

ILLINOIS POLLUTION CONTROL BOARD  
October 24, 1972

|                                 |   |          |
|---------------------------------|---|----------|
| ILLINOIS POWER CO.              | ) |          |
| (Wood River #5)                 | ) |          |
|                                 | ) |          |
|                                 | ) |          |
| v.                              | ) | # 72-190 |
|                                 | ) |          |
|                                 | ) |          |
| ENVIRONMENTAL PROTECTION AGENCY | ) |          |

Mr. Sheldon A. Zabel, for the Illinois Power Co.

Mr. Delbert Haschemeyer, Assistant Attorney General, for  
the Environmental Protection Agency

Opinion & Order of the Board (by Mr. Currie):

Illinois Power requests a variance exempting its #5 unit at Wood River generating station near St. Louis from our recently adopted sulfur dioxide emission regulation. We deny the petition for reasons stated in this opinion.

Located in East Alton in Madison County, the Wood River station consists of five generating units aggregating 609 megawatts of summer capability. Unit 5, discharging through a separate stack, accounts for 399 mw, virtually two-thirds of the entire station (R. 15).

Unit 5 is fired exclusively by coal; in 1971 it was operated 8,232 hours, consuming 1,085,537 tons of coal having an average sulfur content of 2.85%, resulting in average emissions of 5.1 pounds of sulfur dioxide per million btu of actual heat input (R. 15-16). Using the company's figures, the Agency calculated without contradiction that Unit 5 emits 57,751 tons of sulfur dioxide a year (EPA Ex. 1), which amounts to 158 tons per day.

Rule 204(c)(1)(A) of our new air pollution regulations (PCB Regs., Ch. 1) requires sulfur dioxide emissions from existing coal-burning sources in the St. Louis metropolitan area to be reduced to 1.8 pounds per million btu by May 30, 1975. This regulation was adopted, after extensive hearings, on the basis of evidence that convinced us that techniques were available, at a cost reasonable in light of the need, to reduce sulfur-dioxide emissions by that time to the level prescribed. See In the Matter of Emission Standards, #R 71-23, 4 PCB 298 (April 13, 1972).

Units 1-3 are in the process of conversion to burn low-sulfur oil and will comply with the regulation; a Monsanto Cat-Ox system is being installed on Unit 4 to bring it into compliance (R. 16). Illinois Power contends, however, that to bring Unit 5 into compliance would impose an arbitrary and unreasonable hardship.

The statute places the burden of proving an arbitrary or unreasonable hardship squarely upon the petitioner in a variance case (Environmental Protection Act, § 37). The burden is a heavy one. Whether we were right or wrong in adopting the regulation is not the issue; the petitioner can prevail only by showing that application of the regulation to its situation is so impracticable or so costly in comparison to the benefits as to be arbitrary or unreasonable. The test was spelled out in *EPA v. Lindgren Foundry Co.*, #70-1, 1 PCB 11 (Sept. 25, 1970):

It is therefore essential in passing upon a variance petition to compare the good effects of compliance with the bad. But, as we held in the *Swords* case, *supra*, one cannot show that his hardship is "arbitrary" or "unreasonable" merely by proving that the cost of compliance exceeds the benefits.

The words "unreasonable" and "arbitrary" plainly suggest that the Board is not to examine in every case whether or not compliance would be a good thing. To do so would completely destroy the force of the regulations and encourage excessive litigation. Moreover, if the costs and benefits are anywhere near equal, simple fairness dictates that the burden should be borne by those who profit from the polluting operation rather than by the innocent neighbors. Accordingly, the statute creates a strong presumption in favor of compliance. A variance is to be granted only in those extraordinary situations in which the cost of compliance is wholly disproportionate to the benefits; doubts are to be resolved in favor of denial.

This position is compellingly supported by legislative history as well as by the language and policy of the Act. The original version of the bill provided for variances only if the costs of compliance "totally dwarf(ed)" the benefits. A proposed amendment sponsored by industry would have weakened this to allow variances whenever costs "outweigh(ed)" benefits. The Administration spokesman for the bill stressed before the Senate that this proposal was wholly unacceptable, for reasons indicated in this opinion.

