-product gas which was burned had been burned alone at any time during the 12 months preceding the latest operation, on or before March 28, 1983, of an emission source using any by-product gas.
- H<sub>S</sub> = actual heat input from solid fuel;
- H<sub>d</sub> = actual heat input from distillate fuel oil;
- H<sub>R</sub> = actual heat input from residual fuel oil;
- H<sub>G</sub> = actual heat input from by-product gases, such as those produced from a blast furnace.

c) That portion of the actual heat input that is derived:

- 1) From the burning of gaseous fuels produced by the gasification of solid fuels shall be included in H<sub>S</sub>;
- 2) From the burning of gaseous fuels produced by the gasification of distillate fuel oil shall be included in H<sub>d</sub>;
- 3) From the burning of gaseous fuels produced by the gasification of residual fuel oil shall be included in H<sub>R</sub>; and
- 4) From the burning of gaseous fuels produced by the gasification of any other liquid fuel shall be included in H<sub>G</sub>.

d) Metric or English units may be used in the equation of subsection (a) as follows:

Parameter	Metric	English
E	kg/hr	lbs/hr

S <sub>S</sub> , S <sub>R</sub> , S <sub>G</sub>	kg/MW-hr	lbs/mmbtu
S <sub>d</sub>	0.46 kg/MW-hr	0.3 lbs/mmbtu
H <sub>S</sub> , H <sub>d</sub> , H <sub>R</sub> , H <sub>G</sub>	MW	mmbtu/hr

(Source: Amended at 30 Ill. Reg. 9671, effective May 15, 2006)

**Section 214.422      Secondary Lead Smelting in Metropolitan Areas**

Section 214.301 shall not apply to secondary lead smelting process emission sources in the Chicago or St. Louis (Illinois) major metropolitan areas.

(Source: Adopted at 7 Ill. Reg. 4219, effective March 28, 1983)

**Section 214.423      Slab Reheat Furnaces in St. Louis Area**

Section 214.304 notwithstanding, slab reheat furnaces in the St. Louis (Illinois) major metropolitan area with fuel burning capacities in excess of 650 mmbtu/hr and burning any residual fuel shall not be subject to the applicable Subpart B through F so long as the total sulfur dioxide emissions resulting from the burning of residual fuel oil in all such furnaces at any one steel mill do not exceed 730 lbs/hr.

(Source: Adopted at 7 Ill. Reg. 4219, effective March 28, 1983)

**SUBPART V: ELECTRIC POWER PLANTS**

**Section 214.521      Winnetka Power Plant**

Notwithstanding Sections 214.101 and 214.141, the Village of Winnetka Electric Utility Plant shall not cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from its existing fuel combustion sources, burning solid fuel exclusively, to exceed 5.7 pounds of sulfur dioxide per mmbtu of actual heat input (8.8 kg/MW-hour). Compliance with this limitation shall be demonstrated on the basis of a daily average.

(Source: Added at 8 Ill. Reg. 6172, effective April 24, 1984)

**SUBPART X: UTILITIES**

**Section 214.560      Scope**

- a) This Subpart contains rules which modify the general sulfur emission rules of Subparts A through M as applied to a given industry or at a given site. General rules include:



- 1) Subparts B through I: Fuel combustion emission sources and incinerators;
  - 2) Subparts K through M: Process emission sources.
- b) These rules have been grouped for the convenience of the public; the scope of each is determined by its language and history. Rules placed in this Subpart include those which appear to be primarily directed at the following major industry groups: electric, gas and sanitary services.

(Source: Added at 10 Ill. Reg. 9806, effective May 20, 1986)

**Section 214.561 E. D. Edwards Electric Generating Station**

Sulfur dioxide emissions from Boiler Nos. 1, 2, and 3 at the Edwards Station may not exceed the limits listed in this Section. CILCO must determine compliance with these limits on a daily basis using the sulfur dioxide methodology of the Phase II Acid Rain Program set forth in 40 CFR 75.

- a) The average sulfur dioxide emissions from Boiler Nos. 1, 2, and 3, as a group may not exceed 4.71 pounds per million British thermal units (lb/mmBtu) of actual heat input;
- b) The average sulfur dioxide emissions from any one boiler may not exceed 6.6 lb/mmBtu of actual heat input; and
- c) Sulfur dioxide emissions for all three boilers, as a group, may not exceed 34,613 pounds per hour, on a 24-hour average basis.

