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

November 29, 1984

Docket No. 50-315

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

Dear Mr. Dolan:

The Commission has issued the enclosed Amendment No. 82 to Facility Operating License No. DPR-58 for the Donald C. Cook Nuclear Plant, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated August 23, 1984.

The amendment revises the Technical Specifications for burnup dependent core physics parameters for Exxon fuel left in Unit 1 and for increases in the heat flux hot channel factor, F_Q, for Westinghouse fuel in Unit 1.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular monthly Federal Register notice.

Sincerely,

David L. Wigginton, Project Manager
Operating Reactors Branch #1
Division of Licensing

Enclosures:
1. Amendment No. 82 to DPR-58
2. Safety Evaluation

cc: w/enclosures
See next page

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Indiana and Michigan Electric Company

Donald C. Cook Nuclear
Plant, Units 1 and 2

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

INDIANA AND MICHIGAN ELECTRIC COMPANY

DOCKET NO. 50-315

DONALD C. COOK NUCLEAR PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 82
License No. DPR-58

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Indiana and Michigan Electric Company (the licensee) dated August 23, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-58 is hereby amended to read as follows:

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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 82 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The change in Technical Specifications is to become effective within 30 days of issuance of the amendment.

4. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 29, 1984

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 82 FACILITY OPERATING LICENSE NO. DPR-58

DOCKET NO. 50-315

Revise Appendix A as follows:

Remove Pages	Insert Pages
3/4 2-5	3/4 2-5
3/4 2-6	3/4 2-6
3/4 2-7	3/4 2-7
3/4 2-9	3/4 2-9
3/4 2-11	3/4 2-11
3/4 2-18	3/4 2-18
3/4 2-20	3/4 2-20
3/4 2-23	3/4 2-23
3/4 2-24	3/4 2-24

HEAT FLUX HOT CHANNEL FACTOR-$F_Q(Z)$

LIMITING CONDITION FOR OPERATION

3.2.2 $F_Q(Z,\ell)$ shall be limited by the following relationships:

Westinghouse Fuel	Exxon Nuclear Co. Fuel	
$F_Q(Z,\ell) \leq \frac{2.10}{P}\ [K(Z)]$	$F_Q(Z,\ell) \leq [\frac{F_Q^L(E_\ell)}{P}]\ [K(Z)]$	$P > 0.5$
$F_Q(Z,\ell) \leq [4.20]\ [K(Z)]$	$F_Q(Z,\ell) \leq 2\ [F_Q^L(E_\ell)\ K(Z)]$	$P \leq 0.5$

where $P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$

$F_Q^L(E_\ell)$ is the exposure dependent F_Q limit for rod ℓ and is defined in Figure 3.2-4 for Exxon Nuclear Co. fuel and in Figure 3.2-5 for Westinghouse fuel. E_ℓ is the maximum pellet exposure in rod ℓ. K(Z) is the function obtained from Figure 3.2-3 for Westinghouse fuel and Figure 3.2-2 for Exxon Nuclear Co. fuel. F_Q is defined as the $F_Q(Z,\ell)$ with the smallest margin or the greatest excess of the limit.

APPLICABILITY: MODE 1

ACTION:

With F_Q exceeding its limit:

a. Comply with either of the following ACTIONS:

1. Reduce THERMAL POWER at least 1% for each 1% F_Q exceeds the limit within 15 minutes and similarly reduce the Power Range Neutron Flux-High Trip Setpoints within the next 4 hours; POWER OPERATION may proceed for up to a total of 72 hours; subsequent POWER OPERATION may proceed provided the Overpower ΔT Trip Setpoints have been reduced at least 1% for each 1% F_Q exceeds the limit. The Overpower ΔT Trip Setpoint reduction shall be performed with the reactor in at least HOT STANDBY.

LIMITING CONDITION FOR OPERATION (Continued)

2. Reduce THERMAL POWER as necessary to meet the limits of Specification 3.2.6 using the APDMS with the latest incore map and updated R.

b. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER; THERMAL POWER may then be increased provided F_Q is demonstrated through incore mapping to be within its limit.

SURVEILLANCE REQUIREMENTS

4.2.2.1 The provisions of Specification 4.0.4 are not applicable.

4.2.2.2 $F_Q(Z,\ell)$ shall be determined to be within its limit by:

a. Using the movable incore detectors to obtain a power distribution map at any THERMAL POWER greater than 5% of RATED THERMAL POWER.

b. Increasing the measured $F_Q(Z,\ell)$ component of the power distribution map by 3% to account for manufacturing tolerances and further increasing the value by 5% to account for measurement uncertainties. This product is defined as $F_Q^M(Z)$.

c. Satisfying the following relationships at the time of the target flux determination.

