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December 6, 2007

AEP:NRC:7054-05
10 CFR 50.54(f)

Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Donald C. Cook Nuclear Plant Units 1 and 2
REQUEST FOR EXTENSION OF COMPLETION DATE FOR
UNITS 1 AND 2 ACTIONS IN RESPONSE TO
GENERIC LETTER 2004-02, "POTENTIAL IMPACT OF DEBRIS BLOCKAGE ON
EMERGENCY RECIRCULATION DURING DESIGN BASIS ACCIDENTS AT
PRESSURIZED-WATER REACTORS," (TAC NOS. MD4679 AND MD4680)

- References:
1. Nuclear Regulatory Commission (NRC) Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," dated September 13, 2004 (ML042360586).
 2. Letter from J. N. Jensen, Indiana Michigan Power Company (I&M), to NRC Document Control Desk, "Nuclear Regulatory Commission Generic Letter 2004-02 - Information Requested by September 1, 2005," AEP:NRC:5054-11, dated August 31, 2005 (ML052510512).
 3. Letter from J. N. Jensen, I&M, to NRC Document Control Desk, "Request for Extension of Completion Date for Unit 1 Actions in Response to Generic Letter 2004-02," AEP:NRC:6054-06, dated June 27, 2006 (ML061860251).
 4. Letter from P. S. Tam, NRC, to M. K. Nazar, I&M, "Donald C. Cook Nuclear Plant, Unit 1 (DCCNP-1) -- Extension of Completion Date for Actions in Response to Generic Letter 2004-02 (TAC No. MC4679)," dated July 28, 2006 (ML062020768).

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5. Letter from W. H. Ruland, NRC, to A. R. Pietrangelo, Nuclear Energy Institute, "Plant-Specific Requests for Extension of Time to Complete One or More Corrective Actions for Generic Letter 2004-02, 'Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors,'" dated November 8, 2007 (ML073060581).
6. SECY-06-0078, from L. A. Reyes, NRC Executive Director for Operation, to NRC Commissioners, "Status of Resolution of GSI-191, 'Assessment of [Effect of] Debris Accumulation on PWR Sump Performance,'" dated March 31, 2006 (ML053620174).

This letter requests an extension of the completion date for certain activities needed for final resolution of recirculation sump related issues for Donald C. Cook Nuclear Plant (CNP) Unit 1 and Unit 2.

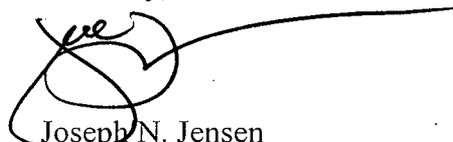
By Generic Letter (GL) 2004-02 (Reference 1), the Nuclear Regulatory Commission (NRC) requested that pressurized-water reactor licensees evaluate the potential for post-accident debris to impede or prevent the recirculation functions of emergency core cooling and containment spray systems. In the GL, the NRC stated that all actions should be completed by December 31, 2007. Indiana Michigan Power Company (I&M) stated, in Reference 2, that CNP would be in full compliance with the regulatory requirements discussed in the Applicable Regulatory Requirements section of the GL by December 31, 2007, including the implementation of all required corrective actions. By Reference 3, I&M requested an extension of the December 31, 2007, completion date for some of the Unit 1 plant modifications needed to address the concerns identified in GL 2004-02. By Reference 4, the NRC approved extending the due date for completion of the modifications until the Spring 2008 Unit 1 refueling outage.

I&M planned to complete all analyses needed to address the issues identified in GL 2004-02 for both units prior to the end of 2007. However, as detailed in Attachment 1 to this letter, completion of the analyses of effects of debris downstream of the strainers and the analyses of the effects of certain chemical reactions will take longer than originally anticipated. I&M is therefore requesting an extension of the due date for completion of these analyses, and completion of the subsequent licensing basis changes reflecting final resolution of the GL 2004-02 concerns. These analyses and licensing basis changes will be completed prior to Unit 1 entering Mode 4 at the end of the Spring 2008 refueling outage, currently scheduled to begin in March 2008. This due date is consistent with the due date approved by Reference 4 for completion of the Unit 1 plant modifications. As detailed in Attachment 1, other actions needed for final resolution of the GL 2004-02 concerns will be completed by December 31, 2007. This extension request is consistent with the expectations provided by the NRC in Reference 5 for Case 2, i.e., plants for which licensees have determined that testing and/or analyses will not be completed or are not likely to be completed by the end of 2007.

