

ILLINOIS POLLUTION CONTROL BOARD
April 1, 1987

IN THE MATTER OF:)
)
THE SINGLE PETITION OF)
THE CITY OF LASALLE FOR) PCB 86-2
EXCEPTION FROM THE COMBINED)
SEWER OVERFLOW REGULATIONS)

JOHN S. DUNCAN, ESQ. APPEARED ON BEHALF OF THE CITY OF LASALLE;

THOMAS DAVIS, ESQ. APPEARED ON BEHALF OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY.

OPINION AND ORDER OF THE BOARD (by J. Theodore Meyer):

This matter comes before the Board on the January 2, 1986 petition of the City of LaSalle (LaSalle) for exception to the combined sewer overflow regulations (35 Ill. Adm. Code 306.305(a) and (b)). hearing was held on July 21, 1986 in LaSalle. Additional information was provided on August 21, 1986 and on February 18, 1987. The City seeks relief from Section 306.305(a) which would require construction of a retention pond with bleedback pumping and provide secondary treatment for a first flow from volume of 8.7 MG at a rate of 140 MGD. The City also seeks relief from 306.305(b) which would require construction of relief sewers, primary treatment and disinfection for excess flows up to 20.8 MGD.

CSO REGULATIONS

The CSO regulations are contained in 35 Ill. Adm. Code 306.302, et seq. Section 306.305 provides as follows:

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

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 to [sic] average dry weather flow for 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 an exception either singly, or jointly with the Agency. The Agency testified that LaSalle did take all the necessary steps to qualify as joint petitioners with the Agency, including submitting a Phase I study on October 5, 1983 and a Phase II Study on October 23, 1984. However, the Agency chose not to co-petition with LaSalle because of the late date at which LaSalle's petition was received, and because of Agency concerns related to whether water quality and other environmental impacts will be alleviated after the City's proposed improvements are completed. R. at 7.

In order for a discharger to receive a CSO exception, a certain level of justification for the exception is required to be submitted. This level of justification differs depending on whether the discharger files a single or joint petition for CSO exception. The level of justification required of a joint petition is set forth in Section 306.362 which provides for a demonstration under Section 306.361(a) (i.e., minimal discharge impact) which is not available to single petitioners. However, LaSalle as a single petitioner, justifies its claim for a CSO exception based on Section 306.361(a).

Section 306.361(d), applicable to single petitioners under Section 306.362, provides that a discharger may establish that because special circumstances exist, a detailed water quality evaluation would be inapplicable for reasons of irrelevancy or the expense of data collection in relation to the relevancy of the data. In this regard, Mr. Tim Zook of the Agency testified that although a detailed CSO impact study (i.e., Phase III Study) was not conducted, a study prepared for LaSalle by Serco Laboratories does give substantial information concerning water quality impacts.

Based on this testimony, and on the fact that some of LaSalle's discharges are due to dry weather discharging which must be eliminated before a realistic analysis of CSO related impacts can be made, the Board concludes that a Phase III-type study of CSO related impacts on the receiving streams in the

LaSalle area would be of little utility in relation to the costs involved. In other words, the cost and time involved in having LaSalle complete a Phase III Study would not be justified in relation to the results obtained. In addition, the Board does have data on CSO-related impacts which were provided in LaSalle's Phase II Study -- Preliminary Stream Inspection -- which enables the Board to adequately evaluate the CSO problem in LaSalle and the related impacts on the receiving streams. For these reasons, therefore, the Board finds that LaSalle has satisfied its justification burden pursuant to Section 306.361(d) and while such justification should have been established in the petition itself, the Board believes that in the case of LaSalle, such justification, as a practical matter, could only be supplied at hearing.

BACKGROUND

The City of LaSalle is located in LaSalle County along both sides of Illinois Route 351 from the north bank of the Illinois River to a point just south of Interstate Route 80. The Illinois River flows from east to west along the south boundary of the community. The City's wastewater treatment plant (WWTP) is an existing primary treatment facility constructed in the 1950's. A secondary treatment facility consisting of conventional activated sludge was completed in 1977. The plant was designed for an average flow of 2.2 MGD and a maximum flow of 6.0 MGD.

