ILLINOIS POLLUTION CONTROL BOARD
October 15, 1987

IN THE MATTER OF:	)	
	)	
PROPOSAL OF WESTERN ILLINOIS POWER	)	
COOPERATIVE, INC., FOR SITE-SPECIFIC	)	R85-26
AMENDMENT OF THE WATER POLLUTION	)	
REGULATIONS	)	

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

This matter comes before the Board upon a Petition for Amendment of Regulation filed by Western Illinois Power Cooperative, Inc. ("WIPCO") on October 24, 1985. WIPCO proposes the addition of the following rule to 35 Ill. Adm. Code, Title 35, Part 304:

> This section applies to an existing facility of Western Illinois Power Cooperative, Inc. at Pearl Station, Pike County, which discharges at river mile 42.7. Such discharges shall not be subject to the effluent standards of 35 Illinois Administrative Code 304.125 until discharges from the ash pond and the once through cooling water have been combined to permit pH neutralization in the condensor cooling water canal and prior to discharge into the Illinois River.

Section 304.125 specifies that effluent discharges must have a pH within the range of 6 to 9. Adoption of the proposed rule would therefore provide that the individual discharges to WIPCO's condensor cooling water canal would not separately need to fall within this specified pH range, but rather that only after commingling would the 6 to 9 limitation be applicable.

For the reasons described more fully below, the Board denies the relief requested by WIPCO because there is insufficient information presented on the environmental impact on the receiving waters from the commingling of WIPCO's ash pond effluent and the condensor cooling water, and because the requested relief is incompatible with federal and state law.

PROCEDURAL HISTORY

Hearing was held on March 17, 1986, at Jacksonville, Illinois. Testimony was presented by Mr. Donald B. Bringman and Mr. Richard D. Johannes on behalf of WIPCO.

WIPCO filed a post-hearing brief ("Brief") on April 29, 1986. On June 3, 1986, the Hearing Officer issued an Order

requesting that WIPCO and the Illinois Environmental Protection Agency ("Agency") address the relevancy to the instant matter of the findings contained in the Board's May 30, 1986, Opinion and Order in Electric Energy, Inc. v. Illinois Environmental Protection Agency, PCB 85-171. The Agency filed a response brief and recommendation ("Rec.") on June 9, 1986, which, among other matters, addressed this issue. The Agency recommends that the proposed amendment be denied. WIPCO filed a reply brief ("Reply") on July 14, 1986.

On February 25, 1987, the Illinois Department of Energy and Natural Resources ("Department") filed a motion requesting that the record in this matter be re-opened and that the document "Western Illinois Power Cooperative, Inc. 1985 Annual Report" be submitted into the record. By Order of March 5, 1987, the Board granted the motion. On May 22, 1987, the Department issued a "negative declaration" in this matter. The Economic and Technical Advisory Committee concurred in the Department's determination on June 22, 1987.

BACKGROUND

WIPCO is a not-for-profit corporation organized to generate and transmit electrical energy to its seven members, each of which are also not-for-profit corporations who distribute electricity to 44,000 rural consumers in a 22 county area of west central Illinois (R. at 20-1).

WIPCO currently has three generating facilities to supply part of the electrical energy requirements for its members. The main generating facility, the Pearl Station plant, is the subject of the instant matter[1]. It is a coal-fired plant placed in operation in 1957 with an anticipated life of 40 years (R. at 23). It is located along the Illinois River one-half mile south of Pearl, Pike County, Illinois (R. at 22). It is a 22-megawatt coal-fired steam electric facility supplemented with a 22-megawatt gas turbine generator. The coal-fired unit is used on a regular basis to meet base load needs of the cooperative's members; the gas turbine is used generally to meet system peak load requirements or emergencies (R. at 23).

Water is drawn into the plant from the Illinois River, the primary use of which is once-through condensor cooling water. The once-through condensor cooling water is returned to the Illinois River by way of a discharge canal that was constructed

[1] The other two generating facilities are diesel generating facilities at Pittsfield and Winchester, Illinois, that are used only to provide peak energy and emergency energy (R. at 22).

by WIPCO when the plant was built (R. at 23-4). The canal is approximately 300 feet long, 35 feet wide, and 12 feet deep. Water in the canal is generally 10 feet below the top of the bank of the canal (R. at 23-4), thereby presumably producing a water depth of 2 feet (Rec. at 3).

Also at the plant site is an ash pond capable of containing approximately 33 million gallons of discharge from the plant. Discharge to the ash pond consists of bottom ash and fly ash sluice water plus discharge from a wet scrubber (R. at 24-5). The pH of the ash pond waters is approximately 2.7, due largely to the acidic nature of the wet scrubber discharge (Brief at 4).

Since 1976 discharge from the ash pond has been directed into the canal, where it mixes with the condensor cooling water before entering the Illinois River. The entry point of the ash pond discharge is approximately 75 feet from the head of the condensor cooling water canal and 225 feet from the mouth of the canal (R. at 28). Of the 22 million gallons per day ("MGD") average discharge from the canal to the river, approximately 20 MGD is condensor cooling water, 1.9 MGD is wet scrubber discharge, and 0.1 MGD is fly ash and bottom ash sluice water (R. at 30-1).