Attachment 1 to this letter provides the technical basis for the proposed extension and describes the challenges to completion of the downstream effects and chemical effects analyses. The technical basis is consistent with the criteria for such extensions provided in SECY-06-0078 (Reference 6). Attachment 2 provides a sketch showing some of the plant modifications that have been, or will be, made to address the concerns identified in GL 2004-02. Attachment 3 provides the new regulatory commitments made in this letter in tabular form. I&M requests approval of the proposed extension by December 19, 2007.

Should you have any questions, please contact Ms. Susan D. Simpson, Regulatory Affairs Manager, at (269) 466-2428.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Jensen', is written over a circular stamp or mark. A long horizontal line extends from the right side of the signature across the page.

Joseph N. Jensen
Site Vice President

JRW/rdw

Attachments:

1. Request for Extension of Completion Date for Actions in Response to Generic Letter 2004-02 for Donald C. Cook Nuclear Plant Units 1 and 2
 2. Sketch of Modifications
 3. Regulatory Commitments
- c:
- J. L. Caldwell – NRC Region III
 - K. D. Curry – AEP Ft. Wayne
 - J. T. King – MPSC
 - MDEQ – WHMD/RPMWS
 - NRC Resident Inspector
 - P. S. Tam – 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 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


Joseph N. Jensen
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 6th DAY OF December, 2007



Notary Public

My Commission Expires 6/10/2013



ATTACHMENT 1 TO AEP:NRC:7054-05

Request for Extension of Completion Date for Actions in Response to Generic Letter 2004-02 for Donald C. Cook Nuclear Plant Units 1 and 2

References for this attachment are identified on Pages 10 and 11.

1. Background

By Generic Letter (GL) 2004-02 (Reference 1), the Nuclear Regulatory Commission (NRC) requested that pressurized-water reactor (PWR) licensees evaluate the potential for post-accident debris to impede or prevent the recirculation functions of emergency core cooling and containment spray systems. In the GL, the NRC stated that all actions should be completed by December 31, 2007. Indiana Michigan Power Company's (I&M's) responses to the GL for Donald C. Cook Nuclear Plant (CNP) Unit 1 and Unit 2 were transmitted by References 2 through 6. These responses identified the plant modifications, analyses, and testing being performed to address the issues identified in GL 2004-02 for CNP.

I&M stated, in Reference 3, that CNP would be in full compliance with the regulatory requirements discussed in the Applicable Regulatory Requirements section of the GL by December 31, 2007, including the implementation of all required corrective actions. By Reference 7, I&M requested an extension of the December 31, 2007, completion date for some of the Unit 1 plant modifications. By Reference 8, the NRC approved extending the due date for completion of the modifications until the Spring 2008 Unit 1 refueling outage.

I&M had planned to complete all analyses needed to address the issues identified in GL 2004-02 for both units prior to the end of 2007. However, as detailed in Section 3 of this attachment, completion of the analyses of effects of debris downstream of the strainers and the analyses of the effects of certain chemical reactions will take longer than originally anticipated. I&M is therefore requesting an extension of the due date for completion of these analyses, and completion of the subsequent licensing basis changes reflecting final resolution of the GL 2004-02 concerns. These analyses and licensing basis changes will be completed prior to Unit 1 entering Mode 4 at the end of the Spring 2008 refueling outage, currently scheduled to begin in March 2008. This due date is consistent with the due date for completion of the Unit 1 plant modifications in accordance with Reference 8. The proposed extension will result in the completion of the GL 2004-02 related activities as summarized below.

Activities Already Completed or to be Completed by December 31, 2007

- Event sequence and characterization of events
- Sump hydraulics analysis
- Vortex level analysis
- Debris generation analysis
- Debris transport analysis

- Pool fill analysis
- Jet impingement testing
- Strainer vendor chemical effects and head loss testing
- Unit 1 main strainer and related plant modifications
- All Unit 2 plant modifications needed for resolution of GL 2004-02 concerns
- Completion of removal of specified labels and other debris sources in Unit 2
- Enhancements to programmatic controls (procedures, specifications, etc.)
- Implementation of Unit 2 GL 2004-02 related Technical Specification changes
- Updated Final Safety Analysis Report changes associated with Unit 1 main strainer and related plant modifications and all Unit 2 plant modifications needed for resolution of GL 2004-02 concerns

Activities to be Completed prior to Unit 1 entering Mode 4 at the End of the Spring 2008 Refueling Outage

- Downstream effects analysis
- 30-day integrated chemical effects analysis
- Completion of removal of specified labels and other debris sources in Unit 1
- Unit 1 remote strainer installation and related modifications
- Implementation of Unit 1 GL 2004-02 related Technical Specification changes
- Licensing basis changes associated with all analyses and with Unit 1 remote strainer installation and related plant modifications

2. Technical Basis for Requested Extension

The technical basis for the requested extension meets the criteria established by the NRC for such extensions as documented in SECY-06-0078 (Reference 9), and is consistent with the basis for continued operation documented in GL 2004-02.