When the present language was proposed as a third alternative, the Administration assured the Senate that the change preserved the substance of the original bill, and on this assurance the amendment was adopted. It is clear that

the change was prompted by uncertainty concerning the interpretation of the unfamiliar phrase "totally dwarf." The chosen terms "arbitrary" and "unreasonable" have a more established meaning, and they express a plain sense of disproportion.

The petition alleged that "physical limitations at the Wood River Station would from a practical standpoint, preclude the installation" of any equipment to control sulfur dioxide emissions. The record wholly fails to support that contention. Illinois Power's own consultant, Monsanto, reported after investigation:

Sufficient space exists east of the #5 unit for installation of a two train Cat-Ox unit, without interference from overhead or underground services. Construction will not interfere with operation of the existing unit and we anticipate tie-in could be accomplished during a six-week period of annual boiler inspection/overhaul shutdown. (Petitioner's Ex. 6).<sup>1</sup>

---

1. The company's witness was less than candid in responding to cross-examination on this topic:

Q. Do you recall the reference in that petition in paragraph 9, to physical limitations at the Wood River Station precluding the installation of any SO<sub>2</sub> removal equipment?

A. Yes, I do.

Q. Do you recall-- do you know what physical limitations that was with reference to?

A. Yes. The space available for a sulfur removal device, whether it be Scrubber, Cat-Ox or whatever system we might choose in the future, is very limited between the plant and the dike along the Mississippi River, and in addition, a new highway, Route 3 is being built along this dike and that further reduces the space available.

Q. Now once again, calling your attention to Exhibit 6. The last paragraph of page 1 of that letter from Monsanto Enviro-Chem Systems. . . . I get from that then, Mr. Miller, that the space limitations that Illinois Power originally thought existed, has been pretty much determined by Monsanto to not be a limiting factor in so far as the installation of Cat-Ox in Unit 5?

A. My previous answer referred to space available on the south side of the plant, between the plant and the river dike.

Now, to the east of the plant, there is sufficient space to install a sulfur removal system, providing it will not interfere with underground systems that may exist in that area. This is yet to be determined.

(R. 61-63).

We read the Monsanto letter to state that there are no special physical problems of installation at Wood River. At most the company's testimony, quoted in footnote 1, suggests the possibility of as yet undiscovered problems with underground systems (presumably pipes and wiring). There is no proof that any such problems exist, much less that they are insuperable, and we cannot grant variances on the basis of speculation. See Village of Wilmette v. EPA, #72-5, 3 PCB 483 (Jan. 17, 1972).

There is therefore a complete absence of proof that Illinois Power has any greater problem than any of the myriad other operators of coal-fired equipment in complying with the sulfur-dioxide emission standard. The argument boils down to the company's contention that the regulation is too stringent in light of the availability and cost of control techniques and the plant's impact on air quality.

At the request of Illinois Power, the extensive testimony on sulfur-dioxide control technology that we heard in the rule-making proceeding leading to adoption of the regulation was incorporated into the present record (R. 7-8). On the basis of this evidence we found the following (In the Matter of Emission Standards, #R 71-23, 4 PCB 298, 331-33 (April 13, 1972):

It is undisputed that the chemistry of several processes for removing sulfur dioxide is simple and understood. Sulfur dioxide reacts with the oxides or carbonates of calcium or magnesium, for example, to form a solid product that can be separated from the gas stream by standard collection methods, or it can be oxidized and combined with water to form sulfuric acid that can be sold to recoup a part of the control cost (R. 630-632). It is also undisputed that a number of firms have constructed sulfur control plants of various sizes employing these and other principles of sulfur oxide treatment, quite a number of which are considerably beyond the laboratory stage. For example, three full-sized units employing a wet limestone process were constructed and operated in England for some time prior to the Second World War (Walsh Ex. 83, p. 5; Ex. 115). A Swedish company has installed a similar unit on a hospital boiler; the unit has operated continuously for 6 months at a sulfur dioxide removal efficiency of 95-98% (ibid). Closer to home, both the federal and the state EPA gave extensive testimony as to existing demonstration projects all over the country embodying various technologies, several of them full-scale utility boilers of 100 megawatts or more. In Illinois alone Commonwealth Edison and Illinois Power Company are about to begin operation of new full-size units based respectively on limestone scrubbing and on catalytic oxidation (Ex. 83, Table 1). Manufacturers testified

that they were prepared to sell sulfur removal equipment and to guarantee that it would meet our regulation (e.g., R. 605-620, 621-656). Nobody disputes that the time for demonstration of such units on a full-scale basis has come.

