

ILLINOIS POLLUTION CONTROL BOARD  
September 27, 1990

IN THE MATTER OF: )  
 )  
PROPOSED AMENDMENTS TO ) R87-31  
PART 214, MEASUREMENTS ) (Rulemaking)  
METHODS FOR EMISSIONS )  
OF SULFUR COMPOUNDS )

PROPOSED RULE.            SECOND NOTICE

OPINION AND ORDER OF THE BOARD (by B. Forcade):

This rulemaking involves amendments to 35 Ill. Adm. Code 214 Sulfur Limitations, Section 214.101, Measurement Methods, as proposed by the Illinois Environmental Protection Agency ("Agency"). Subsection (a) of the rulemaking affects the stack testing measurement techniques for sulfur dioxide emissions from stationary sources. The balance of the rule primarily governs measurement methods for solid fuels. Affected sources include public utilities, private businesses, and various other entities in Illinois. The amendments are intended to resolve objections from the U.S. Environmental Protection Agency ("USEPA") to the Illinois State Implementation Plan ("SIP") for sulfur dioxide. The Board now proceeds to Second Notice, having received comments to its First Notice Opinion and Order of June 21, 1990.

Procedural History

The proposed amendments were filed by the Agency on August 24, 1987. Merit hearings were held on October 23, 1987 in Chicago and on November 6, 1987 in Springfield. On November 9, 1987, the Agency filed its First Amended Proposed Regulation and Statement of Reasons. On January 1, 1988, the Department of Energy and Natural Resources ("DENR") filed a letter, acknowledging that an Economic Impact Study ("EcIS") would be undertaken. The EcIS was filed on June 9, 1989. The Economic and Technical Advisory Committee ("ETAC") opinion approving the EcIS was filed on July 6, 1989. EcIS hearings were held on September 8, 1989 in Chicago and on September 19, 1989 in Springfield. On June 11, 1990, the Agency filed its amended

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As indicated at First Notice, Deborah Stonich, presently a Board staff attorney, previously represented the Agency in this proceeding. Ms. Stonich has not participated in any of the Board's deliberations on the proposed amendment.

proposal setting forth the rule as recommended by the Agency for First Notice.

Since the Board's First Notice Opinion and Order of June 21, 1990, the Board received comments from the Administrative Code Division of the Office of the Secretary of State; from the Agency; and the Illinois Environmental Regulatory Group ("IERG").

### Background

The proposed rule is being issued in response to the refusal of USEPA in 1985 to accept the sulfur dioxide emission limitations in the Illinois State Implementation Plan ("SIP"). USEPA required that Part 214.101, Measurement Methods, be revised to assure short-term compliance with the National Ambient Air Quality Standard ("NAAQS") for sulfur dioxide. (See Merit Hearings, Exhibit 8, 1985.) USEPA maintained that stack testing ~~should be included in measurement methods to determine short-term~~ compliance. The two month averaging method of existing Section 214.101 was considered inadequate to establish short-term compliance, i.e., 3-hour and 24-hour compliance. Stack testing is USEPA's preferred method to evaluate short-term compliance.

The Agency estimated that 87 facilities would be affected by the rulemaking. DENR revised this number downward to 78, of which 52 facilities would be required to make some changes in their existing practices.

### Introduction

The proposed amendments to Section 214.101 provide that compliance shown by coal sample averaging techniques may not be used to refute evidence of non-compliance shown by stack testing, and vice versa. Stack test results, if required by the Agency, would be given controlling weight if stack testing revealed non-compliance. The Agency also proposed to add USEPA approved Methods 6A, 6B, and 6C, found at 40 CFR 60, Appendix A, to supplement the existing Method 6 stack testing procedure.

