ILLINOIS POLLUTION CONTROL BOARD
January 31, 1972

NORTH SHORE SANITARY DISTRICT	)	
	)	
v.	)	PCB 71-343
	)	
ENVIRONMENTAL PROTECTION AGENCY	)	

Mr. Murray R. Conzelman and Mr. John R. Sloan appeared for the North Shore Sanitary District

Mr. Richard Cosby and Mr. Thomas W. Scheuneman appeared for the Environmental Protection Agency

Mr. Richard M. Kates appeared for the League of Women Voters

OPINION OF THE BOARD (by Mr. Richard J. Kissel):

On November 2, 1971, the North Shore Sanitary District ("District") sought a variance from the Pollution Control Board ("Board") with regard to Paragraph 7 of the Board order in the case of League of Women Voters, et al v. North Shore Sanitary District, PCB 70-7, 12, 13 and 14. Paragraph 7 of that order adopted by the Board March 31, 1971, provided as follows:

> "The District shall not permit any additions to present sewer connections, or new sewer connections, to its facilities until the District can demonstrate to the Board that it can adequately treat the wastes from those new sources so as not to violate the Environmental Protection Act, or the Rules and Regulations promulgated thereunder."

The March 31 order also provided that the District was to use all statutory powers available to raise funds.

The District's variance petition alleged that its research and investigation showed it could increase its capacity on an interim basis at the Waukegan and Clavey Road plants. Through the use of chemical additives at Waukegan, the District anticipates that it can increase its capacity by 17,000 population equivalents (P.E.). Relying on chemical additives and the new 18 mgd effluent lagoon at Clavey, the District looks for a 10,000 P.E. effective increase in capacity. The District then asks that the Board

allow connections to these two plants in an amount not to exceed 80% of the population equivalents made available. Upon receipt of the variance, the District agreed to enact a connection fee ordinance. The variance petition further alleged that the existence of a sewer ban does and would continue to impose a severe economic hardship within the limits of the District.

In its recommendation, the Agency asked that the District's petition be denied. The Agency questioned whether the District was suffering the hardship required by the Act for the granting of a variance. It pointed out that the hardship was actually upon those prohibited from building due to the sewer ban. If the variance were granted, the Agency indicated that it should not extend to those areas served by sewers where overflows and surcharging are presently occurring. The Agency agreed that if the District were meeting the requirements of SWB-14 at Clavey Road and SWB-7 at Waukegan by discharging an effluent of 20 mg/l of BOD_5 and 25 mg/l of suspended solids, it would have no objection to the grant of a variance.

Upon the receipt of the petition, the Board entered a preliminary order in this case. This order, dated November 23, 1971, directed that the League of Women Voters (the "League") be joined as a party to the variance proceedings, since the League was the party that instituted the original enforcement proceedings, and directed that the subject of screening at Water Street be made a matter for the hearings in the instant case. The latter was added because the Board's implementation order in previous proceedings, dated June 23, 1971, directed the District to undertake a study of the economic and technical feasibility of the use of screening devices at the Water Street sewer discharge. Further, the Board directed that the hearings discuss the problem of bacterial and other contamination from combined sewer overflows and plant bypasses. This preliminary order of the Board thus expressly included within the scope of the hearings the subject of bacterial discharges to Lake Michigan, as well as the consideration of BOD_5 and suspended solids to which the District's petition had addressed itself.

The League also responded to the variance petition and indicated that it had no opposition provided several conditions were met. Among such conditions, the League asked that financing be assured before sewers were permitted to hook up, that no hookups occur until the new additions which the District proposes to install were in operation, that no additional bacterial harm be created with the new hookups, that air pollution control at Clavey continue, that the District show that it is in compliance with the

March 31 order of the Board, that building be restricted in those areas of the District where sewers are shown to be inadequate, that a manner of allotting hookups be indicated, and that there be a limit on the number of hookups so that if the chemical additives do not adequately perform further hookups be prohitibed.

[BASIS OF PARAGRAPH SEVEN]

In order to understand the Paragraph from the March 31 order from which the District seeks a variance, it is helpful to examine the original Board opinion in the case of League of Women Voters, et al v. North Shore Sanitary District, PCB 70-7, 12, 13 and 14. The testimony received in that case established that each of the District plants, with the exception of the Ravine Drive Plant, had far exceeded its capacity, and therefore was incapable of treating the sewage each received even to the degree for which the plant was designed. (See page 4 of the opinion, March 31, 1971). That opinion also detailed the deleterious effect which the overloading of the lakefront plants had upon the Lake. (See opinion, pages 4-7). In order to avoid adding additional sewage to already overloaded plants where it would receive little or no treatment, the Board ordered the imposition of a sewer ban. This ban affected not only extensions to existing sewer lines, but also individual hookups to existing sewer lines. The Board found such an order "imperative" in order to avoid the continuing threat of increased water pollution and serve the purposes of the Environmental Protection Act. (See opinion, page 16). The March 31 opinion also pointed out several alternatives were available to aid in alleviating effects of the ban and cited that method which the District proposes herein, the addition of chemical coagulants to increase the effective capacity of existing secondary plants. (Opinion, p.17).

