

ILLINOIS POLLUTION CONTROL BOARD  
December 17, 1998

|                                |   |                    |
|--------------------------------|---|--------------------|
| CENTRAL ILLINOIS LIGHT COMPANY | ) |                    |
| (DUCK CREEK STATION),          | ) |                    |
|                                | ) |                    |
| Petitioner,                    | ) |                    |
|                                | ) |                    |
| v.                             | ) | PCB 99-21          |
|                                | ) | (Variance - Water) |
| ILLINOIS ENVIRONMENTAL         | ) |                    |
| PROTECTION AGENCY,             | ) |                    |
|                                | ) |                    |
| Respondent.                    | ) |                    |

OPINION AND ORDER OF THE BOARD (by R.C. Flemal):

This matter comes before the Board upon a petition for variance (Pet.) filed on July 31, 1998, by Central Illinois Light Company (CILCO). CILCO requests a five-year variance from the Board's June 20, 1996 order in AS 96-8, which granted CILCO an adjusted water quality standard for boron in water discharged at CILCO'S Duck Creek Station located southeast of Canton, Fulton County, Illinois. Grant of the variance would allow CILCO to reduce the existing elevated boron concentrations in Duck Creek Reservoir through natural attenuation.

The Board's responsibility in this matter arises from the Environmental Protection Act (Act) (415 ILCS 5/1 *et seq.* (1996)). The Board is charged therein with the responsibility to "grant individual variances beyond the limitations prescribed in this Act, whenever it is found upon presentation of adequate proof, that compliance with any rule or regulation, requirement or order of the Board would impose an arbitrary or unreasonable hardship." 415 ILCS 5/35(a) (1996). The Illinois Environmental Protection Agency (Agency) is required to appear in hearings on variance petitions. 415 ILCS 5/4(f) (1996). The Agency is also charged, among other things, with the responsibility of investigating each variance petition and making a recommendation to the Board as to the disposition of the petition. 415 ILCS 5/37(a) (1996).

The Agency filed its recommendation (Rec.) on November 24, 1998.<sup>1</sup> The Agency recommends that the variance be granted. CILCO waived hearing (Pet. at 26), and no hearing has been held.

For the reasons discussed below, the Board finds that CILCO has presented adequate proof that immediate compliance with the regulations at issue would result in the imposition of

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<sup>1</sup> The recommendation was accompanied by a motion to file *instanter*. That motion is hereby granted.

an arbitrary or unreasonable hardship. Accordingly, the variance will be granted, subject to conditions set forth in the attached order.

## BACKGROUND

### Facility Description

CILCO operates a 400 megawatt electric generating station (station) located in an unreclaimed strip-mining region southeast of Canton, Illinois. Pet. at 4. The station is equipped with electrostatic precipitators and a wet scrubber desulfurization system that allows the station to burn high-sulfur Illinois coal. Pet. at 5.

Among the auxiliary facilities at the station is Duck Creek Reservoir. The reservoir is a 1,665 acre lake constructed by CILCO. Pet. at 5. Water from the reservoir is used at the station for a variety of purposes, including cooling water requirements. Pet. at 5. Inflow into the reservoir consists of recycled condenser, turbine, and auxiliary hydrogen cooling water, house service water, boiler blowdown water, and stormwater runoff; infiltrated groundwater; and inflow from the 15.5 square miles drainage basin of Duck Creek. Pet. at 3, 5.

Discharge from Duck Creek Reservoir occurs via a “morning glory” spillway that discharges through a 1,100-foot tunnel into Duck Creek. Pet. at 6. This outfall is denominated outfall 002. Pet. at 3. The flow in Duck Creek below the reservoir is most often solely the flow contributed by outfall 002. Duck Creek is tributary to the Illinois River, which it enters approximately 2.9 miles below the Duck Creek Reservoir dam. Exh. 2 at 3-8.

There is a separate water system at the station for managing scrubber effluent and fly and bottom ash. Pet. at 5. These wastes are sluiced in slurry form to a recycle pond, where the transport water is clarified and recirculated. Pet. at 5. The transport water is not, in normal operation, discharged to the reservoir.

