

March 1, 1990

Docket No. 50-249

Mr. Thomas J. Kovach
Nuclear Licensing Manager
Commonwealth Edison Company-Suite 300
OPUS West III
1400 OPUS Place
Downers Grove, Illinois 60515

Dear Mr. Kovach:

SUBJECT: NOTICE OF ISSUANCE OF ENVIRONMENTAL ASSESSMENT DRESDEN POWER
STATION UNIT 3 (TAC NO. 63004)

Enclosed for your information is a copy of a "Notice of Issuance of Environmental Assessment and Finding of No Significant Impact" related to your September 29, 1986, request for amendment to Facility Operating License DPR-25 for the Dresden Nuclear Power Station, Unit No. 3. The proposed amendment would extend the expiration date of the license. Also enclosed is a copy of the Environmental Assessment.

The notice has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by

Byron L. Siegel, Project Manager
Project Directorate III-2
Division of Reactor Projects
IV, V and Special Projects

Enclosures:

1. Federal Register Notice
2. Environmental Assessment

cc w/enclosure:
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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The notice has been forwarded to the Office of the Federal Register for publication.

Sincerely,

A handwritten signature in cursive script that reads "Byron L. Siegel".

Byron L. Siegel, Project Manager
Project Directorate III-2
Division of Reactor Projects
IV, V and Special Projects

Enclosures:

1. Federal Register Notice
2. Environmental Assessment

cc w/enclosure:
See next page

Mr. Thomas J. Kovach
Commonwealth Edison Company

Dresden Nuclear Power Station
Units 2 and 3

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Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
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UNITED STATES NUCLEAR REGULATORY COMMISSION
COMMONWEALTH EDISON COMPANY
DRESDEN NUCLEAR POWER STATION, UNIT 3
DOCKET NO. 50-249
NOTICE OF ISSUANCE OF ENVIRONMENTAL ASSESSMENT
AND FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. DPR-25 issued to Commonwealth Edison Company, for operation of the Dresden Nuclear Power Station, Unit No. 3, located in Grundy County, Illinois.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action:

The proposed amendment would consist of a change to the operating license to extend the expiration date of the operating license to January 12, 2011 for Dresden Unit 3. The proposed license amendment is responsive to the licensee's application dated September 29, 1986. The Commission's staff has prepared an Environmental Assessment of the proposed action, "Environmental Assessment by the Office of Nuclear Reactor Regulation Relating to the Change in Expiration Date of Facility Operating License DPR-25. Commonwealth Edison Company, Dresden Nuclear Power Station, Unit No. 3, Docket Number 50-249, dated February 26, 1990."

Summary of Environmental Assessment:

The Commission's staff has reviewed the potential environmental impact of the proposed change in the expiration date of the Operating License for the Dresden Nuclear Power Station, Unit No. 3. This evaluation considered the previous environmental studies, including the Final Environmental Statement for the Dresden Station dated November 1973, and more recent NRC policy.

Radiological Impacts:

The staff concludes that the Exclusion Area, the Low Population Zone and the nearest population center distances will likely be unchanged from those described in the November 1973 Final Environmental Statement. Dresden Station is located in a relatively low populated area. The low population zone (LPZ) is approximately the area enclosed by an 8000 meter (5-mile) radius from the plant. The population in the area surrounding the site has grown at a somewhat faster rate than projected in the FES for the year 1980 (10,415 compared to 8,048 projected). Current projections of population within the 50-mile radius of the station are lower than the projection in the FES. The FES population projection within the 50-mile radius for 1980 was 8,070,978 which is 28 percent greater than the 1980 census figures for the area which total 6,301,641. The FES population projection within the 50-mile radius for the year 2000 was 12,900,000. The current population prediction (based on projections from the Northeast Illinois Planning Commission, State of Illinois Bureau of the Budget, and Northeast Indiana Planning Commission) to the year 2010 is 7,366,584 which is less than the FES 50-mile projection for both 1980 and 2000. There are no expected changes to the site boundary, low population zone, or population center distances. This small increase in the number of people living within the 5-mile zone, the lower than projection population increase within the 50-mile radius, and the continuing rural nature of the area indicate that the numbers of people living around and within the vicinity of the plant should pose no problem to the proposed extension of the operating license.