NRC Extension Criteria in SECY-06-0078

I&M considers that the conditions at CNP meet the criteria identified in SECY-06-0078 for extensions beyond the December 31, 2007, date specified in NRC GL 2004-02. These criteria are restated below:

Proposed extensions to permit changes at the next outage of opportunity after December 2007 may be acceptable if, based on the licensee's request, the staff determines that:

- *the licensee has a plant-specific technical/experimental plan with milestones and schedule to address outstanding technical issues with enough margin to account for uncertainties and*

- *the licensee identifies mitigative measures to be put in place prior to December 31, 2007, and adequately describes how these mitigative measures will minimize the risk of degraded ECCS [emergency core cooling systems] and CSS [containment spray system, designated CTS at CNP] functions during the extension period.*

For proposed extensions beyond several months, a licensee's request will more likely be accepted if the proposed mitigative measures include temporary physical improvements to the ECCS sump or materials inside containment to better ensure a high level of ECCS sump performance.

These criteria are met as described below.

Plant-Specific Technical/Experimental Plan

I&M has developed a plant-specific technical/experimental plan, with milestones and schedule, to address outstanding technical issues including margin to account for uncertainties. The key elements of the plan are summarized by the bulleted items in Section 1 above.

Mitigative Measures

The following describes the mitigative measures that minimize the risk of degraded ECCS and CTS functions during the extension period.

Unit 1

During the Unit 1 Fall 2006 refueling outage, the existing recirculation sump strainer was replaced with a larger, new design strainer, designated as the main strainer (see Attachment 2). Installation of the new strainer resulted in a surface area increase from the previous value of approximately 85 square feet (ft²) to approximately 900 ft². The available flow area through the previous strainer was approximately 37 ft². The available flow area through the replacement strainer is approximately 270 ft².

The new strainer provides increased margin for ECCS and CTS pump suction head. The Unit 1 pump with the most limiting suction head requirements is the West Residual Heat Removal Pump. The maximum acceptable strainer head loss for this pump has been determined to be approximately 9.1 feet of water. Vortexing is more limiting than pump suction head at CNP because the recirculation sump is vented. The maximum acceptable strainer head loss for vortexing, without operator action, has been determined to be approximately 3.2 feet of water.

Recently completed testing of an approximately 1850 ft² area strainer (1972 ft² minus assumed sacrificial blocked area of 122 ft²), using actual or simulated plant materials without

consideration of the impact of chemical effects, or potential margin reductions associated with a fully vented sump, and accounting for the installed 900 ft² strainer, determined an estimated head loss of approximately 3.3 feet of water for a double ended guillotine break (DEGB), and approximately 1.8 feet of water for the debris generation break size (DGBS) as defined in Nuclear Energy Institute (NEI) 04-07 (Reference 10).

Since the predicted head loss for the Unit 1 main strainer exceeds the maximum established head loss for vortexing for the DEGB, reliance upon operator action to mitigate the event will be required for DEGB mitigation. New post-accident monitoring instruments were installed inside the recirculation sump to provide operators with indication and alarm if the level inside the sump drops below the vortexing limit. This approach was described in I&M's license amendment request (References 11 and 12) and the NRC's safety evaluation (Reference 13). Recent plant-specific strainer testing also determined that a flow reduction sequence results in a significant and acceptable reduction in head loss across the strainer. Reducing flow from a dual train configuration to a single train configuration would result in a reduction of predicted head loss from approximately 3.3 ft of water to approximately 1.1 ft of water.

Note that the results of the initial CNP-specific testing, described in I&M's previous extension request (Reference 7), indicated that the DEGB related strainer head loss would be less than the maximum allowed head loss to preclude vortexing, thereby eliminating the need for operator action due to the debris generated in a DEGB event. Based on the recently completed testing, the final design bases and supporting analysis (which will be completed prior to Unit 1 entry into Mode 4 at the end of the Spring 2008 Unit 1 refueling outage) may need to credit operator action for a DEGB consistent with Reference 10, Section 6, methodology.

