



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

November 1, 2011

Mr. Lawrence J. Weber
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 RE: TIME LIMIT TO RESTORE INOPERABLE REACTOR
COOLANT SYSTEM LEAKAGE DETECTION INSTRUMENTATION
(TAC NO. ME6159 AND ME6160)

Dear Mr. Weber:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 317 to Renewed Facility Operating License No. DPR-58 and Amendment No. 300 to Renewed Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Units 1 and 2. The amendments consist of changes to the Renewed Facility Operating Licenses in response to your application dated May 3, 2011.

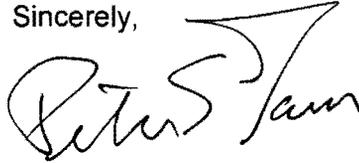
The amendments revised Technical Specifications Section 3.4.15 regarding reactor coolant leakage detection instrumentation to be consistent with Revision 3 of Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-513, "Revise PWR [Pressurized Water Reactor] Operability Requirements and Actions for RCS [Reactor Coolant System] Leakage Instrumentation."

L. J. Weber

- 2 -

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

Sincerely,

A handwritten signature in black ink, appearing to read "Peter S. Tam". The signature is fluid and cursive, with a large, stylized initial "P" and "T".

Peter S. Tam, Senior 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. 317 to DPR-58
2. Amendment No. 300 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. 317
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 May 3, 2011, 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 No. 317, 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 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment: Changes to the Renewed Facility Operating
License and Technical Specifications

Date of Issuance: November 1, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 317

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-58

DOCKET NO. 50-315

Replace the following page of Renewed Facility Operating License 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

3

INSERT

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

3.4.15-1
3.4.15-2
3.4.15-3
3.4.15-4

INSERT

3.4.15-1
3.4.15-2
3.4.15-3
3.4.15-4

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, Section 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 therein.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 317, are hereby incorporated into 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 found loop operation at power levels above P-7 has been granted by the Commission by amendment of this license.

- (4) Indiana Michigan Power Company shall implement and maintain, in effect, all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for the facility and as approved in the SERs dated December 12, 1977, July 31, 1979, January 10, 1981, February 7, 1983, November 22, 1983, December 23, 1983, March 16, 1984, August 27, 1985.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

- a. One containment sump monitor in each sump;
- b. One containment atmosphere particulate radioactivity monitor; and
- c. One containment humidity or containment atmosphere gaseous radioactivity monitor.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment sump monitor(s) inoperable.	<p>A.1 -----NOTE----- Not required until 12 hours after establishment of steady state operation. -----</p> <p>Perform SR 3.4.13.1.</p> <p><u>AND</u></p> <p>A.2 Restore containment sump monitor(s) to OPERABLE status.</p>	<p>Once per 24 hours</p> <p>30 days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>----- NOTE ----- Only applicable when the containment atmosphere gaseous radiation monitor is the only OPERABLE monitor. -----</p> <p>D. Containment sump monitor inoperable.</p> <p>AND</p> <p>Containment atmosphere particulate radioactivity monitor inoperable.</p>	<p>D.1 Analyze grab samples of the containment atmosphere.</p> <p>AND</p> <p>D.2.1 Restore containment sump monitor to OPERABLE status.</p> <p>OR</p> <p>D.2.2 Restore containment atmosphere particulate radioactivity monitor to OPERABLE status.</p>	<p>Once per 12 hours</p> <p>7 days</p> <p>7 days</p>
<p>E. Containment atmosphere particulate radioactivity monitor inoperable.</p> <p>AND</p> <p>Required containment humidity or containment atmosphere gaseous radioactivity monitor inoperable.</p>	<p>E.1 Restore containment atmosphere particulate radioactivity monitor to OPERABLE status.</p> <p>OR</p> <p>E.2 Restore required containment humidity or containment atmosphere gaseous radioactivity monitor to OPERABLE status.</p>	<p>30 days</p> <p>30 days</p>
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p>	<p>F.1 Be in MODE 3.</p> <p>AND</p> <p>F.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>G. LCO 3.4.15.a, b, and c not met.</p>	<p>G.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitors.	12 hours
SR 3.4.15.2	Perform COT of the required containment atmosphere radioactivity monitors.	92 days
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the containment sump monitors.	24 months
SR 3.4.15.4	Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitors.	24 months
SR 3.4.15.5	Perform CHANNEL CALIBRATION of the containment humidity monitor.	24 months



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 RENEWED FACILITY OPERATING LICENSE

