Cook

INDIANA & MICHIGAN ELECTRIC COMPANY

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

March 27, 1981
AEP:NRC:00428A

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
FIRE PROTECTION RULE (45 FR 76602)

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

Dear Mr. Denton:

The attachment to this letter provides our response to Mr. Eisenhut's letter of November 24, 1980 regarding the provisions of Appendix R to 10 CFR 50 which are applicable to the D. C. Cook Nuclear Plant. Those provisions are set forth in Section III.G, "Fire Protection of Safe Shutdown Capability"; III.J, "Emergency Lighting"; and III.O, "Oil Collection Systems for Reactor Coolant Pump" of the said Appendix R.

On July 31, 1979, the Commission issued Amendments No. 31 and No. 12 to the Cook Plant Operating License, along with the corresponding Fire Protection Safety Evaluation Report (SER). Table 1 of the SER listed the plant modifications and their respective completion dates. All of the items in Table 1 have been implemented, as required, and as such the fire protection program for the Cook Plant is in full compliance with the guidelines contained in Appendix A to Branch Technical Position APCSB 9.5-1 and General Design Criterion 3. These facts are supported by the NRC's conclusion drawn in the July 31, 1979 SER which states:

> "Our conclusion is that a fire occurring in any area of the D. C. Cook Nuclear Plant will not prevent either unit from being brought to a controlled safe shutdown, and further that such a fire would not cause the release of significant amounts of radiation".

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On January 30, 1981, the Commission issued Amendments No. 44 and No. 26 to the Cook Plant Operating Licenses which provided us with the final revision to our fire protection Technical Specifications in accordance with Table 1 of the Fire Protection SER.

Enclosure 2 to Mr. Eisenhut's November 24, 1980 letter states that no open items from previous NRC staff fire protection reviews exist for the Cook Plant. The attachment to this letter demonstrates that the Cook Plant is already in compliance with the applicable provisions of Appendix R, noted above, which Mr. Eisenhut's letter requires to be backfit. These provisions of Appendix R, although not explicitly required by NRC Branch Technical Position APCSB 9.5-1, were included in the previous fire protection upgrade effort as a result of the Plant's Fire Hazards Analysis and the ensuing NRC questions/positions on the fire protection features of the Cook Plant.

Very truly yours,

R. S. Hunter
Vice President

cc: John E. Dolan - Columbus
R. W. Jurgensen
D. V. Shaller - Bridgman
R. C. Callen
G. Charnoff
Region III Resident Inspector at Cook Plant - Bridgman

ATTACHMENT

TO

AEP:NRC:00428A

This attachment provides our response to Sections III.G, III.J and III.O of Appendix R to 10.CFR.50 as required by 10CFR50.48(c)(5). The information and references provided below demonstrate compliance with those sections of Appendix R and, as such, no further plant modifications are necessary.

Section III.G, "Fire Protection of Safe Shutdown Capability"

The initial design of the Cook Nuclear Plant employs a Hot Shutdown panel for each Unit separated from its associated Unit's control room. This control panel contains sufficient instruments and controls to shut the reactor down and maintain it in a hot shutdown condition.

Upon receipt of IE Bulletins 75-04 and 75-04A, issued subsequent to the Brown's Ferry Fire, a thorough study of the Cook Plant design was made to determine what changes and additions would have to be made to the existing plant design to permit shutting the reactor down and bringing the Unit to a cold shutdown condition from outside the control room. This study was completed and is described in our responses to the bulletins and monthly progress reports on the status of the work submitted to the NRC. The required engineering changes consisted of the installation in each Unit of local remote shutdown indicator panels with cabling independent of the cable spreading rooms. An alternate emergency shutdown and cooldown procedure in the event of a loss of normal and preferred alternate methods has been developed for use in conjunction with the local shutdown system. The procedure has been written so that it can be used in part or in its entirety by providing instructions for taking local control of any operation that can not be performed using normal or preferred alternate methods. The specific procedures for modifying components for local control are mounted at the component so that they will be readily available when the need arises. Through the use of these local shutdown panels, modifications of standby essential equipment for local manual control and the associated emergency shutdown and cooldown procedure, we have the installed and demonstrated capability to safely shutdown and cooldown the plant with or without offsite power upon loss of control of essential systems and equipment from the control room and/or the hot shutdown panel.