Westinghouse Fuel	Exxon Nuclear Co. Fuel	
$F_Q^M(Z) \leq \left[\frac{2.10}{P \times E_p(Z)}\right] \frac{K(Z)}{V(Z)}$	$F_Q^M(Z) \leq \left[\frac{F_Q^L(Z)}{P \times E_p(Z)}\right] \frac{K(Z)}{V(Z)}$	$P > 0.5$
$F_Q^M(Z) \leq \left[\frac{4.20}{E_p(Z)}\right] \frac{K(Z)}{V(Z)}$	$F_Q^M(Z) \leq \left[\frac{2\, F_Q^L(Z)}{E_p(Z)}\right] \frac{K(Z)}{V(Z)}$	$P \leq 0.5$

SURVEILLANCE REQUIREMENTS (Continued)

where

$F_Q^M(Z) = F_Q(Z,\ell)$ at ℓ for which

$\frac{F_Q(Z,\ell)}{T(E_\ell)}$ is a maximum

$F_Q^L(Z) = F_Q^L(E_\ell)$ at ℓ for which

$\frac{F_Q(Z,\ell)}{T(E_\ell)}$ is a maximum

$F_Q^M(Z)$ and $F_Q^L(Z)$ are functions of core height, Z, and correspond at each Z to the rod ℓ for which $\frac{F_Q(Z,\ell)}{T(E_\ell)}$ is a maximum at that Z

V(Z) is a cycle dependent function and is provided in the Peaking Factor Limit Report. K(Z) is defined in Figure 3.2-2 for Exxon Nuclear Company fuel and in Figure 3.2-3 for Westinghouse fuel. $T(E_\ell)$ is defined in Figures 3.2-4 and 3.2-5. $E_p(Z)$ is an uncertainty factor to account for the reduction in the $F_Q^L(E_\ell)$ curve due to accumulation of exposure prior to the next flux map.

Westinghouse Fuel	Exxon Nuclear Co. Fuel	
$E_p(Z) = 1.0$	$E_p(Z) = 1.0$	$0.0 \leq E\ell \leq 17.62$
$E_p(Z) = 1.0$	$E_p(Z) = 1.0 + [.0040 \times F_Q^M(Z)]$	$17.62 < E\ell \leq 34.5$
$E_p(Z) = 1.0$	$E_p(Z) = 1.0 + [.0093 \times F_Q^M(Z)]$	$34.5 < E\ell \leq 42.2$
	$E_p(Z) = 1.0 + [.0060 \times F_Q^M(Z)]$	$42.2 < E\ell \leq 48.0$

2. Comply with the requirements of Specification 3.2.2 for $F_Q(Z,\ell)$ exceeding its limit by the maximum percent calculated with the following expressions with V(Z) corresponding to the target band and $P \geq 0.5$:

$$\left[\left[\text{max. over Z of } \frac{F_Q^M(Z) \times V(Z) \times E_p(Z)}{\frac{F_L^Q(E_\ell)}{P} \times [K(Z)]}\right] - 1\right] \times 100$$

Exxon Nuclear Co Fuel

$$\left[\left[\text{max. over Z of } \frac{F_Q^M(Z) \times V(Z) \times E_p(Z)}{\frac{2.10}{P} \times [K(Z)]}\right] - 1\right] \times 100$$

WESTINGHOUSE FUEL

g. The limits specified in 4.2.2.2.c and 4.2.2.2.f above are not applicable in the following core plane regions:

1. Lower core region 0 to 10% inclusive.

2. Upper core region 90% to 100% inclusive.

4.2.2.3 When $F_Q(Z,\ell)$ is measured for reasons other than meeting the requirements of Specification 4.2.2.2, an overall measured $F_Q(Z,\ell)$ shall be obtained from a power distribution map and increased by 3% to account for manufacturing tolerances and further increased by 5% to account for measurement uncertainty.

