

ILLINOIS POLLUTION CONTROL BOARD
October 29, 1987

IN THE MATTER OF:)
)
PETITION TO AMEND 35 ILL.) R86-31
ADM. CODE PART 214, SULFUR)
LIMITATIONS (CIPS Coffeen)
Generating Station))
)

PROPOSED RULE. FIRST NOTICE.

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

This matter comes before the Board on a regulatory proposal filed by Central Illinois Public Service Company (CIPS) on July 21, 1986. Through its proposal, CIPS is seeking relief for its Coffeen Generating Station (Coffeen) from the requirement of 35 Ill. Adm. Code 214.184, which establishes an emission limitation for sulfur dioxide (SO₂) in any one hour. Section 214.184 imposes an emission limit on Coffeen of 55,555 pounds (lbs.) of SO₂ in any one hour. CIPS is proposing that Coffeen be exempt from that standard and instead be subject to emission standards of 65,194 lbs. of SO₂ in any one hour and 7.29 lbs. of SO₂ per million British Thermal Units (mmbtu) of heat input. The Illinois Environmental Protection Agency (Agency) neither opposes nor supports CIPS's proposal. (R. 85).

Due to an illness of counsel for CIPS, a hearing in this matter could not be held until February 23, 1987. On that date, a hearing was held in Hillsboro; members of the public were present. At hearing, the Board requested that CIPS submit additional information, marked as Exhibits #4 and #5, within two weeks of the hearing. By his Order of March 18, 1987, the Hearing Officer held the record open until April 6, for comments, since CIPS had informed the Hearing Officer that it could not submit Exhibits #4 and #5 until March 20. However, the Board did not receive those exhibits until April 2. As a result, the Hearing Officer ordered that the record remain open until April 20, 1987 to give the public a chance to comment upon the late CIPS filings. On June 12, 1987, the Department of Energy and Natural Resources (DENR) filed its finding that an economic impact study was not necessary in this matter. The Economic and Technical Advisory Committee filed its concurrence with DENR's finding on June 26, 1987. On August 6, 1987, the Board issued an Interim Order requesting that CIPS and the Agency further address several issues concerning CIPS's proposal. Responses to the Order were filed by CIPS and the Agency filed on August 25 and September 15 respectively (hereafter cited as CIPS Response and Agency Response).

Coffeen utilizes two coal fired Babcock and Wilcox cyclone boilers, Units 1 and 2. Unit 1, which came on line in 1965, has a net generating capacity of 325 megawatts (MW). Unit 2 has a net generating capacity of 550 MW and came on line in 1972. (R. 11). There is presently no SO₂ control equipment used at Coffeen. (R. 14). However, both boilers are fitted with electrostatic precipitators to remove fly ash from the flue gas. (R. 11). Although Coffeen's total net generating capacity equates to 875 MW, Coffeen is currently operating under a load limit of 765 net MW in order to achieve compliance with the 55,555 lbs. standard. (R. 15).

Based on stack tests conducted in October of 1974, Coffeen was expected to emit a maximum of 55,555 lb. of SO₂ per hour. A subsequent test conducted at the insistence of the USEPA in June, 1986, showed that the actual emissions were about 65,194 lb. per hour (R. 14-16 p. 70). Since 1985, CIPS has been involved in a dispute with USEPA over SO₂ emissions. (R. 14). On December 19, 1986, the USEPA filed a complaint against CIPS in the United States District Court, Central District of Illinois. The complaint alleges that from at least October 11, 1985 CIPS has allowed emissions from Units 1 and 2 at Coffeen to exceed the SO₂ emission limitation of 55,555 pounds per hour in violation of the federally approved State Implementation Plan (SIP) for Illinois. (CIPS' Response, p. 6; Exhibit 1 of CIPS' Response). CIPS is pursuing a site-specific rule change rather than an Alternative Emission Rate under 35 Ill. Adm. Code 214.185 partially because it may lead to a more timely resolution of this dispute. (R. 22-23).

CIPS asserts that the coal used during the 1986 test was actually lower in sulfur content than the coal used in the 1974 test. CIPS cannot explain the discrepancy in the test results other than stating that less sulfur in the 1974 coal was converted to SO₂ when compared with the 1986 coal. (CIPS Response, p. 1). The Agency states that "the 1974 test results were anomalous in that it appeared to show much less of the sulfur in the coal was converted to sulfur dioxide and emitted than theoretical calculations would indicate." It is the Agency's position that the 1986 results were "more in line with rates expected based on the sulfur content of the coal used." (Agency Response, p. 1). The Agency concludes that although the 1974 and 1986 test results indicated an increase in emissions, there has been no real increase in SO₂ emissions over those years. (Agency Response, p. 2).