We provided further detailed descriptive information on the local shutdown system and procedures in our response to Appendix A to Branch Technical Position APCSB 9.5-1, in our Fire Hazards Analysis, during the NRC fire protection site visit (April 19-22, 1977), at the May 11, 1977 meeting with the NRC staff, in our letter of June 1, 1977 (followup to the May 11, 1977 meeting), in parts of Appendix Q to the FSAR (Question 040.5) and in our responses to the "Fire Protection Questions" 1, 40, 46, 47, 52 asked in Mr. K. Kniel's letter of July 11, 1977. In addition, we have provided in both Units 1 and 2 local manual control capability of the emergency diesel generators as part of the alternate local shutdown system in accordance with Unit 2 license condition 2. C. 3. (O). (c). This provides the local shutdown system with the capability of performing its function given a loss of offsite power. The NRC fire protection SER, issued July 31, 1979, accepted the Cook local shutdown system and amended the Cook operating licenses accordingly, (removing Unit 2 license condition 2.C.3.(O) entirely). All changes and improvements listed in Table 1 of the SER, including those pertaining to the

local shutdown system have been implemented. Furthermore, as reported in the SER, the procedures and control operations for the local shutdown method were tested during Unit 2 initial power ascension. As such, the Cook Plant capability to achieve and maintain a safe cold shutdown condition including the necessary communications has been fully demonstrated.

Our fire hazards analysis considered the effects of fire in every fire zone in the Cook Plant with respect to structures, systems, and components important to safe shutdown. In all cases the ability to achieve and maintain a safe shutdown condition is preserved. Redundancy of design and separation of systems and equipment is provided in the Cook Plant design. As stated in our response to Question 040.6 in Appendix Q to the FSAR, the design of the Cook Plant complies with the separation requirements of Safety Guide 1.75 as applied to Class IE equipment and circuitry.

For the treatment of associated circuits the Cook Plant design provides the following:

a) Non Class IE cables are routed with Class IE cables in cable trays. The cable numbers of these associated circuits are modified to include a letter designation identifying the train association. These cables are allowed to leave the Class IE cable trays and be routed with non-safety cables but are not allowed to be again routed with Class IE cables of either safety train.

b) Non-safety loads are allowed to be connected to safety buses in the following manner. All non-safety loads, whether shed automatically upon transfer to emergency power or retained, are powered through Class IE circuit interrupting devices. All load shedding devices are Class IE as are the fault detecting and isolating equipment applied to disconnecting non-safety related loads. The non-safety loads are described in our response to Question 040.11 and 040.14 in Appendix Q to the FSAR. These non-safety loads do not degrade the performance of any safety bus. Class IE circuit breakers are provided for non-safety AC loads fed from AC safety buses which are not shed following a loss of offsite power.

c) For the DC power system, fuses are used as the protective devices for non-safety loads connected to the DC safety buses. Non-safety cables originating from the CD battery (for example) are permitted to be routed with safety cables of the CD battery only. Non-safety cables from the CD battery are allowed to leave the CD battery safety trays and be routed with the balance of plant cables in non-safety trays but are not allowed to be again routed with CE battery safety cables. Once the non-safety cable leaves the safety train routing it must remain in the non-safety cable routing and cannot be again routed with the safety train cables of either train.

d) Protection grade instrumentation safety equipment is protected from faults in the non-safety analog circuits connected to it by Isolators.

When accounting for the redundancy and separation of circuits for equipment necessary to achieve and maintain safe shutdown (Class IE circuits) and our treatment of associated circuits, the Cook Plant design provides adequate protection of safe shutdown capability. For any areas of the plant which were determined to be susceptible to a fire exposure from transient fire loads automatic fire detection and automatic sprinkler systems are provided. These fire protection systems were installed in the Cook Plant in accordance with Table 1 of the SER and these systems are included in our fire protection Technical Specifications. As such the Cook Plant design provides adequate protection of safe shutdown capability and supports the conclusion that a fire occurring in any area of the Cook Plant should not prevent either Unit from being brought to a controlled safe shutdown. Furthermore, special attention was given to the design of the local shutdown system so that either Unit could be brought to and maintained in a cold shutdown condition for the case of a fire in the cable spreading room rendering circuits in the main control room and hot shutdown panel inoperable. No further actions need to be taken with regard to Section III.G of Appendix R for the Cook Plant.

