ILLINOIS POLLUTION CONTROL BOARD
February 19, 1981

CENTRAL ILLINOIS LIGHT COMPANY (R.S. WALLACE STATION), Petitioner,	)	
v.	)	PCB 80-89
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, Respondent.	)	

MR. WILLIAM B. WOMBACHER APPEARED ON BEHALF OF THE PETITIONER.
MS. MARY V. REHMANN APPEARED ON BEHALF OF THE RESPONDENT.

OPINION AND ORDER OF THE BOARD (by J.D. Dumelle):

Central Illinois Light Company (CILCO) filed a petition with the Board on April 24, 1980, requesting a determination, pursuant to Rule 203(i)(5) of Chapter 3: Water Pollution, that the thermal discharge from its R.S. Wallace Station has not caused, and cannot reasonably be expected to cause significant ecological damage to the Illinois River. Technical reports supporting the petition were submitted to the Illinois Environmental Protection Agency (Agency) shortly thereafter. Hearings were held on August 12, and September 29, 1980. No members of the public were present.

Part VI of Chapter 1: Procedural Rules, sets out the requirements for this proceeding. Exhibit B contains the information required by Procedural Rule 602. Based upon that exhibit and the evidence produced at hearing, the Agency filed a recommendation on November 17, 1980, finding that CILCO has made the necessary demonstration.

The Board notes that pursuant to Rule 203(i)(5), the owner or operator of an existing source of heated effluent which discharges more than 0.5 billion British thermal units per hour must demonstrate in a hearing before the Board not less than 5 nor more than 6 years after the effective date of the regulation (1972) that the discharges have not caused and cannot reasonably be expected to cause significant ecological damage to the receiving waters.

The hearings in this case should, therefore, have been held in 1977 or 1978. However, given the complexity of the studies involved and the lack of any allegations of bad faith or dilatory practices, the Board waives that defect.

CILCO owns and operates the R.S. Wallace Station which is a coal-fired, steam turbine electrical generating facility consisting of 7 units located on the west bank of the Illinois River at river mile 162.5, at East Peoria, Illinois. Net generating capacity of the units is 359.3 megawatts (MW). Water from the Illinois River is used as the coolant in the double pass, open-system condensers. During the period of study (1975-1976) the station operated at an average of 24.5% of gross capacity. At no time during the study period was the entire station shut down. The mean daily generation ranged from 3.8 to 44.1% of capacity. Units 1 and 2 (38 MW total capacity) were retired in 1976. The other units are projected to be retired by 1989.

The station intake volume ranged from 72.4 to 438.3 cubic feet per second (cfs) and intake utilization ranged from 0.3 to 10.7% of the Illinois River discharge. Plant discharge temperature ranged from 9.0 to 32.5° C and exceeded the ambient river temperature by as much as 8.8° C.

The thermal plume caused by the discharge of the R.S. Wallace Station ($\Delta T \geq 5°F$, 2.8°C) had a minimum surface area of 0.1 acres and a maximum of 3.3 acres measured on the eight test dates. The maximum cross sectional area of the plume was 10.8% of the river (which occurred at the lowest measured river flow). The plume was detectable a maximum of 600 feet downstream from the point of thermal discharge during the winter studies and 450 feet or less for all other measurements during the study.

Under Rule 201 of Chapter 3: Water Pollution, the permissible size of the mixing zone is to be determined on a case-by-case basis, but shall not exceed an area of 26 acres nor comprise more than 25% of the river cross sectional area. These maximums were never exceeded during the field surveys, nor is it anticipated that they would be exceeded under worst case conditions.

Studies of phytoplankton, zooplankton, macroinvertebrates, mussels, and fish showed little or no effect upon these biota caused by the heated effluent discharge of the R.S. Wallace station. Because the plume occupies only a portion of the river's cross-section an adequate zone of passage exists for fish species moving up or downstream. A possibility of "cold shock" effects exists, but the small plume area and multiple unit design of the station (which makes total station shutdown unlikely) would minimize these effects.

The Agency has not questioned any of these findings and has recommended that no further conditions be imposed on the operation of the plant. The Board agrees.

This Opinion constitutes the Board's findings of fact and conclusion of law in this matter.

ORDER

Central Illinois Light Company has demonstrated that the thermal discharge from its R.S. Wallace Station has not caused and cannot reasonably be expected to cause significant ecological damage to the Illinois River.

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 19th day of February, 1981 by a vote of 5-0.

Christan L. Moffett, Clerk
Illinois Pollution Control Board