ILLINOIS POLLUTION CONTROL BOARD
March 7, 1972

NORTH SHORE SANITARY DISTRICT	)	
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	)	
v.	)	# 71-36
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ENVIRONMENTAL PROTECTION AGENCY	)	

Opinion and Order of the Board on Reversal (by Mr. Currie):

On January 6, 1971, after detailed hearings relating to the adverse effects of phosphorus on Lake Michigan and to the technology for controlling phosphorus discharges, this Board adopted regulation #R 70-6, which among other things required phosphorus in effluents to the Lake to be reduced to 1 mg/l by December 31, 1971. The North Shore Sanitary District, which operates seven sewage treatment plants discharging to Lake Michigan, indicated its intention to comply with the regulation at its Waukegan plant but requested a variance with regard to the others. After hearing, in an extensive opinion by Mr. Dumelle, the Board unanimously voted to deny the variance (June 9, 1971). On January 3, 1972 our decision was reversed by the Appellate Court for the Second District on the ground that "the Board based its decision upon matters which are not within the record." (Ill. App., 2d Dist., Docket No. 71-157).

On January 17, 1972, we entered an order directing the parties to give us written statements indicating their position as to what action the Board should take on the basis of the reversal of its initial order. Among the alternatives raised for the parties' consideration were to enter a new order on the basis of the record as defined by the Appellate Court; to hold further hearings; or to deem the case closed. We then deferred action pending resolution of our motion for clarification of the Appellate Court's decision, which was denied without opinion.

We have asked the Attorney General to seek further review in the Supreme Court, in order to clarify how we can avoid wasteful reintroduction of evidence received at earlier proceedings between the same parties; to make sure that cases are remanded, as we think the court intended, when reversed on grounds such as in this case; to establish the right to file with the reviewing court portions of our record inadvertently omitted; and to protect our subsequent action in the event the Appellate Court disagrees on a later appeal with our interpretation of its decision.

At the same time, however, we cannot wait for the Supreme Court to decide these far-reached issues if we are to have any impact upon what is discharged to Lake Michigan in the next year or two. Moreover, we believe, for reasons indicated below, that the import of the Appellate Court's decision is that we reexamine the proper record, excluding those matters objected to by the court, and enter an appropriate order on the merits. We have made such a reexamination and conclude that the District has not established its case for a variance on the record as defined by the Appellate Court.

The court's order simply states that our order is "reversed." In light of the court's opinion, we do not read this as a grant of the requested variance by the court. For, even assuming that the court would in an appropriate case grant a variance itself rather than remanding for us to do so, the court nowhere suggested that it found the evidence justified a finding of arbitrary or unreasonable hardship, the statutory requisite for a variance. On the contrary, the court's entire thrust was that our decision must be set aside because we relied upon facts outside the record. We therefore can read the order only as a setting aside of our order and a remand for further proceedings consistent with the court's opinion.

We think this requires us to reassess the evidence without considering anything the court deemed to be outside the record. Accordingly we shall go through the evidence again, this time taking care to excise what the court directed us not to consider.

On the basis of what is indisputably in the present record, we remain convinced that the District has not proved that compliance with the regulation would impose an arbitrary or unreasonable hardship, as required by section 35 of the Act, and therefore once again we deny the variance requested. A summary of the evidence relevant to conclusion follows.

The District's plants, with the exception of Waukegan, which was never involved in the present case, have the following capacities: North Chicago, 3,500,000 gallons per day; Lake Bluff, 300,000; Lake Forest, 1,000,000; Park Ave. (Highland Park), 1,000,000; Ravine Drive (Highland Park); 500,000; and Carey Ave. (Highland Park), 1,000,000 (R. 8, 30). Of these six plants only North Chicago has more than primary treatment (id.), and all except the Ravine Drive plant are overloaded both hydraulically and organically (R. 33-34). Measured phosphate concentrations in the effluent from the North Chicago and Waukegan plants (indicated in respondent's group exhibits 2 and 3, which were admitted into evidence and whose authenticity or accuracy was not questioned) averaged 16.6 mg/l at Waukegan and 16.7 at North Chicago as PO_4. The regulations limits effluents to 3.0 mg/l as PO_4. There is nothing to indicate that the effluent from the other lakefront plants is any better; indeed they provide a lesser degree of treatment than either Waukegan or North Chicago.

