

Mr. Robert P. Powers, Senior Vice President
 Indiana Michigan Power Company
 Nuclear Generation Group
 500 Circle Drive
 Buchanan, MI 49107

June 8, 1999

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: ELECTRICAL POWER SYSTEMS, SHUTDOWN (TAC NOS. MA5246 AND MA5247)

Dear Mr. Powers:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 228 to Facility Operating License No. DPR-58 and Amendment No. 211 to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications in response to your application dated April 19, 1999.

The amendments revise Technical Specification (TS) 3/4.8.1.2, "Electrical Power Systems, Shutdown," and its associated bases to provide a one-time extension of the 18-month surveillance interval for specific surveillance requirements associated with the emergency diesel generators for Units 1 and 2. The surveillance will be performed prior to the first entry into Mode 4 following the current plant shutdown. In addition, for Unit 2 only, a minor administrative change is included to delete a reference to TS 4.0.8, which is no longer applicable. For Unit 1 only, an editorial change is made to add the word "or" to action statement 3.8.1.2.

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

Sincerely,

Original signed by:

John F. Stang, Sr. Project Manager, Section 1
 Project Directorate III
 Division of Licensing Project Management
 Office of Nuclear Reactor Regulation

Docket Nos. 50-315 and 50-316

- Enclosures: 1. Amendment No. 228 to DPR-58
 2. Amendment No. 211 to DPR-74
 3. Safety Evaluation

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DATE	6/9/99		6/9/99		7/99		5/14/99		6/2/99		6/9/99	

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 8, 1999

Mr. Robert P. Powers, Senior Vice President
Indiana Michigan Power Company
Nuclear Generation Group
500 Circle Drive
Buchanan, MI 49107

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF
AMENDMENTS RE: ELECTRICAL POWER SYSTEMS, SHUTDOWN
(TAC NOS. MA5246 AND MA5247)

Dear Mr. Powers:

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The amendments revise Technical Specification (TS) 3/4.8.1.2, "Electrical Power Systems, Shutdown," and its associated bases to provide a one-time extension of the 18-month surveillance interval for specific surveillance requirements associated with the emergency diesel generators for Units 1 and 2. The surveillance will be performed prior to the first entry into Mode 4 following the current plant shutdown. In addition, for Unit 2 only, a minor administrative change is included to delete a reference to TS 4.0.8, which is no longer applicable. For Unit 1 only, an editorial change is made to add the word "or" to action statement 3.8.1.2.

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

Sincerely,

A handwritten signature in black ink that reads "John F. Stang, Sr." in a cursive style.

John F. Stang, Sr. Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-315 and 50-316

Enclosures: 1. Amendment No. 228 to DPR-58
2. Amendment No. 211 to DPR-74
3. Safety Evaluation

cc w/encls: See next page

Robert P. Powers
Indiana Michigan Power Company

Donald C. Cook Nuclear Plant
Units 1 and 2

cc:

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DATED: June 8, 1999

AMENDMENT NO. TO FACILITY OPERATING LICENSE NO. DPR-58, DONALD C. COOK
NUCLEAR PLANT, UNIT 1

AMENDMENT NO. TO FACILITY OPERATING LICENSE NO. DPR-74, DONALD C. COOK
NUCLEAR PLANT, UNIT 2

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

INDIANA MICHIGAN POWER COMPANY

DOCKET NO. 50-315

DONALD C. COOK NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 228
License No. DPR-58

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Indiana Michigan Power Company (the licensee) dated April 19, 1999, 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.

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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:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 228 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance, with full implementation within 45 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Claudia M. Craig, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: June 8, 1999

ATTACHMENT TO LICENSE AMENDMENT NO.228

TO FACILITY OPERATING LICENSE NO. DPR-58

DOCKET NO. 50-315

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3/4 8-9
B 3/4 8-1

INSERT

3/4 8-9
B 3/4 8-1

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and
- b. One diesel generator with:
 1. A day fuel tank containing a minimum of 70 gallons of fuel,
 2. A fuel storage system containing a minimum indicated volume of 46,000 gallons of fuel, and
 3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes* until the minimum required A.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for requirement 4.8.1.1.2.a.5.

Commencing in 1999 during the extended shutdown initiated in 1997, the 18-month surveillance requirements 4.8.1.1.2.e.4.a) and b); 4.8.1.1.2.e.6.a), b) and c); 4.8.1.1.2.e.8; 4.8.1.1.2.e.9.a), b) and c); 4.8.1.1.2.e.10.a) and b); and 4.8.1.1.2.e.11, may be delayed one time until just prior to the first entry into MODE 4 following the shutdown.

*For purposes of this specification, addition of water from the RWST does not constitute a positive reactivity addition provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2.

3/4 BASES
3/4.8 ELECTRICAL POWER SYSTEMS

The OPERABILITY of the A.C. and D.C power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one of each of the onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the facility status.

Specific surveillance requirements (SRs) of SR 4.8.1.2 may be delayed one time until just prior to the first entry into MODE 4 following the extended outage that commenced in 1997. The delay is permitted to recognize the significant ongoing maintenance to safety systems and components that would be required to be OPERABLE solely to support the referenced surveillances. The delay recognizes the reduced decay heat load and fission product activities resulting from the extended shutdown and consequently the small benefit from performing the surveillances prior to the next entry into MODE 4. It is the intent that these SRs must still be capable of being met, but actual performance is not required until the required safety systems are ready to support entry into MODE 4.

The AB and CD station battery systems provide a reliable source of continuous power for supply and control of plant loads such as switchgear and annunciator control circuits, static inverters, valve control centers, emergency lighting and motor control centers. The design duty cycles of these batteries are composite load profiles resulting from the combination of the three hour Loss Of Coolant Accident/Loss Of Offsite Power battery load profiles and the four hour Station Blackout battery load profiles.

The train N station battery system provides an independent 250 volt DC power supply for power and control of the turbine driven auxiliary feedwater pump train. The limiting conditions of operation for the train N battery are consistent with the requirements of the auxiliary feedwater system. The surveillance requirements for the train N battery system are consistent with the requirements of the AB and CD station batteries. The train N battery loads are derived from equipment in the turbine driven auxiliary feedwater pump train and battery sizing is consistent with the functional requirements of these components. Simulated loads for battery tests are loads equivalent to measured actual loads.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

INDIANA MICHIGAN POWER COMPANY

DOCKET NO. 50-316

DONALD C. COOK NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 211
License No. DPR-74

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Indiana Michigan Power Company (the licensee) dated April 19, 1999, 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.

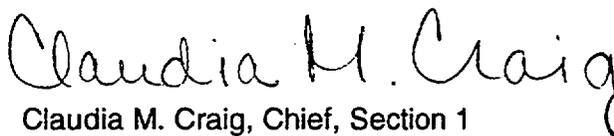
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-74 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 211 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance, with full implementation within 45 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Claudia M. Craig, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: June 8, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 211

FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NO. 50-316

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3/4 8-9
B 3/4 8-1

INSERT

3/4 8-9
B 3/4 8-1

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and
- b. One diesel generator with:
 1. A day fuel tank containing a minimum of 70 gallons of fuel,
 2. A fuel storage system containing a minimum indicated volume of 46,000 gallons of fuel, and
 3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes* until the minimum required A.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for requirement 4.8.1.1.2.a.5.

Commencing in 1999 during the extended shutdown initiated in 1997, the 18-month surveillance requirements 4.8.1.1.2.e.4.a) and b); 4.8.1.1.2.e.6.a), b) and c); 4.8.1.1.2.e.8; 4.8.1.1.2.e.9.a), b) and c); 4.8.1.1.2.e.10.a) and b); and 4.8.1.1.2.e.11, may be delayed one time until just prior to the first entry into MODE 4 following the shutdown.

*For purposes of this specification, addition of water from the RWST does not constitute a positive reactivity addition provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2.

3/4 BASES
3/4.8 ELECTRICAL POWER SYSTEMS

The OPERABILITY of the A.C. and D.C power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one of each of the onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the facility status.

Specific surveillance requirements (SRs) of SR 4.8.1.2 may be delayed one time until just prior to the first entry into MODE 4 following the extended outage that commenced in 1997. The delay is permitted to recognize the significant ongoing maintenance to safety systems and components that would be required to be OPERABLE solely to support the referenced surveillances. The delay recognizes the reduced decay heat load and reduced fission product activities resulting from the extended shutdown and consequently the small benefit from performing the surveillances prior to the next entry into MODE 4. It is the intent that these SRs must still be capable of being met, but actual performance is not required until the required safety systems are ready to support entry into MODE 4.

The AB and CD station battery systems provide a reliable source of continuous power for supply and control of plant loads such as switchgear and annunciator control circuits, static inverters, valve control centers, emergency lighting and motor control centers. The design duty cycles of these batteries are composite load profiles resulting from the combination of the three hour Loss Of Coolant Accident/Loss Of Offsite Power battery load profiles and the four hour Station Blackout battery load profiles.

The train N station battery system provides an independent 250 volt DC power supply for power and control of the turbine driven auxiliary feedwater pump train. The limiting conditions of operation for the train N battery are consistent with the requirements of the auxiliary feedwater system. The surveillance requirements for the train N battery system are consistent with the requirements of the AB and CD station batteries. The train N battery loads are derived from equipment in the turbine driven auxiliary feedwater pump train and battery sizing is consistent with the functional requirements of these components. Simulated loads for battery tests are loads equivalent to measured actual loads.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 228 TO FACILITY OPERATING LICENSE NO. DPR-58
AND AMENDMENT NO. 211 TO FACILITY OPERATING LICENSE NO. DPR-74

INDIANA MICHIGAN POWER COMPANY

DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-315 AND 50-316

1.0 INTRODUCTION

By letter dated April 19, 1999, the Indiana Michigan Power Company (the licensee) requested amendments to the Technical Specifications (TS) appended to Facility Operating License Nos. DPR-58 and DPR-74 for the Donald C. Cook Nuclear Plant, Units 1 and 2. The proposed amendments would revise TS 3/4.8.1.2, "Electrical Power Systems, Shutdown," and its associated bases to provide a one-time extension of the 18-month surveillance interval for specific surveillance requirements (SRs) for Units 1 and 2. SR 4.8.1.2 is modified to identify those SRs which may be delayed one time until prior to the first entry into Mode 4 following the current plant shutdown. The delay is necessary because many plant components needed for the testing are not required to be functional during an outage, and are currently not functional due to the scope of the current outage. The delay is justified because the six deferred SRs demonstrate the full designed functional capability of the emergency diesel generators (EDGs) to support mitigation of accidents that may occur in Modes 1 through 4. This full design capability is not necessary to support EDG functional requirements during a reactor shutdown. The shutdown functional requirements of the EDGs are adequately demonstrated by the non-deferred 18-month SRs, the required 30-day SRs, and the specified fuel oil checks.

In addition, for Unit 2 only, a minor administrative change is included to delete a reference to TS 4.0.8, which is no longer applicable. For Unit 1 only, an editorial change is made to add the word "or" to action statement 3.8.1.2.

2.0 BACKGROUND

Donald C. Cook Units 1 and 2 have been shut down since September of 1997, and currently remain in an extended outage. Sufficient equipment is not available to perform the required EDG surveillance testing at the specified surveillance intervals. The Unit 1 surveillance interval expired on March 1 and 3, 1999, for the 1 CD and 1 AB EDGs, respectively, and both Unit 1 EDGs were declared inoperable in accordance with TS. At that time, the Unit 1 and Unit 2 EDGs were already inoperable due to seismic qualification issues involving HFA (hinged armature auxiliary) relays in the EDG and 4kV safety motor control circuits (this condition was

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reported via Licensee Event Report 1999-001-00). Correction of the HFA relay problems and appropriate post maintenance testing will restore operability of the EDGs with no additional outage impact. However, unless the amendments are approved, EDG inoperability due to the expired SRs will continue to have an adverse impact until the SRs can be performed. Currently, Unit 1 is in Mode 5 with plant temperature maintained at approximately 125°F. Low temperature overpressure protection controls are in effect with corresponding tagouts on both safety injection (SI) pumps and one centrifugal charging pump (CCP). In addition, the containment spray system (CTS) is undergoing considerable maintenance/modification to piping and pumps, including installation of a full-flow recirculation line. Completion of the CTS work is necessary to support the testing and could require the Unit 1 EDGs to remain inoperable in accordance with TS until the summer of 1999. This same TS relief will be needed for Unit 2 in December 1999, when the SRs become overdue.

If the amendments are not approved, the EDGs must remain inoperable until plant conditions can support the required testing. Inoperability of the EDGs will severely impact outage flexibility and prolong the duration of maintenance activities without a compensating increase in safety.

3.0 EVALUATION

The staff's evaluation of the licensee's proposed changes to the TS is as follows.

3.1 Proposed Changes to TS Section 4.8.1.2

The licensee proposes to change TS Section 4.8.1.2, which currently reads as follows:

The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for Requirement 4.8.1.1.2.a.5.

The proposed amended TS Section would read:

The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for Requirement 4.8.1.1.2.a.5.

Commencing in 1999 during the extended shutdown initiated in 1997, the 18-month Surveillance Requirements 4.8.1.1.2.e.4.a) and b); 4.8.1.1.2.e.6.a), b) and c); 4.8.1.1.2.e.8; 4.8.1.1.2.e.9.a), b), and c); 4.8.1.1.2.e.10.a) and b); and 4.8.1.1.2.e.11, may be delayed one time until just prior to the first entry into MODE 4 following the shutdown.

The licensee provided the following arguments in support of the proposed amendments:

- (1) Each deferred surveillance has been reviewed and is not essential to demonstrate diesel reliability in Modes 5 and 6.

- (2) Recent performance of the deferred SRs has not resulted in failures that would challenge diesel functional requirements in Modes 5 and 6.
- (3) A probabilistic risk assessment (PRA) estimate was performed of the increase in EDG unavailability, in Modes 5 and 6, due to deferral of the subject SRs. The results demonstrated that the deferrals do not significantly increase EDG unavailability in Modes 5 and 6.
- (4) Events analyzed in Modes 5 and 6 do not take credit for auto-starting of the EDGs, and procedures exist to manually start and load an EDG if an auto-start sequence fails.
- (5) Appropriate administrative controls are in place to ensure onsite outage activities do not challenge the offsite power transmission lines.
- (6) The SRs that will continue to be performed provide adequate assurance the EDGs are capable of supplying emergency power for the current conditions.
- (7) The amendment request does not reduce the number of required operable power supplies.
- (8) The amendment request does not modify the actions required for an inoperable power supply.
- (9) The plant is designed such that analyzed accidents credible in Modes 5 and 6 would not be initiated by an interruption of A.C. power.
- (10) The greatly reduced fission product activities and fission product decay heat rates currently existing provide assurance that the consequences of any accident or inadvertent release of radioactive materials are bounded by the existing analysis.
- (11) Although the plant TS requires only a single operable offsite power supply and a single operable EDG in Modes 5 and 6, administrative requirements for reducing shutdown risk supplement the TS requirements, when appropriate.
- (12) The surveillance interval extensions proposed by this request are permitted by the improved standard technical specifications.
- (13) A similar request was approved for another licensee during an extended outage.

Additionally, the licensee provided a restatement of each deferred surveillance requirement and a discussion of its significance in Modes 5 and 6 as follows:

4.8.1.1.2.e.4. Simulating a loss of offsite power by itself, and:

- (a) Verifying de-energization of the emergency busses and load shedding from the emergency busses,

- (b) Verifying that the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After load sequencing is completed, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz during the test.

This surveillance test simulates a loss of offsite power (LOOP). Following this LOOP simulation, the EDG would automatically start and load. If proper load shedding did not take place, an EDG could be overloaded as soon as it energized the emergency busses. Improper load sequencing could cause a momentary overload. The likelihood of either of these occurrences is considered very low based on PRA of the relay failure rates, periodic calibrations of the relays, and the results of the last two 4.8.1.1.2.e.4 surveillance tests for each EDG. Review of the tests indicated that load shedding of non-safety loads or sequencing of safety loads had not resulted in an EDG test failure. In one instance, for the Unit 2 CD EDG, the Group C4 pressurizer heaters failed to load shed. The fault was determined to be in the breaker and not in the load shed relay. The additional load represented by these heaters did not result in exceeding the available capacity on this machine and would not have resulted in loss of the EDG during an actual LOOP.

In the unlikely event that an auto start of an EDG was unsuccessful, approved procedures exist to manually start the EDGs and manually start required loads.

Based on review of the testing and availability of appropriate procedures, the licensee concluded that a loss of offsite power in Modes 5 and 6 would result in a successful automatic or manual start and loading of the EDGs.

4.8.1.1.2.e.6. Simulating a loss of offsite power in conjunction with a Safety Injection actuation test signal, and by:

- (a) Verifying de-energization of the emergency busses and load shedding from the emergency busses,
- (b) Verifying that the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After load sequencing is completed, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz. The voltage and frequency shall be maintained within these limits for the remainder of this test, and

- (c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the emergency bus and/or Safety Injection actuation signal.

This test is similar to 4.8.1.1.2.e.4, in that the load-shedding function is repeated and safety loads are sequenced on. However, in the load sequencing with a concurrent safety injection actuation signal (SIAS), more loads are picked up and the CTS pumps are started. This results in the maximum EDG load. In Modes 5 and 6, starting of the CTS pumps is not required or permitted. Additionally, in Modes 5 and 6, a valid SIAS is not credible and the SIAS actuation logic is not required to be operable. Therefore, the full load sequence demonstrated by this test is unlikely to occur in Modes 5 and 6. On a LOOP, in Modes 5 and 6, the EDG would respond as described in Surveillance 4.8.1.1.2.e.4.

- 4.9.1.1.2.e.8. Determine that the auto-connected loads to each diesel generator do not exceed 3500 kW.

This test confirms that all safety related loads automatically connected to the EDGs under emergency conditions do not exceed the continuous duty rating of the EDG. The importance of this testing in Modes 5 and 6 is greatly reduced. While in Modes 5 and 6 below 200°F, most of the emergency core cooling system pumps and the CTS are maintained in a configuration to preclude automatic actuation. Therefore, due to the limited number of safety loads required to be operable in Modes 5 and 6, there is adequate assurance that EDG capacity would not be exceeded by the auto-connected loads.

- 4.8.1.1.2.e.9. Verifying the diesel generator's capability to:

- (a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power.
- (b) Transfer its loads to the offsite power source, and
- (c) Be restored to its standby status.

The offsite power supply is considered to be the preferred power source during accident mitigation with the EDGs acting as the backup emergency supply. In case of an engineered safety features actuation in which the offsite power source was not available, the EDG would supply the emergency loads. Upon restoration of the offsite power supply, it is required that the emergency loads can be transferred back to the preferred supply, while running, to permit placing the EDG back in a standby lineup.

Based on past experience and the completed test procedure reviews for this test, the licensee does not anticipate a problem with paralleling the EDGs under any conditions. Additionally, the significance of this capability under the current plant conditions is greatly reduced. Cooling capability for removal of decay heat is an important safety function in Modes 5 and 6. However, interruptions in decay heat removal cooling are recognized by TS 3/4.4.1.4 and 3/4.4.1.5 (Cold

Shutdown – Loops Filled and Cold Shutdown – Loops Not Filled, respectively) for up to one hour. If the offsite power supply was lost for a sustained period and decay heat removal was in progress using an EDG, it would not be essential (upon restoration of offsite power) that a running residual heat removal (RHR) pump be transferred back to the offsite power supply without interruption. If necessary, the pump could be secured while the EDG was placed back in a standby lineup and then reenergized from offsite power.

Decay heat removal during refueling operations is addressed by TS 3/4.9.8.1 (Residual Heat Removal and Coolant Circulation), which requires at least one RHR loop in operation at all times. Typically, the conditions for a refueling are set very soon after a plant shutdown, with decay heat loads at design maximum values and reduced time to reach 200°F if cooling was lost. For the current situation of 18-months of shutdown, TS 3/4.9.8.1 is extremely conservative. If a loss of offsite power required a period of decay heat removal using the EDG for power, and offsite power was later restored, it would be technically acceptable, if necessary, to interrupt RHR for a short time while the EDG was placed back in standby. A temporary interruption of RHR is recognized, up to 1 hour per 8-hour period, when moving fuel near the reactor pressure vessel hot legs.

Although it is technically acceptable and permitted by the TS to interrupt cooling for a short time in Modes 5 and 6, the licensee has concluded, based on previous testing, that RHR could be transferred back to offsite power without interruption.

Based on the above, the benefit from performing surveillance 4.8.1.1.2.e.9 is to ensure the specific capabilities of the EDG are verified prior to the next entry into Mode 4.

- 4.8.1.1.2.e.10. Verifying that with the diesel generator operating in a test mode while connected to its test load, a simulated Safety Injection signal overrides the test mode by:
- (a) Returning the diesel generator to standby operation, and
 - (b) Verifying the emergency loads are serviced by offsite power.

The benefit of performing this testing at the current time is greatly minimized because the receipt of a valid SIAS actuation signal in Modes 5 and 6 is not credible, and the SIAS actuation logic is not required to be energized in Modes 5 and 6.

- 4.8.1.1.2.e.11. Verifying that the automatic sequence timing relays are OPERABLE with each load sequence time within plus or minus 5% of its required value and that each load is sequenced on within the design allowable time limit.

In the current plant condition, the only loads that automatically start on a LOOP are the non-essential service water (NESW), auxiliary feed water (AFW), essential service water (ESW), and component cooling water (CCW) pumps (AFW would typically be precluded from starting when RHR is used for decay heat removal). Starting of these loads out of sequence could result in a temporary overload of the EDG, but this is very unlikely due to the number of loads that

would not start in the current condition. In addition, past performance of this surveillance has not disclosed significant problems with the load sequencing relays. As previously discussed, these relays are within their current calibration intervals, and the HFA relays will be appropriately tested prior to declaring the EDGs operable. Based on this, the licensee is confident that the EDGs would not be challenged by load sequencing problems.

Furthermore, the licensee reviewed its policy for the plant shutdown safety and risk management relative to the subject deferrals and determined that no change is required. TS 3.8.1.2 requires a single offsite power supply and a single EDG to be operable in Modes 5 and 6. This requirement is observed by administrative policies for reducing shutdown risk (when not possible the TS Action statements are complied with). Administrative policies require the TS requirements to be supplemented in Modes 5 and 6 when reactor coolant system (RCS) inventory is below specified minimums. When these specified minimums are not met, TS requirements are supplemented by requiring an additional offsite source or an additional EDG to be available.

The licensee stated that reduced decay heat load, due to the 18 months of continuous shutdown preceding this amendment request, would provide additional time, following disruption of A.C. power, to restore power prior to reaching the maximum allowable temperature of 200°F for Mode 5. Currently, for Unit 1, the estimated time to reach 200°F from 130°F is 18 hours. For Unit 2, the estimated time to reach 200°F from 130°F is 12 hours.

Fission product activities in the fuel assembly pellet-to-cladding gaps are greatly reduced due to the extended shutdown. The fuel handling accident analysis considers the thyroid dose at the site boundary and in the low population zone. This dose is dominated by the isotope iodine-131, which also decays more slowly than other iodine contributors to the dose. The activity of iodine-131 decreases by half every 8.05 days. The current shutdown period of approximately 18 months represents more than 70 half-lives. The greatly reduced fission product activity at the current time provides assurance that the consequences of a fuel handling accident are bounded by the existing analysis.

The licensee also evaluated the EDG unavailability due to the extended SRs by using a simplified Mode 1 EDG model with a simplified representation of load shedding and sequencing control circuits. In addition, the licensee made two conservative assumptions: (1) the failure of any single load-shed relay will result in an EDG overload, and (2) given the occurrence of an SI signal, the failure of any single SI load-conservation relay will result in an EDG overload. The estimated increase in Mode 5 EDG unavailability was from 13.6 days per year to 14.1 days per year if the surveillance interval was increased from 18 months to 42 months. The licensee stated that the impact would be significantly lower if a more detailed representation of the load-shedding circuitry was developed or credit was taken for the possibility of operator recovery action.

The licensee stated that deferral of certain SRs does not by itself introduce a potential failure mechanism or significantly increase the probability of EDG failure on demand. The monthly EDG starts, fuel level checks, and fuel transfer pump checks will continue to be performed to provide adequate assurance that the EDGs will be available if needed. The single and full load rejection tests of TS SRs 4.8.1.1.2.e.2 and 4.8.1.1.2.e.3 will be performed prior to declaring the

EDGs operable. These tests demonstrate proper governor response and provide assurance that a dropped load during a manual or automatic loading sequence does not result in loss of the EDG. The deferred SRs will be performed before entering Mode 4.

The staff evaluated the proposed changes and the licensee's justification for those changes as outlined above. The staff agrees with the licensee's evaluation, which is set forth above. Accordingly, the staff finds that the proposed changes are acceptable.

3.2 Proposed Changes to TS BASES Section 3/4.8

The licensee proposes to change TS BASES Section 3/4.8 by adding the following:

Specific SRs of SR 4.8.1.2 may be delayed one time until just prior to the first entry into MODE 4 following the extended outage that commenced in 1997. The delay is permitted to recognize the significant ongoing maintenance to safety systems and components that would be required to be OPERABLE solely to support the referenced surveillances. The delay recognizes the reduced decay heat load and fission product activities resulting from an extended shutdown and consequently the small benefit from performing the surveillances prior to the next entry into MODE 4. It is the intent that these SRs must still be capable of being met, but actual performance is not required until the required safety systems are ready to support entry into MODE 4.

The licensee modified the TS Bases to reflect the change in SR 4.8.1.2.

The staff finds that this change is consistent with the requested SR change and, therefore, is acceptable.

3.3 Administrative and Editorial Changes

The licensee proposes the following administrative and editorial changes:

For Unit 1 only, an editorial change is made to add the word "or" to action statement 3.8.1.2. For Unit 2 only, a minor administrative change is included to delete a reference to TS 4.0.8, which is no longer applicable.

The licensee stated that its previous submittal AEP:NRC:0433Q (letter from R. Powers (Indiana Michigan Power Company) to NRC, "Technical Specifications Change Request - Administrative Changes," dated December 3, 1998) involved an administrative change request that affects Unit 2 TS Page 3/4 8-9. Because the licensee expects that the current request will be approved prior to AEP:NRC:0433Q, the administrative change request is duplicated in this submittal. The change involves deletion of reference to TS 4.0.8. TS 4.0.8 allowed extensions for certain SRs required to be performed on or before August 13, 1994, and designated as 18-month or 36-month SRs (or required as outage-related SRs under the provisions of TS 4.0.5). TS 4.0.8 also affected the initiation date established during the Unit 2 1994 refueling outage. Each affected surveillance is modified by a note stating that the provisions of TS 4.0.8 are applicable. These extensions were granted to accommodate scheduled work at the time. Unit 2 SRs are now scheduled in accordance with the applicable TS. Therefore, for Unit 2, reference to TS 4.0.8 is deleted from SR 4.8.1.2 because it no longer applies.

For Unit 1 only, an editorial correction is made to action statement 3.8.1.2 to add a missing "or" between the words "CORE ALTERATIONS" and "positive reactivity changes." The "or" is properly included in the Unit 2 TS and this editorial correction will make the Unit 1 and Unit 2 TS SR 4.8.1.2 identical. The correction is not intended to change the meaning of the TS.

The staff finds these changes to be administrative and editorial in nature and, therefore, are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Michigan State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

These amendments change the surveillance requirements. The staff has determined that the amendments involve 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 the amendments involve no significant hazards consideration and there has been no public comment on such finding (64 FR 23129). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 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 the amendments.

6.0 CONCLUSION

The staff has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: A. Pal

Date: June 8, 1999

Mr. Robert P. Powers, ~~E~~ or Vice President
 Indiana Michigan Power Company
 Nuclear Generation Group
 500 Circle Drive
 Buchanan, MI 49107

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF
 AMENDMENTS RE: ELECTRICAL POWER SYSTEMS, SHUTDOWN
 (TAC NOS. MA5246 AND MA5247)

Dear Mr. Powers:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. to Facility Operating License No. DPR-58 and Amendment No. to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications in response to your application dated April 19, 1999.

The amendments revise Technical Specification (TS) 3/4.8.1.2, "Electrical Power Systems, Shutdown," and its associated bases to provide a one-time extension of the 18-month surveillance interval for specific surveillance requirements for Units 1 and 2. The surveillance will be performed prior to the first entry into Mode 4 following the current plant shutdown. In addition, for Unit 2 only, a minor administrative change is included to delete a reference to TS 4.0.8, which is no longer applicable. For Unit 1 only, an editorial change is made to add the word "or" to action statement 3.8.1.2.

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

Sincerely,

John F. Stang, Sr. Project Manager, Section 1
 Project Directorate III
 Division of Licensing Project Management
 Office of Nuclear Reactor Regulation

Docket Nos. 50-315 and 50-316

- Enclosures: 1. Amendment No. to DPR-58
 2. Amendment No. to DPR-74
 3. Safety Evaluation

cc w/encls: See next page

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C. Craig

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