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50-316

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

Donald C. Cook Nuclear Plant Units 1 and 2  
Third Six Month Status Report in Response to March 12, 2012, Commission Order Modifying  
Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External  
Events (Order Number EA-12-049)

References:

1. Letter from E. J. Leeds and M. R. Johnson, U. S. Nuclear Regulatory Commission (NRC), to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012, Agencywide Documents Access Management System (ADAMS) Accession No. ML12054A736.
2. Letter from J. P. Gebbie, Indiana Michigan Power Company (I&M), to NRC, "Donald C. Cook Nuclear Plant, Unit 1 and Unit 2, Overall Integrated Plan in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," AEP-NRC-2013-13, dated February 27, 2013, ADAMS Accession No. ML13101A381.
3. Letter from J. P. Gebbie, I&M, to NRC, "Donald C. Cook Nuclear Plant, Unit 1 and Unit 2, First Six Month Status Report in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," AEP-NRC-2013-71, dated August 26, 2013, ADAMS Accession No. ML13240A308.
4. Letter from J. P. Gebbie, I&M, to NRC, "Donald C. Cook Nuclear Plant, Unit 1 and Unit 2, Second Six Month Status Report in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design-Basis External Events (Order Number EA-12-049)," AEP-NRC-2014-17, dated February 27, 2014, ADAMS Accession No. ML14063A042.

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5. Letter from J. S. Bowen, NRC, to L. J. Weber, I&M, "Donald C. Cook Nuclear Plant, Units 1 and 2 - Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC NOS. MF0766 AND MF0767)," dated January 24, 2014, ADAMS Accession No. ML13337A325.

On March 12, 2012, the U. S. Nuclear Regulatory Commission issued Order EA-12-049 (Reference 1) to Indiana Michigan Power Company (I&M), the licensee for the Donald C. Cook Nuclear Plant (CNP) Units 1 and 2. Reference 1 was immediately effective and directed I&M to develop, implement, and maintain guidance and strategies to restore or maintain core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. Specific requirements were outlined in Attachment 2 of the enclosure of Reference 1.

Reference 1 required submission of an Overall Integrated Plan (OIP) pursuant to Section IV, Condition C. Reference 2 provided the CNP OIP. Reference 1 also requires submission of a status report at six-month intervals following submittal of the OIP. References 3 and 4 provided the first and second six-month status reports respectively. The purpose of this letter is to provide the third six-month status report pursuant to Section IV, Condition C.2, of Reference 1, delineating progress made in implementing the requirements of Reference 1. Enclosure 1 to this letter provides an affirmation. Enclosure 2 to this letter provides the third six-month update for the implementation of Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation of Strategies for Beyond-Design-Basis External Events," including an update of milestone accomplishments since the initial status report.

There have been no changes to the compliance method as documented in the Interim Staff Evaluation (Reference 5); however, some specific methods of implementation have changed. These changes have resulted in changes to the OIP Open Item list (Enclosure 2). Updated general descriptions of the coping strategies, including station modifications, are posted on the e-portal. Note: There is no change to the final implementation schedule, or need for relief at this time.

This letter contains no new or revised regulatory commitments. 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

JRW/kmh

Enclosures:

1. Affirmation
2. Indiana Michigan Power Company's Third Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

c: M. L. Chawla, NRC Washington, DC  
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MDEQ – RMD/RPS  
NRC Resident Inspector  
C. D. Pederson, NRC Region III  
A. J. Williamson, AEP Ft. Wayne, w/o enclosure

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 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.

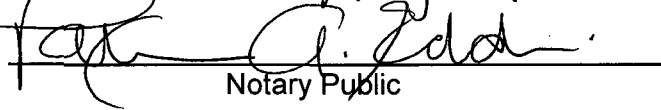
Indiana Michigan Power Company



Joel P. Gebbie  
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 27<sup>th</sup> DAY OF August, 2014

  
Notary Public

My Commission Expires 11-5-2018



PATRICIA ANN EDDIE  
Notary Public, State of Michigan  
County of Berrien  
My Commission Expires Nov. 05, 2018  
Acting in the County of Berrien

## Enclosure 2 to AEP-NRC-2014-66

### Indiana Michigan Power Company's Third Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

References for this enclosure are identified in Section 8.

