ILLINOIS POLLUTION CONTROL BOARD
July 9, 1981

IN THE MATTER OF:	)	
	)	
410(c) PETITION FOR DRESDEN NUCLEAR GENERATING STATION	)	PCB 79-134

MS. SUSAN D. PROCTOR OF ISHAM, LINCOLN AND BEALE APPEARED ON BEHALF OF PETITIONER.
MS. MARY V. REHMAN APPEARED ON BEHALF OF RESPONDENT.

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

This case is before the Board pursuant to Rule 410(c) of Chapter 3: Water Pollution. In its petition of June 29, 1979 and its amended petition of December 30, 1980 Commonwealth Edison requests that the Board allow the following thermal standard to apply to Edison's Dresden nuclear power plant:

> During the period June 15 through September 30, the temperature of the plant discharges shall not exceed 32.2°C (90°F) more than 10% of the time in the period and never will exceed 33.9°C (93°F).

Such operation would result in periodic violations of Rule 203(i)(3) and (4) of Chapter 3 which allows an excursion above 32.2° (90°F) as measured at the boundary of a 26-acre mixing zone for 1% of the hours in any 12 month period. The proposed amendment does not include a mixing zone, but allows the 32.2°C (90°F) standard to be exceeded approximate 3% of the hours during any 12 month period.

Hearing was held on May 5, 1981. Several witnesses testified on behalf of Edison, but no witnesses testified on behalf of the Illinois Environmental Protection Agency (Agency) nor was any evidence introduced. No members of the public were present.

On May 26, 1981 the Agency filed a recommendation that the proposed alternate thermal standard be allowed for one year subject to certain conditions. These conditions would require various studies to be performed such that the Agency could better determine whether a permanent alternate standard is warranted. The Agency also stated that the U.S. Environmental Protection Agency (USEPA), which must also accept any alternative standard pursuant to Section 316(a) of the Clean Water Act (CWA) would not object to the Agency's recommended procedure.

On June 5, 1981 Edison responded to the Agency's recommendation by strongly maintaining that the proposed standard should be made permanent rather than temporary.

Dresden Station is a nuclear powered steam electric generating facility that utilizes three boiling water reactors. Condenser cooling water for all three units is withdrawn from the Kankakee and Des Plaines Rivers and ultimately discharged to the Illinois River, which is formed by the confluence of the Kankakee and Des Plaines Rivers.

Unit 1, which has a generating capacity of 207 megawatts electric power (MWe) began chemical cleaning decontamination on October 31, 1978 and is anticipated to be restarted no sooner than June of 1986. Units 2 and 3 each have a net generating capacity of 794 MWe and began operating on August 11, 1970 and October 30, 1971, respectively. Each uses a heat dissipation system consisting of a cooling pond, spray modules and cooling canals. The cooling systems can be used for three modes of operation: direct open cycle, indirect open cycle and closed cycle (see pp. 16-20 of "316(a)-410(c) Demonstration for the Dresden Nuclear Generating Station," hereinafter "Demonstration Document").

Until September 3, 1971, Unit 2 was operated in an indirect open cycle mode for cooling purposes. Before Unit 3 began commercial operation it was periodically operated in that mode until the cooling pond was opened on September 3, 1971. Under such operation water withdrawn from the Kankakee and Des Plaines Rivers is circulated through the condensers and discharged directly to the Illinois River (Dem. Doc. pp. 18-19).

From September 3, 1971 until October of 1974, Units 2 and 3 were operated in an indirect open cycle mode which routes the water through a two mile long spray canal containing floating spray modules and into a 1,275 acre cooling pond which retains the water for 2.8 days prior to discharge to the Illinois River (Dem. Doc. pp. 18-19).

After October of 1974, both units were primarily operated in a closed cycle mode. In this mode condenser water is recirculated after passage through the spray canals and cooling pond, with a small portion blowndown to the Illinois River (Dem. Doc. pp. 18-19).

