

Samuel L. Belcher
Senior Vice President and Chief Operating Officer

February 27, 2014
L-14-025

10 CFR 2.202

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-001

SUBJECT:

Beaver Valley Power Station, Unit Nos. 1 and 2
Docket No. 50-334, License No. DPR-66
Docket No. 50-412, License No. NPF-73
Davis-Besse Nuclear Power Station
Docket No. 50-346, License No. NPF-3
Perry Nuclear Power Plant
Docket No. 50-440, License No. NPF-58

FirstEnergy Nuclear Operating Company's (FENOC's) 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) and Relief/Relaxation Request (TAC Nos. MF0841, MF0842, MF0961, and MF0962)

On March 12, 2012, the Nuclear Regulatory Commission (NRC or Commission) issued an order (Reference 1) to FENOC. Reference 1 was immediately effective and directs FENOC to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (Reference 2) and an overall integrated plan pursuant to Section IV, Condition C. Reference 2 endorses industry guidance document Nuclear Energy Institute (NEI) 12-06, Revision 0 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the FENOC initial status report regarding mitigation strategies. Reference 5 provided the FENOC overall integrated plan for Beaver Valley Power Station, Unit Nos. 1 and 2 (BVPS), Davis-Besse Nuclear Power Station (DBNPS), and Perry Nuclear Power Plant (PNPP).

Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Reference 3 provides direction regarding the content of the status reports. The purpose of this letter is to provide the second

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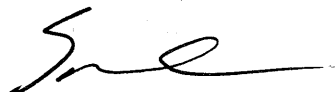
six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. The attached reports for BVPS, DBNPS, and PNPP (Attachments 1, 2, and 3, respectively) provide an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

As described in the BVPS status report (Attachment 1), FENOC plans to request relief/relaxation of the Reference 1 requirement for completion of full implementation for Unit No. 1 until the fall of 2016 to allow for reactor coolant pump shutdown seal installation. The request is being submitted under a separate letter.

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact Mr. Thomas A. Lentz, Manager – Fleet Licensing, at 330-315-6810.

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 27, 2014.

Respectfully submitted,



Samuel L. Belcher

Attachments:

1. Beaver Valley Power Station Second 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
2. Davis-Besse Nuclear Power Station Second 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
3. Perry Nuclear Power Plant Second 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:

1. NRC Order Number EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012

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2. NRC Interim Staff Guidance JLD-ISG-2012-01, Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, Revision 0, dated August 29, 2012
3. NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, dated August 2012
4. FirstEnergy Nuclear Operating Company's (FENOC's) Initial 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), dated October 26, 2012
5. FirstEnergy Nuclear Operating Company's (FENOC's) 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), dated February 27, 2013

cc: Director, Office of Nuclear Reactor Regulation (NRR)
NRC Region I Administrator
NRC Region III Administrator
NRC Resident Inspector (BVPS)
NRC Resident Inspector (DBNPS)
NRC Resident Inspector (PNPP)
NRC Project Manager (BVPS)
NRC Project Manager (DBNPS)
NRC Project Manager (PNPP)
Ms. Jessica A. Kratchman, NRR/JLD/PMB, NRC
Director BRP/DEP (without Attachments)
Site BRP/DEP Representative (without Attachments)
Utility Radiological Safety Board (without Attachments)

Attachment 1
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Beaver Valley Power Station Second 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
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1 Introduction

FirstEnergy Nuclear Operating Company (FENOC) developed an Overall Integrated Plan (OIP) for Beaver Valley Power Station, Unit Nos. 1 and 2 (Reference 1 in Section 8), documenting the diverse and flexible strategies (FLEX), in response to Reference 2. This attachment provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

The following milestone(s) have been completed since July 19, 2013 and are current as of January 31, 2014.

- Completed the Unit 1 plant modifications targeted for 1R22 (fall 2013 refueling outage).

3 Milestone Schedule Status

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

The revised milestone target completion dates do not impact the order implementation date.