Pursuant to an NPDES permit initially issued in 1977, WIPCO has been able to monitor effluent pH at the juncture of the canal with the Illinois River, rather than at the point where the ash pond discharges into the canal. A practical aspect of this feature of the permit is that it allows for the ash pond discharge to mix with and be neutralized by the condensor cooling water. A further practical aspect is that the large volumes of the condensor cooling water cause the discharge from the canal into the Illinois River to have a pH within the 6.0 to 9.0 range (Ex. 9 and 10) required by regulation without the necessity of WIPCO providing any treatment to the ash pond discharges other than as provided by the mixing.

On November 27, 1979, WIPCO submitted an application for renewal of its NPDES permit, which was to expire on June 25, 1980 (R. at 23). A final NPDES permit was issued on September 30, 1985, the provisions of which do not allow Petitioner to continue monitoring pH after mixing of the ash pond effluent and the condensor cooling water in the canal. Rather, the new permit requires that the pH of the ash pond discharge be between 6.0 and 9.0 without allowance for mixing (Id). The Agency decision to alter the permit is based on the contention that the federal regulations were amended in 1982 in such a manner as to no longer allow the type the mixing which is the subject of the instant matter. This permit is currently on appeal before the Board in the PCB 85-164 proceeding.

ENVIRONMENTAL IMPACT

It is the Agency's belief that the commingling of the ash pond effluent and the condensor cooling water would result in total suspended solids ("TSS") far in excess of the 30 mg/l limitation contained in 35 Ill. Adm. Code 304.124(a). The Agency states that the highly acidic wet scrubber waste stream has lowered the pH of the ash pond to approximately 2.7, resulting in an increase in dissolved solids and in the solubility of metals, and that during commingling with once-through cooling water, the effluent is neutralized and it is expected that metals would precipitate in the cooling water canal. The Board notes that there is sufficient evidence in the record to indicate that such precipitation is indeed occurring (see Attachment 5 to Reply; also see Rec. at 4-7). In fact, there is testimony that the precipitate produced by the mixing of the ash pond effluent and the once-through cooling water in the canal would not result in the accumulation of the precipitate in the canal, but rather the precipitate would be discharged into the Illinois River (R. 93, 122-124).

The Agency contends and the Board agrees that the amount of metals involved here cannot be determined due to the limited sampling data compiled by WIPCO. Data concerning iron, arsenic and mercury were obtained by sampling conducted in 1976, and there were no subsequent samples taken until 1985. The 1985 study revealed a high reading for total iron and a low reading for arsenic, with no reading for mercury (Ex. 6). The Agency brief states:

> There is a total lack of evidence as to the precipitation of solids, and especially metals, in the cooling water discharge canal as a result of the pH adjustment. No testing has been done to determine how much dissolved solids are being converted to a suspended state in the canal. There is no estimation as to the effect upon the Illinois River of these increased loadings. (Rec. at 7)

WIPCO contends that the Agency cannot now claim the lack of available data in support of its recommendation for denial of WIPCO's site specific exception, because the Agency has previously accepted this data and did not request additional sampling analysis with WIPCO's monthly or quarterly discharge reports from 1977 to 1980. The Board believes that irrespective of past Agency action, the fact remains that there is insufficient data in support of WIPCO's request. WIPCO has also not shown the extent of the prospective environmental impact of the proposed rule. No evidence was presented as to the nature of existing aquatic life in the canal or the effect of the discharges on the aquatic life in the canal or in the Illinois River. The proposition of presenting such evidence was discussed

at hearing and WIPCO has not adequately addressed the matter through the presentation of additional evidence at hearing or in either of its briefs. WIPCO simply states that the Board should consider the criteria set forth in Section 27 of the Environmental Protection Act, i.e., the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the receiving body of water, and the technical feasibility and economic reasonableness of reducing the particular type of pollution. The Board believes that even considering these criteria the record does not support WIPCO's request for relief, because information falling under the criteria of the existing physical conditions, the character of the area involved, and the nature of the receiving body of water, is incomplete.

COMPATABILITY WITH FEDERAL LAW

One of WIPCO's major contentions in support of the relief it requests is that federal law allows for the pH monitoring of low volume waste sources[2] to occur after those sources are commingled with condensor cooling water, as long as such mixing takes place prior to discharge to waters of the U.S. Support for this interpretation of existing, applicable federal law comes from a February 24, 1986, United States Environmental Protection Agency ("USEPA") internal letter[3] written in response to a request from the State of New York for clarification of whether 40 CFR 423 requires pH limitations to be applied to a low volume waste stream prior to combination with condensor cooling water. The author of the letter, a USEPA employee whose job title is "National Expert, Steam Electric/Water", wrote that:

> It has always been my understanding that where low volume wastes from a steam electric power plant are commingled with once through cooling water prior to

[2] "Low volume waste sources" are defined at 40 CFR 423.11(b) as including wastewaters from wet scrubber air pollution control systems, ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems. Since the volume of effluent from WIPCO's wet scrubber to the ash pond equals approximately 1.9 mgd out of the approximately 2.0 mgd which flows to the pond daily, approximately 95% of the flow to the pond can be characterized as being from a low volume waste source.