[THE CLAVEY ROAD PLANT]

The Clavey Road plant provides primary and secondary treatment of all wastes through the use of an activated sludge process. (R. 61) Since the imposition of the March 31 order, the District has attempted to abate air pollution from the Clavey site by the addition of sodium hypochlorite into the sewer about 3 miles upstream from the Clavey plant and at the influent chamber to the plant itself. In the District's judgment, such a program has been very successful in inhibiting the decomposition of the sewage and thereby aiding in alleviating the air pollution problem. (R. 62) Two other facilities have also been added to Clavey in 1971. The District completed its chlorination facilities and can now provide for prechlorination ahead of the plant. (R. 63) In conjunction with this

variance application, the District also conducted a study to determine the effect on the plant effluent of adding chemicals and polymers and of using the new 18-mgd effluent lagoon at Clavey. (R. 66) A plant scale test indicated that a dosage of alum at 20 mg/l ahead of the final settling tanks would result in obtaining an effluent with approximately 14 mg/l of both BOD_5 and suspended solids. (R. 66-67, 106) The District's studies determined that the addition of chemicals and polymers would have about the same effect on the effluent as the use of the new effluent lagoon. The chemicals, however, when used in conjunction with the effluent lagoon would assure that the projected results are attained and would mean an additional improvement of about 10 or 15% over what would be achieved by the effluent lagoon alone. (R. 67) The cost of installing the polymers and chemical feed system at Clavey would approximate $75,000; to operate that system throughout the year would cost about $140,000, including an amount for additional sludge removal. (R. 68) The District does not believe that it would be necessary, however, to operate using the chemicals and polymers throughout the year. (R. 223) It would be possible to obtain the same degree of assurance at Clavey by using the facilities only intermittently. Such use could lower the operating costs to about $10-20,000 annually. (R. 257, 259) In any case, however, after July 1, 1972, the District will not be meeting the SWB-14 effluent criteria of 4 mg/l BOD_5 and 5 mg/l suspended solids effective after July 1, 1972.

[THE WAUKEGAN PLANT]

The flow from the Waukegan plant discharges to Lake Michigan. The Waukegan plant is capable of giving secondary treatment to approximately 8-12 mgd, the remainder receiving primary treatment and chlorination. (R. 145) Over the past year, the Waukegan plant has operated on an average of just under 14 mgd. (R. 111) At present, the District is adding ferric chloride at Waukegan ahead of the primary tanks. (R. 219) The District has polymer feed equipment on order and it should be installed within three months. The District then contemplates adding chemicals and polymers ahead of the final tankds in addition to the present ferric chloride being added ahead of the primary tanks. (R. 220) The District believes that such additions before the final tanks will permit improved removal efficiency for that portion of the flow which receives secondary treatment.[1] It also means that a larger proportion of the flow can pass through the secondary

[1] The League questioned whether the District should employ cationic rather than anionic polymers in order to obtain a higher degree of treatment. The District shall study whether such increased efficiency is attained and report to the Board and the Agency on the type of polymers it has installed and why.

treatment facilities. (R. 220) The capital cost of such chemical and polymer feed equipment is about $5-10,000 and could be installed by District personnel in approximately three months. (R. 221) The annual operating cost would approximate $50,000. (R. 221) The District has not conducted any plant scale tests at Waukegan, as was done at Clavey. With the present use of ferric chloride, the Waukegan plant is obtaining approximately 30 mg/l of BOD_5 and suspended solids on a total effluent average. (R. 114) After adding the chemical feed and polymer system and taking on new loadings, the District's chief engineer indicated that the final concentration in the effluent would remain in basically the same 30-35 mg/l range. (R. 146-7) The present SWB-7 standard for the Waukegan plant provides for an effluent of 20 mg/l BOD_5 and 25 mg/l of suspended solids.