Milestone	Target Completion Date	Activity Status (as of 1/31/14)	Revised Target Completion Date
Submit FLEX Integrated Implementation Plan	02/28/13	Complete	
6 Month NRC Status Updates	08/28/15	Started	
<i>Update 1</i>	08/28/13	Complete	
<i>Update 2</i>	02/28/14	Started	
<i>Update 3</i>	08/28/14	Not Started	
<i>Update 4</i>	02/27/15	Not Started	
<i>Update 5</i>	08/28/15	Not Started	
Complete FLEX Strategy Review	March-2013	Complete	
Validation	February-2015	Not Started	
<i>Walk-throughs or Demonstrations</i>	February-2015	Not Started	
Complete Staffing Analysis	November-2014	Started	
<i>Submit NEI 12-01 Phase 1 Staffing Study</i>	April-2013	Complete	
<i>Submit NEI 12-01 Phase 2 Staffing Study</i>	November-2014	Started	
Complete Plant Modifications	November-2015	Started	
<i>Target plant modifications</i>	April-2013	Complete	
Unit 1 Modifications complete	May-2015	Started	
<i>Complete 1R22 outage modifications</i>	November-2013	Complete	
<i>Complete on-line modifications</i>	February-2015	Started	
<i>Complete 1R23 outage modifications</i>	May-2015	Started	
Unit 2 Modifications complete	November-2015	Started	
<i>Complete 2R17 outage modifications</i>	May-2014	Started	
<i>Complete on-line modifications</i>	August-2015	Started	
<i>Complete 2R18 outage modifications</i>	November-2015	Started	
FLEX Storage Complete	March-2015	Started	
<i>Complete Building Design</i>	December-2013	Started	June-2014
<i>Commence Construction</i>	June-2014	Not Started	
<i>Complete Construction</i>	March-2015	Not Started	
River (UHS) Access Complete	October-2014	Started	
<i>Fence & Gate Modification Design</i>	February-2014	Started	
<i>New Fence & Gate Construction</i>	August-2014	Not Started	
<i>Security Barrier Pipe Penetrations Design</i>	January-2014	Started	March-2014
<i>Security Barrier Pipe Penetration Construction</i>	October-2014	Not Started	
On-site FLEX Equipment	December-2014	Started	
<i>Confirm FLEX Equipment Requirements</i>	November-2013	Completed	
<i>FLEX Equipment Ordered</i>	December-2013	Started	June-2014
<i>FLEX Equipment Delivered</i>	December-2014	Not Started	
Off-site FLEX Equipment	April-2015	Started	
<i>Develop Strategies with RRC</i>	June-2014	Started	
<i>Phase 3 Site Access Strategies in Place</i>	October-2014	Started	
<i>Complete Near Site Staging Location (as needed)</i>	April-2015	Not Started	
Procedures Complete	December-2014	Started	
<i>PWROG issues NSSS-specific guidelines</i>	June-2013	Complete	
<i>Issue Beaver Valley FSG</i>	June-2014	Started	

Milestone	Target Completion Date	Activity Status (as of 1/31/14)	Revised Target Completion Date
<i>Issue Maintenance Procedures</i>	December-2014	Not Started	
Training Complete	April-2015	Started	
<i>Develop Training Plan</i>	September-2014	Started	
<i>Implement Training</i>	April-2015	Not Started	
Submit Completion Report	November-2015	Not Started	

4 Changes to Compliance Method

There are no changes to the compliance method as documented in the OIP (Reference 1).

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation

FENOC intends to request relief/relaxation of the Reference 2 requirement for completion of full implementation for Beaver Valley Power Station Unit No. 1 (BVPS-1) by the spring of 2015. As described in the OIP, some requirements of the mitigation strategies are dependent upon installation of Westinghouse low leakage reactor coolant pump (RCP) shutdown seals (SHIELD® seals). Due to the need to enhance the design of these seals, FENOC intends to request relief/relaxation of the requirement for completion of full implementation at BVPS-1 until the fall of 2016 for RCP shutdown seal installation. This would allow two refueling outages to install all three enhanced RCP shutdown seals at BVPS-1.

