

ILLINOIS POLLUTION CONTROL BOARD
August 4, 1988

IN THE MATTER OF:)
)
AMENDMENTS TO 35 ILL.)
ADM. CODE 214,) R86-30
SULFUR LIMITATIONS)

PROPOSED RULE. SECOND NOTICE.

PROPOSED OPINION AND ORDER OF THE BOARD (by J. Theodore Meyer):

This matter is before the Board on a joint proposal for regulatory amendment filed by the Illinois Environmental Protection Agency (Agency) and Shell Oil Company (Shell) on July 7, 1986. The joint proposal seeks to amend 35 Ill. Adm. Code 214, which regulates sulfur emissions from stationary sources. The proposal is designed to tighten emissions from Shell's Wood River Manufacturing Complex (WRMC) so as to ensure the attainment and maintenance of National Ambient Air Quality Standards (NAAQS) for sulfur dioxide (SO₂) for the Wood River area. On April 21, 1988 the Board proposed for First Notice a rule which is substantially the same as the rule submitted by Shell and the Agency. The proposed rule was published in the Illinois Register on May 13, 1988, at 12 Ill. Reg. 8219.

Several comments were received after First Notice publication. The Department of Commerce and Community Affairs filed a comment which stated that the proposed rule will have no effect on small businesses regulated by the rule. (P.C. #2.) The Board notes that the proposed rule regulates only Shell's WRMC in Wood River, Illinois. Comments were also filed by Shell (P.C. #1) and the Agency (P.C. #3). This Opinion will address only these comments. The Board's rationale for proposing this rule is set forth in the Proposed Opinion of April 21, 1988.

Section 214.101. In its First Notice proposal, the Board made some changes to Section 214.101(c) which were intended merely to clarify which procedures are to be used for solid fuel averaging measurements. Shell believes that these proposed changes go beyond the scope of this proceeding, and states that the changes are the subject of rulemaking in Measurements Methods for Emissions of Sulfur Compounds, R87-31. Shell submits that the changes to subsection (c) are not required to make this site specific rule operative. The Board agrees, and will not propose any changes to subsection (c) for Second Notice.

The Board has also proposed a new Section 214.101(h) to provide for the use of the Tutwiler procedure for measurement of

the concentration of hydrogen sulfide in petroleum refinery fuel gas. Shell believes that this subsection needs to be qualified as applying only to compliance determinations for Section 214.382(c). (Section 214.382(c) contains the bulk of the rules proposed in this proceeding, and applies only to Shell's WRMC.) Shell states that other petroleum refineries in Illinois use other measurement procedures as permitted by the Agency. Shell also maintains that subsection (h), as proposed at First Notice, could be in conflict with future changes to the federal new source performance standards, which may set a standard for continuous emission monitors. The Board again agrees with Shell's comments, and will qualify Section 214.101(h) as applying only to compliance determination for Section 214.382(c).

Section 214.382(d) - permit conditions. At First Notice the Board added a sentence to proposed Section 214.382(d) which requires, as a permit condition, that data be maintained in order to adequately demonstrate compliance. The Board specified certain types of data, and asked for comment on that listed data. In its comments, the Agency agrees that these types of data are necessary to calculate compliance. The Agency does suggest that some proviso be inserted to allow the elimination of some of the required data, through permit decision, if that data is no longer needed because of the addition of continuous emission monitors. Shell maintains that the listed information is much too specific and would not be necessary if Shell chooses to show compliance through the use of continuous emission monitors or other measurement methods. Shell proposes that the language of Section 214.383(d) be modified.

The Board is persuaded that the language of Section 214.382(d) should be less specific on what data must be maintained. Therefore, the Board will delete the specific data listed in its First Notice proposal, and instead generally require that sufficient data be maintained to adequately determine compliance. Thus, the Agency will determine, as part of the permitting process, exactly what information must be kept by Shell. The Board believes that this change will allow for the flexibility desired by Shell and suggested by the Agency, while achieving the Board's objective of proof of compliance.

Section 214.382(e) - exemption from the "combination of fuels" rule. In its April 21 First Notice opinion, the Board expressed concern over the proposed exemption from Section 214.162 "Combination of Fuels." The Board stated that it was unable to clearly see why Shell cannot use the equation set out in Section 214.162, and asked for comment on the issue. Both the Agency and Shell have responded.

The Agency states that the practical reason for the exemption from Section 214.162 is that the Tutwiler procedure,

which is specified for compliance demonstration, does not calculate emissions in pounds per million Btu and thus will not yield a pounds per hour emission rate. Instead, the Tutwiler method calculates the amount of sulfur in the fuel. The Agency states that Shell has shown that the heat content of its fuel is remarkably constant. With that basic fact, and using the Tutwiler method, the Agency submits that compliance may be shown in a very straightforward manner. Likewise, Shell contends that the exemption from the combination of fuels rule is meant only to greatly simplify compliance auditing. Shell states that the emission limits in Section 214.382 are not higher than would be provided for in Section 214.162. The Board is satisfied by these responses, and will propose the exemption from Section 214.162 for Second Notice.