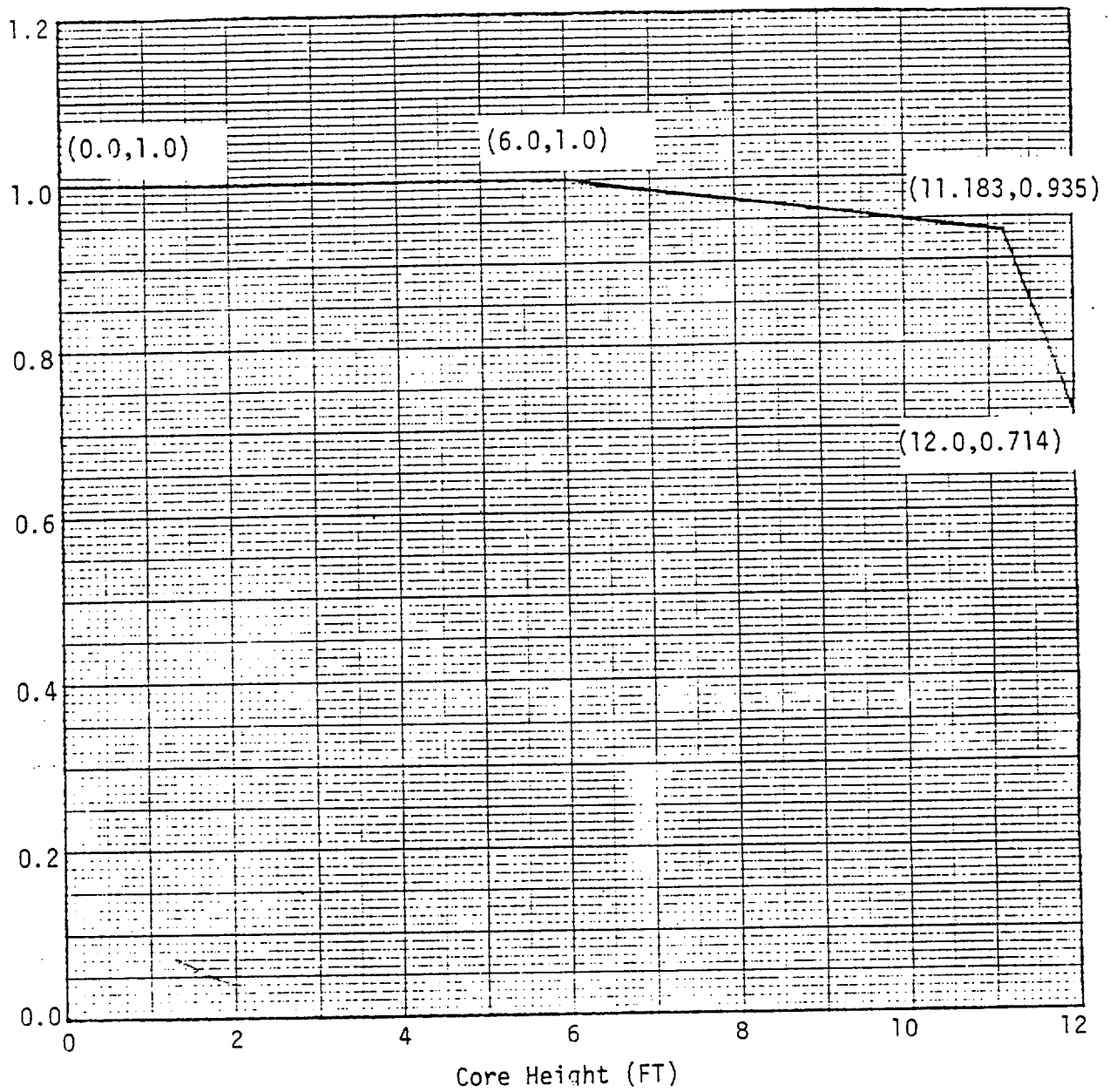

FIGURE 3.2-3 K(Z) - Normalized $F_Q(Z)$ As A Function of Core Height For Westinghouse Fuel

LIMITING CONDITION FOR OPERATION

3.2.6 The axial power distribution shall be limited by the following relationship:

Westinghouse Fuel

$$[F_j(Z)]_s = \frac{[2.10]\,[K(Z)]}{(\overline{R_j})(P_L)(1.03)(1+\sigma_j)(1.07)F_p}$$

Exxon Nuclear Co. Fuel

$$[F_j(Z)]_s = \frac{[2.04]\,[K(Z)]}{(\overline{R_j})(P_L)(1.03)(1+\sigma_j)(1.07)F_p}$$

where:

a. $F_j(Z)$ is the normalized axial power distribution from thimble j at core elevation Z.

b. P_L is the fraction of RATED THERMAL POWER.

c. K(Z) is the function obtained for a given core height location from Figure 3.2-2 for Exxon Nuclear Comoany fuel and from Figure 3.2-3 for Westinghouse fuel.

d. $\overline{R}_j$, for thimble j, is determined from at least n=6 in-core flux maps covering the full configuration of permissible rod patterns at 100% or APL (whichever is less) of RATED THERMAL POWER in accordance with:

$$\overline{R_j} = \frac{1}{n}\sum_{i=1}^{n} R_{ij}$$

where:

$$R_{ij} = \frac{F_{Qi\ell}^{Meas}/T(E\ell)}{[F_{ij}(Z)]_{Max}}$$

R_{ij} and its associated σ_i may be calculated on a full core or a limiting fuel batch basis as defined on page B 3/4 3-3 of basis.