Amendment No. 300
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 May 3, 2011, 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 No. 300, 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 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment: Changes to the Renewed Facility Operating
License and Technical Specifications

Date of Issuance: November 1, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 300

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NO. 50-316

Replace the following page of Renewed Facility Operating License 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

3

INSERT

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

3.4.15-1
3.4.15-2
3.4.15-3
3.4.15-4

INSERT

3.4.15-1
3.4.15-2
3.4.15-3
3.4.15-4

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, Section 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 therein and in attachment 1 to the renewed operating license. The preoperational tests, startup 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. 300, 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 test each of the two valves in series in the

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

- a. One containment sump monitor in each sump;
- b. One containment atmosphere radioactivity monitor (gaseous or particulate); and
- c. One containment humidity monitor.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment sump monitor(s) inoperable.	A.1 -----NOTE----- Not required until 12 hours after establishment of steady state operation. ----- Perform SR 3.4.13.1.	Once per 24 hours
	<u>AND</u> A.2 Restore containment sump monitor(s) to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>----- NOTE ----- Only applicable when the containment atmosphere gaseous radiation monitor is the only OPERABLE monitor. -----</p> <p>D. Containment sump monitor(s) inoperable.</p> <p>AND</p> <p>Containment humidity monitor inoperable.</p>	<p>D.1 Analyze grab samples of the containment atmosphere.</p> <p>AND</p> <p>D.2.1 Restore containment sump monitor(s) to OPERABLE status.</p> <p>OR</p> <p>D.2.2 Restore containment humidity monitor to OPERABLE status.</p>	<p>Once per 12 hours</p> <p>7 days</p> <p>7 days</p>
<p>E. Required containment atmosphere radioactivity monitor inoperable.</p> <p>AND</p> <p>Containment humidity monitor inoperable.</p>	<p>E.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status.</p> <p>OR</p> <p>E.2 Restore containment humidity monitor to OPERABLE status.</p>	<p>30 days</p> <p>30 days</p>
<p>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</p>	<p>F.1 Be in MODE 3.</p> <p>AND</p> <p>F.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>
<p>G. LCO 3.4.15.a, b, and c not met.</p>	<p>G.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	12 hours
SR 3.4.15.2	Perform COT of the required containment atmosphere radioactivity monitor.	92 days
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the containment sump monitors.	24 months
SR 3.4.15.4	Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor.	24 months
SR 3.4.15.5	Perform CHANNEL CALIBRATION of the containment humidity monitor.	24 months



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 317 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-58

AMENDMENT NO. 300 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 letter dated May 3, 2011 (Accession No. ML11132A029), Indiana Michigan Power Company (the licensee) proposed to the Nuclear Regulatory Commission (NRC) staff changes to the Technical Specifications (TS) for Donald C. Cook Nuclear Plant (DCCNP), Units 1 and 2. The licensee proposed to revise Section 3.4.15, "RCS Leakage Detection Instrumentation," to summarize and clarify the purpose of the requirements and the specified safety function of the leakage detection monitors.

The licensee stated that the license amendment request is consistent with the NRC-approved Revision 3 of Technical Specification Task Force (TSTF) Standard Technical Specification (STS) Change Traveler, TSTF-513, "Revise PWR [Pressurized Water Reactor] Operability Requirements and Actions for RCS [Reactor Coolant System] Leakage Instrumentation." The availability of this TS improvement was announced in the *Federal Register* on January 3, 2011 (76 FR 189), as part of the Consolidated Line Item Improvement Process.

2.0 REGULATORY EVALUATION

The NRC's regulatory requirements related to the content of the TS are contained in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36. Paragraph (c)(2)(i) of 10 CFR 50.36 states that limiting conditions for operation (LCOs) are the lowest functional capability or performance levels of equipment required for safe operation of the facility. Paragraph (c)(2)(ii) of 10 CFR 50.36 lists four criteria for determining whether particular items are required to be included in the TS LCOs. The first criterion applies to installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. As described in the *Federal Register* notice associated with this regulation (60 FR 36953, July 16, 1995), the scope of TS includes two general classes of technical matters: (1) those related to prevention of accidents, and (2) those related to mitigation of the consequences of accidents. Criterion 1 addresses systems and process variables that alert the operator to a situation when accident initiation is more likely, and supports the first of these two general classes of technical matters which are included in the TS.

Enclosure

As specified in Paragraph (c)(2)(i) of 10 CFR 50.36, when a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by TS until the condition can be met.