### Regulatory History

In National Pollutant Discharge Elimination System (NPDES) Permit No. IL0055620, effective October 23, 1993, the station was required to meet an effluent limitation of 1.0 mg/L for boron applicable to outfall 002 beginning October 23, 1996. Pet. at 6. The 1.0 mg/L limitation is the value of the General Use Water Quality Standard for boron, as then applicable to Duck Creek.<sup>2</sup>

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<sup>2</sup> Duck Creek Reservoir is itself a “treatment works” rather than a “water of the state,” and is hence not subject to water quality standards. In the Matter of: Petition of Central Illinois Light Company (Duck Creek Station) for an Adjusted Standard from 35 Ill. Adm. Code 302.208 and 35 Ill. Adm. Code 304.105 (June 20, 1996), AS 96-8, slip op. at 2. The opinion and order in Central Illinois Light Company (Duck Creek Station) is Exhibit 1 in the instant record.

On March 11, 1997, the Agency issued a new NPDES permit to CILCO in which the boron effluent limitation was increased to 4.5 mg/L. This was done pursuant to the Board's order in Central Illinois Light Company (Duck Creek Station) AS 96-8, which adjusted the boron water quality standard in Duck Creek and the immediate downstream portion of the Illinois River. The operative language of the adjusted standard order is:

Instead of the water quality standard for boron set forth in 35 Ill. Adm. Code 302.208, the discharge from outfall 002 shall not cause the boron concentration in Duck Creek and the Illinois River to exceed the following concentration: 4.5 mg/L from outfall 002 in Duck Creek to 100 yards downstream of the confluence of Duck Creek with the Illinois River.  
Central Illinois Light Company (Duck Creek Station) AS 96-8, slip op. at 9

On April 24, 1998, a new NPDES Permit No. IL0055620 was issued and became effective on May 1, 1998. Pet. at 3. This permit both specifies the 4.5 mg/L limitation and orders CILCO to comply with the standards and conditions of the Board's order in Central Illinois Light Company (Duck Creek Station) AS 96-8. Pet. at 3, Rec. at 4.

#### Boron in Duck Creek Reservoir

Duck Creek Reservoir has historically contained elevated levels of boron. Data collected in support of the adjusted standard in Central Illinois Light Company (Duck Creek Station) AS 96-8, indicated that during the period 1990 to 1993 minimum, average, and maximum boron concentrations of boron were 2.32 mg/L, 2.96 mg/L, and 3.94 mg/L, respectively. Pet. at 8. The Agency concluded at the time that the principal source of the boron was groundwater infiltration. Central Illinois Light Company (Duck Creek Station) AS 96-8, slip op. at 2. Boron is abundant in the at- and near-surface coal-bearing strata and spoil piles that occur within the basin of Duck Creek, from which it readily leaches into the groundwater. Central Illinois Light Company (Duck Creek Station) AS 96-8, slip op. at 2.

Recently the concentrations of boron in Duck Creek Reservoir have been above the previous norms. In particular, until 1996, boron concentrations measured in the outfall 002 discharges were typically one to two mg/L below the 4.5 mg/L standard. Exh. 2 at Table 4.3. However, beginning in 1997, all measured concentrations have been above 4.5 mg/L, peaking at 5.5 mg/L. Pet. at 8; Exh. 2 at Table 4.3.

CILCO contends, and the Agency agrees, that the current elevated boron concentrations in Duck Creek Reservoir are due to overflow events from the recirculating ash disposal system that occurred during February and March 1997. Pet. at 7; Rec. at 4. These events were related to a then unexplained pressure loss in the return water system between the recycle pond and the power plant. Pet. at 7. In order to maintain a sufficient water supply for ash sluicing, CILCO was required to introduce house service water into the ash disposal system, which in turn resulted in a series of overflows from the recycle pond into Duck Creek Reservoir. Pet. at 7. Because the overflow waters contained relatively high boron concentrations, the boron concentration in the reservoir correspondingly rose. Pet. at 7.

Both CILCO and the Agency agree that the cause of the overflow events has since been remedied. Pet. at 7; Rec. at 4. CILCO does not anticipate that additional overflow events will occur. Pet. at 8. The immediate question is how can the elevated boron concentrations in the reservoir be reduced to the levels that existed prior to the overflow events, and thus bring CILCO into compliance with the 4.5 mg/L boron standard established in AS 96-8.