Unit 2

During the Unit 2 Fall 2007 refueling outage, the existing recirculation sump strainer was replaced with two new design strainers, designated as the main strainer and the remote strainer (see Attachment 2). Installation of the new strainers resulted in a surface area increase from the previous value of approximately 85 ft² to approximately 1972 ft². The available flow area through the previous strainer was approximately 37 ft². The available flow area through the new strainers is approximately 591 ft².

The new strainers provide increased margin for ECCS and CTS pump suction head. The Unit 2 pump with the most limiting suction head requirements is the West Residual Heat Removal Pump. The maximum acceptable strainer head loss for this pump has been determined to be approximately 7.4 feet of water. However, for CNP, vortexing is more limiting than suction head. The maximum acceptable strainer head loss for vortexing, without operator action, has been determined to be approximately 3.2 feet of water. Based on recently completed testing of an approximately 1850 ft² area strainer (1972 ft² minus

assumed sacrificial blocked area of 122 ft²), using actual or simulated plant materials without consideration of chemical effects impacts or potential margin reductions associated with a fully vented sump, replacement of the existing Unit 2 strainer with larger, new design, 1972 ft² strainers, would result in an estimated head loss of approximately 0.77 feet of water for a DEGB, and approximately 0.43 feet of water for the DGBS defined in NEI 04-07. Therefore, replacement of the existing recirculation sump strainer with larger, new design strainers provides margin against containment debris loading with respect to both suction head and vortexing. The consideration of chemical effects impacts and/or potential margin reductions associated with a fully vented sump may demonstrate the need to credit operator action for a DEGB in the final Reference 10, Section 6, analyses (which will be completed prior to Unit 1 entry into Mode 4 at the end of the Spring 2008 Unit 1 refueling outage).

Unit 1 and Unit 2

CNP has been operating under compensatory measures since responding to NRC Bulletin 2003-01. Emergency procedures containing recirculation sump blockage mitigating actions are in place at CNP. Recirculation sump level switches were installed during the Unit 1 Cycle 21 and Unit 2 Cycle 17 refueling outages to alert operators to perform ECCS and CTS flow reductions to mitigate sump blockage effects should it occur during emergency procedure implementation. Additionally, the probability for the catastrophic failure assumed in the DEGB event is very low.

Therefore, replacement of the existing recirculation sump strainer with a larger, new design strainer, installation of the recirculation sump level switches, and the necessary procedural guidance, provides sufficient additional margin with respect to suction head and vortexing of the Residual Heat Removal and CTS pumps.

The new strainers will also provide increased margin against blockage or excessive wear of downstream components due to debris in the water. The previous strainer consisted of nominal 1/4 inch openings in a vertical screen and grating arrangement. The replacement strainers have nominal 1/12 inch openings. The CNP downstream effects analysis consists of three distinct elements:

- Ex-vessel blockage evaluations
- Component erosion/wear evaluations
- In-vessel evaluations

The ex-vessel blockage evaluations assessed the Residual Heat Removal System, Chemical and Volume Control System, Safety Injection System, and the CTS for blockage of passageways in equipment such as valves, nozzles, heat exchangers, and instrument tubing, assuming 1/8 inch diameter openings in the sump strainers. This assumed opening size

bounds the opening size of the replacement strainers. This evaluation concluded that all ECCS and CTS components can accommodate sump bypass particles without blockage.

As described in Section 3 of this attachment, the current schedule for completing component erosion/wear evaluations does not support completion of all analyses by December 31, 2007. However, the recently completed strainer head loss testing performed at the vendor's facility determined that the particulate debris in solution would be substantially reduced by the filtration associated with the debris bed formed on the strainers. For example, in a DEGB scenario, the turbidity of the recirculation fluid was reduced to a value just slightly above its pre-debris clean value within approximately 24 hours. Given the assumption that all small particulate debris will be transported to the strainer (the tested condition), the filtration capability of the strainer and associated debris bed provides reasonable assurance that the impact to downstream components from a wear and abrasion perspective would be negligible.

