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December 16, 2021

AEP-NRC-2021-68
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Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Donald C. Cook Nuclear Plant Unit 1 and Unit 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION ON REQUESTED CHANGE REGARDING CONTAINMENT WATER LEVEL INSTRUMENTATION

References:

1. Letter from Q. S. Lies, Indiana Michigan Power Company (I&M), to U. S. Nuclear Regulatory Commission (NRC), "Request for Approval of Change Regarding Containment Water Level Instrumentation," dated March 23, 2021, Agencywide Documents Access and Management System Accession (ADAMS) No. ML21082A496.

2. E-mail from S. P. Wall, NRC, to M. K. Scarpello, I&M, "Final RAI - D.C. Cook 1 & 2 - License Amendment Request Regarding Containment Water Level Instrumentation (EPID No. L-2021-LLA-0050)," dated November 3, 2021, ADAMS No. ML21307A335.

This letter provides Indiana Michigan Power Company's (I&M), licensee for Donald C. Cook Nuclear Plant (CNP) Unit 1 and Unit 2, response to the Request for Additional Information (RAI) by the U. S. Nuclear Regulatory Commission (NRC) regarding a proposed change to the CNP Unit 1 and Unit 2 Technical Specification (TS) Bases for TS 3.3.3, Post Accident Monitoring (PAM) Instrumentation. The proposed change would allow for an alternate method of satisfying containment water level channel requirements. This letter is being submitted December 16, 2021, as discussed by telephone with NRC Licensing Project Manager on December 7, 2021.

By Reference 1, I&M submitted a request for approval of a change to the CNP Unit 1 and Unit 2 TS Bases for TS 3.3.3, Post Accident Monitoring (PAM) Instrumentation. By Reference 2, the NRC submitted an RAI concerning the letter submitted by I&M as Reference 1.

Enclosure 1 to this letter provides an affirmation statement. I&M is providing Enclosure 2 to this letter as its response to the NRC's RAI from Reference 2. Enclosures 3 and 4 provide Unit 1 and Unit 2 TS pages, respectively, marked to show the proposed changes. New clean Unit 1 and Unit 2 TS pages

with proposed changes incorporated will be provided to the NRC Licensing Project Manager when requested.

The changes proposed in this letter do not impact the conclusions provided in Reference 1 that a finding of "no significant hazards consideration" is justified. There are no new regulatory commitments made in this letter. Should you have any questions, please contact Mr. Michael K. Scarpello, Regulatory Affairs Director, at (269) 466-2649.

Sincerely,

Q. Shane Lies
Site Vice President

BMC/mll

Enclosures:

1. Affirmation
2. Response to Request for Additional Information on Requested Change Regarding Containment Water Level Instrumentation
3. Donald C. Cook Nuclear Plant Unit 1 Technical Specification Pages Marked to Show Proposed Changes
4. Donald C. Cook Nuclear Plant Unit 2 Technical Specification Pages Marked to Show Proposed Changes

c: R. J. Ancona – MPSC
EGLE – RMD/RPS
J. B. Giessner – NRC Region III
NRC Resident Inspector
R. M. Sistevaris – AEP Ft. Wayne, w/o enclosures
J. E. Walcutt – AEP Ft. Wayne, w/o enclosures
S. P. Wall – NRC Washington, D.C.
A. J. Williamson – AEP Ft. Wayne, w/o enclosures

Enclosure 1 to AEP-NRC-2021-68

AFFIRMATION

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

Indiana Michigan Power Company

Q. Shane Lies
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 16 DAY OF December 2021

Notary Public

My Commission Expires 01/21/2025

Enclosure 2 to AEP-NRC-2021-68

Response to Request for Additional Information on Requested Change Regarding Containment Water Level Instrumentation

By letter dated March 23, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21082A496), Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP) Unit 1 and Unit 2, submitted a request to modify the Technical Specification (TS) Bases for TS 3.3.3, Post Accident Monitoring (PAM) Instrumentation (Reference 1). The proposed change to the TS Bases would allow one channel of TS 3.3.3, Post Accident Monitoring (PAM) Instrumentation, Function 7, Containment Water Level, to be satisfied by a train of two operable containment water level switches in the event that both containment water level channels become inoperable. This alternate method of satisfying containment water level channel requirements would be limited to the remaining duration of the operating cycle each time it is invoked.

