

ILLINOIS POLLUTION CONTROL BOARD
August 15, 1985

CITY OF DIXON, An)
Illinois Municipal Corporation)
)
Petitioner,)
)
v.) PCB 85-47
)
ILLINOIS ENVIRONMENTAL)
PROTECTION AGENCY,)
)
Respondent.)

OPINION AND ORDER OF THE BOARD (by R. C. Flemal):

This matter comes before the Board upon a petition for variance filed by the City of Dixon ("Dixon") on April 16, 1985. Pursuant to the Board's request for additional information, Dixon filed an amended petition on May 9, 1985. The relief requested by Dixon consists of variance until October 30, 1986, from 35 Ill. Adm. Code 304.120(b) as reflected in NPDES permit number IL0026450, which presently limits the discharge of five day biochemical oxygen demand (BOD) to 20 milligrams per liter (mg/l) on a monthly average, and 40 mg/l on a weekly average, and of total suspended solids (TSS) to 25 mg/l on a monthly average, and 45 mg/l on a weekly average.

The Illinois Environmental Protection Agency ("Agency") filed its recommendation in this matter on June 1, 1985, recommending that variance be granted with conditions. No objection or comment was received by the Agency in response to legal notices published on its behalf. Dixon waived its right to hearing, and none was held.

Dixon, which is an Illinois Municipal Corporation located in Lee County, owns and operates a Municipal Wastewater Treatment Facility which serves the Dixon community consisting of approximately 18,147 residents and numerous commercial and industrial establishments. The treatment plant is located on the bank of the Rock River, into which discharge occurs. Facilities include raw sewage pumps, comminutors, grit removal, primary sedimentation, aeration tanks, final sedimentation, disinfection (chlorination), anaerobic digestion, sludge storage, drying beds, and assorted appurtenant facilities. The plant has a design average flow of 3.5 million gallons per day (mgd) and a design maximum flow of 8.4 mgd. Present treatment volumes average approximately 3.0 mgd.

Discharge Monitoring Reports filed with the Agency have shown that the effluent from the Dixon treatment plant has commonly experienced excursions beyond the limits specified in the operative NPDES permit, number IL0026450, with respect to

both BOD and TSS. The Agency provides data indicating that during the twelve month period April 1984 to March 1985 the NPDES permit limit of 20 mg/l BOD on a monthly average was exceeded during eight months and the TSS limit of 25 mg/l on a monthly average was exceeded during six months. Data provided by Petitioner (Exhibit C) indicate that during the longer 26 month period from January 1983 through February 1985 there were 18 excursions beyond the monthly average BOD limit and 17 excursions beyond the monthly average TSS limit. The Exhibit C data provided by Petitioner suggest similar rates of excursion for the NPDES-specified weekly average concentrations: the 40 mg/l BOD limit was exceeded in 17 of the 26 months and the 45 mg/l TSS limit was exceeded in 21 of the 26 months.

Dixon contends, and the Agency agrees, that failure to meet the existing standards is a result of two problems, namely very inadequate existing final settling capacity and the need for increased aeration capacity for the activated sludge process. The existing final settling capacity is only half of that needed to comply with the current design criteria. This results in excessive velocities and turbulence in the settling tanks, poor settling of solids and a carryover of solids over the tank weirs to the plant discharge. The existing aerators are not sized to provide sufficient oxygen transfer to satisfy the oxygen uptake rates of the existing loads and can not maintain an adequate dissolved oxygen concentration in the process basins. The resulting sludges additionally tend to be bulky and difficult to settle.

Dixon has commenced a project to address these two principal system deficiencies, with the goal of providing the treatment necessary to achieve the NPDES permit effluent standards. Specifically Dixon intends to:

1. Construct a new third final clarifier equal in area to the combined areas of the two existing final clarifiers, and thus increase the present capacity by 100%.
2. Replace four of the existing aerators with larger aerators of increased aeration and mixing capacity.

Preliminary engineering and estimating has been completed, the project financing has been developed, and construction is estimated to be completed and the new facilities in full operation by October, 1986. Total project costs, which include some lesser-scale improvements than those specified above, are estimated at \$600,000.

