

ILLINOIS POLLUTION CONTROL BOARD
November 19, 1987

IN THE MATTER OF:)
)
JOINT PETITION OF THE CITY OF) PCB 85-218
BELLEVILLE AND THE ILLINOIS)
ENVIRONMENTAL PROTECTION AGENCY)
FOR EXCEPTION TO THE COMBINED)
SEWER OVERFLOW REGULATIONS)

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

This matter comes before the Board upon a December 30, 1985, Joint Petition for a combined sewer overflow (CSO) exception filed pursuant to 35 Ill. Adm. Code, Subtitle C, Chapter I, Part 306, Subpart D, by the City of Belleville (City) and the Illinois Environmental Protection Agency (Agency). Petitioners specifically request exception from 35 Ill. Adm. Code 306.305(a) and 306.305(b).

Joint Petitioner, IEPA, also filed a Motion For Modification And Clarification on November 10, 1987, which the Board hereby adopts in this Amended Order.

Re: A public hearing was held on September 17, 1986 in Belleville, Illinois. No members of the public were present. Testimony and evidence was presented at that time by witnesses for both the City and the Agency. At the conclusion of the hearing Belleville agreed to tender additional documentation. On May 21, 1987 the hearing officer ordered Belleville to produce the additional information. The City responded to this order on August 27, 1987.

CSO REGULATIONS

The CSO regulations are set forth at 35 Ill. Adm. Code Subtitle C, Chapter I, Part 306. They were amended in R81-17, 51 PCB 383, March 24, 1983. Section 306.305 provides as follows:

All combined sewer overflows and treatment plant bypasses shall be given sufficient treatment to prevent pollution, or the violation of applicable water standards unless an exception has been granted by the Board.

Sufficient treatment shall consist of the following:

- a) All dry weather flows, and the first flush of storm flows as determined by the Agency, shall meet the applicable effluent standards; and
- b) 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 retention time; and
- c) Flows in excess of those described in Subsection (b) shall be treated, in whole or in part, to the extent necessary to prevent accumulations of sludge deposits, floating debris and solids in accordance with 35 Ill. Adm. Code 302.203, and to prevent depression of oxygen levels; or
- d) Compliance with a treatment program authorized by the Board in an exception granted pursuant to Subpart D.

Subpart D allows the discharger to file a petition for exception jointly with the Agency as Belleville has done. Such a Joint Petition must justify an exception according to the criteria set forth at Section 306.361. In reviewing whether a joint application justifies granting, this Board reviews the application evidence and proofs in conjunction with 35 Ill. Adm. Code Section 306.361(a), which requires the submission of data concerning receiving stream ratios, known stream uses, stream and side land accessibility, frequency and extent of overflow events, and inspections of unnatural deposits, odors, unnatural floating materials or color, stream morphology and limited chemical analysis.

Where the Petition fails to demonstrate a "minimal impact exception" (above) or where issuance of an exception would result in a modification of water quality standards an applicant must include additional information as required by 35 Ill. Adm. Code Section 306.361(a). Specifically, the additional data required concerns stream sediment analyses, biological surveys and stream chemical analyses.

The City and the Agency believe they have made a showing of the minimal impact showing pursuant to Section 306.361(a).

SUPPORTING DOCUMENTS

Belleville has undertaken several studies of its CSO situation, the reports of which have been submitted as exhibits in support of the Petition. Those reports include the following: Ex. #1, First Flush Summary; Ex. #2, Study of Combined Sewer Overflow; Ex. #3, Combined Sewer Overflow Procedures; Ex. #4, Municipal Compliance Plan, Ex. #6, Flood Insurance Study. The City has also introduced the Department of the Army's interim report on Richland Creek (Ex. #7) and certain proposed procedures for determining compliance with the regulations, Ex. #5.

IEPA exhibits include the following: Ex. #2, Summary of Stream Survey; Ex. #3, Illinois Water Quality Report, pp. 12-16, 40, 41; an analysis of the City's ability to finance proposed changes and accompanying testimony.

BACKGROUND

The City of Belleville is located in St. Clair County on Illinois Route #159, 4 miles south of Interstate Route #64. The City, with a population of 42,000, is home to a Heileman Brewery, Peerless appliance manufacturer, and other local industries.

The City owns, operates and maintains its own waste water collection facilities, with the first collection system constructed in 1912. This was a combined domestic waste/storm water system. Currently, 16,000 users are served by the City.

There are four different drainage basins in the Belleville area, but only three serve as receiving waters for CSO discharges (Powdermill, Schoenberger, and Richland Creeks). Richland Creek is the stream most impacted by CSO discharge. Discharges to Powdermill and Schoenberger Creeks have been or will be eliminated, which in this case, means operative only during excessive rainfall. Petitioner provided no stream-flow or environmental effects data for Powdermill or Schoenberger Creeks.

