



January 11, 2000

C0100-07

Docket Nos.: 50-315  
50-316

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

Donald C. Cook Nuclear Plant Units 1 and 2  
ACTIONS BEING TAKEN TO COMPLETE GENERIC LETTER 89-10 AND  
GENERIC LETTER 96-05 IMPLEMENTATION

This letter addresses the status of the Generic Letter 89-10 program (89-10 Program) implementation relative to the restart of Donald C. Cook Nuclear Plant (CNP) Units 1 and 2 from their current outages, and modifies previous commitments relative to Generic Letter 89-10 and Generic Letter 96-05 implementation and schedule. Indiana Michigan Power Company (I&M) is engaged in a comprehensive effort to ensure operability of 89-10 Program Motor-Operated Valves (MOVs) prior to restart of each CNP Unit, and subsequently, to complete Generic Letter 89-10 and Generic Letter 96-05 program implementation. These actions, described in the attachments to this letter, are required to address issues identified during NRC inspection and I&M self-assessment of the CNP 89-10 Program.

Attachment 1 provides an overview of actions underway to ensure operability of the 89-10 Program MOVs prior to restart of each unit, and a revised schedule for completion of program implementation. Attachment 1 also discusses the methodology being used to determine the MOV torque and thrust requirements, and a revision to the 89-10 Program scope based on the guidance contained in Generic Letter 89-10, Supplement 7. Attachment 2 delineates new commitments made in this correspondence. I&M considers previous related commitments superseded by the actions and commitments described in the attachments to this letter.

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Should you have any questions, please contact Mr. Robert C. Godley, Director of Regulatory Affairs, at (616) 466-2698.

Sincerely,



M. W. Rencheck  
Vice President Nuclear Engineering

/dms

Attachments

c: J. E. Dyer  
MDEQ – DW & RPD, w/o attachments  
NRC Resident Inspector  
R. Whale, w/o attachments

## ATTACHMENT 1 TO C0100-07

### I. INTRODUCTION

Indiana Michigan Power Company (I&M) is engaged in a comprehensive effort to ensure operability of 89-10 Program Motor-Operated Valves (MOV) prior to restart of each D. C. Cook Nuclear Plant (CNP) Unit, and subsequently, to complete Generic Letter 89-10 and Generic Letter 96-05 program implementation. The following discussion provides a brief background of the issues, an overview of actions underway to ensure operability of the 89-10 Program MOVs prior to restart of each unit, a description of the revised commitments, and a revised schedule for completion of Generic Letters 89-10 and 96-05 program implementation. Attachment 2 delineates new commitments made in this correspondence.

### II. BACKGROUND

In a June 3, 1996, letter to the NRC (Reference 1), I&M indicated it would complete implementation of the CNP 89-10 Program activities for CNP prior to the NRC's 89-10 Program close-out inspection scheduled for later that year. That close-out inspection was performed during October 1996. In its associated inspection report (Reference 2), the NRC indicated that the CNP 89-10 Program was not yet ready for closure. In September 1997, CNP Units 1 and 2 entered their current outages to resolve issues identified during an NRC design inspection. In 1998, the NRC conducted a subsequent 89-10 Program close-out inspection. The 1998 Inspection Report (Reference 3) concluded that while some progress had been made to complete the 89-10 Program, the program was not sufficiently complete to support NRC close-out review.

The 1998 inspection report identified a number of issues involving technical and programmatic deficiencies. These included untimely structural evaluations of butterfly valves and insufficient assessment of industry and vendor information for application to the CNP 89-10 program. The NRC concluded that these issues contributed to inadequate justification of assumptions in a number of the design-basis MOV calculations resulting in MOV operability issues. The NRC also raised concerns over the adequacy of the control of MOV calculations. In February 1999, with the assistance of outside industry personnel, I&M performed a self-assessment to further evaluate the CNP 89-10 Program. The composite findings of these inspection and assessment efforts indicated a need for significant corrective actions.

In response to these findings, I&M has formed an MOV Project Team and developed a broad action plan to address the concerns identified, and ensure operability of the 89-10 Program MOVs prior to restart of each CNP Unit. An overview of the actions being taken to address these issues and their corresponding schedule is provided below.