In 1981, CIPS entered into a long term contract with Monterey Coal Company (Monterey) for the purchase of coal. The contract, which is effective until the year 2003, calls for CIPS to purchase a minimum of 1,980,000 tons of coal per year from the Monterey's No. 1 Mine. (R. 12, 17). That mine produces approximately 8,500 tons per day. (R. 17). According to a public comment submitted by Monterey, over 99 percent of Monterey's No.

1 Mine shipments for the years 1985 and 1986 went to Coffeen. (P.C. #2).

In its Interim Order of August 6, 1987, the Board requested that CIPS and the Agency address the issue of whether there has been a change at Coffeen, resulting in the higher emission levels, which could be considered "modification" or a "major modification" under the Clean Air Act and federal regulations promulgated thereunder. CIPS responded by stating that there has been no physical or operational change at Coffeen. CIPS asserts that its 1981 switch to a lower sulfur coal would not constitute a modification. (CIPS' Response, p. 2-4).

As stated above, the Agency believes that no real increase in emission has occurred. The Agency concurs with CIPS in its conclusion that the switch to Monterey coal would not be considered a modification under federal law. (Agency Response, p. 2).

The Board also inquired whether CIPS's proposal would trigger the prevention of significant deterioration (PSD) provision of Part C of the Clean Air Act. CIPS contends that the PSD provisions are not applicable in this instance even though the proposed rule would result in an increase in the allowable emissions which is a relaxation of the Illinois SIP. According to CIPS, under 40 CFR 51.24(a)(2), a SIP relaxation must be evaluated against a concentration baseline in order to demonstrate that no allowable increment of ambient air quality is exceeded. CIPS states that no baseline has been established and concludes that no PSD analysis is necessary. (CIPS Response, p. 5). The Agency also concludes that a PSD analysis in this instance is not triggered due to the definitions and exemptions of 40 CFR 51.24. The Agency claims that this would hold true for CIPS even if there had been an actual increase in emissions. (Agency Response, p. 2).

Economic Effect of Compliance Alternatives

At hearing, CIPS presented three alternatives that would enable CIPS to comply with the existing 55,555 lbs. standard: permanent load reduction; blending of coal; and use of scrubbers. Essentially, CIPS asserts that these three alternatives are economically unreasonable when considering the extent of the environmental impact.

As stated above, CIPS is able to achieve compliance with the existing regulation by limiting its load to 765 net MW, as it is presently doing. However, CIPS claims that such a load limit, if adopted on a permanent basis, would cost CIPS up to \$10,000 per day due to the purchase of energy during a capacity shortage or due to lost sales opportunities. CIPS also asserts that since energy costs are quite variable, the actual cost of such a load limit could be much higher if emergency replacement energy had to

be purchased. CIPS also expresses concerns that the Illinois Commerce Commission might remove Coffeen from the rate base. (R. 15-16).

According to CIPS, in order to maintain the compliant load limit on a permanent basis, CIPS would reduce its coal take from Monterey by 12 percent. (R. 25). CIPS states that using 1,980,000 tons per year as the base take, a 12 percent permanent reduction would result in the lay-off of thirty Monterey employees and the scheduling of production operations on a five day per week basis. CIPS claims that Monterey would likely not find additional customers to offset the 12 percent reduction in CIPS's take. (R. 17-18). According to Monterey, a permanent load limit, to ensure compliance, would reduce CIPS's take by only six percent. However, Monterey concurs with CIPS's position that it would not be able to find replacement customers due to the flat demand for coal. Monterey concludes that a permanent load limit would reduce the production which in turn would result in four-day work weeks as well as unused capacity at Monterey's No. 1 Mine (P.C. #2).

The second alternative to achieve compliance is for CIPS to burn a blended mixture of low sulfur, non-Illinois coal with Illinois coal, which has a higher sulfur content. CIPS states that neither Coffeen nor Monterey currently have the facilities to blend coal. In addition, CIPS claims that higher transportation costs for the non-local, low sulfur coal would increase the overall expense of this option. CIPS also takes the position that blending would reduce Monterey's production by 20 percent. According to CIPS, such a reduction in production would "reduce employment at the mine and might even jeopardize its continued viability." (R. 18-19).