Section 214.101 would also be amended to specify the methods and frequency of regular analysis of coal samples, based on the facility's capacity to produce sulfur emissions, expressed in terms of total solid fuel-fired heat input capacity, measured in mega watts (MW) or millions of British thermal units per hour (MBtu/hr). Facilities were not previously categorized in this way, but now each would fall into one of four groups, with corresponding testing requirements. For discussion purposes, these facilities have been categorized as follows:

<u>Category</u>	<u>Capacity</u>	<u>Proposed Frequency of Analysis</u>
Category 1	more than 439.5 MW (1,500 MBtu/hr)	Daily analysis [Section 214.101(c)]
Category 2	146.5 - 439.5 MW (500 - 1,500 MBtu/hr)	Weekly analysis of daily samples [Section 214.101(d)]
Category 3	14.65 - 146.5 MW (50-500 MBtu/hr)	Monthly analysis of daily samples [Section 214.101(e)]
Category 4	less than 14.65 MW (50 MBtu/hr)	Monthly average [Section 214.101(f)]

Under the existing rule, the measurement method for ~~a~~ facilities is the same. Existing Section 214.101(a) provides for stack testing in accordance with USEPA approved Method 6, found at 40 CFR 60 (1982), or procedures specified by the Agency, and existing Section 214.101(c) provides for two-month averages of coal samples. This second method demonstrates compliance by calculating a two-month average of daily samples of low sulfur fuel provided that no more than 5% of the samples are greater than 20% above the average. Stack testing is rarely performed, and the two-month average of coal samples (sometimes in the record referred to as a 60-day average) is the method ordinarily used to show compliance with sulfur emissions limitations.

The proposed rule would entail more frequent coal sampling and analysis than some facilities previously performed and would involve modest cost increases over amounts already spent for current procedures. The record suggests that stack testing, with its related costs, would continue to be required on a relatively infrequent basis.

Additional information on the development of the proposed rule may be found in the discussion of the Merit and EcIS hearings in the Board's June 21, 1990 First Notice Opinion and Order in this matter.

#### Proposed Regulation

The Board's First Notice proposed rulemaking was based primarily on the Agency's Amended Proposal filed June 11, 1990. Based on the comments received since First Notice, the proposed amendments to Section 214.101 would be modified slightly as discussed below. Incorporation by reference for cited materials requires amendments to 35 Ill. Adm. Code 214.104, which are also updated and detailed below. Only minor changes are now being proposed by the Board, which will be more fully explained below.

## Discussion

At First Notice the Board posed various questions to clarify language, to inquire about when stack testing might occur, and to specify current versions of documents incorporated by reference. As a result of First Notice Comments received, certain minor changes are being made in the Board's Second Notice proposed rule.

### Changes from First Notice

#### 1. Section 214.101(a): Sulfur Dioxide Measurement

Sulfur dioxide is to be measured in accordance with methods specified in 40 CFR 60, Appendix A Method 6, 6A, 6B or 6C or by alternative methods pursuant to ~~40 CFR 60.8(b)~~. In response to the Board's request for further clarification concerning alternative procedures, the Agency recommended a minor language change. Since any alternative test method to measure sulfur dioxide would be used under the circumstances described by that method, the Agency suggested substituting the words "measurement procedures established pursuant to 40 CFR 60.8(b)" for the words "measurement procedures specified by the Agency pursuant to 40 CFR 60.8(b)." Ag. Comm. August 28, 1990, p. 3 (emphasis added).

The Board agrees that this minor word change clarifies the intent of Section 214.101(a) and better informs affected businesses and institutions regarding sulfur dioxide measurement methods.

#### 2. Section 214.101(c): Solid Fuel Averaging Measurement Daily Analysis Method

Section 214.101(c) provides that if daily fuel analysis is used to demonstrate that emission levels are in compliance (or non-compliance), a two month average of daily samples would be calculated to represent the emission level or rate. This would then be compared with the emission limits of Section 214.122, 214.141, 214.142(a), 214.162, 214.186, and 214.421. At First Notice, the emission level was referred to in Section 214.101(c) as "the sulfur dioxide hourly emission rate or emission rate expressed as kg/MW-hr (pounds per million Btu)." The Agency recommends clarifying the intended meaning of this section by replacing the above quoted language with "the sulfur dioxide emission rate to be compared to the applicable emission limit." Ag. Comm., August 28, 1990, p. 4. The Agency explained that reference is being made to "the number of pounds per MMBtu that are not to be exceeded in 'any one hour period' as provided in Sections 214.122, 214.141, 214.142(a), 214.162, 214.186 and

214.421."\* Ag. Comments, August 28, 1990, p. 4. Thus, deleting the word "hourly" and the reference to kg/MW-hr may identify more clearly how the emission rate is expressed.

