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September 29, 1986

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

Subject: Dresden Station Unit 3  
Proposed Amendment to Facility  
Operating License No. DPR-25  
40-Year Operating License  
NRC Docket No. 50-249

- References (a): Provisional Construction Permit No. CPPR-22 for Dresden Unit 3 issued October 14, 1966.
- (b): Dresden Unit 3 Facility Operating License issued January 12, 1971.
- (c): Final Environmental Statement for Dresden Station - November 1973.

Dear Mr. Denton:

Pursuant to 10 CFR 50.90, Commonwealth Edison proposes to amend Facility Operating License DPR-25 for Dresden Unit 3 to allow 40 years of operation from the original date of issuance of DPR-25. The current Unit 3 operating license (reference (b)) expires 40 years from the issuance of the construction permit (reference (a)), allowing for an operating life of thirty-five years and nine months. Thus, an operating life extension of approximately four years and three months will result from this proposal to allow the Dresden Unit 3 Operating License to expire forty-years from its date of issuance. A similar application has previously been submitted for Unit 2 and is therefore not included herein. The proposed Unit 3 amendment is provided in Attachment 1.

Reference (c) was the AEC's Final Environmental Statement related to the operation of Dresden Station. Pages i-iii contained the summary and conclusion of that document with respect to environmental impacts. Attachment 2 contains an update to the summary conclusions of reference (c) and concludes that there are no adverse environmental effects related to Dresden Unit 3's license extension.

In addition, Attachment 3 provides the current population status and projections to the year 2010 along with a summary of environmental benefits and effects of this proposed license extension.

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Attachment 4 provides a discussion of the effect of the license extension on Dresden Unit 3. The conclusion of Attachment 4 is that this proposed amendment is authorized by 10 CFR 50.51 and that the approximately four years and two months of additional operation have been considered in Dresden 3's initial design. In addition, there are numerous pre-established programs and requirements that will continue to assure the safe operation of Dresden Unit 3.

Attachment 5 to this letter is a demonstration that this issue involves no significant hazards consideration. The proposed amendment has received onsite and offsite review and approval.

A \$150.00 fee remittance is enclosed in accordance with 10 CFR 170. As provided by 10 CFR 50.91, the State of Illinois is being notified of this amendment request by transmittal of a copy of this letter and attachments.

If there are any further questions regarding this matter, please contact this office.

Three signed originals and thirty-seven copies of this transmittal and its attachments are being provided for your review.

Very truly yours,

J. R. Wojnarowski  
Nuclear Licensing Administrator

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Attachments

cc: R. A. Gilbert - NRR  
Region III Inspector - Dresden  
M. C. Parker - State of IL

SUBSCRIBED AND SWORN to  
before me this 29th day  
of September, 1986

ATTACHMENT 1

PROPOSED DRESDEN UNIT 3 LICENSE AMENDMENT

TO

EXTEND EXPIRATION DATE

1. Provisions establishing preventive maintenance and periodic visual inspection requirements, and
2. Leak test requirements for each system at a frequency not to exceed refueling cycle intervals.

Am. 49  
(see 3H)

J. Deleted

K. Iodine Monitoring

The licensee shall implement a program which will ensure the capability to accurately determine the airborne iodine concentration in vital areas under accident conditions. This program shall include the following:

Am. 48  
2/06/81

1. Training of personnel;
2. Procedures for monitoring, and
3. Provisions for maintenance of sampling and analysis equipment.

Am. 87  
7/24/86

L. Deleted

Am. 85  
12/12/85

M. Deleted.

(Renumbered)  
(Per Am. 2)  
(01-26-83)

4. The license is effective as of the date of issuance and shall expire at Midnight January 12, 2011.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by

Peter A. Morris, Director  
Division of Reactor Licensing

Enclosures

Appendix A - Technical Specifications

Date of Issuance, January 12, 1971

## ATTACHMENT 2

### ENVIRONMENTAL STATEMENT REVIEW SUMMARY

In support of the request to extend the duration of Dresden Unit 3's Operating License to forty years, the Final Environmental Statement (FES) dated November, 1973, has been reviewed for significant changes to Dresden Station and the environs that may affect the findings included in the FES.

There have been no changes to the Dresden Units 2 and 3 or ancillary station facilities that would cause any significant increase in environmental impacts from those discussed in the FES. Unit 1 has been retired and changes have been made which reduce or mitigate environmental impacts. One of the changes is in the treatment of the water from station floor drains (non-rad) and cribhouse sumps as well as the water from the station roof drains. This treatment 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, which takes from 2-1/2 to 3-1/2 days depending on pond level and the number of circulating water pumps in operation, 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 as well as station intake operation are covered by NPDES Permit Number IL 0002224.