The additional period of plant operation would not significantly affect the probability or consequences of any reactor accident. Station radiological effluents to unrestricted areas during normal operation have been well within

Commission regulations regarding as-low-as-is-reasonably-achievable (ALARA) limits, and are indicative of future releases. The proposed additional years of reactor operation do not increase the annual public risk from reactor operation.

With regard to normal plant operation, the occupational exposures for the Dresden Nuclear Station have closely followed the national average for boiling water reactors. The licensee is striving for dose reductions in accordance with ALARA principles and the staff expects further reductions to be achieved using advanced technologies and equipment that will likely be available.

Accordingly, annual radiological impacts on man, both offsite and onsite, are not more severe than previously estimated in the FES, and our previous cost-benefit conclusions remain valid.

The environmental impacts attributable to transportation of fuel to and waste from the Dresden Nuclear Station with respect to normal conditions of transport and possible accidents in transport, would be bounded as set forth in Summary Table S-4 of 10 CFR Part 51.52. The values in Table S-4 would continue to represent the contribution of transportation to the environmental costs associated with plant operation.

Non-Radiological Impacts:

The Commission has concluded that the proposed extension will not cause a significant increase in the impact to the environment and will not change any conclusions reached by the Commission in the FES.

FINDING OF NO SIGNIFICANT IMPACT

The Commission has reviewed the proposed change to the expiration date of the Dresden Nuclear Station, Unit 3, facility operating license relative to the

requirements set forth in 10 CFR Part 51. Based upon the environmental assessment, the staff concluded that there are no significant radiological or non-radiological impacts associated with the proposed action and that the proposed license amendment will not have a significant effect on the quality of the human environment. Therefore, the Commission has determined, pursuant to 10 CFR 51.31, not to prepare an environmental impact statement for the proposed amendment.

For further details with respect to this action, see (1) the application for amendment dated September 29, 1986, (2) the Final Environmental Statement for the Dresden Nuclear Power Station, Unit No. 3, issued November 1973, and (3) the Environmental Assessment dated February 26, 1990. These documents are available for public inspection at the Commission's Public Document Room, 2120 L Street, N. W., Washington, D.C., and at the Morris Public Library, 604 Liberty, Morris, Illinois 60450.

Dated at Rockville, Maryland, this 26th day of February 1990.

FOR THE NUCLEAR REGULATORY COMMISSION



Bruce L. Burgess, Acting Director
Project Directorate III-2
Division of Reactor Projects III, IV, V
and Special Projects
Office of Nuclear Reactor Regulation



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ENVIRONMENTAL ASSESSMENT
BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATING TO THE CHANGE IN EXPIRATION DATE OF
FACILITY OPERATING LICENSES DPR-25
COMMONWEALTH EDISON COMPANY
DRESDEN NUCLEAR POWER STATION, UNIT 3
DOCKET NUMBER 50-249
DATED: February 26, 1990

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TABLE OF CONTENTS

- 1.0 INTRODUCTION
- 2.0 IDENTIFICATION OF THE PROPOSED ACTION
- 3.0 THE NEED FOR THE PROPOSED ACTION
- 4.0 ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION
 - 4.1 Radiological Impacts - General Public
 - 4.1.1 Environmental Impacts - General Public
 - 4.1.2 Environmental Impacts - Uranium Fuel Cycle
 - 4.1.3 Environmental Impacts - Uranium Resources
 - 4.1.4 Environmental Impacts - Occupational Exposures
 - 4.1.5 Environmental Impacts - Transportation of Fuel and Waste
 - 4.2 Non-Radiological Impacts
- 5.0 ALTERNATIVES TO THE PROPOSED ACTION
- 6.0 ALTERNATIVE USE OF RESOURCES
- 7.0 AGENCIES AND PERSONS CONSULTED
- 8.0 BASIS AND CONCLUSIONS FOR NOT PREPARING AN ENVIRONMENTAL IMPACT STATEMENT

1.0 INTRODUCTION

The U.S. Nuclear Regulatory Commission (the staff) is considering the issuance of a proposed amendment which would extend the expiration date of the full term operating license (FTOL) for the Dresden Nuclear Power Station, Unit 3. The expiration date for license DPR-25 for Dresden Unit 3 would be extended from October 14, 2006 to January 12, 2011. Dresden Unit 3 is operated by Commonwealth Edison Company (the licensee) and is located in Grundy County, Illinois.