Data concerning Richland Creek high flows is as follows: The ten year flood is estimated to have a peak discharge of 3,260 MGD upstream, and 5,310 MGD downstream of Belleville's corporate limits. (Ex. #6 p. 6). This is higher than the "average bankfull channel capacity" of Richland Creek above and through the City. (Ex. #7 pp. 47-48). The average flow of Richland Creek is 67.2 MGD (USGA Report, p. 10). Low flow data for Richland Creek is 2.45 MGD for a 7-day, 10 year storm event.

The existing wastewater collection system consists of three separate systems. The original system is tributary to wastewater Treatment Plant No. 1; the second system (constructed in the mid 1960's) encompasses completely separate sanitary and storm sewers

and serves an area tributary to wastewater Treatment Plant No. 2; and the last system, which also includes completely separate sanitary and storm sewers, is tributary to wastewater Treatment Plant No. 3. In total, the City has approximately 90 miles of separate sewers and 50-60 miles of combined sewers. The combined sewers comprise 45% of the sewer system into Treatment Plant No. 1

Three interceptors, having total capacity of 16 MGD, transport sewage to Treatment Plant No. 1, which provides full treatment for dry weather flows, to a maximum of 8 MGD; collection and storage of excess flow up to 10.5 MGD; and primary treatment with disinfection for an additional 8 MGD. There are currently 17 combined sewer overflows. Previously there were 40 CSOs but 23 have been or will be eliminated. Eliminated, in this case, means only operative during excessive rainfall. Most combined sewers located near Richland Creek have a combined capacity of 20 MGD. Bypass stormwater flows from the interceptors directly into Richland Creek. The remaining combined sewers, with total capacity of 5 MGD, are scattered around the upper part of the sewer system and bypass storm flow to a storm sewer which discharges to a drainage ditch tributary to Richland Creek. These overflows do not operate until the wet weather first flush has passed. Bypassing begins at overflows located near Treatment Plant No. 1 during rains ranging from 0.5 to 1.0 in/hr. Most of the upstream overflows will operate at 1.5 in/hr rainfall; others rarely operate.

The City's treatment plant was upgraded in 1975; but that did not include facilities for nitrification and the required amount of CSO treatment.

The City claims that it has not received tangible inquiry or complaints from residents relative to its occasional discharges from overflow points. The major concern and complaints of the public are related to sewer backups. (Ex. No. 3 p. 14).

EXISTING CSO IMPACT

The result of an overflow can be significant discharge of pollutants such as organic materials, nutrients, sediment, microorganisms, oil and grease, metals. Concentrations are higher at the beginning of the overflow. (City Ex. No. 3, p. 2).

CSO PROPOSAL

The City presented a twofold plan intended to resolve the existing problem as much as possible. The proposal seeks to significantly reduce the City's adverse impact on Richland Creek, while avoiding the substantial costs of complete compliance or separation of the combined sewer system.

Non-structural recommendations included the use of periodic street cleaning, periodic sewer flushing and periodic catch basin cleaning. Additionally, reduction of excess inflow was proposed via enforcement of the City's ordinance requiring disconnection of downspouts.

Structural recommendations were as follows:

1. Bottle-neck eliminations:

There are three sections of the interceptor where pipe diameters are less than that of the incoming upstream interceptor section. These mis-matches create hydraulic bottle-necks which contribute to organic and solids build-up in the interceptor and increases the overflows. The proposal would replace these sections of the interceptor with piping of equal or greater diameter. The three bottle-necks undergoing modification are as follows: No. #1, the 18 to 24 in. interceptor along West Main Street between 73rd and 58th streets, will be replaced with a 30 in. diameter line; no. #2, the 18 to 24 in. interceptor along West Main Street between 51st and 37th streets will be replaced with a 36 in. line; no. #3, the 24 to 30 in. receptor along West 'A' Street between 23rd and 15th streets will be replaced with a 36 in. line. The City alleges that elimination of these bottle-necks will enable more of the stormwater runoff, containing the greatest quantity of pollutant load, to reach the proposed relief interceptor along Richland Creek. Municipal Compliance Plan Chapter VII, Section 7.2.7 p. 8.

2. Surge relief interceptors

The City has proposed that three new relief interceptors be constructed.

- a) Richland Creek Relief Interceptor: A new relief interceptor is proposed to parallel Richland Creek from "G" Street to the proposed pumping station at Treatment Plant No. 1. This line will intercept combined sewer overflow from thirteen overflow points.
- b) East Creek Relief Interceptor: A new relief interceptor is proposed to parallel the existing 24 in. diameter interceptor from McKinley and Park streets to the proposed pumping station near Treatment Plant No. 1. The existing interceptor will remain in use.