6 Open Items from Overall Integrated Plan and Interim Staff Evaluation

The following tables provide a summary of the open items documented in the OIP or the Interim Staff Evaluation (ISE) (Reference 3) and the status of each item.

Overall Integrated Plan Open Item	Status
OI 1. Finalize the location of the FLEX storage building. The deployment routes, distances, and times provided in this report are bounded for the currently proposed locations but will be updated as necessary.	Complete. The storage building will be located at the alternate proposed storage building location between the Unit 1 diesel generator building and the switchyard, consistent with the original OIP. Deployment routes, distances and times are unaffected.
OI 2. Perform containment evaluation based on the boundary conditions described in Section 2 of NEI 12-06. Based on the results of this evaluation, required actions to ensure maintenance of containment integrity and required instrument function will be developed.	Started. A MAAP-DBA calculation based on low leakage RCP seals is in progress and is expected to be completed by June 2014. Based on current bounding

Overall Integrated Plan Open Item	Status
	assessment and preliminary results, containment integrity and instrument function are not challenged for at least six days.
OI 3. Modify the RWST [refueling water storage tank] at each unit to protect it from tornado missiles or identify a borated source that is protected from tornados and can be utilized to provide core cooling when steam generators are not available.	Complete. RWSTs are desired but not required to implement the baseline FLEX strategy. For RCS inventory/boration, the water sources are the boric acid storage tanks with inventory loss limited by low leakage RCP seals. The preferred water sources for make up to the SFPs, if needed, are the RWSTs. However, the Ohio River is considered protected against all hazards and would be used if both RWSTs were not available.

Interim Staff Evaluation Open Item	Status
3.2.1.6.A Verify that the TDAFW [turbine driven auxiliary feedwater] pump exhaust stacks are adequately protected from tornado missile hazards.	Started.
3.2.1.8.A Verify resolution of the generic concern associated with the modeling of the timing and uniformity of the mixing of a liquid boric acid solution injected into the RCS [reactor coolant system] under natural circulation conditions potentially involving two-phase flow.	Complete. The analyses and evaluations supporting the OIP demonstrate that the FLEX RCS makeup pump is being implemented more than one hour prior to the loop flow rate decreasing below the loop flow rate corresponding to single-phase natural circulation for the assumed highest applicable leakage rate of 4 gpm at normal operating pressure and temperature for the reactor coolant pump seals and unidentified reactor coolant system leakage.

ISE Confirmatory Item	Status
3.1.1.4.A Confirm that primary and secondary staging areas for the RRC [regional response	Not started.

ISE Confirmatory Item	Status
center] equipment have been selected and will meet the requirements of the applicable site response plan.	
3.1.2.4.A Confirm that the primary and secondary staging areas have been identified and that the plan for the use of offsite resources will comply with NEI 12-06, Section 6.2.3.4 regarding the need to evaluate for flooding hazard. This confirmation should include a description of the methods to be used to deliver the equipment to the site.	Not started.
3.1.3.1.A Confirm that the location of the storage and protection building for FLEX equipment has been identified. Confirm that the FLEX storage building is designed to withstand tornado missiles at a level equal to, or greater than, the plant's tornado missile design basis.	Started.
3.1.3.4.A Confirm that the licensee's plan for the use of offsite resources would provide reasonable assurance that the plan will comply with NEI 12-06, Section 7.3.4 regarding high wind hazards.	Not started.
3.1.4.4.A Confirm that the licensee's plan for the use of offsite resources would provide reasonable assurance that the plan will comply with NEI 12-06 Section 8.3.4 regarding snow, ice and extreme cold hazards.	Not started.
3.2.1.1.A Confirm that the licensee has verified that reliance on the NOTRUMP code for the ELAP [extended loss of AC power] analysis of Westinghouse plants is limited to the flow conditions prior to reflux condensation initiation. This includes specifying an acceptable definition for reflux condensation cooling.	Not started.
3.2.1.1.B Confirm that the application of the WCAP-17601 analysis simulating the ELAP transient is properly established.	Not started.
3.2.1.2.A Confirm that, if the licensee continues to credit SHIELD shutdown seals, as planned, (e.g., 1 gallon per minute leakage/seal) in the ELAP analyses for the RCS response, then the impacts of the Westinghouse 10 CFR Part 21 report, "Notification of the Potential Existence of Defects Pursuant to 10 CFR Part 21," dated July 26, 2013 (ADAMS Accession No. ML13211A168) on the use of the low seal leakage rate in the ELAP analysis are addressed.	Started.