In response to the Board's question as to why Section 214.142(b) was not referred to in Section 214.101(c), the Agency explained that averaging of emissions has never been allowed under Subpart E, and Section 214.142(b) refers specifically to Subpart E. See Ag. Comments, p. 5.

### 3. Section 214.104: Incorporation by Reference

The Agency indicated that updated versions of two fuel sampling procedures should be incorporated by reference in Section 214.104(c)(1). ~~These are American Society for Testing and Materials ("ASTM") procedures, ASTM D-2234, which should be updated for a 1989 version, and ASTM D-2622, which should be updated for a 1987 version.~~

#### Other Comments from the Agency

In addition to explaining its rationale for the above recommended changes in the rule, the Agency responded to other questions raised by the Board in its First Notice Opinion and Order. The Agency commented that the first sentence of Section 214.101, which was drafted to satisfy USEPA stack testing concerns, should not be changed, particularly since identical language was recently approved by USEPA for the Indiana SIP. The Agency also restated its position that the coal sampling and averaging should be included in this rulemaking for submission to USEPA. On the subject of whether criteria could be included in the rule to determine when stack testing would be required, the Agency responded that any limitation on the Agency's ability to require stack testing would impair its case by case approach to stack testing and might risk USEPA rejecting the rule. The Agency expressed its preference for a two-month average, versus a 60-day average, noting that administrative burdens might exceed the benefit of better data obtained from the use of a rolling average.

The Agency also clarified what it means by "standby status" in the context of calculating total heat input capacity for a facility. The term is intended to refer to "an emission source which is not used in the normal course of operations. For example, an emission source which does not receive regular shipments of coal..." Ag. Comments, p. 7.

\* Agency comments are assumed to have intended 214.421 and not 214.122 as typed on p. 4 of the comments.

As a further note of explanation on Section 214.101(c), which pertains to facilities using the daily analysis method, the Agency explained that reference to Section 214.121 is being deleted since there are no longer any sources in Illinois regulated under this section.

Comments from IERG

IERG reiterated its position that the coal sampling and analysis should be required as a permit condition, and not as part of the federally enforceable Illinois SIP. IERG requested that the Board reconsider its position in the First Notice Opinion and Order, which rejected IERG's assertions on this issue.

With respect to incorporation by reference issues, IERG stated that the 1989 version of 40 CFR 60, Appendix A, is ~~appropriate. This is consistent with the Agency's and the~~ Board's conclusion. However, IERG also asserted that additional documents, not included in the First Notice Opinion and Order, should be incorporated by reference in Section 214.104. These items include: (1) Method 19: Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide and Nitrogen Oxides Emission Rates From Electric Utility Steam Generators; (2) ASTM D-4239C; and (3) (USEPA AP-42 document, Compilation of Air Pollutant Emission Factors, Sept. 1985, Supp. Sept. 1989. At this point in the rulemaking, the Board is unwilling to consider new methods and procedures, which could have been fully developed in the record, but were not. Additionally, ASTM D-4239, which is to be included in Section 214-104, encompasses three methods, A, B, and C, which the Board believes satisfies IERG's objective in requesting inclusion of "ASTM D-4239C".

IERG is in agreement with the Agency that the circumstances under which stack testing should be required should not be part of the proposed rule.

IERG would prefer that the averaging required under Section 214.101(c) be performed on the basis of a 60-day average, as opposed to the two-month average which the Agency prefers. IERG is in agreement with the Agency's position that the record does not support support the requirement of a rolling average.

IERG also commented on "stand-by capacity" as this relates to calculating the total heat input capacity category of a facility. IERG states that "stand-by capacity" refers to boilers "that are not regularly used or rarely used and only used when, for whatever reason, they are needed." IERG Comments, p.6. The Board must categorically reject such a broad definition and refers IERG to the Agency's comments for guidance with the definition of "stand-by capacity."

