

Docket Nos. 50-315  
and 50-316

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Mr. Gene Fitzpatrick, Vice President  
Indiana and Michigan Electric Company  
c/o American Electric Power Service Company  
1 Riverside Plaza  
Columbus, Ohio 43216

Dear Mr. Fitzpatrick:

SUBJECT: DONALD C. COOK NUCLEAR PLANT UNITS 1 & 2 LICENSE EXTENSION -  
ENVIRONMENTAL ASSESSMENT (TAC NOS. 75796 AND 75797)

Enclosed for your information is a copy of the Environmental Assessment related to your December 27, 1989, application for extension of expiration dates of Facility Operating Licenses DPR-58 and DPR-74.

Also enclosed is a copy of the Notice of Issuance of Environmental Assessment and Finding of No Significant Impact which has been forwarded to the Office of the Federal Register for publication. If you have any questions regarding this action please contact W. Long at (301) 492-3026 or T. Colburn at (301) 492-1341.

Sincerely,

William O. Long, Project Manager  
Project Directorate III-1  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

Enclosures:  
As stated

cc: w/enclosures  
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Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

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NAME	: PShuttleworth	: WLong	: TColburn		: TMarsh	: LCunningham
DATE	: 08/ /91	: 08/9/91	: 08/9/91	: 08/ /91	: 08/19/91	: 08/ /91



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

September 20, 1991

Docket Nos. 50-315  
and 50-316

Mr. Gene Fitzpatrick, Vice President  
Indiana and Michigan Electric Company  
c/o American Electric Power Service Company  
1 Riverside Plaza  
Columbus, Ohio 43216

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Sincerely,

A handwritten signature in black ink that reads "William O. Long".

William O. Long, Project Manager  
Project Directorate III-1  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

Enclosures:  
As stated

cc: w/enclosures  
See next page

Mr. Gene Fitzpatrick

Indiana Michigan Power Company

Donald C. Cook Nuclear Plant

cc:

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Department of Public Health  
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Post Office Box 30035  
Lansing, Michigan 48909

ENVIRONMENTAL ASSESSMENT  
BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATING TO THE CHANGE IN EXPIRATION DATES OF  
FACILITY OPERATING LICENSE NOS. DPR-58 AND DPR-74  
INDIANA MICHIGAN POWER COMPANY  
DONALD C. COOK NUCLEAR PLANT UNITS 1 AND 2  
DOCKET NOS. 50-315 AND 50-316

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## 1.0 INTRODUCTION

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of proposed amendments to Facility Operating License Nos. DPR-58 and DPR-74 held by the Indiana Michigan Power Company (the licensee), for operation of the Donald C. Cook Nuclear Plant, Units 1 and 2, (the facility or facilities) located in Berrien County, Michigan.

## 2.0 IDENTIFICATION OF THE PROPOSED ACTION

The proposed amendments would change the expiration date of the Unit 1 operating license (OL) from March 25, 2009 to October 25, 2014. The Unit 2 OL expiration date would be changed from March 25, 2009 to December 23, 2017. The proposed action is in accordance with a licensee application dated December 27, 1989 as revised by letter dated April 4, 1990.

## 3.0 NEED FOR THE PROPOSED ACTION

The proposed action will provide an economic benefit to the licensee and its customers by deferring the need to replace the facilities with new higher cost replacement power sources. This economic benefit has been estimated by the licensee to be approximately \$4.3 billion in 1989 dollars.

## 4.0 ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

The staff has reviewed the potential environmental impact of the proposed change in the expiration dates of the Donald C. Cook facilities. This review consisted of (1) a review of the information provided in the licensee's application, (2) a review of the "Final Environmental Statement Related to Operation of Donald C. Cook Nuclear Plant Units 1 and 2," (FES) issued August 8, 1973, and supplements thereto, to determine the extent to which the original environmental review bounded the additional years of operation, and (3) a review of the past inspection reports for inspections of the licensee's environmental monitoring and environmental protection efforts.

The proposed amendments would authorize an additional 14.33 reactor-years of facility operation and would extend site operations an additional 8.75 years.

### 4.1 RADIOLOGICAL AND ENVIRONMENTAL IMPACTS

The staff has considered potential radiological impacts to the general public residing in the vicinity of Donald C. Cook Nuclear Plant. These impacts include the consequences of potential accidents and normal radiological releases. In addition, the staff has considered the impacts from radiation exposure to workers at the facility. Finally, the impacts from the uranium fuel cycle and the transportation of fuel and waste have been considered. These impacts are summarized in Section 4.1.1 through 4.1.4 below.