LIMITING CONDITION FOR OPERATION (Continued)

Westinghouse Fuel	ENC Fuel	
$F_p = 1.0$	$F_p = 1.0$	$0.0 \leq E\ell \leq 17.62$
$F_p = 1.0$	$F_p = 1.0 + [.0015 \times W]$	$17.62 < E\ell \leq 34.5$
$F_p = 1.0$	$F_p = 1.0 + [.0033 \times W]$	$34.5 < E\ell \leq 42.2$
	$F_p = 1.0 + [.0020 \times W]$	$42.2 < E\ell \leq 48.0$

where W is the number of effective full power weeks (rounded up to the next highest integer) since the last full core flux map.

APPLICABILITY: Mode 1 above the minimum percent of RATED THERMAL POWER indicated by the relationships.*

$$APL = \text{min over } Z \text{ of } \frac{2.10 \times K(Z)}{F_Q(Z,\ell) \times V(Z)} \times 100\ \%$$ Westinghouse Fuel

$$APL = \text{min over } Z \text{ of } \frac{F_Q^L(E_\ell) \times K(Z)}{F_Q(Z,\ell) \times V(Z) \times E_p(Z)} \times 100\ \%$$ Exxon Nuclear Co. Fuel

where $F_Q(Z,\ell)$ is the measured $F_Q(Z,\ell)$, including a 3% manufacturing tolerance uncertainty and a 5% measurement uncertainty, at the time of target flux determination from a power distribution map using the movable incore detectors. V(Z) is the function given in the Peaking Factor Limit Report. The above limit is not applicable in the following core plane regions.

1. Lower core region 0% to 10% inclusive.
2. Upper core region 90% to 100% inclusive.

*The APDMS may be out of service when surveillance for determining power distribution maps is being performed.

