ILLINOIS POLLUTION CONTROL BOARD
December 20, 1990

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

ADOPTED RULE FINAL ORDER

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") in connection with the Illinois State Implementation Plan ("SIP") for sulfur dioxide. 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 Joint Committee on Administrative Rules ("JCAR") issued its Letter of No Objection on December 13, 1990. The Board now proceeds to adopt the final rule in this matter, based on agreed upon changes recommended by JCAR.

Procedural History

The adopted 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 proposal setting forth the rule as recommended by the Agency for

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

The Board wishes to acknowledge the contribution of Board attorney, Margaret A. Dolan Fliss, who participated in drafting these rules and former Board attorney, Daniel Siegfried, who acted as hearing officer.

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"). On September 27, 1990 the Board issued its Second Notice, Proposed Rule. JCAR approved the proposed rule at its December 13, 1990 meeting, with certain changes recommended by JCAR and accepted by the Board.

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 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 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. Either stack test results, if required by the Agency, or coal sampling results would be given controlling weight if such testing revealed non-compliance. USEPA-approved Methods 6A, 6B, and 6C, found at 40 CFR 60, Appendix A, have been added to supplement the Method 6 stack testing procedure in the prior rule.

Section 214.101 will be amended to specify the methods and frequency of regular analysis of coal samples, based on the facility's capacity to produce sulfur emissions. This capacity is 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:

Category	Capacity	Proposed Frequency of Analysis
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 prior rule, the measurement method for all facilities was the same. Prior Section 214.101(a) provided for stack testing in accordance with USEPA approved Method 6, found at 40 CFR 60 (1982), or procedures specified by the Agency, and prior Section 214.101(c) provided for two-month averages of coal samples. Under Section 214.101(c) compliance was shown 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 was rarely performed, and the two-month average of coal samples (sometimes in the record referred to as a 60-day average) was the method ordinarily used to show compliance with sulfur emissions limitations.

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

Additional information on the development of the adopted 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.

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 were modified slightly at Second Notice. Incorporation by reference for cited materials also required amendments to 35 Ill. Adm. Code 214.104, which were updated as discussed below. Only minor changes were proposed by the Board at Second Notice, as 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 ascertain current versions of documents incorporated by reference. As a result of First Notice Comments received, certain minor changes were made in the Board's Second Notice proposed rule.

Changes from First Notice

1. Section 214.101(a): Sulfur Dioxide Measurement

The First Notice proposed rule provided that 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 methods, the Agency recommended a minor language change, 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 agreed that this minor word change clarified the intent of Section 214.101(a) and would better inform 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 recommended 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. The Board agreed to delete the word "hourly" and the reference to kg/MW-hr,

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

to identify more clearly how the emission rate is expressed.

At First Notice the Board also asked 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. The Board found this response satisfactory.

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, updated for a 1989 version, and ASTM D-2622, 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 had recently been 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 that the term, "standby status", in the context of calculating total heat input capacity for a facility, 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.

With respect to the daily analysis method of Section 214.101(c), the Agency explained that reference to the emission limits of Section 214.121 was deleted since there are no longer any emission sources in Illinois regulated under this section.

First Notice 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, confirming 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.

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

IERG stated its preference 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 agreed 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.

IERG stated that reference to Section 214.142 is appropriately included in Section 214.101(c), but the above-noted Agency's response, that no facilities fall under this rule, appeared to adequately explain why only Section 214.142(a) is referred to in the rule.

IERG requested the Board to clarify whether total heat input capacity is based on the entire plant or on the individual sources at the plant and to direct that "consideration [be] given to small sources at large plants." IERG Comments, p. 7. IERG also requested the Board to provide an exemption for sources which utilize continuous emissions monitors and to provide for the Agency's modifying the rule on a case by case basis, as in the case of mechanical failures. IERG Comments, pp. 6, 7. IERG made other comments concerning headings and possible typographical errors.

Second Notice Proposed Rule

Based on the comments received during the First Notice comment period, the Board proposed 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 primarily by the Agency. The Board's revised language was based on several

considerations.

First, regarding the introductory sentence of the proposed rule, the participants were 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 retained 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, was not substituted for the Agency's proposed language. Tr., Oct. 27, 1987, p. 11.

Second, the Board accepted the Agency's minor revision in Section 214.101(a) concerning alternative stack testing procedures found in 40 CFR 60.8(b). The Board agreed 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 would make clear that alternative procedures would be federally prescribed rather than prescribed solely in accordance with the Illinois Administrative Code, as the prior regulation provided.

Third, the Board found 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 found that these subsections provide clarity, specificity, and consistency with Agency practices, which will benefit both the regulated community and the Illinois coal industry. Although IERG expressed its preference that the Agency use the permitting process as the means to regulate coal sampling and analysis practices, the Board continued 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 were 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). To accommodate the Agency's administrative concerns the Board retained the same language as proposed at First Notice.

Fifth, the Board had 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 seemed to be in agreement, i.e., the years were consistent for incorporated materials and neither participant wanted to specify the conditions under which stack testing would be required. The Second Notice proposed rule

reflected these positions.

As noted earlier, IERG had recommended that other particular materials be included in Section 214.104, Incorporations by Reference. As explained above, the proposed rule was not revised to include those particular references since the possibility of new methods and procedures could have been fully developed in the record, but was 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 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 stated that it believed that Method 8 had not been left out of Section 214.101(a), but was correctly included in Section 214.101(b). The Board agreed 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 prior regulation provided, but the adopted rule will include the updated 1987 version. The Board also rejected IERG's rather broad definition of "stand-by" capacity as it relates to calculating the total heat input capacity category of a facility. The Board referred IERG to the Agency's comments regarding "stand-by" capacity.

Also in response to IERG, the Board stated that the record seemed 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 declined 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." The Board also declined to provide an exemption for sources which utilize continuous emissions monitors or to provide for the Agency's modifying the rule on a case by case basis as this lacked adequate support in the record. The Board made various corrections for errors noted by IERG.

Second Notice - JCAR Recommendations

On November 21, 1990, JCAR filed its letter indicating general problems or questions concerning the proposed ruling. These matters were resolved, and on November 29, 1990 JCAR issued its letter reflecting the agreed upon changes. JCAR approved the proposed amendments at its December 13, 1990 meeting.

The Board finds that certain changes should be made in the rule proposed at Second Notice, based on JCAR's suggestions. The changes to the rule proposed at Second Notice affect only sections 214.101(a), (c) and (e), which are reproduced below. (The Board also notes that it corrected a typographical error in 214.101(c) by deleting an extra comma).

Section 214.101 Measurement Methods

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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).

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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 ~~average of daily samples~~ 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 ~~with~~ the source's emission limit ~~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.

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

ORDER

The Board hereby adopts the following amendments to 35 Ill. Adm. Code 214 and directs the Clerk to submit these to 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 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.

d) 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. 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).

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).

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 20th day of December, 1990, by a vote of 7-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board