

ILLINOIS POLLUTION CONTROL BOARD
June 6, 1996

IN MATTER OF:)
)
THE JOINT PETITION OF THE CITY OF)
METROPOLIS AND THE ILLINOIS)
ENVIRONMENTAL PROTECTION) AS 95-3
AGENCY FOR AN ADJUSTED) (Adjusted Standard - Water)
STANDARD FROM 35 ILL. ADM, CODE)
PART 304 FOR 5-DAY BIOLOGICAL)
OXYGEN DEMAND (BOD-5),)
SUSPENDED SOLIDS AND AMMONIA)
NITROGEN)

JOSEPH J. NEELY APPEARED ON BEHALF OF PETITIONER

LISA MORENO APPEARED ON BEHALF OF ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

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

This matter comes before the Illinois Pollution Control Board (Board) upon a Petition for Adjusted Standard filed jointly by the City of Metropolis (City) and the Illinois Environmental Protection Agency (Agency) on March 23, 1995.¹

The joint petition requests, pursuant to Section 28.1 of the Environmental Protection Act (Act) (415 ILCS 5/28.1) and 35 Ill. Adm. Code Part 106, Subpart G, an adjusted standard for 5-day Biological Oxygen Demand (BOD₅), Suspended Solids (SS) and Ammonia Nitrogen (N) for discharge from the City's wastewater treatment plant (WWTP).

The Board's responsibility in this matter arises from the Environmental Protection Act. The Board is charged therein to "determine, define and implement the environmental control standards applicable in the State of Illinois" (415 ILCS 5/5(b)), and to "grant an adjusted standard for persons who can justify such an adjustment" (415 ILCS 5/28.1(a)). More generally, the Board's responsibility in this matter is based on the system of checks and balances integral to Illinois environmental governance: the Board is charged with the rulemaking and principal adjudicatory functions, and the Agency is responsible for carrying out the principal administrative duties.

¹ The joint petition will be referenced to as "Joint Pet. at ." and the City and the Agency will be referred to as "Petitioners" when discussing both entities.

Based upon the record before us and upon review of all the factors involved in the consideration of adjusted standards, the Board finds that the Petitioners have demonstrated that grant of an adjusted standard in the instant matter is warranted. The adjusted standard accordingly will be granted.

PROCEDURAL HISTORY

Initially, the matter was filed on November 21, 1994, and docketed as AS 94-17. The Petitioners, however, neglected to follow the publication requirements of Section 28.1(d)(1) of the Act and the action was dismissed on January 11, 1995. The City and the Agency filed a second petition, on February 1, 1995, docketed as AS 92-2. On February 24, 1995, a Certification of Publication of the statutory notice of filing related to the second petition was filed. The Board issued an order, on March 16, 1995, in which it determined that the notice was defective and consequently dismissed the second joint petition.

On March 23, 1995, the City and the Agency filed a third petition that in all respects was identical to the petition initially filed as AS 94-17. The Petitioners moved the Board, on March 23, 1995, to incorporate into the present proceeding, AS 95-3, exhibits A through V filed by the Petitioner in AS 94-17; they further moved, because of the voluminous nature of the material requested to be incorporated, that the Board waive the filing requirements of 35 Ill. Adm. Code Section 101.106.

Notice of the petition was published in the Metropolis Planet on March 29, 1995. On April 13, 1995 the Board granted the Petitioners' motion to incorporate Exhibits A through V, from AS 94-17 to the instant petition, waived the filing requirements, and further, accepted the petition for hearing.

The hearing was held in the Metropolis City Hall, in the City Council Chambers, on December 5, 1995. In closing, the hearing officer stated that the Petitioners would file a post-hearing motion to withdraw certain relief from the Petition, and that no post-hearing briefs would be filed.

PRELIMINARY MATTERS

The Petitioners at hearing withdrew the requested relief for ammonia nitrogen. (Tr. at 4-5.)² The Petitioners stated that since January 1995 the City has been sampling on a regular basis and that based on those results the Petitioners believe that adjusted standard relief at this time is unnecessary for ammonia nitrogen. (Tr. at 5.) Therefore, Petitioners are only seeking relief from 35 Ill. Adm. Code 304.120 for the City's BOD₅ and SS discharges.

