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January 10, 1983

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Dresden Station Units 2 and 3
Environmental Review for License
Conversion
NRC Docket Nos. 50-237 and 50-249

Reference (a): D. M. Crutchfield letter to L. DelGeorge
dated November 5, 1982.

Dear Mr. Denton:

In response to the Reference (a) request, Commonwealth Edison has reviewed the November 1973 Final Environmental Statement (FES). As detailed in the enclosure to this letter, we have not identified changes to Dresden Units 2 and 3 or the environs that would significantly affect the conclusions reached in the FES.

Please direct any questions you may have concerning this matter to this office.

One (1) signed original and forty (40) copies of this transmittal are provided for your use.

Very truly yours,

Thomas J. Rausch
Nuclear Licensing Administrator

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Enclosure

cc: Region III Inspector - Dresden

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ENCLOSURE

Environmental Review, Dresden Unit 2 Operating License

In support of the request to convert the Provisional Operating License for Unit 2 at Dresden Station to a Full Term Operating License the Final Environmental Statement (FES) dated November, 1973, has been reviewed for significant changes to Unit 2 and the environs that may affect the findings included in the FES.

There have been no changes to the Dresden Units 2 or 3 or ancillary station facilities that would cause any significant increase in environmental impacts from those discussed in the FES. Changes have been made which reduce or mitigate environmental impacts. One of the changes is the treatment of the water from station floor drains (non-rad) and cribhouse sumps as well as the water from the station roof drains which reduces the quantities of suspended solids and oil and grease discharged from the station property. Fog fences, a lighted covered bridge, and fog warning lights on the public roads around the cooling lake have been added to assure traffic safety. New high density racks for added fuel storage capacity have been analyzed and found not to adversely affect the environment. In the local area, the Goose Lake School, on the south side of Lorenzo Road, has been closed and the building is now being used for commercial purposes.

Among the subjects reviewed herein are the changes in the operation of the cooling lake and the changes in population in the 0-5 mile area surrounding the station.

Several of the conclusions in the FES dealt with operating the station in a manner that would not degrade the surface waters of Illinois by wastewater discharge, thermal discharge or intake effects. The permitting responsibility for water quality standards now lies with the Illinois Environmental Protection Agency (IEPA) and the Illinois Pollution Control Board (IPCB). The IPCB has granted an alternate effluent limitation standard for Dresden Station. Coupled with this, the IEPA issued a revised permit which requires the station to operate in closed cycle mode for 8.5 months of the year and allows indirect open cycle operation of the system during the summer months (from mid-June through September). In the indirect open cycle mode, the cooling water is withdrawn from the Kankakee and Des Plaines Rivers, circulated through the Units 2/3 condensers and discharged into a two-mile long spray canal from which it is pumped into the cooling pond. After circulation through the cooling pond, the water is discharged via a spillway into another two-mile long spray canal and is then discharged to the Illinois River. The granting of this alternate operational mode and accompanying standard, which is supported by the results of biological and thermal studies, has resulted in more efficient operation of Units 2 and 3 and is believed to improve water quality downstream of the station as well as improving the fishery in the Illinois River. The station cooling system operation and wastewater discharges are covered by NPDES Permit Number IL 0002224.

Another change is the increase in population in the local area, 0-5 miles, which has grown at a faster rate than was projected in the FES.

The 1980 population of the area was 10,400 compared to the projected 8,003. This is due in part to faster than anticipated growth of nearby towns and communities along the Kankakee River and the residential developments in the neighboring abandoned strip mined land. The 1980 population per square mile within the 5 mile radius was 132 which is far below the NRC guideline of 500. This change is discussed in detail in the updated FSAR, Section 2.2.2, and in the Systematic Evaluation Program Topic II-1.B for Dresden Unit 2*.

