ILLINOIS POLLUTION CONTROL BOARD
May 26, 1971

Environmental Protection Agency	)	
v.	)	PCB 71-28
Danville Sanitary District	)	

Mr. F. Daniel Welsch, Assistant Attorney General
for the Environmental Protection Agency

Mr. Frank J. Meyer, Acton, Baldwin, Bookwalter & Meyer
for the Danville Sanitary District

Opinion of the Board (by Mr. Dumelle)

On February 26, 1971 the Environmental Protection Agency (Agency) filed a complaint alleging that the Danville Sanitary District (District) from approximately July 1, 1960 to the date of the hearing had operated its sewage treatment facilities so as to allow the discharge of untreated or insufficiently treated sewage into the Vermillion River which resulted in the pollution of the river in violation of Section 12a of the Environmental Protection Act (Act) and Rule 1.08 (10)(b) of regulation SWB-9. Further the complaint alleged that the District was in violation of Rule 1.08 (12) of SWB-9 by (1) failing to submit plans and specifications for required plant improvements by January 1,1970 and (2) failing to award a contract for construction of the required facilities by July 1, 1970. The complaint also averred that from July 1, 1970 to the date of the hearing the District had operated its sewage treatment facilities in such a manner so as to create obnoxious odors causing air pollution in violation of Section 9(a) of the Act.

On April 19, 1971 a hearing was held in this matter. At the commencement of the hearing counsel for the District stated that the parties had agreed to stipulate that the averments in the complaint were all true and that the District desired to present testimony in mitigation (R.5). At that point the Agency rested its case (R.7).

The District proceeded by introducing Dr. Cecil Lue-Hing, a consulting sanitary engineer who had undertaken a study of the District starting in November or December, 1970 (R.9). Dr. Lue-Hing outlined the organization and operation of the District. He stated that the facilities were constructed in 1936 and were operated at that initial capacity until 1958. The physical plant was expanded in 1958 increasing the capacity for secondary treatment. In 1967 there was a second expansion. The plant was modified and made larger with unit processes similar to those already in existence, namely secondary treatment, sludge digestion and sludge lagooning. At that time the capacity of the plant was increased to handle the waste from a population equivalent of 165,000. The plant could handle up to 8,000,000 gallons a day for dry weather conditions and up to 20,000,000 gallons a day during period of storm. The plant performed satisfactorily until about 1963. During that year the performance deteriorated until the State required that corrective measures be taken. There was a further expansion in 1967. The performance of the plant was satisfactory for one year after that expansion but then again the plant's performance deteriorated (R.9-12).

Dr. Lue-Hing testified that the residential population served by the plant had not changed since the middle 1940's. Back then the population was about 40,000 and currently the population is just under 41,000. The District's problem very obviously was not from domestic waste but resulted from handling industrial wastes (R.13,24,37,55). The decline in the performance of the system manifested itself in terms of unsatisfactory effluent quality, unsatisfactory sludge digestion and the generation of odors of the type associated with hydrogen sulfide and other malodorous substances (R.12).

Subsequent to the expansion completed in 1967 a number of studies were conducted. Dr. R. Dick in 1970 studied the digestion aspect of the plant and concluded that the failures were due to excessively high concentrations of sulfates in the raw waste. He concluded that 88% of the total sulfur in raw wastes originated at a single industrial source (R.14, Ex. 4, p. 33). An earlier study by Dr. J. Goeppner in 1964 had reached a similar conclusion (R.14). Another study by Dr. W.D. Hatfield in 1969 suggested operational charges to alleviate some of the difficulties (Ex.2).

The present performance of the plant indicates that the population equivalent (PE) of BOD from domestic sewage is 40,000 and the industrial peaks are a PE of 1,000,000, thus at times a 1,040,000 PE is being put through a system designed to handle a PE of 165,000 (R.15-16).

For suspended solids the domestic load is 40,000, the industrial normal is approximately 60,000 and the industrial peak about 700,000. Thus at peak times there is a through put PE of suspended solids of 740,000 while the design capacity is for a PE of 90,000 (R.16-17).

Dr. Lue-Hing stated that after determining that the principal problem was the handling of industrial wastes of a carbohydrate type, his efforts have been directed toward establishing a program to upgrade the quality of the plant's effluent. One of his recommendations to the District was to revise the industrial waste ordinance to redistribute the cost of treatment. Conferences are being scheduled with the major industrial waste dischargers and a plan has been submitted to the Agency and a permit applied for to install facilities for the upgrading of the quality of the effluent (R.18-25).