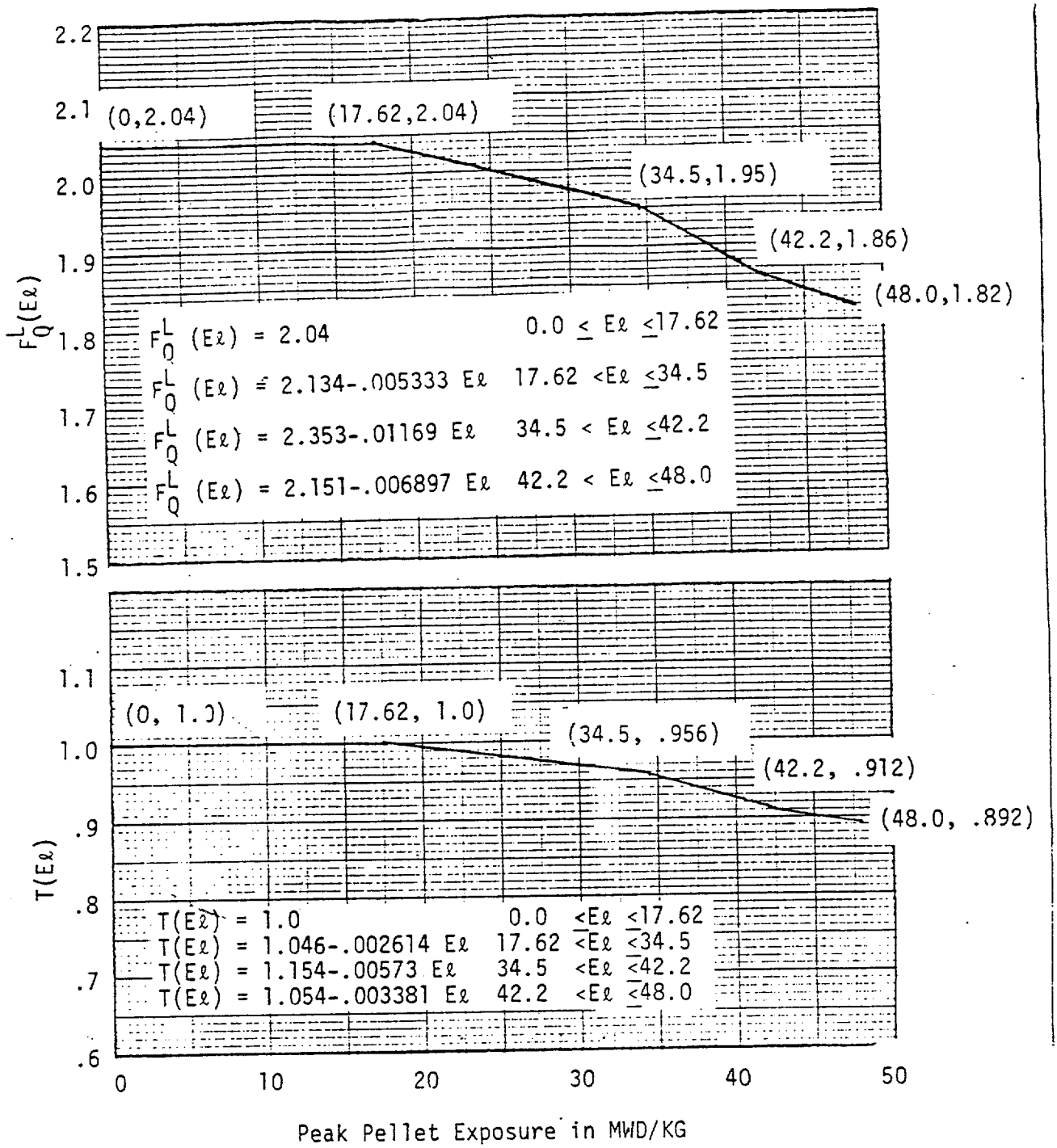

FIGURE 3.2-4

Exposure Dependent F_Q Limit, $F_Q^L(E\ell)$, and Normalized Limit $T(E\ell)$ as a function of Peak Pellet Burnup for Exxon Nuclear Company Fuel

