

ILLINOIS POLLUTION CONTROL BOARD
January 21, 1982

CITY OF MONMOUTH, a municipal)
corporation,)
)
Petitioner,)
)
v.) PCB 79-249
)
ILLINOIS ENVIRONMENTAL)
PROTECTION AGENCY,)
)
Respondent.)

MR. RONALD TENOLD, STANDARD AND TENOLD, ATTORNEYS-AT-LAW,
APPEARED ON BEHALF OF THE PETITIONER;

MR. STEPHEN GROSSMARK, ASSISTANT ATTORNEY GENERAL, APPEARED
ON BEHALF OF THE RESPONDENT.

OPINION AND ORDER OF THE BOARD (by D. Anderson):

This matter comes before the Board upon a petition and amended petition for variance filed November 26, 1979 and September 4, 1981 by the City of Monmouth (Monmouth). The amended petition requests a variance from water quality and effluent standards of Rules 203(f), 402.1 and 404(c) of Chapter 3: Water Pollution, pending upgrading of its wastewater treatment plant called the "North Plant". On October 7, 1981 the Illinois Environmental Protection Agency (Agency) recommended that the variance be granted in part subject to conditions. A public hearing was held at Monmouth on October 14, 1981. Members of the public attended but did not comment (R. 6).

The original variance petition in PCB 79-249 was related to an enforcement action, PCB 79-79. This involved both the "North Plant" and Monmouth's "municipal wastewater treatment plant" located 2 1/2 miles downstream. On May 15, 1980 the allegations involving the North Plant were severed and docketed as PCB 80-107. After Monmouth filed an amended petition, the Agency filed an amended recommendation that the variance be granted with respect to ammonia, but denied with respect to BOD and TSS. The Agency then entered into a stipulation in PCB 80-107. This involved a compliance plan with interim limitations for BOD and TSS.

PCB 79-249 and PCB 80-107 were consolidated for hearing. The Board hereby incorporates the record in PCB 80-107 into this matter. A portion of the factual discussion will be in a separate Opinion and Order in PCB 80-107.

The North Plant discharge is situated in the Southeast Quarter of Section 17, T11N, R2W of the 4th P.M., Warren County. It discharges to Markham Creek, a tributary of Cedar Creek, Henderson Creek and the Mississippi River. At one time it discharged pursuant to NPDES Permit No. IL 0036218, although this has expired and has not been reissued. The Board will order the reissuance of the permit pursuant to Rule 914 of Chapter 3.

The plant receives raw sewage from commercial and industrial sources, primarily from Wilson Foods Corporation (Wilson), which is not a party to this action. Wilson operates a large slaughterhouse tributary to the North Plant. It has a rated capacity of 7,800 hogs per day and an historical output of 191,000,000 pounds of meat per year.

The existing North Plant is described as follows:

As designed, raw sewage entered the anaerobic splitter, then to two parallel covered anaerobic lagoons, which discharge to an aeration splitter. There are then two parallel aeration basins, each of which discharges to a final clarifier, each of which discharges to the same first stage aerated lagoon. There is a single outfall to a settling pond, second stage aeration pond, second settling pond and chlorination (Petition, Appendix A).

The plant has a design capacity of 2.0 MGD with peak flows of 2.45 MGD.¹ It is designed to handle a loading of 25,000 lbs/day BOD and 15,000 lbs/day SS.¹ The plant was built pursuant to an Agency construction permit in 1974. It is not designed to remove nitrogen.² Although this alone would probably prevent compliance, the plant has experienced other difficulties.

¹MGD is Million Gallons per Day; lbs/day is pounds per day; BOD is Biochemical Oxygen Demand, five-day except as used here; SS or TSS is Total Suspended Solids.

²Monmouth has stated that the plant was not designed to remove ammonia because there was no ammonia standard at the time it was built. The Agency has not contradicted this. The Board notes that the 1.5 mg/l ammonia water quality standard of Rule 203(f) was adopted on April 4, 1972 (R71-14, 4 PCB 3, 11). This is made applicable as an effluent standard in water quality limited situations by Rule 402 which was adopted January 6, 1972 (R70-8, R71-14, R71-20, 3 PCB 401, 425). Prior to that time SWB-8 set a standard of 2.5 mg/l for ammonia nitrogen (3 PCB 759). Since April 4, 1972 the ammonia standard has remained unchanged except for the addition of exceptions such as Rule 402.1 which relaxes the 1.5 mg/l standard under some circumstances. The Board further notes that the April 3, 1973 permit application stated that the anticipated effluent would contain 1.0 mg/l ammonia nitrogen (Amended Rec. Attachment A).

One anaerobic lagoon is 1 1/2 times as large as the other. Odor problems caused the city to cover these lagoons so gasses could be burned off. The cover on the smaller lagoon deteriorated, leading to the lagoon's abandonment. This reduces capacity and causes secondary problems controlling the flows to the aeration basins (Attachment B).

