

ILLINOIS POLLUTION CONTROL BOARD
November 8, 1984

IN THE MATTER OF:)
)
PETITION OF THE CITY OF LOCKPORT) R83-19
TO AMEND REGULATIONS PERTAINING)
TO WATER POLLUTION)

PROPOSED RULE. SECOND NOTICE.

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

On December 29, 1983, the Board adopted a proposed rule, First Notice Order in this rulemaking. This was published in the Illinois Register (8 Ill. Reg. 813, Issue 3, January 20, 1984). On February 22, 1984, the Board adopted a proposed Opinion in support of its First Notice Order. On March 2, 1984, the City of Lockport (Lockport) filed a Motion to Extend Time to File Comments. On March 8, 1984, the Hearing Officer entered an Order which extended the first notice comment period until March 26, 1984. On March 23, 1984, the Illinois Environmental Protection Agency (Agency) filed its Comments on First Notice. On April 27, 1984, Lockport filed its Motion for Leave to File Comment on First Notice Instantly, which is hereby granted, and Comment on Proposed Opinion and Order (First Notice). On October 4, 1984, Lockport submitted a letter* to the Board in support of the relief requested and to bring to the Board's attention certain financial information that just became available pertaining to Federal and State grant funding.

This matter comes before the Board on the City of Lockport's Petition to Amend the Board's Water Pollution Regulations (Pet.) which was filed on September 14, 1983.

The City of Lockport (Lockport), which discharges its final effluent into a 3.7 mile long, man-made receiving stream known as Deep Run Creek, is requesting the addition of a new section designated as 35 Ill. Adm. Code 304.108 to allow a site-specific exemption from the existing 10 mg/1 BOD₅ and 12 mg/1 total suspended solids (TSS) effluent standards of Section 304.120(c) for discharges from Lockport's sewage treatment plant (STP) into Deep Run Creek in Will County, Illinois in order to reduce the cost of proposed improvements to its STP. Lockport is requesting a less stringent standard of 20 mg/1 BOD₅ and 25 mg/1 of TSS to apply to

*This letter dated October 4, 1984 shall be designated as Exhibit #19.

its discharges into Deep Run Creek. Additionally, Lockport requested that the provisions of Section 302.206 (General Use Water Quality Standards for Dissolved Oxygen) and Section 302.212(b) (General Use Water Quality Standards for Ammonia Nitrogen and Un-ionized Ammonia) "shall not apply to said discharge", provided certain conditions are met.

Prior to First Notice, a hearing on the merits of this regulatory proposal was held in Lockport, Illinois on November 10, 1983 at which members of the public and the press were present. Eight witnesses testified at this hearing and 18 exhibits were admitted into evidence. The initial public comment period and record in the instant proceeding closed on December 12, 1983.

On November 30, 1983, Lockport filed a Motion for Decision which requested expedited consideration of its proposed site-specific regulation to help the city in its attempt to obtain a 75% Federal grant to fund improvements in its sanitary sewers and STP. The Board complied with Lockport's request for expedited action by adopting the Proposed Order for first notice on December 29, 1983.

On December 8, 1983, Lockport filed its written Comment in response to the Hearing Officer's request for additional information on the applicability of Federal regulations. On December 13, 1983, the Agency filed its written Comments in support of the requested site-specific amendment and suggested various changes in the proponent's proposed order. On December 14, 1983, Lockport submitted a letter to the Board which indicated that Lockport had "no major objection to the Agency's proposed language changes" in the suggested order.

The Illinois Department of Energy and Natural Resources (DENR) advised the Board on December 6, 1983 that an economic impact study on the regulatory proposal in R83-19 is not necessary and issued a "negative declaration" of economic impact.

The City of Lockport, which has a population of approximately 10,000 people, is located near the Chicago Sanitary and Ship (S & S) Canal on the banks of the Illinois and Michigan (I & M) Canal in Will County, Illinois. Although there are separate sanitary sewers in the northern and eastern portions of Lockport, portions of the sewer system that serve as combined sewers in the central part of Lockport were built over 100 years ago. (Pet., ¶2).