The dispute centers rather on whether it is time to require additional units beyond those already undertaken to be built. The power industry and other large industrial coal users, as well as the Illinois coal producers, argue vigorously that it is not. They point to acknowledged operating problems experienced in some of the existing installations such as those of Union Electric and of Kansas Power and Light (e.g., R. 2866, 2870, Ex. 46). They observe that the performance guarantees actually given them extend only to a limited test period (R. 2949), and they rely very heavily on a definition of "commercially available" technology given in a report of the National Academy of Sciences in discussing sulfur removal. According to NAS, commercial availability of a control device is defined as "satisfactory operation on a 100 megawatt or larger unit for more than one year" (R. 2280).

We have allowed until May of 1975 for compliance with the sulfur emission standard in order to give affected persons the opportunity to study the results of operation of the numerous units now about to be tested. On the basis of testimony as to the length of time required to design and construct these facilities (R. 638, 2690), we conclude that this liberal timetable will permit nearly a year of further information to be accumulated before commitments must be made. For those who feel the experience of the present demonstration units critical to minimize their own risks, therefore, we feel we have allowed ample time to acquire the information. Unless all of the present demonstrations fail, which seems highly unlikely, it is probable that even the restrictive NAS criteria will be satisfied by the time our standard requires action.

Even should the facts prove otherwise, however, we believe it imperative to enact a sulfur emission standard for the critical regions now. We are of course not bound by the NAS definition on what is, after all, not a scientific question but one of public policy.

Given the seriousness of the sulfur dioxide pollution problem in certain areas of the State, we believe we cannot continue to postpone action to bring relief. We cannot wait until all operating problems are solved;

if we did, as observed by Professor Wesley Pipes in another context, we should even now not be benefiting from the long-accepted activated sludge process for sewage treatment (See Effluent Standards, #R 70-8, R. 1536-1537). We agree with Professor James Stukel of the University of Illinois, testifying for the Agency, that on the admitted facts the development of sulfur control technology has advanced to the point where we are justified in requiring additional installations to be made, in areas suffering from serious sulfur problems (R. 3473-3488). The issue of what requirements are reasonable is one that can be resolved only by balancing the benefits of the contemplated rule against its costs, as the statute makes clear. This means that greater costs may be justified, and greater risks of operating problems taken, when the need for pollution abatement is greater. The time to substitute action for study comes sooner when action is urgently needed. Moreover, the adoption of a strict sulfur regulation today will create needed pressure for the improvement of the technology. We must not allow ourselves to fall into the vicious cycle of no regulation because no technology, and no technology because no regulation.

In summary, we hold that there is need to limit sulfur dioxide emissions from coal-burning sources in the Chicago, St. Louis, and Peoria regions to 1.8 pounds per million btu as of May 30, 1975; that small coal users can be expected to meet this standard by switching to natural gas, to distillate oil, or, in St. Louis and Peoria, to low-sulfur coal; that larger coal users can be expected either to utilize low-sulfur coal, as Commonwealth Edison is doing, or to construct additional facilities for the removal of sulfur dioxide at the stack, such as is being done at the Will County and Wood River power stations and elsewhere in this country and abroad.

Elsewhere in the opinion, as suggested by this conclusion, we had found that Commonwealth Edison Co. expected to be able to obtain sufficient Western coal of less than 1% sulfur content to comply with the standard throughout the Chicago region in 1974 (ibid). See pp. 2035-37 of the #R 71-23 transcript, which are a part of the present record.

The further evidence Illinois Power has given us as to developments since the adoption of the regulation in no way detracts from these conclusions. First, the company gave hearsay testimony as to various operating problems encountered with existing scrubber installations (R. 19-21).