The following debris source reductions and additional plant modifications were completed during the Unit 1 Fall 2006 and Unit 2 Fall 2007 refueling outages:

- Removal of calcium silicate insulation from the pressurizer relief tank, pressurizer safety and relief valve pipe, and pressurizer relief tank drain piping inside the crane wall (see Attachment 2). This achieved consistency with the insulation assumed removed in the debris generation analysis.
- Removal of fiberglass insulation from one relief valve discharge line inside the crane wall was performed in Unit 1 during the Fall 2006 outage. No removal of fiberglass insulation was necessary in Unit 2 since the same condition did not exist. The CNP containments are now free of fiberglass except for areas that would not be subjected to the jet impingement forces associated with a pipe break that could lead to recirculation, or is an area that has been determined not to be limiting with respect to strainer head loss (e.g., reactor cavity).
- Removal of a significant portion of the qualified and unqualified labels within potential zones of influence (ZOIs) inside containment, and removal of a significant number of the unqualified labels inside containment.
- Extension of the front recirculation sump vents using collector boxes (see Attachment 2). These are connected to the existing 6 inch vent line that comes from the rear recirculation sump area and vents above the maximum flood level of the containment. The 6 inch vent line was also reconfigured to remove the previous horizontal flat plate design. These changes provide margin against downstream effects by removing potential strainer bypass areas that previously had a nominal 1/4 inch opening. Following the modification, the openings are no greater than the nominal 1/12 inch opening of the replacement strainer.
- Installation of debris interceptors to protect the drain path from the containment equalization - hydrogen skimmer (CEQ) fan rooms (see Attachment 2). These debris interceptors reduce the potential for debris blockage of these design flow routes.

- Installation of debris interceptors at the wide-range containment level instrumentation. These prevent plugging the bottom opening of the stilling well piping to ensure reliability of the level instruments.
- Capping of the existing 8 inch diameter crossover pipe between the recirculation sump and the lower containment sump. This prevents unfiltered water from bypassing the recirculation sump strainers and entering the recirculation sump. This change provides margin against downstream effects by removing a potential strainer bypass that previously had a nominal 1/4 inch opening.
- Installation of a flow opening in the Unit 2 lower containment sump to prevent water hold up in the CEQ fan rooms. In Unit 1, the CEQ fan rooms drain to the annulus (pipe tunnel) sump which has the necessary flow opening to prevent water hold up.
- Removal of the check valve internals from the drain lines in the Unit 2 West CEQ fan room to provide an unimpeded flow path to the containment sump. The check valve internals were previously removed in Unit 1.
- Installation of debris interceptors on the loop compartment side of the flow openings in the Unit 2 floodup overflow wall preventing the transport of larger debris from the loop compartment (location of the main strainer) to the containment annulus (location of the remote strainer). Deferral of this modification in Unit 1 until the Spring 2008 refueling outage was previously approved via Reference 8.
- Modification of the radiation shields on the annulus side of the flow openings in the Unit 2 floodup overflow wall preventing debris accumulation and potential blockage of the flow openings and facilitate flow from the loop compartment to the containment annulus. Deferral of this modification in Unit 1 until the Spring 2008 refueling outage was previously approved via Reference 8.

The following planned and in-progress testing and analyses are expected to demonstrate that there are additional margins. These will be completed prior to December 31, 2007.

- NEI 04-07 requires assumption of a ZOI for coatings of 10 times the diameter of the pipe break (10D). For the coating system (Carboguard 890) used at CNP within ZOI areas, test results have demonstrated that the assumed ZOI could be reduced to approximately 4D. A reduction in ZOI would significantly reduce the quantity of particulates in the debris load at the recirculation sump strainer because the quantity of coating debris is a function of the square of the ZOI diameter. This would result in an increase in head loss margin and a reduction in debris for downstream effects evaluations. Note that the results of initial testing, as described in I&M's previous extension request (Reference 7), indicated that the assumed ZOI could be reduced to approximately 1.4D. However, I&M intends to assume a ZOI of 5D for the coating system used at CNP. The 5D value is conservative with respect to the recent testing described above and industry guidance.
- In the CNP baseline analysis, the calcium silicate debris generated during an accident was assumed to result in 100 percent fines. I&M expects that test results will support an assumption of less than 100 percent fines generation for calcium silicate insulation fragments in the final debris generation analysis. This would represent a significant

decrease in the quantity of calcium silicate insulation fines assumed to reach, and potentially pass through the recirculation sump strainer.

- The results of the vendor strainer testing recently performed are expected to demonstrate that the quantity of fibrous and particulate debris passing through the strainer is significantly reduced in a period of time much less than the assumed 30-day mission time for downstream effects evaluations.

GL 2004-02 Basis for Continued Operation

In GL 2004-02, the NRC staff provided the basis for concluding that PWRs may continue to operate through December 31, 2007, while licensees implement the required corrective actions. The basis for continued operation provided in GL 2004-02 included the factors listed below. These factors will remain applicable to CNP during the period of the proposed extension. CNP-specific information is provided where appropriate.