(Source: Amended at 27 Ill. Reg. 12101, effective July 11, 2003)

**Section 214.562 Coffeen Generating Station**

- a) The emission standards of this subsection shall apply only if the requirements of subsections (b), (c), and (d) are fulfilled. Notwithstanding any other limitation contained in this Part, whenever the coal burned is mined exclusively from the mine that is presently known as Monterey Coal Company's No. 1 Mine located south of Carlinville, emission of sulfur dioxide from Units 1 and 2 at the Central Illinois Public Service Company's (CIPS) Coffeen Generating Station (Coffeen), located in Montgomery County, shall not exceed either of the following emission standards:

- 1) 29,572 kilograms of sulfur dioxide in any one hour (65,194 lbs/hr); and

- 2) 11.29 kilograms of sulfur dioxide per megawatt-hour of heat input (7.29 lbs/mmbtu).
- b) CIPS shall conduct an ambient sulfur dioxide monitoring and dispersion modeling program designed to demonstrate that the emission standards of subsection (a) will not cause or contribute to violations of any applicable primary or secondary sulfur dioxide ambient air quality standard as set forth in Section 243.122. Such ambient monitoring and dispersion modeling program shall be operated for at least one year commencing no later than 6 months after Coffeen is legally able and begins to operate at an emission rate greater than 55,555 pounds of sulfur dioxide per hour.
- c) No more than 15 months after the commencement of the ambient monitoring and dispersion modeling program of subsection (b), CIPS shall apply for a new operating permit. CIPS shall submit to the Environmental Protection Agency (Agency), at the time of the application, a report containing the results of the ambient monitoring and dispersion modeling program of subsection (b) and the results of all relevant stack tests conducted prior to the report's submission.
- d) No later than six months after Coffeen is legally able and begins to operate at an emission rate greater than 55,555 pounds of sulfur dioxide per hour, a stack test shall be conducted in accordance with Section 214.101(a), in order to determine compliance with emission standards set forth in subsection (a). After the stack test is conducted, the results shall be submitted to the Agency within 90 days. The requirements of this subsection do not preclude the Agency from requiring additional stack tests.

(Source: Added at 12 Ill. Reg. 17387, effective October 14, 1988)

**APPENDIX A**  
**Rule into Section Table**

<u>R80-22</u>	<u>Old Chapter 2</u>	<u>Part 214</u>
204(a)	204(a)	214.121
204(b)	204(b)	214.122
204(c)	204(c)(1)(B)	214.142
204(d)	204(c)(1)(C)	214.143
204(e)(intro)	204(e)(intro)	214.182
204(e)(1)	204(e)(1)	214.183, Appendix C
204(e)(2)	204(e)(2)	214.184
204(e)(3)	204(e)(3)	214.185

204(e)(4)	204(e)(4)	214.186
204(f)(intro)	204(c)(1)(A)	214.141
204(f)(1)	--	214.141(a)
204(f)(2)	--	214.141(b)
204(g)	--	214.201
204(h)	204(c)(2)(A) and (B)	214.161
204(i)(1)	204(d)	214.162
204(i)(2)	--	214.421
204(j)(intro)	--	214.304
204(j)(1)	--	214.423
204(j)(2)	--	214.304
204(j)(3)	--	214.402
204(k)(intro)	204(f)(1)(A)	214.301
204(k)(1)(A)	204(f)(1)(C)	214.302
204(k)(1)(B)	204(f)(1)(D)	214.382(a)
204(k)(1)(C)	204(f)(1)(E)	214.383
204(k)(1)(D)	--	214.384(a)
204(k)(1)(E)	--	214.384(b)
204(k)(1)(F)	--	214.422
204(k)(1)(G)	--	214.401(a)
204(k)(1)(H)	--	214.401(b)
204(k)(2)	--	214.382(b)
204(k)(3)	--	214.381(c)
204(k)(4)	204(f)(1)(B)	214.381(a)
204(l)(1)	204(f)(2)(A)	214.381(b)
204(l)(2)	204(f)(2)(B)	214.303
204(m)	204(g)	214.101
204(n)	204(n)	Appendix D
204(o)	204(i)	214.181, 212.202

