

ILLINOIS POLLUTION CONTROL BOARD
October 10, 1985

IN THE MATTER OF:)
)
AMENDMENTS TO 35 ILL. ADM.) R84-28
CODE 214, SULFUR LIMITATIONS)

PROPOSED RULE. FIRST NOTICE.

PROPOSED OPINION AND ORDER OF THE BOARD (by J.D. Dumelle):

This matter comes before the Board upon a July 13, 1984 proposal to amend 35 Ill. Adm. Code 214, Subpart C: Existing Solid Fuel Combustion Emission Sources, filed on behalf of the Illinois Environmental Protection Agency (Agency). That proposal was amended by the Central Illinois Light Company (CILCO) on August 23, 1984, and further amended by joint motion of the Agency and Caterpillar Tractor Co. on September 10, 1985. CILCO's motion to amend was granted at hearing. The joint motion to amend is hereby granted. Hearings were held on August 30, 1984, in Peoria; September 25, 1984, in Chicago; and September 5, 1985, in Peoria.

The Agency's original proposal would establish a new Subpart G of Part 214 setting forth sulfur dioxide emission limitations applicable to sources located in the City of East Peoria and in Hollis Township (both of which are located in the Peoria major metropolitan area) which were equipped with flue gas desulfurization (FGD) systems as of December 1, 1980. Proposed Section 214.XXX would simply set forth the scope of Subpart G.* Proposed Section 214.XXY would establish a one hour limitation of 1.4 pounds of sulfur dioxide per million Btu actual heat input for new or existing FGD sources in East Peoria. Proposed Section 214.XXZ would establish a 0.6 pound standard for new FGD sources in Hollis Township. It would also modify the 5.5 pound standard of 35 Ill. Adm. Code 214.141(b) for sources located in the City of Peoria which did not have FGD systems as of December 1, 1980, to make that standard contingent upon a stack height of 47 meters or more. CILCO's amendment would add subsection (c) to Section 214.141 to provide that Units 1 and 3 at CILCO's E. D. Edwards Electric Generating Station cannot emit more than 6.6 pounds of sulfur dioxide per million Btu of actual heat input. Finally, the joint amended proposal filed by Caterpillar and the Agency

* The Agency did not propose specific section numbers, but rather proposed generic numbers 214.XXX, 214.XXY and 214.XXZ and left it to the Board to assign specific numbers. The placement of the rules is discussed below. 214.XXX becomes 214.140, 214.XXY becomes 214.141(c) and 214.XXZ becomes 214.141(d).

would modify the originally proposed Section 214.XXZ to allow FGD-equipped sources in Hollis Township to emit 1.1 rather than 0.6 pounds per million Btu.

The primary purpose of this rulemaking is to assure that the sulfur dioxide National Ambient Air Quality Standards (NAAQS) are achieved and maintained in the Peoria major metropolitan area (MMA) thereby allowing the state to obtain federal approval for its State Implementation Plan (SIP). The Board had hoped that its present rules (adopted under R80-22 on February 24, 1983, at 51 PCB 217) would result in an approvable SIP. That, however, has not happened. Peoria, Hollis and Groveland Townships have remained non-attainment for sulfur dioxide. Therefore, the Agency has done additional modeling of the Peoria MMA using a wider and more detailed data base than was available to the Agency when similar rules were proposed (and rejected by the Board) in the R80-22 proceeding. This modeling, however, continues to predict potential violations of the NAAQS under present rules. Therefore, the Agency analyzed the predicted violations for culpability and identified the critical contributors. The Agency's original proposal in this proceeding was developed to eliminate the potential violations.

CILCO's August 23, 1984, proposed amendment was allowed into this proceeding since the Agency's modeling which supports the Agency's proposal also serves to support CILCO's request for a relaxation of the sulfur dioxide limitation applicable to Units 1 and 3 at its E. D. Edwards Station to 6.6 pounds per million Btu. In PCB 83-100 (57 PCB 417, April 19, 1984) CILCO sought similar relief which was rejected by the Board based upon the lack of modeling support in that proceeding. CILCO believes that the present modeling and proposed rules fully support its request.