IERG believes that Section 214.142 is appropriately referenced in Section 214.101(c), but gave no further explanation on this point. As noted in the discussion of the Agency's comments, this minor issue would seem to be resolved with the Agency's response that no facilities fall under this rule.

IERG requests the Board to clarify whether total heat input capacity is based on the entire plant or on the individual sources at the plant. The record seems clear that coal sampling and analysis requirements of Sections 214.101(c), (d), (e), and (f) apply to the individual sources to determine whether the individual source is in compliance. The heat input capacity is that of the plant, and not the source, for the purpose of determining which rule applies. See e.g., Ex. 5, Testimony of Berkley L. Moore at p. 6 and EcIS, pp. 6-13. ~~The Board declines to carve out an exception for small sources at large plants or to vaguely direct that "consideration [be] given to small sources at large plants." IERG Comments, p.7.~~ Similarly, at this late stage in the proceeding, the Board must decline to provide an exemption for sources which utilize continuous emissions monitors since this has not been adequately developed in the record. IERG Comments, pp. 6,7. The Board also finds that IERG's suggestions that the rulemaking should provide for the Agency's modifying the rule on a case by case basis or provide for mechanical failures are unsupported by the record. IERG's other comments concerning headings and possible typographical errors, particularly regarding the existing Section 214.104, are noted, and corrections have been made.

### Conclusion

Based on the comments received during the First Notice comment period, the Board will propose for Second Notice the amendments to Part 214, Measurements Methods for Emissions of Sulfur Compounds, consistent with the First Notice Opinion and Order and with minor modifications suggested by the Agency. The Board's revised language is based on several considerations.

First, the introductory sentence of the proposed rule is directed towards USEPA's objections to the Illinois SIP. The participants are in substantial agreement that to secure USEPA approval the stack testing language must be given greater prominence as the means to show short-term compliance with the sulfur emissions standards. The Agency again endorsed the first sentence of the rule as satisfying USEPA's stack testing concerns, and so the Board will retain this particular language. The sentence, "(d)etermination of compliance and non-compliance shall be made according to the methods of this section," as suggested by a USEPA staff member at hearing, will

not be substituted for the Agency's proposed language. Tr., Oct. 27, 1987, p. 11.

Second, the Board accepts the Agency's minor revision in Section 214.101(a) concerning alternative stack testing procedures found in 40 CFR 60.8(b). The Board agrees that procedures "established pursuant to 40 CFR 60.8(b)" clarifies this matter regarding the use of procedures other than Methods 6, 6A, 6B, and 6C, incorporated by reference in Section 214.104(a). This makes clear that alternative procedures would be federally prescribed rather than prescribed solely in accordance with the Illinois Administrative Code, as the existing regulation provides.

Third, the Board still maintains that the Agency and the Illinois Coal Association articulated the preferred position with respect to the proposed coal sampling and analysis rules found in subsections (c), (d), (e) and (f). The Board finds that these proposed subsections provide clarity, specificity, and consistency with Agency practices, which will benefit both the regulated community and the Illinois coal industry. Although IERG again expressed its preference that the Agency use the permitting process as the means to regulate coal sampling and analysis practices, the Board continues to support the Agency's proposed regulatory framework, as explained in the First Notice Opinion and Order. For these reasons the sampling and analysis sections are unchanged from First Notice, with the exception of adding a comma after sulfur in subsection (c) and using a lower case "s" for "subsection" in subsections (d) and (e).

Fourth, the Board received comments to the Board's proposing to use the phrase, "consecutive two-month average" to clarify and specify the meaning of the average in Section 214.101(c). In First Notice comments the Agency expressed its preference to retain this language and indicated that a rolling average would pose undesirable administrative burdens. IERG agreed that a rolling average would be unnecessary, but preferred a 60-day average. To accommodate the Agency's administrative concerns the Board will retain the same language as proposed at First Notice.