[EFFECT OF CHEMICAL TREATMENT]

The quality of treatment afforded by the effluent lagoons and the increased chlorination at Clavey have had the effect of removing from the effluent the organic raw equivalent of a population equivalent of about 10,500 people. (R. 107) The District projects that an addition of 80% of the increased loading capability, or approximately 8000 P.E., will still result in the Clavey Road plant meeting the applicable state standards. With the use of the ferric chloride chemical feed system at Waukegan, the District has been able to obtain a BOD_5 and suspended solids reduction of approximately 24,000 P.E. The District's variance petition, however, only seeks to add on 13,600 P.E. The District's figures are based upon the use of 100 gallons per person per day, having an average BOD_5 loading of .167 pounds per person per day.

[THE HARDSHIP]

The hardship in this case is only incidentally imposed upon the Sanitary District, but affects directly others within its boundaries. Though the Agency in its Recommendation challenges whether any hardship is imposed at all on the District and, therefore, whether such a subject is a proper matter for consideration in this variance case, the Board believes otherwise. Numerous variance cases decided by the Board have been based on hardship to others rather than the petitioner. For example, when detailing the hardship that would be imposed upon the GAF Corporation were the Board to deny the variance, the Board described as "more serious . . . the testimony that closing the plant would cause the layoff of 700 employees." (PCB 71-11) The hardship imposed

upon the residents and the proposed residents of the District were the variance to be denied is both an economic and social one. In the economic area, it results in the loss of income; in the social realm, it imposes substantial inconvenience on the owners of land within the District who wish to build and on the owners of existing facilities who wish to expand. The testimony of several witnesses established that construction of new houses, as well as other buildings, within the District has virtually come to a halt. Examples of this testimony follow.

The First Federal Savings and Loan Association of Waukegan indicated that with the imposition of the sewer ban in the North Shore Sanitary District it has ceased the issuance of all normal construction loan commitments, except where the Lake County Health Department had approved installation of a septic system. The volume of new construction loans handled by the Association had decreased dramatically in the course of 1971. The first quarter witnessed a volume of $1.8 million, the second quarter $42,000, the third quarter $41,000, and the fourth quarter $58,000. (R. 367) Though the ban has increased the values on existing real estate within the District, it has had the opposite effect on developed building sites. (R. 370) For example, a lot which would sell for a certain amount when the District's work was completed and which could then be used for its intended purpose, would have a current value of between 77-81% of its future worth.

Robert MacGruder, Executive Secretary of the Waukegan-North Chicago Chamber of Commerce testified that the only real effect of the ban has been an increase in the selling and rental price of existing real estate. (R. 395) He found that virtually no new construction was underway within the District. (R. 391) If the variance which the District seeks was granted, he indicated that 1000 building permits could be issued in 1972, 2000 in 1973, and 2000 in 1974. Thus, the additional load to the treatment plants would be gradual over three years. (R. 397-98)

Allan Pickus, of Pickus Construction Company and a registered architect working in Waukegan, testified that a majority of his employees were laid off due to a lack of new work brought about by the imposition of a sewer ban. (R. 317-18) At present, Pickus Construction Company is almost non-existent; all work started as of April 1, 1971 has now been completed and there is nothing to take its place. (R. 314-5) Further, for the company to do business outside of Waukegan is difficult since such business would be outside the normal working area and would undoubtedly entail higher costs and therefore mean less competitive bids. (R. 318) Pickus estimated that if the sewer ban were lifted, within one year from that date the total capacity of building within the

District would be approximately 700 units. In the following year, for example, 1973, the production capacity would be approximately 1500-2000 units for occupancy. That would similarly be true for the year subsequent to that, e.g. 1974. (R. 326-27) Approximately 80-85% of new construction would occur in the areas served by the Clavey Road and Waukegan Sewage Treatment plants. (R. 331) There is no question that there has been an economic impact on those people who build new homes in the District and those who benefit from the construction, but the question is whether this hardship is great enough when balanced against the harm caused by the pollution from the District plants to compel the Board to grant the District a variance.

[THE DISTRICT'S (NON)COMPLIANCE]

Before discussing whether a variance should be granted, it is necessary to discuss some of the things the District has, or rather, has not been doing, since the Board entered its June 23, 1971 order. This discussion is important because in setting the terms for the grant of any variance, this Board has consistently insisted that the petitioner be proceeding according to the schedule in implementing his compliance program. Under the Air Contaminant Emission Reduction Program (ACERP), petitioners were obliged to set forth their implementation program; when the time of the ACERP grant had expired, the parties were to seek a variance from this Board in order to, in effect, renew the variance. When such parties filed for a variance, they had to make a showing that their implementation of the ACERP was proceeding according to schedule. Failure to adhere to the schedule or to provide adequate excuse for such failure has resulted in the imposition of a monetary penalty. (See Environmental Protection Agency v. Marquette Cement, PCB 70-23; Greenlee Foundries v. Environmental Protection Agency, PCB 70-33).