By Order of April 18, 1985 the Board requested that Dixon discuss the possible use of stilling wells or cantilevered weirs in the final clarifiers as a compliance alternative. This Dixon did in its Amended Petition. Dixon contends that:

Since the existing final clarifiers are the tangential inlet "Spira-Flo" type, stilling wells, as used in center feed clarifiers, are not viable or practicable means of improving settling characteristics and achieving compliance. Also, the use of cantilevered weirs, as used for center feed or rectangular clarifiers, is not a practicable means of achieving compliance for these "Spira-Flo" clarifiers. The operator is attempting to use baffles behind the inlet circular skirt to decrease tank "spin" with limited success, but the overall very high hydraulic rate in these clarifiers makes compliance with the effluent criteria impracticable, until the new third clarifier is built and operational.

The Agency agrees with this assessment and is of the opinion that stilling wells or cantilevered weirs would not resolve the particular problems faced by Dixon.

Dixon's intent in the instant case to seek variance from the NPDES limitations during the period when the system improvements are in progress. Dixon asserts that the present level of treatment can be maintained during construction, and that the utilization of good construction methods will assure against the introduction of extraneous construction debris into the effluent. Thus, there would be no change in the effluent from the status quo during the pendency of the variance.

The specific limitations requested by Dixon for the term of the variance are 30 and 45 mg/l of BOD as monthly and weekly averages, respectively, and 40 and 60 mg/l of TSS as monthly and weekly averages, respectively. Dixon believes these to be reasonable limitations based on past plant performance and on existing plant capacity. The Agency recommendation agrees with the reasonableness of the monthly average limitations, but leaves the matter of the weekly averages unaddressed.

Petitioner addresses the issue of environmental impact by noting that the Rock River at and below the point of discharge "is a wide, shallow, fast-flowing stream that would have optimum reaeration and assimilative capabilities" (Petition, p. 4). The Agency agrees with this assessment. Dixon further notes that the 7-day 10-year low flow at Dixon is 1144 cfs (739 mgd), which provides a minimal low flow dilution factor of 246:1 for the 3.0 mgd average plant discharge; under normal river flows the dilution would be considerably greater. On this basis Dixon contends that no measurable effect on the stream water quality, the environment, or aquatic life is expected.

During Water Year 1983, the Agency collected water quality samples of the Rock River at Grand Detour, which is about 12 miles upstream of Petitioner's outfall, and at Como, which is about 18 miles downstream. Analysis of the sampling for dissolved oxygen and ammonia nitrogen (un-ionized) indicated to the Agency that the Rock River is essentially unaffected by Petitioner's discharge. On this basis the Agency concludes "that

the requested variance would have little effect on the water quality of the Rock River" (Recommendation, 9).

In addressing the issue of hardship, Petitioner believes that immediate compliance with its existing NPDES permit effluent limitations for BOD and TSS imposes an arbitrary or unreasonable hardship because the existing noncompliance is due to physical constraints of the treatment plant process units. These constraints, it is argued, can not be instantaneously addressed, but rather require the system improvements specified in Petitioner's compliance plan. The system improvements, in turn, will require until October 30, 1986 to carry out. The Agency agrees with this analysis, considers the construction timetable to be expeditious, and accordingly believes that an arbitrary or unreasonable hardship would result if the variance were denied.

Based on the foregoing, the Board finds that requiring immediate compliance would constitute an unreasonable or arbitrary hardship, considering the limited environmental impact. Accordingly, the requested variance is hereby granted, subject to conditions.

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

ORDER

The City of Dixon is hereby granted variance beginning this day from 35 Ill. Adm. Code 304.120(b) for Outfall 001 of NPDES Permit IL0026450 with the following conditions;

1. The variance shall be terminated on October 30, 1986, or 1 month subsequent to the completion of the proposed improvements, whichever occurs first.
2. The interim effluent limitations shall be 30 mg/l BOD and 40 mg/l TSS on monthly averages, and 45 mg/l BOD and 60 mg/l TSS on weekly averages.
3. Petitioner shall continue to sample and analyze its effluent at the frequency specified in its NPDES permit and shall comply with all other effluent limitations and conditions thereof.
4. Petitioner shall submit a progress report with each monthly Discharge Monitoring Report outlining construction efforts during the month.
5. Within 45 days of this Order, Petitioner shall execute and submit to the Agency a Certificate of Acceptance in the following form:

CERTIFICATION

We, the City of Dixon, hereby accept and agree to be bound by all terms and conditions of the Opinion and Order of the Pollution Control Board in PCB 85-47.

City of Dixon.

By: Authorized Agent

Title

Date

The Certification shall be sent to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
2200 Churchill Road
Springfield, IL 62706
Attention: James Frost

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 15th day of August, 1985, by a vote of 7-0.

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