#### 1. Introduction

Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant Units 1 and 2, developed an Overall Integrated Plan (OIP) (Reference 1), documenting the diverse and flexible strategies (FLEX), in response to Reference 2. This attachment provides an update of milestone accomplishments since submittal of the OIP. Although there have been no changes to the compliance method as documented in the Interim Staff Evaluation (ISE) (Reference 3), some specific methods of implementation have changed. Updated general descriptions of the coping strategies, including station modifications, are posted on the e-portal. These changes have resulted in changes to "Table 2 - OIP Open Items" below. Changes to OIP Open Items and Statuses identified in the previous OIP update are annotated with "strikeout." There is no change to the final implementation schedule, or need for relief/relaxation at this time.

#### 2. Milestone Accomplishments

Table 1 – Milestone Schedule contains the milestone(s) completed since the development of the OIP (Reference 1), and is current as of July 31, 2014.

#### 3. Milestone Schedule Status

The following table provides an update to Attachment 2 of the OIP. The table provides the activity status of each item, and whether the expected completion date has changed. These dates are planning dates subject to change as design and implementation details are developed.

Table 1 – Milestone Schedule			
Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit 60-Day Status Report	October 2012	Complete	
Submit OIP	February 2013	Complete	
<b>Submit Six-Month Updates:</b>			
Update 1	August 2013	Complete	
Update 2	February 2014	Complete	
Update 3	August 2014	Complete with this submittal	

**Table 1 – Milestone Schedule**

<b>Milestone</b>	<b>Target Completion Date</b>	<b>Activity Status</b>	<b>Revised Target Completion Date</b>
Update 4	February 2015	Not Started	
Walk-throughs or Demonstrations	June 2015	In Progress	
Perform Staffing Analysis	June 2014	Complete	
<b>Modifications:</b>			
Modifications Evaluation	December 2013	Complete	
Unit 1 Design Engineering	June 2014	In Progress	September 2014
Unit 1 Implementation Outage	November 2014	Not Started	October 2014
Unit 2 Design Engineering	December 2014	In Progress	
Unit 2 Implementation Outage	April 2015	Not Started	
<b>Storage:</b>			
Storage Design Engineering	March 2014	Complete	
Storage Implementation	November 2014	Complete	
<b>FLEX Equipment:</b>			
Procure On-Site Equipment	July 2014	In Progress	October 2014
Develop Strategies with Regional Response Center	April 2014	In Progress	September 2014
Install Off-Site Delivery Station (if Necessary) (No installation necessary)	NA	NA	
<b>Procedures:</b>			
Pressurized Water Reactor Owners Group (PRWOG) issues nuclear steam system supply-specific guidelines. (Modes 1-4)	November 2014	Complete	

**Table 1 – Milestone Schedule**

<b>Milestone</b>	<b>Target Completion Date</b>	<b>Activity Status</b>	<b>Revised Target Completion Date</b>
Pressurized Water Reactor Owners Group issues nuclear steam system supply-specific guidelines. (Modes 5 & 6)  Note: Site specific FLEX Support Guidelines will be credited for CNP Unit 1 compliance with EA-12-049, and will be modified as needed following issuance of PWROG guidelines for Mode 5 & 6.	December 2014	In Progress	
Create Site-Specific FLEX Support Guidelines (FSGs) – Unit 1	September 2014	In Progress	
Create Site-Specific FSGs – Unit 2	February 2015	In Progress	
Create Maintenance Procedures	August 2014	In Progress	October 2014
<b>Training:</b>			
Develop Training Plan	March 2014	Complete	
Training Complete	September 2014	In Progress	
Unit 1 FLEX Implementation	November 2014	In Progress	October 2014
Unit 2 FLEX Implementation	April 2015	In Progress	
Full Site FLEX Implementation	April 2015	In Progress	
Submit Completion Report	August 2015	Not Started	

#### **4. Changes to Compliance Method**

Although there have been no changes to the compliance method as documented in the ISE (Reference 3), some specific methods of implementation have changed. Updated general descriptions of the coping strategies, including station modifications, are posted on the e-portal. The most recently posted coping strategy description includes the following implementation method changes.