The NRC's guidance for the format and content of PWR TS can be found in NUREG-1431, Revision 3.0, "Standard Technical Specifications Westinghouse Plants." STS Section 3.4.15 "RCS Leakage Detection Instrumentation" contains the guidance specific to the RCS leakage detection instrumentation for PWRs. The STS Bases provide a summary statement of the reasons for the STS.

The Bases for STS 3.4.15 contained in NUREG-1431, Revision 3.0, provide background information, the applicable safety analyses, a description of the LCO, the applicability for the RCS leakage detection instrumentation TS, and describe the Actions and Surveillance Requirements. The TS Bases provide the purpose or reason for the TS which are derived from the analyses and evaluation included in the safety analysis report, and for these Specifications, the RCS leakage detection instrumentation design assumptions and licensing basis for the plant.

As stated in NRC Information Notice (IN) 2005-24, "Nonconservatism in Leakage Detection Sensitivity" (Accession No. ML051780073), the reactor coolant activity assumptions for containment atmosphere gaseous radioactivity monitors may be nonconservative. This means the monitors may not be able to detect a 1 gallon per minute (gpm) leak within one hour under all likely operating conditions.

The issue described in IN 2005-24 has raised questions regarding the operability requirements for containment atmosphere gaseous radioactivity monitors. TSTF-513, Revision 3, revises the TS Bases to reflect the proposed TS changes and more accurately describe the contents of the facility design basis related to operability of the RCS leakage detection instrumentation. Part of the TS Bases changes revise the specified safety function of the RCS leakage detection monitors to specify the required instrument sensitivity level. In addition, TSTF-513, Revision 3, includes revisions to TS Actions for RCS leakage detection instrumentation to establish limits for operation during conditions of reduced monitoring sensitivity because of inoperable RCS leakage detection instrumentation.

The regulation at 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 30, "Quality of Reactor Coolant Pressure Boundary," requires means for detecting and, to the extent practical, identifying the location of the source of RCS leakage. Regulatory Guide (RG) 1.45, Revision 0, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973, describes acceptable methods of implementing the GDC 30 requirements with regard to the selection of leakage detection systems for the reactor coolant pressure boundary.

RG 1.45, Revision 0, Regulatory Position C.2, states that "Leakage to the primary reactor containment from unidentified sources should be collected and the flow rate monitored with an accuracy of one gallon per minute (gpm) or better."

RG 1.45, Revision 0, Regulatory Position C.3 states:

At least three separate detection methods should be employed and two of these methods should be (1) sump level and flow monitoring, and (2) airborne particulate radioactivity monitoring. The third method may be selected from the following: a. monitoring of condensate flow rate from air coolers [or] b. monitoring of airborne gaseous radioactivity. Humidity, temperature, or pressure monitoring of the containment atmosphere should be considered as alarms or indirect indication of leakage to the containment.

RG 1.45, Revision 0, Regulatory Position C.5 states, "The sensitivity and response time of each leakage detection system in regulatory position 3 above employed for unidentified leakage should be adequate to detect a leakage rate, or its equivalent, of one gpm in less than one hour." RG 1.45, Revision 0, states, "In analyzing the sensitivity of leak detection systems using airborne particulate or gaseous radioactivity, a realistic primary coolant radioactivity concentration assumption should be used. The expected values used in the plant environmental report would be acceptable." The appropriate sensitivity of a plant's containment atmosphere gaseous radioactivity monitors is dependent on the design assumptions and the plant-specific licensing basis as described in the plant's updated final safety analysis report (UFSAR). The NRC staff's approval of the use of expected primary coolant radioactivity concentration values used in the environmental report creates a potential licensing conflict when a licensee is able to achieve and maintain primary coolant radioactivity concentration values lower than the value assumed in the environmental report.

RG 1.45, Revision 1, "Guidance on Monitoring and Responding to Reactor Coolant System Leakage," was issued in May 2008. RG 1.45, Revision 1, describes methods for implementing GDC 30 requirements that are different from those in RG 1.45, Revision 0, and was developed and issued to support new reactor licensing. Revision 1 allows that having two TS leakage detection methods capable of detecting a one gpm leak within one hour provides adequate leakage detection capability from a safety perspective. It recommends that other potential indicators (including the gaseous radiation monitors) be maintained even though they may not have the same detection capability. These indicators, in effect, provide additional defense-in-depth.

The regulation in GDC 4 of Appendix A to 10 CFR Part 50, "Environmental and dynamic effects design bases," requires structures, systems, and components important to safety to be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. GDC 4 allows the use of leak before break (LBB) technology to exclude dynamic effects of pipe ruptures in the design bases when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping.