A summary of the current status of the environmental impacts covered by the FES conclusions (Item 3, page 1 of the FES) follows:

Original 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).

Update: The site size has remained unchanged.

Original 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 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).

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

Original 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).

Update: 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.

Original 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).

Update: Some aquatic organisms entrained in the station's cooling water system under closed cycle, 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.

Original 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).

Update: Unit 1 is now retired but winter operational conditions for Units 2 and 3 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.

Original 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).

Update: The addition of heat to the Illinois River from the Dresden cooling pond under indirect open cycle operation does 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.

Original 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).

Update: 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.

Original 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).

Update: The chemical discharges to the river including chlorine have remained at essentially the same low concentrations shown in the FES. As of September 26, 1974, the station has been operating under NPDES Permit No. IL 0002224 (renewed August 14, 1984) 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.

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

Update: In the FES there is an estimate of 5700 curies of solid radioactive waste per year to be disposed of. From 1970 through 1984, the average yearly amount of solid radwaste disposed of was approximately 3540 curies. In 1985, approximately 66,292 curies were disposed of, 63,200 of which were radioactive reactor components disposed of as part of a station "cleanup" effort. This unusually high amount is not typical as evidenced by the average curies disposed of in previous years. Therefore, it is expected that the amount of solid radioactive waste to be disposed of over the life of Dresden Station will be consistent with the original FES estimates.

The disposal area in Western Illinois is closed and the solid wastes are now transported to either South Carolina or Washington.

Original 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).

Update: 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.

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

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



Original 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  $1.1 \times 10^6$  man-rem/yr background dose this population would receive (see Section 5.4).

Update: 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.

ATTACHMENT 3

SUMMARY OF POPULATION DENSITY

AND BENEFITS/EFFECTS

POPULATION

The changes in population density have been reviewed. The increase in population in the local area, 0-5 miles, has grown at a faster rate than was originally 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\*.

Summary of Benefits

The primary benefit from the continued operation of Unit 3 will be the generation of electricity which would have to be produced by other means if Unit 3 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 690, 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 \$31.8 million 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 \$3.7 million for 1984 taxes paid in 1985, all of which goes to local taxing bodies.

The 1986 budget for contract payments, which include refueling, maintenance and waste disposal is estimated to be approximately \$17.4 million. These contracts are based on competitive bids so that no estimate can be made as to the monetary value to the local economy.

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\* The FES 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. The FES population projection within the 50 mile radius for the year 2000 was 12,900,000. A current population projection for the area to the year 2010 is 6,977,000.

Dresden cooling pond will be opened for public recreation in 1987. The primary activities being planned are fishing and hunting.

#### Summary of Effects

Continued operation of Unit 3 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.

ATTACHMENT 4

EFFECT OF LICENSE EXTENSION ON

DRESDEN STATION

Dresden Unit 3 was designed for forty years of operation. As discussed in Section 4.2.1 of the FSAR, this forty year design life included consideration of the neutron fluence and cyclic application of pressure loadings and thermal transients on the reactor vessel. The NRC's review of Dresden's design was based on the Dresden FSAR and subsequent supplements and amendments. However, the Dresden Unit 3 License currently expires forty years from the issuance of the Construction Permit on October 14, 1966 (reference (a)). This has resulted in a currently licensed operating life of thirty-five years, nine months for Unit 3. Thus, the current operating life of Dresden Unit 3 is approximately four years and 3 months less than the plant's design life.

10 CFR 50.51 provides the legal basis for the issuance of licenses that allow for a full forty years of operation by stating;

Each license will be issued for a fixed period of time to be specified in the license but in no case to exceed 40 years from the date of issuance. Where the operation of a facility is involved, the Commission will issue the license for the term requested by the applicant or for the estimated useful life of the facility if the Commission determines that the estimated useful life is less than the term requested.

This proposed change seeks to utilize this authority and alter the expiration date of the Dresden Unit 3 to January 12, 2011. This will provide a full forty year operating life.

As discussed above, the useful life of Dresden Unit 3 was intended to be forty years. In addition, the thermal and loading cycles listed in Table 4.2.1 of Dresden's original FSAR were considered during the design process. Dresden Station routinely monitors the number of these cycles experienced. Extrapolation of data accumulated thus far indicates that Unit 3 can operate for its full 40 year design life without exceeding the design number of vessel cycles. Thus, the useful life of Dresden Unit 3 remains at the forty-year design life.

