

ILLINOIS POLLUTION CONTROL BOARD  
February 22, 1984

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

PROPOSED RULE.            FIRST NOTICE.

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

This Proposed Opinion is in support of the Proposed Rule in R83-19 which was adopted for first notice by the Board on December 29, 1983.

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 BOD<sub>5</sub> 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 BOD<sub>5</sub> and 25 mg/1 of TSS to apply to 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.

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 has already 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) made a finding that an economic impact study on the regulatory proposal in R83-19 is not necessary and issued a "negative declaration" of economic impact. The Economic and Technical Advisory Committee (ETAC) has concurred in the DENR's finding that no economic impact study is necessary. The public hearing requirements of Section 27 of the Illinois Environmental Protection Act (Act) being satisfied, the Board has adopted the proposed rule for first notice.

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., par.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, and chlorination 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 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 and flows over a limestone bedrock substrate with 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 \$2,115,000 in basic improvements to the treatment plant and \$1,901,000 in sewer system improvements. (Pet., ¶ 6). However, to comply with the deoxygenating wastes (10/12 mg/l; BOD<sub>5</sub>/TSS) requirements of 35 Ill. Adm. Code 304.120(c), Lockport must expend an additional \$775,000 on a filtration unit, and to comply with ammonia nitrogen discharge requirements, Lockport must expend \$890,000 capital cost plus \$60,000 per year in operating costs for a nitrification unit. (R. 109). Lockport believes these last two expenditures will produce no measurable environmental benefit and requests site-specific relief. 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 10/12 mg/l, BOD<sub>5</sub>/TSS standard. Section 302.206,

in conjunction with Section 304.105, requires Lockport's effluent to not cause dissolved oxygen (D.O.) levels to fall below 5.0 mg/l ever, or fall below 6.0 mg/l during 16 hours of any 24 hour period. Lockport is not currently meeting the 10/12 mg/l standard (Ex. 10, p. 69) and Deep Run Creek is not meeting the 6.0/5.0 mg/l 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/l BOD<sub>5</sub>/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 in fact improve D.O. levels. (Ex. 10, pp. 34-35).

Additionally, Lockport has demonstrated that compliance with the 10/12 mg/l BOD<sub>5</sub>/TSS limitation will impose a significant burden. The tertiary sand filters would cost around \$775,000 with estimated annual operating costs of \$60,000. (R. 109). Lockport is presently experiencing financial difficulties in that city revenues are all declining and estimated costs for all sewer system and treatment plant improvements are over twice Lockport's general obligation bonding authority limit. (R. 19-20). For these reasons, the Board will grant Lockport's request for a 20/25 mg/l, BOD<sub>5</sub>/TSS, limitation.

#### AMMONIA NITROGEN

Lockport seeks relief from a 1.5 mg/l ammonia nitrogen effluent limitation (Pet., ¶ 5) apparently imposed by the Agency because Deep Run Creek violates the ammonia nitrogen water quality requirements of Section 302.212(b). Lockport's discharges presently exceed 1.5 mg/l ammonia nitrogen (Ex. 10, p. 69), Deep Run Creek presently violates the ammonia nitrogen water quality standard of Section 302.212(b) (Ex. 10, p. 3), and Lockport's

discharges cause or contribute to those violations. (Ex. 9, p. 5). Moreover, ammonia water quality levels would improve if Lockport added complete nitrification. (Ex. 10, p. 5).

Lockport has not requested that the numerical provisions of Section 302.212 regarding ammonia nitrogen water quality be raised to higher numerical limits so that Lockport would not cause or contribute to violations of these higher numbers. Rather, Lockport requests that these water quality standards be made inapplicable to the discharge which causes them to be violated. This the Board cannot do.