The Board requested that the participants comment on various other issues, including updated versions of materials to be incorporated by reference and the possibility of criteria for the Agency's requiring stack testing. On both of these points the Agency and IERG seem to be in agreement, i.e., the years are consistent for incorporated materials and neither participant wants to specify the conditions under which stack testing would be required.

As noted earlier IERG recommended that other particular materials be included in Section 214.104, Incorporations by



Reference. These are: (1) Method 19 (for measuring sulfur content), (2) ASTM D-4239C, and (3) USEPA AP-42 document (Compilation of Air Pollutant Emission Factors). As explained above, the proposed rule will not be revised to include these particular references. IERG also stated that at First Notice Method 8 was inadvertently omitted from Section 214.101(a) and that ASTM D-2622 was incorrectly referred to as a solid fuel sampling procedure in Section 214.104. The Board believes that Method 8 has not been left out of Section 214.101(a), but is correctly included in Section 214.101(b). The Board agrees that ASTM D-2622 was inadvertently included in the fuel sampling subsection based on the Agency's Amended Proposal filed June 11, 1990. ASTM D-2622 will remain in the sulfur determinations subsection as the current regulation provides, but the rule will be amended to update that procedure for the 1987 version.

#### ORDER

The Board hereby proposes for First Notice the following amendments to 35 Ill. Adm. Code 214 and directs the Clerk to file these with the Secretary of State.

#### 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 the procedure published an applicable method specified in 40 CFR 60, Appendix A, Method 6, 6A, 6B, or 6C (1982), incorporated by reference in Section 214.104(a), or by measurement procedures established specified by the Illinois Environmental Protection Agency (Agency) according to the provisions of 35 Ill. Adm. Code 201 pursuant to 40 CFR 60.8(b), incorporated by reference in Section 214.104(b).
- 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 specified in 40 CFR 60, Appendix A, Method 8 (1982), 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 low sulfur solid daily fuel analysis is used to comply demonstrate compliance or non-compliance with Sections 214.121,

214.122, 214.141, 214.142(a), 214.162, 214.186 and 214.421, the applicable solid fuel sulfur dioxide standard emission rate to be compared to the emission limit shall be met by considered to be the result of a any consecutive two month average of daily samples with provided no more than 95 percent of the samples being values are no 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 standard 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.

- c 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 solid fuel-fired heat input capacity exceeding 14.65 MW (50 million 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. A.S.T.M. 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 ~~(1986)~~, incorporated by reference in Section 214.104(d).

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 ~~(1982)~~ (1989):
- 1) ~~Method 6: method for measurement~~ 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 6E: 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);
  - ~~2)5)~~ Method 8: barium-therin titration method- Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions From Stationary Sources.
- b) 40 CFR 60.8(b) (1989), Performance Tests.
- bc) American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103:
- 1) For solid fuel sampling:  
ASTM D-2234 ~~(1976)~~ (1989)  
ASTM D-2013 ~~(1976)~~ (1986)
  - 2) For sulfur determinations:  
ASTM D-3177 ~~(1976)~~ (1984)  
ASTM D-2622 ~~(1982)~~ (1987)

ASTM D-3180 (1984)

ASTM D-4239 (1985)

3) For heating value determinations:


ASTM D-2015 ~~(1976)~~ (1985)

ASTM D-3286 ~~(1976)~~ (1985)

ed) Tutwiler Procedure for hydrogen sulfide, 40 CFR 60.648  
~~(1986)~~ (1989).

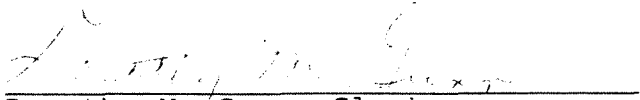
IT IS SO ORDERED.

I, ~~Dorothy M. Gunn, Clerk of the Illinois Pollution Control~~  
Board, hereby certify that the above Opinion and Order was  
adopted on the 15th day of April, 1990, by a  
vote of 5-0.

  
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Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Order was adopted on the 27<sup>th</sup> day of September, 1990, by a vote of 7-1.

  
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Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board