

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8205030422 . DOC. DATE: 82/04/07 . NOTARIZED: NO . DOCKET #  
 FACIL: 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316  
 AUTH. NAME AUTHOR AFFILIATION  
 HERING, R.F. Indiana & Michigan Electric Co.  
 RECIP. NAME RECIPIENT AFFILIATION  
 DENTON, H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Sanitized version of application to amend OL in support of  
 uprating & Cycle 4 reloading to increase reactor thermal  
 power limit.

DISTRIBUTION CODE: H001S COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 8 + 8  
 TITLE: File Location Distribution: Docket 50

NOTES: *w/check \$12,300.00*

	RECIPIENT ID CODE/NAME	COPIES		RECIPIENT ID CODE/NAME	COPIES	
		LTR	ENCL		LTR	ENCL
INTERNAL:	<u>REG FILE</u>	01	1 1			
EXTERNAL:	LPDR	03	1 1	NRC PDR	02	1 1
	NTIS	04	1 1			

TOTAL NUMBER OF COPIES REQUIRED: LTR 4 ENCL 4



→  
SANITIZED PDR  
VERSION

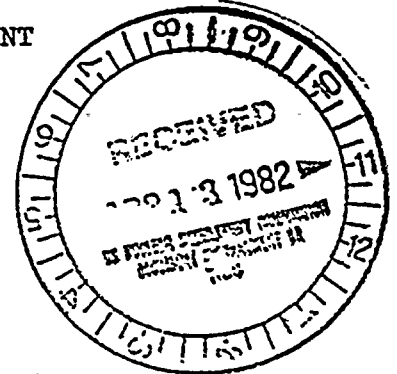
INDIANA & MICHIGAN ELECTRIC COMPANY

P. O. BOX 18  
BOWLING GREEN STATION  
NEW YORK, N. Y. 10004

April 7, 1982  
AEP:NRC:00637A

Donald C. Cook Nuclear Plant Unit No. 2  
Docket No. 50-316  
License No. DPR-74  
APPLICATION FOR CYCLE 4 RELOAD AND UPRATE LICENSE AMENDMENT

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



Dear Mr. Denton:

This letter and its Attachments constitute an application in support of the uprating and Cycle 4 reloading of the Donald C. Cook Nuclear Plant, Unit No. 2. Cycle 4 is scheduled to begin operation in November, 1982 and will include the first reload fuel batch fabricated by Exxon Nuclear Company (ENC). We are requesting an increase in the reactor thermal power limit of Unit No. 2 from its present value of 3391 MWt to 3411 MWt (an approximate increase of 0.6%) to become effective at the Cycle 4 start-up. This request was discussed in our December 8, 1981 meeting with members of your Staff.

Six Attachments are included in support of this application. Attachment No. 1 is a summary description table of Cycle 4. Cycle 4 will include seventy-two 17 x 17 ENC fuel assemblies-in-Region 6, in addition to those Westinghouse fuel assemblies remaining in the core from fuel Regions 3, 4, and 5. There will be approximately 544 burnable poison rodlets employed in Cycle 4. The nominal Cycle 4 design burnup is 14,150 MWD/MTU.

A list of ENC topical reports, which document the ENC analysis methodology being developed in support of the ENC fuel reload application, is included as Attachment No. 2.

Attachments Nos. 3, 4, and 6 are three Technical Specification change requests necessary for Cycle 4 operation. Attachment No. 3 contains the Technical Specification change for Section 1.3 which defines RATED THERMAL POWER. Attachment No. 4 is the Technical

~~HOOF~~  
s  
//  
w/c Lect:  
# 12300.00  
  
Hool  
S//

8205030 422

~~8205030  
DPR-74  
AEP:NRC:00637A~~

Specification change to Notes 1 and 2 of Table 2.2-1 ("Reactor Trip System Instrumentation Trip Setpoints"). Notes 1 and 2 of this Table give the equations governing Overtemperature and Overpower  $\Delta T$  trips respectively. It is necessary to change the indicated  $T_{AVG}$  at RATED THERMAL POWER, which is a reference parameter used in these equations. The present indicated  $T_{AVG}$  at RATED THERMAL POWER is 573.8 F. Due to the 0.6% power increase, the indicated  $T_{AVG}$  at RATED THERMAL POWER will increase to 574.0 F. This uprated value is based on a zero-load temperature of 547.0 F, a RATED THERMAL POWER of 3411 MWt, and a linear temperature control program gain of 0.270 F/% power.

Attachment No. 5 is a summary of the new and spent fuel storage array criticality safety analyses performed by ENC which support the Technical Specification changes presented in Attachment No. 6. The information contained in Attachment No. 5 is proprietary to ENC and, as such, we request that you hold this information from public disclosure. Attachment No. 6 contains revised Technical Specifications 5.3.1, which limits the maximum U-235 enrichment of the fuel assemblies, and 5.6.1.1, 5.6.1.2, and 5.6.2, which pertain to the criticality criteria for the spent and new fuel storage areas. All proposed changes to the Technical Specifications have been indicated by a vertical line on the right hand side of the page. These Technical Specification changes have been approved by the Plant Nuclear Safety Review Committee (PNSRC) and by the AEPSC Nuclear Safety and Design Review Committee (NSDRC). Additional Technical Specification changes in support of Cycle 4 operation will be submitted in the future.