However, the fact that Dresden Unit 3's useful operating life was designed to be a full forty years does not imply that components will not wear out during this time frame. The surveillance and inspection programs that have been implemented in accordance with the CFR, ASME Standards, and the Technical Specifications ensure that Dresden Station will continue to operate as designed. In addition, these programs provide assurance that any unexpected degradation will be detected and corrected.

Examples of these requirements and programs include;

- (1) The reactor vessel surveillance program established in accordance with 10 CFR 50, Appendix H.
- (2) The fracture toughness requirements delineated in 10 CFR 50, Appendix G.
- (3) The requirement to consider the effects of aging during the environmental qualification of electrical equipment, as required by 10 CFR 50.49.
- (4) The inspection and testing requirements of the ASME Standards, as required by 10 CFR 50.55a.
- (5) The surveillance and operability requirements contained in the Dresden Technical Specifications.
- (6) The design control reviews required by 10 CFR 50.59, which ensure the preservation of the intended plant safety design functions.

The above are examples of programs and requirements that have been implemented by Commonwealth Edison Company at Dresden Station. The applicable programs and requirements will remain in effect throughout the remainder of Dresden Unit 3's forty year life providing continued assurance that Unit 3 will operate safely and within all design limits.

In summary, the extension of Dresden Unit 3's licensed operating life to forty years is authorized by 10 CFR 50.51. The additional four years and two months of operation will have no adverse effect on the actual operation of Unit 3 due to the pre-established programs that will continue to ensure safe operation as Dresden 3 fulfills its original design lifetime.

ATTACHMENT 5

EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATION

PROPOSED CHANGES TO FACILITY OPERATING

LICENSE DPR-25

DESCRIPTION OF AMENDMENT REQUEST

An amendment to the Dresden Unit 3 Facility Operating License is proposed to extend the operating life of Dresden Unit 3 to 40 years.

BACKGROUND

10 CFR 50.92 states that a proposed amendment will involve a no significant hazards consideration if the proposed amendment does not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

The discussion below addresses each of these three criteria and demonstrates that the proposed amendment involves a no significant hazards consideration.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Does the proposed amendment:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety?

DISCUSSION - ITEM 1

Dresden Unit 3 will continue to be operated within its design limits. The existing inspection and surveillance programs and regulatory requirements applicable to Unit 3 (discussed in Attachment 4) will ensure that the plant systems and components will continue to perform their intended function. This results in the continued validity of the assumptions and results of the Dresden safety analysis.

In addition, the proposed license extension will result in a forty year operating life for Dresden Unit 3. Dresden Station was originally designed for a forty year operating life. Station monitoring of plant thermal cycles has demonstrated that cycles are being experienced at a rate that is consistent with that considered during Unit 3's design. Thus, Unit 3 has not been experiencing any unexpected duty that could result in accelerated aging.

The extension of Dresden Unit 3's operating life to forty years will also not affect any external phenomena such as the occurrence of an earthquake or a tornado. Thus, the above discussion indicates that the probability of a previously analyzed accident will be unaltered due to the license extension because the overall plant performance is not expected to be altered. Thus, the probability of any accident occurring is unaltered.

The consequences of any previously evaluated accident will be likewise unaffected. Since the plant's system and component operability will be preserved, the applicable safety functions will always be available. Thus, the consequences of a postulated accident will not be altered from the previous evaluations.

DISCUSSION - ITEM 2

As discussed above and in Attachment 4, there will be no change in the operating conditions for Dresden Unit 3 as a result of the license extension. There are no new factors, parameters, or conditions that might affect Dresden 3. Since the plant operating conditions will not be altered, then the possibility for a new or different kind of accident could not be created.

DISCUSSION - ITEM 3

All plant systems and components will continue to function as intended. This will be ensured by the existing inspection and surveillance programs and regulatory requirements (eg. 10 CFR 50.49, 50.55a, 50.59, Appendix G, H, etc.) previously mentioned. This would include the maintenance of all pertinent plant safety functions. Since all safety functions will continue to be available and since safety system performance will not degrade, then the margin of safety will not be altered.

Therefore, since the application for amendment satisfies the criteria specified in 10 CFR 50.92, Commonwealth Edison has made a determination that the application involves no significant hazards consideration.