The U. S. Nuclear Regulatory Commission (NRC) staff is currently reviewing the submittal and has determined that additional information is needed in order to complete the review (Reference 2). The request for additional information (RAI) and I&M's response are provided below.

RAI-STSB

10 CFR 50.36(2)(i) states, when a limiting condition for operation (LCO) of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSs until the condition can be met. When a LCO of any process step in the system of a fuel reprocessing plant is not met, the licensee shall shut down that part of the operation or follow any remedial action permitted by the TSs until the condition can be met.

10 CFR 50.36(a)(1) states, in part: "A summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the technical specifications."

In Section 2.4 of the LAR, the licensee proposed to modify the TS Bases for CNP TS 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," Function 7, Containment Water Level, to read as follows:

> *If both containment water level channels (NLI-320 and NLI-321) become inoperable, a train of containment water level switches (NLI-330 and NLI-340 or NLI-331 and NLI-341) can be used in place of one containment water level channel, but only for the remaining duration of the operating cycle each time it is invoked. At least one containment water level channel shall be restored to operable status prior to startup following the next refueling outage.*

The proposed change to the TS Bases would add remedial actions to allow one channel of TS 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," Function 7, Containment Water Level, to be satisfied by a train of two operable containment water level switches in the event that both containment water level channels become inoperable, because the containment water level switches will provide the relevant PAM information required by control room operators.

When a limiting condition for operation is not met, the licensee shall follow any remedial action permitted by the TS. The licensee proposed to add the remedial actions to the bases only, which are not a part of the TS, as stated in 10 CFR 50.36(a)(1).

RAI-STSB-01

The NRC staff requests that the licensee address how the remedial actions will be addressed in TS 3.3.3 if both containment water level channels (NLI-320 and NLI-321) become inoperable.

I&M Response to RAI-STSB-01

I&M proposes to modify CNP Unit 1 and Unit 2 TS Table 3.3.3-1, Post Accident Monitoring Instrumentation, to add a footnote to Function 7, Containment Water Level, to read as follows:

> Up to one channel of Function 7 OPERABILITY requirements can be satisfied by an OPERABLE train of containment water level switches if both Containment Water Level channels are inoperable. This substitution is only allowed until the end of the current operating cycle when it is invoked.

Pages from CNP Unit 1 and Unit 2 TS, marked up to show the proposed changes, are included as Enclosures 3 and 4 to this letter. The additional language proposed is shown as boxed text, while deleted text is shown lined out.

RAI-SCPB

10 CFR 50.36(b) states, in part, that TSs will be derived from the analyses and evaluation included in the safety analysis report.
10 CFR 50.36(c)(2), requires TSs to contain LCOs, which are the lowest functional capability or performance levels of equipment required for safe operation of the facility

The regulation in 10 CFR 50.36(c)(2)(ii)(C) states that a TS LCO must also be established for:

> *Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.*

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 the technical specifications until the condition can be met." The functionality of the limit switches in performing the functions of the wide range level instrument is necessary for our reasonable assurance finding, given the potential length of time the remedial action could be credited.

RAI-SCPB-01

In order to provide a direct assessment of whether the level switches can adequately substitute for the full range level instrument for the Emergency Operating Procedure (EOP) actions, the staff requests the licensee:

- *Identify all manual actions in the EOPs that use the wide range containment water level instrument indications as a decision input and the associated value. Address how the level switch setpoints align with EOP decision input values for containment water level. Address how operability of the normal containment water instrumentation would be assured if it is necessary for any EOP action decision input while the wide range containment water level instruments are inoperable.*

I&M Response to RAI-SCPB-01

Identify all manual actions in the EOPs that use the wide range containment water level instrument indications as a decision input and the associated value.

A review of the CNP Unit 1 and Unit 2 EOPs identified two EOPs that use instrument indications from the containment water level monitors (NLI-320, NLI-321) as a decision input:

Scenario 1 - Check If RCS Is Intact:

Following a reactor trip or safety injection, EOP E-0, Reactor Trip or Safety Injection, directs control room operators in assessing plant conditions and identifying the appropriate recovery procedure. Step 19 of this EOP is to check if the Reactor Coolant System (RCS) is intact. The containment water level monitors (NLI-320, NLI-321) are one of four sets of instruments used by control room operators to make this assessment. Regarding water level, Step 19 of E-0 is qualitative in nature, rather than quantitative, and directs control room operators to check that containment water levels are "normal." A level of water higher than that experienced during routine plant operations would direct control room operators to transition to EOP E-1, Loss of Reactor or Secondary Coolant.