Though the North Shore Sanitary District witnesses and Brief state and argue that the District is in "substantial compliance" with the Board implementation order of June 23, 1971, we believe that the evidence shows otherwise. Only Paragraphs 2, 3 and 9 of that Order have been complied with, though by this date all paragraphs except the first were to have been complied with fully. For example, Paragraph 4 orders the District to install and operate interim disinfection facilities at the North Chicago plant by January 1, 1972; Paragraph 7 also applied to the North Chicago plant and ordered the use of alum by January 1, 1972. Neither has been done. Instead the District decided to

build a lagoon and permanent chlorination facilities. In the District's opinion, such interim facilities were a waste of time. (R. 52) Completion of the permanent facilities is expected before the 1972 bathing season. While we commend the District's thoughtfulness and desire to achieve certain economies, that was not what the Board Order directed. If the District sought to deviate from the Order it should have so informed the Board and the Agency rather than just blithely changing its mind.

Further, the Board order, Paragraph 3, directed that screening facilities be installed at Gillette Avenue Sewer by January 1, 1972. At the hearing, the District indicated that such screening should be completed "within a few weeks." (R. 54) Paragraph 6 of that Order obliged the District to employ chemical precipitation and polymers at Waukegan Treatment Plant by September 1, 1971. Though the District added ferric chloride as of September 1, polymers are not yet added, but are a subject of this hearing and should be installed within three months. Paragraph 8 of the June 23 Order directed that chemicals be employed at the other Lakefront plants by January 1, 1972. As of December 9, 1971, the District had finally submitted a permit request to the Agency for such an addition.

Even more disappointing is the District's failure to adhere to its own construction schedule according to Paragraph 1 of the June 23 Order. For example, the Lake Bluff Pumping Station (PS-6) was to be completed by November 30, 1971; today it is delayed "some months beyond that." (R. 232) The Lake Front Intercepting Sewer (Section 1) (S-8A) was to start construction on October 31, 1971; construction has not yet begun due to problems of right-of-way. The District does not know when that will go ahead. (R. 233) The same is true for the Lake Front Intercepting Sewer (Section 2) (S-8A) which was to have started construction on October 10, 1971.

Though the Board realizes that certain problems as to the Clavey Road plant were caused by the necessity of obtaining a Federal Environmental Impact statement and approval thereof, this still does not excuse the District from notifying the Board that certain delays will be incurred due to that. In addition, the delays here are quite substantial. Construction on the Clavey overflow treatment facilities was to have begun on February 1, 1972; because the Federal Environmental Protection Agency required covering of these retention basins, the facilities had to be re-designed. This design will be complete by mid-1972, with completion scheduled for April 1, 1974, instead of August 1, 1973 — an eight-month delay. Due to bidding difficulties work on the Clavey sludge loading facilities (P 11E) and pumping station additions (P 11F) will each be involved in a three-month delay.

Right-of-way problems also plague the Winthrop Harbor Ravine Sewer (S-1) and the interceptor extension (S-2A) so that construction scheduled for last summer has not yet begun. (R.237) The Kellogg Ravine Sewer (S-3) has been subject to a five-month delay due to right-of-way problems. No date is set for construction of the Waukegan Interceptor Sewer, though work was to have begun on December 1, 1971, again due to right-of-way problems. (R. 239) There is a two-month delay on the Waukegan-Bull Creek Sewer (Section 1) (S-5A) because of right-of-way difficulties.

The North Chicago Pumping Station is now scheduled for completion three months late. (R. 238) The Upper Skokie Pumping Station construction will be completed about 1-1/2 months late. The additional treatment facilities at Waukegan were to have been completed on June 1, 1973; due to problems with the Federal government, completion is now predicted for December 1, 1973, a six-month delay. The Waukegan overflow treatment facilities are now scheduled for completion five months late. The Waukegan sludge dewatering facilities, (P-3D) and sludge incineration facilities (P-3E) were both scheduled for completion on February 1, 1973. At present, the District is looking for alternative means of sludge disposal; though the Board realizes that this may bring a cost-saving to the District, this searching has already precipitated a six-month delay in the sludge disposal projects.

The implementation order of the Board in this case was entered scarcely seven months ago and already the District is as much as six or eight months behind on some of the major projects. If it were not that the variance, which the Board shall approve in this case, will substantially improve the quality of the waters in Lake Michigan, the variance petition of such a lax petitioner should be summarily denied. Conduct of the kind demonstrated by the District in its utter disregard for the June 23 Order of the Board cannot be tolerated. The District, and others who are subject to orders of the Board, must learn to take them seriously, to follow them and to get approval from the Board before they unilaterally decide to institute new programs. Other sanitary districts have been diligent in complying with Board oders and keeping the Board informed. (See Environmental Protection Agency v. Danville Sanitary District, PCB 71-28). If the District were to follow the lead of the Danville Sanitary District, perhaps the District would not have the problems it does today.

