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Indiana Michigan Power
One Cook Place
Bridgman, MI 49106
IndianaMichiganPower.com

January 13, 2011

AEP-NRC-2011-9
10 CFR 50.90

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

Subject: Donald C. Cook Nuclear Plant Units 1 and 2
Docket No. 50-315 and 50-316
Response to Request for Additional Information Regarding License Amendment
Request Regarding Containment Spray Nozzle Surveillance Requirement

References: 1. Letter from J. P. Gebbie, Indiana Michigan Power Company (I&M), to Nuclear
Regulatory Commission (NRC) Document Control Desk, "License Amendment
Request Regarding Containment Spray Nozzle Surveillance Requirement,"
AEP-NRC-2010-2, dated June 22, 2010 (ML101880034).
2. E-mail from P. Tam, NRC, to M. K. Scarpello, I&M, "D.C. Cook Units 1 and 2 –
Draft RAI re. the proposed amendment concerning containment spray nozzle
surveillance," dated October 18, 2010 (ML102910036).

Dear Sir or Madam:

In Reference 1, Indiana Michigan Power Company (I&M) submitted a license amendment request regarding containment spray nozzle surveillance requirements. The amendment request is intended to replace the current fixed 10 year frequency for testing the containment spray nozzles in Surveillance Requirement 3.6.6.5 with an event based frequency. Reference 2 transmitted the Nuclear Regulatory Commission's request for additional information (RAI) regarding the license amendment request.

Enclosure 1 provides an affirmation statement pertaining to this letter. Enclosure 2 provides I&M's response to the RAI.

There are no new or revised commitments in this letter. Should you have any questions, please contact Mr. Michael K. Scarpello, Regulatory Affairs Manager, at (269) 466-2649.

Sincerely,

Joel P. Gebbie
Site Vice President

DMB/jmr

ADD1
NRR

Enclosures:

1. Affirmation
 2. Response to Request for Additional Information Regarding License Amendment Request Regarding Containment Spray Nozzle Surveillance
- c: J. T. King, MPSC
S. M. Krawec, AEP Ft. Wayne, w/o enclosures
MDNRE – WHMD/RPS
NRC Resident Inspector
M. A. Satorius, NRC Region III
P. S. Tam – NRC Washington DC

AFFIRMATION

I, Joel P. Gebbie, being duly sworn, state that I am Site Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the 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.

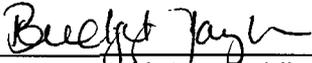
Indiana Michigan Power Company



Joel P. Gebbie
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 13 DAY OF January, 2011



Notary Public

My Commission Expires 6/10/2013



Enclosure 2 to AEP-NRC-2011-9

Response to Request for Additional Information Regarding License Amendment Request
Regarding Containment Spray Nozzle Surveillance

In Reference 1, Indiana Michigan Power Company (I&M) submitted a license amendment request regarding Containment Spray (CTS) nozzle surveillance requirements. The amendment request is intended to replace the current fixed 10 year frequency for testing the containment spray nozzles in Surveillance Requirement 3.6.6.5 with an event based frequency. Reference 2 transmitted the Nuclear Regulatory Commission's request for additional information (RAI) regarding the license amendment request. The requested information is provided below.

NRC RAI 1

A description of any events where active boric acid have been identified in containment for which it appeared to be coming from the Unit 2 containment spray annulus.

I&M Response to NRC RAI 1

There have been four separate occurrences of boric acid found leaking from a Unit 2 spray nozzle in the annulus. Leak rates varied from a few drops per minute to as much as 2-3 drops per second. All leakage came from the lowest nozzle located approximately 25 feet above lower containment ventilation unit no. 4 (2-HV-CLV-4). These events are summarized in Table 1.

Table 1
Summary of Boric Acid Leaks from Unit 2 Containment Spray Nozzles

Date	Summary of Event
October 1994	Cause: Errors associated with restoring a clearance used to isolate the spray rings from the rest of the system during pressurized leak testing. Corrective action included procedure changes to direct draining of the system following testing.
May 1997	Cause: Leakby past isolation valves relied upon to isolate the pump test circuit from the rest of the system. Corrective actions included draining the affected CTS spray ring after each pump test until Unit 2 could be placed in a configuration required to support repairs. The repair was to permanently remove from service the portion of the test line which contained the valves that leaked by.

