



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

August 4, 2016

Mr. Joel P. Gebbie
Senior Vice President and
Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS TO REVISE TECHNICAL SPECIFICATIONS TO ADOPT TECHNICAL SPECIFICATIONS TASK FORCE - 523, "GENERIC LETTER 2008-01, MANAGING GAS ACCUMULATION" (CAC NOS. MF7294 AND MF7295)

Dear Mr. Gebbie:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 331 to Renewed Facility Operating License No. DPR-58, and Amendment No. 312 to Renewed Facility Operating License No. DPR-74, for the Donald C. Cook Nuclear Plant (CNP), Units 1 and 2, respectively. The amendments consist of changes to the technical specifications in response to your application dated January 29, 2016.

These amendments revise surveillance requirements to verify that the system locations susceptible to gas accumulation are sufficiently filled with water and to provide allowances which permit performance of the verification. The changes address the concerns discussed in NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" as described in NRC-approved Technical Specifications Task Force (TSTF)-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation."

J. Gebbie

- 2 -

A copy of our related safety evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink, appearing to read "A W Dietrich". The signature is written in a cursive, flowing style.

Allison W. Dietrich, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-315 and 50-316

Enclosures:

1. Amendment No. 331 to DPR-58
2. Amendment No. 312 to DPR-74
3. Safety Evaluation

cc w/encls: Distribution via Listserv



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 RENEWED FACILITY OPERATING LICENSE

Amendment No. 331
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 January 29, 2016, 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 Renewed Facility Operating License No. DPR-58 is hereby amended to read as follows:

(2) Technical Specifications

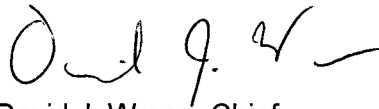
The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment

Enclosure 1

No. 331, are hereby incorporated in this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 180 days.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'D. J. Wrona', with a stylized flourish at the end.

David J. Wrona, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to Renewed
Facility Operating License No. DPR-58
and Technical Specifications

Date of Issuance: August 4, 2016

ATTACHMENT TO LICENSE AMENDMENT NO. 331

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-58

DOCKET NO. 50-315

Replace the following page of the Renewed Facility Operating License No. DPR-58 with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

REMOVE

INSERT

- 3 -

- 3 -

Replace the following pages of 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

INSERT

3.4.6-2

3.4.6-2

3.4.7-3

3.4.7-3

3.4.8-2

3.4.8-2

3.5.2-2

3.5.2-2

3.5.2-3

3.5.2-3

3.5.3-2

3.5.3-2

3.6.6-1

3.6.6-1

3.6.6-2

3.6.6-2

3.9.4-2

3.9.4-2

3.9.5-3

3.9.5-3

and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

- (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument and equipment calibration or associated with radioactive apparatus or components; and
 - (5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not to exceed 3304 megawatts thermal in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 331, are hereby incorporated in this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Less than Four Loop Operation

The licensee shall not operate the reactor at power levels above P-7 (as defined in Table 3.3.1-1 of Specification 3.3.1 of Appendix A to this renewed operating license) with less than four reactor coolant loops in operation until (a) safety analyses for less than four loop operation have been submitted, and (b) approval for less than four loop operation at power levels above P-7 has been granted by the Commission by amendment of this license.

(4) Fire Protection Program

Indiana Michigan Power Company shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee's amendment request dated July 1, 2011, as supplemented by letters dated September 2, 2011, April 27, 2012, June 29, 2012, August 9, 2012, October 15, 2012, November 9, 2012, January 14, 2013, February 1, 2013,

