

ILLINOIS POLLUTION CONTROL BOARD
October 3, 1996

IN THE MATTER OF:)
)
PETITION OF ILLINOIS DEPARTMENT) AS 96-12
OF TRANSPORTATION, DISTRICT 8 FOR) (Adjusted Standard - Water)
AN ADJUSTED STANDARD FROM 35 Ill.)
Adm. Code 302.208, 304.124 and 302.203.)

OPINION AND ORDER OF THE BOARD (by E. Dunham):

This matter comes before the Board on a petition for adjusted standard filed on June 27, 1996 by the Illinois Department of Transportation (IDOT). In the petition, IDOT requests an adjusted standard from 35 Ill. Adm. Code 302.208 and 35 Ill. Adm. Code 304.124, as they apply to the discharge of iron (dissolved), iron (total), and total suspended solids (TSS) from the IDOT deep well system at East St. Louis, St. Clair County, Illinois. IDOT also seeks an adjusted standard from 35 Ill. Adm. Code 302.203 for color, if necessary.

In its petition, IDOT waived hearing in this matter and the Board has not received any requests for a hearing. Therefore no hearing was held. On August 29, 1996, the Board received a response from the Illinois Environmental Protection Agency (Agency) recommending that the adjusted standard be granted. Based upon the record and upon review of the factors involved in the consideration of adjusted standards, the Board finds that IDOT has demonstrated that the adjusted standard is warranted. Therefore, the Board will grant the requested adjusted standard for the reasons discussed below.

ADJUSTED STANDARD PROCEDURE

The Board's responsibility in this matter arises from the Environmental Protection Act (Act) (415 ILCS 5/1 et seq.). 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 adjudicator functions, and the Agency is responsible for carrying out the principal administrative duties.

The Act provides that a petitioner may request and the Board may grant, an environmental standard that is different from the standard that would otherwise apply to the petitioner pursuant to a rule of general applicability. Such a standard is called an adjusted standard. The adjusted standard provision of the Act, at Section 28.1 (415 ILCS 5/28.1 (1994)), was created by the legislature to provide an expedited alternative to site-specific rulemaking. The result of either an adjusted standard or a site-specific rule proceeding is the same (i.e., relief from a particular rule). In both a general rulemaking proceeding and a

site-specific rulemaking proceeding, the Board, pursuant to Section 27 of the Act, is required to take the following factors into consideration: the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution. (See specifically, Section 27(a).) 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 106.

Where, as here, the regulation of general applicability does not specify a level of justification required for a petitioner to qualify for an adjusted standard, the Act at Section 28.1(c) specifies four demonstrations that must be made by a successful petitioner:

- 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 that petitioner;
- 2) The existence of those factors justifies an adjusted standard;
- 3) The requested standard will not result in environmental or health effects substantially or 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.

RULES OF GENERAL APPLICABILITY

IDOT seeks an adjusted standard from the Board's regulations for additional contaminants contained in 35 Ill. Adm. Code 302.208 and 304.124 that provide in pertinent part:

Section 302.208 Numeric Standards for Chemical Constituents

* * *

- e) Concentrations of the following chemical constituents shall not be exceeded except in waters for which mixing is allowed pursuant to Section 302.102.

CONSTITUENT	UNITS	STORET NUMBER	STANDARD
Iron (dissolved)	mg/L	01046	1.0

* * *

where: mg/L = milligrams per liter

Section 304.124 Additional Contaminants

- a) No person shall cause or allow the concentration of the following constituents in any effluent to exceed the following levels, subject to the averaging rules contained in Section 304.104(a).

CONSTITUENT	STORET NUMBER	CONCENTRATION mg/L
	* * *	
Iron (total)	01045	2.0
Total Suspended Solids	00530	15.0
	* * *	

- d) Unless otherwise indicated, concentrations refer to the total amount of the constituent present in all phases, whether solid, suspended or dissolved, elemental or combined, including all oxidation states. Where constituents are commonly measured as other than total, the word "total" is inserted for clarity.