Dr. Lue-Hing testified that the District can take almost immediate steps to abate the water pollution and to bring the treatment facilities into compliance (R.39-40). He stated unequivocally that the District is proceeding to install temporary facilities which would bring the effluent concentrations (BOD, suspended solids) within the regulation by June 1, 1971 (R.26-27). The temporary abatement plan was described as an interim chemical pre-treatment system and basically is a system to adjust the raw waste pH to 9.5 with installation of a chemical addition system for the application of both lime and sodium hydroxide. Dr. Lue-Hing's report stated that lab tests on the maintenance of such a chemical environment showed that it was hostile to the proliferative growth of filamentous organisms and resulted in improved effluent

quality with BOD values in the range of 3-15 mg/l and suspended solids concentrations in the range of 3-46 mg/l (Ex.6). Apart from this temporary expedient the District has only incomplete plans for permanent facilities (R.26-29). The EPA in their complaint asked for submission of plans by August 1, 1971 and for the award of construction contracts by November 1, 1971. Dr. Lue-Hing testified that it was not reasonable to have the plans completed by the requested date because conferences with the several industrial waste dischargers must first be completed (R.29). Dr. Lue-Hing stated, however, that the date requirement in SWB-9 for chlorination of the final effluent, July 1972 could be met (R.29).

Dr. Lue-Hing further testified that the interim system will bring the BOD within the regulation but will not operate upon the dissolved solids. His report on the lab tests performed, however, as noted above, indicated that at times the suspended solids will not be within the maximum allowable. Thus, the temporary expedient may only partially alleviate the District's problem. We will require that the BOD standard of 20 mg/l be met and that the suspended solids be reduced to 50 mg/l or less. For the long range solution of the problem the District, he stated will look to the industrial waste dischargers to pre-treat their effluents and reduce dissolved and suspended solids and organic material as well as other contaminants (R.40-42).

For a permanent solution the District placed great confidence in (1) the enactment of a new and more effective industrial waste surcharge ordinance and (2) the installation of pre-treatment facilities at the industrial sites prior to discharge into the District's receiving sewers (Ex.6). Yet there is testimony going to the question of construction of new permanent facilities. The record is simply not complete enough on this very important point. We will therefore order the District to crystallize their plans and fully apprise the Board and the EPA of all the pertinent details including the nature and extent of new physical plant and the extent of industrial pre-treatment.

To abate the water pollution which the District freely admits to we are going to hold the District to their sworn word and help them along by supplying dates where they have been unable to fix them. It is true that a problem cannot be solved without first knowing what the problem is and it is equally clear that the District is now fully apprised of the extent of their treatment problem (R.31-32). We should not make complicated that which has a clarity of line. It is not unreasonable to expect the District to be working on finalizing long range plans even today before all of their conferences with industrial users are complete. They can provide for contingencies which may result from the conferences and can also use their finalized plans to persuade their conferees of their wisdom. We will require the District to submit final plans, specifications and schedules to the EPA by September 1, 1971.

In its complaint the Agency had alleged and the District admitted that the District violated Rule 1.08 (12) of SWB-9 by failing to submit plans and specifications for construction of updated sewage facilities by January 1, 1970 and by failing to award contracts for construction by July 1, 1970 (R.6-7). The nature of the facilities for which the deadlines were missed is unclear from the record. Apparently they are advanced waste treatment facilities of some sort; some type of tertiary

treatment. We will order both parties to brief this point and fully inform the Board of the violations involved. If the requirement is for tertiary treatment we must be fully apprised of the legal support of the contention. We will ask for these briefs no later than July 1, 1971.

Until the District is operating its facilities in compliance with the regulations regarding the BOD and suspended solids effluents we will allow no new sewer connections which would burden the District's facilities which are presently so greatly overloaded. As we have stated previously in League of Women Voters et al. v. North Shore Sanitary District (PCB 70-7,12,13,14; March 31, 1971), EPA v. Village of Glendale Heights (PCB 70-8; February 17, 1971), and Springfield Sanitary District v. EPA (PCB 70-32; January 27, 1971), to allow any new source of wastes to be connected to the present system or to allow any existing source to increase the quantity or concentration of its wastes would be tantamount to condoning the discharge of raw sewage from the plant. Such an order is imperative if we are to avoid increased water pollution and serve the purposes of the Act. We cannot allow the situation to deteriorate further, even though this order may cause considerable inconvenience for those persons who had expected to build or occupy new buildings. It should be noted that here we are speaking of a rather short time; the District has stated that they will be in compliance by June 1, 1971. The District need only demonstrate that, in fact, it is in compliance and there will be no prohibition on new hook-ups.