The Cycle 4 Safety Analysis is scheduled to be completed by May 30, 1982. In addition, a review is being conducted by American Electric Power Service Corporation of the effects of uprating on the various plant safety systems, components, and structures. The results of the Cycle 4 Safety Analysis and the AEPSC review will be submitted to the NRC by June 30, 1982.

Approval of the Technical Specification changes contained in Attachment No. 6 is needed by September 1, 1982. This will enable the Cook Plant to accept the scheduled delivery of the ENC reload fuel.

Approval of Cycle 4 operation at the increased reactor thermal power level of 3411 MWt with ENC-supplied fuel, is needed by October 1, 1982, prior to the start of the fuel shuffle.

AEPSC interprets this application for a license amendment to constitute a Class IV Amendment as defined in 10 CFR 170.22. Enclosed, therefore, is a check in the amount of \$12,300.00 for NRC processing of the aforementioned requests.

This document has been prepared following Corporate Procedures which incorporate a reasonable set of controls to insure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,



R. F. Hering  
Vice President

RSH/md

cc: John E. Dolan - Columbus  
R. W. Jurgensen  
W. G. Smith - Bridgman  
R. C. Callen  
G. Charnoff  
Joe Williams, Jr.  
NRC Resident Inspector at Cook Plant - Bridgman  
R. S. Hunter



Attachment No. 1 to AEP:NRC:00637A  
Summary Description of Cycle 4 Core

<u>Region</u>	<u>Number of Fuel Assemblies</u>	<u>Vendor</u>	<u>Initial Nominal Enrichment in w/o U-235</u>
3	16	Westinghouse	3.10
4	13	Westinghouse	3.40
5	92	Westinghouse	3.40
6	<u>72</u> 193	Exxon Nuclear Company	3.65

Attachment No. 2 to AEP:NRC:00637A  
Donald C. Cook Nuclear Plant Unit No. 2  
Documents Describing ENC Design and Analysis Methodology



The documentation identified below is responsive to the NRC guidance specified in Standard Review Plan Section 4.2 (Fuel System Design), 4.3 (Neutronic Design), 4.4 (Thermal and Hydraulic Design), and appropriate portions of Section 15 (Accident Analysis) and the most recent NRC guidance regarding applications for amendments of operating licenses for reloads.

<u>Document Number</u>	<u>Title</u>	<u>Dates</u>	
		<u>Submitted to NRC</u>	<u>Approval Anticipated</u>
XN-74-5, Rev. 1	Description of the Exxon Nuclear Plant Transient Simulation Model for Pressurized Water Reactors (PTSPWR)		Approved for Previously Licensed PWR's
XN-209	Densification Effects on Exxon Nuclear Pressurized Water Reactor Fuel		Approved
XN-75-27, Supp. 1 & 2	Exxon Nuclear Neutronic Design for Pressurized Water Reactors		Approved
XN-75-32, Supp. 1 & 2	Computational Procedures for Evaluating Fuel Rod Bowing	June 1975	May 1982
XN-75-41	Exxon Nuclear Company WREM-Based Generic PWR ECCS Evaluation Model		Approved
XN-75-48	Definition and Justification of Exxon Nuclear Company DNB Correlation for PWR's		Approved for Previously Licensed PWR's
XN-76-27	Exxon Nuclear Company WREM-Based Generic PWR ECCS Evaluation Model Update ENC WREM-II		Approved
XN-NF-77-57 (P), Supp. 2	Exxon Nuclear Power Distribution Control for Pressurized Water Reactors, Phase II	Oct. 1981	Oct. 1982

<u>Document Number</u>	<u>Title</u>	<u>Dates</u>	
		<u>Submitted to NRC</u>	<u>Approval Anticipated</u>
XN-NF-78-30	Exxon Nuclear Company WREM-Based Generic PWR ECCS Evaluation Model Update ENC WREM-IIA		Approved
XN-NF-81-58	Fuel Rod Thermal-Mechanical Response Evaluation Model (RODEX2)	Aug. 1981	June 1982
XN-NF-82-06	Qualification of Exxon Nuclear Company Fuel for Extended Burnup	Feb. 1982	Sept. 1982
XN-NF-82-13	Generic Mechanical and Thermal Hydraulic Design for Exxon Nuclear 17x17 Reload Fuel for <u>W</u> Reactors	March 1982	Oct. 1982
XN-NF-82-20	Exxon Nuclear Company Evaluation Model EXEM/PWR ECCS Model Update	Feb. 1982	July 1982
XN-NF-621	Exxon Nuclear DNB Correlation for PWR Fuel Designs	Feb. 1982	Oct. 1982

Attachment No. 3 to AEP:NRC:00637A  
Donald C. Cook Nuclear Plant Unit No. 2  
Technical Specification Change