² The transcript for the hearing in this matter will be referenced to as "Tr. at .".

ADJUSTED STANDARD PROCEDURE

Section 28.1 of the Act provides that a petitioner may request, and the Board may impose, an environmental standard applicable solely to the petitioner that is different from the standard that would otherwise apply to the petitioner as the consequence of the operation of a rule of general applicability. Such a standard is called an adjusted standard. The general procedures that govern an adjusted standard proceeding are found at Section 28.1 of the Act and within the Board's procedural rules at 35 Ill. Adm. Code Part 106.

The effluent standard for deoxygenating waste is given in the Board's General Effluent Standards found at 35 Ill. Adm. Code 304.120. The general effluent standard for deoxygenating waste, as contained in Section 304.120 (c), is "[n]o effluent whose dilution ratio is less than five to one shall exceed 10 mg/L of BOD₅ or 12 mg/L of suspended solids."

Because 35 Ill. Adm. Code 304.120 does not specify a level of justification or other requirement for an adjusted standard for this matter, Sections 28.1(c)(1) through (c)(4) of the Act are relevant in this proceeding. Consequently, petitioner has the burden of proving the following for an adjusted standard from a rule of general applicability:

1. factors relating to that petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to the petitioner;
2. the existence of those factors justified an adjusted standard;
3. the requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and
4. the adjusted standard is consistent with any applicable federal law.

FACILITY AND PROCESS DESCRIPTION

Facility History

The City's wastewater treatment plant was built in 1960. It was originally designed for primary treatment only and consisted of a barminutor, two manually operated barscreens, an aerated grit chamber, two primary clarifiers operated in parallel, and two sludge holding tanks. (Joint Pet. at 7.) No disinfection was provided. The plant was designed for a Daily Average Flow (DAF) of 1.5 Million Gallons per Day (MGD) and a Daily Maximum Flow (DMF) of 3.8 MGD. (Joint Pet. at 7.)

The City received its first NPDES permit from USEPA Region V on November 15, 1974. That permit stated that it was being issued for a discharge from the facility directly to the Ohio River. It included interim effluent limitations from BOD₅ and SS of 75 mg/L and 100 mg/L, respectively, and specified final effluent limitations for BOD₅ and SS of 20 mg/L and 25 mg/L, respectively, the limitations applicable to sources discharging to the Ohio River as set out in Rule 404(b)(i) of Chapter 3 of the Board's Regulations [present 35 Ill. Adm. Code 304.120(b)]. (Joint Pet. at 7-8.)

The 1974 initial NPDES permit was modified by USEPA in 1976 and was renewed by USEPA in 1977. It was modified again, by Agency, in 1980. The receiving stream designation and the corresponding effluent limitations remained the same throughout. (Joint Pet. at 7.)

At the time the City WWTP first became subject to the NPDES permit requirements, its effluent did not meet the standards of Rule 404. In June, 1984, USEPA issued the City Administrative Order No.V-W-84-AO-142 in which it directed the City to develop and submit to USEPA and Agency a Municipal Compliance Plan (MCP) describing the steps to be taken to achieve compliance with the NPDES permit by July, 1988, consistent with Section 301 (c) of the Clean Water Act. (Joint Pet. at 8-9.)

In 1984, the City submitted to the USEPA and Agency, for approval, the MCP and a timetable that called for completion of the project by July, 1988. The MCP and the timetable were accepted by USEPA and Agency and were incorporated into the renewed NPDES permit issued to the City in March, 1985. (Joint Pet. at 9.)

During the Agency's January, 1990 review of the NPDES permit renewal application, it was determined that the City WWTP did not discharge directly to the Ohio River, as had been assumed since the early 1970's, but rather to a small tributary, named Kidd Creek. Kidd Creek has a seven-day, ten-year (7Q10) low flow of zero cubic feet per second (cfs) as compared to the 53,820 cfs flow for the Ohio River at Metropolis. (Joint Pet. at 11.)

In light of this, the present NPDES permit for the City provides for final limitations for BOD₅ and SS of 10 mg/L and 12 mg/L respectively, the standard applicable to low-flow streams set out in 36 Ill. Adm. Code 304.120(c). These limitations became effective on October 25, 1994, unless the City was granted an adjusted standard by the Board.