Scenario 2 - Subcooled Versus Saturated Recovery:

Following a steam generator tube rupture (SGTR) with a loss of reactor coolant, as control room operators cool down the RCS to cold shutdown conditions, EOP ECA-3.1, SGTR with Loss of Reactor Coolant - Subcooled Recovery Desired, directs control room operators to check if subcooled recovery is appropriate. If the refueling water storage tank (RWST) level is at or below 56%, operators check the containment water level using indication from the containment water level monitors (NLI-320, NLI-321). Within ECA-3.1, Figure 1, Containment Water Level Versus RWST Level, provides a graph depicting the expected containment water level at a given RWST level. The range of containment water levels shown in the chart spans from 20% to 60%. If containment water level is within the expected region of the chart, control room operators continue pursuing a subcooled recovery. If containment water level falls below the expected region, control room operators transition to a separate EOP, ECA-3.2, SGTR with Loss of Reactor Coolant - Saturated Recovery Desired, to bring the plant to cold shutdown conditions.

Switching to Recirculation Mode - Containment Water Level Switches:

Separate from the two scenarios discussed above, prior to transferring the Emergency Core Cooling System to cold leg recirculation mode, control room operators verify that containment water level is sufficiently high. In this scenario, however, the lower containment water level switch, at 602' (foot) 2 3/4" (inch) elevation (NLI-330, NLI-331), is used to verify that containment water level is sufficiently high, due to the increased accuracy provided by the containment water level switch.

Address how the level switch setpoints align with EOP decision input values for containment water level.

Scenario 1 - Check If RCS Is Intact:

EOP E-0, Step 19, Check If RCS Is Intact, directs control room operators to check containment radiation, containment pressure, normal containment sump water level (NLA-310, NLI-311), and containment water level monitors (NLI-320, NLI-321). The range of the containment water level monitors (NLI-320, NLI-321) spans from the containment floor, at 599' 3" elevation, to maximum flood level, at 614' elevation. The range of the normal containment sump water level instruments (NLA-310, NLI-311) overlaps that of the containment water level monitors by five inches, between 599' 3" elevation and 599' 8" elevation. The lower containment water level switch (NLI-330, NLI-331) activates at 602' 2 3/4" elevation. If water from the RCS is accumulating on the floor of containment, initial indication would be seen on the normal containment sump level instruments (NLA-310, NLI-311), with the lower containment water level switch (NLI-330, NLI-331) indicating enough water in containment to switch the emergency core cooling system to recirculation mode.

Scenario 2 - Subcooled Versus Saturated Recovery:

EOP ECA-3.1, Step 13, Check If Subcooled Recovery Is Appropriate, directs control room operators to check the status of containment "Min Recirc Level" lights, which turn on when the lower containment water level switch (NLI-330, NLI-331) actuates, at a water level of 602' 2 3/4" elevation. If the "Min Recirc Level" lights are not lit, control room operators are directed to transition to ECA-3.2 for a saturated recovery. If the "Min Recirc Level" lights are lit, control room operators are directed to refer to Figure 1, Containment Water Level Versus RWST Level, to determine available inventory.

The containment water level monitors (NLI-320, NLI-321) provide the range of values necessary to support a subcooled recovery via ECA-3.1. In the event that CNP Unit 1 or Unit 2 experienced a SGTR with loss of reactor coolant and both containment water level monitors were inoperable, ECA-3.1 would direct control room operators to transition to ECA-3.2 for a saturated recovery.

Address how operability of the normal containment water instrumentation would be assured if it is necessary for any EOP action decision input while the wide range containment water level instruments are inoperable.

Normal containment water instrumentation at CNP Unit 1 and Unit 2 consists of containment water level monitors (NLI-320, NLI-321), containment water level switches (NLI-330, NLI-331, NLI-340, NLI-341), normal containment sump water level monitors (NLA-310, NLI-311), and containment recirculation sump water level switches (NLI-300, NLI-301).