In promulgating the June 23 implementation order, the Board chose not to order the District to file interim reports detailing its compliance with that order. Perhaps finding that the District had been troubled enough in the recent past and that it should rather get about its business of cleaning up Lake Michigan, we simply ordered the District to adhere to its own projected completion schedule. To our great dismay and surprise and to the detriment of Lake Michigan, the District has fallen markedly behind and, further, has even failed to implement particular Board directives on time. Henceforth, as will be specified in the order, the District shall file monthly progress reports with the Board and the Agency.

The question remains as to what the Board should do as a result of the District's failure to follow the June 23 Order. Of course, many alternatives are available to the Board, including, as we have said, a summary denial of the variance or even the imposition of a monetary penalty. No such penalty shall be imposed, however, since it cannot be determined from the record whether such delays as have been incurred were justifiable ones. In addition, we think that the water quality of Lake Michigan and the economy of Lake County are best served by not being punitive against the District now. Rather, the District will be required, when and if it seeks an additional variance from the Board next year, to prove that it has complied with all of the orders of the Board, or that it has exercised every effort to comply in good faith, but could not. A new variance will only be granted if the Board is satisfied that the District has done everything it could to satisfy its obligation.

[THE VARIANCE]

Under Section 36(b) of the Environmental Protection Act, the Board can only grant a variance for a period of one year, and only if compliance with the laws will impose an arbitrary or unreasonable hardship. Based upon the evidence in the record, we feel that denial of the variance would impose such a hardship. The economic hardship imposed by the "sewer connection ban" has been, and would be great if the variance is not granted. If the variance were not granted, and therefore the conditions of the variance not met, Lake Michigan will be the worse for it. In fact, by meeting the conditions of the variance, the people in the District will probably be able to use some of the beaches during the latter part of the 1972 bathing season and for all bathing seasons thereafter. Accordingly, the North Shore Sanitary

District shall be granted a variance as to Paragraph 7 of the Board Order of March 31, 1971 for its Waukegan and Clavey Road sewage treatment facilities. The District shall be permitted to accept at either or both of these plants a total of 1000 new living units or a total of 4000 P.E. The grant of 1000 living units is based upon the testimony of Robert MacGruder of the Waukegan-North Chicago Chamber of Commerce. Allan Pickus of Pickus Construction Company even indicated that the number of additional living units during the first year would be less than 1000 and that only 80-85% of the number would be in areas tributary to the Waukegan and Clavey Road treatment plants. The District may apportion the allotment under this variance between the two plants as it shall determine. Should the District decide, it may grant a portion of the allotment to industrial users; such an allotment, of course, will consume a part of the 4000 P.E. Variances granted by the Board since March 31, 1971 shall not count against the District's total allotment. Any allotment shall be in accordance with the priorities set forth under proposed Chapter IV, Part VI, Rule 604(e) in the regulatory case, In the Matter of Sewer Bans, R71-19. If any party is aggrieved by the denial of a permit from the Agency or the District, his rights of permit appeal shall be as set forth under Section 40 of the Environmental Protection Act. The procedures on appeal shall be as under Rule 502 of the Board's Procedural Rules.

With regard to connections to sewers in Waukegan, the District shall adhere to the stipulation entered into in the record in this case. The Agency's and the League's testimony established that definite overloading and surcharging of sanitary sewers occurs at about ten locations on sewers tributary to the Waukegan treatment plant. (R. 559-572) This testimony from the Lake County Health Department affords ample grounds for the stipulation to which the parties have agreed. In sum, that stipulation would provide: The North Shore Sanitary District and the Environmental Protection Agency each state that they presently have statutory power to require permits for all sewer extensions and connections; any connection, extension or increase in strength or volume of influent shall not be allowed with a permit approved by the District and the Agency; the District shall maintain a record of all new permits or connections issued and shall include those numbers and identifications in its monthly report to the Board; no connections shall be allowed if any part of the downstream sewer system is incapable of adequately transporting the additional or new waste to the District's treatment works. This condition is not meant to preclude connections to lateral or interceptor

