Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107 1373

AEP
INDIANA
MICHIGAN
POWER

June 25, 2004

AEP:NRC:4313
10 CFR 50.90

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

Subject: D. C. Cook Nuclear Plant Unit 1
Docket No. 50-315
Application for Amendment to Revise Temperature Requirement for the Reactivity Control System Rod Drop Time Test

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant Unit 1 proposes to amend Appendix A, Technical Specifications (TS), of Facility Operating License DPR-58. I&M proposes to modify the TS 3.1.3.3.a limiting condition for operation, and the TS 3/4.1.3 Bases to reduce the temperature at which the shutdown and control rod drop tests are performed from greater than or equal to 541 degrees Fahrenheit (°F) to greater than or equal to 500°F. The approval of this change will allow greater flexibility in refueling outage scheduling. Additionally, I&M is proposing format changes that improve appearance, but are not intended to introduce other changes.

Enclosure 1 to this letter provides an oath and affirmation affidavit. Enclosure 2 provides a detailed description and evaluation of the proposed changes, including the 10 CFR 50.92(c) evaluation, which concludes that no significant hazard is involved, and the environmental assessment. Attachment 1 provides the mark up TS pages, and Attachment 2 provides the proposed TS pages with the changes incorporated.

I&M requests approval of the proposed changes by January 5, 2005, with an implementation period of 45 days to support the Unit 1 spring refueling outage.

The proposed amendment has been reviewed for impact on plant operations and procedures. No pending amendment requests affect the TS pages that are submitted in this request. If any further submittals affect these TS pages, I&M will coordinate the changes to the pages with the Nuclear Regulatory

A001

Commission Project Manager to ensure proper TS page control when the associated license amendment request is approved.

Copies of this letter and its attachments are being transmitted to the Michigan Public Service Commission and Michigan Department of Environmental Quality, in accordance with the requirements of 10 CFR 50.91.

This letter contains no commitments. Should you have any questions, please contact Mr. John A. Zwolinski, Safety Assurance Director, at (269) 465-2428.

Sincerely,

Joseph N. Jensen
Site Vice President

RV/rdw

Enclosures:

1. Affirmation
2. Application for Amendment, License Amendment Request to Revise the Limiting Condition for Operation and the Technical Specification Bases for Reactivity Control System Rod Drop Testing

Attachments:

1. Technical Specification Pages Marked to Show Proposed Changes
2. Proposed Technical Specification Pages
3. Unit 1, Cycle 1 Rod Drop Test Data

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

Enclosure 1 to AEP:NRC:4313

AFFIRMATION

I, Joseph N. Jensen, being duly sworn, state that I am Site Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the Nuclear Regulatory Commission on behalf of I&M, and that the statements made and the matters set forth herein pertaining to I&M are true and correct to the best of my knowledge, information, and belief.

Indiana Michigan Power Company

Joseph N. Jensen
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 25th DAY OF June, 2004

Julie E Newmiller
Notary Public

JULIE E. NEWMILLER
Notary Public, Berrien County, MI
My Commission Expires Aug 22, 2004

My Commission Expires 8-22-2004

Enclosure 2 to AEP:NRC:4313

Application for Amendment, License Amendment Request to Revise the Limiting Condition for Operation and the Technical Specification Bases for Reactivity Control System Rod Drop Testing

1.0 DESCRIPTION

Pursuant to 10 CFR 50.90, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant Unit 1 proposes to amend Appendix A, Technical Specifications (TS), of Facility Operating License DPR-58. I&M proposes to modify the TS 3.1.3.3.a limiting condition for operation, and the TS 3/4.1.3 Bases for Reactivity Control System Rod Drop Time testing. The approval of this change will allow greater flexibility in refueling outage scheduling. Additionally, I&M is proposing format changes that improve appearance, but are not intended to introduce other changes.

2.0 PROPOSED CHANGE

I&M proposes to revise the TS 3.1.3.3.a limiting condition for operation to state that the reactivity control system rod drop time be less than or equal to 2.4 seconds when the average reactor coolant temperature is greater than or equal to 500 degrees Fahrenheit (°F). Additionally, I&M proposes to revise TS 3/4.1.3 Bases to note that the rod drop time measurements are obtained when the average reactor coolant temperature is greater than or equal to 500°F.

Currently, TS 3.1.3.3.a states that the reactivity control system is to meet the 2.4 second rod drop time requirement when the reactor coolant temperature is greater than or equal to 541°F and TS 3/4.1.3 Bases state that the measurement is taken when the reactor coolant temperature is greater than or equal to 541°F.

3.0 BACKGROUND

During the planning for the Unit 1 Spring 2005 refueling outage, I&M has determined that it is possible to schedule the rod drop testing when the reactor coolant temperature reaches 500°F. However, TS 3.1.3.3.a and its associated TS Bases, 3/4.1.3, require that the rod drop test be performed at 541°F or greater. The rod drop testing is a critical path item, and revising the TS and its Bases provides operational flexibility by permitting rod drop testing to be performed concurrently with other refueling outage tasks performed with reactor coolant temperature between 500°F and 541°F.

4.0 TECHNICAL ANALYSIS

The rod drop test is intended to provide verification that the actual rod drop times are consistent with the rod drop times assumed in the safety analysis. The rod drop test ensures that the reactor internals and the rod drive mechanisms do not interfere with rod motion or increase the rod drop

time, and that no degradation in the system has occurred that would adversely affect the operability of the rods.

The current requirement, to perform the rod drop test when the average reactor coolant temperature is greater than or equal to 541°F, ensures that the measured rod drop times will be representative of the conditions that exist at reactor full power operation. The value of 541°F for rod drop testing is identical to the Unit 1 minimum required temperature for operation, and rod drop testing at 541°F demonstrates operability at operating temperature.

During the evolution of the Westinghouse Standard Technical Specifications (Reference 1) an average reactor coolant temperature of greater than or equal to 500°F was determined to adequately simulate operating conditions for rod drop tests. Data obtained by I&M during the Unit 1, Cycle 1 rod drop time testing (Attachment 3) support the Reference 1 determination. These data demonstrate that rod drop times increase with decreasing reactor coolant temperature, principally because of the increased water density and viscosity at the lower temperatures. Additionally, during the review of a Florida Power and Light license amendment request to lower the Turkey Point Unit 3 and 4 rod drop test temperature requirements (Reference 2), the Nuclear Regulatory Commission (NRC) reviewed Turkey Point Unit 3 and 4 initial startup rod drop data. The NRC's safety evaluation states that the data show that there is a slight increase in rod drop time as reactor coolant temperature is decreased (Reference 3).

Measured rod drop times taken during the Unit 1, Cycle 19 refueling outage were less than 1.5 seconds, and measuring the rod drop time at 500°F is expected to increase this time by less than 0.2 seconds. There is sufficient margin to accommodate the rod drop time increase without changing the 2.4 second limit, and there will be no change in the acceptance criteria. The rod drop time assumption in the safety analysis is not changed, and consequently, the analysis results are not affected.

Based on the above, the available margin in the measured rod drop test will accommodate the slight increase in drop times as a result of performing the test at a lower temperature.

5.0 REGULATORY SAFETY ANALYSIS

No Significant Hazards Consideration

Indiana Michigan Power Company (I&M) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment" as discussed below:

1.0 Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The probability of occurrence of an accident previously evaluated is not altered by the proposed amendment. The proposed change does not impact the integrity of the reactor coolant system pressure boundary and, therefore, does not increase the potential for the occurrence of a loss-of-coolant accident. The change does not make any physical changes to the facility design, material or construction standards, and the proposed change is not an initiator or contributor to any currently evaluated accident. The format changes are intended to improve appearance, and do not alter any requirements. Thus, neither the probability nor the consequences of a previously analyzed accident are significantly increased.

2.0 Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The rod drop test is routinely performed during each refueling outage. Decreasing the test temperature will not create the possibility of a new or different accident. The proposed test conditions remain bounded by the analysis of record since the rod drop time assumed in the accident analysis will not be changed. The format changes are intended to improve appearance, and do not alter any requirements. Since no new failure modes are associated with the proposed changes, the proposed amendment does not create the possibility of a new or different kind of accident from any previously evaluated.

3.0 Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The Technical Specification change does not involve a significant reduction in margin because the acceptance criterion for the rod drop time will not change. The proposed change will reduce the minimum rod drop test temperature from greater than or equal to 541 degrees Fahrenheit (°F) to greater than or equal to 500°F. This will slightly increase the measured test rod drop time. The measured test rod drop time, however, will be within the current Technical Specification limit of 2.4 seconds. The format changes are intended to improve appearance, and do not alter any requirements. Therefore, the margin of safety is not impacted by the proposed amendment.

6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined by 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or

(iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(b), no environmental impact statement or environmental assessment need to be prepared in connection with the proposed amendment.

7.0 PRECEDENTS

An identical request was previously granted for Turkey Point Units 3 and 4 on May 7, 2001 (References 2 and 3), and the value of 500°F has been incorporated into the Westinghouse Standard Technical Specifications (Reference 1).

8.0 REFERENCES

1. NUREG-1431, Revision 2, "Standard Technical Specifications, Westinghouse Plants," dated June, 2001.

2. Letter from R. J. Hovey, Florida Power and Light Company (FPL) to NRC Document Control Desk, "Proposed License Amendments, Reduction of the Temperature Requirement to Perform the Rod Cluster Control Assembly Drop Test," dated March 12, 2001.

3. Letter from Kahtan N. Jabbour, NRC, to T. F. Plunket, FPL, "Turkey Point Units 3 and 4 – Issuance of Amendments Regarding Reduction of Temperature Requirement During Rod Cluster Control Assembly Drop Test (TAC Nos. MB1396 and MB1397)," dated May 7, 2001.

Attachment 1 to AEP:NRC:4313

TECHNICAL SPECIFICATION PAGES
MARKED TO SHOW PROPOSED CHANGES

3/4 1-21
B 3/4 1-4

ROD DROP TIME

LIMITING CONDITION FOR OPERATION

3.1.3.3 The individual full length (shutdown and control) rod drop time from the fully withdrawn position (specified in the COLR) shall be less than or equal to 2.4 seconds from beginning of decay of stationary gripper coil voltage to dashpot entry with:

a. T_{avg} greater than or equal to ~~541~~ 500°F, and

b. All reactor coolant pumps operating.

APPLICABILITY: MODES 1 and 2.

ACTION:

With the drop time of any full length rod determined to exceed the above limit, restore the rod drop time to within the above limit prior to proceeding to MODE 1 or 2.

SURVEILLANCE REQUIREMENTS

4.1.3.3 The rod drop time of full length rods shall be demonstrated through measurement prior to entering MODE 2:

a. For all rods following each removal of the reactor vessel head,

b. For specifically affected individual rods following any maintenance on or modification to the control rod drive system which could affect the drop time of those specific rods, and

c. At least once per 18 months.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES (Continued)

limited. OPERABILITY of the control rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits.

The ACTION statements which permit limited variations from the basic requirements are accompanied by additional restrictions which ensure that the original criteria are met. Misalignment of a rod requires measurement of peaking factors or a restriction in THERMAL POWER; either of these restrictions provide assurance of fuel rod integrity during continued operation. The reactivity worth of a misaligned rod is limited for the remainder of the fuel cycle to prevent exceeding the assumptions used in the accident analysis for a rod ejection accident.

The maximum rod drop time restriction is consistent with the assumed rod drop time used in the accident analyses. Measurement with T_{avg} greater than or equal to ~~541~~500°F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a reactor trip at operating conditions.

Control rod positions and OPERABILITY of the rod position indicators are required to be verified on a nominal basis of once per 12 hours with more frequent verifications required if an automatic monitoring channel is inoperable. These verification frequencies are adequate for assuring that the applicable LCO's are satisfied.

Attachment 2 to AEP:NRC:4313

PROPOSED TECHNICAL SPECIFICATION PAGES

3/4 1-21
B 3/4 1-4

ROD DROP TIME

LIMITING CONDITION FOR OPERATION

3.1.3.3 The individual full length (shutdown and control) rod drop time from the fully withdrawn position (specified in the COLR) shall be less than or equal to 2.4 seconds from beginning of decay of stationary gripper coil voltage to dashpot entry with:

a. T_{avg} greater than or equal to 500°F, and

b. All reactor coolant pumps operating.

APPLICABILITY: MODES 1 and 2.

ACTION:

With the drop time of any full length rod determined to exceed the above limit, restore the rod drop time to within the above limit prior to proceeding to MODE 1 or 2.

SURVEILLANCE REQUIREMENTS

4.1.3.3 The rod drop time of full length rods shall be demonstrated through measurement prior to entering MODE 2:

a. For all rods following each removal of the reactor vessel head,

b. For specifically affected individual rods following any maintenance on or modification to the control rod drive system which could affect the drop time of those specific rods, and

c. At least once per 18 months.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES (Continued)

limited. OPERABILITY of the control rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits.

The ACTION statements which permit limited variations from the basic requirements are accompanied by additional restrictions which ensure that the original criteria are met. Misalignment of a rod requires measurement of peaking factors or a restriction in THERMAL POWER; either of these restrictions provide assurance of fuel rod integrity during continued operation. The reactivity worth of a misaligned rod is limited for the remainder of the fuel cycle to prevent exceeding the assumptions used in the accident analysis for a rod ejection accident.

The maximum rod drop time restriction is consistent with the assumed rod drop time used in the accident analyses. Measurement with T_{avg} greater than or equal to 500°F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a reactor trip at operating conditions.

Control rod positions and OPERABILITY of the rod position indicators are required to be verified on a nominal basis of once per 12 hours with more frequent verifications required if an automatic monitoring channel is inoperable. These verification frequencies are adequate for assuring that the applicable LCO's are satisfied.

Attachment 3 to AEP:NRC:4313

Unit 1, Cycle 1 Rod Drop Data

Core Location	Rod Drop Times Seconds		Rod Drop Time Change Seconds (Cold Rod Drop Time Minus Hot Rod Drop Time)
	Cold, 140°F Full Flow	Hot, 547°F Full Flow	
E3	1.45	1.22	0.23
H8	1.43	1.29	0.14
H14	1.44	1.24	0.20
J11	1.47	1.26	0.21
J13	1.44	1.23	0.21
K2	1.42	1.26	0.16
K8	1.45	1.27	0.18
K10	1.46	1.26	0.20
K14	1.47	1.25	0.22
L13	1.43	1.24	0.19
M8	1.48	1.27	0.21
P8	1.49	1.27	0.22
		Average Change	0.198