Crediting condensate storage tank level up to 16 feet 7 inches based on tornado missile evaluations.

Crediting Westinghouse SHIELD low leakage reactor coolant pump seals.

Providing temporary power to containment temperature recorders via a jumper from the Critical Control Room Power inverter.

Manual operation of Steam Generator (SG) Power Operated Relief Valves (PORVs) locally with hand wheels rather than pneumatically.

Removal of the West Essential Service Water (ESW) pump discharge strainer lid and replacement with a temporary lid equipped with a hose connection to accept discharge of the Regional Response Center raw water pump, rather than removal of a spool piece on the west ESW supply header and installation of a flange with hose connections on the downstream side.

Additionally, two rather than three, 250 kW diesel generators (DG) will be available to power the three planned FLEX Boric Acid (BA) Pumps, because one 250 kW DG is capable of powering two FLEX BA Pumps. Therefore, two FLEX BA Pumps and one 250 kW DG will provide N capability for the site, and one additional FLEX BA Pump and one additional 250 kW DG will provide N+1 capability for the site.

Also, one 480 Vac, 350 kW, three-phase DG will provide the N+1 FLEX electrical capability. The 350 kW FLEX generator will supply N+1 600 Vac loads through a 480/600 Vac step up transformer. The 350 kW DG will also provide 120 Vac to the output of each of the four Control Room Instrument Distribution (CRID) Isolimiter Transformers as an alternate means of providing 120 Vac CRID instrument power. The small 6 kW, 120 Vac portable DGs previously credited for providing the N+1 capability will now provide defense in depth.

Some of these changes have resulted in changes to "Table 2 - OIP Open Items" below.

## **5. Need for Relief/Relaxation and Basis for the Relief/Relaxation**

I&M expects to comply with the order implementation date and no relief/relaxation is required at this time.

## **6. Open Items from OIP and Draft Safety Evaluation**

The following tables provide a summary of the open items documented in the OIP or the Draft Safety Evaluation and the status of each item.

<b>Table 2 - OIP Open Items</b>		
<b>Pending Action</b>	<b>OIP Open Item</b>	<b>Status</b>
1	Completion of FLEX equipment storage facilities.	In Progress Complete
2	Perform final validation of timing requirement to route alternate suction source to Turbine Driven Auxiliary Feed Water (TDAFW) pump.	Not Started In Progress



<b>Table 2 - OIP Open Items</b>		
<b>Pending Action</b>	<b>OIP Open Item</b>	<b>Status</b>
3	Implement administrative controls program for FLEX related equipment.	Not Started In Progress
4	A systematic approach to training will be used to evaluate training requirements for station personnel based upon changes to plant equipment, implementation of FLEX portable equipment, and new or revised procedures that result from implementation of the FLEX strategies.	In Progress Complete
5	Complete detailed load shedding and battery duration analysis of Train A and Train B 250 Volt (V) direct current batteries to validate final FLEX implementation strategy, including required procedure changes.	Not Started Complete
6	Modification to TDAFW pump suction piping from Essential Service Water (ESW) system to provide connection point from the discharge of the fire water pumps alternate sources.	In Progress
7	Complete detailed load shedding and battery duration analysis of N-Train battery to validate final FLEX implementation strategy, including required procedure changes.	Not Started Complete
8	Develop FSGs and associated procedure revisions to implement FLEX mitigation strategies.	In Progress
9	<del>Modify the fire protection header inside the Turbine Building to provide an adequately sized connection to enable transfer of water to Auxiliary Feedwater (AFW) pump suction.</del>  Modification of fire protection not required. Condensate Storage Tanks are the credited Auxiliary Feedwater water supply until the infinite source (Lake Michigan) is made available.	NA
10	<del>Permanent nitrogen bottle racks will be installed near each steam generator power operated relief valve operating station with hose and regulators to align for local manual control.</del>  Proceduralize handwheel operation of SG PORV.	In Progress Complete
11	Modification to connect portable diesel generator (DG) to 600 Vac bus 11D and 21D.	In Progress