sewers upstream of the Water Street and Gillette Avenue sewers just on the basis that these two sewers may overflow. Rather, it is intended to reach surcharging and overflow problems from Waukegan sewers to ditches and ravines as described in the record. The Agency shall indicate in writing to the District those sewers or sewer lines which it finds incapable of adequately transporting wastes; the District shall not approve any permits which would add or increase any waste source to any sewer or sewer line so designated. The District shall also have a continuing responsibility to identify any additional inadequate sewer on the basis of its own records or information submitted to it. In that stipulation, the District also agreed that the Agency would have the right, either through the present or future proceedings, to recommend to the Board that all connections that would be tributary to specific sewers maintained by the District would be prohibited. Though the Agency's right in this regard is amply guaranteed by statute, such a stipulation re-inforces that right. The Board finds adequate cause in the record to insist upon such a stipulation; it will be incorporated into the Board Order as agreed by the parties. We would commend the parties for strong interest they exhibited in such a stipulation and agree that such is necessary to prevent further water and land pollution in the ravines and ditches upstream of Lake Michigan.

The District may issue permits under this variance at any time within that year. Connection to an existing line or construction of a new sewer line under such a permit need not occur within the one-year period. Any such additional connections authorized under this variance and not assigned by the District within the one-year period of the variance shall lapse upon the termination of the variance.

Of course, any hookups or new sewer lines granted pursuant to this variance and under an Agency and District permit do not become revocable by the mere lapse of this variance. In other words, it is intended that such hookups and new sewer lines only be subject to the customary rules of the District, the Agency and the Board. The possible subsequent denial by the Board of a District variance petition will in no way affect those who have already been granted a hookup or completed installation of a new sewer line through an allotment of the capacity available under the grant of the variance in the instant case.

In addition to the above, there will be other conditions imposed as part of the grant of a variance. The following paragraphs outline each of those conditions:

The District shall install polymers and chemicals at the Clavey Road plant. This installation shall be as described in the testimony of M.D.R. Riddell, the District's consulting engineer. Even though such an installation may need only intermittent use, it is necessary to assure that Clavey will consistently achieve the 20 mg/l BOD_5 and 25 mg/l suspended solids standard presently in effect under SWB-14. Due to the hardship that would be imposed were the Board to insist that the District attain the 4 mg/l BOD_5 and 5 mg/l suspended solids standard required as of July 1, 1972, the District shall also be granted a variance from meeting that new criterion. The polymer and chemical feed system shall be installed within six months. These facilities need only be used intermittently so as to hold down the cost to about $10,000 per year. Because of the effluent lagoon and its operation, these chemicals are not needed at all times.

The District shall continue to use sodium hypochlorite in the sewers above the Clavey plant to aid in the abatement of air pollution. This program has apparently been effective.

The District shall install polymers and continue to use chemicals (ferric chloride) at the Waukegan plant. The District presently has such polymer feed systems on order. With ferric chloride the District can presently attain a total effluent discharge of approximately 30-35 mg/l of both BOD_5 and suspended solids. To maintain such a characteristic effluent with the additional loadings granted under this variance, the polymer installation is necessary and shall be completed within three months.

The District shall install bar screens on the Water Street Sewer, which can be cleaned manually. The Greeley and Hansen Water Street study submitted to the Board and made a subject of the hearing in the Board's preliminary order described three possible installations on the sewer. Each of the other two suggested devices involved the expenditure of a larger amount of money and also a longer installation period. The manually cleanable bar screen would remove only coarse solids, but could be installed within seven months. Its purpose would be mainly esthetic, but, within the given time period, would be available for a substantial portion of the 1972 bathing season. In order that a reasonable time schedule can be maintained, within twenty (20) days from the entry of this order the District shall submit such a timetable to the Agency. The Agency shall then formulate a written response to the Board within ten (10) days of receipt of the District's schedule. The Board shall issue an implementation schedule.

The District shall install chlorination facilities at Water Street and Gillette Avenue Sewers.[1] As previously stated, the Board directed in its preliminary opinion that the subject of bacteria removal be discussed in conjunction with the variance case. The District's engineering consultant, M.D.R. Riddell, described the two types of possible installations at Water Street. Both would involve the construction of temporary chlorinating facilities which would apply sodium hypochlorite at a high rate to the sewage during overflow periods. (R. 446) Such, as was mentioned above, occur sixteen to eighteen times each year. The maximum flow in the Water Street sewer is about 60 mgd; it would be approximately one part sewage to eight to ten parts stormwater during overflow conditions. (R. 445) One proposed chlorination facility would involve the use of a contact basin developed by driving sheet piling into the bottom of the Lake offshore from the present overflow. This basin would provide about 15 minutes of contact time. The other possible Water Street facility would be created by building a diversion structure on the Water Street sewer similar to that proposed in connection with the screening facilities and then to build a by-pass sewer generally paralleling the Waukegan River. (R. 446) The cost of the first alternative would be about $200,000; the second, about $240,000. For each the operating cost would be about $15,000 annually.