ISE Confirmatory Item	Status
3.2.1.2.B Confirm that if the seals are changed, the acceptability of the seals used is addressed, and the RCP seal leakage rates for use in the ELAP analysis are justified.	Not started.
3.2.2.A Since the RWSTs are not currently fully protected against tornado missiles, confirm that the licensee has completed their review to determine whether or not the RWST will need to be further protected against missile hazards.	Complete. See OI 3 above.
3.2.2.B Confirm that opening doors provides adequate ventilation for SFP [spent fuel pool] area.	Not started.
3.2.3.A Confirm that containment evaluations for all phases are performed based on the boundary conditions described in Section 2 of NEI 12-06. Based on the results of this evaluation, confirm that required actions to ensure maintenance of containment integrity and required instrument function have been developed.	Not started.
3.2.4.2.A Confirm that the licensee has clarified why the Integrated Plan stated the maximum temperature of the Unit 1/Unit 2 AFW [auxiliary feedwater] pump rooms would reach 115.9/112.3 degrees Fahrenheit (°F), respectively, while Calculation 8700-DMC-2312, described during the audit process, indicated that the maximum temperature would reach 142.9°F.	Not started.
3.2.4.2.B Confirm that the licensee has provided an analysis or calculation to demonstrate that the dissipation of heat generated by the batteries via natural circulation will be adequate to maintain the temperatures in the battery rooms within acceptable levels.	Started.
3.2.4.2.C Confirm that the licensee has addressed how hydrogen concentration in the battery rooms will be limited to acceptable levels.	Started.
3.2.4.6.A Confirm that the licensee has completed a review of Unit 1 AFW room and developed any plans required to maintain a suitable environment.	Not started.
3.4.A Confirm that the licensee has fully addressed considerations (2) through (10) of NEI 12-06, Section 12.2, Minimum Capability of Off-Site Resources, which requires each site to establish a means to ensure the necessary resources will be available from off-site.	Not started.

7 Potential Interim Staff Evaluation Impacts

There are no potential impacts to the ISE identified at this time.

8 References

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

1. FirstEnergy Nuclear Operating Company's (FENOC's) 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), dated February 27, 2013.
2. NRC Order Number EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012.
3. Beaver Valley Power Station, Units 1 and 2 – Interim Staff Evaluation Related To Overall Integrated Plan In Response To Order EA-12-049 (Mitigation Strategies), dated January 29, 2014.

Attachment 2
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Davis-Besse Nuclear Power Station Second 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
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1 Introduction

FirstEnergy Nuclear Operating Company (FENOC) developed an Overall Integrated Plan (OIP) for Davis-Besse Nuclear Power Station (Reference 1 in Section 8), documenting the diverse and flexible strategies (FLEX), in response to Reference 2. This attachment provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

The following milestone(s) have been completed since July 19, 2013 and are current as of January 31, 2014.

- PWROG issued NSSS-specific guidelines.

3 Milestone Schedule Status

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

The revised milestone target completion dates do not impact the order implementation date.