It is clear that the odors from the District's treatment facilities constitute air pollution as contemplated by the Act.[1] The peculiar nature of the industrial waste burden on the District's treatment facilities has resulted in a local air pollution nuisance. Obnoxious odors which emanate from the digesters and sludge lagoons prevail in the area. The influent has an inordinately high concentration of dissolved solids, principally sulfates, which are acted upon by the biological treatment resulting in hydrogen sulfide digester emission concentrations which one of the District's consultants reported to be on the order of 550 times the maximum allowable concentration in air for humans (Ex.4, p.34).[2]

1] Air pollution is defined in Section 3(b) of the Act:
(b) "Air Pollution" is the presence in the atmosphere of one or more contaminants in sufficient quantities and of such characteristics and duration as to be injurious to human, plant or animal life, to health, or to property or to unreasonably interfere with the enjoyment of life or property;
A contaminant is defined in Section 3(d);
(d) "Contaminant" is any solid, liquid, or gaseous matter, any odor, or any form of energy, from whatever source.

2] The standard to which the digester gas concentrations were compared was not specified in the report. Illinois presently has no numerical standard for ambient hydrogen sulfide concentrations but other jurisdictions specify a one hour standard of 0.1 ppm e.g. Calif., N.Y. (See Texaco, Inc. v. EPA, PCB 70-29, Feb. 29, 1971.)

Several citizens have complained of intense sensory irritation as a result of the plant's odors. Mr. Oliver Davis, a resident of Danville and drive-in restaurant operator in the vicinity of the District's plant, testified that an odor problem has existed for four years. He stated that his business had decreased 30-35% in the last 3 years and attributed the loss to the odor from the lagoons (R.58-60). Seven other residents testified as to the character of the odor and described it as obnoxious, nauseating and unbearable.

Dr. Lue-Hing testified that the air pollution problem should be abated by May 21, 1971 (R.26-27). He testified that the air pollution odor problem from the sludge lagoons will be dealt with by sterilization and the digesters will receive chemical treatment to prevent the generation of offensive odors. The predominant odor problem is the conversion of dissolved sulfates being converted to hydrogen sulfide by biological action. Almost all of the sulfates are received from one industrial discharger and after pre-treatment is required of that industry the odor problem should be solved on a permanent basis (R.43-44,46).

The control of odors requires diligent effort. Although we do not know precisely from the record by what mechanism the District plans to abate the obnoxious odors coming from the plant we know that they are confident of doing so starting the third week in May. We shall require them to stay alert to the problem by noting the odor condition in their daily operational log. The human nose, in more than one expert's opinion, is the best known device for detecting and identifying odors. The District must proceed to abate the odors for which they are responsible and must go further and submit a monthly report on the odor condition at the plant to both the Board and the EPA.

The District admitted their guilt in causing both air and water pollution but the important question of what is going to be done to correct the situation remains incompletely answered. Concrete ideas and plans were discussed at the hearing although the financing of the corrective projects was hardly discussed at all. There was testimony that the assessed valuation of the District is $125,043,312 and that the District has a 5% statutory debt limit. Presently the District has almost $6,000,000 worth of bonds outstanding and only $323,541 remains of its statutory bonding authority. In 1971 it will retire $367,000 worth of bonds. The bonding power as of January 1, 1972 will be $691,476 (R.17-18). Is this balance of bonding authority sufficient to allow the District to proceed? We know not, but to insure that there is adequate financing of the required projects

we will order the District pursuant to Section 46 of the Act[3] after July 1, 1971, to issue bonds if necessary to go forth with construction of permanent facilities to abate the pollution violations. The Board has the authority to order the issuance of bonds in excess of the statutory limit, the Board being restricted only by the language of the Illinois Constitution. See League of Women Voters et al. v. North Shore Sanitary District (PCB 70-7,12,13,14; March 31, 1971), EPA v. Village of Glendale Heights (PCB 70-8; February 17, 1971), Springfield Sanitary District v. EPA (PCB 70-32; January 27, 1971), and City of Mattoon v. EPA (PCB 71-8; April 14, 1971). After July 1, 1971 the State will have a new constitution which does not contain the 5% limitation of the 1870 Constitution. We are not unmindful of the state of this record which is deficient on the question of the cost of facilities. We are therefore ordering the District to submit detailed affidavits by September 1 estimating the cost of the needed treatment correctives. After consideration of that information and any other information which the Board may find necessary to further order, we will decide on the amount of bonding authority which may be necessary to abate this pollution. We noted in the North Shore Sanitary District case where we have previously used the power to order the issuance of bonds beyond the 5% limit that this power is to be used with great caution and discretion. That is what we mean to do here. We will await the submission of the District regarding the funding of their proposed projects before we act.