[3] The letter is Attachment 5 to WIPCO's Brief of April 29, 1986.

discharge to waters of the U.S., pH limitations for the commingled stream are applicable at the combined discharge point to waters of the U.S. Limitations for other pollutants, however, are applicable prior to combination.

* * * * *

The Agency has always opposed the use of dilution as a substitute for treatment. In the case of pH, however, combination of low volume wastes with once through cooling water (another plant waste) produces chemical neutralization, utilizing ambient intake water chemicals instead of added chemicals. However, we will not condone situations where ambient water is pumped expressly for the purpose of neutralization.

On a case-by-case basis, other factors might allow/require that limitations be applied at a point prior to combination. Some of these include:

1. Combination of specific low volume wastes with once through cooling water which could be anticipated to produce additional total suspended solids, due to the resulting neutralization, and which would exceed the amount allowed for the low volume wastes.

2. Failure to neutralize and settle the low volume waste prior to combination would result in unacceptable quantities of heavy metals or other toxic pollutants being released.

3. Requirements of 316(b) which might limit the amount of cooling water used.

As is clear from the above excerpt, USEPA interprets 40 CFR 423 to in theory allow the commingling of condensor cooling water and low volume waste sources for the purpose of improving the pH level of the latter, so long as such commingling occurs prior to discharge to waters of the U.S. Thus, a question which is critical to the analysis at hand is whether or not the canal is by definition a water of the U.S. The Board believes the answer is in the affirmative.

"Waters of the U.S." are defined at 40 CFR 122.2 as:

a. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and a flow of the tide;

b. All interstate waters, including interstate "wetlands;"

c. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

   1. Which are or could be used by interstate or foreign travelers for recreational or other purposes;

   2. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

   3. Which are used or could be used for industrial purposes by industries in interstate commerce;

d. All impoundments of waters otherwise defined as waters of the United States under this definition;

e. Tributaries of waters identified in paragraphs (a) through (d) of this definition;

f. The territorial sea; and

g. "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. [See Note 1 of this section.]

* * * * *

NOTE: At 45 FR 48620, July 21, 1980, the Environmental Protection Agency suspended until further notice in §122.2, the last sentence, beginning "This exclusion applies ..." in the definition of "Waters of the United States." This revision continues that suspension.[1]

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[1] Editorial Note: The words "This revision" refer to the document published at 48 FR 14153, Apr. 1, 1963.

WIPCO's condensor cooling water canal would seemingly come under the definition of waters of the U.S. pursuant to sections 122.2(a) and (e) of the definition above, which specify that tributaries of waters used for interstate commerce are waters of the U.S. The Illinois River is used extensively for interstate commerce, and the condensor cooling water canal is tributary to the Illinois River. Indeed, given the enormous breath of the definition of the waters of the U.S., there are several other provisions of the definition, as for example section 122.2(c)(2), which would also seemingly cause classification of the condensor cooling water canal as a water of the U.S.

It can be argued that the condensor cooling water canal is covered by the exception specified for waste treatment systems. The Board believes that it is not. WIPCO's canal was not originally designed to serve as a waste treatment facility. Rather, it was designed to convey the condensor cooling water back to its source, the Illinois River. In fact, WIPCO never designated the canal as a waste treatment facility and never sought to obtain permits or take further action that would support the view of the canal as a treatment works.

The Board notes that even if the canal were not viewed as a water of the U.S., the relief requested by WIPCO could not be appropriately granted, and that WIPCO cannot rely upon the USEPA guidance found in the February 24, 1986 letter to support its request for relief. As quoted above, the letter notes certain mitigating factors to be considered which would not allow commingling of a low volume waste stream with once-through cooling water, if such action could be anticipated to result in release of total suspended solids in excess of allowable limits, or unacceptable quantities of heavy metals and other toxic pollutants. WIPCO has not persuasively shown, through presentation of adequate monitoring data, that water quality standards violations will not occur in the canal as a result of the precipitation of metals and solids after commingling. The mitigating factors noted in the letter would therefore weigh against the allowance of commingling for WIPCO's operation.

For the reasons stated in this Opinion, the Board denies the request made by WIPCO for site-specific amendment of water pollution regulations.

ORDER

The regulatory amendment requested by petition filed by Western Illinois Power Cooperative, Inc. on October 24, 1985, is denied.

Section 41 of the Illinois Environmental Protection Act, Ill. Rev. Stat. ch. 111 1/2 Par. 1041, provides for appeal of final orders of the Board in thirty-five (35) days. The Rules of the Supreme Court of Illinois establish filing requirements.

IT IS SO ORDERED.

Board Members Jacob D. Dumelle and J. Theodore Meyer concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Order was adopted on the 15th day of October, 1937, by a vote of 6-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board