The construction permits and majority of construction for DCCNP pre-date the 1971 General Design Criteria; therefore, DCCNP was designed and constructed to comply with the GDC issued on July 11, 1967. The 1967 GDC is applied in the DCCNP UFSAR as Plant Specific Design Criteria (PSDC), Section 1.4. PSDC 16, "Monitoring Reactor Coolant Leakage," describes the means that are provided to detect significant uncontrolled leakage from the

reactor coolant pressure boundary. This requirement meets the intent of the 1971 version of GDC 30, "Quality of Reactor Coolant Pressure Boundary."

Although the licensee has not committed DCCNP to RG 1.45, the guidance of RG 1.45 were followed to the extent practical. An NRC safety evaluation dated November 22, 1985 (Reference 3), verified the licensee's compliance:

As indicated in the Cook FSAR Section 4.2.7 on reactor coolant pressure boundary leakage detection, the leak detection system includes (a) the containment air particulate monitor, (b) the containment radioactive gas monitor, (c) the containment sump monitor and (d) the humidity monitor. We have reviewed the leakage detection system, the Cook Technical Specification, Sections 3.4.6.1 and 3.4.6.2 dealing with this system and the licensee's letter dated September 10, 1984 and we conclude that the leak detection system meets the criteria previously established for leak detection systems (1 gpm in four hours) when utilizing leak-before-break and is therefore acceptable.

3.0 TECHNICAL EVALUATION

In adopting the changes to the TS included in TSTF-513, Revision 3, the licensee proposed to revise TS 3.4.15, "RCS Leakage Detection Instrumentation" Conditions and Required Actions. The licensee proposed adding new Condition D to TS 3.4.15. New Condition D would be applicable when the containment atmosphere gaseous radioactivity monitor is the only operable RCS leakage detection monitor. This new Condition is necessary because improved fuel integrity and the resulting lower primary coolant radioactivity concentration affects a plant's containment atmosphere gaseous radioactivity monitor to a greater extent than other monitors. The proposed Required Actions for new Condition D require the licensee to analyze grab samples of the containment atmosphere once per 12 hours and restore the required containment sump monitor to operable status within 7 days, or analyze grab samples of the containment atmosphere once per 12 hours and restore containment atmosphere particulate radioactivity monitor to operable status within 7 days. These actions are in addition to the Required Actions of Conditions A and C which require performing an RCS mass balance once per 24 hours or a channel check of the containment atmosphere radioactivity monitors once per 8 hours.

The NRC staff determined that the proposed Condition D is more restrictive than the current requirement, because the current Condition that would apply to the situation when the containment atmosphere gaseous radioactivity monitor is the only operable RCS leakage detection monitor would allow the licensee 30 days to restore the inoperable monitors to operable status. The proposed Actions and Completion Times are adequate because the grab samples combined with the more frequent RCS mass balances and channel checks will provide an alternate method of monitoring RCS leakage when the containment atmosphere gaseous radioactivity monitor is the only operable RCS leakage detection monitor and the 12-hour interval is sufficient to detect increasing RCS leakage long before a piping flaw could progress to a catastrophic failure of the primary reactor coolant pressure boundary. Allowing 7 days to restore another RCS leakage monitor to operable status is reasonable given the diverse methods employed in the Required Actions to detect an RCS leak and the low probability of a large RCS leak during this period. Proposed Condition D is conservative relative to the STS,

sufficiently alerts the operating staff, provides a comparable ability to detect RCS leakage, and provides time intervals that are reasonable. Therefore, the NRC staff determined that proposed Condition D provides an adequate assurance of safety when judged against current regulatory standards.

Certain ASME Code Class 1 piping systems in DCCNP have been approved by the NRC for application of LBB technology. The basic concept of LBB is that certain piping material has sufficient fracture toughness (i.e., ductility) to resist rapid flaw propagation; thereby minimizing the probability of a pipe rupture. The licensee has evaluated postulated flaws in RCS loop piping and determined that the piping has sufficient fracture toughness that the postulated flaw would not lead to pipe rupture and potential damage to adjacent safety-related systems, structures, and components before the unit could be placed in a safe, shutdown condition. The NRC staff has previously reviewed and approved these plant-specific LBB analyses. Before remotely approaching a pipe rupture, the postulated flaw would lead to limited but detectable leakage, which would be identified by the leak detection systems in time for the operator to take action. The NRC staff previously addressed concerns that LBB technology depends on erroneous leak rate measurements in the final rule making for use of LBB technology. In addressing the concerns, the NRC staff noted that (51 *FR* 12504-01):