Lockport operates a treatment facility which was built in 1970 and has a design capacity of 2.0 million gallons per day (gpd). This treatment plant, which is located between the I & M Canal and the S & S Canal and discharges into Deep Run Creek, is a contact stabilization modification of the activated sludge

secondary treatment process. Comminution, sewage pumping, and aerated grit chamber, rectangular primary settling tanks, diffused aeration basins, rectangular final settling tanks, sludge drying beds, chlorination, and aerobic and anaerobic digestion are some of the process units included in this facility. Deep Run Creek, which drains a basin of less than 1 square mile between the I & M Canal and the S & S Canal, empties into the S & S Canal below the Lockport locks (approximately 1 mile below the treatment plant discharges). Deep Run Creek receives overflow from the I & M Canal at its headwaters and from the S & S Canal via several infiltration points. Below the Lockport treatment plant, Deep Run Creek is inaccessible for public use and is bordered on one side by the Santa Fe Railroad's tracks and on the other side by the S & S Canal embankment. The stream is about 80 feet wide and 1 foot deep downstream of the Lockport plant, flows over a limestone bedrock substrate, and has practically no canopy cover (Pet., ¶2-4).

The City of Lockport has a history of environmental problems relating to its STP. In 1979, a group of concerned local residents filed a Complaint with the Board in PCB 79-28 which alleged that Lockport's sewer system was inadequate and complained about individual problems with sewer and basement back-ups. (Ex. 2). The Board ordered Lockport to "abate" pollution, and to proceed with the grant process to upgrade its sewage system. (Citizens Concerned for the Quality of Life in the Lockport Area v. City of Lockport, PCB 79-28, May 15, 1980, Exhibit 2). Lockport subsequently issued non-referendum general obligation bonds to finance the design work for improvements at the treatment plant and for the sanitary sewers to abate pollution. (R. 20).

On June 30, 1983, the Board granted Lockport a variance in PCB 83-38 until March 1, 1988 from the water quality standards of 35 Ill. Adm. Code 304.105 pertaining to dissolved oxygen (Section 302.206) and ammonia nitrogen (Section 302.212(b)) subject to the condition that Lockport meet a specified compliance schedule for completion of design work for treatment plant and sewer system improvements before beginning actual construction by September 1, 1984. (City of Lockport v. I.E.P.A., PCB 83-48, June 30, 1983).

Lockport presently intends to expend \$9.3 million in basic improvements to the treatment plant. This amount includes a \$775,000 filtration unit to comply with the 10 mg/l BOD and 12 mg.l TSS requirements of 35 Ill. Adm. Code 304.120(c), and \$890,000 for a nitrification unit (plus about \$60,000/yr. in operating costs). Lockport believes these latter two expenditures will produce no measurable environmental benefit and requests site specific relief. If granted relief, construction costs would be reduced to \$7.717 million. Assuming \$5 million in state and federal grants, Lockport's share will be \$2.717

million. Lockport asserts that, even with grant of relief, it is within \$400,000 of its general obligation bonding authority limits for other projects, and wishes to avoid the increased cost of revenue bonds. Lockport also asserted that it is presently experiencing financial difficulties because of declining revenues. (Pet. ¶6, Exh. 15, 19, R. 19, 20, 109, 110.)

Because the treatment needs and environmental controls for deoxygenating wastes are separate from those for ammonia nitrogen, they will be discussed separately.

DEOXYGENATING WASTES

Deoxygenating waste discharges by Lockport are controlled under two provisions of 35 Ill. Adm. Code: Section 304.120(c) and Section 302.206. Section 304.120(c) requires Lockport's effluent to meet a 10/12mg/1, BOD₅/TSS standard. Section 303.206, in conjunction with Section 304.105, requires Lockport's effluent to not cause dissolved oxygen (D.O.) levels to fall below 5.0 mg/1 ever, or fall below 6.0 mg/1 during 16 hours of any 24 hour period. Lockport is not currently meeting the 10/12 mg/1 standard (Ex. 10, p. 69) and Deep Run Creek is not meeting the 6.0/5.0 mg/1 D.O. minimums. (Ex. 10, pp. 33-35).