### III. DISCUSSION

In response to the issues identified during the NRC's 1998 89-10 Program closeout inspection and I&M's self-assessment, I&M is performing a comprehensive reevaluation of the CNP 89-10 Program. The scope and schedule for completing these activities are described below.

#### A. Actions Being Taken to Ensure 89-10 Program MOV Operability Prior to Restart

The following discussion provides an overview of the efforts underway to reevaluate and correct deficiencies identified with the CNP 89-10 Program, and ensure operability of 89-10 Program MOVs prior to restart of each CNP unit. I&M has determined these actions to be necessary to address Checklist Item 16, "Resolution of operability of motor operated valves in the GL 89-10 Program," as identified in the NRC's September 17, 1999, letter providing the latest update to the NRC Manual Chapter 0350 case specific checklist for restart of CNP (Reference 4).

##### *Review of Industry-Identified MOV Issues*

A review of industry operating experience has been performed to ensure MOV issues previously identified within the industry are being adequately considered and addressed.

##### *Design Basis Review*

A review is being performed to ensure that the design basis conditions for each 89-10 Program MOV have been adequately and accurately established, and appropriately documented. These efforts include:

- Reevaluation of MOV design basis differential pressure, temperature, and flow conditions
- Consideration of degraded voltage conditions
- Consideration of Environmental Qualification Program requirements
- Consideration of High Energy Line Break Program requirements
- Reevaluation of seismic/weak link design considerations

##### *MOV Calculations*

The 89-10 Program calculations are being reviewed and revised as necessary to ensure assumptions used are conservative based on industry experience. The Electric Power Research Institute (EPRI) MOV Performance Prediction Methodology (PPM), a

recognized conservative approach, will be used as the primary means for determining 89-10 Program MOV torque and thrust requirements for gate, globe, and butterfly valves. I&M plans to use other industry accepted methodologies to determine torque and thrust requirements where EPRI PPM cannot be applied. This issue is discussed further in Section III.B below.

#### *MOV Modifications*

Based on further review and evaluation of the 89-10 Program elements, I&M has identified a number of modifications necessary to ensure adequate MOV capability, including valve replacement and actuator modification. Development of the CNP Unit 2 modifications identified to date has been completed and implementation is in progress.

#### *MOV Walkdowns and Refurbishment*

As part of the current MOV project, I&M initially began performing intrusive walkdowns of the 89-10 Program MOVs to assess material condition, and initiate MOV refurbishment as necessary. Following inspection of several valves, I&M determined it would be more effective to discontinue the walkdowns, and instead, perform a refurbishment of all the remaining 89-10 Program MOVs. Therefore, with the exception of five CNP Unit 2 89-10 Program MOVs which were inspected during the MOV walkdowns, I&M plans to refurbish all 89-10 Program valves in preparation for a new baseline static test. Issues identified during the intrusive walkdown inspection of the five MOVs have been addressed. Material condition of the 89-10 Program MOVs continues to be documented as part of the refurbishment process. Following these inspection and maintenance activities, the MOV torque and limit switches are being set based on the design basis review and associated calculations.

#### *MOV Diagnostic Testing*

Following MOV inspection and/or refurbishment, all 89-10 Program MOVs are statically tested to re-baseline MOV performance.

### **B. Determination of 89-10 Program MOV Torque and Thrust Requirements**

In a February 28, 1991, response to Generic Letter 89-10 (Reference 5), I&M indicated that, where practicable, it would perform dynamic testing of the 89-10 Program MOVs at design basis differential pressure and/or flow conditions. I&M indicated further that where alternatives were used, a corresponding explanation would be documented, describing the alternative methodology. As part of the ongoing 89-10 Program activities, I&M performed a review of MOV test data previously acquired. Review of the MOV test data identified numerous issues questioning the suitability of

the data for establishing MOV performance requirements. Therefore, I&M intends to use the EPRI Performance Prediction Methodology (PPM) or other industry-accepted methods to establish 89-10 Program MOV torque and thrust requirements at design basis conditions in lieu of dynamic testing of the MOVs. Determination of the torque and thrust requirements and the corresponding bases for these determinations are being documented for all 89-10 Program MOVs in their respective calculations.