IDOT further seeks an adjusted standard, if necessary, from the prohibition on offensive conditions contained in 35 Ill. Adm. Code 302.203 that provides:

Section 302.203 Offensive Conditions

Waters of the State shall be free from sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, color or turbidity of other than natural origin. The allowed mixing provisions of Section 302.102 shall not be used to comply with the provisions of this Section.

FACILITY DESCRIPTION

IDOT owns and operates forty-eight deep wells known as FAI-55/70-FAI-64 System. (Pet. at 2.)¹ The wells are used to pump groundwater and control the water table in areas of low pavement elevation. (Pet. at 2.) The wells are located near the segments of Interstate 55/70 and 64 in East Louis, St. Clair County, Illinois. (Pet. at 1; Ag. at 5.) In the absence of the well system and pumping to lower the water table, these interstate routes would flood and be impassable. (Ag. at 5.) Forty-five of the wells discharge to the Bowman Avenue Pump Station which in turn discharges to a 72-inch RCP sewer and into the Bowman Avenue Pump Station Drainageway, which flows approximately 1,750 feet to an unnamed tributary to the Cahokia Canal. (Pet. at 1.) The Cahokia Canal discharges to the Mississippi River at Mississippi River Mile 180.6. (Pet. at 1.) The three remaining wells currently discharge, on a temporary basis, to an East St. Louis storm sewer system. (Pet. at 2.) IDOT is currently working on connecting the three wells into the 72-inch RCP sewer to which the other wells are connected. (Pet. at 2.)

Due to naturally occurring iron concentrations, the ground water pumped from the well system may cause exceedence of the effluent standards for dissolved iron and total suspended

¹ IDOT's petition is cited as "Pet. at ___ "; the Agency's response is cited as "Ag. at " .

solids (TSS) as set forth in Section 304.124. (Pet. at 3.) The groundwater in this system is "not known to have been contaminated by any human activity". (Ag. at 5.) The dissolved iron in the groundwater quickly combines with the oxygen in the air to form insoluble iron oxide. (Id.) The aggregate flow rate from all the groundwater flows, ranges from a maximum pumping capacity of forty-five million gallons per day (mgd) or 69.6 cubic feet per second (cfs) to a maximum observed rate 26 mgd or 29.4 cfs. (Ag. at 6.) The discharge commonly contains more than the effluent limitation of 2.0 milligrams per liter (mg/L) of total iron and 15 mg/L of TSS. (Ag. at 6.)

RELIEF REQUESTED

The groundwater pumped from the deep wells may cause an excursion from the water quality standard for iron (dissolved). (Pet. at 2.) The groundwater may also contain iron (total) and TSS in concentrations greater than the allowable effluent limits. (Pet. at 2.) In addition, upon exposure to the atmosphere and subsequent oxidation, the naturally occurring iron may contribute to a localized increase in color. (Pet. at 2.)

IDOT is asking for an adjusted standard from Section 302.208 and 304.124 and if necessary Section 302.203 to allow IDOT to discharge into an unnamed tributary to the Cahokia Canal and to the Cahokia Canal the pumped groundwater. IDOT requests a standard for iron (dissolved) of 10 mg/L for the portion of the Bowman Avenue Pump Station extending approximately 1,750 feet from the beginning of the Drainageway to its confluence with the unnamed tributary. (Pet. at 15.) IDOT also requests a standard of 10 mg/L for iron (dissolved) for that portion of the unnamed tributary section downstream of Schoenberger Creek extending approximately 5,000 feet downstream from the confluence with the Bowman Avenue Pump Station Drainageway. (Pet. at 15.) The effluent standard for iron (total) requested by IDOT is 20 mg/L. (Pet. at 15.) The effluent level requested for Total Suspended Solids (TSS) is 40 mg/L. (Pet. at 15.)