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two required loops inoperable. <u>OR</u> Required loop not in operation.	B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the requirements of LCO 3.1.1.	Immediately
	<u>AND</u> B.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required RHR or RCS loop is in operation.	12 hours
SR 3.4.6.2	Verify SG secondary side water levels are above the lower tap of the SG wide range level instrumentation by ≥ 420 inches for required RCS loops.	12 hours
SR 3.4.6.3	-----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. ----- Verify correct breaker alignment and indicated power are available to each required pump.	7 days
SR 3.4.6.4	-----NOTE----- Not required to be performed until 12 hours after entering Mode 4. ----- Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify required RHR loop is in operation.	12 hours
SR 3.4.7.2	Verify SG secondary side water level is above the lower tap of the SG wide range level instrumentation by ≥ 420 inches in required SGs.	12 hours
SR 3.4.7.3	<p>-----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. -----</p> <p>Verify correct breaker alignment and indicated power are available to each required RHR pump.</p>	7 days
SR 3.4.7.4	Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No required RHR loop OPERABLE. <u>OR</u> Required RHR loop not in operation.	B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet requirements of LCO 3.1.1.	Immediately
	<u>AND</u> B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1 Verify required RHR loop is in operation.	12 hours
SR 3.4.8.2 -----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. ----- Verify correct breaker alignment and indicated power are available to each required RHR pump.	7 days
SR 3.4.8.3 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY																											
SR 3.5.2.1	<p>Verify the following valves are in the listed position with power to the valve operator removed.</p> <table border="1"> <thead> <tr> <th>Number</th> <th>Position</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1-IMO-261</td> <td>Open</td> <td>SI suction line</td> </tr> <tr> <td>1-IMO-262</td> <td>Open</td> <td>Mini flow line</td> </tr> <tr> <td>1-IMO-263</td> <td>Open</td> <td>Mini flow line</td> </tr> <tr> <td>1-IMO-315</td> <td>Closed</td> <td>Low head SI to hot leg</td> </tr> <tr> <td>1-IMO-325</td> <td>Closed</td> <td>Low head SI to hot leg</td> </tr> <tr> <td>1-IMO-390</td> <td>Open</td> <td>RWST to RHR</td> </tr> <tr> <td>1-ICM-305</td> <td>Closed</td> <td>Sump line</td> </tr> <tr> <td>1-ICM-306</td> <td>Closed</td> <td>Sump line</td> </tr> </tbody> </table>	Number	Position	Function	1-IMO-261	Open	SI suction line	1-IMO-262	Open	Mini flow line	1-IMO-263	Open	Mini flow line	1-IMO-315	Closed	Low head SI to hot leg	1-IMO-325	Closed	Low head SI to hot leg	1-IMO-390	Open	RWST to RHR	1-ICM-305	Closed	Sump line	1-ICM-306	Closed	Sump line	12 hours
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1-ICM-305	Closed	Sump line																											
1-ICM-306	Closed	Sump line																											
SR 3.5.2.2	<p>-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days																											
SR 3.5.2.3	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program																											
SR 3.5.2.4	Verify each ECCS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months																											
SR 3.5.2.5	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months																											

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	<p>Verify, for each ECCS throttle valve listed below, each position stop is in the correct position.</p> <p><u>Valve Number</u> 1-SI-121 N 1-SI-121 S 1-SI-141 L1 1-SI-141 L2 1-SI-141 L3 1-SI-141 L4</p>	24 months
SR 3.5.2.7	<p>Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet strainers show no evidence of structural distress or abnormal corrosion.</p>	24 months
SR 3.5.2.8	<p>Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.</p>	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.3.1</p> <p>-----NOTE----- For SR 3.5.2.2, the SR is modified to allow the valves to not be in the correct position, provided they can be aligned to the correct position. -----</p> <p>The following SRs are applicable for all equipment required to be OPERABLE:</p> <p>SR 3.5.2.2, SR 3.5.2.6, SR 3.5.2.3, SR 3.5.2.7, and SR 3.5.2.8</p>	<p>In accordance with applicable SRs</p>