Section 13(a) of the Illinois Environmental Protection Act (Act) requires the Board to adopt water quality standards and, pursuant to Section 11(b) of the Act, to assure that no contaminants are discharged without the degree of treatment necessary to prevent violations of those standards. This process is identical to the process in Sections 302, 303, and 402(b) of the Federal Clean Water Act, made applicable to Illinois dischargers by Section 11(b) of the Act. While the Board may have discretion in what those standards will be, there must be standards, and those standards must be applicable to discharges which would cause their violation.

Presently, the least protective ammonia water quality standard in Illinois is Section 302.407 (Secondary Contact and Indigenous Aquatic Life Standards). That standard requires ambient ammonia nitrogen levels to not exceed 2.5 mg/l from April to October, nor 4.0 mg/l from November to March. An evaluation of ammonia nitrogen levels in Deep Run Creek (Ex. 9, p. 13) shows even these relaxed standards would have been violated five times at sampling site J (1000 ft. downstream of discharge, River Mile 1.05) from November of 1982 to July of 1983. Upstream of Lockport's discharge, Deep Run Creek consistently meets the more protective standards of Section 302.212.

Lockport has provided evidence (Ex. 9, Ex. 10, R. 44-84) by Mr. James E. Huff in an attempt to demonstrate that their present discharges do not harm aquatic life and that aquatic life would not improve even if the quality of ammonia nitrogen discharges improved. The Board need not and does not make any findings of fact concerning this issue, since the Board cannot by regulation approve specific discharge concentrations that cause violations of water quality standards without revising those standards. Water quality standard revisions must be based on evidence that the requested levels will protect the present and future uses of the water body. Lockport has not requested any specific standard for ammonia nitrogen in Deep Run Creek and the evidence is insufficient for the Board to derive numerical limits on its own that would both protect present and future uses, and provide relief to Lockport. Consequently, Lockport's request for site-specific regulatory relief from the ammonia nitrogen standards of Section 302.212 on Deep Run Creek must be denied.

The Board notes with some concern the inconsistency of the Agency comment in this matter. In response to Lockport's request that the D.O. Standard for Deep Run Creek be modified to provide not less than 6.0 mg/l for 16 of any 24 hours, the Agency stated:

"The Agency agrees that Lockport's effluent standards ought to be 20 mg/l BOD and 25 mg/l total suspended solids (20/25) and also agrees that some relocation of the present dissolved oxygen standard could be necessary. However Lockport's language would leave the stream without a dissolved oxygen standard for eight hours of the day, a result that would be incompatible both with the Environmental Protection Act and the Clean Water Act. In addition there is nothing in the record to support a 0 mg/l dissolved oxygen standard." (Rec., p.2).

However, the Agency supported the complete elimination of ammonia nitrogen standards for Deep Run Creek by making them inapplicable to the discharge which causes their violation. (Rec., p. 4).

In its written Comments filed on December 13, 1983, the Agency has suggested modified language in the proponent's originally proposed order to: (1) specifically identify the Lockport STP (to prevent inclusion of other facilities that might be constructed later); (2) establish a dissolved oxygen standard in Deep Run Creek to match the standard for secondary contact waters contained in 35 Ill. Adm. Code 302.405; and (3) eliminate the inclusion of the word "significantly" in subsection (c) of the proposed order to be consistent with Section 12(a) of the Act. In a December 14, 1983 letter responding to the Agency's Comments, Lockport noted that it had "no major objection" to these proposed changes. Accordingly, the Board will specifically identify the Lockport STP in its Proposed Order, but finds the other suggested modifications unnecessary in light of the current wording of the Board's Proposed Order.

In evaluating the City of Lockport's site-specific regulatory proposal, the Board finds that the record demonstrates that a less stringent standard of 20 mg/l BOD<sub>5</sub> and 25 mg/l total suspended solids is appropriate and environmentally acceptable for discharges from Lockport's STP into Deep Run Creek.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Proposed Opinion was adopted on the 22nd day of February, 1984 by a vote of 7-0.

  
Christan L. Moffett, Clerk  
Illinois Pollution Control Board