The September 10, 1985, joint motion to amend the proposal arose as a result of a site-specific study conducted by Caterpillar for its Mapleton Plant. Caterpillar believed that the Agency's modeling which supported the originally proposed 0.6 pounds per million Btu standard was flawed with respect to revised data regarding topography, background air quality and plant boundaries. Using the Agency's model and this revised data, Caterpillar and the Agency believe that a 1.1 pound standard is appropriate for Section 214.XXZ rather than the 0.6 pound standard.

RULE PLACEMENT

The proposal includes amendments to 35 Ill. Adm. Code 214.141 and the addition of new Subpart G. Placement of these rules as proposed runs counter to the format established for Part 214. Therefore, the Board proposes a placement of the proposed rules which is consistent with that format.

Pursuant to 35 Ill. Adm. Code 214.120, Subparts B through F of Part 214 are to contain general rules for sulfur emissions, which in turn are to be modified by industry and site-specific rules in Subparts N, et seq. CILCO's proposal to add a site-specific rule as a subsection of Section 214.141 is, therefore, inappropriate: it is properly placed in Subpart N, et seq. The Board proposes to add CILCO's proposed rule to new Subpart X: Utilities, which is proposed to cover industry and site-specific rules for electric, gas and sanitary services. A section regarding the scope of that Subpart will be proposed as new Section 214.560. CILCO's proposed rule will be at Section 214.561. Also, present Section 214.141(c) regarding the Village of Winnetka's electric utility plant will be deleted.*

Adding the remaining proposed rules as a new Subpart G is also inappropriate. Since those rules are more in the nature of general rules rather than industry or site-specific standards, they are properly placed in Subparts B through F. Subpart C is clearly the appropriate subpart and Section 214.141 is the appropriate section. Since these rules will not be proposed as a new subpart, proposed Section 214.XXX regarding the scope of the rules will become 214.140. Proposed Section 214.XXY regarding sources in East Peoria will become Section 214.141(c) and proposed Section 214.XXZ will become Section 214.141(d). Some non-substantive rewording of the proposed rules will be made to conform with the present structure of Section 214.141.

SECTION 214.141

The proposed changes to Section 214.141 include "housekeeping" measures, a stack height limitation on subsection (b) and the proposed limitations for FGD-equipped facilities in the Peoria MMA. The "housekeeping" changes simply consist of converting the present limitations, expressed in kg/mw-hr to nanograms per joule which would make the rules consistent with common practice. (R. I, pp. 77-79).** The stack height limitation of 47 meters in subsection (b) is proposed to be added to avoid possible NAAQS violations caused by Westinghouse Air Brake Company (WABCO). The Agency's model shows that due to downwash WABCO would have to limit its emissions to 1.8 pounds per million Btu to avoid potential NAAQS violations based upon

* That section exempted the Winnetka plant from the general sulfur dioxide rules pending final action in R80-22 which has now been completed. This rule, therefore, no longer serves any purpose and is proposed to be deleted as unnecessary.

** The transcripts of each hearing are numbered consecutively beginning with page 1. To distinguish references to those transcripts, references to the August 30, 1984, transcript will be in the form of (R. I, pp. ___), references to the September 25, 1984 transcript will be (R. II, pp. ___), and references to the September 5, 1985, transcript will be (R. III, pp. ___).

the Industrial Source Complex model. However, if the stack height were raised to 47 meters, a 5.5 pound standard would assure acceptable air quality. (R. I, pp. 47-48 and 79-82). Thus, WABCO (apparently the only affected facility) has the option of meeting the general 1.8 pound standard or raising its stack sufficiently to take advantage of the relaxed standard. WABCO has not objected to this amendment and apparently has been meeting the 1.8 pound standard since 1973. (R. I, pp. 82).