Table 1 (Continued)
Summary of Boric Acid Leaks from Unit 2 Containment Spray Nozzles

March 2002	<p>Cause: Operation of the containment exhaust fans to support core alterations in conjunction with the presence of water in the CTS heat exchangers tubes while laid up in standby resulted in water being drawn over the heat exchanger tube U-bends. This water was subsequently siphoned into the CTS header in lower Containment.</p> <p>Corrective actions included procedure changes to require draining the CTS heat exchanger tubes when establishing the standby configuration of the system.</p>
May 2009	<p>Cause: During the refueling outage, Emergency Diesel Generator (EDG) load sequence tests, which involve running a CTS pump, were performed after the CTS heat exchangers had been drained. One of the heat exchanger manual isolation valves leaked by and, because a tell-tale drain had not been established, one or more of the tubes filled with liquid. This established the siphon effect described in the March 2002 event with CTS header leakage into lower Containment.</p> <p>To prevent further leakage, the CTS spray ring in lower Containment was drained two times prior to the U2C17 refueling outage (RFO). The heat exchanger tubes were drained prior to unit startup from the outage. In addition, procedures for the subject EDG surveillance were revised to direct the opening of a tell-tale drain behind the isolation valve to ensure leak-by will not fill any tubes.</p>

NRC RAI 2

A summary of the containment spray system's past history at Unit 2 as of the last flow test (performed in 2000).

I&M Response to NRC RAI 2

The last two events discussed in the response to NRC RAI 1 constitute past history for the system after the flow test in 2000. More detailed information for these events is provided below.

In March of 2002, it was identified that seat tightness of the spray pump test line isolation valves was not the sole cause for water inadvertently entering the spray rings. At that time, only the outlet side of the heat exchangers (inverted vertical U-tube) was drained to establish its normal operating configuration. The inlet side was filled to the lowest row U-bend. In this condition, negative atmospheric pressure in Containment (e.g., running the purge fans during core alterations and/or routine pressure reliefs online) draws water over the heat exchanger U-bend. Once the outlet pipe becomes water solid, this water is siphoned into the lower CTS header. Water level in the Refueling Water Storage Tank (CTS suction) is typically 3 - 5 feet higher than the lowest nozzle in the annulus. Leakage was therefore continuous and the leak rate is a

function of the differential pressure across the heat exchanger. This condition was resolved by altering the normal standby condition of the heat exchangers. Now, the heat exchangers are completely drained on both sides prior to exiting a refueling outage.

In May of 2009 during the U2C17 RFO, Emergency Diesel Generator (EDG) load sequence tests, which involve running a CTS pump, were performed after the CTS heat exchangers had been drained for restart. One of the heat exchanger manual isolation valves leaked by and one or more of the tubes filled with liquid because a tell-tale drain had not been established. This established the siphoning condition previously described above. The procedures for the subject EDG surveillance were revised to direct the opening of a tell-tale drain behind the heat exchanger isolation valve to ensure leak-by will not fill any tubes.

NRC RAI 3

Description of the corrective action plan in the event of inadvertent fluid flow thorough the containment spray nozzles. Please note that inadvertent fluid flow through spray nozzles increases the likelihood of solid boric acid and corrosion type debris accumulation in the spray lines or nozzles which could result in the obstruction of flow paths.

I&M Response to NRC RAI 3

System operating procedures minimize the possibility of inadvertent fluid flow into the CTS nozzles by maintaining the CTS heat exchangers U-tubes in a dry state. In the event of inadvertent fluid flow through the containment spray nozzles; this flow would be identified by operators on routine weekly Containment tours.

An Action Request (AR) would be created in the Corrective Action Program when leakage is detected. This will enable scheduling the appropriate maintenance in accordance with the Work Control Program. Corrective actions generated in response to the AR have historically included periodic draining of the affected portion of the system in Containment if repairs can not be made online.

If the repair activities to eliminate inadvertent fluid flow through the containment spray nozzles can not be performed online, then draining of the spray ring header is scheduled, using the Work Control process, to limit the potential for evaporation of solution. Periodic draining is intended to minimize the potential for water to evaporate, preventing deposits of boric acid precipitate that could possibly impede flow.

The CTS piping and nozzles are fabricated of stainless steel, which is highly resistant to corrosion. Conditions for stainless steel corrosion, i.e., stress, temperature, and chlorides, are not present. Therefore, the nozzles are unlikely to become obstructed due to corrosion debris.

REFERENCES

1. Letter from J. P. Gebbie, Indiana Michigan Power Company (I&M), to Nuclear Regulatory Commission (NRC) Document Control Desk, "License Amendment Request Regarding Containment Spray Nozzle Surveillance Requirement," AEP-NRC-2010-2, dated June 22, 2010 (ML101880034).
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