The EPRI PPM methodology has been previously reviewed by the NRC and determined to be an acceptable methodology for prediction of MOV torque and thrust requirements. NRC acceptance of this methodology is documented in a March 15, 1996, Safety Evaluation to EPRI (Reference 6) as supplemented February 20, 1997, (Reference 7). In Reference 6, the NRC indicated that it considers the EPRI PPM program to provide an acceptable methodology to predict the thrust or torque required to operate gate, globe, and butterfly valves within the scope of the program. Reference 6 did, however, identify specific limitations and conditions associated with the application and/or implementation of the EPRI models and methods. As committed during the NRC's 1998 89-10 Program close-out inspection (Reference 3), I&M has reviewed the NRC's SERs to identify the limitations and conditions associated with implementing the EPRI PPM methodology and has ensured that such limitations and conditions are properly addressed in implementation of the EPRI PPM methodology.

C. Revision of 89-10 Program Scope

As part of the ongoing MOV project activities, I&M has reviewed the scope of MOVs previously included in the CNP 89-10 Program. I&M intends to use the guidance provided in Generic Letter 89-10, Supplement 7 (Reference 8) in the determination of the CNP 89-10 Program MOV population and in the determination of 89-10 Program MOV pressure and flow conditions. Specifically, I&M is excluding from the CNP 89-10 Program scope "position-changeable valves," as defined in Generic Letter 89-10, Supplement 7, and excluding the effects of valve mispositioning from the determination of valve design basis conditions to the extent that such mispositioning is not required to be considered as part of the CNP licensing basis. This constitutes a change to commitments made previously in letters dated February 28, 1991, (Reference 5) and April 18, 1997, (Reference 9). As indicated in Generic Letter 89-10, Supplement 7, I&M will document this position in the CNP 89-10 Program description.

D. Periodic Verification of MOV Design Basis Capability

In NRC Generic Letter 96-05, dated September 18, 1996, (Reference 10), the NRC requested licensees to establish a program to verify periodically that safety-related MOVs continue to be capable of performing their safety functions. Generic Letter

96-05 also discussed several elements licensees should consider in establishing an MOV periodic verification program.

By letters dated November 7, 1996, (Reference 11), and April 18, 1997, (Reference 9), I&M responded to Generic Letter 96-05. In these letters, I&M discussed its plans and schedule for implementation of the CNP safety related MOV periodic verification program. I&M indicated it intended to implement a program under development by the Joint BWR and Westinghouse Owner's Group (JOG) program, and that the MOV scope, (i.e., MOV population) would remain the same as established in I&M's 89-10 program. I&M committed to implement its periodic verification program by the first quarter of 1998.

I&M still intends to participate in and develop an MOV periodic verification program based on participation in the JOG program in response to Generic Letter 96-05. I&M will develop and implement the CNP MOV periodic verification program as part of implementation of Generic Letter 89-10 and in accordance with the schedular commitment given in Section III.E below.

E. Schedule

NRC Inspection Report 50-315; 50-316/98020 (Reference 3) identified a number of issues requiring resolution to support final NRC closeout review of the CNP 89-10 Program. The inspection report cover letter indicated that closure of NRC review of the CNP 89-10 Program has been listed in the NRC Manual Chapter 0350 Restart Panel Case Specific Checklist (Item 16). However, as documented in the latest update of the CNP Case Specific Checklist, Checklist Item 16 is defined as "Resolution of operability of motor operated valves in the GL 89-10 Program," (Reference 4).

I&M is currently focussing on those activities necessary to ensure operability of the 89-10 Program MOVs prior to restart of each respective CNP unit. I&M is deferring completion of all activities to transition the current MOV Project to the long-term MOV program until following restart of each CNP unit from its current outage. Accordingly, I&M will complete NRC Manual Chapter 0350 Restart Panel Case Specific Checklist Item 16 and Generic Letters 89-10 and 96-05 program closure activities in accordance with the following schedule.

I&M will complete activities necessary to ensure operability of each CNP unit's 89-10 Program MOVs prior to restart of each unit. This will include the development and completion of program documentation that clearly describes the methodologies, processes, and controls that have been implemented to support valve operability.

I&M will complete implementation of the CNP 89-10 Program by December 15, 2000. CNP 89-10 Program completion will include actions necessary to

ensure that the CNP 89-10 Program elements are adequately defined and controlled via appropriate plant procedures.