Section III.J "Emergency Lighting"

Emergency lighting units with an eight (8) hour battery pack are provided in all areas of the plant needed for operation of safe shutdown equipment and in access and egress routes thereto. This requirement has already been implemented in accordance with our September 30, 1977 response to fire protection questions Nos. 1 and 40 on the schedule pursuant to item No. 22 contained in Table 1 of the NRC fire protection SER. No further actions are necessary with regard to Section III.J of Appendix R for the Cook Plant.

Section III.O "Oil Collection System for Reactor Coolant Pump"

The Reactor Coolant Pump (RCP) oil spillage control and protection system has already been installed on each RCP in both Units of the Cook Plant in accordance with our August 19, 1977 response to fire protection question No. 51 as supplemented by our November 22, 1977 letter which, in part, provided additional information with regard to question No. 51 subsequent to our November 3-4, 1977 meeting with the NRC Staff.

This system was installed in accordance with item No. 19A of Table 1 of the NRC Fire Protection SER. This system fully meets the requirements of Section III.O of Appendix R and no further action is required for Cook Plant.

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

DEC 3 1 1981

Docket Nos.: 50-315
50-316

MEMORANDUM FOR: Thomas Novak, Assistant Director
for Operating Reactors
Division of Licensing

FROM: William V. Johnston, Assistant Director
for Materials & Qualifications Engineering
Division of Engineering

SUBJECT: FIRE PROTECTION STATUS - D.C. COOK UNITS 1 & 2 (TAC#47036/47037)

Facility: Donald C. Cook Nuclear Plant Unit Nos. 1 & 2
Licensee: Indiana & Michigan Electric Company
Docket Nos: 50-315/316
Responsible Branch: ORB #1
Project Manager: Sydney Miner
Reviewing Branch: Chemical Engineering Branch
Reviewer: R. Anand
Status: Complete

On February 17, 1981, the fire protection rule for operating nuclear power plants, 10 CFR 50.48 and Appendix R to 10 CFR Part 50 became effective. By letter dated March 27, 1981, the licensee stated that D.C. Cook Plant Units 1 and 2 meet the requirements of sections III.G, III.J and III.O of Appendix R to 10 CFR Part 50. Therefore, no technical exemptions were requested nor were any modifications proposed to meet the requirement of III.G-3 which specifies alternative or dedicated shutdown capability if other requirements of III.G are not met. Therefore, DSI/ASB does not have this plant under review.

The CMEB review of the fire protection program is complete.

for William V. Johnston, Assistant Director
for Materials & Qualifications Engineering
Division of Engineering

cc: R. Vollmer
D. Eisenhut
R. Tedesco
V. Benaroya
T. Wambach
O. Parr
R. Ferguson
S. Varga
V. Panciera
S. Minor
T. Sullivan
R. Anand

JAN 0 6 1982

Docket No. 50-316

LICENSEE: Indiana & Michigan Electric Company

FACILITY: D. C. Cook Nuclear Plant, Unit No. 2

SUMMARY OF MEETING HELD ON DECEMBER 8, 1981 WITH INDIANA AND MICHIGAN ELECTRIC COMPANY AND AMERICAN ELECTRIC POWER SERVICE CORPORATION TO DISCUSS THE USE OF EXXON NUCLEAR FUEL FOR THE FUEL CYCLE NO. 4 RELOAD OF D. C. COOK NUCLEAR PLANT UNIT NO. 2 AND A PROPOSED INCREASE IN UNIT NO. 2 POWER ABOUT 1%

A meeting was held December 8, 1981 between members of Indiana & Michigan Electric Company (licensee), American Electric Power Service Corporation, Exxon Nuclear and the NRC. The purpose of the meeting was to give the licensee the opportunity of (1) discussing with the NRC staff the information required to justify a proposed Unit No. 2 power increase, and the supporting information to be supplied with regard to the reload of Unit No. 2 with Exxon fuel. The attendees list (Enclosure 1) and copies of the meeting viewgraphs are attached.