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray System

LCO 3.6.6 Two containment spray trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u>	6 hours
	B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.6.1</p> <p>-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.</p>	31 days
<p>SR 3.6.6.2</p> <p>Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.</p>	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.3	<p>-----NOTE----- In MODE 4, only the manual portion of the actuation signal is required. -----</p> <p>Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	24 months
SR 3.6.6.4	<p>-----NOTE----- In MODE 4, only the manual portion of the actuation signal is required. -----</p> <p>Verify each containment spray pump starts automatically on an actual or simulated actuation signal.</p>	24 months
SR 3.6.6.5	Verify each spray nozzle is unobstructed.	Following maintenance that could result in nozzle blockage
SR 3.6.6.6	Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.4 Close equipment hatch and secure with four bolts.	4 hours
	<u>AND</u>	
	A.5 Close one door in each air lock.	4 hours
	<u>AND</u>	
	A.6 Verify each penetration providing direct access from the containment atmosphere to the outside atmosphere is either closed with a manual or automatic isolation valve, blind flange, or equivalent, or is capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 2000 gpm.	12 hours
SR 3.9.4.2	Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 2000 gpm.	12 hours
SR 3.9.5.2	<p>-----NOTE----- Not required to be performed until 24 hours after a required RHR pump is not in operation. -----</p> <p>Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.</p>	7 days
SR 3.9.5.3	Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	31 days



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INDIANA MICHIGAN POWER COMPANY

DOCKET NO. 50-316

DONALD C. COOK NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 312
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 January 29, 2016 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 Renewed Facility Operating License No. DPR-74 is hereby amended to read as follows:

(2) Technical Specifications

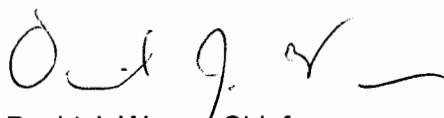
The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment

Enclosure 2

No. 312, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 180 days.

FOR THE NUCLEAR REGULATORY COMMISSION



David J. Wrona, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to Renewed
Facility Operating License No. DPR-74
and Technical Specifications

Date of Issuance: August 4, 2016

ATTACHMENT TO LICENSE AMENDMENT NO. 312

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NO. 50-316

Replace the following page of the Renewed Facility Operating License No. DPR-74 with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

REMOVE

INSERT

- 3 -

- 3 -

Replace the following pages of 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

INSERT

3.4.6-2
3.4.7-3
3.4.8-2
3.5.2-2
3.5.2-3
3.5.3-2
3.6.6-1
3.6.6-2
3.9.4-2
3.9.5-3

3.4.6-2
3.4.7-3
3.4.8-2
3.5.2-2
3.5.2-3
3.5.3-2
3.6.6-1
3.6.6-2
3.9.4-2
3.9.5-3

radiation monitoring equipment calibration, and as fission detectors in amounts as required;

- (4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument and equipment calibration or associated with radioactive apparatus or components; and
 - (5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not to exceed 3468 megawatts thermal in accordance with the conditions specified herein and in Attachment 1 to the renewed operating license. The preoperational tests, startup tests and other items identified in Attachment 1 to this renewed operating license shall be completed. Attachment 1 is an integral part of this renewed operating license.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 312, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Additional Conditions

(a) Deleted by Amendment No. 76

(b) Deleted by Amendment No. 2

(c) Leak Testing of Emergency Core Cooling System Valves

Indiana Michigan Power Company shall prior to completion of the first inservice testing interval leak test each of the two valves in series in the