The plant was designed to have two sand filters between the final settling pond and chlorination. These were never actually constructed. The Agency contends that these might lessen the TSS and BOD problems, although they might not bring the plant into compliance (Rec. 9).¹ The Agency believes performance would have been improved by a properly certified operator.

Monmouth also reports algae blooms in the ponds following the activated sludge system. These contribute to TSS levels and create a secondary BOD loading (Amended Pet. 8).

BOD loadings are as high as 17,000 lbs/day and SS as high as 57,000 lbs/day. The suspended solids are consistently in excess of design (Attachment B, IV-I). Flows average about 1.03 MGD with a maximum of 1.73 MGD (Rec. 6). This is well under design. The following table indicates performance from June, 1979 through June, 1981:

	<u>Average²</u>	<u>Maximum</u>
BOD	10.2 mg/l	43 mg/l
TSS	26.3 mg/l	61 mg/l
Ammonia Nitrogen	45.4 mg/l	69 mg/l

¹The record is somewhat confusing concerning whether the permit required construction of these sand filters and whether they were actually built. The original Recommendation stated: "Original design plans for the North Plant called for installation of two sand filters to follow the second settling basin. Although the filter beds were constructed, sand was never installed, apparently because of Petitioner's belief that the filters would be unnecessary to meet effluent limitations." (p. 9). The amended Recommendation says: "The Agency's permit section suggested the addition of sand filters but eventually issued a construction permit based on the design as submitted." (p. 2). However, Attachment A to the amended Recommendation contains a permit application dated April 3, 1973. This includes a sand filter.

²Average of monthly averages; highest daily maximum recorded.

NPDES permit limitations are based on Rules 402.1 and 404. Averaging rules are based on permit condition, which poses a problem in that there is no current valid permit. The following are taken from the Recommendation, although it is not clear whether they come from the old permit or a proposed permit:

	<u>Board Standard</u>	<u>Average</u>	<u>Permit Maximum</u>
BOD	10 mg/l	10 mg/l	25 mg/l
TSS	12 mg/l	12 mg/l	30 mg/l
Ammonia Nitrogen:			
Summer	1.5 mg/l	1.5 mg/l	--
Winter	4.0 mg/l	4.0 mg/l	--

In PCB 80-107 the Board has, among other things, found Monmouth in violation of Rule 404(c) and related permit limitations. The Board finds that Monmouth has also violated Rule 402.1 by causing ammonia nitrogen discharges in excess of the Rule 402.1 standard. After the expiration of that rule, Monmouth would cause violations of Rule 402 by violating the water quality standard of Rule 203(f).

Monmouth's compliance plan is stated in the amended variance petition. Part of it is agreed to in the stipulated settlement. Monmouth is ordered to comply with the agreed conditions in PCB 80-107. A summary of the compliance plan suggested by Monmouth appears below (Amended Pet. 9). The Board will not order this, but will only order deadlines for permit applications and construction, as recommended by the Agency.

1. Automatic flow sampling at the Wilson facility;
2. Placing west anaerobic lagoon back in service (Rec. 8);
3. Improved flow control exiting the anaerobic lagoon;
4. Paving and installation of high efficiency aeration equipment in aeration basins;
5. Improved sludge handling;
6. Tertiary solids removal consisting of either sand filters or microscreens prior to chlorination;
7. Effluent sampling and metering.

The Agency has recommended that the Board deny the variance for BOD and TSS on the grounds of self-imposed hardship. This is inconsistent with the stipulated settlement agreed to by the Agency in PCB 80-107. The Board will grant the variance from the BOD and TSS standards, subject to the conditions in the settlement.

Two different compliance plans have been proposed for one facility to be carried out at the same time. This made it extremely difficult for the Board to review the proposals. The Board is forced to assume that the parties have reviewed the plans and determined that they are consistent.

The Agency contends that, although the plant is operating below design hydraulic capacity, there is a correlation between flow and effluent BOD and TSS levels (Rec. 10). This is indicative of hydraulic overloading. The petition does not address flow reduction, or leveling, as an interim measure to reduce environmental impact. Furthermore, Wilson has not been made a party to this action, which prevents the Board from examining its operations to determine if load reduction measures would impose arbitrary or unreasonable hardship on it.

Rules 402 and 402.1 prohibit violations of the water quality standards by effluent from the treatment plant. Rule 701(a) prohibits discharges by Wilson to the sewer which cause the treatment plant to violate effluent standards. The water quality standards become effluent standards through Rule 402 in water quality limited situations.

Monmouth has requested a variance from Rules 203(f) and 402.1. The latter is to expire July 1, 1982, long before the upgrading of this plant is to be completed. Expiration of the Rule 402.1 exception would bring the North Plant under Rule 402. The Board will therefore deem the petition as requesting a variance from Rule 402, as well as 402.1 and 203(f).

A variance from Rule 203(f) would result in temporary modification of the water quality standards in the receiving stream. This could be construed as effectively granting Wilson a variance from Rule 701. This would not be justified in the absence of a compliance plan for Wilson. A variance from only Rules 402 and 402.1 will grant Monmouth complete relief from Rule 203(f) without granting relief to Wilson. The Board will therefore deny the variance from Rule 203(f) as unnecessary for Monmouth.