For the Gillette Avenue sewer, Riddell indicated that it would be possible to take advantage of the contact time in the sewer itself and augment that with a small contact basin. It would be possible to add chlorine to the sewer at Sand Street in order to provide additional disinfection. Projected cost of this installation would be approximately $150,000, with an annual operating cost of about $15,000. In his opinion, an adequate chlorine dosage, coupled with a fifteen-minute contact time, should provide reasonably effective disinfection of the overflows on the order of 95% reduction in bacteria. (R. 451,500)

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[1] Though chlorination is the traditional method used, the District still is held to the commitment it made at the hearing to study ozonation as a means of disinfection (R. 642).

Even though there are potential problems as to placement of the disinfection facilities at Water Street and Gillette Avenue, the Board believes that such facilities are an absolute necessity if additional connections are to be allowed. History has indicated that the most serious problem involving the Lake is the discharge of untreated bacteria to a prime recreational area. Lake County Health Department 1971 Lake Michigan beach sampling data indicate that the bacterial problem persists. A significantly large percentage of the samples collected did not attain the SWB-7 criteria (LWV Exs. 18-22). Though counsel for the District stressed that such disinfection facilities would only be available for one bathing season, the evidence shows otherwise. Riddell indicated that the facilities could be on line within seven months. (R. 502) If so, that would then mean that the beaches within the District could be used in August and September, 1972, both months in which bathing occurs. In addition, the chlorination facilities will be in use during the 1973 bathing season, since the improvements to the Waukegan plant will not be completed to allow the Water Street overflows to be treated at the plant until August, 1973. (R. 240) Finally, the dilatoriness which the District has displayed throughout the past seven months will probably be with us throughout its current project. Though we do not like to admit the possibility, even further delays will probably result and we can only hope that the District approaches each one in a good faith effort. For that reason, it is entirely likely that the chlorination facilities which we order as a condition of this variance will still be installed and operating in the summer of 1974.

It must be remembered that when we speak of a bathing season we are not speaking of one "object" but of many days of recreational enjoyment for the residents of the District and Northeastern Illinois. The capital cost which the District presents, $350,000 for the chlorination facilities, is worth the price. It has not been BOD_5 and suspended solids which have prevented bathing on the Northshore beaches for the past several summers, but a high bacterial count. By the entry of this order, we anticipate that this problem will be alleviated.

The projected capital costs of the program which the Board hereby orders is approximately $450,000 ($350,000 for chlorination at Water Street and Gillette Avenue sewers, $75,000 for the chemical feed at Clavey and $10,000 for Waukegan); the annual operating cost will be approximately $100,000 ($15,000 each at Clavey, Water Street, and Gillette, and $50,000 at Waukegan).

In his testimony, the acting General Manager for the District indicated that the proposed connection fee to be adopted by the District to pay for such a program would be "between a hundred to two hundred dollars[1] per single family home or equivalent." (R. 170) If the District were to adopt this higher figure, then receipts for the first year under this variance grant could equal approximately $200,000. With increased building during subsequent years, perhaps in the neighborhood of 2000 units, as suggested by Robert MacGruder and Allan Pickus, their receipts could total as high as $400,000. Over a projected three-year period before the District can then complete its improvements, over $1,000,000 may return to the District in the form of connection fees. Such an amount would be in excess of the projected total capital and operating costs for the three-year period of $750,000. For this reason and those noted above, the Board finds that not only are such improvements technically feasible, but economically reasonable.

The District shall maintain treatment levels at the Clavey Road plant of 20 mg/l BOD_5, 25 mg/l suspended solids. At Waukegan, the District's total effluent shall be in the range of 30-35 mg/l BOD_5 and suspended solids.

The District shall file monthly written reports with the Board and the Agency detailing its compliance with the conditions of the variance. Such reports shall include, inter alia, the number of connections granted by the District in the period governed by the report.

This opinion constitutes the findings of fact and conclusions of law of the Board.

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[1] In its brief, the League suggested a connection fee of $400. We do not suggest any particular figure; rather, that should be within the purview of the District. In any case, the fee should be sufficient to cover the cost of improvements.

O R D E R

Upon examination of the record, the North Shore Sanitary District is hereby granted a variance from Paragraph Seven of the Order of the Pollution Control Board in the case of the League of Women Voters, et al v. North Shore Sanitary District, PCB 70-7, 12, 13 and 14 subject to the following conditions:

1. The variance shall only be granted with respect to additional connections to Clavey Road and Waukegan Treatment plants.

2. The District shall be permitted to add a total of 1000 living units or 4000 P.E. to the sewers tributary to the Clavey and Waukegan plants.