2.0 IDENTIFICATION OF THE PROPOSED ACTION

The currently licensed term for Dresden Unit 3 is 40 years commencing with the issuance of the construction permit of September 14, 1966. Accounting for the time that was required for construction of the units, this represents an effective operating license term of approximately 35 years and 9 months. The licensee's application of September 29, 1986 requests extension of the expiration date of the operating license to January 12, 2011. With this proposed expiration date, the 40-year operating term for the license would start with issuance for the operating license rather than the construction permit.

3.0 THE NEED FOR THE PROPOSED ACTION

The granting of the proposed license amendment would allow the licensee to operate Dresden Unit 3 for approximately 4 years and 3 months beyond the currently approved license expiration date. Without issuance of the proposed license amendment, Dresden Unit 3 would be shut down at the end of the currently approved license term.

4.0 ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

In November 1973, the U.S. Atomic Energy Commission issued the Final Environmental Statement (FES) for the Dresden Nuclear Power Station, Units 2 and 3. This document was issued in support of issuance of an operating license for Dresden Units 2 and 3. The staff has reviewed the Dresden FES, and additional information provided by the licensee, to determine the environmental impact of operation of Dresden Unit 3 for approximately 4 and one quarter additional years. Extension of the license for Dresden Unit 2 will be addressed at a later time.

4.1 Radiological Impacts

The staff has considered potential radiological impacts for the general public in residence in the vicinity of the Dresden Nuclear Power Station; these impacts include potential accidents and normal radiological releases. In addition, the staff has considered the impacts of radiation exposure to workers at Dresden. Finally, the impact on the uranium fuel cycle, uranium resources and the transportation of fuel and waste have been considered. The above impacts are summarized in Sections 4.1.1 through 4.1.5 herein.

4.1.1 General Public

In the FES, dated November 1973, the staff calculated the dose commitment to the population residing around the Dresden site to assess the impacts on people from radioactive material released as part of the normal operation of the plant. Tables 5.2 and 5.3 of the FES list the estimated doses associated with the operations of Dresden Units 2 and 3. The combined doses from both units are below the annual dose design objectives of 10 CFR Part 50, Appendix I, Rule Making 50-2. Thus, the staff concludes that doses to members of the public would remain below the dose design objectives of 10 CFR Part 50, Appendix I, and would not be significant.

The staff has assessed the public risks from reactor accidents per year of operation at other reactors of comparable design and power level. In all cases, the estimated risks of early fatalities and latent cancer fatalities per year of reactor operation have been small compared to the risks of many non-reactor type of accidents to which the public is typically exposed, and the natural incidence of fatal cancers. The annual risks associated with reactor accidents did not increase with longer periods of operation of the reactor. If similar risks were estimated for Dresden Units 2 and 3, we would expect a similar conclusion. Further, as shown in Table 7.2 of the Dresden FES, the integrated exposure to population within a 50-mile radius of the Dresden site from each postulated accident would be orders of magnitude smaller than that from naturally occurring background radiation. When considered with the probability of occurrence, the annual potential radiation exposure of the population from all the postulated accidents is an even smaller fraction of the exposure from natural background radiation and, in fact, is well within naturally occurring variations in the natural background. The staff concludes that the proposed additional years of operation would not increase the annual public risk from reactor accidents.

Current projections of population within the 50-mile radius of the station are lower than the projection in the FES. The FES population projection within the 50-mile radius for 1980 was 8,070,978 which is 28 percent greater than the 1980 census figures for the area which total 6,301,641. The FES population projection within the 50-mile radius for the year 2000 was 12,900,000. A current population prediction (based on projections from the Northeast Illinois Planning Commission, State of Illinois Bureau of the Budget and the Northwest Indiana Planning Commission) to the year 2010 is 7,366,584 which is less than the FES 50-mile projection for both 1980 and 2000. The population growth within the 50-mile radius has largely been in the suburban areas of Cook, Lake, DuPage and Will counties. There are no expected changes in site boundary, low population zone, or population center distances. The low population zone (LPZ) is approximately the area enclosed by an 8000 meter (5-mile) radius from the plant. The population in the area surrounding the site has grown at a somewhat faster rate than projected by the FES for the year 1980 (10,415 compared to 8,048 projected). However, the small increase in numbers of people living within the 5-mile LPZ around the plant and the continuing rural nature of the area indicate the proposed extension of the plant operating license should pose no problem.