A summary of the current status of the conditions covered by the FES conclusions follows:

- A. In addition to the land purchased and occupied by Dresden 1 (953 acres), approximately 1573 acres of land, formerly agricultural, have been converted to the Units 2 and 3 cooling lake and canals (see Section 4.1).

The site size has remained unchanged.

- B. Approximately four miles of new transmission line rights-of-way were built for Units 2 and 3 involving some 93 acres of land with 0.6 acres removed

* The population projection within the 50 mile radius for 1980 was 8,070,978 which is 28% more than the 1980 census figures which are 6,301,641.

from its original use for tower bases. Although construction of the transmission lines preceded publication of the U.S. Department of Interior "Environmental Criteria for Electric Transmission Systems" 1971, the present condition of the lines is considered environmentally acceptable by the Staff (see Section 4.1).

The transmission lines associated with Units 2 and 3 have not been changed from the description in the FES.

- C. Some fish are impinged on the intake screen. On the basis of the limited data available, significant adverse impact on the fish population of the river as a whole is not expected during closed cycle operation. A program of monitoring the fish kill rate and of determining the local fish population will be required to verify the extent of this impact. If adverse effects are indicated, the applicant shall be required to take corrective action (see Section 5.5.1.b).

As predicted in the FES, fish impingement at the Units 2/3 intake during closed cycle operation has not resulted in a significant adverse impact on the fish population of the river. Fish impingement at the Units 2/3

intake tends to be even lower under the indirect open cycle mode than under the closed cycle mode. This is largely due to the fact that fish that pass over the discharge spillway from the cooling pond are discharged directly to the Illinois River with the cooling water rather than returned to and through the Units 2/3 intake.

- D. Some aquatic organisms entrained in the station's cooling water system will probably be killed due to thermal, chemical and mechanical shock. This loss is not expected to represent a significant fraction of the river's biomass or to affect the productivity of adjacent waters (see Section 5.5.1.a).

Some aquatic organisms entrained in the station's cooling water system under closed, as well as indirect open cycle operation, have been killed due to thermal, chemical and mechanical shock. However, this impact is believed to be minimal and the discharge of aquatic organisms from the cooling pond into the Illinois River during indirect open cycle operation would tend to offset these losses.

- E. Cold kill of fish is not expected due to shutdown of Units 2 and 3 during the winter because of the large heat sink in the cooling lake. Should Unit 1 suddenly shut down, the discharge temperature

drop will be limited by the warm effluent from the cooling lake (see Section 5.5.2.a).

Winter operational conditions are the same as when the FES was prepared (closed cycle mode). Dresden Station has not experienced cold kill of fish from the shutdown of Units 2 and 3 during the winter because of the large heat sink in the cooling pond.

F. The addition of heat to the Illinois River from the Dresden cooling lake blowdown is not expected to adversely affect aquatic life except in the immediate vicinity of the outfall. An adequate zone of passage for fish and planktonic organisms in the Illinois River will be required (see Section 5.5.2.a).

The addition of heat to the Illinois River from the Dresden cooling pond under indirect open cycle operation did not appear to adversely affect the surrounding area. Fisheries studies conducted during 1981 and 1982 demonstrated that large numbers and diverse species of fish were actually attracted to the outfall during indirect open cycle operation. Furthermore, an adequate zone of passage was demonstrated through thermal monitoring conducted during indirect open cycle operation in 1981 and 1982 which indicated that thermal plumes never formed a significant barrier across the river.

- G. Fogging and icing from the Dresden cooling lake are not expected to adversely affect the surrounding area except for an increased hazard on the County Line Road and the Dresden Road. During periods of dangerous icing or fog, corrective action is required to assure traffic safety (see Section 5.1.2).

Fogging and icing has occurred at the predicted locations. A fog fence and a lighted covered bridge were constructed on County Line Road to assure traffic safety. In addition, highway caution signs with flashing lights warning of limited visibility have been erected on the County Line Road and on Cottage Road.

- H. The chemical discharges to the river, including chlorine, will be in very low concentrations and pose no threat to aquatic life (see Section 5.5.5).