We were aware of such problems when we adopted the regulation. As we observed at that time, to insist that all operating problems be fully resolved before requiring controls to be employed would unreasonably postpone the use of available technology. Second, reliance is placed upon a narrative in the Federal Register in which the Federal Environmental Protection Agency explained that in certain Western States it was prepared to allow until mid-1977 in some cases for compliance with federal sulfur-dioxide air quality standards because "the only alternative available to power plants at this time for controlling emissions of sulfur oxides is alkaline scrubbing" and because "the design, fabrication, and installation of these systems is a lengthy process" (Petitioner's Ex. 1 (37 Fed. Reg. 15095 (July 27, 1972))). Even if we could accept a bare second-hand conclusion as binding upon us, which Illinois Power would be the first to oppose if the federal conclusion were more unfavorable to its position, the federal conclusion quoted is that the technology is here and the time to start installing it has come. If more time is needed to finish it, the company is welcome to submit detailed proof to that effect if and when it petitions for additional time to complete a control program to which it is committed. The conclusion of the company's witness that the federal EPA believes scrubbers will work only on boilers already using low-sulfur coal (R. 23) is simply not supported by what was said in the Federal Register or by anything else before us.

Most persuasive on the issue of the availability of technology are two concrete proposals from Chemical Construction Corp. (Chemico) (Petitioner's Ex. 5) and Monsanto (Petitioner's Ex. 6) for installation of full-scale sulfur-dioxide removal units on Wood River Unit #5. Chemico would guarantee 90% removal in a two-stage magnesium-oxide system that would cost \$30-35/kw to install on a new generating unit with its own precipitator,<sup>2</sup> with costs for adding to an existing unit varying according to specific facts. Operating costs are estimated at \$2.50-\$3.50 per ton of coal burned. Credits for the sale of byproduct sulfuric acid are not specified but could be an offset against the cost if a market is available. 70% removal would be guaranteed with a less expensive system. Monsanto estimates the cost of a Cat-Ox system for Unit 5 at \$50-60/kw, or \$20,000,000 to \$24,000,000, could guarantee 85% sulfur-dioxide removal, could design and build the system in 24-30 months after six months for contract negotiations and preliminary engineering, and indicates "a high degree of confidence on the scale-up factor required" in light of its experience in building a 100-mw unit on Unit 4 of the same plant. Far from proving that stack control technology is unavailable, Illinois Power has demonstrated that adequate control equipment is ready to be bought and installed.

---

2. Unit 5 has a high-efficiency precipitator for removing particulate matter (R. 16).

Moreover, there was no effort whatever to prove that low-sulfur fuel is unavailable. As for oil, which is Illinois Power's own answer for Wood River Units 1-3, the testimony was only that there was a "question" of obtaining an adequate supply and a "question" of the "wisdom" of using oil because of "national security" as well as an unspecified "significant increase in fuel costs" (R. 23). No attempt was made to show what efforts, if any, had been made to obtain oil for Unit 5 or to explain the less-than-obvious innuendo that to burn oil at Wood River #5 would compromise our national security while doing the same at #1-3 apparently does not. Illinois Power has wholly failed to prove either the unavailability or the excessive cost of converting to oil.

There was also no suggestion that low-sulfur coal, which we found in the earlier proceeding would enable Commonwealth Edison to meet the regulation, cannot be obtained or burned by Illinois Power. Indeed the rather detailed cost estimates based on information from coal producers quite strongly suggests that such coal is indeed available (R. 27-29). There is certainly no proof that the boiler cannot utilize low-sulfur coal; a four-hour test of one such coal was said to have caused certain "operating problems" (R. 95-96), which boil down essentially to a somewhat reduced efficiency and capability apparently due principally to higher moisture, lower heating value, and the inability of present equipment to feed larger quantities of coal to the burner. Boiler slagging was reported as "about the same or slightly less" than when high-sulfur coal was used-- i.e., not a problem (Petitioner's Ex. 12). Cost figures are given for additional coal-handling equipment (R. 27-28, 145-46). Illinois Power has not proved that low-sulfur coal is an unavailable alternative for Wood River #5.