Milestone	Target Completion Date	Activity Status (as of 1/31/14)	Revised Target Completion Date
Submit FLEX Integrated Implementation Plan	02/28/13	Complete	
6 Month NRC Status Updates	02/28/16	Started	
<i>Update 1</i>	08/28/13	Complete	
<i>Update 2</i>	02/28/14	Started	
<i>Update 3</i>	08/28/14	Not Started	
<i>Update 4</i>	02/27/15	Not Started	
<i>Update 5</i>	08/28/15	Not Started	
<i>Update 6</i>	02/28/16	Not Started	
Validation	April-2016	Not Started	
<i>Walk-throughs or Demonstrations</i>	April-2016	Not Started	
Complete Staffing Analysis	October-2015	Not Started	
<i>Submit NEI 12-01 Phase 2 Staffing Study</i>	October-2015	Not Started	
Complete Plant Modifications	April-2016	Started	
<i>Target plant modifications</i>	May-2013	Complete	
Modifications complete	April-2016	Started	
<i>Complete 1R18 outage modifications</i>	June-2014	Complete*	
<i>Complete on-line modifications</i>	February-2016	Started	
<i>Complete 1R19 outage modifications</i>	April-2016	Started	
<i>Complete Communications Modifications</i>	April-2016	Started	
<i>Complete SFP Level Indication Modifications</i>	April-2016	Started	
FLEX Storage Complete	April-2016	Not Started	
<i>Complete Building Design</i>	December-2014	Not Started	March-2015
<i>Commence Construction</i>	June-2015	Not Started	
<i>Complete Construction</i>	April-2016	Not Started	
On-site FLEX Equipment	April-2016	Started	
<i>Confirm FLEX Equipment Requirements</i>	January-2014	Started	July-2014
<i>FLEX Equipment Ordered</i>	January-2015	Not Started	
<i>FLEX Equipment Delivered</i>	April-2016	Not Started	
Off-site FLEX Equipment	April-2016	Started	
<i>Develop Strategies with RRC</i>	June-2014	Started	August-2015
<i>Phase 3 Site Access Strategies in Place</i>	April-2016	Not Started	
<i>Complete Near Site Staging Location (as needed)</i>	April-2016	Not Started	
Procedures Complete	April-2016	Started	
<i>PWROG issues NSSS-specific guidelines</i>	August-2013	Complete	
<i>Issue Davis-Besse FLEX Strategy Guidelines</i>	June-2015	Not Started	
<i>Issue Maintenance Procedures</i>	April-2016	Not Started	
Training Complete	April-2016	Not Started	
<i>Develop Training Plan</i>	September-2015	Not Started	
<i>Implement Training</i>	April-2016	Not Started	
Submit Completion Report	April-2016	Not Started	

* Modifications are targeted for 1R19 and on-line; none targeted for 1R18.

4 Changes to Compliance Method

There are no changes to the compliance method as documented in the OIP (Reference 1).

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation

FENOC expects to comply with the order implementation date. Relief/relaxation is not required at this time.

6 Open Items from Overall Integrated Plan and Interim Staff Evaluation

The following tables provide a summary of the open items documented in the OIP or the Interim Staff Evaluation (ISE) and the status of each item.

Overall Integrated Plan Open Item	Status
OI 1. Finalize locations for FLEX storage buildings. Deployment routes, distances and times contained in the submittal are bounded for the currently proposed locations but will be updated as necessary.	Started.
OI 2. Finalize the strategy for providing a protected source of borated water to support FLEX strategies.	Started.
OI 3. Determine if a mobile boration unit and/or water purification unit is required to support the FLEX strategies.	Started.

Interim Staff Evaluation Open Item	Status
N/A	N/A

7 Potential Interim Staff Evaluation Impacts

There are no potential impacts to the ISE identified at this time.

8 References

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

1. FirstEnergy Nuclear Operating Company's (FENOC's) 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), dated February 27, 2013.
2. NRC Order Number EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012.

Attachment 3
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Perry Nuclear Power Plant Second 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
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1 Introduction

FirstEnergy Nuclear Operating Company (FENOC) developed an Overall Integrated Plan (OIP) for Perry Nuclear Power Plant (Reference 1 in Section 8), documenting the diverse and flexible strategies (FLEX), in response to Reference 2. This attachment provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

The following milestone(s) have been completed since July 19, 2013 and are current as of January 31, 2014.

- Completed development of EOP Training Plan.

3 Milestone Schedule Status

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

The revised milestone target completion dates do not impact the order implementation date.