Based on information supplied by Exxon Corporation (a parent corporation to Monterey), CIPS claims that additional annual costs for Monterey to provide a Wyoming-Illinois coal blend would amount to \$10.5 million per year. This figure includes the costs for the acquisition and transportation of Wyoming coal, unloading, blending, as well as an annualized capital charge to recover and provide a return on the amount invested in a new blending facility and related equipment. The facility and additional equipment would cost approximately \$9 million. (Exh. #4). CIPS further asserts that blending could have the impact of reducing Monterey's No. 1 Mine workforce by 30 people. (Exh. #4). Monterey presents the same conclusions. (P.C. #2).

Utilizing figures from a 1977 Study that CIPS conducted on blending coal, CIPS estimates that if the coal were blended at Coffeen, capital costs would total approximately \$10 million. (Exh. #4).

The third compliance alternative discussed was the use of flue gas desulfurization controls, commonly referred to as

scrubbers. At hearing, CIPS expressed its reservations concerning the use of scrubbers. CIPS claims that based on its experience with scrubbers at its Newton generating facility it expects significant capital and operating costs to be associated with this control option. In particular, CIPS stresses that the use of scrubbers would result in reduced unit availability due to scrubber malfunctions and that derating of the plant would occur because of auxiliary electrical use by the scrubbers. (R. 19-20). However when questioned about Newton, the CIPS witness stated, "There were many problems during the first year or so of operation. Basically most of the bugs have been worked out. It has a high availability". He went on to say that the Newton scrubbers malfunction between 250 and 300 hours per year (R. 26).

CIPS estimates that a retrofit of a forced oxidation scrubber at Coffeen, capable of removing 90 percent of the SO₂ from 20 percent of the plant's total emissions would entail a capital expenditure of \$196 million dollars. (Exh. #4). The Board notes that Attachment #2 of Exhibit #4 sets "total investment" figure for such a scrubber at \$110,492,951. The Board is at a loss to determine how the \$196 million estimate was reached since it is supposedly taken from Attachment #2.

Each of the above alternatives, if implemented, would impose significant economic costs upon either CIPS or Monterey. At hearing, CIPS acknowledged that it believed the proposed regulatory change was the most feasible alternative since it is a no cost alternative. (R. 25).

Environmental Impact

CIPS has conducted modeling studies in order to assess the proposed emission standard's effect upon the ambient air quality for SO₂. An initial study was completed in January, 1986 (Exh. #3). In response to concerns of the Agency and the U.S. Environmental Protection Agency (USEPA) relating to the methodology of the modeling study, a revised modeling analysis was drafted in June, 1986. (Exh. #1). In an effort to address further questions by the USEPA, a supplement to the June report was issued in November, 1986 (Exh. #2). (R. 35-36).

The proposed standard of 65,194 lbs. of SO₂ in any one hour is approximately equivalent to the rate of emissions that was determined by a stack test conducted at Coffeen in June 1986. (R. 70). There is no evidence in the record to suggest that this emission rate was initially selected by CIPS on the basis of environmental impact. However, CIPS asserts that if Coffeen was subject to that standard, its emissions would not cause any violations of the National Ambient Air Quality Standards (NAAQS) for SO₂. CIPS relies on its modeling studies as support for this conclusion. (R. 14, 37).

The June study was a revised analysis of the January study utilizing procedures suggested by the Agency and USEPA. The study concludes that maximum ambient air SO₂ concentrations, resulting from Coffeen's operation at the proposed emission standard, would still be in compliance with the NAAQS. (R. 42-43). The November supplemental report also confirms this conclusion. (R. 48).

The Agency states that CIPS's showing of compliance with the NAAQS is consistent with USEPA modeling guidelines. In addition, the Agency takes the position that the modeling performed by CIPS "sufficiently demonstrates" that the proposed emission limits of 65,194 lbs. of SO₂ in any one hour and 7.29 lbs. per million BTU's "will not endanger the air quality." (R. 74-75).

The Board notes that Coffeen operated above 764 MW an average of 104 days per year between 1982 and 1986 (Exh. 5). If this trend continues the plant will be in compliance with the current regulation during a substantial portion of each year.

Conclusions

There are three paths by which a source may seek to be subject to an SO₂ emission limitation standard other than the one provided in the general rule. A source may petition for short term relief (five years or less) through a variance proceeding. See Central Illinois Light Company v. Illinois Environmental Protection Agency, 57 PCB 417 (1984). Secondly, a source may choose to seek an alternative standard utilizing the Alternative Emission procedures set forth in 35 Ill. Adm. Code 214.185. The alternative emission rate determined by the Board under this provision is imposed as an operating permit condition. In addition, further monitoring and modeling of ambient air quality is also required as a condition to the permit. See Illinois Power Company v. Environmental Protection Agency, 32 PCB 563 (1979) (The Board designated this matter as a proceeding under Rule 204(e)(3) which was in substance the same as the current Section 214.185). Finally, a source may seek an actual rule change in order to be relieved from the general requirement. See In re. Sulfur Dioxide Emission Limitations; Village of Winnetka, R80-22(B) (April 19, 1984) and In re. Amendments to 35 Ill. Adm. Code 214, Sulfur Limitations, R84-28, (April 24, 1986). (As a part of a general rulemaking, Central Illinois Light Company's E.D. Edward's Electric Generating Station was granted a site specific rule).