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two required loops inoperable. <u>OR</u> Required loop not in operation.	B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the requirements of LCO 3.1.1.	Immediately
	<u>AND</u> B.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required RHR or RCS loop is in operation.	12 hours
SR 3.4.6.2	Verify SG secondary side water levels are above the lower tap of the SG wide range level instrumentation by ≥ 418.77 inches for required RCS loops.	12 hours
SR 3.4.6.3	-----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. ----- Verify correct breaker alignment and indicated power are available to each required pump.	7 days
SR 3.4.6.4	-----NOTE----- Not required to be performed until 12 hours after entering Mode 4. ----- Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify required RHR loop is in operation.	12 hours
SR 3.4.7.2	Verify SG secondary side water level is above the lower tap of the SG wide range level instrumentation by ≥ 418.77 inches in required SGs.	12 hours
SR 3.4.7.3	<p>-----NOTE-----</p> <p>Not required to be performed until 24 hours after a required pump is not in operation.</p> <p>-----</p> <p>Verify correct breaker alignment and indicated power are available to each required RHR pump.</p>	7 days
SR 3.4.7.4	Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No required RHR loop OPERABLE. <u>OR</u> Required RHR loop not in operation.	B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet requirements of LCO 3.1.1.	Immediately
	<u>AND</u> B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify required RHR loop is in operation.	12 hours
SR 3.4.8.2	-----NOTE----- Not required to be performed until 24 hours after a required pump is not in operation. ----- Verify correct breaker alignment and indicated power are available to each required RHR pump.	7 days
SR 3.4.8.3	Verify RHR loop locations susceptible to gas accumulations are sufficiently filled with water.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY																											
SR 3.5.2.1	<p>Verify the following valves are in the listed position with power to the valve operator removed.</p> <table border="1"> <thead> <tr> <th>Number</th> <th>Position</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>2-IMO-261</td> <td>Open</td> <td>SI suction line</td> </tr> <tr> <td>2-IMO-262</td> <td>Open</td> <td>Mini flow line</td> </tr> <tr> <td>2-IMO-263</td> <td>Open</td> <td>Mini flow line</td> </tr> <tr> <td>2-IMO-315</td> <td>Closed</td> <td>Low head SI to hot leg</td> </tr> <tr> <td>2-IMO-325</td> <td>Closed</td> <td>Low head SI to hot leg</td> </tr> <tr> <td>2-IMO-390</td> <td>Open</td> <td>RWST to RHR</td> </tr> <tr> <td>2-ICM-305</td> <td>Closed</td> <td>Sump line</td> </tr> <tr> <td>2-ICM-306</td> <td>Closed</td> <td>Sump line</td> </tr> </tbody> </table>	Number	Position	Function	2-IMO-261	Open	SI suction line	2-IMO-262	Open	Mini flow line	2-IMO-263	Open	Mini flow line	2-IMO-315	Closed	Low head SI to hot leg	2-IMO-325	Closed	Low head SI to hot leg	2-IMO-390	Open	RWST to RHR	2-ICM-305	Closed	Sump line	2-ICM-306	Closed	Sump line	12 hours
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SR 3.5.2.2	<p>-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days																											
SR 3.5.2.3	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program																											
SR 3.5.2.4	Verify each ECCS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months																											
SR 3.5.2.5	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months																											

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.6	<p>Verify, for each ECCS throttle valve listed below, each position stop is in the correct position.</p> <p><u>Valve Number</u> 2-SI-121 N 2-SI-121 S 2-SI-141 L1 2-SI-141 L2 2-SI-141 L3 2-SI-141 L4</p>	24 months
SR 3.5.2.7	<p>Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet strainers show no evidence of structural distress or abnormal corrosion.</p>	24 months
SR 3.5.2.8	<p>Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.</p>	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.3.1</p> <p>-----NOTE----- For SR 3.5.2.2, the SR is modified to allow the valves to not be in the correct position, provided they can be aligned to the correct position. -----</p> <p>The following SRs are applicable for all equipment required to be OPERABLE:</p> <p>SR 3.5.2.2, SR 3.5.2.6, SR 3.5.2.3, SR 3.5.2.7, and SR 3.5.2.8</p>	<p>In accordance with applicable SRs</p>

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray System

LCO 3.6.6 Two containment spray trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.6.1</p> <p>-----NOTE----- Not required to be met for system vent flow paths opened under administrative control. -----</p> <p>Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.</p>	31 days
<p>SR 3.6.6.2</p> <p>Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.</p>	In accordance with the Inservice Testing Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.3	<p>-----NOTE----- In MODE 4, only the manual portion of the actuation signal is required. -----</p> <p>Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	24 months
SR 3.6.6.4	<p>-----NOTE----- In MODE 4, only the manual portion of the actuation signal is required. -----</p> <p>Verify each containment spray pump starts automatically on an actual or simulated actuation signal.</p>	24 months
SR 3.6.6.5	Verify each spray nozzle is unobstructed.	Following maintenance that could result in nozzle blockage
SR 3.6.6.6	Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.4 Close equipment hatch and secure with four bolts.	4 hours
	<u>AND</u>	
	A.5 Close one door in each air lock.	4 hours
	<u>AND</u>	
	A.6 Verify each penetration providing direct access from the containment atmosphere to the outside atmosphere is either closed with a manual or automatic isolation valve, blind flange, or equivalent, or is capable of being closed by an OPERABLE Containment Purge Supply and Exhaust System.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.4.1 Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 2000 gpm.	12 hours
SR 3.9.4.2 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 2000 gpm.	12 hours
SR 3.9.5.2	<p>-----NOTE----- Not required to be performed until 24 hours after a required RHR pump is not in operation. -----</p> <p>Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.</p>	7 days
SR 3.9.5.3	Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water.	31 days



