

ILLINOIS POLLUTION CONTROL BOARD

June 19, 2003

IN THE MATTER OF: )  
)  
PETITION OF EXELON GENERATION ) AS 03-1  
COMPANY FOR AN ADJUSTED ) (NPDES Adjusted Standard)  
STANDARD FROM 35 ILL. ADM. CODE )  
302.208 )

ORDER OF THE BOARD (by N.J. Melas):

On December 19, 2002, Exelon Generation Company, L.L.C., (Exelon) filed a petition with the Board for an adjusted standard from 35 Ill. Adm. Code 302.208(g) (Pet.). Exelon seeks relief for discharges from its Services and Training Center (STC) located south of Braidwood in Will County. The discharge includes domestic and cafeteria waste streams, as well as pollution control waste produced in the electro dialysis reversal (EDR) process used to treat the brackish groundwater to potable standards. Exelon waives its opportunity for a hearing.

The STC discharges into a small drainage ditch tributary to Horse Creek (unnamed tributary), about 3.5 miles upstream of the confluence of Horse Creek with the Kankakee River. Exelon's National Pollutant Discharge Elimination System (NPDES) permit<sup>1</sup> limits total dissolved solids (TDS) in STC's discharge to 1000 milligrams per liter (mg/L). This limit, which is based on the Board's general use water quality standard for TDS (35 Ill. Adm. Code 302.208(g)), became effective March 30, 2003. Exelon seeks a limit of 1900 mg/L TDS for the unnamed tributary into which it discharges from its STC. According to the petition, Exelon's effluent exceeds the current applicable TDS limits due to the high concentrations of TDS in the groundwater Exelon uses to provide water for the STC. Pet. at 3, 4.

On April 16, 2003, the Agency filed a recommendation (Rec.) that the Board grant Exelon an adjusted standard from the general use water quality standards for TDS. For the reasons below, the Board grants Exelon's requested relief from the TDS general use water quality standard at 35 Ill. Adm. Code 302.208 for the unnamed tributary to Horse Creek that is the receiving stream for the discharge from Exelon's STC.

**ADJUSTED STANDARD PROCEDURE**

The Environmental Protection Act (415 ILCS 5/1 *et seq.*) and Board rules provide that a petitioner may request, and the Board may grant, an environmental standard that is different from the generally applicable standard that would otherwise apply to the petitioner. This is called an adjusted standard. The general procedures that govern an adjusted standard proceeding are found at Section 28.1 of the Act and Part 104, Subpart D of the Board's procedural rules. 415 ILCS 5/28.1; 35 Ill. Adm. Code 104.400 *et al.*

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<sup>1</sup> NPDES permit No. IL0063100, issued by the Illinois Environmental Protection Agency (Agency).

The Board rules for the content requirements of the petition and Agency recommendation are found at Section 104.406 and Section 104.416, respectively. 35 Ill. Adm. Code 104.406, 104.416.

### **PROCEDURAL BACKGROUND**

After Exelon filed the petition on December 19, 2002, Exelon filed a certificate of publication on January 10, 2003. On February 6, 2003, the Board issued an order asking Exelon to provide some additional information in an amended petition. Among other things, the Board asked Exelon to consider requesting relief from the Board's effluent standards of Section 304.105 of the Board's rules rather than from the general use water quality standards of Section 302.208. 35 Ill. Adm. Code 304.105, 302.208. Exelon filed an amended petition correcting the deficiencies on February 18, 2003, and a certificate of publication indicating that notice of the adjusted standard, as amended, was published in the *Herald News* on March 5, 2003. Regarding the Board's concern, Exelon stated in its amended petition that relief from either the effluent limitations or the water quality standards would have the same practical effect for Exelon. The Board accepted the amended petition on March 6, 2003.

The Agency filed its recommendation (Rec.) on April 16, 2003, recommending that the Board grant Exelon the relief it requested from Section 302.208 of the Board's water quality standards. The Agency also recommended the Board deny Exelon relief from the effluent limits found in Section 304.105, as unnecessary. Rec. at 2.

### **FACTUAL BACKGROUND**

Exelon's STC is located 3 miles southeast of Braidwood, Illinois, on Essex Road. STC began operations in 1982. Am. Pet. at 2. The STC serves as an office and classroom space for a total of approximately 151 people. Water to the STC is supplied by a well reaching 1690 feet below ground surface. *Id.* at 3. The groundwater from the well is treated by Electrodialysis Reversal in order to provide water for consumption, and domestic uses including showers, toilets, and cafeteria operation. *Id.*

TDS concentrations in the groundwater range from 1300 (mg/L) to in excess of 1600 mg/L. The Electrodialysis Reversal unit reduces TDS in the water to about 800 mg/L. Am. Pet. at 3. Approximately 30 percent of the water processed with the EDR unit contains concentrated TDS that is not suitable for potable use (reject water).