The City's sewage collection system consists of two sub-systems. The north combined sewer sub-system has one overflow which discharges downstream from the M & H Zinc Company property to a ravine stream bed. The stream bed (or "draw") directs flow to the Little Vermilion River and thence along the Little Vermilion River to its confluence with the Illinois River. The south combined sewer sub-system has one overflow which discharges at the south end of Creve Coeur Street to the Illinois & Michigan Canal (I & M Canal).

ENVIRONMENTAL IMPACT

Flows in the north system are conveyed to the Eleventh Street Pump Station which allows for combined sewer overflows to discharge through the M & H Outfall Sewer. The sewer leading to the outfall extends about 2,000 feet easterly through the M & H Zinc Company to the point of discharge on a draw about 500 feet upstream from the Little Vermilion River. Any flow from the outfall must pass through the draw before entering the river. The sewer is a circular brick sewer in extremely poor repair and major segments are washed out. The area around the draw is zoned for heavy industrial and is considered too inaccessible and overgrown to have a practical land use. The Little Vermilion River is used for fishing, hiking and other human contact activities.

In addition to CSO discharges, dry weather discharges occur at this outfall and are believed to be attributable to both groundwater infiltration and operational deficiencies at the Eleventh Street Pump Station. The groundwater infiltration is believed to be caused by the collapse of the sewer in two places to form large sink holes. R. at 61. Chemical analysis of the discharges from the outfall indicated the presence of elevated heavy metals concentrations (iron, lead, manganese and zinc) thought to be due to residual concentrations in the soil from the previous operation of the M & H Zinc Company for approximately 70 years. This facility ceased operations approximately eight years ago. R. at 62. This infiltration can only be controlled by renovation or reconstruction of the sewer.

Dry weather discharges are also caused by the City's operational protocol for the Eleventh Street Pump Station. While the pump station is capable of handling all dry weather flows, storm flows have flooded the station previously, creating a serious electrical safety hazard. Accordingly, the City has a practice of closing a certain valve, which allows flow to the pump station, at the end of each work shift in the afternoon and opening the valve each morning. The valve is also closed when rain begins or is imminent. When the valve is closed flow backs up and is consequently relieved by going out the M & H Outflow Sewer. The City plans to eliminate the pump station and construct a new diversion structure and gravity sewers to transport dry weather flow without pumping. In the interim, short-term measures to eliminate the problem include installation of a high level alarm signal and an outside circuit breaker to shut off power. R. at 61-63.

Inspection of the M & H outfall revealed the presence of sludge on the surface of the stream bed channel; the sludge was observed to be mixing with the Little Vermilion River at their confluence. However, the sludge was believed to be attributable to the dry weather discharging which occurs. Log jams in the stream bed contained small pieces of sewer borne debris. R. at 66-67.

The Creve-Coeur Street sewer extends about 925 feet southerly from the sewer system under a building used for manufacturing to the point of discharge on the I & M Canal. The discharge point is approximately 3,000 feet upstream from where the canal joins the Illinois River. Most of the area in the vicinity of the discharge is privately owned and is zoned for heavy industrial. The City states that because of the ongoing manufacturing on the north side of the canal and the swamp-like low lands on the south side of the canal, the area has limited access with limited actual or potential human contact. Although the City states that the portion of the canal designated for use as a "nature study area" has its downstream terminus a few thousand feet upstream from the CSC discharge, a map delineating

the boundaries of the National Heritage Corridor indicates that all of LaSalle including the CSO discharge lies within the corridor boundaries. See Illinois and Michigan Canal National Heritage Corridor map, H.O. exhibit 1.

The City states that the portion of the canal to which the outfall discharges is a backwater of the Illinois River which derives its flow from surface runoff, storm sewers, CSO discharges and occasionally from excess flow over Lock 15. The City asserts that the outfall "probably has only a minor impact on the Canal, the river and the river valley in general." Pet. at 9.

The Agency disagrees with this statement citing a study prepared for the City which concluded that deposits in the canal reduce the aesthetic and recreational value of the lower portion of the canal during normal to low river levels. The study also stated that low dissolved oxygen levels in the canal limit the fish life and fall below levels required by water quality standards. See City Exhibit 10 at II C.