The company did attempt to show that use of low-sulfur coal, without corrective action, might impair the efficiency of particulate collection by the existing precipitator, which was designed on the basis of the coal now being used (R. 30-31; Petitioner's Ex. 8). This is a subject we recently considered in great detail in Commonwealth Edison Co. v. EPA, #72-91, 72-150, 5 PCB \_\_\_\_ (Aug. 8, 1972), in which the issue was squarely presented as to whether a variance from particulate standards could be granted on the basis of precipitator inefficiencies allegedly caused by use of low-sulfur coal. The evidence here is no more adequate than what we found insufficient in that case to demonstrate causation or the absence of effective and reasonable corrective measures. Reliance is placed entirely on a single paragraph in a technical article which in turn is based upon two other articles, one of which dates from 1968. The single

chart (Ex. 8, fig. 4) summarizing the effect of low sulfur content is no more than a bare conclusion without supporting information as to how or under what conditions the information was derived. We held just such an unsubstantiated chart insufficient in Edison, and we do so here. The company's Opening Final Argument concedes there is no proof that any impairment of precipitator performance cannot be corrected by additives and that there is a possibility of supplementing the existing precipitators (p. 16), and the article relied upon states that high efficiency can be attained at low sulfur content by substantial increases in collection area or in gas temperature (Ex. 8). Refuge is taken in the assertion that the availability of corrective techniques has not been conclusively proved; but the burden of proof under the statute is on the petitioner. Illinois Power has not shown that meeting the sulfur standard by using low-sulfur coal will result in violations of the particulate standard. Moreover, if such proof were made it would not necessarily mean the sulfur standard could be ignored. Not only is the entire argument wholly inapplicable to other methods of meeting the sulfur standard, but if a proper showing were made of the need for some relaxation of the particulate standard in order to do something about sulfur, we could consider that as an alternative. See Commonwealth Edison Co. v. EPA, cited above.

Thus the record fails to demonstrate that the technology is unavailable for compliance with the standard; the remaining argument is that compliance is not worth the cost.

The cost of low-sulfur coal, together with associated expenditures for railroad cars and coal-handling equipment, was estimated at approximately 80 cents per million btu (R. 74-80), compared with a present fuel cost of 26 cents (R. 75). Low-sulfur coal and Cat-Ox were estimated to have about the same overall effect on the cost of producing electricity (R. 75, 81). The estimated \$20,000,000 or so for a Cat-Ox system, which is higher than the estimate for a Chemico scrubber, sounds like a good deal of money. But the context is important, and large expenditures are not per se unreasonable; if they were large polluters would never have to clean up. Wood River #5 is a huge plant. There is no showing that the cost of control is an extreme percentage of the cost of the generating unit itself, or that it will add dramatically to the consumer's electric bill. Fuel costs are only a part of the cost to the consumer; no suggestion is made that we can directly extrapolate the increase in fuel costs to determine the effect on the buyer. That a good deal of money is at stake proves simply that a good deal of money is at stake; not that it should not be spent. The costs estimated by Illinois Power are those we contemplated and found reasonable

when we adopted the regulation.

The question is what will the public gain if the expenditure is made, and Illinois Power contends that the answer is very little. Its witness testified to test results from three monitoring stations set up at locations from 800 feet to 5.9 miles from the Wood River station, designated in an attempt (which admittedly may not have succeeded) to find the worst sulfur-dioxide concentrations attributable to the station (R. 87, 109-10, 124). Federal and state air-quality standards, he said, are not violated as often or by as great a margin as they used to be. For example,

At location 1 for this period in 1971, the State one-hour maximum was exceeded twice, the federal three hour maximum once and the federal secondary daily maximum, the strictest of the three daily maximums, was equalled once and exceeded twice. For 1972 neither the one-hour nor the three-hour maximums were equalled or exceeded although the federal secondary daily maximum was exceeded twice. . . . At location 1, the highest one-hour maximum in 1971 was 0.68 but only 0.407 in 1972; the highest three-hour maximum in 1971 was 0.54 but only 0.282 in 1972, and the highest daily maximum in 1971 was 0.23 but only 0.171 in 1972.

(R. 91).

We do not find this especially persuasive. It tells us that the air is bad in areas affected by sulfur-dioxide emissions from Wood River Unit #5; air-quality standards set to protect the public health and welfare are presently being violated. As for the frequency of short-term violations, the company acknowledged that when the wind is blowing the contaminants responsible for the high readings away from the limited number of monitors employed, peak concentrations may be found somewhere else. The total number of days on which air-quality standards are exceeded in the vicinity cannot be judged by the number of days they were exceeded at these three monitoring stations (R. 122). Illinois Power's evidence has failed to show that air quality in the area affected by the Wood River plant is satisfactory.