#### 4.1.1 General Public

Normal Releases: Radiological impacts on the environment due to the operation of Donald C. Cook Nuclear Plant would be expected to remain low. The radioactive waste treatment and effluent release systems and the Technical Specifications which limit the allowable release of effluents have been determined to provide adequate protection to the public. As discussed in the February 7, 1983, Safety

Evaluation and Environmental Impact Appraisal accompanying Amendments 69 (Unit 1) and 51 (Unit 2), the facility was found to be in compliance with the requirements of 10 CFR Part 20 and 10 CFR Part 50. The licensee is required to keep releases of radioactive materials to unrestricted areas as low as is reasonably achievable and provide periodic reports of radioactive material releases and estimates of off-site doses due to gaseous and liquid effluents. Actual gaseous releases have been about 7% of what was projected in the FES. Actual liquid releases have been about 9% of FES projection except for tritium. Tritium is a low level beta emitter and contributes little to the overall dose to the general public. The licensee's gaseous and liquid radioactive effluent program was most recently inspected in June 1991 (Ref: Inspection Report 50-315/91015; 50-316/91015). The inspectors performed independent calculations verifying those of the licensee's and confirming that body and organ doses at the site boundary were within regulatory limits. During June of 1990 (Ref: Inspection Report 50-315/90012; 50-316-90012), NRC inspectors inspected the licensee's Radiological Environmental Monitoring Program (REMP) and found the program working satisfactorily. This inspection included a review of the 1989 Annual Environmental Report for the facility. The tritium releases were the subject of an inspection conducted in March 1991. Samples of well water in the nearby Rosemary Beach community to the north were found to have no radioactivity. Radioactivity in well water from wells to the south (Livingston Hills) was found to be below 350 pCi/l. The staff finds that the environmental impacts due to releases of gaseous and liquid effluents from Donald C. Cook Nuclear Plant have been and are expected to remain well within regulatory guidelines.

The actual 1980 population was found to be 17% greater than projected in the FES. It is the opinion of the licensee, and the staff agrees, that based on the underestimated gaseous and liquid release rates noted above, the error in the originally projected rate of population increase does not change any of the conclusions of the FES.

Potential Accidents: The staff has assessed the public risks from reactor accidents per year for operation at similar facilities. In all cases, the estimated risks of early fatalities per year of reactor operation have been small compared to other risks to which the public is exposed and to the natural incidence of fatal cancers. The annual risk associated with reactor accidents was found not to increase with longer periods of operation of the reactors. If similar risks were estimated for Donald C. Cook, the staff would expect a similar finding. Further, as noted in the FES, the integrated exposure to the population within a 50-mile radius of the facility, from the variety of postulated and analyzed accidents; would be orders of magnitude smaller than that from normally 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 significantly increase the annual public risk from reactor accidents.

#### 4.1.2 Uranium Fuel Cycle

In addition to the environmental impacts associated with the operation of the Donald C. Cook units, there are impacts associated with operation of other

facilities of the uranium fuel cycle. These include facilities such as uranium mills and fuel fabrication plants that are necessary to support the operation of the reactors. While the annual environmental effects on the fuel cycle will remain essentially unchanged, the additional years of operation associated with the proposed actions will increase proportionally the total fissile uranium required. The estimated environmental impacts to the uranium fuel cycle attributable to the additional periods of operation would be as set forth in Table S-3 of 10 CFR Part 51.

#### 4.1.3 Occupational Exposure

The staff closely monitors the licensee's performance with respect to occupational radiation exposure. Although regulations place specific limits on the amount of radiation exposure each individual worker may receive, there are no regulatory limits on the collective exposure to all workers both temporarily and permanent. However, the licensee is required to record and report all worker exposure and the staff monitors the licensee's performance in maintaining this exposure as low as is reasonably achievable. During an inspection conducted in 1990 (Ref: Inspection Report 50-315/90014; 50-316/90014), NRC inspectors reviewed selected, personnel contamination records, whole-body count records, and calibration procedures. No significant problems were identified. The additional years of operation will result in a proportional cumulative increase in collective occupational exposure, however, regulatory oversight will ensure that radiation control practices do not deteriorate during the additional years of operation. Annual occupational exposure has been below the industry average for PWRs (Ref: Inspection Report 50-315/91-008; 50-316/91-008) is not expected to increase during the additional years of operation.

#### 4.1.4 Transportation Of Fuel And Waste

The estimated environmental impacts attributable to transportation of fuel and waste to and from the facility would be as set forth in Table S-4 of 10 CFR Part 51. The licensee's program for transportation of radioactive materials was last inspected in June 1991. The inspectors reviewed the licensee's procedures and policy governing the transportation of radioactive materials. No problems were noted and no violations or deviations were identified.