Milestone	Target Completion Date	Activity Status (as of 1/31/14)	Revised Target Completion Date
Submit FLEX Integrated Implementation Plan	02/28/13	Complete	
6 Month Status Updates	02/27/15	Started	
<i>Update 1</i>	08/01/13	Complete	
<i>Update 2</i>	02/28/14	Started	
<i>Update 3</i>	08/28/14	Not Started	
<i>Update 4</i>	02/27/15	Not Started	
FLEX Strategy Review	May-2013	Complete	
Validation	March-2015	Not Started	
<i>Walk-throughs or Demonstrations</i>	March-2015	Not Started	
Complete Staffing Analysis	October-2014	Not Started	
Complete Plant Modifications	March-2015	Started	
<i>Target plant modifications</i>	May-2013	Complete	
<i>Complete on-line modifications</i>	December-2014	Started	
<i>Complete 1R15 outage modifications</i>	March-2015	Started	
FLEX Storage	January-2015	Started	
<i>Complete Unit 2 Aux Building for storage and Use</i>	January-2015	Started	
<i>Convert Unit 2 diesel Building for storage and Use</i>	January-2015	Started	
Lake (UHS) Access	November-2014	Started	
<i>Regrade road to barge slip area</i>	October-2014	Not Started	
<i>Fence & Gate Construction modifications</i>	October-2014	Not Started	
<i>Security Barrier Pipe Penetrations Design</i>	February-2014	Started	
<i>Security Barrier Pipe Penetration Construction</i>	November-2014	Not Started	
On-site FLEX Equipment	October-2014	Started	
<i>Ordered</i>	November-2013	Started	March-2014
<i>Delivered</i>	October-2014	Not Started	
Off-site FLEX Equipment	March-2015	Not Started	
<i>Develop Strategies with RRC</i>	June-2014	Not Started	
<i>Complete Near Site Staging Location (as needed)</i>	March-2015	Not Started	
<i>Phase 3 Site Access Strategies in Place</i>	November-2014	Not Started	
Procedures	March-2015	Started	
<i>Implement EPG/SAG Rev 3 Guidance</i>	August-2014	Started	
<i>Create Perry FSG</i>	May-2014	Started	
<i>Implement Perry FSG</i>	March-2015	Not Started	
<i>Create Maintenance Procedures</i>	July-2014	Not Started	
Training	March-2015	Started	
<i>Develop EOP Training Plan</i>	January-2014	Complete	
<i>Implement EOP Training</i>	March-2015	Started	
<i>Develop SAMG Training Plan</i>	January-2014	Not Started	June-2014
<i>Implement SAMG Training</i>	March-2015	Not Started	
<i>Develop FLEX Training Plan</i>	August-2014	Started	

Milestone	Target Completion Date	Activity Status (as of 1/31/14)	Revised Target Completion Date
<i>Implement FLEX Training</i>	March-2015	Not Started	
Submit Completion Report	March-2015	Not Started	

4 Changes to Compliance Method

There are no changes to the compliance method as documented in the OIP (Reference 1).

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation

FENOC expects to comply with the order implementation date. Relief/relaxation is not required at this time.

6 Open Items from Overall Integrated Plan and Interim Staff Evaluation

The following tables provide a summary of the open items documented in the OIP or the Interim Staff Evaluation (ISE) (Reference 3) and the status of each item.

Overall Integrated Plan Open Item	Status
N/A	N/A

Interim Staff Evaluation Open Item	Status
3.2.1.7.A FENOC has not indicated their intent to follow the provisions of the NRC-endorsed NEI position paper on Shutdown/Refueling Modes that describes how licensees will develop and maintain an appropriate plan for mitigating strategies capability in all plant modes (ADAMS Accession Nos. ML13273A514 and ML13267A382). FENOC should either confirm that PNPP will follow the endorsed guidance, or provide an alternate approach acceptable to the NRC staff.	Complete. FENOC intends to follow the NRC-endorsed guidance contained in the NEI position paper on Shutdown/Refueling Modes.

ISE Confirmatory Item	Status
3.1.1.3.A FENOC indicated that the gravity discharge system passively performs the mitigation of groundwater intrusion. It was not clear how the passive portion of this system will maintain groundwater elevation below the 590 foot elevation with no pumping power when the flood level around the plant may be at the 620 foot elevation. The licensee needs justification for groundwater mitigation during flooding conditions.	Not started.