Facility Description

The City of Metropolis, located in Massac County at the southern tip of Illinois on the north bank of the Ohio River, operates a secondary wastewater treatment plant. The plant consists of a single 30" gravity inlet sewer which enters an influent pump station equipped with four submersible pumps, a mechanical bar screen, an aerated grit chamber designed for 6-minute retention at maximum flow, the primary clarifiers operating in parallel, two packed towers operated in parallel designed to treat 1,252 pounds of organics per day using synthetic media, two secondary clarifiers operated in parallel, disinfection (chlorination) provided by

one-ton cylinders and two contact tanks operated in parallel, three aerobic sludge digesters, two sludge vacuum drying beds, and a concrete sludge storage pad. (Joint Pet. at 5-6.) The plant, as upgraded, was designed for a daily average flow (DAF) of 2.05 MGD and a daily maximum flow (DMF) of 4.25 MGD and was designed to treat 1565 lbs/day each of BOD₅ and SS. (Joint Pet. at 6.)

The plant discharges from a single outfall through a 1320-foot (0.25 mile) buried outfall pipe to a 200-foot long effluent ditch and then to Kidd Creek and then to the Ohio River. Kidd Creek then flows approximately 1250 feet to the Ohio River. (Joint Pat. at 6.)

The treatment plant serves the City with a 1990 population of 6,734, and the Woodhaven subdivision with an estimated population of 75. (Joint Pet. at 6.)

Discharge Characteristics

The quality of the deoxygenating waste effluent from the City treatment plant has consistently improved since the completion of the plant upgrade, as indicated by the following data (expressed as an average of monthly averages):

<u>Year</u>	<u>BOD₅ - mg/L</u>	<u>SS - mg/L</u>
1985	33.17	31.58
1986	44.33	34.58
1987	30.75	32.25
1988	33.50	24.83
1989	23.75	13.00
1990	13.65	15.51
1991	8.25	12.58
1992	7.08	9.37
1993	4.83	5.17

PROPOSED ADJUSTED STANDARD

Standard from which relief is sought

As earlier stated, the instant Petition seeks an adjusted standard from 35 Ill. Adm. Code Section 304.120(c) as it applies to the deoxygenating waste effluent discharged from the outfall of the City to Kidd Creek.

Nature of regulation of general applicability

In accordance to the requirements of 35 Ill. Adm. Code Section 106.705(b), it is noted that Section 304.120(b), the standard generally applicable to secondary treatment plants with the capacity of the Metropolis plant, provides in pertinent part:

No effluent from any source whose untreated waste load is 10,000 population equivalents or more ... shall exceed 20 mg/L of BOD₅ or 25 mg/L of SS.

Wastewater treatment plants that discharge into low-flow streams, the situation in the instant Petition, are subject to the limitations contained in Section 304.120(c) which provides in pertinent part:

No effluent whose dilution ratio is less than 5 to 1 shall exceed 10 mg/L of BOD₅ or 12 mg/L of SS.

Proposed adjusted standard language.

The City and the Agency propose the following adjusted standard language:

Instead of the general effluent standards for deoxygenating waste of Sections 304.120(c), the following limits shall apply:

BOD₅: 20 mg/L

Suspended Solids: 25 mg/L

IMPACT ON THE ENVIRONMENT

The City and the Agency believe that the granting of this adjusted standard would not have an adverse impact on the environment. (Joint Pet. at 16.)

On June 21, 1991, the Agency's Bureau of Water Monitoring Section conducted a Facility-related Stream Survey to assess the impacts of the wastewater treatment plant discharge on Kidd Creek downstream from its confluence with the plant effluent ditch to the Ohio River. Aquatic macroinvertebrate and water quality samples were collected at three points, plant effluent ditch (E-1), 0.08 stream miles from the plant outfall (C-1), and 0.354 miles from the plant outfall and 100 yards from the confluence of Kidd Creek with the Ohio River (C-2), with the following results:

E-1

C-1

C-2

	mg/L	mg/L	mg/L
BOD Total	9	9	8
Suspended Solids	20	17	17

(Joint Pet. at 14-15.)