Proposed Subsections 214.141(c) and (d), despite being written as general rules, are intended by the Agency to specifically limit sulfur dioxide emissions from the East Peoria and Mapleton (Hollis Township) coal burning boilers of Caterpillar. As written, they apply to fuel combustion emission facilities equipped with flue gas desulfurization systems as of December 1, 1980. Subsection (c) which is applicable to facilities located in East Peoria establishes a sulfur dioxide limitation of 1.4 pounds per million Btu. Subsection (d) which is applicable to sources located in Hollis Township was amended to establish a standard of 1.1 pounds per million Btu.

The levels originally proposed by the Agency were developed through computer modeling in an attempt to assure attainment of the NAAQS for sulfur dioxide and to evaluate possible sulfur dioxide limitations that would enhance the use of Illinois coal. (See Exhibit 5). The Agency used the RAMU and MPTER models recommended by USEPA, five years of hourly meteorological data from the Weather Service Station at the Greater Peoria Airport, an emissions inventory including all major sulfur dioxide sources in Peoria, Woodford and Tazewell counties (all assumed to be operating at their currently allowed maximum rates) and background concentrations determined from continuous monitoring in the Peoria area during 1976 and 1977. (Ex. 5, pp. 3-12).

The first step in analyzing the data was to identify potential violations of the primary and secondary NAAQS. (Ex. 5, p. 12). Next, culpability was investigated to determine the primary sources which were responsible for the potential violations. (Ex. 5, p. 12). Finally, the violation for each such source which caused the most restrictive rate for that source which was necessary to assure compliance with the standards was determined. (Ex. 5, pp. 12-13).

As a result of this analysis, the Agency reached several conclusions which it used as the basis for its original proposal:

- The current emissions regulations are not sufficient to ensure attainment of the SO₂ national ambient air quality standards in all portions of the Peoria area.
- Violations of the NAAQS for SO₂ are possible north of Caterpillar's Mapleton facility at the current allowable emissions limit of 1.8 lb/MBtu for boiler 1 and with the

limit of 1.2 lb/MBtu for boilers 2 through 5. The violations are the result of plume impaction on the bluffs north of the Illinois River Valley.

- Emissions limits of 1.4 lb/MBtu as applied to the coal-fired boilers at Caterpillar's East Peoria facility and 0.6 lb/MBtu as applied to Caterpillar's Mapleton facility would be sufficient to attain the NAAQS in the vicinity of those facilities.
- An emissions limit of 1.8 lb/MBtu at WABCO would ensure maintenance of the NAAQS in the vicinity of that facility.
- The SO₂ emissions limit of 5.5 lb/MBtu for all coal-fired industrial boilers, with the exception of those Caterpillar and WABCO facilities already mentioned, will ensure attainment and maintenance of the SO₂ NAAQS in the Peoria area.

(Ex. 5, p. 14)

While none of the participants in this proceeding have questioned the Agency's methodology used to develop its original proposal, questions have been raised regarding some of the underlying data. Caterpillar's amended proposal, which establishes a 1.1 pound per million Btu standard for sources located in Hollis Township rather than the originally proposed 0.6 pound standard is premised upon disagreement with the Agency's data concerning the terrain elevations, base elevations of the stacks, and background levels, as well as inclusion of receptors located on Caterpillar property. (R. III, p. 29). At Caterpillar's request, ETA, Inc. performed dispersion modeling in the vicinity of the Mapleton plant using corrected factors and taking into consideration the mandated derating of boilers 2 through 5 to 249.9 million Btu maximum rated heat input. (R. III, pp. 29-30 and Ex. 15).^{*} Other than these changes, the methodology and data used were the same as those used by the Agency. Background levels were established using the Agency's Pekin Derby Street monitor data from 1982 and 1983. (R. III, p. 34). This monitor was chosen due to its proximity to the Mapleton plant. (R. III, p. 34). Survey data was used to establish stack height and topography. (R. III, pp. 31-32).