AGENCY RESPONSE

The Agency recommends a grant of the requested adjusted standard. (Ag. at 2.) The Agency recommends that the Board grant the proposed language to include the requested alternative limitation of 40 mg/L TSS for the IDOT discharge. The Agency points out that such an alternative limitation is similar to the limitation the Board established for the Pfizer Corporation at 35 Ill. Adm. Code 304.204(c). (Ag. at 12.) (In the Matter of: Proposed Water Quality and Effluent Standards for Schoenberger Creek (Pfizer, East St. Louis) (June 16, 1983) R81-29.) Both IDOT and the Pfizer Corporation withdraw groundwater with similar characteristics and the Agency asserts that the requested alternative level should provide relief with a margin of safety for compliance. (Ag. at 12.)

The Board notes that IDOT has been granted a similar adjusted standard for its Venice System in Madison County, Illinois. (See In The Matter of: Petition of Illinois Department of Transportation, District 8 For An Adjusted Standard From 35 Ill. Adm. Code 304.124 (October 19, 1995), AS 95-8, and In Matter Of: Petition Of Illinois Department Of

Transportation, District 8 For An Adjusted Standard From 35 Ill. Adm. Code 304.124 (April 4, 1996), AS 96-5.)

The Agency believes that the cost for iron and TSS treatment alone, without corresponding benefits, justifies the grant of the requested adjusted standard. (Ag. at 17.) The Agency also believes that there will be no measurable adverse effect on the receiving waterways as a result of the adjusted standard. (Ag. at 17.)

COMPLIANCE ALTERNATIVES

IDOT contracted with Horner and Shifrin, Inc. to prepare a report on the existing conditions and compliance alternatives. (Pet. at 7; Ag. at 6.) Two primary alternatives investigated in that report were conventional mechanical water treatment and outfall/diffusion in the Mississippi River. (Pet. at 12.) According to the report, the probable cost for a water treatment plant would be approximately \$20,000,000; while the outfall diffusion system would cost approximately \$8,000,000 (Pet. at 13.) The diffuser/outfall option will not reduce the amount of iron entering the Mississippi River. (Pet. at 14.)

The Agency asserts that the river outfall/diffusion system offered as an alternative for compliance would require IDOT to seek a permit modification for the delineation of a "mixing zone". (Ag. at 9.) Consequently, the costs and design of an outfall/diffusion system are not properly before the Board when the Board is considering an adjusted standard from the effluent limit of 35 Ill. Adm. Code 304.124 for total iron and TSS, and when the determination of the optimum mixing efficiency is a duty of the Agency under 35 Ill. Adm. Code 302.102(d). (Ag. at 9.) There is no limitation of TSS in 35 Ill. Adm. Code 302.208. (Ag. at 10.)

With respect to the use of a treatment plant the Agency indicates that it believes the cost estimate "understates" the probable actual cost. (Ag. at 11.) The Agency points out that the estimates do not include professional fees for the design, bidding and construction supervision of the project. (Id.) Further, the Agency believes that IDOT has underestimated the costs of maintenance of the facility and has failed to discuss the residual chlorine in the effluent from treatment. (Id.) The Agency maintains that the estimated expense is not justified by any environmental benefit. (Id.)

HEALTH AND ENVIRONMENTAL EFFECTS

IDOT maintains and the Agency generally agrees that the adjusted standard will not result in environmental or health effects substantially more adverse than the effects considered by the Board when adopting 35 Ill. Adm. Code 304.124. (Pet. at 24; Ag. at 12.) The Agency bases this conclusion on the belief that the requested adjusted water quality standard will not cause any adverse impact in the receiving water. (Ag. at 12.) The Agency observes that the 1,750 foot reach of stream covered by the adjusted standard is not used for public water supply nor crop irrigation and therefore there is no potential threat to human health. (Ag. at 13.)

