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A unit of American Electric Power

Indiana Michigan Power
Cook Nuclear Plant
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Bridgman, MI 49106
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April 29, 2005

AEP:NRC:5046
10 CFR 50.46

Docket No: 50-315

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

**Donald C. Cook Nuclear Plant Unit 1
THIRTY-DAY REPORT OF LOSS-OF-COOLANT
ACCIDENT EVALUATION MODEL CHANGES**

Reference: Letter from Joseph N. Jensen, Indiana Michigan Power Company, to U. S. Nuclear Regulatory Commission Document Control Desk, "Donald C. Cook Nuclear Plant Units 1 and 2, 10 CFR 50.46 Loss-of-Coolant Accident Reanalysis Schedule," submittal AEP:NRC:4046-01, dated December 28, 2004.

Pursuant to 10 CFR 50.46, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP), is submitting a 30-day report of loss-of-coolant accident (LOCA) model changes resulting in a significant change in calculated peak fuel cladding temperature (PCT) for the CNP Unit 1 large break LOCA (LBLOCA) analysis. A significant change is defined as a change or error identified in the model which results in a calculated PCT greater than 50 degree Fahrenheit (°F) or a cumulation of changes and errors such that the sum of the absolute magnitudes of the respective temperature changes is greater than 50°F.

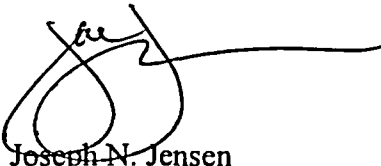
Attachment 1 to this letter describes an assessment against the CNP Unit 1 LBLOCA analysis of record. Attachment 2 provides the CNP Unit 1 LBLOCA analysis of record PCT value and error assessments. Attachment 2 also demonstrates that the PCT value remains within the 2200 °F PCT limit as required by 10 CFR 50.46(b)(1).

By the referenced letter, I&M submitted a schedule for reanalysis of the Unit 1 and Unit 2 small break LOCA and the Unit 2 LBLOCA analyses of record. This schedule remains unchanged. The overall change to the Unit 1 LBLOCA analysis is classified as significant in accordance with 10 CFR 50.46(a)(3)(i). Attachment 3 provides the schedule for reanalysis of the Unit 1 LBLOCA analysis, aligning the schedule with the other Unit 1 reanalysis work.

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Should you have any questions concerning this subject, please contact Mr. John A. Zwolinski, Director of Safety Assurance, at (269) 466-2428.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Jensen', with a long horizontal line extending to the right.

Joseph N. Jensen
Site Vice President

Attachments

KAS/rdw

- c: J. L. Caldwell – NRC Region III
- K. D. Curry – AEP Ft. Wayne, w/o attachments
- J. T. King – MPSC, w/o attachments
- C. F. Lyon – NRC Washington DC
- MDEQ – WHMD/HWRPS, w/o attachments
- NRC Resident Inspector

ATTACHMENT 1 TO AEP:NRC:5046

ASSESSMENT AGAINST THE LOSS-OF-COOLANT ACCIDENT (LOCA) ANALYSES OF RECORD

Indiana Michigan Power Company (I&M) previously submitted an annual 10 CFR 50.46 report for Donald C. Cook Nuclear Plant (CNP) Unit 1 in a letter from John A. Zwolinski to Nuclear Regulatory Commission Document Control Desk, dated August 26, 2004. The reported assessments on the Unit 1 large break loss-of-coolant accident (LBLOCA) analysis of record peak cladding temperature (PCT) in Attachment 2 to this letter remain the same as stated in the previous submittal as no new LOCA analyses have been performed. A new PCT assessment against the CNP Unit 1 LBLOCA analysis of record is described below. The new assessment is reflected in the PCT accounting in Attachment 2.

Assessment Against the LBLOCA Analysis of Record

Spacer Grid Heat Transfer Model Inputs Discrepancy Correction

Background

A discrepancy was identified for the 15x15 fuel spacer grid blocked area ratio and open area fraction inputs used in the BASH evaluation model for the CNP Unit 1 LBLOCA analysis. The discrepant inputs were corrected and a plant-specific calculation was performed to estimate the impact on peak cladding temperature.

Affected Evaluation Models

1981 Westinghouse LBLOCA Evaluation Model with BASH

Estimated Effect

The impact on PCT was estimated using a plant-specific LOCBART calculation. As indicated in the PCT accounting in Attachment 2, the effect of the change to spacer grid heat transfer model inputs is a 37 degree Fahrenheit (°F) penalty.

Conclusion

This transmittal satisfies the 30-day reporting requirement of 10 CFR 50.46(a)(3)(ii). Attachment 2 demonstrates that the PCT value remains within the 2200°F PCT limit specified in 10 CFR 50.46(b)(1).

ATTACHMENT 2 TO AEP:NRC:5046

DONALD C. COOK NUCLEAR PLANT (CNP) UNIT 1
LARGE BREAK LOSS-OF-COOLANT ACCIDENT (LOCA)
PEAK CLAD TEMPERATURE (PCT) SUMMARY

TABLE 1
CNP UNIT 1
LARGE BREAK LOCA

Evaluation Model: BASH $F_Q = 2.15$ $F_{\Delta H} = 1.55$ SGTP = 15% Break Size: $C_d = 0.4$ Operational Parameters: RHR System Cross-Tie Valves Closed, 3250 MWt Reactor Power ¹
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LICENSING BASIS

Analysis-of-Record, December 2000

PCT = 2038°F

MARGIN ALLOCATIONS (Delta PCT)

A.	PREVIOUS 10 CFR 50.46 ASSESSMENTS	
	1. LOCBART Cladding Emissivity Errors	-11°F
	2. Reduced Containment Spray Temperature	+23°F
B.	NEW 10 CFR 50.46 ASSESSMENTS	
	1. Spacer Grid Blocked Area Ratio/Open Area Fraction	+37°F
C.	OTHER	
	1. Transition Core Penalty	<u>+31°F</u>
D.	LICENSING BASIS PCT + MARGIN ALLOCATIONS	PCT = 2118°F

1. The 3250 MWt power level used in the reanalysis is acceptable because it bounds the Unit 1 3304 MWt steady state power limit in the operating license after adjusting for recapture of feedwater flow measurement and power calorimetric uncertainty.

ATTACHMENT 3 TO AEP:NRC:5046

COMMITMENTS

The following table identifies those actions committed to by Indiana Michigan Power Company (I&M) in this document. Any other actions discussed in this submittal represent intended or planned actions by I&M. They are described to the Nuclear Regulatory Commission (NRC) for the NRC's information and are not regulatory commitments.

Commitment	Date
A new Unit 1 large break loss-of-coolant accident (LBLOCA) analysis will be provided.	March 2007