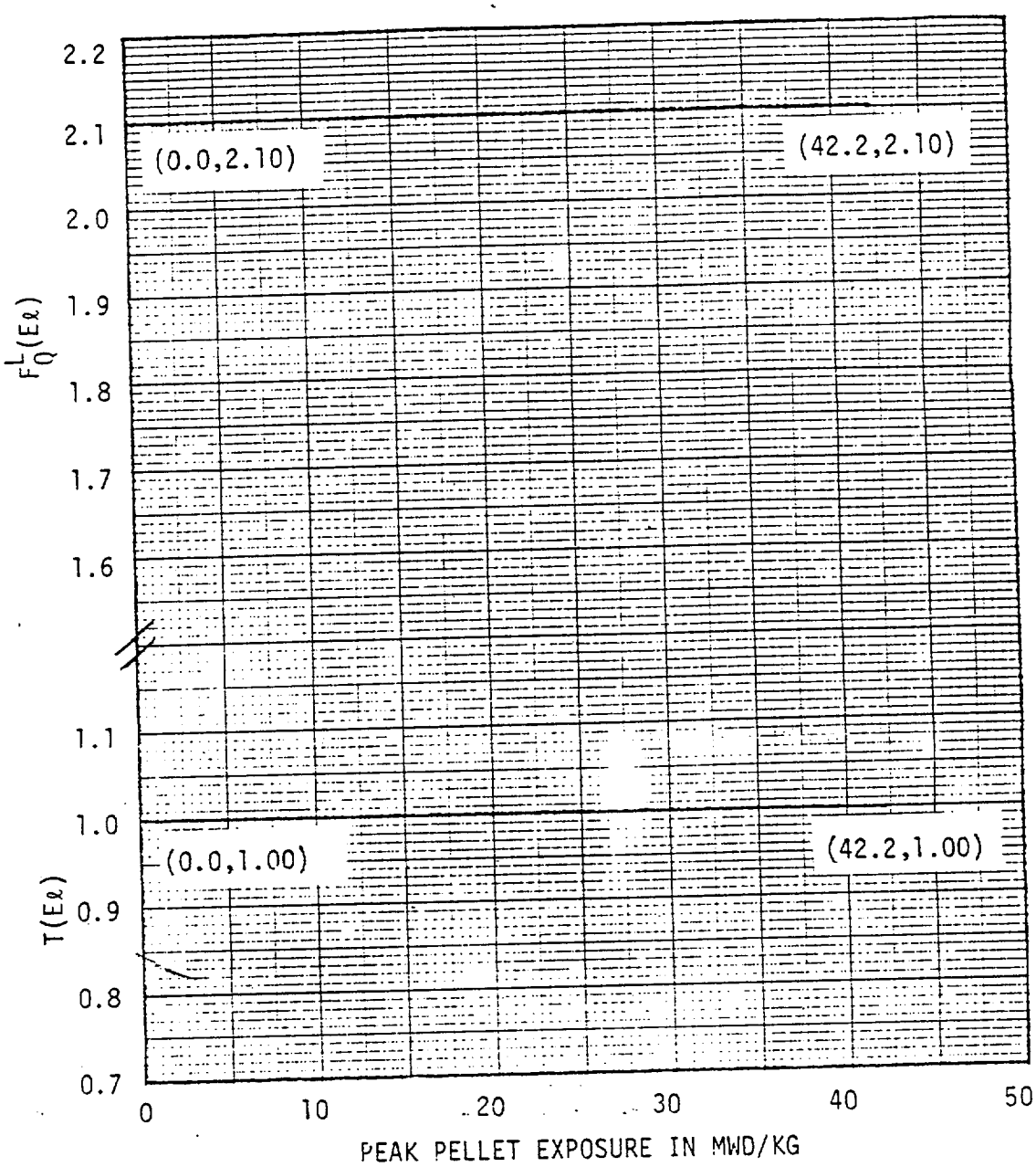

FIGURE 3.2-5

Exposure Dependent F_Q Limit, $F_Q^L(E\ell)$, and Normalized Limit $T(E\ell)$ as a Function of Peak Pellet Burnup for Westinghouse Fuel

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 82 TO FACILITY OPERATING LICENSE NO. DPR-58

INDIANA AND MICHIGAN ELECTIC COMPANY

DONALD C. COOK NUCLEAR PLANT UNIT NO. 1

DOCKET NO. 50-315

1.0 INTRODUCTION

By letter dated August 23, 1984 (Ref. 1) Indiana & Michigan Electric Company (I&MEC) submitted a request for the Technical Specification changes for an extension of the Cook-1 Cycle 8 core. Changes are requested for:

(1) an increase of the total peaking factor (F_Q) for the fuel supplied by Westinghouse (W) from a limit of 1.97 to 2.10, and

(2) an increase of peak pellet burnup in the fuel supplied by Exxon Nuclear Company (ENC) from 42,200 MWD/MTU to 48,000 MWD/MTU.

We have reviewed the documents related to the Technical Specification changes and discuss our evaluation below.

2.0 THERMAL-HYDRAULIC DESIGN EVALUATION

The licensee provided an evaluation (Attachment D of Ref. 1) on the effects of the increased F_Q limit on the postulated loss-of-coolant-accident (LOCA). In the licensee's evaluation only double ended cold leg guillotine (DECLG) breaks were analyzed since they were identified previously as limiting cases that result in the highest peak cladding temperature. The DECLG break analyses were performed with 102% of the design thermal power of 3411 MWt (instead of the licensed power level of 3250 MWt) for conservatism, a total peaking factor (F_Q) of 2.10 and the assumption that offsite power is lost

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at the beginning of the accident. The analysis also assumed no single failure and ECCS at the maximum safety injection flow. This case was previously demonstrated to be the worst case since for a plant with ice condenser in the containment such as Cook-1, the maximum ECCS flow causes a lower containment back pressure, resulting in a slower reflood rate and higher peak cladding temperature). A discharge coefficient of 0.6 was used since the sensitivity study shows that the DECLG break with a discharge coefficient of 0.6 results in the highest peak cladding temperature.

The analyses were performed by using a modified revision of the 1981 Westinghouse ECCS evaluation model (Ref. 2). This evaluation model uses the standard PAD Fuel Thermal Safety Model (Ref. 4) for the calculation of the initial fuel rod conditions, the SATAN-VI code for the thermal-hydraulic transient analysis for the RCS during blowdown, the WREFLOOD code for the analysis of the refill and reflood transient period, the LOTIC code for the calculation of the containment pressure transient, and the LOCTA-IV code for the calculation of the peak cladding temperature. The modified version of the ECCS evaluation model uses the approved BART code (Ref. 3) to calculate the reflood heat transfer coefficeint normally performed by the WREFLOOD code. This code takes no credit for the effects of the grids in increasing reflood heat transfer.

The staff has reviewed the large-break LOCA analysis. We conclude that the results presented are acceptable since we find that approved methods and computer codes are used and the results show that the peak cladding temperature, metal-water reaction and clad oxidation are within the acceptance criteria of 10 CFR 50.46.

However, it should be clarified that this evaluation approves the results of LOCA analysis to support an increase in F_Q for the fuel provided by Westinghouse for Cycle 8 operation only and in no way approves the plant to operate at the higher power of 3411 MWt assumed in the analysis. If Cook-1 is planning to operate at this power level an independent review is necessary.

3.0 EXTENDED BURNUP OF EXXON FUEL

The licensee has extended the ENC fuel mechanical design analyses from a peak pellet burnup of 42,200 MWd/MTU to 48,000 MWd/MTU. The analyses were based on the approved RODEX2 code. The licensee demonstrated in the report NX-NF-84-25, "Mechanical Design Report Supplement for D. C. Cook Unit 1 Extended Brunup Fuel Assemblies" that cladding strain, fatigue, rod pressure, creep collapse, oxide corrosion, hydriding, fuel rod growth, etc. satisfy the respective criteria.