The Agency calculates that USEPA BOD effluent limitations would be 410 pounds per day (40 CFR 432, Subpart B). Assuming a flow of 2.0 MGD and 20 mg/l BOD, 337 lbs/day would be discharged

(Rec. 5). A BOD variance conditioned on 20 mg/l would thus be consistent with federal regulations, assuming Part 432 is applicable to the municipal plant treating the industrial wastestream. There are no Part 432 standards for ammonia or TSS.

The Agency has presented data indicating that Markham Creek is "semi-polluted" upstream as well as downstream of the North Plant. Its water is substantially in excess of water quality standards for ammonia, and indeed toxic to aquatic life under ordinary conditions. The water is turbid, green and malodorous. However, dissolved oxygen levels appear to be excellent (Rec. 7).

The Board finds that it would impose arbitrary or unreasonable hardship to require the North Plant to come into immediate compliance with Rules 402, 402.1 and 404(c). The Board will grant a variance conditioned in part on the compliance plans presented in the amended petition, recommendation and stipulation in PCB 80-107.

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

ORDER

Petitioner, the City of Monmouth, is granted a variance from Rule 402, 402.1 and 404(c) of Chapter 3: Water Pollution, subject to the following conditions:

1. This variance applies only to discharge to Markham Creek from Petitioner's North Plant.
2. This variance will expire January 20, 1987.
3. Petitioner shall not cause or allow discharge of ammonia nitrogen in excess of the following levels from January 21, 1982 through January 20, 1986:

	<u>Monthly Average</u>	<u>Daily Composite</u>
Ammonia Nitrogen	70 mg/l	90 mg/l

4. Petitioner shall not cause or allow discharge of ammonia nitrogen in excess of the following levels from January 21, 1986 through January 20, 1987:

	<u>Monthly Average</u>	<u>Daily Composite</u>
Ammonia Nitrogen	2.5 mg/l	5.0 mg/l

5. Petitioner shall not cause or allow discharge of 5-day biochemical oxygen demand or total suspended solids in excess of the following levels from January 21, 1982 through January 20, 1985:

	<u>Monthly Average</u>	<u>Daily Composite</u>
BOD	20 mg/l	30 mg/l
TSS	45 mg/l	60 mg/l

6. Petitioner shall comply with the applicable effluent limitations of Chapter 3 for 5-day biochemical oxygen demand and total suspended solids after January 21, 1985.
7. Petitioner shall carry out the BOD/TSS compliance program outlined in paragraph 21 and Attachment A of the stipulation in PCB 80-107. In particular, Petitioner shall:
- On or before January 21, 1985, upgrade the North Plant in accordance with the schedule set out in Attachment A;
 - On or before February 20, 1982, employ to operate the North Plant an operator who is Agency certified as an industrial operator and a Class 1 operator for sewage treatment works;
 - After February 20, 1982, maintain an operator at the North Plant at least five and one-half days each week;
 - By February 20, 1982, establish and maintain laboratory facilities at the North Plant to monitor the activated sludge process and determine, among other things, the pH of the effluent so that optimum operation efficiency is achieved;
 - On or before February 20, 1982, seal the overflow structure in the old third stage cell;
 - After February 20, 1982, conduct sampling, analysis and reporting in conformance with state and federal standards.

8. Petitioner shall carry out upgrading necessary to achieve full compliance with ammonia nitrogen effluent and water quality limitations on or before January 20, 1987. In particular, Petitioner shall:
 - a. On or before February 4, 1982 commence final design;
 - b. On or before June 24, 1982, complete and submit final design plans as a part of a permit application to the Agency;
 - c. On or before January 20, 1984, complete construction;
 - d. On or before January 20, 1985, attain operational level;
 - e. On or before January 20, 1987, complete and forward to the Agency an ammonia nitrogen evaluation of new facilities.
9. The requested variance from Rule 203(f) is denied.
10. The Illinois Environmental Protection Agency shall issue an NPDES permit for this facility reflecting the conditions of this variance.
11. The Illinois Environmental Protection Agency shall issue or deny a construction permit within 14 weeks after submission of final design.
12. Within forty-five days of the date of this Order, Petitioner shall execute and forward to the Illinois Environmental Protection Agency, Variance Section, 2200 Churchill Road, Springfield, Illinois 62706, a Certificate of Acceptance and Agreement to be bound to all terms and conditions of this variance. This forty-five day period shall be held in abeyance for any period this matter is being appealed. The form of the Certificate shall be as follows:

CERTIFICATION

I, (We), _____, having read and fully understanding the Order in PCB 79-249, hereby accept that Order and agree to be bound by all of its terms and conditions.

SIGNED _____

TITLE _____

DATE _____

IT IS SO ORDERED.

Mr. Dumelle concurred.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order were adopted on the 21st day of January, 1982 by a vote of 4-0.



Christan L. Moffett, Clerk
Illinois Pollution Control Board