- c) East Side Relief Interceptor: A new relief interceptor is proposed to intercept the combined sewer overflow from site A-1 and deliver it to the proposed pumping station near Treatment Plant No. 1. A 36 in. diameter interceptor will parallel the existing 21 in. diameter interceptor from Portland and Mascoutah Avenues to, then along, Route #13, and then north of Treatment Plant No. 1 to Church Street, then finally, south to the proposed first flush pumping station near Treatment Plant No. 1. This interceptor will pick up overflow from the worst overflow site in the system, A-1. Municipal Compliance Plan Chapter VII, Section 7.2.7 p. 9.

3. Pumping station and holding basin

The above referenced new pumping station will be located north of Richland Creek, and will collect and pump flow from the three proposed relief interceptors. The combined wastewater will be pumped to a proposed holding basin located south of Richland Creek, opposite Treatment Plant No. 1. The holding basin will be approximately three acres and will hold 10.5 million gallons. This proposed holding basin will have a floating aeration system to keep the pollutants in suspension. After the rain ends, water in the holding basin will be treated at Treatment Plant No. 1 as capacity becomes available. During normal flow conditions, approximately 2 MGD can be pumped from the holding basin. Municipal Compliance Plan Chapter VII, Section 7.2.7 p. 10.

4. Improvements within the independent overflow points

The remaining overflow points (with a lesser discharge pattern) are located at the beginning of the Schoenberger and Powdermill Creeks watersheds. These overflow points will be individually improved. Also, various channel improvements -- in addition to paving of the downstream portion of the overflow points -- will be implemented to prevent future debris deposits. (Ex. No. 3 pp. 20-22).

Additionally, the City stated that it is continuing with its plan to eliminate overflow points. The City has expended a substantial amount of money to date and has reduced the amount of overflow points to seventeen from 40. (R. 60). This number will be further reduced by continuation of the City's current plan.

Petitioners admitted that their proposal was an "unorthodox case" -- but that 100 percent of the first flush volume "for

essentially any storm" will be captured in the first flush basin -- "and that is irregardless [sic] of the size of that storm." (R. 63).

ECONOMIC IMPACT

At hearing the City's witness, Mr. Ike Karaca asserted that complete separation of the storm sewers from the sanitary sewers would cost approximately sixty million dollars [\$60,000,000]. (R. 18). This same figure was used in the City's initial petition. It should be noted that IPCB regulations do not require a complete separation of the two sewer lines in order to achieve compliance.

During hearing Mr. Michael Bowers, an employee of Illinois Environmental Protection Agency, Water Pollution Control Division, testified on behalf of the Joint Petition. (Agency Ex. No. 5). (R. 74). Mr. Bowers concluded that his analysis, utilizing Agency accepted, preliminary review criteria for affordability of MCP projects, indicated that the City's current proposal with construction costs at \$11,112,075 is within its financial capability. (R. 78).

The Agency introduced evidence relative to the City's financial ability. The data indicated, inter alia, that the City has a 5 year average unemployment rate of 14.3%, and 19.2% of City residents are over 65 years old; "there is a significant portion of our population who can afford no additional sewer expense." (Agency Ex. No. 5). The area does include a brewery and some industrial manufacturers.

Originally, the City planned to proceed with construction only if a grant were obtained. However, the City later promised to proceed with construction with or without financial aid.

CONCLUSION

35 Ill. Adm. code Sections 306.350, 306.361(a)(b) establish the criteria to be considered by this Board in reviewing an application for exception to the performance criteria established by this Board.

The Board finds that Petitioner, the City of Belleville, has justified its proposal pursuant to 35 Ill. Adm. Code Section 306.361(a). The proposal will eliminate most CSO discharges into Richland Creek and absorb the entire first flush volume -- regardless of the size of a rainfall event. It should be noted that Petitioner's proposal will not fully treat the entire first flush: Stormflow in excess of the 10.5 MGD capacity of the holding basin will only be given primary treatment with disinfection. The proposal will also increase Belleville's retention and treatment capacity by 10 million gallons.

Additionally, the City, which has already eliminated 23 overflow points will continue to eliminate more overflow points -- although there is no firm commitment concerning the exact amount.

Overflow into Powdermill and Schoenberger Creeks, from CSO will be minimal. (Response to H.O. Order of May 21, 1987 p. 3). Impacts at these outfalls were previously found to be minimal (City Ex. No. 3) and the City's continued elimination of overflow points will act to further reduce any impacts on Powdermill and Schoenberger Creeks.