ISE Confirmatory Item	Status
3.1.1.4.A With regard to offsite resources, the licensee will develop a plan that will address the logistics for equipment transportation, area set up, and other needs for ensuring the equipment and commodities to sustain the site's coping strategies.	Not started.
3.1.2.1.A During the audit, the licensee was requested to provide the elevations of FLEX equipment that will be deployed or staged across the site. In response, the licensee stated that the flooding re-analysis will need to be reviewed to determine the potential impacts. Confirm the location of FLEX equipment that will be deployed or staged is finalized with that consideration.	Not started.
3.2.1.1.A Benchmarks must be identified and discussed which demonstrate that Modular Accident Analysis Program (MAAP) is an appropriate code for the simulation of an ELAP [extended loss of AC power] event at PNPP, Unit 1, consistent with the NRC endorsement of the industry position paper on MAAP (ADAMS Accession No. ML13275A318).	Not started.
3.2.1.1.B Confirm that the collapsed reactor pressure vessel level remains above Top of Active Fuel and the reactor coolant system cool down rate is within technical specifications limits.	Not started.
3.2.1.1.C Confirm that MAAP is used in accordance with Sections 4.1, 4.2, 4.3, 4.4, and 4.5 of the June 2013 position paper.	Not started.
3.2.1.1.D Confirm that, in using MAAP, the licensee identifies and justifies the subset of key modeling parameters cited from Tables 4-1 through 4-6 of the "MAAP Application Guidance, Desktop Reference for Using MAAP Software, Revision 2" (Electric Power Research Institute Report 1020236).	Not started.
3.2.1.2.A Calculations prepared in support of the licensee's Integrated Plan determined the required Phase 1 flow rate needed to stabilize boil-off, using suppression pool water, was well within the RCIC [reactor core isolation cooling] System injection capacity of 700 gallons per minute. The licensee indicated that further information regarding the specific assumptions and calculations for quantification of inventory losses are captured in proprietary analysis used for Integrated Plan preparation. The licensee should demonstrate adequate RCIC capacity.	Not started.

ISE Confirmatory Item	Status
3.2.1.3.A The licensee stated that Boiling Water Reactor Owners Group Emergency Procedure Guideline/Severe Accident Guideline, Revision 3, would allow the temperature limit of the suppression pool to be exceeded. The licensee should demonstrate why exceeding this temperature limit is acceptable for PNPP.	Not started.
3.2.3.A Confirm that containment response calculation is completed, commensurate with the level of detail contained in GE Hitachi Report NEDC-33771P/NEDO-33771, Revision 1, "GEH Evaluation of FLEX Implementation Guidelines," ADAMS Accession No. ML130370742.	Not started.
3.2.3.B The licensee should provide results from the successful completion of the evaluations and possible modifications which demonstrate that the Suppression Pool Cleanup pump and piping are seismically "robust".	Not started.
3.2.4.2.A It is not clear that (1) the assumed temperatures of the various critical rooms, e.g., RCIC Room and Control Room, are adequately evaluated for the potentially high temperature that may occur in these areas or that (2) time critical actions are not required to be taken to maintain equipment functionality or personnel habitability limits. Confirm that these analyses/evaluations are completed.	Not started.
3.2.4.2.B The licensee provided insufficient information on monitoring temperatures and hydrogen concentration levels in the battery rooms to ensure temperature and hydrogen concentration level are within acceptable level. Confirm that battery room temperature and hydrogen concentration remain acceptable.	Started.
3.2.4.4.A Confirm that the proposed communications upgrades in the licensee's communications assessment are completed as planned.	Not started.
3.2.4.7.A The licensee should confirm that the quality of water injected into the reactor pressure vessel supports and maintains acceptable long term core cooling.	Not started.
3.2.4.8.A During the audit process, the licensee indicated that the basis for the minimum bus voltage for Division 1 and Division 2 battery systems is the	Not started.