The wastewater discharged from the STC consists of the EDR reject water and cafeteria and domestic waste streams. The combined waste stream flows to an on-site wastewater treatment plant (WWTP), but the WWTP does not treat for or effectively remove TDS. Am. Pet. at 3.

The treated effluent from the WWTP is discharged through NPDES permit Outfall 001 to a drainage ditch, which is an unnamed tributary to Horse Creek. Am. Pet. at 4. The unnamed tributary is 2.5 miles in length from Outfall 001 to the confluence with Horse Creek. *Id.* The distance between the confluence of the unnamed tributary and Horse Creek to the confluence of

Horse Creek and the Kankakee River is approximately 3.5 miles. *Id.* Other than STC, there are no other permitted dischargers into the unnamed tributary.

### **BURDEN OF PROOF**

The Board agrees with the Agency and Exelon that the regulations of general applicability at 35 Ill. Adm. Code 302.208 and 304.105 require no specific level of justification for an adjusted standard. Am. Pet. at 6; Rec. at 3. Therefore, pursuant to Section 28.1(c) of the Act, the burden of proof is on the petitioner to demonstrate 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 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 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. 415 ILCS 5/28.1(c) (2002); 35 Ill. Adm. Code 104.426(a).

### **CURRENT APPLICABLE TDS STANDARDS**

The water quality limits for TDS are at Section 302.208 of the Board's regulations. 35 Ill. Adm. Code 302.208. Exelon requests an adjusted standard from this standard:

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

Constituent	Unit	STORET Number	Standard
Total Dissolved Solids	mg/L	70300	1000

where: mg/L = milligram per liter

As previously noted, Exelon's NPDES permit limit for TDS is based on the above water quality standard. In the alternative, Exelon requests relief from the Board's effluent limits. Section 304.105 of the Board's regulations provides that "no effluent shall, alone or in combination with other sources, cause a violation of any applicable water quality standard." 35 Ill. Adm. Code 304.105.

### **PROPOSED LANGUAGE OF ADJUSTED STANDARD**

The Agency issued NPDES permit No. IL0063100 to the STC. This permit limits STC's effluent to the water quality standard of 1000 mg/L as of March 30, 2003. Am. Pet. at 1. Environmental consultants from Montgomery Watson Harza (Harza) prepared a feasibility study to help Exelon evaluate options and achieve compliance with the TDS concentration limit. Am. Pet. at 6. The consultants calculated that the highest concentration of TDS that the STC could reasonably expect to discharge is 2100 mg/L. Am. Pet. at 9. However, Exelon has determined it can feasibly comply with a lesser TDS effluent standard of 1900 mg/L. *Id.* Using the maximum calculated potential concentration (2100 mg/L TDS), Harza concluded that even under worst-case low flow conditions, the STC discharge would meet the 1000 mg/L general use water quality standard for TDS in the unnamed tributary before the confluence of the unnamed tributary and Horse Creek.

Exelon requests this relief in the form of an adjusted standard from the Board's water quality limits, Section 302.208, or, alternatively, an adjusted standard from the Board's effluent limits at Section 304.105. Am. Pet. at 16-17. Exelon has proposed language for both options:

The General Use Water Quality Standard for total dissolved solids contained in Section 302.208(g) shall not apply to the tributary to Horse Creek, located approximately 3.5 miles upstream of the Horse Creek and Kankakee River confluence, which receives discharges from Exelon Generation Company, L.L.C.'s Services and Training Center, from the point of discharge from that facility to the confluence of the tributary with Horse Creek, including the zone where the tributary and Horse Creek waters mix. Instead, this water shall comply with a total dissolved solids standard of 1900 mg/L. Am. Pet. at 8.

Section 304.105 shall not apply to effluent from Exelon Generation Company, L.L.C.'s Services and Training Center for total dissolved solids provided that this effluent does not cause or contribute to water quality concentrations that are greater than 1900 mg/L. Am. Pet. at 9.