The chemical discharges to the river including chlorine have remained at essentially the same low concentrations shown in the FES. As of July 12, 1979, the station has been operating under NPDES Permit No. IL 0002224 and is in compliance with the permit conditions and all related water quality regulations as set forth in Title 35, Subtitle C, Chapter 1 Water Pollution Rules and Regulations of the Illinois Pollution Control Board.

- I. Operation of Units 2 and 3 will result in the production of solid radioactive waste (see Section 5.4.3).

The FES estimate of 5700 curies of solid radioactive waste shipped is accurate. The total number of shipments, however, are over 200 per year rather than the estimated 46 per year in the FES. The disposal area in Western Illinois is closed and the solid wastes are now transported to either South Carolina or Washington.

- J. Use of water by Units 2 and 3 should not measurably reduce supply sources nor impair the quality of return flows for other uses (see Section 5.3).

The use of water by Units 2 and 3 does not measurably reduce water supply sources since water is withdrawn from both the Kankakee and Des Plaines Rivers. Water quality of the cooling water often improves as it circulates through the cooling pond for approximately three days under the indirect open cycle mode. This improvement is especially pronounced under low Kankakee River flows when the majority of the intake water flow consists of poorer quality Des Plaines River water.

- K. The risk associated with accidental radiation exposure is very low (see Section 7).

The risk associated with accidental radiation exposure remains at the very low level shown in the FES.

L. No significant environmental impacts are anticipated from normal operational releases of radioactive materials within 50 miles. The estimated dose to the population within 50 miles from operation of Units 2 and 3 is 160 man-rem/yr, which is less than the normal fluctuation in the 1.1×10^6 man-rem/yr background dose this population would receive (see Section 5.4).

Commonwealth Edison Company has provided an environs radioactivity monitoring program at the Dresden Site since 1958. All data obtained from the monitoring programs indicate the augmented system for processing offgas, that was in the process of being installed at the time of the FES and is discussed in Section 3.5.2, has been effective in reducing Dresden Station's contributions of radioactivity to its environs below the 160 man-rem/yr estimate.

Summary of Benefits

The primary benefit from the continued operation of Unit 2 will be the generation of electricity which would have to be produced by other means if Unit 2 were to be retired. At present, this would mean increased production from higher cost units.

The number of employees at the station has risen from the 150 shown in the FES to the present 605 required for Units 2 and 3, not including the contract security force. The employees and their families are integrated into the existing infrastructures. The estimated payroll for the station employees has risen from the \$1.5 million shown in the FES to approximately \$17.5 million (1982 dollars) annually. In addition to the company employees, the contract security force provides employment opportunities for local residents.

The property taxes for the station have risen from the \$1.3 million annual figure shown in the FES to \$2.2 million for 1981 taxes paid in 1982, all of which goes to local taxing bodies.

The 1983 budget for contract payments, which include refueling, maintenance and waste disposal is estimated to be approximately \$11.5 million. These contracts are based on competitive bids so that no estimate can be made as to the monetary value to the local economy.

Summary of Costs

Continued operation of Unit 2 will extend the use of the 2500 acres of land dedicated to the station and cooling pond. The fogging and icing conditions have been mitigated by use of fog fences, a covered bridge and highway warning signs. Water use effects will be extended, however, no significant impacts have been detected during either closed cycle or modified open cycle operation. Biological effects such as entrainment and

impingement have been monitored and the results show that there have been no permanent impacts. In fact, the operation of the cooling system in the indirect open cycle mode results in improved water quality and a contribution of fish which escape to the Illinois River. Operation of the cooling lake has not resulted in nuisance growths of algae and subsequent control measures have not been required.

Radiological Effects

Operation of Dresden Station will not result in total radioactive effluent releases beyond allowable limits prescribed in Title 10 CFR Parts 20 and 50 and 40 CFR Part 190.

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