Table 2 - OIP Open Items		
Pending Action	OIP Open Item	Status
12	<p><del>Modification to connect one 6 kW portable DG to each control room instrumentation distribution 120 V Instrument Distribution Panel.</del></p> <p>Fabricate cable to connect one 6 kW portable DG to each control room instrumentation 120 V isolimiter transformer.</p>	In Progress
13	Modification to connect portable DG to motor control center (MCC) ABD-B to provide alternate power supply to N-Train battery charger.	In Progress
14	Modification to place a new hose connection in the motor driven AFW discharge line in the east main steam stop enclosure.	In Progress
15	<p><del>4160 V alternating current (AC) bus 1A (2A) will be modified to allow connection of external 4160 VAC three-phase portable DG.</del></p> <p>Modification not needed. 4kV leads will be fabricated and stored to allow connection of an external 4160 Vac three-phase portable DG to the load side of the breaker.</p>	In Progress
16	<p>Replace Reactor Coolant Pump (RCP) seals with Westinghouse SHIELD low leakage seals. <del>On Hold pending reevaluation of Generation 3 SHIELD design.</del></p>	<p><del>On Hold</del></p> <p>In Progress</p>
17	Modification adding a portable boron addition pump powered by a dedicated portable DG.	In Progress
18	Monitor tanks modification and associated strategy not required.	N/A
19	Modification to provide power to middle boric acid evaporator feed pump.	In Progress
20	Perform containment analysis to validate that containment integrity can be maintained until containment cooling can be restored during Phase 3.	<p>In Progress</p> <p>Complete</p>

Table 2 - OIP Open Items		
Pending Action	OIP Open Item	Status
21	<p><del>Modify Chemical and Volume Control System reciprocating positive displacement pump discharge flange connection to allow connection of portable boron addition pump.</del></p> <p>Modify Chemical and Volume Control System charging header to allow connection of portable pump for boron addition and RCS makeup.</p>	In Progress
22	Strategy changed to use existing hose connections on fire test header at the Fire Pump House. Modification of fire test header not needed.	NA
23	Modify boric acid transfer pump (BATP) suction header to add connection points.	In Progress Complete
24	Modify BATP discharge header to add connection points.	In Progress Complete
25	Modification to install standpipe not required. Strategy revised to use hose connections.	N/A
26	Fuel consumption will be finalized when equipment has been procured and tested.	In Progress Complete
27	Perform calculation to verify time required to establish flow to the Reactor Coolant System (RCS) in MODE 6 with the Reactor Cavity filled.	In Progress
28	Modification of boron injection tank downstream vent not required. Strategy changed to use existing Safety Injection Pumps discharge header vents and drains.	N/A
29	<p>Fabricate a tool to provide large volume Phase 3 raw water tie-in to ESW supporting component cooling water cooling for Residual Heat Removal (RHR).</p> <p><del>Note: New scope to address Phase 3 restoration of RHR.</del></p>	In Progress
30	<p>Modify 600 Vac MCC circuit breakers to provide Phase 2 electrical power connections to close safety injection (SI) accumulator discharge valves.</p> <p><del>Note: New scope addresses Phase 2 need to close SI accumulator discharge valves to prevent nitrogen injection from the SI accumulators</del></p>	In Progress

Note: The previous Six Month Status Report included Table 3, "ISE Open Items." That table has not been included in this Six Month Status Report because ISE Open Item and Confirmatory Item responses will be provided in separate correspondence if required.

## **7. Potential Draft Safety Evaluation Impacts**

I&M has not yet received a draft SE; therefore no potential impacts can be determined. The changes identified in Section 4 above occurred subsequent to issuance of the Reference 3 ISE.

## **8. References**

The following references support the updates to the OIP described in this attachment.

1. Letter from J. P. Gebbie, I&M, to NRC, "Donald C. Cook Nuclear Plant, Unit 1 and Unit 2, Overall Integrated Plan in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," AEP-NRC-2013-13, dated February 27, 2013, ADAMS Accession No. ML13101A381.
2. Letter from E. J. Leeds and M. R. Johnson, NRC, to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012, ADAMS Accession No. ML12054A736.
3. Letter from J. S. Bowen, NRC, to L. J. Weber, I&M, Subject: "Donald C. Cook Nuclear Plant, Units 1 and 2 - Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC Nos. MF0766 and MF0767)," dated January 24, 2014.