A. Proposed Power Increase

The licensee stated that they will propose to increase the Thermal Power of Unit 2 from 3391 MWt to 3425 MWt following the September 1982 refueling. Subsequently, during a telephone conversation the licensee stated the the Thermal Power increase will be limited to 3411 MWt (the current maximum for a 4 loop Westinghouse Plants). The licensee stated the the increase can be accomplished without any hardware changes. We had the following comments:

MAH

(1) They probably will have to amend the environmental report.

(2) They should review the new decay heat load to determine whether there will be an impact.

(3) They should review and provide for the record any analysis which references power level.

(4) The current burnup level for fuel handling is 25,000 MWD/Mt. If they expect burnup beyond this it will have to be addressed.

OFFICE ▷							
SURNAME ▷							
DATE ▷							

(5) If the fission product inventory, enrichment or burnups are different from those currently used in the analysis of normal radioactive releases or releases due to accidents or transients, the impact of this on the Safety Analysis in the FSAR should be provided.

B. Unit No. 2 Core Reload for Cycle 4

The fuel for the reload will be 17x17 fuel supplied by Exxon Nuclear. The current core is loaded with 17x17 Westinghouse Fuel. The codes (methodology) and the status of the codes to be used in the analysis to support the reload are shown in Enclosure 2. The outline of the information to be provided is shown in Enclosure 3. The licensee indicated that in their application they will supply only the large break LOCA analysis. The small break analysis will be provided as part of the TMI items.

Summary

The licensee provided a schedule (Enclosure 4) for submission of their license amendment request, the data necessary to support the request and the NRC approval dates necessary to support the November 1982 startup schedule following the next Unit 2 reload. We noted that some of the ENC topical reports on Evaluation Models had not been submitted for NRC review. The schedule for their submittals allows only two to four months for their approval by the NRC. We indicated that with the current scheduled NRC workload this is a very tight schedule for approval of topicals required to support a Safety Evaluation to be completed in time for Unit No. 2 startup.

Sydner Miner, Project Manager
Operating Reactors Branch #1
Division of Licensing

Enclosures:
As stated

cc w/enclosures:
See next page

OFFICE ▷	ORB#1:DL	ORB#1:DL					
SURNAME ▷	SMiner:ds	Varga					
DATE ▷	01/5/82	01/6/82					

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MEETING SUMMARY
OPERATING REACTORS BRANCH NO. 1
DIVISION OF LICENSING

DISTRIBUTION

Docket File
NRC PDR
Local PDR
ORB No. 1 Rdg File
J. Olshinski
J. Heltemes, AEOD
B. Grimes (Emergency Preparedness)
S. Varga
Project Manager
OELD
OI&E (3)
C. Parrish
ACRS (10)
NRC Participant
NSIC
TERA

cc: Licensee with short cc list

Mr. John Dolan
Indiana and Michigan Electric Company

cc: Mr. Robert W. Jurgensen
Chief Nuclear Engineer
American Electric Power
Service Corporation
2 Broadway
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Gerald Charnoff, Esquire
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1800 M Street, N.W.
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Maude Preston Palenske Memorial
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Mr. D. Shaller, Plant Manager
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U. S. Nuclear Regulatory Commission
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770 Red Arrow Highway
Stevensville, Michigan 49127

William J. Scanlon, Esquire
2034 Pauline Boulevard
Ann Arbor, Michigan 48103

The Honorable Tom Corcoran
United States House of Representatives
Washington, D. C. 20515

ENCLOSURE 1
AEP MEETING
D. C. COOK UNIT 1 & 2
DECEMBER 8, 1981

Sydney Miner	NRR/DL
Tim Mo	NRR/RAB
Nick Fioravante	NRR/DSI/ASB
H. J. Richings	NRR/DSI/CPB
J. A. Mitchell	NRR/DSI/AEB
Michele M. DeWitt	Westinghouse
R. H. McFetridge	Westinghouse
W. Pasedag	NRC/AEB
Howard L. Sobel	AEP - Nuclear Engineering
Juan I. Castresana	AEP - Nuclear Engineering
Jude G. DelPercio	AEPSC - Nuclear Engineering
John J. Weiss	AEPSC - Nuclear Engineering
Gerald Owsley	Exxon Nuclear
J. N. Morgan	Exxon Nuclear
H. E. Williamson	Exxon Nuclear
Lambros Lois	NRC/CPB
Norm Lanbey	NRC/RSB