- There is an extremely low probability of the most severe initiating event (i.e., large and intermediate break loss of coolant accidents (LOCAs)).
- Small LOCAs (which are still low probability events) would require less ECCS flow, take more time to use up the water inventory in the refueling water storage tank, and in some cases may not require recirculation.
- PWRs typically do not need to switch over to recirculation from the sump during a large break LOCA until greater than 20-30 minutes after LOCA initiation, and the elapsed time for all LOCAs will allow time for some of the debris to settle in other places within the containment. For CNP, the switchover to recirculation would occur 18 to 20 minutes after the event, which still allows for debris settling in low velocity areas.
- Coating debris, which is a major contributor to the latent debris in containment, would have a significant amount of time to settle.
- All PWRs have received approval by the NRC staff to credit leak-before-break for their largest reactor coolant system primary coolant piping. For CNP, Reference 14 documented NRC approval to credit the leak-before-break methodology to eliminate the dynamic effects (pipe whip and jet impingement) of postulated reactor coolant loop piping ruptures from the design basis of the plant. While leak-before-break is not being used to establish the design basis load on the recirculation sump strainer, it provides a basis for continued safe operation.
- It has been shown that low pressure ECCS pumps would be able to continue operating in many cases for some time under cavitation conditions. For CNP, vortexing is more limiting than cavitation. Vortexing is addressed above in the section titled "Mitigative Measures."
- In response to Bulletin 2003-01 (Reference 15), addressees have implemented, or will implement, interim compensatory measures to reduce the risk. For CNP, significant interim compensatory measures have been implemented in response to the concerns identified in Bulletin 2003-01. The NRC staff has reviewed these measures (Reference 16), and concluded that I&M was responsive to, and met the intent of the bulletin. The compensatory measures implemented by I&M included operator training on indications of, and responses to, recirculation sump clogging, more aggressive containment cleaning and increased foreign

material controls, ensuring containment drainage paths are unblocked, and ensuring recirculation sump screens are free of adverse gaps and breaches. I&M committed in Reference 7 to maintain the compensatory measures taken in response to NRC Bulletin 2003-01 until the start of the Spring 2008 Unit 1 refueling outage.

3. Challenges to Downstream Effects and Integrated Chemical Effects Analyses

As detailed below, the current schedule for completing component erosion/wear evaluations does not support completion of all analyses by December 31, 2007.

The component erosion/wear evaluations are being performed utilizing the methodology detailed in WCAP-16406-P, Revision 1, "Evaluation of Downstream Sump Debris Effects in Support of GSI-191," dated August 2007. The initial evaluations performed using this methodology indicated that several of the pump wear evaluations may require refinement of debris loading assumptions with respect to particulate debris constituents. Specifically, I&M has determined that the presence of cold galvanizing material (organic zinc product) is a significant contributor to the wear model. This contribution may be reduced based on additional testing. Therefore, I&M plans to conduct design basis accident (radiation and autoclave) testing on cold galvanizing material to determine if the assumed quantity of this material in the debris mixture may be reduced. I&M plans to complete this testing in early 2008, and to update the associated downstream effects analysis prior to Unit 1 entering Mode 4 at the end of the Spring 2008 refueling outage.

The in-vessel evaluations are to be performed using the methodology detailed in WCAP-16793-NP, Revision 0, "Evaluation of Long-Term Cooling Considering Particulate, Fibrous and Chemical Debris in the Recirculating Fluid," dated May 2007. I&M expects to contract with the CNP Nuclear Steam Supply System vendor, Westinghouse Electric Company LLC, to perform the in-vessel blockage evaluations. Westinghouse has been actively engaged in responding to requests for additional information regarding the in-vessel methodology. Westinghouse estimates that the in-vessel evaluations for CNP will not be completed until early 2008. I&M expects to complete review and acceptance of the in-vessel evaluations prior to Unit 1 entering Mode 4 at the end of the Spring 2008 refueling outage.