Using this corrected data, ETA concluded that Caterpillar could assure attainment of the sulfur dioxide standards by reducing its emission by 6.94% of the modeled 1.2 pounds per

* Caterpillar entered into a consent decree with USEPA [Caterpillar Tractor Co., v. Adamkus, Central District of Illinois, Civil Action No. 83-1083 (1985)] which requires this derating and physical changes to the boilers to insure that the maximum rated heat input is not exceeded.

million Btu. (R. III, p. 35). As Alan Jurik, Manager of Environmental Services for ETA, testified, "an appropriate way to do this would be to reduce the allowable sulfur dioxide emission rate to 1.1 pounds per million Btu for boilers 2, 3, 4, and 5." (R. III, pp. 35-36). The Agency, through the testimony of John Schrock of the Air Quality Planning Section of the Division of Air Pollution Control, found ETA's "modeling methodology to be correct and consistent with USEPA's modeling guidelines as well as prior IEPA studies." (R. III, pp. 40-41). He concluded that the Agency concurs with Caterpillar's conclusions that the proposed SO₂ limits for Mapleton's boilers will not cause or contribute to an air quality violation." (R. III, p. 42).

The Board concludes that the amendments to Section 214.141 are justified by the record and will propose the amendments as submitted, and amended, except that the reference to "new or existing" sources will be deleted from Section 214.141(c). Since these terms have caused confusion in the past, they have been deleted in the amended proposal to Section 214.141(d), and they do not appear to be necessary.

SUBPART X

In the Agency's model the CILCO Edwards boilers 1 and 3 were assumed to be operating at 6.6 pounds per million Btu, as requested in PCB 83-100, since that proposal had not been acted upon by the Board at the time the study was done. (Ex. 5, p. 13). The Agency made the following findings regarding that facility:

Although the CILCO Edwards facility at the proposed rate of 6.6 lb/MBtu interacts with the CAT East Peoria and WABCO facilities to produce violations on some days, it is not a significant factor during the critical violations. In other words, the CILCO proposal does not affect the emissions limits computed to meet the standard for CAT East Peoria or WABCO. However, if CILCO would have been allowed the 6.6 lb/MBtu for boilers 1 and 3 as per their petition to the Illinois Pollution Control Board, it would have required the rate at the Bemis facility to be lowered to 5.0 lb/MBtu instead of the limit presently allowed by the IPCB of 5.5 lb/MBtu. A rate of 3.8 lb/MBtu for the CILCO Edwards boilers 1 and 3 would protect the NAAQS and would not affect the emissions limit at Bemis.

(Ex. 5, p. 13)

CILCO disagreed with the Agency, and it also prepared a new study to investigate the sulfur dioxide emissions rate which would have to be met by boilers 1 and 3 of its Edwards Station to meet the NAAQS. Apparently, the Agency's analysis (Ex. 5) predicted violations to which CILCO contributed based upon presently allowable emissions rather than on emissions which would be allowed under the Agency's present proposal. Since the

proposal is more restrictive than the present limitations, CILCO argues that the Agency's modeling would establish that it could be allowed to emit 6.6 pounds per million Btu without causing NAAQS violations if the modeling took into consideration the proposed regulatory changes.

CILCO commissioned Enviroplan to perform such a study. (R. II, p. 64). Mr. Howard Ellis, President of Enviroplan, testified concerning that study. Enviroplan reviewed the Agency's modeling and adjusted the maximum emission rates to reflect the proposed limits. (R. II, pp. 64-66 and Exs. 8-11). This analysis showed "that all violations are eliminated with Edwards Units 1 and 3 at 6.6 pounds SO₂ per million Btu and other sources at the IEPA proposed emission limits." (R. II, p. 66). A second analysis was conducted to review all predicted NAAQS violations from Enviroplan's earlier studies of CILCO to determine whether those violations would also be eliminated. The study found that they are eliminated when the new standard applicable to WABCO is included and corrected stack location co-ordinates are used for Bemis. (R. II, pp. 67-68). Furthermore, allowing a relaxed standard of 6.6 pounds per million Btu for CILCO was found to have no effect on the appropriate standards for other facilities affected by this proceeding. (R. II, pp. 71-77). None of the other participants disagreed with these conclusions.