Similarly, the Agency expressed concern about the impact of the M & H outfall, citing the same study which stated that the discharge of raw sewage and the condition of the sewer line were health and safety hazards. Id. at I F. In addition, Agency sampling for five heavy metals revealed dramatic concentration increases downstream of the outfall.

On Agency inspections of both outfalls, under dry weather conditions, continuous gray discharges were observed. Sewage-related debris was apparent at both outfalls and sludge deposits and sewage odor were apparent in the stream bed tributary to the M & H outfall. No odor or sludge was apparent of the Creve Coeur outfall on this occasion but had been observed on other occasions. R. at 10. The Agency characterized these environmental impacts as "severe" but attributed many of the problems "at least partially [due to] the result of dry weather flows."

COMPLIANCE OPTIONS

To achieve full compliance, a 66 inch gravity sewer would need to be constructed in the north system to carry a first flush rate of 140 MGD for a one year design storm to a new diversion structure. Flows above this rate would continue to discharge at M & H outfall. From the proposed diversion structure, dry weather flows would be conveyed to the WWTP, first flush would be conveyed to a storage basin for later treatment and additional flows up to 10 times dry weather flow would be conveyed to a new primary clarifier and chlorination facilities.

In the south system, facilities would be constructed for the retention of first flush and primary treatment and disinfection of 10 times dry weather flow as well as a sewer to connect the system with the north system at a point denoted as D-1. The total capital cost of this alternative is \$11,599,000 and would require an increase of approximately \$36.30 in the average monthly residential user's bill.

The second alternative contemplates similar facilities in the north system except that a storage basin would not be constructed to capture first flush. In the south system, a diversion structure would be constructed at Point-C1 to insure that no overflow occurs through the Creve Coeur outfall until the treatment plant reaches maximum wet weather capacity. This alternative would require a capital expenditure of \$7,343,000 and an increase in sewer rates of \$22.38.

Alternative 3 is a modification of alternative 2 and contemplates a diversion structure at point C-1 in the south system and a 66 inch sewer in the north system to divert flows to the south. It does not include primary clarification and chlorination facilities. This alternative would require a capital expenditure of \$5,902,000 and an increase in residential sewer rates of \$17.49.

Alternative 4 diverts north system flows up to 6.7 times average dry weather flow (ADWF) (7.6 MGD) southerly to point D-1 by a new 24 inch transportation sewer; higher flows would continue to overflow through the M & H outfall. 7.6 MGD was selected because this equals the maximum treatment capacity of the existing plant (9.1 MGD) less the present ADWF (1.5 MGD). Thus, it is the maximum storm flow which can be treated at the existing plant. A diversion structure would be constructed at point C-1 in the south system to direct maximum wet weather flow to the existing plant. This is the proposal urged by the City as the recommended alternative. It would require a capital expenditure of \$3,247,600 with an average increase of \$9.77 in the residential user rate for a total residential user rate of \$15.48.

Each alternative provides for increasing the amount of wet weather flows to be transported and treated. Dry weather flows will be eliminated. Only alternative 4 contemplates rehabilitation of the M & H outfall sewer at a cost of \$585,000. The Agency questions the City's choice of a 24 inch sewer under alternative 4 to convey flows in the north system, since there is the potential for additional growth at the east end of the city. The cost of the 24 inch line is \$512,500, a 36 inch line is \$643,000 and a 66 inch line which would eliminate all once in one year flows through the outfall is \$2,402,000. The Agency stated its preference to see a 36 inch line. A 36 inch sewer would accommodate up to four times the first flush

flow that the 24 inch sewer could handle. R. at 96,109. The City stated that it would acquiesce to installing the 36 inch sewer, acknowledging that the 24 inch sewer would handle "the situation as it now exists." (R. at 96). While a 66 inch line would limit CSO events at the M & H outfall to only one per year, CSO events at point D-1 would increase to 31 since the increase in size and carrying capacity of the sewer line would result in the delivery of flow in excess of the hydraulic capacity of the treatment plant.