**APPENDIX B**  
**Section into Rule Table**

<u>Part 214</u>	<u>Old Chapter 2</u>	<u>R80-22</u>
214.100	--	Added in Codification
214.101	204(g)	204(m)
214.102	--	Added in Codification
214.103	--	Added in Codification
214.104	--	Added in Codification
214.120	--	Added in Codification
214.121	204(a)	204(a)
214.122	204(b)	204(b)
214.141	204(c)(1)(A)	204(f)

214.142	204(c)(1)(B)	204(c)
214.143	204(c)(1)(C)	204(d)
214.161	204(c)(2)(A)&(B)	204(h)
214.162	204(d)	204(i)(1)
214.181	204(i)	204(o)
214.182	204(e)(intro)	204(e)(intro)
214.183	204(e)(1)	204(e)(1)
214.184	204(e)(2)	204(e)(2)
214.185	204(e)(3)	204(e)(3)
214.186	--	204(e)(4)
214.201	--	204(g)
214.202	--	204(o)
214.300	--	Added in Codification
214.301	204(f)(1)(A)	204(k)(intro)
214.302	204(f)(1)(C)	204(k)(1)(A)
214.303	204(f)(2)(B)	204(l)(2)
214.304	--	204(j)(intro)&(2)
214.380	--	Added in Codification
214.381(a)	204(f)(1)(B)	204(k)(4)
214.381(b)	204(f)(2)(A)	204(l)(1)
214.381(c)	--	204(k)(3)
214.382(a)	204(f)(1)(D)	204(k)(1)(B)
214.382(b)	--	204(k)(2)
214.383	204(f)(1)(E)	204(k)(1)(C)
214.384	--	204(k)(1)(D)&(E)
214.400	--	Added in Codification
214.401	--	204(k)(1)(G)&(H)
214.402	--	204(j)(3)
214.420	--	Added in Codification
214.421	--	204(i)(2)
214.422	--	204(k)(1)(F)
214.423	--	204(j)(1)
Appendix A	--	Added in Codification
Appendix B	--	Added in Codification
Appendix C	204(e)(1)	204(e)(1)
Appendix D	204(n)	204(n)

### APPENDIX C

#### Method used to Determine Average Actual Stack Height and Effective Height of Effluent Release

$Q_H$  = Heat emission rate (in btu/sec or Kcal/sec) as determined by method outlined below.

$\Delta H$  = Plume rise (in feet or meters).

H = Physical height (in feet or meters) above grade of each stack, except that for purposes of this calculation the value used for such stack height shall not exceed good engineering practice as defined by Section 123 of the Clean Air Act and Regulations promulgated thereunder, unless the owner or operator of the source demonstrates to the Agency that a greater height is necessary to prevent downwash or fumigation conditions.

T = Exit temperature of stack gases (in degrees Rankine or degrees Kelvin) from each source during operating conditions which would cause maximum emissions.

V = Exit velocity of stack gases (in feet/sec or meters/sec) from each source under operating conditions which would cause maximum emissions.

D = Diameter of stack (in feet or meters).

P = Percentage of total emissions expressed as decimal equivalents emitted from each source. (Example: 21% = 0.21.) NOTE: The sum of  $P_1 + P_2 \dots + P_n = 1$ . The emission values to be used are those which occur during operating conditions which would cause maximum emissions.

H<sub>A</sub> = Average actual stack height (in feet or meters).

H<sub>E</sub> = Effective height of effluent release (in feet or meters).

STEP 1: Determine weighted average stack parameters utilizing the following formulae:

$$D = P_1 D_1 + P_2 D_2 + \dots + P_n D_n$$

$$V = P_1 V_1 + P_2 V_2 + \dots + P_n V_n$$

$$T = P_1 T_1 + P_2 T_2 + \dots + P_n T_n$$

$$H_A = P_1 H_1 + P_2 H_2 + \dots + P_n H_n$$

NOTE:  $P_1, D_1, V_1, T_1,$  and  $H_1$  are the percentage of total emissions, stack diameter, exit velocity of gases, exit temperature of stack gases, and physical stack height, respectively, for the first source;  $P_2, D_2, V_2, T_2,$  and  $H_2$  are the respective values for the second source; similarly,  $P_n, D_n, V_n, T_n,$  and  $H_n$  are the respective values for the nth source, where n is the number of the last source.