Even assuming, in the absence of more exact evidence, that the effluent from the primary plants is no worse than that from the secondary in terms of phosphate, and ignoring the admitted problem of flows beyond plant capacity, 16.6 mg/l of phosphate at the nominal capacity of the five small plants (3,800,000 gallons per day) means the input of over 200,000 pounds per year of phosphate into the Lake.[1]

The District's testimony as to the effect of this additional load on lake ecology was given by two engineers, neither of whom, admittedly, was a biologist (R. 37, 82). Raymond Anderson, Secretary and General Manager of the District, said that in his opinion "it would cause very little damage to Lake Michigan to continue this for another year . . . because of the small amount of flow that emanates from within Lake County to Lake Michigan . . . estimated at one per cent of the total flow reaching Lake Michigan from all of the four states bordering on the lake" (R. 26). Herbert W. Byers, Chief Engineer, testified to the same effect: "My opinion is that the phosphate not being removed will not have any adverse effect on Lake Michigan. . . . The quantity is very small, and so small that I would expect that you would get no measurable background level of phosphorus in Lake Michigan from this addition" (R. 64). Mr. Byers said his "own feeling" was that Lake levels might "probably" be increased "in the neighborhood of one part per million or trillion. I have never sat down and figured it out, but I have got to take so many gallons in Lake Michigan" (R. 82). Mr. Anderson added that he knew of no deleterious effects of phosphorus "on anyone drinking water, unless, of course, we are talking about excessive amounts," which he did not expect to find. He did not know what an "excessive amount" would be (R. 48-49). That was the sum total of the District's evidence as to the effect of its proposed discharge upon the Lake.

The fact that sources in other States may be discharging substantially larger quantities elsewhere to the Lake is simply irrelevant. The issue is whether what the District means to discharge will hurt the Lake. There was no evidence as to the impact of discharges in other States on the water quality off Lake County. The District presented no evidence as to the rate of dispersion of contaminants once discharged into the Lake, as to whether phosphorus could be expected to mix instantly with water from the northern end of the Lake or to remain in relatively high concentrations for significant periods near the point of discharge, or as to the extent of the phosphorus problem already in the Lake. Its only witness as to the effect of continued discharges on Lake concentrations admitted he was simply conjecturing; he had not "figured it out."

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[1] We take official notice that 1 gallon = 3.785 liters; that 1 mg = .0000022 lb.; and that 1 yr. = 365 days.

The District did not even mention the possibility of over-fertilization of the Lake, with consequent possibilities of nuisance algal blooms, much less demonstrate that its anticipated discharge would not cause or contribute to such a problem. In short the District's case as to the effect of its discharge upon the Lake consisted solely of the bare conclusions, unsupported by any relevant facts except the speculation that unknown "excessive amounts" sufficient to poison drinkers would not be likely, of two engineers admittedly without special qualification with respect to aquatic biology. Aquatic biology is what is at issue in this part of the case, and we do not view these inexpert conclusions, devoid of factual support, as carrying any significant weight. Even without considering the Agency's evidence, therefore, we find the District has told us essentially nothing to suggest that the effect on the Lake will be small if discharges continue.

The Agency's evidence, moreover, reveals the following: First, that water quality standards for phosphorus in Lake Michigan, even before they were tightened by our recent regulation, were regularly and severely exceeded in waters adjacent to the North Shore Sanitary District. For example, the May 1970 report of the Sanitary Water Board, introduced as Respondent's Exhibit 7 and not questioned, states flatly that

> The shore water did not meet the standard for total phosphate during 1969. Of four hundred and seventeen samples collected, two hundred and seventy-five (65%) exceeded the criteria for single samples. None of the thirty beaches met the standard for annual average. (p. 9).