Scenario 1 - Check If RCS Is Intact:

EOP E-0, Step 19, Check If RCS Is Intact, directs control room operators to check containment radiation, containment pressure, normal containment sump water level (NLA-310, NLI-311), and containment water level monitors (NLI-320, NLI-321). Channel checks are performed on the containment water level monitors (NLI-320, NLI-321) and on the normal containment sump water level monitors (NLA-310, NLI-311) on a shiftly basis to ensure the instruments remain operable.

In the event that both containment water level monitors (NLI-320, NLI-321) became inoperable, three additional sets of instruments would still be available to control room operators to check if the RCS is intact - containment radiation, containment pressure, and normal containment sump water level (NLA-310, NLI-311). The operability of containment radiation monitors and containment pressure instruments are governed by TS. Containment radiation monitors are credited by CNP Unit 1 and Unit 2 TS 3.4.15, RCS Leakage Detection. Containment pressure instrumentation is credited by CNP Unit 1 and Unit 2 to fulfill TS Table 3.3.3-1, Post Accident Monitoring (PAM) Instrumentation, Function 8, Containment Pressure (Narrow Range). Operability of the normal containment sump water level instruments at CNP Unit 1 and Unit 2 is not governed by TS, but is governed by station procedures, including the Technical Requirements Manual.

Scenario 2 - Subcooled Versus Saturated Recovery:

Operability of the normal containment sump water level instruments (NLA-310, NLI-311), containment water level switches (NLI-330, NLI-331, NLI-340, NLI-341), or containment recirculation sump water level switches (NLI-300, NLI-301) would not be necessary in this scenario since ECA-3.1 and ECA-3.2 are capable of directing control room operators to safely bring the plant to cold shutdown conditions, even with both containment water level monitors (NLI-320, NLI-321) inoperable.

Function 25 - Containment Recirculation Sump Level:

During a clarification call held with the NRC on November 3rd, 2021, NRC staff requested that I&M evaluate whether CNP Unit 1 and Unit 2 TS Table 3.3.3-1, Function 25, Containment Recirculation Sump Water Level, would impact the changes proposed in Reference 1. TS Table 3.3.3-1, Function 25, credits containment recirculation sump level channels (NLI-300, NLI-301). The containment recirculation sump level channels are used by control room operators in EOP ECA-1.3, Sump Blockage Control Room Procedure, which does not use the containment water level monitors as a decision input. There is no impact to Reference 1 due to TS Table 3.3.3-1, Function 25.

References:

1. Letter from Q. S. Lies, Indiana Michigan Power Company (I&M), to U. S. Nuclear Regulatory Commission (NRC), "Request for Approval of Change Regarding Containment Water Level Instrumentation," dated March 23, 2021, Agencywide Documents Access and Management System Accession (ADAMS) No. ML21082A496.
2. E-mail from S. P. Wall, NRC, to M. K. Scarpello, I&M, "Final RAI - D.C. Cook 1 & 2 - License Amendment Request Regarding Containment Water Level Instrumentation (EPID No. L-2021-LLA-0050)," dated November 3, 2021, ADAMS No. ML21307A335.

Enclosure 3 to AEP-NRC-2021-68

Donald C. Cook Nuclear Plant Unit 1 Technical Specification Pages Marked to Show Proposed Changes

Table 3.3.3-1 (page 1 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION E.1
1.	Neutron Flux	2	F
2.	Steam Generator Pressure (per steam generator)	2	F
3.	Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	2	F
4.	RCS Cold Leg Temperature (Wide Range)	2	F
5.	RCS Pressure (Wide Range)	2	F
6.	Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication)	2	G
7.	Containment Water Level	2[a]	F
8.	Containment Pressure (Narrow Range)	2	F
9.	Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[a][b][c]	F
10.	Containment Area Radiation (High Range)	2	G
11.	Deleted		
12.	Pressurizer Level	2	F
13.	Steam Generator Water Level (Wide Range)	4	F
14.	Condensate Storage Tank Level	1	G
15.	Core Exit Temperature - Quadrant 1	2[c][d]	F
16.	Core Exit Temperature - Quadrant 2	2[c][d]	F
17.	Core Exit Temperature - Quadrant 3	2[c][d]	F
18.	Core Exit Temperature - Quadrant 4	2[c][d]	F

(a) Up to one channel of Function 7 OPERABILITY requirements can be satisfied by an OPERABLE train of containment water level switches if both Containment Water Level channels are inoperable. This substitution is only allowed until the end of the current operating cycle when it is invoked.