In its conclusions, it was the opinion of the Monitoring Section that “since the City treatment plant effluence comprises all of the flow in Kidd Creek downstream of the plant, except during periods of significant rainfall and when the Ohio River backs up, that Kidd Creek probably would not be capable of supporting and maintaining a diverse community of organisms in the absence of the treatment plant flow.” (Joint Pet. at 16.) The Monitoring Section also noted that analysis of the microinvertebrate population samples in Kidd Creek indicated severe degradation at the sampling sites C-1 and C-2. (Joint Pet. at 15.) However, the Monitoring Section attributed “the degraded condition of the stream to high residual chlorine concentrations in the treatment plant effluent, leading to the absence of aquatic life except for highly tolerant species, historic hydraulic loading problems at the plant due to inflow to the collection system, explaining the organic enrichment and sludge deposits and sewage mold; and the fact that at high stream stages, the Ohio River backs up into Kidd Creek for extended periods of time.” (Joint Pet. at 16.)

Petitioners note “[i]n light of the fact that there is no evidence that BOD₅, Suspended Solids or Ammonia Nitrogen are having any adverse impacts on Kidd Creek and the further likelihood that Kidd Creek would not support a biological community were the treatment plant effluent withdrawn, the City and the Agency believe that the proposed adjusted standard would have no adverse effect on Kidd Creek.” (Joint Pet. at 16.)

CONSISTENCY WITH FEDERAL LAW

Petitioners assert that “the granting of an adjusted standard for deoxygenating wastes would not be inconsistent with federal law; the BOD₅ and SS standards from which an adjusted standard is sought are effluent limitations, the establishment of which is, under the Clean Water Act, within the province of the states.” (Joint Pet. at 18.)

COMPLIANCE ALTERNATIVES AND COST OF COMPLIANCE

Petitioners state that the City has two alternatives to comply with the applicable general standards. One alternative is to build a tertiary wastewater treatment plant to enable it to meet the general standards applicable to discharges to small streams, and the other alternative is to extend the current outfall pipe from the end of the industrial ditch (the current discharge point) to the Ohio River. (Joint Pet. at 12-13.)

The City estimates that the first alternative - tertiary treatment - would cost \$4.5 million dollars. (Joint Pet. at 12.) This amount would be in addition to the \$3 million expended in 1989 to meet the standards which were specified by USEPA and Agency.

Under the second alternative, an outfall would be built from the industrial ditch (the current outfall point) to the Ohio River, a distance of 1250 feet, at an estimated cost of \$150,000. (Joint Pet. at 13.) The extended outfall pipe would traverse wooded bottom land that is under water at least twenty five percent of the year due to backup of the Ohio River. (Joint Pet. at 13.)

JUSTIFICATION

As stated previously, Section 28.1(c) of the Act requires that a petitioner for an adjusted standard must prove that :

1. factors relating to that petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to the petitioner;
2. the existence of those factors justified an adjusted standard;
3. the requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and
4. the adjusted standard is consistent with any applicable federal law.

Factors relating to petitioner are substantially and significantly different and justify an adjusted standard.

The Petitioners state that from the onset, the City plant was designed and constructed to meet standards that were substantially and significantly different from the regulations of general applicability and were approved by the USEPA and the Agency as specified in the plant's discharge permits over several revisions and renewals.³ (Joint Pet. at 17 and 19-20.) Petitioners argue that the City's situation is the same as the City of Alton's in In the Matter of: Petition for Site-Specific Relief by the City of Alton, (May 19, 1988), R82-7, (filed before the adjusted standard relief was available) where the Board granted site-specific relief from BOD₅ and total suspended solids. (Joint Pet. at 17-18.) Petitioner argues that the City's situation justifies an adjusted standard.

³ The Petitioners are referring to the standards of 20 mg/l for BOD₅ and ~~25~~ 35 mg/l for SS. Those are the standards that would apply to the City if it was discharging to the Ohio River and are the standards contained in the previous permits since 1970 based on the belief that the City has been discharging to the Ohio River.

The requested standard will not result in environmental or health effects substantially and significantly more adverse.