The same report, on the same page, observes that "phosphates are present in sanitary and industrial wastes, detergents and fertilizers. They stimulate algae growth." The corresponding report of February, 1969 (Respondent's Exhibit 5), is similar, noting that "In Lake County, all beaches had 30% or fewer of the samples meeting the criteria for daily limits. . . . High phosphate values occurred frequently at the Waukegan outer beach and the North Chicago beach. Ten of the twenty beaches sampled on September 2 (1968) had PO_4 values equal to or greater than 1.0 mg/l." The standard at the time for a single sample was 0.04 mg/l. (p. 19). Second, the Agency introduced into this record a resolution adopted by the District itself in November 1970 (Respondent's Exhibit 1), in which the District made the following points:

WHEREAS, excessive growth of algae and aquatic plants accelerates the aging of Lake Michigan, reduces its attractiveness for recreational uses, adversely affects fish and aquatic life, and interferes with the quality and procurement of public water supplies, and

WHEREAS, excessive discharges of phosphates to the Lake contributes to excessive growth of algae and aquatic plants, and

WHEREAS, synthetic detergents are a major source of phosphates in sewage effluents discharged to the Lake, . . .

the District urged municipalities within its boundaries consider limiting the use of high-phosphate detergents by March 1, 1971. Thus the District itself is on record, as shown by the evidence in the present case, as declaring that phosphorus in its sewage effluents is such a serious problem, notwithstanding the District's plan to divert its wastes out of the Lake, as to make it desirable to consider limiting the sale of high-phosphate detergents as early as March 1971 in order to protect the lake from potentially obnoxious algae and other growths.

In summary it seems to us abundantly clear that the District has failed to demonstrate that the effect of continued phosphate discharges from its plants as proposed in the variance petition will have an insignificant effect on Lake Michigan. We think the evidence is clear that phosphate can cause serious algal problems, as indicated by the District's resolution; that for several years the shore waters in the area of the District have grossly exceeded the standards for phosphate; and that to grant the variance would allow additional thousands of pounds of phosphates to enter this part of the Lake each year until full diversion of the effluent is accomplished. We also think it significant, in assessing the benefits of compliance with this regulation, that the District conceded that treatment for phosphorus removal would also result in a reduction of suspended solids from plants several of which provide only primary treatment (R. 80-81).

Moreover, the evidence is plain that the District will not be able to terminate these discharges by the end of 1972, as might be inferred from Mr. Anderson's testimony, quoted above, that little damage would be caused by allowing uncontrolled discharges "for another year." Mr. Anderson was questioned on this subject at pages 38-40 of the present record, as follows:

Q Assuming no delays, when do you expect the effluent from the Waukegan plant to be diverted from Lake Michigan?

A That is the one that I referred to as by the end of 73.

Q Assuming no delays, when do you intend to have the effluent from the North Chicago plant--

A About the middle of 1973.

Q How about Lake Bluff?

A The same for all of the remaining five plants, about the middle of 1973. . . .

Q . . . Do you feel it within the realm of likelihood that there will be other delays?

A Yes. I am afraid that there probably will be more delays.

This last conclusion was based at least in part upon testimony as to the considerable opposition and litigation faced by the District in its attempts to carry out the diversion plan (ibid).

The District's case, then, rests on its contention that the sums of money to be spent are too large to be justified in light of its very meager record as to the effects of continued discharges on the Lake. To the evidence as to those costs we now turn.

Chief Engineer Byers testified that temporary facilities for phosphorus reduction at the six plants in question would cost an estimated $350,000 in total, with minimal salvage value (R. 51-60, 83-84). Operating costs, which included $153,000 for chemicals, were estimated to total $292,000 annually (R. 51-58). We do not believe the chemical cost can be taken at face value in light of the District's own testimony that at Waukegan it plans to accomplish phosphorus reduction by using waste pickle liquor from a nearby industry at no cost above that of transportation (R. 43-44). No evidence was offered to rebut the inference that cheap pickle liquor might be used elsewhere as well. Nor do we believe that operating costs are of particularly persuasive force in this case. Everyone required to meet a regulation must pay operating costs; the District's claim for special treatment is bases upon its intention to abandon its lake discharge within what it views as a short time. Operating costs, as we said in our earlier opinion, "are not increased by the need to abandon a capital investment in a couple of years ; the only unique

hardship in the District's case is the capital cost that allegedly cannot be recovered" (p. 5)[2]