### **EFFORTS NECESSARY TO ACHIEVE COMPLIANCE AND ALTERNATIVES**

Exelon has considered three alternatives to meet the TDS permit limits: (1) changing the water supply; (2) changing the discharge location; and (3) diversion of the EDR route stream. Am. Pet. at 12. Exelon states that each alternative presents overly burdensome technical and economic constraints. The Agency does not dispute the cost estimates for these alternatives, and states that these costs are unreasonable:

#### **Alternative Water Supply**

Exelon considered four alternate water supply possibilities, but determined that these costs of implementing the various options were unreasonable. The four alternatives are: (1) hooking up to the Braidwood municipal water supply; (2) hooking up to the Braidwood Station raw water line (drawn from the Kankakee River); (3) hooking up to the Braidwood Station treated water line; and (4) installing another well.

The first alternative would require the acquisition of at least 2.75 miles of right-of-way easements and the installation and operation of a 3.75-mile water service to Braidwood at a total estimated cost of \$1,500,000. In order to comply with the federal Surface Water Treatment Rule and the Long Term One Enhanced Surface Water Treatment Rule the second alternative would require abandonment of the existing EDR and construction of a new treatment facility at a total cost of \$1,100,000. The third alternative, connection to the Braidwood Station treated water line, would cost a total of \$1,000,000. Under the fourth alternative, Exelon would have to install a new off-site well at least 1.5 miles south of the STC in order to find groundwater with TDS concentrations below 1000 mg/L at a total cost of \$700,000.

### **Alternative Discharge Points for Entire STC Wastewater Flow**

Exelon has evaluated the following three alternative discharge points for the STC wastewater treatment plant effluent: (1) discharge to the Village of Braidwood municipal sewer; (2) discharge to the Kankakee River through the Braidwood Station blowdown line; (3) discharge to the Braidwood Station cooling lake.

Discharge to the Village of Braidwood sewer would require acquisition of right-of-way easements and installation of sewer service over 3.75 miles, at a total cost of \$700,000. Pet. Exh. 1 at 5-6; rec. at 6. The second option, discharging through the Braidwood Station line, would involve a two-mile sewer connection and cost approximately \$900,000. This alternative may complicate the NPDES permit process because the STC and Braidwood NGS operations are independent of one another. Pet. Exh. 1 at 5-6; Rec. at 6. Exelon states that discharge to the Braidwood Station cooling lake, about one half mile west of the STC, would be incompatible with the operation and management of the cooling pond. This is because Braidwood Station operators seek to minimize TDS loading in cooling water to avoid scaling in the main stream condensers. Further, this option would also be complicated by the independent status of the STC, and would cost \$300,000. Pet. Exh. 1 at 5-7.

### **Alternate Disposal of EDR Waste**

Finally, Exelon considered several compliance options that involve diverting the EDR wastestream from the WWTP to an alternate disposal point. These options are: (1) hauling EDR waste to a local POTW; (2) land application of EDR waste; and (3) zero discharge alternatives.

Hauling EDR “reject water” by tanker truck to the Village of Braidwood wastewater treatment plant would require approximately 170 trips per year, at an estimated cost of \$600,000. Pet. Exh. 1 at 5-8. Disposal of Exelon’s effluent through land application would require the construction of a \$300,000-gallon holding tank to store effluent during periods where land application is not possible. Land application would also require between three or four trips per day to the application site during the application season. The total cost of this option is approximately \$1,500,000. Pet. Exh. 1 at 5-8. 5-9. Under the zero discharge option, Exelon evaluated two alternatives: an evaporative crystallizer and a spray dryer. The spray dryer is the preferable zero discharge option since it can be operated intermittently. However, the spray dryer would produce a solid cake that would require landfill disposal. The cake could be classified as solid waste due to high metals content. The total waste requiring disposal is

estimated at 10 tons per year. The estimated costs of this option total \$1,600,000. Pet. Exh. 1 at 5-9.

### **SUBSTANTIALLY DIFFERENT FACTORS**

Exelon asserts that the factors relating to the STC facility are substantially different than those relied upon by the Board in adopting the applicable TDS water quality standard. Am. Pet. at 9. The Agency agrees that Exelon's request for relief from the Section 302.208(g) general water quality standards for TDS meet the statutory requirements of Section 28.1(c) of the Act for three reasons. Rec. at 8. First, regarding aquatic life, the Ecological Specialists, Inc. (ESI) biological assessment<sup>2</sup> demonstrates the STC discharge, containing concentrations of TDS consistently higher than the 1,000 mg/L standard, has no adverse impact on the aquatic life in the receiving stream. Am. Pet., Attach. 1, Append. E.

Second, regarding public health effects, the Agency notes that according to the Agency and the Illinois Department of Health, the unnamed tributary and the area of confluence with Horse Creek are not public water supplies. Am. Pet. at 11. Third, the unnamed tributary has not been classified for water quality purposes and Horse Creek meets all designated uses according to the 2002 Section 303(d) water quality report. Rec. at 8.