Under the proposed standard Dresden Station would be operated in the indirect open cycle mode from June 15 through September 30 and under current NPDES permit conditions during the remainder of the year. As such it would violate 42CFR423.13(l) and (m) which requires an essentially closed-cycle cooling system by July 1, 1981. However, under Section 316 of the CWA a point source is entitled to an alternate standard if "shellfish, fish, and wildlife" are sufficiently protected. A similar showing can be made for exemption from Rule 410(c) of Chapter 3.

Edison believes that testimony and the Demonstration Document support a finding that the alternate stanard would result in overall environmental benefits. Consultants to the study testified that:

1. Indirect open cycle operation benefits water quality in the Illinois River by reducing BOD_5 most of the time, reducing ammonia levels, adding dissolved oxygen and by reducing coliform bacteria and toxic, heavy metals (Drs. Ewing and Brill at p. 1);

2. All of the possible operation modes would have a negligibly small impact on phytoplankton, periphyton and zooplankton populations (Verduin at pp. 1,2,6, 9-11);

3. Species composition of macroinvertebrates will remain essentially unchanged though there may be some slight increase in tubificids and possibly chironids (Lauer at pp. 1-2);

4. The expected thermal impact on fish would be considerably reduced under indirect open cycle versus the direct closed cycle mode of operation. No thermal mortality should result and behavioral avoidance of thermally sensitive species should lead those fish to the environmentally acceptable waters of the nearby Kankakee River. Finally, the thermal plume is expected to spread over the surface during summer low-flow periods such that cool, bottom waters should prevail (Dr. Gammon at pp. 6-8), and

5. The indirect open cycle mode would be beneficial to the fish community of the cooling pond, might make it acceptable as a fish nursery and thereby benefit the fish communities of the Kankakee, Des Plaines and Illinois Rivers.

Against this testimony is the Agency's opinion that more studies are necessary. No counter testimony was presented nor was any reason given for disputing the accuracy of the testimony, except that the lack of prior appreciable harm was based on information from September of 1971 until October of 1974 during which times Units 2 and 3 were operated in the indirect open cycle mode.

However, the testimony indicates that the conclusions reached were based not only on data from that time period, but also on data developed and analyzed between 1974 and the date of the completion of the Demonstration Document.

The Board finds that the evidence submitted indicates that the environmental impact of the proposed alternate standard on the Illinois River is at worst minimal and may, in fact, be beneficial. Therefore, the Board grants Edison's request for the alternate standard.

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* Testimony at hearing was largely presented in document form as exhibits. These will be referred to by the name of the authors and page numbers.

However, the Board further finds that an updated study of the actual impact of such operation is preferable to studies which are up to ten years old or projections based on modeling of a flow situation as complex as that affected by the Dresden Station. Therefore, and since Edison has agreed, the Board will follow the recommendation of the Agency to the extent of requiring that Edison conduct monitoring studies during the summer of 1981.

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

ORDER

Pursuant to Rule 410(c) of Chapter 3: Water Pollution, it is hereby ordered that the Dresden Nuclear Generating Station shall be operated in accordance with the following limitation in lieu of Rules 203(i)(3) and (4) of Chapter 3:

During the period June 15 through September 30, the temperature of the plant discharges shall not exceed 32.2°C (90°F) more than 10% of the time in the period and never will exceed 33.9°C (93°F).

It is further ordered that:

1. At all times other than those indicated above the Dresden Station shall be operated in accordance with Rule 203(i)(3) and (4) of Chapter 3: Water Pollution.

2. Commonwealth Edison shall conduct monitoring studies in conformity with Edison's two documents submitted to the Agency on May 23, 1980 entitled "Proposed Hydrothermal Study Plan for Summer 1980" and "Proposed 1980 Environmental Program" as modified by Agency suggestions as set forth in its Recommendation submitted on May 26, 1981.

3. The Illinois Environmental Protection Agency shall modify Commonwealth Edison's NPDES permit for the Dresden Station in a manner consistent with this Opinion and Order.

IT IS SO ORDERED.

Mr. Anderson abstained.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 1st day of June, 1981 by a vote of 4-1.

Christan L. Moffett, Clerk
Illinois Pollution Control Board