This report is almost identical to ENC's generic high burnup report XN-NF-82-06, which is currently under NRC review. Our review of XN-NF-82-06 has progressed to the point where we find its use for this licensing action to be acceptable. No issues have been identified which would affect the conclusion that the Exxon fuel can be operated safely to the requested peak pellet burnup of 48,000 MWd/MTU.

4.0 ECCS ANALYSIS OF EXXON FUEL

The analyses performed in Reference 5 utilized the WREM-IIA ECCS evaluation model (Ref. 7) with the following EXEM/PWR ECCS Evaluation model (Ref. 8) modifications:

- Fuel rod stored energy and fission gas release calculations were performed with the RODEX2 code (Ref. 9).

- Fuel rod swelling and rupture was calculated with the ENC/NUREG-0630 clad rupture blockage model (Ref. 10).

- The EXEM/PWR revised steam cooling model was used in the TOODEE 2 calculation.

The WREM/IIA ECCS evaluation model has previously been approved as meeting the requirements of Appendix K to 10 CFR 50. As documented in Reference 11, the staff has previously reviewed and approved the RODEX2 code for LOCA applications. The revised clad rupture/blockage model of Reference 10 has been reviewed for compliance with Section I.B of Appendix K. As documented in Reference 12, we found this model to meet those requirements.

The EXEM/PWR revised steam cooling model was developed to satisfy Section I.D.5 of Appendix K to 10 CFR 50. This section of Appendix K requires that a steam cooling model be utilized to predict heat transfer coeffients when flooding rates fall below one inch per second. In addition, the steam cooling model must take into account the effect of flow blockage relative to both local steam flow and heat transfer.

The revised steam cooling model calculates an equivalent steam flow for use in the TOODEE-2 energy solution which assures that superheated steam exits the core. This flow rate includes the effect of blockage based upon the currently approved flow divergence model of the WREM-IIA ECCS evaluation model. Heat transfer coefficeints predicted by the steam cooling model are adjusted to account for the effect of blockage on mass flux and hydraulic diameter, and for the effect of increased turbulence and droplet breakup downstream of the blockage. The net effect of these modifications is a decreased heat transfer downstream of the flow blockage relative to that which would be obtained for an unblocked core.

Since the revised Exxon steam cooling model predicts decreased heat transfer downstream of the blockage, we find that the effect of flow blockage on local steam flow and heat transfer has been treated conservatively. Thus, we find that the revised steam cooling model satisfies the requirements of Section I.D.5 of Appendix K to 10 CFR 50.

4.1 Summary

Based on the foregoing discussion, we find that the ECCS evaluation model, utilized for the analyses in Reference 5, fully complies with Appendix K to 10 CFR 50, and is therefore acceptable for extended exposure from 42,200 to 48,000 MWd/MTU (peak pellet) for D. C. Cook 1.

5.0 TECHNICAL SPECIFICATIONS

The preceding sections have shown the acceptability of (1) the extension of the peak pellet burnup in Exxon fuel from 42,200 MWD/MTU to 48,000 MWD/MTU and (2) the LOCA analysis supporting an increase in the F_Q limit for Westinghouse fuel from 1.97 to 2.10. We reviewed each of the Technical Specification changes, which are the result of the burnup extension and LOCA analyses, and find that they appropriately reflect these analyses, and are therefore acceptable.

Specifically, the changes to Technical Specification pages 3/4 2-5, 3/4 2-6, 3/4 2-9, 3/4 2-18, and Figure 3.2-5 on page 3/4 2-24 only provide the necessary adjustments to the Technical Specifications to accommodate the increase in F_Q to 2.10. The revised Figure 3.2-3 on page 3/4 2-11 appropriately reflects the changes to the K(z) (Normalized $F_Q(z)$ as a Function of Core Height For Westinghouse Fuel) which occurs with the increase in F_Q to 2.10.

The changes to the Technical Specifications on pages 3/4 2-7, 3-4 2-20 and the Figure 3.2-4 on page 3/4 2-23 extend the values for quantities Ep(z), Fp, and F_Q^L (El), respectively, from 42,200 to 48,000 MWD/MTU. The quantity Ep(z) is an uncertainty factor to account for a reduction in the F_Q^L (El) curve due to accumulation of exposure between flux maps. The quantity F_p is a similar factor for use in the APDMS power distribution monitoring mode. The quantity F_Q^L (El) is the exposure dependent F_Q limit for Exxon fuel which is the result of the Exxon LOCA analysis. The slope of the extension of the

F_Q^L (El) is not as steep as the preceding segment. This is because the LOCA analysis extension for the 48,000 MWD/MTU exposure results in an estimated peak clad temperature of 1778°F, well below the value of 2186°F for 42,000 MWD/MTU. The extended values of Ep(z), Fp and F_Q^L(El) are conservative and therefore acceptable.