Despite the clear D.O. violations on Deep Run Creek, it does not appear that Lockport's discharge contributes to the D.O. violations. First, there are significant D.O. violations upstream of Lockport's discharge which are solely attributable to plant/algal respiration. (Ex. 10, p. 32). Second, it appears there is no measurable difference in D.O. variation upstream of Lockport's discharge compared to two downstream sampling points. (Ex. 10, p. 36). And third, during periods of lowest upstream D.O., Lockport's effluent improves the downstream D.O. levels. (Ex. 10, pp. 34-35). Therefore, the Board finds that the facts presented in this proceeding do not demonstrate that Lockport is causing or contributing to D.O. violations in Deep Run Creek. Since violation of a standard is a prerequisite to seeking site-specific relief (In the Matter of: The Petition of the Galesburg Sanitary District to Amend Regulations, R80-16, November 18, 1983), Lockport is ineligible for that relief. Lockport did withdraw its request for relaxation of the D.O. Standard. (R. 187, P.C. #1).

Lockport is violating the 10/12 mg/1 BOD₅/TSS limitation and must demonstrate that no significant environmental impact will occur to seek relief from that limitation. Here, the only facts show that, during worst case D.O. levels in Deep Run Creek, Lockport's discharges tend to improve D.O. levels. (Ex. 10, pp. 34-35). Installation of tertiary filtration would not result in any beneficial stream uses.

Lockport has demonstrated that the costs of compliance with the 10/12 mg/1 BOD₅/TSS limitation are unreasonable.

For these reasons, the Board will grant Lockport's request for a 20/25 mg/1, BOD₅/TSS, limitation.

AMMONIA NITROGEN

The City of Lockport has requested site-specific regulatory relief from the currently applicable 1.5 mg/1 ammonia nitrogen limitation apparently imposed by the Agency because Deep Run Creek has, on occasion, exceeded the ammonia nitrogen water quality requirements of Section 302.212(b). (See: Exhibit 10, p. 3; p. 69), and Lockport's discharges cause or contribute to these violations (Exh. 9, p. 5). Moreover, ammonia water quality levels would improve if Lockport added complete nitrification (Exh. 10, p. 5).

The Board initially denied this requested relief in its proposed rule at First Notice.

Both the Agency and the City of Lockport subsequently submitted comments advocating that the Board reconsider its preliminary conclusions concerning applicable ammonia nitrogen limitations.

The Agency urged the Board "to accept the original proposal for relief from the ammonia nitrogen standards." (Agency Comments, Mar. 23, 1984 p. 3.) The Agency denied that it had supported the elimination of ammonia nitrogen water quality standards for Deep Run Creek. Rather, the Agency suggested that the Board limit the ammonia nitrogen in Lockport's wastewater discharge sufficient to achieve compliance with the 2.5/4.0 mg/1 secondary use water quality standard at confluence of the Deep Run Creek and the Sanitary and Ship Canal. The Agency acknowledged that, while this approach allows ammonia nitrogen in Deep Run Creek to exceed the secondary use water quality standard, it is a rational administrative strategy and would not permit deterioration of existing quality shown to support an indigenous aquatic community. (Agency comments, March 23, 1984, p. 2.) The Agency had earlier asserted that, given the unique conditions of Deep Run Creek, the addition of tertiary filtration and nitrification would achieve no improved or beneficial stream uses. (Agency Comments, December 13, 1983, p. 2.)

Additionally, the Agency has indicated that it believes that the Board should distinguish between the effects of possible violations of the dissolved oxygen and ammonia nitrogen standards.

The Agency points out that "severely depressed dissolved oxygen values impact aquatic life more rapidly and severely than

nominal short term violations of ammonia nitrogen standards, while septicity and aesthetic problems resulting from the low dissolved oxygen concentrations are not an issue with ammonia unless the ammonia is high enough to depress dissolved oxygen." (Agency Comments, March 23, 1984, p. 3).

The Agency feels that since "the record contains a biological survey showing the presence of an indigenous aquatic population being maintained under historical ammonia concentrations", it is logical to conclude that "these concentrations will be maintained or improved through the controls necessary to meet the downstream standards" (Agency Comments, March 23, 1984 p. 3).