I&M will complete implementation of the CNP safety-related MOV periodic verification program developed as requested by Generic Letter 96-05, and submit a summary description of the final program to the NRC, by December 15, 2000.

#### IV. CONCLUSION

I&M is taking comprehensive actions to assure operability of CNP 89-10 Program MOVs prior to restart of each CNP unit from its respective outage, and complete Generic Letters 89-10 and 96-05 program implementation. As implementation of these programs will not be complete until following restart of each unit, I&M is taking actions to ensure that the programmatic issues identified in the recent CNP 89-10 Program inspection and assessment activities are adequately addressed for each MOV in the CNP 89-10 Program prior to restart of each Unit. Activities needed to close out the Generic Letters 89-10 and 96-05 program implementation will be completed in accordance with the committed schedule delineated in Attachment 2 to this letter.



## REFERENCES

1. Letter from E. E. Fitzpatrick (I&M) to NRC dated June 3, 1996, "Donald C. Cook Nuclear Plant Units 1 and 2, Generic Letter 89-10 Safety Related Motor-Operated Valve Testing and Surveillance."
2. Letter from G. E. Grant (NRC) to E. E. Fitzpatrick (I&M) dated December 27, 1996, "NRC Motor-Operated valve (MOV) Close-Out Inspection Report No. 50-315/96012(DRS); 50-316/96012(DRS) and Notice of Violation."
3. Letter from J. A. Grobe (NRC) to R. P. Powers (I&M) dated November 9, 1998, "NRC Inspection Report 50-315/98020(DRS); 50-316/98020(DRS) and Notice of Enforcement Discretion."
4. Letter from J. A. Grobe (NRC) to R. P. Powers (I&M) dated September 17, 1999, "Case Specific Checklist Update for Restart of Donald C. Cook Plant."
5. Letter from M. P. Alexich (I&M) to T. E. Murley (NRC) dated February 28, 1991, "Generic Letter 89-10 Motor-Operated Valve Test Program."
6. Letter from A. C. Thadani (NRC) to T. E. Tipton (NEI) dated March 15, 1996, "Electric Power Research Institute (EPRI) Topical Report TR-103237, 'EPRI MOV Performance Prediction Program' (Revision 1)."
7. Letter from A. C. Thadani (NRC) to R. Beedle (NEI) dated February 20, 1997, "Supplement to Safety Evaluation on the Electric Power Research Institute (EPRI) Topical Report TR-103237, 'EPRI MOV Performance Prediction Program' (Revision 1)."
8. NRC Generic Letter 89-10, Supplement 7, dated January 24, 1996, "Consideration of Valve Mispositioning in Pressurized-Water Reactors."
9. Letter from E. E. Fitzpatrick (I&M) to NRC dated April 18, 1997, "Donald C. Cook Nuclear Units 1 and 2, Generic Letter 96-05 Periodic Verification of Design Basis Capability of Safety Related MOV Verification Program/Follow-Up Response."
10. NRC Generic Letter 96-05, dated September 18, 1996, "Periodic Verification of Design Basis Capability of Safety-Related Motor-Operated Valves."
11. Letter from E. E. Fitzpatrick (I&M) to NRC dated November 7, 1996, "Donald C. Cook Nuclear Plant Units 1 and 2, Generic Letter (GL) 96-05 Periodic Verification of Design Basis Capability of Safety Related Motor Operated Valves."

Attachment 2 to C0100-07

COMMITMENTS

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

Commitment	Date
I&M will document use of the Generic Letter 89-10, Supplement 7, position in the CNP 89-10 Program description.	Prior to restart of Unit 2
I&M will complete activities necessary to ensure operability of each CNP unit's 89-10 Program MOVs prior to restart of each unit. This will include the development and completion of program documentation that clearly describes the methodologies, processes, and controls that have been implemented to support valve operability.	Prior to restart of each unit.
I&M will complete implementation of the CNP 89-10 Program by December 15, 2000. CNP 89-10 Program completion will include actions necessary to ensure that the CNP 89-10 Program elements are adequately defined and controlled via appropriate plant procedures.	December 15, 2000
I&M will complete implementation of the CNP safety-related MOV periodic verification program developed as requested by Generic Letter 96-05, and submit a summary description of the final program to the NRC, by December 15, 2000.	December 15, 2000