3. This variance shall extend only for a period of one year from the date of the entry of this Order. The District may issue permits under this variance at any time within that year. Connection to an existing line or construction of a new sewer line under such a permit need not occur within the one-year period. Any such additional connections authorized under this variance and not assigned by the District within the one-year period of the variance shall lapse upon the termination of the variance.

4. The District may apportion the allotment under the variance between the subject plants as it in its own discretion so determines, except it shall follow the guidelines set forth in paragraph 5 below.

5. In assigning its allotment under this variance, the District shall subscribe to the following preference order:

a. Those whose owners have paid for the improvements;

b. housing under government-aided programs for the disadvantaged;

c. those for which substantial expenditures, beyond mere purchase of land, were made in good faith prior to March 31, 1971;

c. hospitals, schools, and other buildings providing essential public services.

6. In determining whether connections or the construction of new sewer lines shall be allowed the District shall adhere to the following policies:

a. No connection, extension, or increase in strength or volume of influent shall be allowed without a permit approved by the District and the Agency;

b. the District shall maintain a record of all new permits or connections issued and shall include those numbers and identification in its monthly report to the Board;

c. no connections shall be allowed if any part of the down-stream sewer system is incapable of adequately transporting the additional or new waste to the District's treatment works;

d. within 30 days of the entry of this order, the Agency shall indicate to the District those sewers or sewer lines which it finds incapable of adequately transporting wastes; the District shall not approve any permits which would add or increase any waste source to any sewer line or sewer so designated;

e. The District shall have a continuing responsibility to identify any additional inadequate sewer or sewer line on the basis of its own records or information submitted to it.

7. The Agency shall have the right, either through the present or future proceedings,to recommend to the Board that all connections that would be tributary to specific sewers maintained by the District would be prohitibed.

8. Any party aggrieved by the denial of a permit from the Agency or the District shall have a right to appeal such denial under Section 40 of the Environmental Protection Act.

9. The District shall install polymers and chemicals at the Clavey Road plant. The District need only use such an installation intermittently in order to maintain an effluent of acceptable quality.

10. The District shall continue the use of sodium hypochlorite in the sewer above the Clavey Road plant as necessary to abate air pollution.

11. The District shall install polymers and continue the use of chemicals at the Waukegan plant.

12. The District shall maintain a monthly average effluent of 20 mg/l BOD_5 and 25 mg/l suspended solids at the Clavey Road plant. The District shall maintain a monthly average effluent in the range of 30-35 mg/l BOD_5 and suspended solids at the Waukegan plant.

13. The District shall install bar screens which are manually cleanable on the Water Street Sewer. This installation shall be as described in the District's report to the Board as admitted into evidence as Agency Exhibit 5. Within 20 days of the entry of this order, the District shall submit a timetable for installation of the bar screen to the Agency. The Agency shall formulate a written response to the Board within 10 days of receipt of the District schedule. The Board shall then issue an implementation schedule.

14. The District shall install disinfection facilities at the Water Street and Gillette Avenue Sewers. Within 45 days of the entry of the order, the District shall present a timetable for the installation of such facilities to the Agency and the Board. The Agency shall formulate a written response to the Board within 15 days of receipt of the District timetable. The Board shall then issue an implementation schedule.

15. In all other ways, the District shall continue to maintain compliance with the Board orders of March 31, 1971 and June 23, 1971.

16. The District shall make monthly progress reports to the Agency and the Board. Such progress reports shall detail the District's compliance with the Board orders of January 31, 1972, March 31, 1971, and June 23, 1971, and with the District's implementation schedule as entered into the record of the June 23 order. The monthly progress reports shall also detail the number of permits issued, to whom issued, and the population equivalents thereby added to the subject plant.

17. The District shall study the use of ozone as a method of disinfection and submit such study to the Board and the Agency. Such study shall be submitted within 90 days of the entry of this order.

18. The District shall study the use of cationic as opposed to anionic polymers and shall indicate to the Board and the Agency the choice it has made and the reasons therefor.

19. Failure by the District to comply with any of the conditions of this variance shall be grounds for revocation of this variance.

20. The District shall apply for any desired extensions of this variance no later than 90 days before the expiration of this variance. Such a variance petition by the District and any hearing authorized pursuant to such a petition shall indicate the District's good faith compliance with this Board order.

I, Christan L. Moffett, Clerk of the Pollution Control Board, certify that the Board adopted the above Opinion and Order this 31 day of January, 1972 by a vote of 4-1 Mr. Dumelle dissenting.

Christan L. Moffett
Christan L. Moffett
Clerk of the Board