Moreover, the Agency has noted that the Board has granted both total and partial relief from a water quality standard without deleting that standard on numerous occasions in the past, citing a number of such instances. (Agency Comments, March 23, 1984, p. 2).

Thus, the Agency has urged the Board "to accept the original proposal for relief from the ammonia nitrogen standards." (Agency Comments, March 23, 1984, p. 3).

In the Comment of the City of Lockport on the First Notice Proposed Opinion and Order which was filed on April 27, 1984, Lockport supported the Agency's position on the City's requested relief from the ammonia nitrogen standards. While also acknowledging that the City of Lockport's sewage treatment plant may add some ammonia nitrogen to Deep Run Creek, Lockport notes that the record in this proceeding demonstrates "that the sewage treatment plant does not have an adverse effect upon the aquatic habitat or the potential of that stream." (Lockport's Comments, p. 5-11).

Lockport noted that, on the issue of potential injury to the environment, it had provided ample evidence at the hearings that no such environmental harm would occur and indicated that the testimony of Mr. James E. Huff demonstrated that their present discharges do not harm aquatic life and that aquatic life would not improve even if the quality of the ammonia nitrogen discharges improved. (See: R. 44-84; Ex. 9; Ex. 10).

In reference to the Board's statement in the February 22, 1984, First Notice Opinion pertaining to preliminary evaluations of ammonia nitrogen levels in Deep Run Creek showing that the Section 302.407 standard may have been exceeded five times at sampling site J (1000 feet downstream of discharge, River Mile 1.05) from November of 1982 to July of 1983, Lockport points out that the numerical data may be interpreted in a somewhat different light because of various factors involving the mixing zone and specific stream conditions.

Pertaining to the ammonia concentration 1,000 feet downstream of Lockport's sewage treatment plant at Site J, the petitioner states that, although 5 out of the 32 samples collected during the time period between November 11, 1982 and June 3, 1983 may have exceeded the appropriate standard, Lockport feels that the Board should take into consideration "the closeness of the values."

Lockport points out that "the first two of these samples were only 0.1 mg/l above the 2.5/4.0 standard, and the remaining three violations occurred when Lockport's ammonia levels were at high levels of 9.1, 12.3, and 10.6 mg/l, respectively."

Under this interpretation of the figures, Lockport maintains that "even if Site J is outside the mixing zone, only three samples of 59 collected were clearly above the 2.5/4.0 mg/l ammonia standard" (Lockport's Comments, p. 7).

Because a mixing zone varies with the specific body of water in question and a circle with a 1,200 foot diameter (i.e., having a radius of 600 feet) is allowable under Section 302.102(a), Lockport suggests that "even these three samples (of the 59 collected that were above the 2.5/4.0 mg/l standard) may have been within the mixing zone for the City's effluent." (Lockport's Comments, p. 7).

Moreover, Lockport states that the record reveals no evidence of a "significant" excursion at Site K, 575 feet downstream and concludes that the 4.6 mg/l ammonia concentration recorded on April 21, 1982, "appears to be an analytical error or natural phenomenon, because Lockport's discharge contained only 2.0 mg/l on that date." Lockport also maintains that "the other samples are only 0.1 mg/l and 0.2 mg/l above the applicable secondary contact standard" and thereby implies that an insignificant excursion occurred. (Lockport's Comments, p. 6-7).

Even if the Board were not to completely accept the City of Lockport's interpretation of the numerical sampling data, Lockport emphasizes that "the record here shows that the City's effluent is not having an adverse impact upon aquatic life in the stream." (Lockport's Comments, p. 7).