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 331 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-58

AND

AMENDMENT NO. 312 TO RENEWED 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 application dated January 29, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16034A032) Indiana Michigan Power Company (I&M, the licensee) requested a license amendment for the Donald C. Cook Nuclear Plant (CNP), Units 1 and 2. Specifically, the licensee requested to adopt U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF) Standard Technical Specifications (STS) Change Traveler TSTF-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation" (ADAMS Accession No. ML13053A075), dated February 21, 2013. The availability of this technical specification (TS) improvement was announced in the *Federal Register* on January 15, 2014 (79 FR 2700) as part of the consolidated line item improvement process.

The proposed change would revise surveillance requirements (SRs) related to gas accumulation for the emergency core cooling system (ECCS). The proposed change would also add new SRs related to gas accumulation for the residual heat removal (RHR) and containment spray (CS) systems. TS Bases changes associated with these SRs would also be made.

The licensee stated that it has reviewed the information contained in the model safety evaluation dated December 23, 2013 (ADAMS Accession No. ML13255A169), and that the license amendment request (LAR) is consistent with NRC-approved TSTF-523.

2.0 REGULATORY EVALUATION

2.1 Background

Gas accumulation in reactor systems can result in water hammer, pump cavitation, and pumping of non-condensable gas into the reactor vessel. These effects may result in the subject system being unable to perform its specified safety function. The NRC issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal (DHR), and Containment Spray Systems," in January 2008 to address the issue of gas accumulation in ECCS, DHR, and CS systems (ADAMS Accession No. ML072910759). The industry and NRC staff agreed that a change to the STS and plant-specific TS would be necessary to address some issues discussed in GL 2008-01. TSTF-523 contains changes to the TS SRs and TS Bases to address some of the concerns in GL 2008-01. The licensee proposed amending the CNP TS using a plant-specific adoption of the TSTF-523 changes.

2.2 Technical Specification Changes

Changes were proposed for SRs 3.5.2.2, 3.5.3.1, 3.6.6.1, as well as the addition of new SRs 3.4.6.4, 3.4.7.4, 3.4.8.3, 3.5.2.8, 3.6.6.6, 3.9.4.2, and 3.9.5.3 to TS 3.4.6, "[Reactor Coolant System (RCS)] Loops - MODE 4," TS 3.4.7, "RCS Loops - MODE 5, Loops Filled," TS 3.4.8, "RCS Loops - MODE 5, Loops Not Filled," TS 3.5.2, "ECCS – Operating," TS 3.5.3, "ECCS– Shutdown," TS 3.6.6, "Containment Spray System," TS 3.9.4, "RHR and Coolant Circulation – High Water Level," and TS 3.9.5, "RHR and Coolant Circulation – Low Water Level," respectively.

2.3 Regulatory Review

The regulations in Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 or similar plant-specific principal design criteria provide design requirements. Appendix B to 10 CFR Part 50, the TSs, and the licensee quality assurance programs provide operating requirements. The regulatory requirements of 10 CFR Part 50, Appendix A, that are applicable to gas management in the subject systems include: General Design Criteria (GDC) 1, 34, 35, 36, 37, 38, 39 and 40. GDC 1 requires that the subject systems be designed, fabricated, erected, and tested to quality standards. GDC 34 requires an RHR system designed to maintain specified acceptable fuel design limits and to meet design conditions that are not exceeded if a single failure occurs and specified electrical power systems fail. GDC 35, 36, and 37 require an ECCS design that meets performance, inspection, and testing requirements. Additionally, the regulations in 10 CFR 50.46 provide specified ECCS performance criteria. GDC 38, 39, and 40 require a Containment Heat Removal System (CHRS) design that meets performance, inspection, and testing requirements.