The Board notes that the Illinois Environmental Protection Act (Act) specifically addresses instances when the Board is making a determination regarding an alternative SO₂ emission standard. Section 9.2(b) of the Act states:

In granting any alternative emission standard
or variance relating to sulfur dioxide

emissions from a coal-burning stationary source, the Board may require the use of Illinois coal as a condition of such alternative standard or variance, provided that the Board determines that Illinois coal of the proper quality is available and competitive in price; such determination shall include consideration of the cost of pollution control equipment and the economic impact on the Illinois coal mining industry.

Ill. Rev. Stat. 1985, ch. 111 1/2 ,
par. 1009.2(b)

Several different compliance methods available to CIPS have been discussed in the record. A permanent load limitation, blending of coal, and the exclusive use of low sulfur western coal, although providing compliance, are all options which would have a significant adverse impact on Illinois coal mining operation at Monterey Coal Company's No. 1 Mine. The only compliance option that would preserve the present level of Coffeen's Illinois coal consumption is the implementation of scrubbers.

CIPS has provided the Board with two different estimates as to the capital cost for installing a scrubber which would control 20 percent of Coffeen's total SO₂ emissions. In Exhibit #4, CIPS states that expenditure at \$196 million. Attachment #2 to that same exhibit, which is an item by item cost estimate, provides a "total investment" figure of \$110,492,951. Since Attachment #2 sets forth a detailed numerical breakdown of that figure, the Board will rely on the Attachment #2 estimate as the actual cost. The Board must view this cost in light of the expected environmental impact that would result if CIPS's proposed standard was adopted. After considering the environmental and economic information presented in the record, the Board finds that it would be economically unreasonable to require CIPS to comply with the general standard at this time. The Board finds that granting relief will have a favorable economic impact on the State due to the savings to CIPS and the retention of coal mining jobs. The Board will grant CIPS relief as requested.

In the record CIPS made clear its intent to use Illinois coal from the Monterey Mine. Indeed the support for the rule change is largely based on the favorable economic impact of continued use of coal from this specific mine. Accordingly, the Board will condition the rule change on continued use of coal from the Monterey mine. If for any reason CIPS stops using coal from this mine, the rule will terminate.

The Board further notes that the relief it is proposing today is based upon regulations and data which do not address the long range transport problems associated with SO₂ emissions. The

Board's decision in this matter is based on the local impact of SO₂ emissions. The modeling studies presented by CIPS only evaluated ambient air quality to a distance of 20 kilometers (12.4 miles) from Coffeen. (R. 28,65-66). The Board is aware of the controversy surrounding the impact of SO₂ transported over long distances and anticipates that this topic will be the subject of future rules. The rule proposed today may be modified or repealed in response to future state or federal regulations in this area. The Board specifically does not intend that this rule be used to allow Coffeen to circumvent any future regulation by "grandfathering in" the 65,194 lb. per hour limitation.

The Board will require as part of this rule that a stack test be performed each time the permit for Coffeen is due for renewal. The disparity of the 1974 and 1986 stack tests demonstrate the advisability of periodically testing to determine whether the plant is operating as expected. This provision shall in no way be interpreted as preventing the Agency from ordering such additional monitoring or testing as it determines are necessary to carry out its statutory functions.

Permanent relief from the requirements of the general regulations limiting SO₂ emissions may be achieved by way of a site-specific rule change or an alternative standard set pursuant to 35 Ill. Adm. Code 214.185. Section 214.185 requires ambient air sulfur dioxide monitoring and modeling studies subsequent to the imposition of an alternative standard. The additional monitoring and modeling are required in order to verify that emissions under the new standard will not cause or contribute to violations of the NAAQS. The Board believes that such monitoring and modeling requirements are extremely useful in ensuring that areas currently attaining NAAQS remain in attainment even after the allowable emissions for that area are increased.