ISE Confirmatory Item	Status
coil voltage required to operate the 4160 volt ac breakers (diesel generator output breakers) on the divisional busses and operation of Automatic Depressurization System SRV [safety relief valve] solenoids. Confirm that the battery loading analyses considers the appropriate minimum voltage.	
3.2.4.8.B The applicable electrical drawing(s) provided during the audit process were not legible. The licensee should provide a legible copy of electrical drawings for NRC staff review.	Not started.
3.2.4.8.C During the audit, the licensee indicated a total load of 429 kilowatts for the FLEX diesel generator which does not appear to match the total sum of all the loads provided during the audit. The licensee should explain and/or resolve this discrepancy.	Not started.
3.2.4.9.A With respect to refueling of deployed equipment, PNPP is currently evaluating the feasibility of either procuring a fuel trailer (trailer mounted tank with on-board pump mechanism), or mounting a fuel tank within the bed of a heavy-duty truck, with appropriate pumping mechanisms. The licensee should provide a description of the final plans for refueling once these evaluations are complete.	Not started.
3.2.4.10.A The licensee should provide the battery dc load profile with the required loads for the mitigating strategies to maintain core cooling, containment, and spent fuel pool cooling.	Not started.
3.2.4.10.B The licensee should provide the final load shedding procedure for review when it is completed.	Not started.
3.4.A The licensee did not address considerations 2 through 10 of NEI 12-06, Section 12.2, regarding offsite resources. This information should be confirmed and documented.	Not started.

7 Potential Interim Staff Evaluation Impacts

FENOC is currently evaluating enhancements to the PNPP FLEX mitigating strategies to be employed for Phase 2 coping during a postulated Beyond-Design-Basis External Event (BDBEE), as described in the PNPP OIP. The supporting plant modifications required to employ these strategies are also under evaluation.

As of January 31, 2014, the following strategy enhancements are under evaluation:

- Utilization of 4160VAC portable generators in lieu of the OIP-specified 480VAC units. The 4160VAC generators, if selected, would be used to power an existing safety-related Unit 2 4160VAC distribution bus. Provisions would be provided for cross-connecting this Unit 2 bus to corresponding Unit 1 4160VAC distribution buses, along with Unit 2 480VAC power as described in the PNPP OIP.
- Utilization of an emergency spent fuel pool inventory make-up capability in accordance with the guidance of NEI 12-06 (reference Table C-3). The ability to provide inventory make-up without accessing the refuel floor, utilizing hoses, or portable spray nozzles will be provided through the use of new plant piping and/or hose connection points. This approach would be used in lieu of a fixed overhead spray system as documented in the PNPP OIP.
- Utilization of Phase 2 motor-driven pumps stored near the location of deployment within the emergency service water pumphouse (ESWPH), which is robust for all applicable hazards (seismic, flood, wind, missiles). The pumps establish suction/discharge via deployable hoses and utilizing water inventory available via the seismically robust plant intake/discharge structures. This approach would be used in lieu of deployable Phase 2 pumps (fire trucks) establishing suction/discharge at the PNPP barge slip.
- Utilization of a closed loop containment cooling strategy for rejection of suppression pool excess heat via RHR heat exchangers utilizing process flow motive force provided by existing plant 480VAC pumps. Cooling water will be provided by existing emergency service water (ESW) system piping with cooling water supplied from pumps staged in the location of deployment in the ESWPH.

The changes described above are currently being reviewed internally by FENOC to ensure compliance with NEI 12-06 for the restoration of key safety functions. Once FENOC has conclusively determined these strategy changes to be in the best interest of preserving public health and safety while coping with beyond design basis events, FENOC intends to submit a revised OIP.

8 References

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

1. FirstEnergy Nuclear Operating Company's (FENOC's) 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), dated February 27, 2013.
2. NRC Order Number EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012.

Attachment 3

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3. Perry Nuclear Power Plant, Unit 1 – Interim Staff Evaluation Relating To Overall Integrated Plan In Response To Order EA-12-49 (Mitigation Strategies), dated January 22, 2014.