



**INDIANA
MICHIGAN
POWER**

A unit of American Electric Power

Indiana Michigan Power
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
AEP.com

September 15, 2005

AEP:NRC:5054-13
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Docket Nos: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Donald C. Cook Nuclear Plant Units 1 and 2
ADDITIONAL INFORMATION –
NUCLEAR REGULATORY COMMISSION BULLETIN 2003-01 REGARDING
DEBRIS BLOCKAGE OF RECIRCULATION SUMP

- References:
- 1) Nuclear Regulatory Commission (NRC) Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors," dated June 9, 2003 (ML031600259).
 - 2) Letter from A. C. Bakken III, Indiana Michigan Power Company (I&M), to U. S. NRC Document Control Desk, "Response to Nuclear Regulatory Commission Bulletin 2003-01 Regarding Debris Blockage of Recirculation Sump," AEP:NRC:3054-12, dated August 7, 2003 (ML032260668).
 - 3) Letter from J. N. Jensen, I&M, to U. S. NRC Document Control Desk, "Response to Request for Additional Information - Nuclear Regulatory Commission Bulletin 2003-01 Regarding Debris Blockage of Recirculation Sump," AEP:NRC:5054-01, dated January 24, 2005 (ML050270184).
 - 4) Letter from J. N. Jensen, I&M, to U. S. NRC Document Control Desk, "Additional Information - Nuclear Regulatory Commission Bulletin 2003-01 Regarding Debris Blockage of Recirculation Sump," AEP:NRC:5054-10, dated August 31, 2005.

A103

This letter provides additional information regarding Indiana Michigan Power Company's (I&M's) response to a Nuclear Regulatory Commission (NRC) bulletin concerning the potential for debris blockage of pressurized water reactor (PWR) recirculation sumps.

In Bulletin 2003-01 (Reference 1), the NRC informed PWR licensees of the potential susceptibility of recirculation sump screens to debris blockage following a high-energy line break in containment. The NRC requested that licensees identify interim compensatory measures to reduce the associated risk while additional evaluation proceeded. Reference 2 provided I&M's response to the bulletin for the Donald C. Cook Nuclear Plant (CNP). Reference 3 and Reference 4 transmitted I&M's response to an NRC request for additional information regarding interim compensatory measures for CNP. In a telephone discussion conducted on September 2, 2005, the NRC staff requested additional information regarding two of the interim compensatory measures. Attachment 1 to this letter provides the requested additional information.

This letter does not contain new regulatory commitments. Should you have any questions, please contact Mr. John A. Zwolinski, Safety Assurance Director, at (269) 466-2428.

Sincerely,



Joseph N. Jensen
Site Vice President

JW/rdw

Attachment:

Additional Information Regarding NRC Bulletin 2003-01.

c: J. L. Caldwell, NRC Region III
K. D. Curry, Ft. Wayne AEP, w/o attachment
J. T. King, MPSC
MDEQ – WHMD/RPMWS
NRC Resident Inspector
D. W. Spaulding, NRC Washington, DC

AFFIRMATION

I, Joseph N. Jensen, 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 letter 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



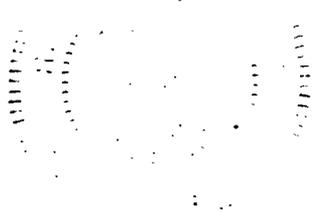
Joseph N. Jensen
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 15th DAY OF September, 2005

Regan D. Wendzel
Notary Public

My Commission Expires REGAN D. WENZEL
Notary Public, Berrien County, MI
~~My Commission Expires Jan. 21, 2009~~



ADDITIONAL INFORMATION REGARDING
NRC BULLETIN 2003-01.

References for this attachment are identified on Page 3.

In Bulletin 2003-01 (Reference 1), the Nuclear Regulatory Commission (NRC) informed pressurized water reactor licensees of the potential susceptibility of recirculation sump screens to debris blockage following a high-energy line break in containment. The NRC requested that licensees identify interim compensatory measures to reduce the associated risk while additional evaluation proceeded. Reference 2 provided Indiana Michigan Power Company's (I&M's) response to the bulletin for the Donald C. Cook Nuclear Plant (CNP). Reference 3 and Reference 4 transmitted I&M's response to an NRC request for additional information (RAI) regarding interim compensatory measures for CNP. In a telephone discussion conducted on September 2, 2005, the NRC staff requested additional information regarding two of the interim compensatory measures. The two measures are the candidate operator actions (COAs) identified in WCAP-16204, Revision 1 (Reference 5), Appendix A, Sections A5 and A6. Provided below are summaries of the COAs, summaries of I&M's previous dispositions of the COAs, the NRC requests regarding those dispositions, and I&M's responses to those requests.

A5 - Refill of refueling water storage tank (RWST)

The COA consists of initiating preemptive preparations to refill the RWST or lineup an alternate makeup source that bypasses the RWST, initiating RWST refill after switchover to sump recirculation, or initiating RWST refill before switchover to sump recirculation. WCAP-16204, Revision 1, documents the Westinghouse Owners Group (WOG) conclusion/recommendation that emergency procedures be changed to initiate early action to line up to refill the RWST or bypass the RWST to support using an alternate makeup source, if needed. Actual RWST refill was generally not recommended until after switchover to recirculation has occurred.