CNP was not licensed to 10 CFR 50, Appendix A, GDC. Conformance to the applicable GDC is discussed in CNP Updated Final Safety Analysis Report (UFSAR) Section 1.4, "Plant Specific Design Criteria." The CNP Plant Specific Design Criteria differ from the 10 CFR 50, Appendix A, GDC in both number and content. For example, the content of 10 CFR 50, Appendix A, GDC 34 through 40 can be correlated to CNP Plant Specific Design Criteria 44 through 48, 52, and 57 through 61. However, for the purpose of review of the proposed

adoption of TSTF-523 changes, this difference does not alter the conclusion that the proposed change is applicable to CNP.

Quality assurance criteria provided in 10 CFR Part 50, Appendix B, that apply to gas management in the subject systems include: Criteria III, V, XI, XVI, and XVII. Criteria III and V require measures to ensure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2, "Definitions," and as specified in the license application, are correctly translated into controlled specifications, drawings, procedures, and instructions. Criterion X requires a test program to ensure that the subject systems will perform satisfactorily in service, and requires that test results shall be documented and evaluated to ensure that test requirements have been satisfied. Criterion XVI requires measures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances, are promptly identified and corrected, and that significant conditions adverse to quality are documented and reported to management. Criterion XVII requires maintenance of records of activities affecting quality.

The NRC's regulatory requirements related to the content of the TSs are contained in 10 CFR 50.36(c). The regulations at 10 CFR 50.36 require that the TSs include items in the following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) Limiting Conditions for Operation (LCO); (3) SRs; (4) design features; and (5) administrative controls. SRs are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met. Typically, TS Section 5 requires that licensees establish, implement, and maintain written procedures covering the applicable procedures recommended in Appendix A to Regulatory Guide (RG) 1.33, Revision 2, "Quality Assurance Program Requirements (Operation)." Appendix A to RG 1.33, Revision 2, identifies instructions for filling and venting the ECCS and DHR system, as well as for draining and refilling heat exchangers. Standard TSs and most licensee TSs include SRs to verify that at least some of the subject systems piping is filled with water.

The NRC's guidance for the format and content of licensee TSs can be found in NUREG-1431, "Standard Technical Specifications Westinghouse Plants" (ADAMS Accession No. ML12100A222).

Regulatory guidance for the NRC staff's review of CHRSS, ECCS, and RHR systems is provided in the following revisions and sections of NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: [Light Water Reactor (LWR)] Edition."

Revision 5 of Standard Review Plan (SRP), Section 6.2.2, "Containment Heat Removal Systems," dated March 2007 (ADAMS Accession No. ML070160661), provides the procedures concerning the review of containment heat removal under post-accident conditions to help ensure compliance with GDCs 38, 39, and 40.

Revision 3 of SRP, Section 6.3, "Emergency Core Cooling System," dated March 2007 (ADAMS Accession No. ML070550068), provides the procedures concerning the review of ECCS to help ensure compliance with GDC 35, 36, and 37.

Revision 5 of SRP, Section 5.4.7, "Residual Heat Removal System," dated May 2010 (ADAMS Accession Number ML100680577), provides the procedures concerning the review of RHR system as it is used to cool the RCS during and following shutdown to help ensure compliance with GDC 34.

3.0 TECHNICAL EVALUATION

The proposed change adopted the TS format and content, to the extent practicable, contained in the changes made to NUREG-1431, "Standard Technical Specifications Westinghouse Plants" by TSTF-523.

The NRC staff compared the proposed changes to the existing SRs, as well as the regulatory requirements of 10 CFR 50.36(c).

The licensee proposed the following TS changes:

- 1) Add SR 3.4.6.4, which states,

"Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water" with a note that states "Not required to be performed until 12 hours after entering MODE 4" and a frequency of "31 days."