### STATUTORY AND REGULATORY FRAMEWORK

In determining whether any variance is to be granted, the Act requires the Board to determine whether a petitioner has presented adequate proof that immediate compliance with the Board regulations at issue would impose an arbitrary or unreasonable hardship. 415 ILCS 5/35(a) (1996). Furthermore, the burden is upon the petitioner to show that its claimed hardship outweighs the public interest in attaining compliance with regulations designed to protect the public. Willowbrook Motel v. IPCB, 135 Ill. App. 3d 343, 481 N.E.2d 1032 (1st Dist. 1977). Only with such a showing can the claimed hardship rise to the level of arbitrary or unreasonable hardship.

A further feature of a variance is that it is, by its nature, a temporary reprieve from compliance with the Board's regulations and compliance is to be sought regardless of the hardship which the task of eventual compliance presents an individual polluter. Monsanto Co. v. IPCB, 67 Ill. 2d 276, 367 N.E.2d 684 (1977). Accordingly, except in certain special circumstances, a variance petitioner is required, as a condition to grant of variance, to commit to a plan which is reasonably calculated to achieve compliance within the term of the variance.

### COMPLIANCE PLAN

CILCO indicates that it considered four compliance options, three water treatment processes and natural attenuation.<sup>3</sup> Pet. at 11. The treatment processes are: activated carbon adsorption, selective ion exchange, and reverse osmosis/mechanical evaporation. Pet. at 11. Of those processes, CILCO contends that activated carbon adsorption is technically infeasible for the station. Pet. at 11. CILCO further contends that the remaining two processes, selective ion exchange, and reverse osmosis/mechanical evaporation, are economically unreasonable, costing \$14,550,000 and \$66,000,000, respectively. Pet. at 14.

CILCO asserts natural attenuation is feasible, economically reasonable, and predicted to achieve the adjusted boron standard and current effluent limitation within five years. Pet. at 11. It explains that since precipitation and surface drainage with lower levels of boron will enter the reservoir, natural attenuation will decrease the boron concentrations in the reservoir and therefore also in Duck Creek. Pet. at 14.

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<sup>3</sup> CILCO explains it did not consider alternative operating procedures because no change in operating procedures would reduce the boron levels caused by the historic overflow event. Pet. at 10-11. Also, CILCO believes it has corrected the cause of that event. Pet. at 11.

Based on modeling involving mixing and precipitation considerations, CILCO estimates that unassisted natural attenuation will bring the boron concentrations in the reservoir to 4.5 mg/L or below in a period of 60 months (five years). Pet. at 14; Exh. 2 at 4-9. Five years is the term that is requested for the variance.

CILCO notes that it considered strategies for accelerating the natural attenuation by adding water from the Illinois River to the reservoir. Pet. at 15. However, due to the risk of introducing zebra mussels from the river into the reservoir, CILCO believes that this is not a viable option. Pet. at 15. The Agency agrees that adding Illinois River water could have devastating effects on the reservoir. Rec. at Footnote 3.

The Agency has reviewed CILCO's compliance alternatives, and agrees with CILCO's conclusions. Rec. at 6. The Agency agrees that natural attenuation is the appropriate strategy for CILCO to follow. Rec. at 4. The Agency further notes that it agrees with CILCO that Duck Creek Reservoir will naturally achieve compliance with the 4.5 mg/L standard within the period of the variance. Rec. at 6. In support thereof, the Agency notes that Discharge Monitoring Report (DMR) data for the period from February to July 1998, are consistent with on-going natural attenuation. Rec. at 6 and 7.

#### ENVIRONMENTAL IMPACT

CILCO contends that granting the requested relief would have no adverse impact upon the environment. Pet. at 16. It relies on a number of studies that have been done of the aquatic life in Duck Creek, the reservoir, and the adjacent Illinois River over the last 20 years. Pet. at 16-20. These studies show no impact of boron on the aquatic community. Exh. 3-15 to 3-17. CILCO also does not anticipate adverse impacts on water uses. Pet. at 20. Finally, CILCO notes that toxicological studies indicate that boron concentrations of 5.5 mg/L are not expected to adversely impact human health, aquatic life, or terrestrial animals along Duck Creek. Pet. at 21.