JUSTIFICATION

According to IDOT, the factors relied upon by the Board in adopting 35 Ill. Adm. Code 304.124 concerned potential adverse impacts upon aquatic life, crop irrigation and water supplies. (Pet. at 25.) IDOT maintains that if the adjusted standard is granted no such adverse impacts are anticipated. (Pet. at 25) In addition, IDOT argues that the compliance alternatives are technically feasible but economically unreasonable as the alternatives are costly and could have adverse cross-media affects. (Pet. at 27.) Finally, IDOT maintains and the Agency agrees that the adjusted standard is consistent with federal law. (Pet. at 27; Ag. at 17.)

The Agency agrees that the factors relied upon by the Board in adopting 35 Ill. Adm. Code 304.124 are substantially and significantly different for IDOT. (Ag. at 16.) The Agency points out that:

In this case, where the groundwater is relatively uncontaminated by other pollutants, treating for iron and TSS alone is not economically reasonable, given the lack of expected environmental results.
(Ag. at 15.)

CONCLUSION

The iron and total suspended solids in the discharge from the deep well system is naturally occurring and is not known to have been contaminated by any human contact. Further, the Board is persuaded that any adverse impacts which may occur are not substantially more adverse than those impacts to be expected if the rule of general applicability was followed. Therefore, the Board finds that IDOT has demonstrated that the factors surrounding the request for adjusted standard are substantially and significantly different than the factors considered by the Board in adopting the rule of general applicability. Further, due to the substantial costs associated with the compliance alternatives presented by IDOT, the Board is persuaded that the alternatives for compliance would be economically unreasonable and would result in no increased environmental protection. Therefore, the Board will grant IDOT an adjusted standard from 35 Ill. Adm. Code 302.208 and 304.124 as they apply to the discharge of iron (dissolved), iron (total) and total suspended solids in its discharge from the FAI-55/70-FAI-64 system. The Board also grants IDOT an adjusted standard from 35 Ill. Adm. Code 302.203 as it applies to color resulting from oxidation and biotransformation of naturally occurring iron.

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

ORDER

The Board hereby adopts the following adjusted standard, pursuant to the authority of Section 28.1 of the Environmental Protection Act:

- 1) The water quality standard for Iron (dissolved) shall be 10 mg/L for that portion of the Bowman Avenue Pump Station Drainageway extending approximately 1,750 feet from the beginning of the Drainageway to its confluence with an unnamed tributary section downstream of Schoenberger Creek which is tributary to the Cahokia Canal. The water quality standard for Iron (dissolved) found at 35 Ill. Adm. Code 302.208 shall not apply to the Bowman Avenue Pump Station Drainageway in its entirety.
- 2) The water quality standard for Iron (dissolved) shall be 10 mg/L for that portion of an unnamed tributary section downstream of Schoenberger Creek extending approximately 5,000 feet downstream from the confluence with the Bowman Avenue Pump Station Drainageway to the unnamed tributary section's confluence with the Cahokia Canal. The water quality standard for Iron (dissolved) found at 35 Ill. Adm. Code 302.208 shall not apply to these portions of the unnamed tributary section downstream of Schoenberger Creek which is tributary to Cahokia Canal.
- 3) The effluent standard for Iron (total) from the Illinois Department of Transportation's deep well FAI-55/70-FAI-64 System discharge shall be 20 mg/L. The effluent standard for Iron (total) found at 35 Ill. Adm. Code 304.124 shall not apply to the effluent discharges from the Illinois Department of Transportation's deep well FAI-55/70-FAI-64 System.
- 4) The effluent standard for Total Suspended Solids from the Illinois Department of Transportation's deep well FAI-55/70-FAI-64 System discharge shall be 40 mg/L. The effluent standard for Total Suspended Solids found at 35 Ill. Adm. Code 304.234 shall not apply to the effluent discharges from the Illinois Department of Transportation's deep well FAI-55/70-FAI-64 System.
- 5) Any color in the Illinois Department of Transportation's deep well FAI-55/70-FAI-64 System discharge that results only from oxidation or biotransformation of naturally occurring iron in the pumped groundwater shall be considered natural in origin, and hence in compliance with 35 Ill. Adm. Code 302.203.

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 III. 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