In the RAI response transmitted by Reference 4, I&M stated that existing operations procedure ES-1.3, "Transfer to Cold Leg Recirculation," had been changed to direct operators to make preemptive preparations to refill the RWST by lining up the boric acid blender to add borated makeup water to the RWST. Reference 4 also provided a discussion of how the small containment flooding margin for CNP resulted in I&M's decision not to refill the RWST if an accident is within the plant design basis, i.e. while the recirculation sump is functional as is assumed in procedure ES-1.3. Finally, I&M stated that instruction for refilling the RWST in response to a beyond-design-basis accident, i.e., an accident with sump blockage, had been provided in a new procedure, ECA-1.3, "Sump Blockage Control Room Procedure."

In the September 2 telephone discussion, the NRC staff requested additional information regarding I&M's disposition of this COA, focusing on how I&M satisfies the intent of the COA by use of makeup sources other than a refilled RWST.

As stated in WCAP-16204, Revision 1, the intent of COA A5 was to “Ensure that alternative water sources are available to refill the RWST or otherwise provide inventory to inject into the reactor core and spray into the containment atmosphere.” The CNP procedures provide two methods of meeting this intent:

- Procedure ES-1.3 directs operators to make preemptive preparations to refill the RWST by lining up the boric acid blender to add borated makeup water to the RWST. The actual filling of the RWST is not initiated until directed by procedure ECA-1.3. Filling of the RWST is covered by normal operating procedures. Consistent with COA A6, procedure ECA-1.3 also provides instructions for injecting makeup from a refilled RWST into the reactor coolant system (RCS).
- If containment sump screen blockage occurs and the affected unit’s RWST did not contain adequate inventory, operators are directed in procedure ECA-1.3, to add makeup to the RCS from available sources, other than the affected unit’s RWST. These sources are the volume control tank, the boric acid storage tank, the primary water storage tank, the chemical and volume control system holdup tank, and the opposite unit RWST via the opposite unit charging pumps. (If the opposite unit RWST is utilized, an immediate shutdown of the opposite unit reactor would be required prior to providing makeup to the affected unit.)

The second method, using alternative sources that bypass the affected unit’s RWST, would likely provide the most immediate success path. If sump blockage were to occur soon after recirculation was established, there may be little time for RWST refill. The alternative sources identified in the second method are independent of the affected unit’s RWST and are therefore available without waiting for the RWST to be refilled. Most of these sources would require simple valve realignments to provide RCS makeup to the affected unit.

A6 – Inject More Than One RWST Volume From Refilled RWST or by Bypassing the RWST

The COA consists of measures to re-initiate RCS injection if screen blockage causes loss of sump recirculation capability. The COA would provide injection water from a refilled RWST or from an alternate source, bypassing the RWST. WCAP-16204, Revision 1, documents the WOG conclusion/recommendation that a loss of recirculation capability due to sump blockage would be a beyond-design-basis condition. As also documented in the WCAP, the COA may have implications regarding RCS pressurization, hydrogen generation, reactivity control, thermal shock, pH control, and flooding of important instrumentation. Therefore, the WOG recommended that the actions be coordinated by emergency organization technical support personnel.

In Reference 4, I&M stated that new procedure ECA-1.3 includes instructions to re-initiate RCS injection from the RWST using the charging pump or safety injection pump, if adequate RWST inventory remains. I&M also stated that procedure ECA-1.3 directs operators to add makeup to the RWST as necessary.

In the September 2 telephone discussion, the NRC staff requested additional information regarding I&M's disposition of the other option identified in this COA, use of an alternate injection source that bypasses the RWST.

As described in the discussion of COA A5 above, the new procedure for responding to an accident with sump blockage, ECA-1.3, directs operators to use alternative available sources of RCS injection other than the RWST. These sources are the volume control tank, the boric acid storage tank, the primary water storage tank, the chemical and volume control system holdup tank, and the opposite unit RWST. In most cases these sources require simple valve alignments in order to place in service. Each of these sources is independent of the RWST. The above described procedure provisions provide multiple, reliable alternatives for RCS injection to mitigate a sump blockage event.

References for this Attachment

1. NRC Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors," dated June 9, 2003 (ML031600259).
2. Letter from A. C. Bakken III, I&M, to U. S. NRC Document Control Desk, "Response to Nuclear Regulatory Commission Bulletin 2003-01 Regarding Debris Blockage of Recirculation Sump," AEP:NRC:3054-12, dated August 7, 2003 (ML032260668).
3. Letter from J. N. Jensen, I&M, to U. S. NRC Document Control Desk, "Response to Request for Additional Information - Nuclear Regulatory Commission Bulletin 2003-01 Regarding Debris Blockage of Recirculation Sump," AEP:NRC:5054-01, dated January 24, 2005 (ML050270184).
4. Letter from J. N. Jensen, I&M, to U. S. NRC Document Control Desk, "Additional Information - Nuclear Regulatory Commission Bulletin 2003-01 Regarding Debris Blockage of Recirculation Sump," AEP:NRC:5054-10, dated August 31, 2005.
5. WCAP-16204, Revision 1, "Evaluation of Potential ERG and EPG Changes to Address NRC Bulletin 2003-01 Recommendations," dated March 2004.