

ILLINOIS POLLUTION CONTROL BOARD
April 18, 1974

ILLINOIS POWER COMPANY)
(Wood River Station))
PETITIONER)
)
)
v.) PCB 74-9
)
)
ENVIRONMENTAL PROTECTION AGENCY)
RESPONDENT)
)

SHELDON A. ZABEL, ATTORNEY, of SCHIFF, HARDIN & WAITE, in behalf of
ILLINOIS POWER COMPANY
JOHN R. REIN, ATTORNEY, in behalf of the ENVIRONMENTAL PROTECTION
AGENCY

OPINION AND ORDER OF THE BOARD (by Mr. Marder)

This case comes to the Board on petition of Illinois Power Company, filed January 4, 1974. The petition requests variance from Rule 203 (f) of Chapter 3, Water Pollution Regulations, as it applies to boron; Rule 408, as it pertains to suspended solids; and from that part of Rule 1002 which requires submission of a project completion schedule, indicating compliance by applicable deadline dates.

On January 10th the Board entered an Order requesting more information as to the flow or water quality data for the ash lagoon effluents. Also, more information as to the environmental impact of the suspended solids and boron on the affected water was requested.

Petitioner filed Amendment #1 to its petition on February 13, 1974, supplying the required data.

On March 1, 1974, the Environmental Protection Agency filed its recommendation with the Board. Such recommendation was for a grant of the variance, subject to conditions discussed below.

Hearing was held in East Alton, Illinois, on March 1, 1974.

The Wood River station consists of five steam electric generating units. Units 1 through 3 were converted to oil firing in 1974 and have a combined capacity of 155 MW. Unit #4 is coal-fired and has a

capacity of 103 MW. Unit #5 is also coal-fired and has a capacity of 400 MW (R. 9). The flow to the ash lagoon when the plant is running at full capacity is 3.7 mgd (R. 10).

This case involves the effluent from an ash retention lagoon associated with Petitioner's Wood River station. Units 4 and 5 of the power station are coal burning. Ash, which is a residue of the combusted coal, is sluiced from these units to a lagoon where the water is retained for a period of time to allow suspended solids to settle out of the water. Rule 408 allows a maximum of 15 mg/l suspended solids in the effluent. A 1973 analysis conducted by Petitioner showed a 24 hr. average effluent of 30 mg/l (Petition P. 3). On August 2, 1973, Petitioner was granted a construction permit, 1973-EA-1649, for the extension of the present ash lagoon. By extension of the ash lagoon, retention time of the effluent will be increased. Petitioner alleges (Petition P. 3), and the Agency concurs (Agency Rec. P. 4), that this will bring the suspended solids in the effluent from the ash lagoon into compliance with Rule 408.

The reason completion of the ash lagoon project has not come sooner is because of exceptionally heavy rain in the Wood River area during the late summer and early fall of 1973 (Agency Rec. P. 3, R. 12).

At the present time Units 1 through 3 do not constitute a problem in regard to suspended solids or boron, because they are oil-fired and create very little ash. Unit #4 will not be in operation until mid-May of 1974 (R. 14). Unit #5 should have come on stream in mid-March, 1974 (R. 14). Petitioner requests variance from Rule 408 until May 30, 1974, when it anticipates the ash lagoon project will be completed.

On P. 4 of the Agency Recommendation, there is a statement as to the good faith and intent for compliance of Petitioner, and a recommendation that variance from Rule 408 be granted until May 30, 1974, subject to certain conditions.

Petitioner also requests variance from Rule 203 (f) as it applies to boron until December 31, 1974. This variance petition anticipates extension until June 1, 1975. The standard for boron is 1.0 mg/l. Petitioner alleges that effluent from the ash lagoon going to an unnamed tributary of Wood River Creek, which is a tributary to the Mississippi River, ranges from 4.0 to 16.0 ppm, with a 24-hr. average of 4.34 ppm (Petition P. 5). It is alleged by Petitioner that there is no practical method for boron removal from industrial wastes (R. 27, Petition P. 7). The Agency concurs with this statement (Agency Rec. P. 6).

Petitioner considered three methods to handle their boron problem. The first was to pump their effluent directly to the Mississippi River where there is no applicable standard for boron. Petitioner considered this expensive and a burden upon their customers, who would ultimately have to pay the bill. This plan would cost more than \$400,000, and probably take longer than 18 months (R. 17). The second approach that

Petitioner considered was a variance from the boron requirement that did not consider boron removal but would be just a straight suspended solids variance. Petitioner did not consider this approach to be in the public interest. The third approach, the one taken by Petitioner, is to enter into a research program to develop a method of practically removing boron from the ash lagoon effluent. Petitioner suggests a fourth alternative, which it rejected. That alternative was to either operate its plant in violation or shut down its plant.

Boron is contained in the ash that is sluiced to the ash retention lagoon. The problem of suspended solids and boron interacts at this point, because the longer the boron ash remains in the lagoon, the more boron leaches from the ash.