4.1.2 Uranium Fuel Cycle

In addition to the impacts associated with the operation of the reactors, there are impacts associated with the uranium fuel cycle. The uranium fuel cycle consists of those facilities (e.g., uranium mills, fuel fabrication plants, etc.) that are necessary to support the operation of the reactors. The Dresden FES described the impacts associated with the uranium fuel cycle. These impacts were based on 30 years of operation of a model light water reactor. The fuel requirements for the model reactor were assumed to be one initial core load and 29 annual refuelings (approximately one-third of the core is replaced during each refueling). In considering the annual fuel requirements for 40 years for a model reactor, fuel use is averaged over a 40-year operating life (one initial core and 39 refuelings of approximately one-third core each). This averaging results in a slight reduction in annual fuel use for 40 years of operation, as compared to the annual fuel requirement averaged over a 30-year operating life. The net result is an approximately 1.5 percent reduction in the annual fuel requirements for the model reactor due to averaging the initial core load over 40 years, instead of 30 years. This small reduction in fuel requirements would not lead to significant changes in the annual impacts associated with the uranium fuel cycle.

4.1.3 Uranium Resources

A 33 percent increase in the Dresden Unit 3 operating life to 40 years (the original operating life was based on a 30 year uranium fuel cycle) would still be within the projected uranium resources since the cancellation of many reactors will result in an off-setting reduction in demand. Furthermore, the increase in operating life assumption to 40 years will reduce the need for replacement generating capacity, including nuclear, at the end of the 30 years.

4.1.4 Occupational Exposures

The staff has evaluated the licensee's dose assessment for the additional years during which Dresden Unit 3 would operate, and compared it with current Dresden and overall industry dose experience. The average dose for the Dresden Unit 3 plant over the most recent 5-year period covering 1984 through 1988 has been 662 man-rem per unit per year, which closely follows the industry average of 691 man-rem dose per unit per year for operating boiling water reactors in the United States. The licensee does not expect any increases in station dose during the additional 4 and one-quarter year license extension. It is expected that state-of-the-art technologies will be in use including some robotics, enhanced chemistry control and modern decontamination. The staff expects that increased doses from maintenance and corrosion product buildup will be offset by a continually improving ALARA program, dose-saving plant modifications, and fewer major modifications.

Historical performance at Dresden Station with respect to Personnel Contamination Events (PCE's) has shown marked improvement since 1985 and 1986, when the station experienced 868 and 884 PCE's per unit respectively. Since that time, various programs have been implemented by the licensee to minimize the number of events. These programs have included extensive decontamination and surveys, and increased management attention to root cause determination. As a result, the

station only experienced 437 and 267 PCE's per unit during 1987 and 1988. Furthermore, based upon performance through September, the year-end estimate for 1989 is 102 PCE's per unit. This change in performance signifies an improvement from the second worst nuclear station in 1985, to an INPO Best Quartile Station in 1989. Overall occupational exposures can be expected to remain about as experienced during recent years.

Additional occupational exposures will result from decommissioning of Dresden Unit 3, although these doses will be incurred with or without the license extension periods. Any increases in corrosion product buildup during the period of extension will be compensated for by improved chemistry controls and other ALARA measures. Consequently, the extended operating times should have no measurable adverse effect on decommissioning dose requirements.

Spent fuel capacity for Dresden Unit 3 is 3537 assemblies. The projected year for loss of full core discharge capability is 1999. The licensee has a contract with the Department of Energy (DOE) for removal from the plant site and disposal of spent fuel commencing in 1998. The licensee to date has no definite plans for expansion of on-site storage of spent fuel in the event this fuel removal is delayed by DOE and additional on-site storage is required. However, the licensee has stated that fuel consolidation and on-site dry storage options are being strongly considered.

The staff concludes that the licensee's dose assessment is acceptable and that the radiation protection program at Dresden is adequate to ensure that occupational radiation exposures will be maintained ALARA and in continued compliance with the requirements of 10 CFR Part 20.

Therefore, the staff concludes that the environmental impact associated with 40-year operating license duration is not significantly different from those associated with the approximately 35-year operating term authorized by the existing license and those previously assessed in the Dresden FES.