The projected number of CSO events for the various alternatives at the M & H outfall is as follows:

<u>Proposed Alternative</u>	<u>CSO Events Per Year at Existing M & H Outfall</u>	<u>CSO Events Per Year at Proposed Point D-1</u>	<u>Reduction Over "No Action"</u>
No Action	38	0	0
Alt. 4	32	0	6
Alt. 3	1	31	6
Alt. 2	1	24	13
Alt. 1	1	0	37

At the Creve Coeur outfall, the projected number of CSO events for each alternative is as follows:

<u>Proposed Alternative</u>	<u>CSC Events Per Year at Existing Creve Coeur Outfall</u>
No Action	32
Alt. 4	32
Alt. 3	32
Alt. 2	32
Alt. 1	1

AGENCY RECOMMENDATION AND BOARD CONCLUSIONS

The Agency points out that a large portion of the proposed expenditure under alternative 4 of \$3,247,600 (1985 dollars) is related to the elimination of dry weather flows and the reparation of collapsed sewers and it is therefore misleading to think of the entire amount as being related to CSO impacts. (R. at 13). The Agency agrees that while these improvements should certainly be made there are too many unknowns and uncertainties for any permanent relief to be granted. The Agency is of the opinion that substantial improvements to water quality are likely to result after implementation of the City's preferred alternative but questions whether those impacts will be

diminished to a minimal level. The Agency would prefer that the effect of the improvements be evaluated upon completion before any permanent relief is granted.

The Board shares the Agency's concerns and generally agrees with its proposed temporary exception approach. The Board will time the temporary exception to the City's implementation schedule included in its Municipal Compliance Plan (Exh. 6 at 18) which lists completion as July 1, 1988. In the absence of information to the contrary, the Board will assume that this deadline also applies to the CSO upgradings. However, the temporary exception will be timed so as to allow two years from the July 1, 1988 completion date to gather post-full operation data. The Board will also retain jurisdiction.

The Board will provide for constraints on expansion of the service area, but allow the City, by way of motion for modification, to request the Board to allow hook-ons beyond the residential 15 Population Equivalent (PE) limitation. (See Paragraph 3 of the Order). The Board cautions the City that it must submit justification data of sufficient specificity for the Board to evaluate the hydraulic effects of the new loadings on the system including upstream-overflows, and the effects on the quality of the overflows. The Board notes that the relief restricted to those substantive requirements for treatment of CSOs and not to relief from water quality standards.

In summary, the Board finds that, taking into account the factors contained in 27(a) of the Act, the City of LaSalle has not justified a permanent exception, but has justified a temporary exception, with conditions.

ORDER

1. Except as provided in Paragraph 2 of this Order, the City of LaSalle is granted a temporary exception until July 1, 1990 from 35 Ill. Adm. Code 306.305(a) regarding the first flush of storm flows and from 35 Ill. Adm. Code 306.305(b).
2. If, on or before March 1, 1990, the City of LaSalle fails to submit an amended petition for exception, this temporary exception will terminate on March 1, 1990.
3. During this temporary exception period the City of LaSalle, in consultation with the Agency, shall construct and operate the improvements to its wastewater collection system and wastewater treatment plant as described in Alternative 4 by July 1, 1988, except that the City shall install a 36 inch sewer in the north system.

4. Unless authorized by the Board upon a petition for modification of this order, there shall be no expansion of the service area tributary to the combined sewers except for residential hookups that do not exceed 15 population equivalents as defined in Ill. Adm. Code 301.345.
5. The City shall continue its monitoring of the combined sewer overflows on a weekly basis and after every major rainfall and make written reports thereon and take corrective actions as necessary. In addition, the City shall monitor the proposed "emergency" outfall on a weekly basis and after every major rainfall and prepare written reports thereon to determine whether the outfall is in fact used on an emergency basis.
6. This grant of exception does not preclude the Agency from exercising its authority to require as a permit condition a CSO monitoring program sufficient to assess compliance with this exception and any other Board regulations and other controls, if needed, for compliance, including compliance with water quality standards
7. This grant of exception is not to be construed as affecting the enforceability of any provisions of this exception, other Board regulations, or the Environmental Protection Act.
8. The Board will retain jurisdiction in this matter.

IT IS SO ORDERED.

J. D. Dumelle and J. G. Anderson concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 1st day of April, 1987, by a vote of 6-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board