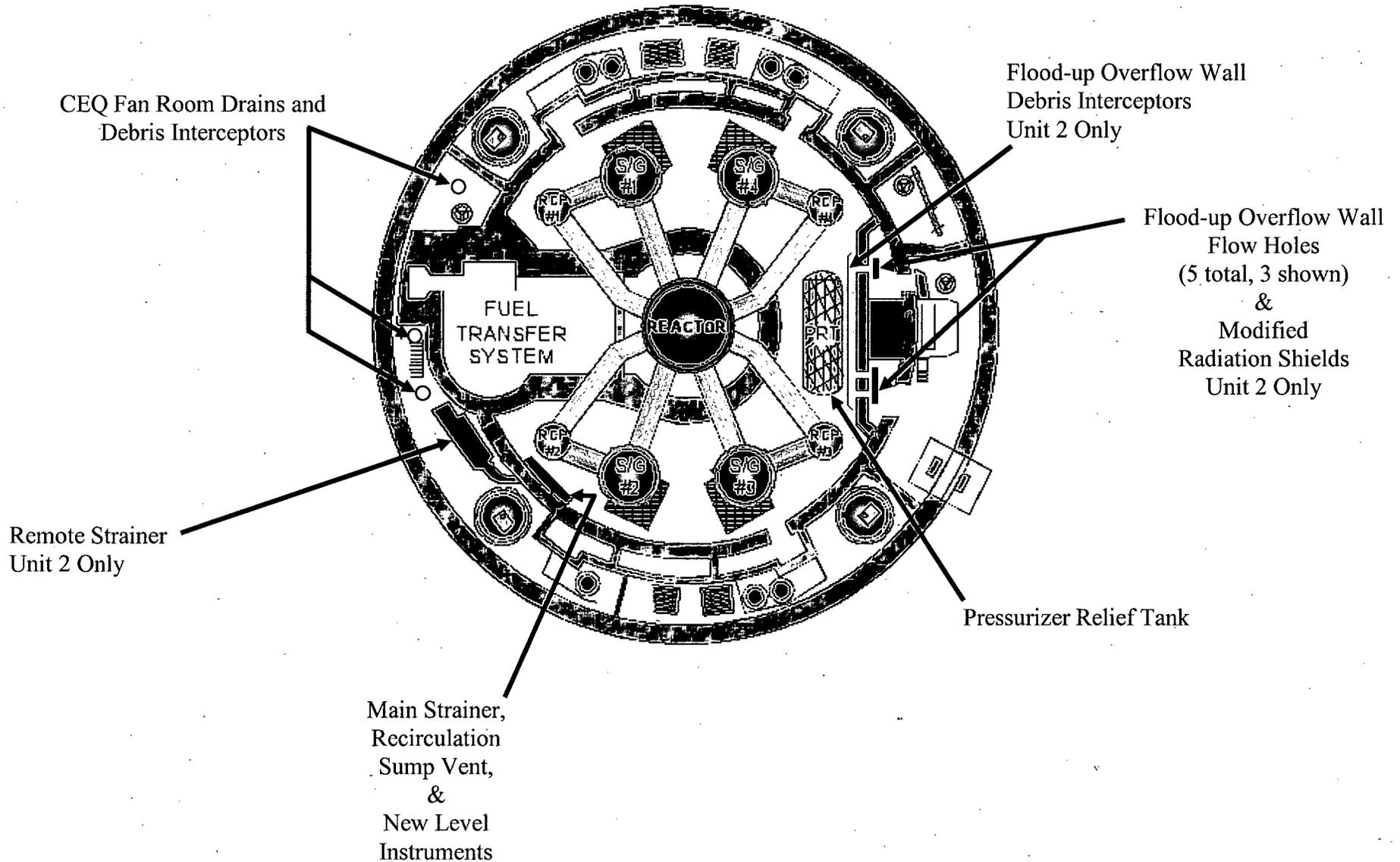
The 30-Day Integrated Chemical Effects testing was completed in September 2007. The vendor analysis of the information obtained during that testing has taken longer to complete than was expected. This is due in part to it being a first-of-its-kind test, along with the wide variation of head loss data over the duration of the test. The vendor (ALION Science & Technology) expects to deliver a finalized test report during the first quarter of 2008. I&M expects to complete review and acceptance of the integrated chemical effects test report prior to Unit 1 entering Mode 4 at the end of the Spring 2008 refueling outage.