#### 4.2 NON-RADIOLOGICAL IMPACTS

The non-radiological environmental impacts associated with the operation of the Donald C. Cook Nuclear Plant are discussed in the FES. License requirements considered necessary to ensure that these impacts remain consistent with the FES are included in the facilities' Technical Specifications - Appendix B "Donald C. Cook Nuclear Plant Nonradiological Environmental Protection Plan." The FES centered on land-use, water use, biological impact (terrestrial and aquatic); a discussion of probable adverse affects, short-term use versus long-term productivity, and the irreversible and irretrievable commitment of resources. The staff has considered the findings of the FES and the additional information provided by the licensee associated with the non-radiological impacts. It is noted that, while new buildings have been added to the site, the site boundary has not changed. Land usage in the three nearby counties has remained stable, being approximately 60% agricultural. Continued operation during the proposed additional years would not introduce any significant additional environmental impacts.

## 5.0 HISTORIC PRESERVATION

The proposed action would not involve any new construction activities nor are there any anticipated change to transmission lines, railways, roads, and highways or waterways in the vicinity of the site. No additional limitations on public access to property are involved. Therefore, there would be no environmental effect on historical resources.

## 6.0 ALTERNATIVES TO THE PROPOSED ACTION

The principal alternative of the proposed action would be the denial of the application. In this event, the licensee would have no provision for purchase of replacement power and the Donald C. Cook facility would be shut down and defueled upon expiration of the Ols. The licensee estimates that the replacement power would cost approximately \$5.9 billion in 1989 dollars. The operation and maintenance costs saved would be approximately \$1.6 billion. The net economic cost would thus be approximately \$4.3 billion in 1989 dollars.

## 7.0 ALTERNATIVE USE OF RESOURCES

The proposed action does not involve the irreversible or irretrievable commitment of licensee or public resources beyond that associated with the continued normal operating and maintenance expenses. Effects of site preparation, station construction and transmission system construction, and usage were discussed in the FES and are not further affected. Decommissioning expenses are not expected to increase as a result of the additional period of operation. Potential environmental effects of replacement power generating facility construction would be deferred.

## 8.0 AGENCIES AND PERSONS CONSULTED

The NRC staff consulted with representatives of the State of Michigan regarding the proposed action. A public notice of the proposed action was published in the Federal Register. No adverse or opposing comments were received.

## 9.0 FINDING OF NO SIGNIFICANT IMPACT

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 the proposed action will not have significant radiological or non-radiological impacts 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.

Principal Contributor: W Long

Date: September 20, 1991

UNITED STATES NUCLEAR REGULATORY COMMISSION  
INDIANA MICHIGAN POWER COMPANY  
DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2  
DOCKET NOS. 50-315 AND 50-316  
NOTICE OF ISSUANCE OF ENVIRONMENTAL ASSESSMENT  
AND FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of proposed amendments to Facility Operating License Nos. DPR-58 and DPR-74, issued to the Indiana Michigan Power Company (the licensee), for operation of the Donald C. Cook Nuclear Plant, Units 1 and 2, (the facilities) located in Berrien County, Michigan.

Identification of Proposed Action:

The proposed amendments would change the expiration date of the Unit 1 operating license (OL) from March 25, 2009 to October 25, 2014. The Unit 2 OL expiration date would be changed from March 25, 2009 to December 23, 2017.

The proposed action is in accordance with the licensee's application dated December 27, 1989 as revised by letter dated April 4, 1990.

Summary of Environmental Assessment:

The Commission's staff has reviewed the potential environmental impact, both radiological and non-radiological, of the proposed changes in the expiration date for the facilities. This assessment considered the previous environmental studies, including the Final Environmental Statement (FES) dated August 8, 1973, and more recent NRC policy. In addition, the staff considered the facilities' operating performance history in the areas of radioactive

effluent monitoring and control, environmental monitoring, and occupational exposure. The staff concluded that the proposed action would have no significant environmental impact and would have significant economic benefit to the licensee and public.

FINDING OF NO SIGNIFICANT IMPACT

The staff has reviewed the proposed change to the expiration date of the Donald C. Cook Nuclear Plant Units 1 and 2 Facility Operating Licenses 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 amendments 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 amendments.

For further details with respect to this action, see (1) the licensee's application for license amendments dated December 27, 1989, (2) the "Final Environmental Assessment Related to Operation of Donald C. Cook Nuclear Plant Units 1 and 2" issued August 8, 1973, and (3) the Environmental Assessment dated Sept. 20, 1991. These documents are available for public inspection at the U.S. Nuclear Regulatory Commission's Public Document Room, 2120 L. Street, N.W.

Washington, D.C. 20555, and at the Maude Palenske Memorial Library, 500 Market Street, St. Joseph, Michigan 49085.

Dated at Rockville, Maryland, this 20th day of September 1991.

FOR THE NUCLEAR REGULATORY COMMISSION



Ledyard B. Marsh, Director  
Project Directorate III-1  
Division of Reactor Projects III/IV/V  
Office of Nuclear reactor Regulation