

ILLINOIS POLLUTION CONTROL BOARD
November 21, 1985

GREATER PEORIA SANITARY DISTRICT,)
)
 Petitioner,)
)
 V.) PCB 85-193
)
)
 ILLINOIS ENVIRONMENTAL)
 PROTECTION AGENCY,)
)
 Respondent.)

OPINION AND ORDER OF THE BOARD (by W. J. Nega):

This provisional variance request comes before the Board upon a November 21, 1985 Recommendation of the Illinois Environmental Protection Agency (Agency). The Agency recommends that a 45-day provisional variance be granted to the Greater Peoria Sanitary District (GPSD) from 35 Ill. Adm. Code 304.120 (deoxygenating wastes), 35 Ill. Adm. Code 304.121 (bacteria), and 35 Ill. Adm. Code 304.122 (nitrogen) while portions of GPSD's secondary treatment facilities are temporarily out of service during the time period that necessary repairs are being made.

The Greater Peoria Sanitary District owns and operates wastewater treatment facilities serving the City of Peoria, some outlying communities, and several industries. The Petitioner's facilities include screening, grit removal, primary and secondary clarification, activated sludge, nitrification utilizing rotating biological contactors (RBC's), tertiary ponds, and chlorination equipment. Prior to its disposal, sludge is first thickened, treated anaerobically, and then dried. The Petitioner's treatment plant has a design average flow of 37 million gallons per day (MGD) and discharges directly into the Illinois River pursuant to the appropriate NPDES Permit authorization. (Rec. 1).

During Mid-October of 1985, the Petitioner discovered that, due to groundwater related erosion problems, portions of its secondary treatment system's aeration tanks, aeration gallery, and secondary clarifiers had become seriously undermined. Bottoms of several aeration tanks, a part of the aeration gallery floor, and at least one corner of the bottom of one secondary clarifier had dropped up to two inches into the voids below. As a result of the leaks that had started developing in the walls and floors of its activated sludge tanks, mixed liquor was flowing in a stream up to 4 inches deep into the aeration gallery. The aeration gallery, which houses equipment for the

aeration tanks, is a tunnel-like structure which is below grade and next to the aeration tanks.

To stop these leaks and to provide access for investigatory work and repairs as well as to minimize additional undermining of the tanks, the Petitioner removed nine of its twelve aeration tanks and three of its five secondary clarifiers from service in mid-October. Of the remaining three aeration tanks, two are being utilized as contact tanks and the third is being utilized as a reaeration tank. The Petitioner's employees have begun to dewater various aeration tanks in order to find the leaks. The apparent cause of the leaks is the development of "voids" (i.e., areas of water and/or mud) beneath aeration tanks. (Rec. 1).

The Petitioner is currently required by its NPDES Permit #IL0021288 to meet effluent limitations of 20 mg/l of biochemical oxygen demand (BOD) on a 30 day average with a 40 mg/l BOD limit as a weekly average, and to meet effluent limitations of 25 mg/l of total suspended solids (TSS) on a 30 day average with a 45 mg/l TSS limit as a weekly average. This NPDES Permit also delineates a 2.5 mg/l effluent standard for ammonia nitrogen as N during the months of April through October, and a 4.0 mg/l effluent standard for ammonia nitrogen as N during the months of November through March. (Rec. 2).

According to discharge monitoring reports submitted to the Agency by the Petitioner, the following results were indicated:

| Month | Flow | Monthly BOD (MGD) | Average TSS (mg/l) | NH ₃ -N (mg/l) |
|---------|-------|-------------------|--------------------|---------------------------|
| 9/85 | 22.29 | 4 | 4 | 1.9 |
| 8/85 | 22.65 | 4 | 4 | 1.9 |
| 7/85 | 22.31 | 5 | 7 | 1.2 |
| 6/85 | 23.24 | 7 | 11 | 2.5 |
| 5/85 | 23.21 | 7 | 10 | 3.1 |
| 4/85 | 29.06 | 5 | 10 | 2.5 |
| 3/85 | 34.39 | 7 | 20 | 1.8 |
| 2/85 | 29.12 | 5 | 8 | 2.6 |
| 1/85 | 25.57 | 7 | 8 | 2.1 |
| 12/84 | 28.18 | 4 | 7 | 1.4 |
| 11/84 | 26.14 | 7 | 7 | 3.0 |
| 10/84 | 22.99 | 12 | 7 | 3.8 |
| Average | 25.76 | 6.2 | 8.7 | 2.3 |

(Rec. 2).

However, due to the groundwater-related erosion problems and the tank leaks, the Petitioner has indicated to the Agency that its effluent quality has already significantly deteriorated. For example, the average BOD for all of October 1985 was 15 mg/l, while the average BOD for the last half of October, 1985, when

flows had begun to be diverted, was 22 mg/l. (Rec. 2). The Petitioner has reported that TSS levels have experienced similar deterioration due to the problems at the facility. Moreover, it is possible that fecal coliform levels might rise due to increased chlorine demand and GPSD anticipates that the effluent quality will deteriorate even further in the near future. (Rec. 2).