Petitioner has now entered into an agreement with Southern Illinois University to conduct research in developing a practical method for removing boron from the ash lagoon effluent. Dr. Charles Schmulbach with the Department of Chemistry and Biochemistry at Southern Illinois University testified as to this research program. He testified that at this time there are two possible methods in existence for boron removal. The first is distillation. This method is discounted, because of high energy and cost that it would entail. The second method is anionic exchange, where water would be percolated over an ion exchange resin. The cost of this would be approximately three cents per thousand gallons. One of the problems that this method would create is the regeneration of the resin, which entails taking the boron off of the resin with sulphuric acid. This method would necessitate a method of disposing of the boron-laden sulphuric acid (R. 36).

The research to be conducted at Southern Illinois will follow two approaches. The first approach will be to fire the ash with lime, or calcium oxide, in the hopes of converting this to calcium metaborate, which then will dissolve very slowly. The second method is an attempt to agglomerate the fly ash into larger granules, so that there will not be as great a surface area exposed, thereby slowing hydrolyzation (R. 31). Dr. Schmulbach considers the chances for success most promising (R. 32). It is Petitioner's intent that upon completion of this basic research a pilot plant will be built at the Wood River facility (Petition P. 8).

The Agency agrees that research in this area would be most valuable (Agency Rec. P. 6). The Board also looks with favor upon a Corporation that is willing to do basic research in a field and has allowed such a program to be used as a variance compliance plan (Union Oil Co. of California v. Environmental Protection Agency, PCB 72-447, Dec. 6, 1973).

Petitioner alleges that its Wood River plant is its second largest station and is necessary to maintain an adequate supply of power to its customers; and that if it were not granted a variance it would be forced to shut down its plant or in the alternative to operate in violation of the regulations. A variance is only a shield from prosecution, and failure to give it is not a shutdown order. In this case, Petitioner's good faith effort to comply, along with its research program, in-

icates to the Board that Petitioner is deserving of a variance, and that any delay in compliance was not self-imposed.

It is alleged by Petitioner, and the Agency concurs, that there will be minimal environmental impact by the granting of this variance. Both the Agency and the Petitioner indicate that the water from the unnamed tributary and from Wood River Creek is not used by a public water supply or for farm irrigation, and thus is nothing more than a conduit to the Mississippi River. It is alleged that since the flow would meet the standards for the Mississippi River that there will be no significant impact on the environment and the public (Amended Petition P. 4, Agency Rec. P. 7). Data submitted by the Petitioner on its boron discharge is as follows:

Ash Pond Effluent	Upstream of Petitioner's Discharge	Downstream of Pet. Discharge
4.34 mg/l	2.98 mg/l	3.96 mg/l

(Amended Pet. Ex. 1)

Petitioner also feels that there will be no adverse environmental impact from the suspended solids because the flow will be in violation for only a short period of time (Amended Petition P. 3). Data submitted by Petitioner on its discharge of suspended solids is as follows:

Ash Pond Effluent	Upstream of Petitioner's Discharge	Downstream of Pet. Discharge
27.8 mg/l	1259 mg/l	295.0 mg/l

(Amended Pet. Ex. 1)

The Board will grant Illinois Power a variance from Rule 408 until May 30, 1974, and from Rule 203 (f) until December 31, 1974.

This Opinion constitutes the findings of fact and conclusions of law of the Board.

ORDER

IT IS THE ORDER of the Pollution Control Board that:

1. Petitioner is granted variance from Rule 408 of Chapter 3 as it pertains to suspended solids until May 30, 1974, upon condition that Petitioner's discharge shall not exceed 30 mg/l suspended solids in any 24-hr. composite sample.
2. Petitioner is granted variance from Rule 1002 (Project Completion Schedule). Petitioner shall file a project comple-

tion schedule showing compliance with Rule 408 as applied to suspended solids by May 30, 1974, and this schedule shall be filed within 30 days from the entry of this Order with the Agency.

3. Petitioner is granted variance from Rule 203 (f) of Chapter 3 (as it pertains to boron) until December 31, 1974, subject to the following conditions:
 - a) Petitioner's discharges shall not exceed 16 mg/l boron in any 24-hr. composite sample.
 - b) Petitioner shall submit quarterly reports to the Agency beginning July 1, 1974. Such reports shall contain information relating to all progress or lack of progress in research conducted by Southern Illinois University relating to the removal of boron from ash lagoon effluent.
 - c) Petitioner shall submit with any request for an extension of variance an engineering feasibility report on the diversion of the ash lagoon waste to the Mississippi River.
 - d) Petitioner shall submit comments on the feasibility of its boron removal as per its research program with any request for an extension of this variance.

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, certify that the above Opinion and Order was adopted by the Board on the 18th day of April, 1974, by a vote of 5 to 0.

Christan L. Moffett