Procedure for alternative emission rates. The only portion of the joint proposal which the Board did not propose for First Notice was the request for a subsection which would establish a procedure for obtaining an alternative emission rate to the limits set forth in this rule. In its comments, Shell again asks that such a procedure be included in the rule. Shell contends that an alternative emission rate procedure is desirable and necessary to provide flexibility for future development. Shell maintains that the delay required for full rulemaking would most likely stifle Shell's ability to respond to changes in technology or market place demands. The Agency did not comment on this issue.

The Board will not add an alternative emission rate procedure to the proposed rule. As noted in the April 21, 1988 First Notice opinion, a site specific rule is, by definition, tailored to the needs of a particular facility. An alternative emission rate within a site specific regulation might allow a facility to "escape" from emission limits which the facility itself originally proposed, without proceeding through the notice and comment provisions of rulemaking. The Board also notes that although Shell contends in its comments that an alternative emission rate would not change limitations on sulfur content of fuel and sulfur dioxide from various processes, the revised joint proposal suggests that alternative emission rates be allowed from the subsections which set limits on the sulfur content of the refinery flasher pitch and the allowable hydrogen sulfide in the refinery fuel gas burned by Shell. (Ex. 9.)

Other comments. In its April 21, 1988 Proposed Opinion, the Board raised questions on several other issues. The Agency and Shell have responded to those questions. First, Shell has provided the equivalency calculation for the emission limit change for the sulfur recovery unit (SRU) from 14 lbs/ton of sulfur recovered to 1000 ppm in the final flue gas. (P.C. #1, Attachment A.) The Agency states that the proposed 1000 ppm

limit approximates the present limit of 14 lbs/ton of sulfur recovered. Both the Agency and Shell agree that the primary reason for the change to a concentration limit is to provide a simpler and more easily audited method of determining compliance. Second, the Agency and Shell state that the eight-hour sampling requirement for refinery fuel gas. (Section 214.382(c)(2)) is consistent with the requirements of Shell's existing permits from the Agency. Third, both the Agency and Shell explain that the emission limits for each source operations grouping (SOG) were based on air quality limits. The allowable emissions under current Board regulations were reduced until modeling showed that the reduced emissions would not meet the NAAQS. Finally, Shell states that the proposed rule has been placed within the section which regulates the industry to be consistent with other portions of the air regulations. The Agency agrees with the Board that this rule could be placed in its own section, but submits that leaving the rule within Section 214.382 will not cause confusion. Thus, the Board sees no need to alter the proposed rule in response to any of these issues.

With the exception of the changes discussed above, the Board will not alter the substance of rule proposed on April 21. Minor changes in format will be made in response to suggestions from the Administrative Code Unit.

ORDER

The Board hereby proposes the following amendments for Second Notice, which are to be filed with the Joint Committee on Administrative Rules.

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

SUBPART A: GENERAL PROVISIONS

Section 214.101 Measurement Methods

- a) Sulfur Dioxide Measurement. Measurement of sulfur dioxide emissions from stationary sources shall be made according to the procedure published in 40 CFR 60, Appendix A, Method 6 (1982), or by measurement procedures specified by the Illinois Environmental Protection Agency (Agency) according to the provisions of 35 Ill. Adm. Code 201.

- 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 as published in 40 CFR 60, Appendix A, Method 8 (1982).
- c) Solid Fuel Averaging Measurement. If low sulfur solid fuel is used to comply with Sections 214.121, 214.122, 212.141, 214.142, 214.162 and 212.421, the applicable solid fuel sulfur dioxide standard shall be met by a two month average of daily samples with 95 percent of the samples being no greater than 20 percent above the average. A.S.T.M. procedures shall be used for solid fuel sampling, sulfur and heating value determinations.
- 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 (1986).

(Source: Amended at 12 Ill. Reg. _____, effective _____)

Section 214.102 Abbreviations and Units

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

btu	British thermal units (60 F)
ft	foot
<u>gr</u>	<u>grains</u>
J	Joule
kg	kilogram
kg/MW-hr	kilogram 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
<u>scf</u>	<u>standard cubic foot</u>
<u>scm</u>	<u>standard cubic meter</u>
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 or 430 ng/J
1 mi	1.61 km
<u>1 gr/scf</u>	<u>2289 mg/scm</u>

(Source amended at 12 Ill. Reg. _____, effective _____)

Section 214.104 Incorporations by Reference

The following materials are incorporated by reference:

- a) 40 CFR 60, Appendix A (1982):
- 1) Method 6: method for measurement of sulfur dioxide emissions;
 - 2) Method 8: barium-thorin titration method
- b) American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103:
- 1) For solid fuel sampling:
ASTM D-2234 (1976)
ASTM D-2013 (1976)
 - 2) For sulfur determinations:
ASTM D-3177 (1976)
ASTM D-2622 (1982)
 - 3) For heating value determinations:
ASTM D-2015 (1976)
ASTM D-3286 (1976)
- c) Tutwiler Procedure for hydrogen sulfide, 40 CFR 60.648 (1986).

(Source: Amended at 12 Ill. Reg. _____, effective _____)

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 new process emission source in the St. Louis (Illinois) major metropolitan area designed to remove sulfur compounds from the flue gas of petroleum and petrochemical processes. ~~to exceed 14 lbs/T of sulfur dioxide per metric ton of sulfur recovered (7 kg)~~.
- 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.
 - 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 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. _____, effective _____)

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Proposed Opinion and Order was adopted on the 4th day of August, 1988, by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board