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

3] Section 46 of the Act provides as follows:

> Any municipality or sanitary district which has been directed by an order issued by the Board...to abate any violation of this Act or of any regulation adopted thereunder shall unless said order be set aside upon petition for review, take steps for the acquisition or construction of such facilities, or for such repair, alteration, extension or completion of existing facilities, or for such modification of existing practices as may be necessary to comply with the order.
>
> If funds on hand or unappropriated are insufficient for the purposes of this section, the necessary funds shall be raised by the issuance of either general obligation or revenue bonds. If the estimated cost of the steps necessary to be taken by such municipality or sanitary district with such order is such that the bond issue, necessary to finance such project, would not raise the total outstanding bonded indebtedness of such municipality or sanitary district in excess of the limit imposed upon such indebtedness by the Constitution of the State of Illinois, the necessary bonds may be issued as a direct obligation of such municipality or sanitary district and retired pursuant to general law governing the issue of such bonds. No election or referendum shall be necessary for the issuance of bonds under this section.

ORDER

The Board, having considered the complaint, transcript and exhibits in this proceeding hereby enters the following order:

1. Temporary Treatment Facilities: The District shall proceed forthwith with its plans to improve the quality of the effluent so as to be in compliance with the regulation as regards BOD and suspended solids to wit: the District shall install a system to add sodium hydroxide and/or lime to continuously adjust the pH of the raw wastes between 9.0 and 9.5. These temporary treatment facilities shall be operational by June 1, 1971 and shall be operated in such a manner so as to reduce the effluent concentration of BOD to 20 mg/l and suspended solids to 50 mg/l.

2. Sewer Connections: The District shall make no new sewer connections to increase the load on the treatment facilities and it shall not allow existing connections to increase the quantity or concentration of their discharge until the monthly average BOD effluent concentration has been reduced to 20 mg/l and the suspended solids concentration has been reduced to 50 mg/l.

3. Permanent Treatment Facilities: The District shall by September 1, 1971 submit to the EPA complete plans, specifications and schedules detailing the program for the permanent solution of the District's water and air pollution problems. The program shall include but not be limited to an estimate of the amount and type of industrial pre-treatment to be achieved, additional facilities, if any, to be constructed at the plant and a sworn report detailing the present balance of bonding authority of the District and estimating the cost of any required corrective measures. With the exception of the plans and specifications, the Board shall receive 6 copies of all of the foregoing materials by September 1, 1971.

4. Periodic Reports: The District shall submit monthly reports to the Board and the EPA detailing progress to date and shall fully explain any deviations or modifications from the schedule and plans referred to in No. 3.

5. Air Pollution: The District shall proceed forthwith with the installation of odor control facilities to abate the nuisance caused by the hydrogen sulfide type odors emanating from the plant by June 1, 1971.

6. Air Pollution Reports: In addition to the reporting requirement in No. 4 the District shall submit to the Board and the EPA a monthly statement relating to the efficacy of the odor cleansing system. The District shall note the general odor situation daily in its operating log and summarize this information along with other pertinent information relating to odors in its monthly statement. The first state-

ment shall be for the month of June 1971 and shall be submitted in a reasonable time after the end of the calendar month (but not more than 10 days into the new month). Each subsequent statement shall cover the calendar month and be submitted in a reasonable time after the start of the new month. No further statement shall be required after the statement for the calendar month of November 1971.

7. Bond: The District shall post with the EPA a security bond or other adequate security in an amount to be determined by the Board after its consideration of the submissions required in No. 3 which said security shall be forfeited to the State of Illinois if the District operates its plant with inadequate treatment facilities and an effluent which is not in compliance with the applicable regulations after a date to be determined by the Board in its further order.

8. Briefs: Both parties shall by July 1, 1971 submit to the Board briefs on the nature of the violation alleged and admitted and the effluent requirements involved in that part of the complaint dealing with the deadline dates January 1, 1970 and July 1, 1970; the first date being the date for submission of plans and the second being the date for the award of the construction contract.

9. Further Order: This proceeding shall remain open for such further order of the Board which may be made subsequent to the written submissions required by nos. 3 and 8.

I concur:

I dissent:

I, Regina E. Ryan, Clerk of the Illinois Pollution Control Board, certify that the Board has approved the above Opinion and Order on 26 day of May, 1971.

Regina E. Ryan, Clerk
Illinois Pollution Control Board