### **IMPACT ON THE ENVIRONMENT**

The Agency agrees with Exelon that TDS is not the limiting factor in the receiving stream. Rec. at 7. The ESI assessment found that the stream would naturally support low species richness and low organism abundance of tolerant benthic macroinvertebrate species. Further, the volume of STC discharge results in greater species abundance downstream of the discharge. Am. Pet. at 11-12.

The Agency agrees with ESI's assessment that the TDS will not adversely impact the aquatic organisms in the receiving stream, or that decreasing the concentrations of TDS in the STC effluent would improve the biological communities in the receiving stream. Am. Pet. Attachment 1, pp. 6-6,6.7; Rec. at 7. The Agency also agrees that because of the significant water flow<sup>3</sup> at the confluence of the unnamed tributary and Horse Creek (Am. Pet. Attach. 1, p. 6-5), the TDS concentrations in the unnamed tributary have no impact on Horse Creek. Rec. at 7-8.

### **CONSISTENCY WITH FEDERAL LAW**

Both the Agency and Exelon agree that Exelon's request for an adjusted standard from the Board's TDS water quality standard (Section 302.208(g)) is consistent with federal law.

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<sup>2</sup> Exelon contracted with Ecological Specialists, Inc. to conduct a biological assessment of the unnamed tributary to evaluate the impact of STC discharge on aquatic life.

<sup>3</sup> 4.3 feet per second.

Rec. at 9. The Agency argues, however, that granting an adjusted standard from the Board's effluent limits (Section 304.105) is not consistent with federal law. *Id.*

If granted by the Board, a proposed adjusted water quality standard must then be reviewed and approved by the United States Environmental Protection Agency (USEPA) before it can be effective. Rec. at 9. Authority for this requirement comes from Section 303 of the Clean Water Act and supporting federal regulations. *See* 40 C.F.R. 131.21(c).

When the Board grants an adjusted standard from the Board's effluent limits, the petitioner is exempt from complying with the applicable general use water quality standards. The Agency argues that, from the USEPA's perspective, granting relief from the Board's effluent standards is an attempt to avoid the requirement to obtain USEPA approval to changes in water quality standards. Rec. at 9.. The Agency equates this to permanent permission to violate a water quality standard. *Id.*

The Agency also believes that granting an adjusted standard from the Board's effluent limits violates Section 402 of the Clean Water Act, and implementing federal regulations, which prohibit issuing NPDES permits that will violate water quality standards. 33 U.S.C. §§1342.

No [NPDES] permit may be issued:

- a) When the conditions of the permit do not provide for compliance with the applicable requirements of the Clean Water Act, or regulations promulgated under the Clean Water Act. 40 C.F.R.122.4(a).

This prohibition applies to water quality standards adopted by the states as part of the delegated NPDES program, such as 35 Ill. Adm. Code 302.208. Rec. at 9.

The Agency concludes that an adjusted standard from the Board's effluent limits may protect the petitioner from state enforcement, however, the petitioner may nonetheless be vulnerable to federal action. Rec. at 10. A petitioner may risk: (1) federal action for violating federally-approved state water quality standards; and (2) being ineligible to receive an NPDES permit from the Agency. The practical effect of receiving an adjusted standard from 304.105 rather than 302.208 is not the same under federal law. Rec. at 9.

## **DISCUSSION**

Exelon seeks a change in the TDS water quality standard for the unnamed tributary into which it discharges from the current 1000 mg/L to the proposed 1900 mg/L. To achieve this result, Exelon requests relief from Section 302.208 or, in the alternative, Section 304.105 of the Board's regulations. The Agency recommends that the Board grant petitioners an adjusted standard from Section 302.208, and deny an adjusted standard from Section 304.105. If granted, the request would raise the water quality standards for TDS over a 2.5 mile length of waterway (the unnamed tributary) that drains into Horse Creek, including the zone where the tributary and Horse Creek mix.

The Board finds that Exelon's request for relief from the Section 302.208(g) general water quality standard for TDS meets the statutory "fundamentally different" factors of Section 28.1(c) of the Act. Exelon has demonstrated that: (1) factors relating to it are substantially and significantly different from the factors relied upon by the Board in adopting the general regulations; (2) the existence of these factors justify an adjusted standard; (3) the requested standard will not cause substantially or significantly more adverse environmental or health effects than the effects considered by the Board in adopting the rule of general applicability; and (4) the adjusted standard is consistent with applicable federal laws. 415 ILCS 5/28.1(c) (2002).