One criterion for application of leak-before-break is that postulated flaw sizes be large enough so that the leakage is about ten times the leak detection capability, and that this flaw be stable even if earthquake loads are applied to the pipe in addition to the normal operating loads. This margin of a factor of ten is more than ample to account for uncertainties in both leakage rate calculations and leak detection capabilities. Furthermore, additional sensitivity studies reported by Lawrence Livermore National Laboratory in NUREG/CR-2189, dated September 1981, entitled "Probability of Pipe Fracture in the Primary Coolant Loop of a PWR Plant" indicate that even in the absence of leak detection, the probability of pipe ruptures in PWR primary coolant loop piping is sufficiently low to warrant exclusion of these events from the design basis.

The licensee's proposed actions for inoperable RCS leakage detection instrumentation would maintain sufficient continuity, redundancy, and diversity of leakage detection capability such that an extremely low probability of undetected leakage leading to pipe rupture will be present. This extremely low probability of pipe rupture continues to satisfy the basis for acceptability of LBB in GDC 4.

The licensee proposed minor changes to ensure continuity of the TS format. These changes are: (1) re-lettering current "Condition D," which applies when the containment sump monitor is the only operable leakage detection instrument, to "Condition E;" (2) re-lettering current "Condition E," which applies when the required action and the associated completion time are not satisfied, to "Condition F;" (3) re-lettering current "Condition F," which applies when LCO 3.4.15.a, b, and c are not satisfied, to "Condition G." The licensee proposed similar changes to the associated Required Actions. The NRC staff determined that these changes are editorial, and, therefore, acceptable.

The associated TS Bases submitted with the licensee's proposed revision for TS 3.4.15 reflect the proposed TS changes and more accurately describe the contents of the facility design basis

related to operability of the RCS leakage detection instrumentation and reflect the proposed TS changes. The proposed TS Bases changes related to the operability of the RCS leakage detection instrumentation are acceptable because they provide background information, the applicable safety analyses, a description of the limiting condition for operation, and the applicability for the RCS leakage detection instrumentation TS and are consistent with the design basis of the facility. These instruments satisfy Criterion 1 of 10 CFR 50.36(c)(2)(ii) in that they are installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

The NRC staff evaluated the licensee's proposed changes against the applicable regulatory requirements listed in Section 2.0 above. The NRC staff also compared the proposed changes to the changes made to the STS by TSTF-513, Revision 3. The NRC staff determined that all the licensee's proposed changes will afford adequate assurance of safety when judged against current regulatory standards. Therefore, the NRC staff finds the proposed changes 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 facility components located within the restricted area as defined in 10 CFR Part 20. 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 a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding (76 FR 34768). 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) 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.

7.0 REFERENCES

1. Donald C. Cook, Units 1 & 2, License Amendment Request for Adoption of Technical Specification Task Force (TSTF)-513, Revision 3, "Revise PWR Operability Requirements and Action for RCS Leakage Instrumentation," (ADAMS Accession No. ML11132A029)

2. Submittal of TSTF-513, Revision 3 (ADAMS Accession No. ML102360355)
3. Donald C. Cook, License Amendment 76, Amendment Deletes License Condition 2.C on Analysis of Reactor Vessel Supports & Internals, November 22, 1985. (ADAMS Accession No. ML021010521)

Principal Contributors: K. Hemphill
M. Hamm

Date: November 1, 2011

L. J. Weber

- 2 -

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

Sincerely,

/RA/

Peter S. Tam, Senior 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. 317 to DPR-58
2. Amendment No. 300 to DPR-74
3. Safety Evaluation

cc w/encls: Distribution via ListServ

DISTRIBUTION:

PUBLIC	LPL3-1 r/f	RidsNrrDorLpI3-1 Resource
RidsNrrPMDCCook Resource	RidsNrrLABTully Resource	RidsOgcRp Resource
RidsAcrsAcnw_MailCTR Resource	RidsNrrDirsltsb Resource	RidsNrrDorIDprResource
RidsRgn3MailCenter Resource	M. Hamm, NRR	
K. Hemphill, NRR		

ADAMS Accession No: ML11249A090

****NLO w/Comments**

OFFICE	LPL3/1/PM	LPL3-1/LA	ITSB/BC*	OGC**	LPL3-1/BC
NAME	PTam	BTully	RElliot	LSubin	RPascarelli
DATE	10/12/11	10/11/11	08/22/11	10/19/11	11/1/11

*Safety evaluation transmitted by memo of 8/22/11 (Accession No. ML11229A824).

OFFICIAL RECORD COPY