6.0 SUMMARY

We have reviewed the proposed changes to the Cook-1 Technical Specifications including an increase in the total peaking factor (F_Q) for the Westinghouse fuel from a limit of 1.97 to 2.10 and an increase of the burnup for the Exxon fuel from 42,200 to 48,000 MDW/MTU, and find they are acceptable.

The F_Q limit increase for the Westinghouse fuel does not significantly increase the probability or consequences of accidents previously analyzed because the LOCA analyses performed for the F_Q of 2.10 show results below the acceptable limits of 10 CFR 50.46.

We approve the extension of ENC's mechanical design analysis from 42,200 to 48,000 MWD/MTU peak pellet based on the approved RODEX2 results and our finding that the ENC generic report on high burnup is acceptable for this case since the remaining issues in the generic review have been adequately addressed by the licensee for this particular case. We also approve the extension of the ECCS analysis for ENC fuel based on use of an acceptable ECCS evaluation model.

The proposed Technical Specification changes discussed in Section 5.0 correctly reflect the analytical results and are therefore, acceptable.

As stated in Section 2.0, the LOCA analyses are acceptable for the Westinghouse fuel for operation at the 3250 MWt power level. Operation at the higher power of 3411 MWt will require that additional justification be provided.

7.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

8.0 CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: November 29, 1984

Principal Contributors:

D. Wigginton
R. Jones
S. Sun
S. Wu
M. Dunenfeld

REFERENCE

1. Letter from M. P. Alexich (I&MEC) to H. R. Denton (NRC), dated August 23, 1984.

2. Rahe, E. P., "Westinghouse ECCS Evaluation Model, 1981 Version," WCAP-9220-A, Revision 1, 1984.

3. Young, M. Y., et al., "BART-A1: A Computer Code for the Best Estimate Analysis of Reflood Transients," WCAP-9695-A, January 1980.

4. Letter from J. F. Stolz (NRC) to T. M. Anderson (Westinghouse), "Review of WCAP-8720, Improved Analytical Models Used in Westinghouse Fuel Rod Design Computations."

5. "D. C. Cook Unit 1 LOCA-ECCA Analysis for Extended Exposure," XN-NF 83-61, August 1983.

6. "LOCA ECCS Reanalysis for D. C. Cook Unit 1 Using the ENC WREM-IIA PWR ECCS Evaluation Model," XN-NF-81-07, February 1981.

7. "Exxon Nuclear Company WREM-Based Generic PWR ECCS Evaluation Model Update ENC WREM-IIA," XN-NF-78-30(A), May 1979.

8. "Exxon Nuclear Company Evaluation Model EXEM/PWR ECCS Model Updates," XN-NF-82-20(P), Revision 1, August 1982.

9. "RODEX2: Fuel Rod Thermal-Hydraulic Response Evaluation Model," XN-NF-81-58(P) Revision 2, February 1983.

10. "Exxon Nuclear Company ECCS Cladding Swelling and Rupture Model," XN-NF-82-07(A), Revision 1, March 1982.

11. Letter, C. O. Thomas (NRC) to J. C. Chandler (ENC), Subject: "Acceptance for Referencing of Licensing Report XN-NF-81-58(P)," November 16, 1983.

12. Letter, C. O. Thomas (NRC) to G. F. Owsley (ENC), Subject: "Acceptance for Referencing of Topical Report XN-NF-82-07(P), Revision 1," October 14, 1982.

Docket No. 50-315

November 29, 1984

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

Dear Mr. Dolan:

The Commission has issued the enclosed Amendment No. 82 to Facility Operating License No. DPR-58 for the Donald C. Cook Nuclear Plant, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated August 23, 1984.

The amendment revises the Technical Specifications for burnup dependent core physics parameters for Exxon fuel left in Unit 1 and for increases in the heat flux hot channel factor, F_Q, for Westinghouse fuel in Unit 1.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular monthly Federal Register notice.

Sincerely,

/s/DWigginton

David L. Wigginton, Project Manager
Operating Reactors Branch #1
Division of Licensing

Enclosures:
1. Amendment No. 82 to DPR-58
2. Safety Evaluation

cc: w/enclosures
See next page

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