- 2) Add SR 3.4.7.4, which states,

"Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water" with a frequency of "31 days."

- 3) Add SR 3.4.8.3, which states,

"Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water" with a frequency of "31 days."

- 4) Add a note to SR 3.5.2.2, which states,

"Not required to be met for system vent flow paths opened under administrative control."

- 5) Add SR 3.5.2.8, which states,

"Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water" with a frequency of "31 days."

- 6) Add SR 3.5.2.8 to the list of SRs which are applicable for all equipment required to be OPERABLE per SR 3.5.3.1.

7) Add a note to SR 3.6.6.1, which states,

“Not required to be met for system vent flow paths opened under administrative control.”

8) Add SR 3.6.6.6, which states,

“Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water” with a frequency of “31 days.”

9) Add SR 3.9.4.2, which states,

“Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water” with a frequency of “31 days.”

10) Add SR 3.9.5.3, which states,

“Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water” with a frequency of “31 days.”

The new language for the SRs was developed using licensee responses to GL 2008-01 and the NRC discussion contained in Task Interface Agreement (TIA) 2008-03, “Emergency Core Cooling System Voiding Relative To Compliance With SR 3.5.1.1, 3.5.2.3, and 3.5.3.1” (ADAMS Accession No. ML082560209). Many of the GL 2008-01 responses stated that licensees identified system locations susceptible to gas accumulation. In the TIA, the NRC stated that the intent of the TS SRs, which state “full of water,” may be met if the licensee can establish, through an Operability Determination, that there is a reasonable expectation that the system in question will perform its specified safety function. Therefore the phrase, “sufficiently filled with water” was recommended for the proposed TS changes. In the TS, “sufficiently filled with water” is understood to mean “sufficiently filled with water to support Operability.” The regulation at 10 CFR 50.36(c)(3) states that one of the purposes of the SR is to verify that the LCO is met. Therefore, the new SR language, “Verify the [system name] locations susceptible to gas accumulation are sufficiently filled with water,” is acceptable since this language will allow the licensee to make a conclusion as to whether or not a system is operable.

The proposed frequency of 31 days for the new SRs is consistent with the changes made to NUREG-1431 by TSTF-523. The 31-day frequency takes into consideration the gradual nature of gas accumulation in the associated system piping and the procedural controls governing system operation. Therefore, the proposed 31-day frequency for the new SRs is acceptable.

The language for the notes that state that the SR does not have to be performed until 12 hours after entering Mode 4 for pressurized water reactors is acceptable because the note provides a limited time to perform the Surveillance after entering the Applicability of the LCO. The note allows sufficient time to verify all RHR loop locations susceptible to gas accumulation are filled with water upon entering the mode of applicability during a rapid shutdown. In addition CNP TS Section 1.4 contains usage rules that define the proper use and application of frequency requirements and ensures the requirement to manage gas accumulation is not affected.

Because the note (as controlled by TS 1.4) allows sufficient time to take actions necessary to maintain safety and is consistent with STS Section 1.4, the note is acceptable.

The language for the notes that allow the SRs to not be met for system vent flow paths opened under administrative control is necessary to allow the licensee to credit administratively controlled manual action to close the system vent flow path in order to maintain system Operability during system venting and performance of the proposed gas accumulation SR. Therefore, these notes are acceptable.

The NRC staff found that the proposed SRs meet the regulatory requirements of 10 CFR 50.36 because they provide assurance that the necessary quality of systems and components will be maintained and that the LCO will be met. Therefore, the NRC staff finds the proposed amendment 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

The amendments change the requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change SRs. The NRC 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 in the *Federal Register* on March 15, 2016 (81 FR 13843), a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding. 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 Commission 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) there is reasonable assurance that 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 Contributors: M. Hamm

Date of issuance: August 4, 2016

L. Weber

- 2 -

A copy of our related safety evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Allison W. Dietrich, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-315 and 50-316

Enclosures:

1. Amendment No. 331 to DPR-58
2. Amendment No. 312 to DPR-74
3. Safety Evaluation

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***via memo**

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