The Board is in no position to require any person to seek an alternative standard under Section 214.185 rather than a site-specific rule change. In this instance, CIPS rejected the Section 214.185 procedure due to perceived time advantages of a site-specific rule change (R. 22-23). However, the Board believes it should act consistently in its determination of SO₂ emissions relief irrespective of whether relief is sought via Section 214.185 or a site-specific rulemaking. The additional monitoring and modeling requirements as required by Section 214.185 do not lose their value or become unnecessary merely because the person seeking relief chooses to pursue a site-specific rulemaking. This is especially true in situations where modeling studies predict ambient air quality values that approach the NAAQS. At hearing, a witness for CIPS stated that one of CIPS's modeling studies predicted a 3-hour SO₂ concentration of 1291 micrograms per cubic meter; the NAAQS standard is 1,300 micrograms per cubic meter. (R. 44). Given these considerations, the Board will grant relief conditioned on additional monitoring and modeling. These requirements are consistent with the

requirements that would have been imposed had CIPS pursued relief pursuant to Section 214.185.

Additionally the Board notes that CIPS' Newton facility is equipped with scrubbers. This rule change is not intended to enable CIPS to use Coffeen to reduce generation at Newton in order to avoid the cost of scrubber operation at that facility.

The Board proposes granting this rule change based on the combination of circumstances which exist in this instance. A favorable monitoring study alone is not sufficient reason for granting a rule change.

The Board will add the proposed rule to Subpart X which concerns site-specific SO₂ emissions limitations for utilities. Such placement is logically consistent with the structure of the existing Part 214.

Finally, the Board notes that since the date of the hearing in this matter the Joint Committee on Administrative Rules (JCAR) has changed its informational requirements for Second Notice. The required information, though, is not of the type which would necessitate another hearing or in any way be determinative in the Board's decision making process. However, a review of the existing record indicates that if the Board were to adopt this proposed rule for Second Notice, the Board would not be able to fully respond to JCAR's inquiries as contained in JCAR's Second Notice forms. Therefore, the Board will direct the Hearing Officer to issue an Order requiring CIPS to provide the Board with additional information which would assist the Board in the filing of JCAR forms in the event that this proposal is eventually adopted for Second Notice.

ORDER

1. The Board hereby orders the Hearing Officer to issue an order directing Central Illinois Public Service Company to provide the Board with information which would aid the Board in complying with Second Notice requirements of the Joint Committee on Administrative Rules in the event that the Board adopts a proposal for Second Notice. This requirement does not prejudice in any way the eventual outcome of this proceeding.
2. The Board hereby proposes to adopt the following rule and instructs the Clerk of the Board to cause its publication for First Notice in the Illinois Register.

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 X: UTILITIES

Section 214.562 Coffeen Generating Station

- a) The emission standards of this subsection shall apply only if the requirements of subsections (b), (c), and (d) are fulfilled. Notwithstanding any other limitation contained in this Part and provided that the coal burned is mined exclusively from the mine that is presently known as Monterey Coal Company's No. 1 Mine located south of Carlinville, emission of sulfur dioxide from Units 1 and 2 at the Central Illinois Public Service Company's (CIPS) Coffeen Generating Station (Coffeen), located in Montgomery County, shall not exceed either of the following emission standards:
- 1) 65,194 pounds of sulfur dioxide in any one hour;
and
 - 2) 7.29 pounds of sulfur dioxide per mm btu of heat input.
- b) The Agency shall impose as a condition to the initial permit, which first allows the operation of Coffeen's Units 1 and 2 in accordance with the emission standards of subsection (a), an ambient sulfur dioxide monitoring and dispersion modeling program designed to verify that the emission standards of subsection (a) will not cause or contribute to violations of any applicable primary or secondary sulfur dioxide ambient air quality standard as set forth in Section 243.122. Such ambient monitoring and dispersion modeling program shall be operated for at least one year commencing no later than 6 months after the effective date of this Section.
- c) No more than 15 months after the commencement of the ambient monitoring and dispersion modeling program of subsection (b), CIPS shall apply for a new operating permit. CIPS shall submit, at the time of the application, a report containing the results of the ambient monitoring and dispersion modeling program of subsection (b).
- d) Prior to the issuance of any operating permit in accordance with the emission standards of subsection

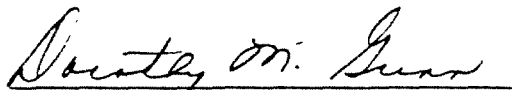
(a), a stack test shall be performed in order to determine compliance with emission standards set forth in subsection (a). The requirements of this subsection do not preclude the Agency from requiring additional stack tests.

(Source: Added at 11 Ill. Reg. ,
effective)

IT IS SO ORDERED.

J.D. Dumelle and J.T. Meyer concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Proposed Opinion and Order was adopted on the 29th day of October, 1987, by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board