Even if we accepted the District's cost figures at face value, which as above explained we do not, we adhere to our earlier conclusion, on the basis of the record as defined for us by the Appellate Court, that "the total cost involved is peanuts in the context" (p. 5) of an overall program estimated at the time of this hearing at $86,000,000 (R. 22). Taking official notice of the population of the District, we note that even the District's own figure for the first and most expensive year of phosphorus control--$654,000 (R. 58) (assuming no amortization of capital costs, as the District does, which makes for the highest possible figure)--is a good deal less than five dollars per capita within the District. Our conclusion is that it is well worth an expenditure of that small magnitude to avoid the risk of worsening the already severe violations of water quality standards in Lake Michigan with regard to phosphorus, which the evidence in this narrow record amply indicates the District itself agrees is a principal cause of worry over algal and other plant nuisances.

The statute is very clear that no variance can be granted without "adequate proof" that compliance would impose an arbitrary or unreasonable hardship" and that in variance cases "the burden of proof shall be on the petitioner" (Environmental Protection Act, sections 35, 37). Our procedural rules, implementing this requirement, make it clear that it is part of the petitioner's case to plead (and thus to prove) "the costs that compliance would impose on the petitioner and others and . . . the injury that the grant of the variance would impose on the public" (PCB Regs., Ch. 1, Rule 401). We have stressed these requirements as to both pleading and proof in several cases. For example, in Decatur Sanitary District v. EPA, # 71-37 (March 22, 1971), we dismissed as inadequate a variance

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[2] We think the variance request regarding North Chicago has been mooted by our subsequent order in the enforcement proceeding that "The District shall employ alum at the North Chicago treatment plant in order to reduce the BOD and total suspended solids discharged by 50% and to reduce phosphates by January I, 1972." League of Women Voters v. North Shore Sanitary District, #70-7, June 23, 1971. At this point the question of compliance at North Chicago is res judicata. The District's estimate of North Chicago's share of the capital costs is $100,000 (R. 55). North Chicago was further estimated to account for $45,000 of sludge-handling costs and $95,000 in chemicals annually (R. 56-58) Subtraction of these amounts would significantly reduce the cost of the improvements that the District objects to. In any event, if we are wrong in deeming North Chicago no longer a part of this case, not only the costs but also the discharges are essentially doubled, and the benefit-cost ratio is substantially unaffected. We reach the same result whether or not North Chicago is included.

petition because it did not "contain an adequate statement of the injury that would result to the public if the variance were granted. . . . It is the job of the petitioner, not of the Agency, to prove the case for a variance." In Norfolk and Western Railway Co. v. EPA, # 70-41 (March 3, 1971), we denied a variance request for want of adequate proof that the hardship of compliance was so great in comparison with the benefits as to justify the extraordinary remedy of a variance:

> Section 37 of the Environmental Protection Act makes plain that the petitioner must prove that the pollution caused by its continued violation is not so great as to justify the hardship that immediate compliance would produce. We cannot determine whether or not the costs of compliance significantly outweigh the benefits as the statute requires. . . unless we have some idea of what the benefits are. For all we know on the present record, the railroad's shops may be an unbearable nuisance and health hazard. The petitioner has clearly failed to meet its burden of proof.

Moreover, we have had occasion to observe that the burden on the petitioner is an extremely heavy one. See, e.g., EPA v. Lindgren Foundry Co., #70-1 (Sept. 25, 1970), at pp. 6-7:

> 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. . . . 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. . . .

For all the reasons given in this opinion, and on the basis of our reexamination of only those parts of the record which the Appellate Court has indicated we may properly consider, we conclude that the District has failed to satisfy its burden of proof and therefore once again we hereby deny the requested variance.

I, Christan Moffett, Clerk of the Pollution Control Board, certify that the Board adopted the above Opinion and Order on Reversal this 7th day of March, 1972, by a vote of 4-0.

Christan Moffett