Since GPSD's rotating biological contactor nitrification system is currently receiving much of the plant's primary effluent, a very real risk of overloading the RBC shafts exists. The Petitioner is now providing effluent treatment by use of its three in-service aeration tanks and by diverting flows to the RBC's, and then to the polishing pond and chlorination. In reference of this diversion of flows to the RBC's, the Agency has stated that:

"... the RBC's were not designed to treat the strength of wastes that are now being applied to them. Based upon the Agency's past experience with RBC's, structural failure of the RBC's could result due to the increased biomass growth on the units thus causing the shafts to break due to the extra weight of the biomass. Petitioner's personnel are routinely monitoring the performance of the RBC's and will be able to provide minimum treatment consisting of primary clarification, tertiary clarification, the polishing lagoon, and chlorination." (Rec. 2).

The Agency has noted that GPSD has already begun corrective action in that core drillings which are about two inches in diameter have been completed which led to the determination that some of the voids beneath the aeration gallery floor are as deep as 89 inches. The Petitioner's core drillings were taken about every five to ten feet through the aeration gallery floor and core samples which are about five inches in diameter are presently being analyzed. The Petitioner is currently awaiting the results of the core sample tests before ascertaining the best plan of corrective action and before commencing the requisite repair and maintenance work. (Rec. 2).

The Agency expects that there will be little adverse environmental impact upon the Illinois River from GPSD's presently degraded discharge, because the Illinois River at Petitioner's discharge point provides a dilution ratio of about 74 to 1 using the Illinois River's 7 day, 10 year low flow and GPSD's average flow over the past year (Rec. 2-3). The Agency also emphasizes that the Illinois River is presently at flood stage because of recent heavy rains and is expected to remain high for some time to come, thereby providing an even greater dilution ratio than 74 to 1. Moreover, the Petitioner will also be providing as much treatment as possible which will serve to reduce the environmental impact further over the discharging of

raw sewage. (Rec. 3). The Petitioner's discharge is approximately 168 miles upstream from the nearest public water supply intake which is the City of Alton's intake on the Mississippi River. (Rec. 3).

Based on the inability of the Petitioner to provide full treatment when units had to be taken out of service to retain what was left of their structural integrity, the Agency has stated that the "Petitioner's hardship in this case is readily apparent." (Rec. 2). The Agency has also indicated that there are no federal regulations that would preclude the granting of the provisional variance.

The Agency has therefore concluded that compliance with applicable standards would impose an arbitrary or unreasonable hardship upon the Greater Peoria Sanitary District. (Rec. 2). Accordingly, the Agency has recommended that the Board grant Petitioner a provisional variance from 35 Ill. Adm. Code 304.120, 304.121, and 304.122, subject to certain conditions.

Pursuant to Section 35(b) of the Illinois Environmental Protection Act, the Board will grant the provisional variance as recommended.

This Opinion constitutes the Board's findings of fact and conclusions of law in this matter.

ORDER

The Greater Peoria Sanitary District is hereby granted a provisional variance from 35 Ill. Adm. Code 304.120, 304.121, and 304.122, subject to the following conditions:

1. The provisional variance shall commence on November 21, 1985 and shall terminate 45 days thereafter.
2. During the term of this provisional variance, the Petitioner's effluent shall be limited as follows:

| <u>Parameter</u> | <u>Monthly Average</u> |
|------------------|------------------------|
| BOD | 50 mg/l |
| TSS | 50 mg/l |

Ammonia nitrogen discharges shall not cause a violation of water quality standards.

3. Chlorination shall be provided for all flows discharged through Outfall 001a and the Petitioner shall make every effort to comply with the 400/100 ml fecal coliform standard.
4. The Petitioner shall provide the maximum degree of treatment possible by using all treatment units possible.

5. The Petitioner shall immediately notify the Agency's Peoria Regional Office by telephone if more units are removed from service and when the aeration units are returned to service. This notification shall be supplemented by a written notice within 5 days submitted to:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
2200 Churchill Road
Springfield, Illinois 62706
Attention: Mr. Roger Cruse

6. Within 10 days of the date of the Board's Order, the Petitioner shall execute a Certification of Acceptance and Agreement which shall be sent to Mr. James Frost of the Agency at the following address:

Mr. James Frost
Illinois Environmental Protection Agency
Division of Water Pollution Control
2200 Churchill Road
Springfield, Illinois 62706
Attention: Mr. Roger Cruse

This certification shall have the following form:

I, (We), _____, having read the Order of the Illinois Pollution Control Board in PCB 85-193, dated November 21, 1985, understand and accept the said Order, realizing that such acceptance renders all terms and conditions thereto binding and enforceable.

Petitioner

By: Authorized Agent

Title

Date

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 21st day of November, 1985 by a vote of 7-0.

Dorothy M. Gunn
Dorothy M. Gunn, Clerk
Illinois Pollution Control Board