Illinois Power points out that it is not the only contributor to the air-quality problem in its neighborhood, which is quite true. Its Exhibit 11, a pictorial explication of monitoring data correlated with wind direction, shows that over the monitoring period the highest sulfur-dioxide concentrations are not always associated with winds blowing directly from the Wood River station (see R. 115-16). But the existence

of other sulfur-dioxide sources in the area does not relieve Illinois Power of the need for control; it aggravates the problem. The statute makes clear that it is unlawful to emit contaminants which cause air pollution "either alone or in combination with contaminants from other sources," Environmental Protection Act, § 9(a), and the regulations make the same provision respecting multiple-source violations of federal or state air-quality standards (PCB Regs., Ch. 2, Rule 102). If the law were otherwise no one would ever have to take action when emissions from a combination of sources cause the air to be unfit to breathe.

The company's own Exhibit 11 shows significantly high sulfur-dioxide concentrations when the wind is blowing from or within a few degrees of the Wood River station; it does not deny that it makes "a contribution" (R. 125-26). It claims it cannot determine the extent of this contribution because of other sources in the area (R. 125). The Agency has compiled a list of other principal sources (EPA Ex. 1), which shows that Unit 5 alone emits more than twice as much sulfur dioxide as the sum of three large nearby refineries and that, after control of the other Wood River units, Unit 5 will emit 60% of the sulfur dioxide emitted by all major Illinois sources within five miles of the plant. The company on cross-examination elicited that possible Missouri sources had not been considered, that there was no magic in the five-mile figure, and that the compilation did not make allowances for varying stack heights (R. 188-98). None of this demonstrates that Unit 5 is anything other than a very substantial contributor to a serious air-pollution problem.

The Agency further buttressed this point with the results of atmospheric diffusion modeling (EPA Ex. 3), predicting on the basis of unshaken emission and meteorological information that at low wind speeds and certain stability conditions Unit 5 by itself would cause sulfur-dioxide concentrations of 0.14 ppm and above over significant areas. For example, at a wind speed to two m.p.h. and a 2000-foot mixing height the area exceeding 0.14 as a result of emissions from Unit 5 alone is predicted to be an ellipse nearly four miles long and a mile and a half wide at its greatest dimensions, with a peak concentration of 0.31 ppm in the central portion of the area (EPA Ex. 3, p. 19; R. 206-07). Smaller areas of ambient concentrations above 0.14 are predicted also at wind speeds of from 3 to 7 mph (EPA Ex. 3, pp. 20-22; R. 208). Moreover, these calculations do not take into account such meteorological conditions as downwash, fumigation, or inversion; downwash, EPA testified, would be expected under all circumstances to worsen the concentration (R. 208). An EPA meteorologist testified without contradiction that wind conditions such as those predicted to result in concentrations above 0.14 from Unit 5 would occur on the average an aggregate of 411 hours per year, equalling about seventeen 24-hour days.

The level of 0.14 ppm was chosen because it is the federal health-related standard for a twenty-four-hour period (R. 211). EPA does not argue that it has conclusively demonstrated that the predicted concentrations will persist for long enough at any one place to cause a violation of this standard. No such proof is necessary to make clear that the company has failed to prove that Wood River Unit #5 is not a highly significant source of ambient sulfur-dioxide concentrations in the area. The burden is on Illinois Power to prove that it is unreasonable to require its emissions to be controlled at the price; the evidence is clear that they have a considerable adverse effect on an unacceptable ambient air quality.

Illinois Power argues that things will continue to get better in the Wood River area because other sources, including the other stacks at the Wood River plant, will be brought under control. There is however, no proof that these other reductions will be adequate to prevent violations of the air-quality standards, even if that were enough to justify a variance. More importantly, the argument misses the point. Illinois Power is in no better position to make the argument than is anyone else, and if everybody were allowed to let the other fellow do the controlling, nobody would ever control. In any event, while air quality is relevant in determining the question of unreasonable hardship, we cannot give conclusive weight to borderline compliance with air-quality standards without abandoning the entire concept of emission standards, which we vigorously endorsed as a necessary tool for achieving satisfactory air quality when we adopted the regulations. To excuse compliance with emission standards whenever air-quality standards are met would be to abandon the emission standards altogether. Even in areas that are now cleaner than required by the air-quality standards, we observed, there is a need for compliance with emission standards, for two reasons:

The first is to make allowance for anticipated growth and development, so that the standards continue to be met in the future without forbidding desirable expansion. Where we can reasonably do so, we must provide a margin for the installation of new facilities by requiring controls that may be tighter than the minimum needed to meet the standards today. We cannot allow present emission sources to use up the entire assimilative capacity of the air without robbing the future of the opportunity for growth. Second, air quality standards are set not at the optimum level of air quality, but at the worst level we are prepared to tolerate if

we must. Whenever we can reasonably make the air cleaner than that, we ought to do so. In short, to adopt regulations that barely suffice to meet air-quality standards today would be intolerably short-sighted if technology permits us to do substantially better without imposing exorbitant costs.

In the Matter of Emission Standards, #71-23, 4 PCB 298, 309 (April 13, 1972). In the case of sulfur dioxide, we limited the emission standard to problem areas; the evidence in this case has not shaken our then conclusion that the Illinois portion of the St. Louis region, or at least the part of that region affected by the Wood River plant, is a problem area.

To reduce emissions from Unit 5 by two thirds, as required by the regulation, would on the evidence in this case have a highly significant favorable impact on the undesirable air quality in the area. If no such control is provided, it is entirely possible on the evidence before us that some new manufacturing operation promising jobs for persons in the Wood River area could not be permitted to locate there because the air already has all the sulfur dioxide it can safely hold. We cannot on these facts find the expenditure of the sums described by Illinois Power for controlling its sulfur-dioxide emissions to constitute an arbitrary or unreasonable hardship.

The company suggests that adequate protection against occasional excessive concentrations of sulfur dioxide could be provided at far less cost by implementation of an episode control program (Opening Argument, p. 19). The program consists of a promise to "reduce the load on Unit 5 to the fullest extent possible" during unfavorable atmospheric conditions. At another point in this case the company went to considerable lengths to demonstrate how indispensable Unit 5 is to enable it to meet the electricity needs of its customers (R. 135 et seq.) We do not find adequate the assurances in the Opening Final Argument that peak demands do not usually coincide with peak concentrations; there is no satisfactory proof that Illinois Power has very strong control over either the weather or the demands of its customers. Thus we cannot feel confident that the load on Unit 5 can actually be reduced whenever air quality demands. Nor is there adequate proof that excessive concentrations of sulfur dioxide are or can be expected to be rare, as discussed at length above. Finally, this episode control proposal, such as it is, once again would have us abandon the emission standards we have adopted in favor of an ad hoc and uncertain approach based on air quality alone. The benefits of everyday reductions of sulfur dioxide emissions in this case have by no means been shown so insignificant as to make the cost of everyday control unreasonable.

There are suggestions in the record that Illinois Power believes it may need more time than is allowed by the regulation to bring itself into compliance, if it must comply at all. The company alleges, but did not prove, that it may take four years to arrange for low-sulfur coal; and a company witness concluded, after intensive cross-examination on the basis of Monsanto's time estimates, that there was "a faint possibility" that a Cat-Ox system could be installed in time (R. 71). The specific facts as to dates elicited from this witness suggest to us more than a "faint possibility" and are more persuasive than his general conclusion. In any event, Illinois Power has not proved it is entitled to additional time. Moreover, it has not asked for more time as such; its plea is for an indefinite exemption from the sulfur-dioxide standard. We shall entertain a request for more time upon presentation of a control program indicating specifically what is to be done to meet the standard, when, and why it cannot reasonably be done sooner. Cf. Chicago-Dubuque Foundry v. EPA, #71-130, 2 PCB 65 (June 28, 1971).

Illinois Power has shown that this case is precisely the type of case for which the regulation was designed: Wood River Unit #5 is a very big source of sulfur-dioxide emissions in an area of excessive ambient sulfur-dioxide concentrations. To grant a variance here would be to repeal the emission standard, and Illinois Power has not proved that compliance will create an arbitrary or unreasonable hardship.

The variance is denied.

I, Christian Moffett, Clerk of the Pollution Control Board, certify that the Board adopted the above Opinion & Order this 24<sup>th</sup> day of October, 1972, by a vote of 5-0.

Christian L. Moffett