ENCLOSURE 2

D. C. COOK UNIT 2

CYCLE 4 RELOAD AND STRETCH POWER LICENSING

METHODOLOGY	LICENSING STATUS
• NEUTRONICS	
ANALYSIS METHODS	APPROVED
POWER DISTRIBUTION CONTROL	BASIC APPROVED; OPTION UNDER REVIEW
• THERMAL HYDRAULICS	
THERMAL HYDRAULIC CONDITIONS	APPROVED
DNBR CORRELATION	BEING REVISED
PRESSURE DROP TESTING	RESULTS INCORPORATED
ROD BOW EFFECT	UNDER REVIEW
• MECHANICAL DESIGN	
DESIGN CRITERIA & BASIC DESIGN	APPROVED FOR SPECIFIC PREVIOUS APPLICATIONS
DESIGN ANALYSIS - RODEX2	UNDER REVIEW

METHODOLOGY (CONT.)	LICENSING STATUS
• PLANT TRANSIENTS	
PTS/PWR2	APPROVED FOR SPECIFIC PREVIOUS APPLICATIONS
• ROD EJECTION ACCIDENT	
XTRAN	APPROVED
GENERIC ANALYSIS	APPROVED FOR SPECIFIC PREVIOUS APPLICATIONS
• ECCS	
RELAP4-EM	APPROVED
REFLEX, TOODEE2	BEING REVISED
RODEX2	UNDER REVIEW

ENCLOSURE 3

RELOAD APPLICATION FOR

D. C. COOK UNIT 2 AT 3425 MWT

ITEM	
MECHANICAL DESIGN	ENC TOPICAL REPORT REFERENCED (TOPICAL REPORT TO BE SUBMITTED)
THERMAL-HYDRAULIC DESIGN	
NEUTRONIC/CYCLE DESIGN	
PLANT TRANSIENT ANALYSIS	- SEPARATE REPORT LIMITING TRANSIENTS WILL BE IDENTIFIED. ABOUT 7 WILL NEED TO BE ANALYZED.
ECCS ANALYSIS	
LARGE BREAK	- SEPARATE REPORT
SMALL BREAK	- REFERENCE FSAR
ROD EJECTION	- REFERENCE ENC TOPICAL REPORT
TECHNICAL SPECIFICATION CHANGES	

ENCLOSURE 4

LICENSING SCHEDULE

ITEM	ACTION DATE	ORGANIZATION
TOPICAL REPORT - FUEL ROD THERMAL-MECHANICAL RESPONSE EVALUATION MODEL Rodex	8/81	ENC
TOPICAL REPORT - JUSTIFICATION FOR INCREASED FUEL EXPOSURE - (RESPONSE TO NRC LETTER TO ENC DATED 8/17/81)	1/82	ENC
TOPICAL REPORT - MODIFIED ECCS EVALUATION MODEL (ENC INITIATED ACTION TO MODIFY ITS ECCS EVALUATION MODEL IN MID-1981; ENC LETTER TO NRC DATED 9/21/81)	1/82	ENC
TOPICAL REPORT - MODIFIED DNBR CORRELATION FOR PWR'S WHICH INCORPORATES 17x17 FUEL AND APPROPRIATE METHODOLOGY FOR APPLYING THE MODEL	2/82	ENC
TOPICAL REPORT - MECHANICAL DESCRIPTION OF 17x17 FUEL DESIGN	3/82	ENC
APPLICATION FOR D. C. COOK UNIT NO. 2 OPERATION WITH ENC FUEL AT A REACTOR THERMAL POWER LEVEL OF 3425 MWT	3/82	IMECo
APPROVAL OF MODIFIED ECCS EVALUATION MODEL	4/82	NRC
APPROVAL OF RODEX2 FUEL PERFORMANCE CODE	6/82	NRC
APPROVAL OF DNBR CORRELATION	6/82	NRC
FUEL POOL LIMIT	8/82	
APPROVAL OF D. C. COOK UNIT 2 APPLICATION	10/82	NRC
D. C. COOK UNIT 2 STARTUP - CYCLE 4	11/82	IMECo