Exelon bases its justification for the request on the particular technical and economic constraints of the possible alternatives. Additionally, Harza's study shows Exelon's discharge will have limited negative health and environmental effects.

The Agency argues that to comply with federal law, the Board should grant Exelon relief from water quality standards rather than effluent limitations. When the Board grants relief from the effluent limitations for TDS, it allows the petitioner's effluent to exceed the existing water quality standard, yet no new water quality standard is legally created for the receiving waters. The status of the applicable standard in these waters could become unclear.

For example, the Agency could designate a stream segment as impaired for TDS, yet the Board could have already granted a petitioner an adjusted standard from TDS effluent limits for a discharge into that same stream segment. Furthermore, a state-granted adjusted standard from the effluent limits that exceeds a federally approved water quality standard does not operate as a variance under the Clean Water Act. *See* Rec. at 10. Therefore, Exelon could be vulnerable to federal action regarding that particular stream segment.

Additionally, in prior holdings the Board has been concerned that granting an adjusted water quality standard would give the same relief (an increased potential to discharge) to other dischargers who have not presented the Board with any evidence of need for such relief. However, the Board has granted adjusted water quality standards where petitioners were the sole dischargers to the receiving stream. *In re* Petition of Rhone-Poulenc Basic Chemicals Co. and Thorn Creek Basin Sanitary District for an Adjusted Standard from 35 Ill. Adm. Code 302.208 and 304.105, AS 94-7 (June 23, 1994); *In re* Petition of Abbott Laboratories for an Adjusted Standard from 35 Ill. Adm. Code 302.208 and 304.105, AS 99-5 (July 8, 1999). Here, the Board finds that there are no other dischargers to the unnamed tributary and the tributary has a 7Q10<sup>4</sup> flow of zero. Thus often the only flow is Exelon's discharge. Rec. at 11.

### **CONCLUSION**

For the reasons set out above, the Board grants the requested adjusted standard from the TDS general use water quality standard at Section 302.208 for the unnamed tributary to Horse Creek that is the receiving stream for the discharge from Exelon's STC. Accordingly, the Board

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<sup>4</sup> The lowest stream flow for seven consecutive days that is expected to occur once in a ten-year period. *See* United States Environmental Protection Agency Terms of the Environment website: <http://www.epa.gov/OCEPAterms/sterms.html>; 35 Ill. Adm. Code 302.103..



denies Exelon's alternative request for an adjusted standard from Section 304.105 for the same discharge.

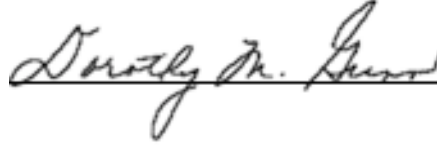
### **ORDER**

1. Pursuant to Section 28.1 of the Environmental Protection Act, the Board grants Exelon Generation Company, L.L.C. (Exelon) an adjusted standard from 35 Ill. Adm. Code 302.208. 415 ILCS 5/28.1. The adjusted standard applies to Exelon's Services and Training Center located on Essex Road, approximately three miles southeast of Braidwood, Will County.
2. Pursuant to this grant, the General Use Water Quality Standard for total dissolved solids at Section 302.208(g) shall not apply to the tributary to Horse Creek, located approximately 3.5 miles upstream of the Horse Creek and Kankakee River confluence, which receives discharges from Exelon's Services and Training Center, from the point of discharge from that facility (Outfall 1 subject to NPDES permit no. IL0063100) to the confluence of the tributary with Horse Creek, including the zone where the tributary and Horse Creek waters mix. Instead, this segment of the stream is subject to a total dissolved solids standard of 1900 mg/L.
3. The adjusted standard is effective upon the date of this order.

IT IS SO ORDERED.

Section 41(a) of the Environmental Protection Act provides that final Board orders may be appealed directly to the Illinois Appellate Court within 35 days after the Board serves the order. 415 ILCS 5/41(a) (2002); *see also* 35 Ill. Adm. Code 101.300(d)(2), 101.906, 102.706. Illinois Supreme Court Rule 335 establishes filing requirements that apply when the Illinois Appellate Court, by statute, directly reviews administrative orders. 172 Ill. 2d R. 335. The Board's procedural rules provide that motions for the Board to reconsider or modify its final orders may be filed with the Board within 35 days after the order is received. 35 Ill. Adm. Code 101.520; *see also* 35 Ill. Adm. Code 101.902, 102.700, 102.702.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above order on June 19, 2003, by a vote of 6-0.

A handwritten signature in cursive script, reading "Dorothy M. Gunn", is written over a horizontal line.

Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board