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 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316
 AUTH. NAME AUTHOR AFFILIATION
 ALEXICH, M. P. Indiana & Michigan Electric Co.
 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Advises of commitment to update projected ref temp for PTS
 using new methodology within next three yrs & confirms info
 given verbally to NRC on 861222. Reanalysis of 1984 fluence
 calculations unnecessary.

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 TITLE: OR, Submittal: Thermal Shock to Reactor Vessel.

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THE STATE OF TEXAS, COUNTY OF DALLAS, ss. I, the undersigned, Clerk of the County, do hereby certify that the within and foregoing is a true and correct copy of the original as the same appears from the records of the County of Dallas, Texas.

WITNESSED my hand and the seal of the County of Dallas, Texas, this 1st day of January, 1901.

CLERK OF THE COUNTY OF DALLAS, TEXAS.

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INDIANA & MICHIGAN ELECTRIC COMPANY

P.O. BOX 16631
COLUMBUS, OHIO 43216

February 27, 1987
AEP:NRC:0561B
10 CFR 50.61

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
10 CFR 50.61 - PRESSURIZED THERMAL SHOCK RULE

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Dear Sirs:

This submittal is made pursuant to a concern raised by the NRC staff on the methodology used to calculate the peak neutron fluence values contained in the Southwest Research Institute (SwRI) reports referenced in submittal AEP:NRC:0561A, dated January 22, 1986, and serves to confirm information given verbally to the NRR staff on December 22, 1986. The SwRI reports for Donald C. Cook Units 1 and 2 were transmitted to the NRC via letter AEP:NRC:0894A, dated July 20, 1984.

The NRC staff indicated concern that we were using a first order Legendre polynomial (P_1) rather than the third order, (P_3) in development of the finite-order Legendre expansion of the differential scatter cross sections.

In particular, the staff's concern centered around SwRI's use of a P_1 expansion of the scattering matrix in lieu of the P_3 expansion for calculation of cumulative neutron fluence values. The NRC staff also noted that use of P_3 expansion of the scattering matrix would result in a higher cumulative neutron fluence. This higher fluence would result in higher projected Reference Temperature for Pressurized Thermal Shock (RT-PTS) values.

Discussion with SwRI indicated that P_1 expansion was the state-of-the-art technique in 1984, when the latest Unit 1 and Unit 2 reports were prepared. They also verified that transport calculations using the P_3 approximation are greater than those using the P_1 approximation by 15-20%. Subsequent to preparation of those reports, SwRI began using newer methodology. SwRI is currently evaluating the recently removed Unit 2 reactor vessel material surveillance specimen (Capsule X) using more

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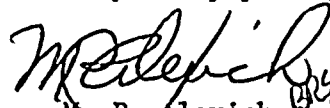
advanced techniques. These include use of the P_3 expansion of the scattering matrix. The report on this Capsule X³ analysis, which is scheduled to be submitted to the NRC in mid-1987, will be used to update our submittal on projected Reference Temperatures (RT-PTS) for Unit 2. Similarly, the Unit 1 projected RT-PTS will be updated following analysis of Capsule U, scheduled to be removed at the end of the Cycle 10 (estimated to be mid-1989).

Our submittal AEP:NRC:0561A shows the projected RT-PTS values for both Unit 1 and Unit 2 to be well below the screening criteria of 10 CFR 50.61. Sensitivity calculations demonstrate that significant increases in fluence (on the order of 100% for Unit 1 and 700% for Unit 2) would be necessary to exceed the screening criteria prior to expiration of the operating license for either unit. Increases in projected fluence as a result of using the new methodology (i.e., P_3 expansion of the scattering matrix) are not expected to be of such magnitude and should have a minor effect on projected RT-PTS values.

Based on the relatively minor impact of the new methodology on projected RT-PTS and our commitment to update both units' projected RT-PTS values using the new methodology within the next three years, we believe reanalysis of the 1984 fluence calculations is unnecessary, and we request that the staff complete the review of letter AEP:NRC:0561A as previously submitted.

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,


M. P. Alexich *MS* 2/26/86
Vice President

cm

cc: John E. Dolan
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Bruchmann
G. Charnoff
NRC Resident Inspector
J. G. Keppler - Region III

February 13, 1987

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DOCKET NO(S): 50-315

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

SUBJECT: D. C. Cook Nuclear Plant, Unit 1

The following documents concerning our review of the subject facility are transmitted for your information.

- ☐ Notice of Receipt of Application, dated _____.
- ☐ Draft/Final Environmental Statement, dated _____.
- ☐ Notice of Availability of Draft/Final Environmental Statement, dated _____.
- ☐ Safety Evaluation Report, or Supplement No. _____ dated _____.
- ☐ Environmental Assessment and Finding of No Significant Impact, dated _____.
- ☐ Notice of Consideration of Issuance of Facility Operating License or Amendment to Facility Operating License, dated _____.
- ☒ Bi-Weekly Notice; Applications and Amendments to Operating Licenses Involving No Significant Hazards Considerations, dated 02/11/87 [see page(s)] 4409.
- ☐ Exemption, dated _____.
- ☐ Construction Permit No. CPPR-_____, Amendment No. _____ dated _____.
- ☐ Facility Operating License No. _____, Amendment No. _____ dated _____.
- ☐ Order Extending Construction Completion Date, dated _____.
- ☐ Monthly Operating Report for _____ transmitted by letter dated _____.
- ☐ Annual/Semi-Annual Report- _____
_____ transmitted by letter dated _____.

Office of Nuclear Reactor Regulation

Enclosures:

As stated

cc: See next page

OFFICED	PWR#4/DPWR-A	PWR#4/DPWR-A				
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DATE	02/20/87	02/20/87				