4.1.5 Transportation of Fuel and Waste

The staff has reviewed the environmental impacts attributable to the transportation of fuel and waste to and from the Dresden site. With respect to the normal conditions of transport and possible accidents in transport, the staff concludes that the environmental impacts are bounded by those identified in Table S-4, "Environmental Impact of Transportation of Fuel and Waste To and From One Light Water-Cooled Nuclear Power Reactor" of 10 CFR Part 51.52. The bases for this conclusion are that: 1) Table S-4 is based on an annual refueling and an assumption of 60 spent-fuel shipments per reactor year. At the present time, Dresden Unit 3 is on an 18-month refueling cycle which will result in fewer than 60 spent-fuel shipments per year. Reducing the number of fuel shipments reduces the overall impacts related to population exposure and accidents discussed in Table S-4. 2) Table S-4 represents the contribution of such transportation to annual radiation dose per reactor year to exposed transportation workers and to the general public. The licensee projects that spent fuel may

slightly exceed the average fuel irradiation level specified in 10 CFR 51.52(a)(3) as the bases for Table S-4, but will be less than 60 gigawatt days per metric ton (GWD/MTU). The NRC has previously found (53 FR 6040, February 29, 1988) that the environmental impacts summarized in Table S-4 of 10 CFR 51.52 are conservative and bound the corresponding impacts for burnup levels up to 60 GWD/MTU. The Dresden Station's projected burnup level is only 37 GWD/MTU per unit. The radiation levels of transport fuel casks are limited by the Department of Transportation and are not dependent on fuel enrichment and/or irradiation levels. Therefore, the estimated doses to exposed individuals per reactor year will not increase over that specified in Table S-4.

The annual radiation dose to individuals would not be changed by the extended period of operation. Although some integral risk with respect to normal conditions of transportation and possible accidents in transport would be attributed to the additional years of operation, the integral risk would not be significant because the annual risk for such transportation is small.

4.2 Non-Radiological Impacts

The staff has reevaluated the non-radiological impacts associated with operation of Dresden Unit 3 to include the approximately 4 and one quarter additional years of operation associated with the change in the expiration date of the operating license. The non-radiological impacts, primarily on water and land use, are shown in the FESs to be quite minor. Continued plant operation during the additional time period would also have a minor impact, especially when compared to the impacts associated with construction of replacement power production capability. We conclude that the non-radiological impacts associated with the proposed change in the operating license expiration date is acceptable.

5.0 ALTERNATIVES TO THE PROPOSED ACTION

The principal alternative to issuance of the proposed license extension would be to deny the application. In this case, Dresden Unit 3 would shut down upon expiration of the present operating license.

In Chapter 10 of the Dresden FES, a cost-benefit analysis is presented for Dresden Units 2 and 3. Operation of Dresden Unit 3 in the present plant configuration for an additional 4 and one quarter years would only require incremental yearly costs. These costs would be substantially less than the purchase of replacement power or the installation of new electrical generating capacity. Moreover, the overall cost per year of the facility would decrease since the large initial capital outlay would be averaged over a greater number of years. In summary, the cost-benefit advantage of Dresden Unit 3 compared to alternative electrical power generating capacity improves with the extended plant lifetime.

6.0 ALTERNATIVE USE OF RESOURCES

This action does not involve the use of resources not previously considered in connection with the November 1973 FES.

7.0 AGENCIES AND PERSONS CONSULTED

The NRC staff reviewed the licensee's request and did not consult other agencies or persons.

8.0 BASIS AND CONCLUSIONS FOR NOT PREPARING AN ENVIRONMENTAL IMPACT STATEMENT

The Commission has determined not to prepare an environmental impact statement for the proposed action. The staff has reviewed the proposed license amendment relative to the requirements set forth in 10 CFR Part 51. Based on this assessment, the staff concludes that there are no significant radiological or non-radiological impacts associated with the proposed action and will not change any conclusions reached by the Commission in the FES. Therefore, pursuant to 10 CFR 51.31, an environmental impact statement need not be prepared for this action. Based upon this environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment.

Dated at Rockville, Maryland, this 26th day of February 1990.

FOR THE NUCLEAR REGULATORY COMMISSION



Bruce L. Burgess, Acting Director
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation