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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 159 TO FACILITY OPERATING LICENSE NO. DPR-74

INDIANA MICHIGAN POWER COMPANY

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 2

DOCKET NO. 50-316

1.0 INTRODUCTION

By letter dated April 16, 1993, as supplemented September 28 and December 3, 1993, the Indiana Michigan Power Company (the licensee) requested an amendment to the Technical Specifications (TS) appended to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Unit No. 2. The proposed amendment would extend specific TS surveillances which have various due dates, the first of which is February 5, 1994. The surveillances would be extended to the Unit 2 refueling outage, which is currently scheduled to begin August 6, 1994. All of the requested surveillance extensions are associated with surveillances normally performed during refueling outages. The current cycle will be lengthened approximately 5 months due to a planned power reduction in order to separate the current dual unit outages. The licensee categorized the surveillances into groups of related surveillances. Extensions for four of these groups (Groups 1, 2, 6 and 11) were previously granted for Unit 2 in Amendment 158 dated December 22, 1993. This amendment pertains only to the remaining 12 groups, which are listed below:

Group	TSs Affected	Description of Change
(3)	Table 4.3-2, Item 6.d 4.7.1.2.e 4.7.1.2.f	Delay auxiliary feedwater system testing including channel functional testing of loss of main feedwater pump signal
(4)	4.8.1.1.2.e 4.8.1.2 4.4.11.3 4.7.4.1.b 4.3.2.1.1, Table 4.3-2, Items 8.a & 8.b	Delay diesel generator testing including relief valve testing and essential service water valve testing and delay calibrations of time delay relays for 4 Kv bus loss of degraded voltage.
(5)	Table 4.3-1 Items 7 & 8 4.3.2.1.2 (P-12) Table 4.3-2 Item 4.d Table 4.3-6A Items 5,6,7 & 8 Table 4.3-10 Items 2,3 & 11 4.3.3.6, Table 4.3-10, Item 15	Delay RTD calibrations and calibrations of incore thermocouples in mode 3

(7)	Table 4.3-10, Item 16	Delay reactor vessel level indication system calibration
(8)	4.1.3.3	Delay analog rod position indication functional testing
(9)	4.5.2.d.1 4.5.3.1	Delay RHR auto-closure interlock testing
(10)	4.7.7.1.a	Delay visual inspection of inaccessible snubbers
(12)	4.6.5.9	Delay divider barrier seal inspection
(13)	4.7.9.2.b.1	Delay RCP fire protection testing
(14)	Table 4.3-10, Item 18 4.5.2.d.2 4.5.3.1 4.4.6.1.b	Delay containment water level calibrations, sump visual inspection and calibration of containment flow monitoring system
(15)	4.2.5.2 Table 4.3-1 Items 12 & 13	Delay reactor coolant flow calibrations
(16)	Table 4.3-2 Items 9.a, 9.b, 9.c & 9.d	Delay ESF Manual Trip Actuating Device Operational Test

The due dates specified in the licensee's submittal for each TS affected are the most limiting due date, in that for multiple TSs the date when the first surveillance is due is listed. Also, the due dates given in the submittal include the 25% maximum allowable extension beyond the surveillance interval allowed by TS 4.0.2.

2.0 EVALUATION

Generic Letter (GL) 91-04, "Changes in Technical Specifications Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," was published April 2, 1991. The purpose of the GL was to provide guidance to licensees wishing to take advantage of improvements in reactor fuels to increase the duration of the fuel cycle for their facilities. Although the licensee is not requesting a permanent change to a 24-month fuel cycle, it is requesting a one-time surveillance extension, in which some of the guidance of GL 91-04 will apply.

The staff included in its guidance in GL 91-04 the following statement:

> The NRC staff has reviewed a number of requests to extend 18-month surveillances to the end of a fuel cycle and a few requests for changes in surveillance intervals to accommodate a 24-month fuel cycle. The staff has found that the effect on safety is small because safety systems use redundant electrical and mechanical components and because licensees perform other surveillances during plant operation that confirm that these systems and components can perform their safety functions. Nevertheless, licensees should evaluate the effect on safety of an increase in 18-month surveillance intervals to

accommodate a 24-month fuel cycle. This evaluation should support a conclusion that the effect on safety is small. Licensees should confirm that historical plant maintenance and surveillance data support this conclusion.

The licensee's request for surveillance extension is very similar to extensions granted previously, one for Unit 1 approved by the NRC on April 17, 1987, and two for Unit 2 approved by the NRC on December 28, 1987, and February 29, 1988. The reasons for the extension and the equipment included in this request are similar. The specific TS changes are addressed below.

Group (3) Auxiliary Feedwater Pump Testing

The proposed amendment requests a 3-month extension for auxiliary feedwater system testing including channel functional testing of loss of main feedwater pump signal required by TS 4.7.1.2.e, 4.7.1.2.f and TS Table 4.3-2 Item 6.d. Testing of these items would require either plant shutdown or a trip of a main feedpump with the resultant reduction in plant power and associated thermal transient.

Portions of the system have been inadvertently tested by two spurious reactor trips which occurred on August 2 and 27, 1993. The system performed as required during the reactor trips. The licensee has noted in its submittal that these items have had an excellent test history. The licensee received a similar extension for these surveillances in 1987. Therefore, the staff finds the licensee's request for a one-time surveillance extension acceptable.

Group (4) Diesel Generator and Valve Testing and Delay of Calibrations of Time Delay Relays for 4 Kv Bus

The surveillance requirements of TS 4.8.1.1.2.e for diesel generators (DG) 2AB and 2CD are required by TS to be performed during shutdown. Surveillance requirements of 4.8.1.1.2.e require subjecting each DG to an inspection which is in accordance with procedures prepared in conjunction with the manufacturer's recommendations for this class of standby service. This surveillance interval requirement expires on March 25, 1994, for DG 2AB and February 18, 1994, for DG 2CD. An extension is also necessary for part of the requirements of TS 4.8.1.2, since 4.8.1.1.2 is referenced there. The extension for these requirements is needed from February 18, 1994 (limiting due date), through the Unit 2 refueling outage.

The licensee has verified with the DG vendor that the DG inspection required by TS 4.8.1.1.2.e can be extended on a one-time basis for the requested period. During the 5½-month extension period, each DG should accumulate five additional starts and 5-7 additional running hours. The licensee stated in its submittal that the effect of these additional starts and running hours on the DGs is insignificant based on the wear history of each machine. The licensee currently has a trending program for the parameters measured during TS required monthly testing. If an adverse trend began to develop, corrective measures would be taken to prevent a significant problem from occurring. The licensee also performed a review of previous test results which indicated that the DG associated circuitry would pass the surveillance tests during the extended period. Therefore, the staff finds the licensee's request for a one-time surveillance extension for the DGs acceptable.

The licensee also proposes to extend the surveillance period for testing the emergency power supply for the power-operated relief valves (PORVs) and block valves required by TS 4.4.11.3 and testing of the automatic valves in the essential service water (ESW) system required by TS 4.7.4.1.b. The testing of the PORVs and block valves involves cycling of the valves and is generally performed during shutdown in conjunction with the DG testing, as suggested by TS 4.4.11.3. The testing of the automatic valves in the ESW system must be performed during shutdown per TS 4.7.4.1.b and is generally conducted in conjunction with the DG testing because some of the ESW valves involve cooling water flow to the DG and its associated equipment.

The extension for both the ESW valves and the PORV emergency power supply are needed for the period of April 15, 1994, through the Unit 2 refueling outage. Previous test results do not indicate any reason to suspect that the valves and their associated circuitry would not pass the required surveillance during the extended interval. Therefore, the staff finds the licensee's request for a one-time surveillance extension for the ESW valves and the PORV and block valves emergency power supply acceptable.

In its letter dated December 3, 1993, the licensee also requested an extension of the 4 Kv loss of voltage and degraded voltage time delay relays required by TS 4.3.2.1.1, Table 4.3-2, Items 8.a and 8.b. The extension is needed from February 5, 1994, until the Unit 2 refueling outage. The licensee does not consider it prudent to perform this surveillance during operation because the components involved cannot be isolated from their normal power supply. Performance of the surveillance at power could result in a challenge to safety-related components if a power transfer were to occur and personnel safety might be at risk because the surveillance would be performed on live equipment.

The time delay relays involved in this surveillance are electronic and were installed in 1986. The licensee considers electronic relays to be highly reliable, accurate and repeatable and therefore should not drift outside of their acceptable setpoints. This was demonstrated during the previous three-channel calibration surveillances where no adjustments were required on the as-found conditions. Thus, there is no reason to believe that the relays would not perform their intended functions during the extension period. Therefore, the staff finds the licensee's request for a one-time surveillance extension for the time delay relays acceptable.

Group (5) Resistance Temperature Detector (RTD) and Incore Thermocouple Calibrations (Core Exit Thermocouples)

The proposed amendment requests a 3½ month extension for the calibration of the RTDs, as specified by TS Tables 4.3-1 Items 7 and 8, 4.3-2 Item 4.d, 4.3-6A Items 5, 6, 7 and 8, 4.3-10 Items 2,3 and 11 and TS 4.3.2.1.2 (P-12). Testing of these sensors is required to be performed during shutdown because of the low temperatures necessary for the calibration and because isothermal conditions throughout the reactor coolant system (RCS) are required.

Channel checks and functional tests will continue to be performed and would be expected to provide indication of RTD drift. Another indication of possible RTD drift would be the comparison of delta-T to the calorimetric calculated at power. The licensee has noted in its submittal that the history of the RTDs has been very stable with no significant drifting problems. In addition, the

licensee performed a drift analysis using as-found instrument errors from previous instrument calibrations to project the amount of drift the instruments will have during the extension period. Details of the licensee's analysis were submitted in a letter dated December 3, 1993. In its submittal the licensee provided the results of its analysis and concluded that, based on these results, the drift data clearly indicated that instrument drift will be within acceptable limits while operating in the requested surveillance extension period. Therefore, the staff finds the licensee's request for a one-time surveillance extension of the RTDs acceptable.

In its letter dated December 3, 1993, the licensee also requested an extension of calibration of the incore thermocouples required by TS 4.3.3.6, Table 4.3-10, Item 15. This surveillance cannot be performed during reactor operation because TS require the unit to be in mode 3. This extension is needed from April 28, 1994, until the Unit 2 refueling outage.

TS 3.3.3.6 requires a minimum of two core exit thermocouples per core quadrant. There are a total of 58 thermocouples monitored (13 in quadrant I, 16 in quadrant II, 17 in quadrant III and 12 in quadrant IV). A monthly channel check is required by TS 4.3.3.6, Table 4.3-10, Item 15, but is administratively performed weekly. This channel check confirms that the core exit thermocouples have not changed significantly from the average reading and verifies TS compliance and will continue to be performed during the extension period. The licensee performed a review of this cycle's and the previous two cycle's core exit thermocouple data to determine if instrument drift could lead to several core exit thermocouples becoming inoperable during the extension period. No thermocouple drift was observed; thus compliance with TS 3.3.3.6 (two operable thermocouples per core quadrant) should be assured during the extension period. Therefore, the staff finds the licensee's request for a one-time surveillance extension of the thermocouples acceptable.

Group (7) Reactor Vessel Level Indication System

The proposed amendment requests a 3½-month extension for the channel calibration of the Reactor Vessel Level Indication System (RVLIS) required by TS Table 4.3-10, Item 16. The calibration cannot be performed at power because entry into the lower containment volume and reactor head areas is required, and these areas are accessible only during shutdown.

RVLIS has two trains of indication which are subject to TS required monthly channel checks. These channel checks would be expected to provide indication of significant degradation of the system. Additional indication of inadequate core cooling is available to the operators in the form of the core exit thermocouple readings and subcooling margin monitors. The licensee performed a review of the maintenance history of the system and, based on this review, believes that the equipment will remain operable during the extension period. No drift data was available for the current transmitters installed in RVLIS because the transmitters were replaced during the most recent refueling outage as part of its 10-year recommended replacement frequency. However, the licensee believes that it would be aware of any excessive drift through the TS required monthly channel checks. Therefore, the staff finds the licensee's request for a one-time surveillance extension acceptable.

Group (8) Rod Position Indication System

The proposed amendment requests a 3-month delay of the functional testing of the rod position indicator (RPI) channels required every 18 months by TS 4.1.3.3. The surveillance cannot be performed at power because it requires full insertion of the control rods, which would violate TS rod insertion limits.

The operability of the RPI channels is functionally verified per TS once per 12 hours by comparison to the demand position indication system. Also, during the 31-day surveillance per TS 4.1.3.1.2, the rods are moved at least eight steps and the RPI meters are verified to track with the demand position. These comparisons would be expected to indicate significant degradation in the RPI channels. Other surveillances, such as flux maps, quadrant power tilt ratio and axial flux difference, are performed to indicate if the core is performing as designed. These surveillances would be expected to indicate significant discrepancies between indicated and actual rod position. Because other TS required surveillances used to verify the operability of the RPIs will continue to be performed, the licensee believes that the RPIs will continue to remain operable per TS 3/4.1.3.2 during the extension. Therefore, the staff finds the licensee's request for a one-time surveillance extension acceptable.

Group (9) RHR Auto-Closure Interlock

In a letter dated September 28, 1993, the licensee withdrew its request for extensions of two surveillances dealing with RHR auto-closure interlock testing because they were performed during a recent forced outage. These extensions are no longer needed.

Group (10) Visual Inspection of Inaccessible Snubbers

The proposed amendment would delay visual inspection of inaccessible snubbers required by TS 4.7.7.1.a. The extension is needed from March 19, 1994, through the Unit 2 refueling outage. The extension is required because the snubbers are inaccessible during reactor operation, thus requiring the inspections to be performed during shutdown. Functional testing of snubbers per TS 4.7.7.1.c is not required until after the scheduled refueling outage start date.

It should be noted that the licensee currently has a submittal with the NRC dated May 1, 1992, requesting a permanent change to the surveillance intervals for snubber visual inspections. The submittal is based on the guidance from Generic Letter 90-09, "Alternate Requirements for Snubber Visual Inspections Intervals and Corrective Actions." The submittal would implement up to a maximum interval of 48 months for visual inspections of inaccessible snubbers, which would be well beyond the scheduled refueling outage date.

On the basis of the history of D.C. Cook Unit 2 snubber testing and inspection results, there is high confidence in the operability of the D.C. Cook Unit 2 snubbers, and operation for approximately 5 additional months past the due date for snubber visual inspections will not result in a significant decrease in plant safety. Therefore, plant shutdown to perform snubber visual inspections at the due dates indicated above would be unwarranted and the licensee's requested extension is acceptable.

Group (12) Divider Barrier Seal Inspection

The proposed amendment would delay visual inspection and coupon removal and testing of the divider barrier seal required by TS 4.6.5.9, which is required to be performed while shut down. The extension is needed from March 8, 1994, until the Unit 2 refueling outage. The entire divider barrier seal was replaced during the cycle 7-8 refueling outage. Subsequent inspection of the seal and testing of the coupons following the last outage revealed no degradation of the seal and all acceptance criteria were satisfied. Based on the facts that the divider barrier seal is passive and not subjected to any outside forces other than the environment, and is new and has shown no degradation, the licensee believes there is no reason to suspect that it would not be operable during the extension period. Therefore, the staff finds the licensee's request for a one-time surveillance extension acceptable.

Group (13) Reactor Coolant Pump (RCP) Fire Protection Testing

The proposed amendment requests a 4-month delay of the functional testing of the RCP fire protection system required every 18 months by TS 4.7.9.2.b. In order to perform the test, instrumentation required per TS Table 3.3-11 and the fire suppression system must be made inoperable. The licensee does not consider this prudent during operation of the RCPs; therefore, the test should be performed during shutdown.

Based on the RCP sprinkler system surveillance history, the licensee has a high confidence that the system will be able to perform its intended safety function during the extension period. Also, there are seismically qualified oil collection systems on the RCPs, installed in accordance with 10 CFR Part 50, Appendix R. These systems are designed to mitigate the effects of an RCP lube oil leak. Therefore, the staff finds the licensee's request for a one-time surveillance extension acceptable.

Group (14) Containment Water Level Calibrations, Sump Visual Inspections and Containment Flow Monitoring System

In a letter dated December 3, 1993, the licensee withdrew its request for the extension of calibrations in TS 4.3.3.6, Table 4.3-10, Item 18, which pertains to containment water level calibrations, because it was determined that the calibrations can be performed without entry into lower containment. The licensee will therefore perform the surveillance prior to the refueling outage. This extension is no longer needed.

The proposed amendment also requests a 4½-month extension of TS 4.5.2.d.2 which requires that the sump and its inlets be subjected to an 18-month visual inspection. An extension of TS 4.5.3.1 is also needed, since it references TS 4.5.2. The inspection cannot be performed during reactor operation because entry into the containment sump area is restricted.

The visual inspection is performed to ensure that the system is clean prior to startup and was performed prior to startup after the previous refueling outage. During reactor operation, entry into the containment sump area is restricted. The licensee has strict material control requirements for entry into containment and a containment closeout tour is performed at the end of an outage to ensure that no material is left within containment, prior to

establishing containment integrity, per TS 4.5.2.c. The closeout tour was last performed in August 1993 following a short duration outage. In addition, performance of previous visual inspections following reactor operation has shown that very little debris ever accumulates in the sump. The licensee has no reason to believe that the sump or its inlets would become blocked during the extension period. Therefore, the staff finds the licensee's request for a one-time extension of the visual inspections acceptable.

In its letter dated December 3, 1993, the licensee also requested an extension of calibration of containment sump flow monitoring system as required by TS 4.4.6.1.b. This surveillance cannot be performed during reactor operation since it requires entry into the lower volume of containment. The extension is needed from April 3, 1994, until the Unit 2 refueling outage.

The containment flow monitoring system is used to monitor and detect RCS leakage. Leakage rate is monitored by knowing the sump pump capacities and monitoring how long a pump runs. The licensee performed a review of the past surveillance history of this system which showed that the pumps have capacities well above their acceptance criteria. Details of this review are included in the licensee's letter dated December 3, 1993. If the pumps were to degrade, the flow rate would decrease; thus increasing the run time for the pump to deliver a given amount of water. This would result in an over-estimation of RCS leakage, which would be conservative with respect to TSs. Also, the pump run times are very short in duration (on the order of a minute per day); therefore, the licensee has no reason to believe that continued operation during the extension period would cause the pumps to become inoperable. The staff finds the licensee's request for a one-time extension of the containment sump flow monitoring system acceptable.

Group (15) Reactor Coolant Flow Calibrations

In a letter dated December 3, 1993, the licensee withdrew its request for extensions of surveillances pertaining to reactor coolant flow calibrations, because they were calibrated during October and November, 1992. The first transmitter calibration is due August 17, 1994 (after the requested extension date). The remainder of the channel can be calibrated at power. These extensions are no longer needed.

Group (16) Engineered Safety Features (ESF) Manual Trip Actuating Device Operational Test

The proposed amendment requests a 3½-month extension for the ESF manual actuation switches specified in TS 4.3.2.1.1, Table 4.3-2, Items 9.a, 9.b, 9.c, and 9.d. These tests cannot be performed at power since they would actuate their respective ESF functions.

The circuitry associated with manual actuation of the ESF functions is subject to TS required channel functional testing. The only portion of the channels that are not tested are the manual actuation switches. The manual actuation switches are highly reliable. During the entire surveillance history for both units none of the switches has ever failed a surveillance. Additionally, the licensee notes that the manual switches are a backup to automatic actuation of the same ESF functions. The automatic channels are subjected to TS required channel checks and channel functional tests. Therefore, the staff finds the licensee's request for a one-time surveillance extension acceptable.

3.0 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.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. 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 the amendment involves no significant hazards consideration and there has been no public comment on such finding (58 FR 41505 and 58 FR 67850). Accordingly, the amendment meets 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 amendment.

5.0 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

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