STEP 2: Calculate heat emission rate utilizing the following formula and the weighted average stack parameters obtained in Step 1:

$$Q_H = 7.54D^2V \frac{(T - 515)}{T} \text{ (in English units)}$$

$$Q_H = 66.8D^2V \frac{(T - 286)}{T} \text{ (in Metric units)}$$

STEP 3: Calculate plume rise utilizing the appropriate formula given below and the total heat emission rate obtained in Step 2:

$$\Delta H = \frac{2.58(Q_H)^{0.6}}{(H_A)^{0.11}} \text{ (in English Units for } Q_H \geq 6000 \text{ btu/sec)}$$

$$\Delta H = \frac{1.58(Q_H)^{0.6}}{(H_A)^{0.11}} \text{ (in Metric Units for } Q_H \geq 1500 \text{ kcal/sec)}$$

$$\Delta H = \frac{0.718(Q_H)^{0.75}}{(H_A)^{0.11}} \text{ (in English Units for } Q_H < 6000 \text{ btu/sec)}$$

$$\Delta H = \frac{0.54(Q_H)^{0.75}}{(H_A)^{0.11}} \text{ (in Metric Units for } Q_H < 1500 \text{ kcal/sec)}$$

STEP 4: Calculate the weighted average facility effective height of effluent release utilizing the plume rise obtained in Step 3, the average stack height obtained in Step 1 and the formula given below:

$$H_E = H_A + \Delta H$$

STEP 5: Calculate the total facility hourly emission limitation utilizing the weighted actual stack height obtained in Step 1, the effective stack height given in Step 4, and the following formula:

$$E = \frac{(H_A)^{0.11}(H_E)^2}{128} \text{ (in English units)}$$

$$E = 0.04347(H_A)^{0.11}(H_E)^2 \text{ (in Metric units)}$$

(Source: Amended at 30 Ill. Reg. 9671, effective May 15, 2006)

## **APPENDIX D**

### **Past Compliance Dates**

<u>Rule</u>	<u>Type of Source</u>	<u>Compliance Date</u>
204(b)	New fuel combustion emission sources.	April 14, 1972
204(c)	St. Louis (Illinois) and Peoria MMA's with actual heat input less than, or equal to, 250 million Btu per hour	
	(a) Sources determining that the 6.8 lbs/MMBTU standard shall apply	December 14, 1978
	(b) Sources determining that Rule 204(e) shall apply	See Rule 204(e)
204(d)	Existing sources outside the Chicago, St. Louis (Illinois) and Peoria MMA's with actual heat input greater than 250 million Btu per hour	See Rule 204(e)
204(e) (1) and (2)	Fuel combustion sources located outside Chicago, St. Louis (Illinois) and Peoria MMA's which obtain an alternate emission rate	December 14, 1978
	(a) If source is in compliance with the previous Rule 204(e) (effective April 14, 1972 until December 14, 1978) prior to December 14, 1978	Date of commencement of monitoring and modeling pursuant to Rule 204(e)(3)(C)
	(b) If source is not in compliance with the previous Rule 204(e) (effective from April 14, 1972 until December 14, 1978) prior to December 14, 1978	Date of approval of alternate standard
204(f)	Existing sources in the Chicago, St. Louis (Illinois) or Peoria MMA's burning solid fuel exclusively	March 28, 1983
204(g)	Existing sources in the Chicago, St. Louis (Illinois) or Peoria MMA's burning solid fuel exclusively which obtain an alternate emission rate	Date of approval of alternate standard
204(h)	Existing sources burning liquid fuel exclusively	May 30, 1975
204(i)	Combination of fuels sources except at a steel mill	April 14, 1972
	Combination of fuels sources at a steel mill	March 28, 1983

204(j)	Fuel burning process emission sources	March 28, 1983
204(k)	Process emission sources	
(1)(a)-(C)	Existing sources	December 31, 1973
	New sources	December 14, 1978
204(k)	Process emission sources	March 28, 1983
(1)(D)- (H)		
204(k)	New sources in the St. Louis (Illinois) MMA	March 28, 1983
(2)and (3)	designed to remove sulfur compounds from the flue gases of petroleum and petrochemical processes and sulfuric acid manufacturing processes in the City of Chicago	
204(l)	Sources having emissions of sulfuric acid mist	
	Existing sources	December 31, 1973
	New sources	December 14, 1978