(a~~b~~) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b~~c~~) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c~~d~~) A channel consists of one core exit thermocouple (CET).

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION E.1
19.	Secondary Heat Sink Indication (per steam generator)	2 [d][e]	F
20.	Emergency Core Cooling System Flow (per train)	2 [e][f]	F
21.	Containment Pressure (Wide Range)	2	F
22.	Refueling Water Storage Tank Level	2	F
23.	RCS Subcooling Margin Monitor	1 [f][g]	F
24.	Component Cooling Water Pump Circuit Breaker Status	2	G
25.	Containment Recirculation Sump Water Level	2	F

([d]e) Any combination of two instruments per steam generator, including Steam Generator Water Level (Narrow Range) and Auxiliary Feedwater Flow, can be used to satisfy Function 19 OPERABILITY requirements.

([e]f) Any combination of two instruments per train, including Centrifugal Charging Pump Flow, Safety Injection Pump Flow, Centrifugal Charging Pump Circuit Breaker Status, and Safety Injection Pump Circuit Breaker Status, can be used to satisfy Function 20 OPERABILITY requirements.

([f]g) An OPERABLE plant process computer (PPC) subcooling margin readout can be used as a substitute for an inoperable Function 23, RCS Subcooling Margin Monitor.

Enclosure 4 to AEP-NRC-2021-68

Donald C. Cook Nuclear Plant Unit 2 Technical Specification Pages Marked to Show Proposed Changes

Table 3.3.3-1 (page 1 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION E.1
1.	Neutron Flux	2	F
2.	Steam Generator Pressure (per steam generator)	2	F
3.	Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	2	F
4.	RCS Cold Leg Temperature (Wide Range)	2	F
5.	RCS Pressure (Wide Range)	2	F
6.	Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication)	2	G
7.	Containment Water Level	2[a]	F
8.	Containment Pressure (Narrow Range)	2	F
9.	Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[a][b][c]	F
10.	Containment Area Radiation (High Range)	2	G
11.	Deleted		
12.	Pressurizer Level	2	F
13.	Steam Generator Water Level (Wide Range)	4	F
14.	Condensate Storage Tank Level	1	G
15.	Core Exit Temperature - Quadrant 1	2[c][d]	F
16.	Core Exit Temperature - Quadrant 2	2[c][d]	F
17.	Core Exit Temperature - Quadrant 3	2[c][d]	F
18.	Core Exit Temperature - Quadrant 4	2[c][d]	F

(a) Up to one channel of Function 7 OPERABILITY requirements can be satisfied by an OPERABLE train of containment water level switches if both Containment Water Level channels are inoperable. This substitution is only allowed until the end of the current operating cycle when it is invoked.

(~~a~~b) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(~~b~~c) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(~~c~~d) A channel consists of one core exit thermocouple (CET).

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION E.1
19.	Secondary Heat Sink Indication (per steam generator)	2[d][e]	F
20.	Emergency Core Cooling System Flow (per train)	2[e][f]	F
21.	Containment Pressure (Wide Range)	2	F
22.	Refueling Water Storage Tank Level	2	F
23.	RCS Subcooling Margin Monitor	1[f][g]	F
24.	Component Cooling Water Pump Circuit Breaker Status	2	G
25.	Containment Recirculation Sump Water Level	2	F

([d]e) Any combination of two instruments per steam generator, including Steam Generator Water Level (Narrow Range) and Auxiliary Feedwater Flow, can be used to satisfy Function 19 OPERABILITY requirements.

([e]f) Any combination of two instruments per train, including Centrifugal Charging Pump Flow, Safety Injection Pump Flow, Centrifugal Charging Pump Circuit Breaker Status, and Safety Injection Pump Circuit Breaker Status, can be used to satisfy Function 20 OPERABILITY requirements.

([f]g) An OPERABLE plant process computer (PPC) subcooling margin readout can be used as a substitute for an inoperable Function 23, RCS Subcooling Margin Monitor.