Richland Creek is the locus of most concern. This is the stream that is most impacted by Belleville's CSO. The proposal, by absorbing the entire first flush volume, will eliminate the single greatest problem caused by Belleville's current operation. Additionally, the proposal will increase the City's ability to collect, store and treat ten million gallons in excess of current capacity. Current dry weather flow is 4.71 MGD, (R. 29); with current dry weather design average of 8 MGD and maximum flow of 16 MGD (R. 38).

ORDER

On October 29, 1987 this Board entered an Order concerning this case. The following Order is adopted in response to the Agency's Motion For Clarification filed on November 10, 1987. The following is the final Order of this Board and the Order of October 29, 1987 is hereby vacated.

1. Petitioner, City of Belleville is granted an exception from 35 Ill. Adm. Code Section 306.305(a)(b) only as relates to First Flush.
2. Petitioner shall implement the structural and non-structural modifications contained in its Municipal Compliance Plan, [Exhibit No. 4]. These include, but are not limited to, the following: Reduction of excess inflow; street cleaning; periodic sewer flushing; catch basin cleaning; flow improvements for receiving streams; bottle-neck eliminations; construction of surge relief interceptors; construction of pumping station and holding basin and various improvements within the independent overflow points, all as identified in Petitioner's Municipal Compliance Plan.
3. The above construction and modifications shall be implemented regardless of grant funds or other economic aid.
4. The above construction and modification shall be done in accordance with the schedule agreed to by Petitioner and the Illinois Environmental Protection Agency

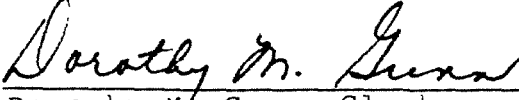
identified in the September 1986 Municipal Compliance Plan [Exhibit No. 4]. Three pages from that compliance plan have been reproduced and attached to this order and are hereby adopted by the Board and incorporated into this Order.

5. The exception does not preclude the Illinois Environmental Protection Agency from exercising its authority to require as a permit condition a CSO monitoring program sufficient to assess compliance with this exception, any other Board regulations, including Section 306.305(c) or other controls necessary for compliance with water quality standards.
6. This exception is not to be construed as affecting the enforceability of any provisions of this exception, other Board regulations on the Environmental Protection Act.

IT IS SO ORDERED.

Board Member B. Forcade dissented.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Amended Order was adopted on the 19th day of November, 1987 by a vote of 6-1.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board

BELLEVILLE, ILLINOIS
 COMBINED SEWER OVERFLOW EXCEPTION
 IMPLEMENTATION SCHEDULE

| T A S K | Y | E | A | R | S |
|---|---------|---------|---------|---------|---------|
| | 1 9 8 7 | 1 9 8 8 | 1 9 8 9 | 1 9 9 0 | 1 9 9 1 |
| 1. Pumping Station and First Flush Holding Basin; | | | | | |
| a. Field Survey | X X | | | | |
| b. Plans & Specs | | X X X | | | |
| c. Agency Submittal | | | X X | | |
| d. Construction | | | X X X X | | |
| 2. East Side Interceptor | | | | | |
| a. Field Survey | X X | | | | |
| b. Plans & Specs | | X X X | | | |
| c. Agency Submittal | | | X X | | |
| d. Construction | | | X X X | X | |
| 3. Misc. Overflow | | | | | |
| a. Field Survey | X | | | | |
| b. Plans & Specs | X | | | | |
| c. Agency Submittal | | X | | | |
| d. Construction | | X X | | | |

| T A S K | Y E A R S | | | | |
|----------------------------------|-----------|---------|---------|---------|---------|
| | 1 9 8 9 | 1 9 9 0 | 1 9 9 1 | 1 9 9 2 | 1 9 9 3 |
| 4. Richland Creek Interceptor | | | | | |
| a. Field Survey | X | X | | | |
| b. Plans & Specs | | | X X X | | |
| c. Agency Submittal | | | | X X | |
| d. Construction | | | | X X X X | |
| 5. Replacement Interceptors | | | | | |
| a. Field Survey | | | X X | | |
| b. Plans & Specs | | | | X X | |
| c. Agency Submittal | | | | X X | |
| d. Construction | | | | | X X X X |

| T A S K | Y | E | A | R | S |
|------------------------------|---------|---------|---------|---------|---------|
| | 1 9 9 1 | 1 9 9 2 | 1 9 9 3 | 1 9 9 4 | 1 9 9 5 |
| 6. East Creek Interceptor | | | | | |
| a. Field Survey | | X X | | | |
| b. Plans & Specs | | X X | X | | |
| c. Agency Submittal | | | X X | | |
| d. Construction | | | | X X X | X |