The City of Lockport also notes that its proposal for site specific relief conceptually seeks the same treatment for its sewage treatment plant's discharges as if these discharges were directly into the S & S Canal or directly into the Illinois River. Under §304.122(a), if Lockport were discharging directly into the Illinois River, it would not be subject to any specific ammonia nitrogen standard since its untreated waste load would be under the threshold 50,000 population level. Lockport notes that, if it were discharging directly to the Illinois River and if it were above 50,000 population level, the 2.5/4.0 standard

would be applicable. Lockport asserts that, in light of the minimal contribution made by its sewage treatment plant to ammonia nitrogen levels in the S & S Canal, its effluent discharges "would not have a measurable effect upon ammonia levels in that body of water either." (Lockport's Comments, p. 8; see: Lockport's Exhibit 9, page 8). Following this line of reasoning, Lockport argues that "the only reason to restrict the City's discharges beyond that originally proposed in its petition would be to protect the aquatic habitat, such as it is, for the 1.25 miles of Deep Run Creek below the Lockport sewage treatment plant." (Lockport's Comments, p. 8-9).

Lockport further maintains that the 1.25 miles of Deep Run Creek below its sewage treatment plant is: (1) a channelized stream bed that lacks canopy cover; (2) inaccessible to the general public; and (3) significantly affected by its downstream confluence with the S & S Canal. Thus, Lockport notes that "there appears to be a beneficial impact" on the aquatic habitat due to its discharges to Deep Run Creek because "the City's effluent is naturally aerated by virtue of the fact that it falls several feet from the outfall pipe onto rocks as it flows into Deep Run Creek." Lockport also stresses that "fish were observed only in the plume from the sewage treatment plant, and the benthic community also appears to be slightly better just downstream of the plant outfall." (Lockport's Comments, p. 8-9; see: Lockport's Exhibit 9, p. 5-7).

Accordingly, Lockport requests that the Board grant its requested relief from the applicable ammonia nitrogen standard because: (1) there is no adverse impact upon the aquatic habitat or the stream; (2) the Agency will retain the requisite authority to monitor and control effluent discharged from Lockport's STP by utilizing the S & S Canal as a monitoring point; (3) the NPDES permitting process is the appropriate mechanism for determination of the proper mixing zone and for imposing ammonia nitrogen standards; (4) Lockport finds itself in an analogous position to other dischargers along the Illinois River system; (5) "the requested relief is less of a change than would be the result had the City requested that Deep Run Creek be changed to a secondary contact water"; and (6) it would help alleviate financial hardship on the City of Lockport. (Lockport's Comments, p. 9-11).

In reviewing all the ramifications of the requested relief from the ammonia nitrogen limitations, the Board is persuaded that Lockport should be granted site-specific relief from the ammonia nitrogen water quality standards. The Board emphasizes that it considers the conditions of Deep Run Creek to be unique and is persuaded that additional treatment would achieve little, if any, environmental improvement, and thus, the nitrification facilities expenditures are economically unreasonable.

Accordingly, the Board will hold that the ammonia nitrogen water quality standards are inapplicable to Lockport's wastewater treatment plant discharges. However, the Board will delete the word "significantly" from Section 304.208(c). The Board agrees with the Agency that this language appears to be inconsistent with 12(a) of the Act. (Agency comments, December 13, 1983, p. 4.)

Finally, the Board notes that it appreciates Lockport's present fiscal difficulties. However, in reviewing the justification for site specific relief, the Board focuses on the economic reasonableness of the expenditures as related to environmental effects, rather than on whether the community is presently experiencing fiscal problems. In like manner, the Board would not refuse a fully justified site specific relief because the local community has a money surplus.

ORDER

The Board directs that second notice of the following rule be submitted to the Joint Committee on Administrative Rules:

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

PART 304
SITE-SPECIFIC RULES AND EXCEPTIONS
NOT OF GENERAL APPLICABILITY

Section 304.208 Discharges From Publicly Owned Treatment Works Into Deep Run Creek in Will County

- a. This section applies only to discharges from the City of Lockport's sewage treatment plant into Deep Run Creek in Will County, Illinois.
- b. The provisions of §304.120 shall not apply to said discharge, provided that said discharge shall not exceed 20 mg/1 BOD₅ or 25 mg/1 total suspended solids.
- c. The provisions of §302.212(b) and §302.212(e) shall not apply to said discharge, provided that said discharge does not cause or contribute to a violation of water quality standards in the DesPlaines River or the Chicago Sanitary and Ship Canal.

IT IS SO ORDERED.

Mr. Forcade dissents.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 8th day of November, 1984 by a vote of 5-1.

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