4. References

1. NRC Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," dated September 13, 2004 (ML042360586).
2. Letter from D. P. Fadel, I&M, to NRC Document Control Desk, "90 Day Response to Nuclear Regulatory Commission Generic Letter 2004-02: Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," AEP:NRC:5054-04, dated March 4, 2005 (ML050750069).
3. Letter from J. N. Jensen, I&M, to NRC Document Control Desk, "Nuclear Regulatory Commission Generic Letter 2004-02 - Information Requested by September 1, 2005," AEP:NRC:5054-11, dated August 31, 2005 (ML052510512).
4. Letter from J. N. Jensen, I&M, to NRC Document Control Desk, "Nuclear Regulatory Commission Generic Letter 2004-02 - Revision of Commitments," AEP:NRC:5054-14, dated December 19, 2005 (ML060030459).
5. Letter from J. N. Jensen, I&M, to NRC Document Control Desk, "Update to Response to Nuclear Regulatory Commission Generic Letter 2004-02: Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors," AEP:NRC:6054-05, dated June 27, 2006 (ML061860257).
6. Letter from J. N. Jensen, I&M, to NRC Document Control Desk, "Revision of Commitment for Update of Response to Request for Additional Information Regarding Nuclear Regulatory Commission Generic Letter 2004-02," AEP:NRC:6054-07, dated December 19, 2006 (ML063610088).
7. Letter from J. N. Jensen, I&M, to NRC Document Control Desk, "Request for Extension of Completion Date for Unit 1 Actions in Response to Generic Letter 2004-02, 'Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors,'" AEP:NRC:6054-06, dated June 27, 2006 (ML061860251).
8. Letter from P. S. Tam, NRC, to M. K. Nazar, I&M, "Donald C. Cook Nuclear Plant, Unit 1 (DCCNP-1) - Extension of Completion Date for Actions in Response to Generic Letter 2004-02 (TAC No. MC4679)," dated July 28, 2006 (ML062020768).
9. SECY-06-0078, from L. A. Reyes, NRC Executive Director for Operation, to NRC Commissioners, "Status of Resolution of GSI-191, 'Assessment of [Effect of] Debris Accumulation on PWR Sump Performance,'" dated March 31, 2006 (ML053620174).

10. NEI, 04-07, "Pressurized Water Reactor Sump Performance Methodology," including associated NRC Safety Evaluation Report, dated December 2004 (ML041550332).
11. Letter from J. N. Jensen, I&M, to NRC Document Control Desk, "License Amendment Request to Revise Technical Specifications Associated with Generic Letter (GL) 2004-02," AEP:NRC:7036, dated June 27, 2007 (ML071910354).
12. Letter from J. N. Jensen, I&M, to NRC Document Control Desk, "Response to Requests for Additional Information re: License Amendment Request to Revise Technical Specifications Associated with Generic Letter (GL) 2004-02," AEP:NRC:7036-01, dated September 21, 2007 (ML072750687).
13. Letter from P. S. Tam, NRC, to M. K. Nazar, I&M, "Donald C. Cook Nuclear Plant, Units 1 & 2 (DCCNP-1 and DCCNP-2) - Issuance of Amendments Re: Containment Sump Modifications per Generic Letter 2004-02 (TAC Nos. MD5901 and MD5902)," dated October 18, 2007 (ML072780605).
14. Letter from S. A. Varga, NRC, to J. Dolan, I&M, issuing License Amendment Number 76 to Facility Operating License Number DPR-74, dated November 22, 1985 (ML021010521).
15. NRC Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors," dated June 9, 2003 (ML031600259).
16. Letter from D. W. Spaulding, NRC, to M. K. Nazar, I&M, "Donald C. Cook Nuclear Plant, Units 1 and 2 - Response to NRC Bulletin 2003-01, Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors," dated October 13, 2005 (ML052720004).

SKETCH OF MODIFICATIONS



ATTACHMENT 3 TO AEP:NRC:7054-05

REGULATORY COMMITMENTS

The following table identifies those actions committed to by Indiana Michigan Power Company (I&M) in this document. Any other actions discussed in this submittal represent intended or planned actions by I&M. They are described to the Nuclear Regulatory Commission (NRC) for the NRC's information and are not regulatory commitments.

Commitment	Date
All actions, other than completion of the downstream effects analysis, integrated chemical effects analysis, and Generic Letter (GL) 2004-02 licensing basis changes needed for final resolution of recirculation sump related issues in Donald C. Cook Nuclear Plant (CNP) Unit 1 and Unit 2 will be completed.	By December 31, 2007.
The downstream effects analysis and related licensing basis changes needed for final resolution of recirculation sump related issues in CNP Unit 1 and Unit 2 will be completed.	Prior to entry into Mode 4 at the end of the Spring 2008 Unit 1 refueling outage.
Full compliance with the requirements in the Applicable Requirements section of GL 2004-02 will be achieved for CNP Unit 1 and Unit 2.	Prior to entry into Mode 4 at the end of the Spring 2008 Unit 1 refueling outage.