

ILLINOIS POLLUTION CONTROL BOARD  
December 14, 1978

IN THE MATTER OF: )  
 )  
PROPOSED DETERMINATION OF )  
NO SIGNIFICANT DAMAGE FOR ) PCB 78-61  
THE QUAD CITIES GENERATING )  
STATION OF COMMONWEALTH EDISON CO. )

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

On March 8, 1978 Commonwealth Edison Company (Edison) requested a determination, pursuant to Rule 203(i)(5) of Chapter 3 of the Board's Rules and Regulations, that discharges from the Quad Cities Generating Station (Quad Cities) have not caused and cannot be reasonably expected to cause significant ecological damage to the Mississippi River. A hearing was held on July 19, 1978 at the Board's Chicago office. No members of the public were present. Additional material was filed by the Petitioner on September 29, 1978 following an Interim Order by the Board of September 7, 1978.

Quad Cities is a nuclear fueled steam electric generating plant located at Cordova, Illinois on the Mississippi River. The plant consists of 2 reactors with a net generating capacity of 809 megawatts each. Since October, 1975 a closed cycle cooling system has been employed most of the time. This system includes a spray canal which is fixed with floating spray modules. An open cycle (once-through) system is used during periods of high demand or when local fogging may occur. During 1972-1976 generating capacity ranged from 37.0% to 59.5%. Future capacity is expected to range from 60% to 65%. Both units might be retired in 2007 with no plans at this time for additional units. Shut-downs longer than one month are usually due to refueling or scheduled maintenance. Shorter periods are due to equipment malfunctions. Forced outages are expected to occur 10% of the time in the future with no scheduled periods of complete plant shutdown.

When the closed cycle cooling system is used, effluent from the condensers is cooled in a canal. The canal is 14,000 feet long, 185 feet wide and 9 feet deep. Three hundred spray modules are located in the canal. After recirculation, blowdown water is discharged through a one thousand foot 4 foot diameter diffuser pipe in the Mississippi River. Two larger diffusers 16 feet in diameter are used during emergencies.

During periods of open cycle cooling and full plant operation, 12 billion BTU's/hr. are discharged. Under these conditions,

a 5° F. temperature rise above ambient is limited to a 500 foot, 25 acre area for all river flows. The only recorded violations of the Board's thermal standards occurred when a side jet discharge was used in 1973 and during September, 1976 when river flows were less than the 7 day, 10 year low flow. A safe zone of passage exceeding 75% of the total river is expected to occur during all flows in excess of 15,300 cfs.

Biological studies conducted since 1968 have shown that Quad Cities has had no significant effect on the water quality or the aquatic species in the Mississippi River. The only time that periphyton were adversely affected was during the operation of the side jet discharge which is no longer in use. There have been no adverse effects observed on other animal life or recreation.

Based on the information submitted in this record, the Board concludes that Edison has demonstrated that the discharges from Quad Cities have not caused and cannot reasonably be expected to cause significant ecological damage to the Mississippi River.

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

ORDER

It is the Order of the Pollution Control Board that Commonwealth Edison Company has demonstrated that the discharges from the Quad Cities Generating Station have not caused and cannot be reasonably expected to cause significant ecological damage to the Mississippi River.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above opinion and Order were adopted on the 14<sup>th</sup> day of November, 1978 by a vote of 3-0.

Christan L. Moffett  
Christan L. Moffett Clerk  
Illinois Pollution Control Board