The Petitioners assert that the grant of the requested adjusted standard will not result in adverse environmental impact. (Joint Pet. at 20.) The Petitioners state that “[t]he quality of the effluent from the treatment plant has consistently improved since the plant upgrade, and “[w]hile Kidd Creek is degraded below the treatment plant discharge, this condition is not caused by any of the constituents for which the adjusted standard is sought and is exacerbated by regular flooding by the Ohio River.” (Joint Pet. at 20.)

The adjusted standard is consistent with any applicable federal law.

The Petitioners state that the Board can adopt an adjusted standard for BOD₅ and SS consistent with the Clean Water Act and the regulations adopted pursuant thereto inasmuch as there are no comparable federal effluent limitations and the establishment of the adjusted standard is within the province of the states. (Joint Pet. at 20.)

DISCUSSION

The Board finds, based on the record, that the factors relating to the City’s discharge are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to the petitioner and that the existence of those factors justified an adjusted standard. In adopting the general rule of applicability in the consolidated rulemaking entitled In the Matter of Effluent Criteria, R70-8, In the Matter of Water Quality Standard Revisions, R71-14, and In the Matter of Water Quality Standards Revisions for Interstate Waters (SWB-14), R71-20, (March 7, 1972) the Board stated that the establishment of the current standard was the result of the balancing of environmental benefit with economical reasonableness in that, based on the record, the standard was achievable by most treatment facilities employing secondary treatment without significant increase in costs. (Id. at 13-16.) In addition, while discussing the standard the Board was concerned with the affects of BOD₅ downstream of the outfall and the oxygen demand that ammonia nitrogen places on the stream. (Id. at 14-15.)

In this case, the City’s outfall pipe is to Kidd Creek and its flow consists almost entirely of the City’s effluent, and is only a short distance to the Ohio River. The City currently meets the general standards applicable to discharges to the Ohio River. Given the City’s recent expenditures to achieve compliance with the Ohio River standards, requiring it to now achieve the standards generally applicable to discharges to the Kidd Creek would not be reasonable as a result of the environment not being significantly improved. Thus, we find that the factors relating to the City are substantially and significantly different than those considered when the rule of general applicability was promulgated, and that the adjusted standard is therefore justified. This is especially true since the Board in adopting the rule of general applicability considered the economics of the standards.

Furthermore, the only significant use of Kidd Creek is as a conduit for discharges from the plant and the runoff during precipitation events, and the quality of the effluent from the plant has consistently improved since the earlier plant upgrade. Additionally, the Ohio River floods the area up to the outfall 25 percent of the time. We find that the impact of the adjusted standard will not result in environmental or health effects substantially and significantly more adverse. Finally, we agree with the Petitioners that we can adopt the requested adjusted standard consistent with the Clean Water Act and the regulations adopted pursuant thereto inasmuch as there are no comparable federal effluent limitations.

CONCLUSION

The purpose of this proposed adjusted standard is to allow the City wastewater treatment plant, constructed in 1970 and upgraded in 1989, to continue to operate and discharge according to the standards for which it was designed, all in accordance with agreements reached between the USEPA, the Agency and the City. The quality of the effluent from the plant more than meets the standards necessary, for the condition at the site, and for which the plant was designed and constructed. Based upon its consideration of the record presented in this action, the Board finds that the Petitioners have provided the justification necessary for an adjusted standard to be granted.

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

ORDER

The City of Metropolis is hereby granted an adjusted standard from 35 Ill. Adm. Code 304.120 (c) as it applies to the effluent discharged from its wastewater treatment plant, located at 400 West John Street, City of Metropolis, County of Massac, State of Illinois. Instead of the effluent standards for deoxygenating waste of Section 304.120(c) the following limits shall apply:

BOD ₅ :	20 mg/L
Suspended Solids:	25 mg/L

IT IS SO ORDERED.

Section 41 of the Environmental Protection Act (415 ILCS 5/41 (1994)) provides for the appeal of final Board orders within 35 days of the date of service of this order. The Rules of the Supreme Court of Illinois establish filing requirements. (See also 35 Ill. Adm. Code 101.246 "Motions for Reconsideration.")

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the ____ day of _____, 1996, by a vote of _____.

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board