The Board finds that the record supports a 6.6 pound per million Btu standard for CILCO's E. D. Edwards Station Units 1 and 3, and it will propose the amendment as submitted as new Section 214.561. The Board also proposes to add new Section 214.560 which will indicate the scope of new Subpart X: Utilities, which will include industry and site-specific exceptions to the otherwise applicable sulfur dioxide rules.

ECONOMIC IMPACT

No economic impact statement has been prepared for this proceeding and it appears that none may be necessary. On September 27, 1985 the Board received a letter from the Agency to the Department of Energy & Natural Resources (DENR) requesting that the DENR issue a negative declaration. CILCO and Caterpillar are represented to be in concurrence with the request. Therefore, no further hearings are expected to be necessary. However, should the DENR determine that a study is necessary, the Board will conduct hearings on that study as soon as possible after it is forwarded to the Board.

There was no testimony at hearing regarding any adverse economic impact: i.e., there is no compliance cost. Each of the affected facilities are presently emitting below the proposed emission limits. (See Ex. 11). This also demonstrates that meeting the limitations is technically feasible. In addition, the proposed rules will give support for the redesignation of the Peoria-Pekin area as attainment for purposes of the Clean Air Act, thereby avoiding any federal sanctions, and benefitting the

state's economy. Finally, as the Board recognized in PCB 83-100, granting the requested relief to CILCO "would likely result in increased coal usage of about 85,000 tons annually, creating direct benefits to the state of 200 to 300 new jobs and additional revenues of over \$20 million." (57 PCB 418). Mr. Gerald Hawkins, legislative director for the United Mine Workers in the State of Illinois testified that the UMW strongly supported these proposed rules in order to aid the Illinois mining industry. (R. II, pp. 8-10).

ORDER

The Board hereby proposes for First Notice the following amendments to:

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 C: EXISTING SOLID FUEL
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.

Section 214.141 Sources Located in Metropolitan Areas

This section applies to existing fuel combustion sources located in the Chicago, St. Louis (Illinois) or Peoria major metropolitan areas. Except as otherwise provided in this Part Section, 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 ~~2.79 kg~~ 1.8 pounds of sulfur dioxide per MW hr mm Btu 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 mm b Btu of actual heat input (~~10.5 kg/MW Hr~~) (2924 nanograms per joule).
- 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 mm b Btu of actual heat

input (8.51 kg/MW hr) (2,365 nanograms per joule), 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.

- e. This Section will not apply to the Village of Winnetka Electric Utility Plant until final action on R80-227, Docket B, is taken by the Pollution Control Board (Board).
- c. Section 214.122 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 mm Btu of actual heat input (602 nanograms per joule).
- d. Section 214.122 shall not apply to any fuel combustion emission sources which are capable of firing solid fuel at a heat input of more than 125 mm Btu 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 source to exceed 1.1 pounds of sulfur dioxide per mm Btu of actual heat input (473 nanograms per joule).

SUBPART X: UTILITIES

Section 214.560 Scope

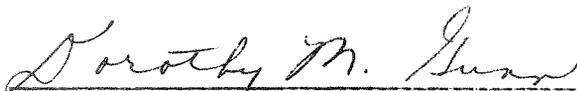
- a. This Subpart contains rules which modify the general sulfur emission rules of Subparts A through M as applied to a given industry or at a given site. General rules include:
 - 1. Subparts B through I: Fuel combustion emission sources and incinerators;
 - 2. Subparts K through M: Process emission 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.

Section 214.561 E. D. Edwards Electric Generating Station

Units 1 and 3 at the E. D. Edwards Electric Generating Station shall not exceed 6.6 pounds of sulfur dioxide per mm Btu of actual heat input (2,838 nanograms per joule). Aggregate emissions from the E. D. Edwards Electric Generating Station, on a 24-hour average basis shall not exceed 34,613 pounds of sulfur dioxide per hour.

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 10th day of October, 1985 by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board