

ILLINOIS POLLUTION CONTROL BOARD
January 8, 1981

CITY OF CAIRO,)
)
 Petitioner,)
)
 v.) PCB 80-161
)
 ILLINOIS ENVIRONMENTAL PROTECTION)
 AGENCY,)
)
 Respondent.)

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

The City of Cairo (Cairo) filed a Petition for Variance Extension on September 5, 1980, requesting an extension of the variance granted by the Board in PCB 77-256 (March 16, 1978, 29 PCB 371). An amended petition was filed on October 17, 1980, requesting a variance from Rule 602(c) of Chapter 3: Water Pollution Regulations, for 5 years or until proceedings in R77-12 are complete, whichever occurs first. On December 1, 1980, the Illinois Environmental Protection Agency (Agency) recommended that the variance be granted subject to certain conditions. Hearing was waived, and none was held.

The conditions evident in Cairo at the time of the variance petition in PCB 77-256 are essentially unaltered. Cairo is located at the confluence of the Mississippi and Ohio Rivers at the southern tip of Illinois. Cairo's current sewage system serves approximately 6,500 people. The facility consists of two aerated grit tanks, two parallel preaeration tanks, a primary settling tank and two aerobic digesters. The design average flow is 1.9 million gallons per day (MGD) and provides treatment for a maximum flow of 3.7 MGD.

The hydraulic load to the Cairo facility typically exceeds 1.0 MGD or 10,000 population equivalents (PE). However, the organic load is substantially less than the 10,000 PE due to the massive infiltration into the City's combined sewer system. Discharge from the Cairo facility flows into the Ohio River which has a minimum estimated flow at Cairo of 29,200 MGD. This provides dilution at a ratio of 20,000: 1.

Also serving the City of Cairo is a combined sewer system and four lift stations. One station pumps dry weather flow to the Cairo STP; the other three lift stations pick up excess flow. When incoming flow exceeds the maximum capacity of this lift station, the excess flow is pumped by the other three

lift stations directly to the Ohio River. These lift stations are the subject of this variance extension.

Rule 602(c) provides in pertinent part that:

All combined sewer overflows and treatment plant bypasses shall be given sufficient treatment to prevent water pollution or the violation of applicable water quality standards. Sufficient treatment shall consist of the following:

- (1) All dry weather flows, and the first flush of storm flows as determined by the Agency, shall meet the applicable effluent standards;
- (2) Additional flows, as determined by the Agency but not less than ten times the average dry weather flow for the design year, shall receive a minimum of primary treatment and disinfection with adequate detention time;

The combined sewer system in Cairo, Illinois suffers from some quite unusual infiltration problems which are directly related to the level of the rivers. Because the City is located on a sand spit between the Ohio and Mississippi Rivers, local groundwater levels tend to correspond closely to the water stages of those rivers. At 28 feet or higher, infiltration becomes a serious problem and at 30 feet bypassing at the lift stations occurs. During this time, the Cairo STP receives the amount of wastewater it is capable of treating. However, when the Ohio River reaches a river stage of 50.0-50.5 feet, bypassing occurs at the plant. At 51.0-51.5 feet, the Ohio River covers the Cairo STP's discharge pipe and flood gates are closed shutting down the Cairo STP. Thus, any environmental impact is self-limiting since untreated water is discharged only at times when there is maximum dilution due to flooding.

The City of Cairo is currently in a Step 1 phase of the federal construction grants program. Although petitioner has submitted a precise plan of method of control which will ultimately bring the Cairo sewage system into compliance for flows up to and including 1.9 MGD, petitioner is unable to present plans by which it will eventually comply with Rule 602(c) of Chapter 3 for the three pump stations. In this petition, Cairo has requested an extension of the variance, but there is no indication as to how compliance with the technical requirements of Rule 602(c) will be achieved by the end of that period. However, the three pump stations in the Cairo sewerage system provide necessary protection against flooding so that the City may be maintained for human habitation. Furthermore, when the pump stations become operational, the discharge of excess flow does not violate Illinois effluent limitations for BOD₅ or for suspended solids (see 29 PCB 372-3) and therefore does not pose a threat of pollution. The fecal coliform limitations is, however, exceeded, both for first flush and for additional flows.

Petitioner alleges that to treat its flows in the sewer system which at times equal 56 MGD would cause a severe financial hardship for any small city required to disinfect wastewater. Furthermore, it is highly unlikely that a conventional separate sanitary sewer system, free from excess infiltration could be constructed to serve the City of Cairo at a reasonable cost. As noted in the Board's Opinion in PCB 77-256, the cost for separating the combined sewer system would be \$25,000,000 (29 PCB 372). Therefore, the Board finds that requiring petitioner to comply with the fecal coliform (disinfection) requirements of Rule 602(c) would impose an arbitrary or unreasonable hardship.

Apparently, the first flush violations will be remedied once the federal grant construction work is completed. When PCB 77-256 was decided on March 16, 1978, Cairo was in Step 1 of that process and remains so. The record offers no insight to the Board as to why no progress has been made since 1978, but neither are dilatory actions alleged. Because the delay is not explained the five year variance will not be granted but the Board will grant a variance until January 31, 1983. Any future proceedings should clearly discuss reasons for delay.

This Opinion constitutes the Boards findings of fact and conclusions of law in this matter.

ORDER

The City of Cairo is granted a variance until January 31, 1983, from Rules 602(c)(1) and (2) of Chapter 3: Water Pollution Regulations, in order to allow it to discharge first flush and additional flows from its sewage system which exceed 1.9 MGD into the Ohio River without treatment, subject to the following conditions:

1. Petitioner shall provide treatment for all flows up to and including 1.9 MGD; and
2. Petitioner shall submit to the Agency a Certification of Acceptance within 45 days of the date of this Order. This Certification shall be addressed to the Illinois Environmental Protection Agency Variance Unit, Division of Water Pollution Control, 2200 Churchill Road Springfield, Illinois 62706. The form of such certification shall be as follows:

CERTIFICATION

The City of Cairo has received and understands the Order of the Illinois Pollution Control Board in PCB 80-161 and hereby accepts said Order and agrees to be bound by all of the conditions thereof.

Signed _____

Title _____

Date _____

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 3rd day of January, 1980 by a vote of 5-0.

Christan L. Moffett
Christan L. Moffett, Clerk
Illinois Pollution Control Board