CILCO further observes that, because the Duck Creek Station discharge constitutes such a small portion of the flow of the Illinois River, the increase of boron concentrations in the Illinois River is small after mixing. Under the "worst case" scenario of boron discharged at 5.5 mg/L at the highest recent flow rates from Duck Creek Reservoir, boron concentrations in the Illinois River after mixing is calculated to be 0.013 mg/L. Exh. 2 at 4-18.

The Agency agrees that the 5.5 mg/L limit proposed for the duration of the variance will not cause any adverse environmental impact. Rec. at 5. The Agency notes that it has consistently supported increases in boron limits over 1.0 mg/L for discharges to streams that are not used for irrigation, including CILCO's 1996 adjusted standard. Rec. at 5. The Agency further notes that it has supported, and the Board has granted, adjusted standards for boron that are higher than the 5.5 mg/L requested by CILCO. Rec. at 5. Among these have been adjusted standards set at 8.0 mg/L (Jefferson Smurfit in AS 92-3), 9.0 mg/L (Power Cooperative in AS 92-10), 9.9 mg/L (Illinois Power Baldwin in AS 96-1), and 11.0 mg/L (Springfield CWLP in AS 94-9). Rec. at 5.

### HARDSHIP

CILCO asserts that compliance with the adjusted standard in Central Illinois Light Company (Duck Creek Station) AS 96-8, would impose an arbitrary and unreasonable hardship due to the high costs CILCO would face to implement any technically feasible compliance option besides natural attenuation, and because granting the variance would have no adverse impact on health or the environment. Pet. at 22.

### CONSISTENCY WITH FEDERAL LAW

CILCO maintains that the Board has the authority to grant the requested relief consistent with the Clean Water Act, under Section 303 of the Clean Water Act, (33 U.S.C. § 1313). Pet. at 25.

### DISCUSSION

The Board finds that CILCO has demonstrated that immediate compliance with the regulations at issue, which can be achieved only through great expense, is a hardship. The Board further finds that the hardship outweighs any negative environmental impact that might occur in the time period during which the variance would be in effect. Given these circumstances, the Board finds that denying the requested variance would be an arbitrary or unreasonable hardship.

The Board notes that in its phrasing of the language of the variance it has purposefully paralleled the language used in the adjusted standard. The intent is to emphasize that for the term of the variance the conditions imposed in this variance apply instead of the conditions specified in the otherwise still active order issued in the adjusted standard, Central Illinois Light Company (Duck Creek Station) AS 96-8.

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

### ORDER

Central Illinois Light Company (CILCO) is hereby granted a variance applicable at CILCO's Duck Creek Station. The variance is subject to the following conditions:

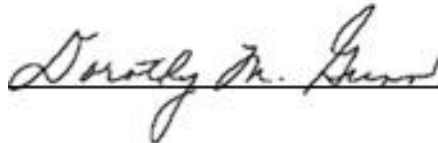
1. This variance begins on December 17, 1998, and terminates on December 17, 2003.
2. This variance applies only to discharges to Duck Creek from outfall 002 of an existing facility currently owned and operated by CILCO and located in Fulton County, Rural Route #5, Canton, Illinois.

3. During the term of this variance, such discharges are not subject to 35 Ill. Adm. Code 304.105 as it applies to the water quality standard for boron set forth in 35 Ill. Adm. Code 302.208; to the water quality standard for boron set forth in 35 Ill. Adm. Code 302.208; or to the water quality standard for boron set forth in the Board's order in In the Matter of: Petition of Central Illinois Light Company (Duck Creek Station) For Adjusted Standard from 35 Ill. Adm. Code 302.208 and 35 Ill. Adm. Code 304.105 Regarding the Parameter Boron (June 20, 1996), AS 96-8.
4. During the term of this variance the discharge from outfall 002 may not cause the boron concentration in Duck Creek and the Illinois River to exceed the following concentration: 5.5 mg/L from outfall 002 in Duck Creek to 100 yards downstream of the confluence of Duck Creek with the Illinois River.

IT IS SO ORDERED.

Section 41 of the Environmental Protection Act (415 ILCS 5/41 (1996)) provides for the appeal of final Board orders to the Illinois Appellate Court within 35 days of service of this order. Illinois Supreme Court Rule 335 establishes such filing requirements. See 172 Ill. 2d R. 335; 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 17th day of December 1998 by a vote of 6-0.



Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board