



FirstEnergy Nuclear Operating Company

Beaver Valley Power Station
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August 5, 2016
L-16-210

10 CFR 2.202

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

SUBJECT:

Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
FirstEnergy Nuclear Operating Company's (FENOC's) Seventh 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) (CAC Nos. MF0841)

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 endorsed 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 (BVPS), Unit Nos. 1 and 2, Davis-Besse Nuclear Power Station (DBNPS), and Perry Nuclear Power Plant (PNPP).

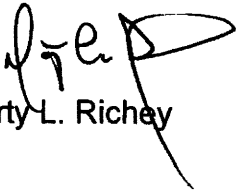
Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Reference 3 provides direction regarding the content of the status reports. The purpose of this letter is to provide the seventh six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that

delineates progress made in implementing the requirements of Reference 1. The attached report for BVPS 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.

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 August 5, 2016.

Respectfully;



Marty L. Richey

Attachment:

Beaver Valley Power Station Seventh 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.
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.

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cc: Director, Office of Nuclear Reactor Regulation (NRR)
NRC Region I Administrator
NRC Resident Inspector
NRC Project Manager
Director BRP/DEP (without Attachments)
Site BRP/DEP Representative (without Attachments)

Attachment
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Beaver Valley Power Station Seventh 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. The information reported pertains to Unit No. 1 only. (Unit No. 2 compliance with Reference 2 was achieved and reported by letter dated December 21, 2015.)

2 Milestone Accomplishments

The following milestone(s) have been completed since February 12, 2016 and are current as of July 31, 2016.

- Update 6 was submitted

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 milestones related to BVPS Unit No. 2 were removed from the schedule because compliance with Reference 2 was achieved.

There are no revised milestone target completion dates.

Milestone	Target Completion Date	Activity Status (as of 7/31/16)	Revised Target Completion Date
Submit FLEX Integrated Implementation Plan	02/28/13	Complete	
6 Month NRC Status Updates	08/28/16	Started	
<i>Update 1</i>	08/28/13	Complete	
<i>Update 2</i>	02/28/14	Complete	
<i>Update 3</i>	08/28/14	Complete	
<i>Update 4</i>	02/27/15	Complete	
<i>Update 5</i>	08/28/15	Complete	
<i>Update 6*</i>	02/28/16	Complete	
<i>Update 7*</i>	08/28/16	Started	
Complete FLEX Strategy Review	March-2013	Complete	
Validation	September-2016	Started	
<i>Walk-throughs or Demonstrations-Unit 1*</i>	September-2016	Started	
Complete Staffing Analysis	November-2014	Complete	
<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	Complete	
Complete Plant Modifications	November-2016	Started	
<i>Target plant modifications</i>	April-2013	Complete	
<i>Unit 1 Modifications complete</i>	November-2016	Started	
<i>Complete 1R22 outage modifications</i>	November-2013	Complete	
<i>Complete on-line modifications</i>	September-2016	Started	
<i>Complete 1R23 outage modifications</i>	May-2015	Complete	
<i>Complete 1R24 outage modifications*</i>	November-2016	Started	
FLEX Storage Complete	October-2015	Complete	
<i>Complete Building Design</i>	March-2015	Complete	
<i>Commence Construction</i>	March-2015	Complete	
<i>Complete Construction</i>	October-2015	Complete	
River (UHS) Access Complete	October-2014	Complete	
<i>Fence & Gate Modification Design</i>	February-2014	Complete	
<i>New Fence & Gate Construction</i>	August-2014	Complete	
<i>Security Barrier Pipe Penetrations Design</i>	March-2014	Complete	
<i>Security Barrier Pipe Penetration Construction</i>	October-2014	Complete	
On-site FLEX Equipment	September-2016	Started	
<i>Confirm FLEX Equipment Requirements</i>	November-2013	Complete	
<i>FLEX Equipment Ordered</i>	April-2015	Complete	
<i>FLEX Equipment Delivered-Unit 1*</i>	September-2016	Started	
Off-site FLEX Equipment	October-2015	Complete	
<i>Develop Strategies with RRC***</i>	June-2015	Complete	
<i>Phase 3 Site Access Strategies in Place</i>	June-2015	Complete	
<i>Complete Near Site Staging Location (as needed)</i>	October-2015	Complete	
Procedures Complete	October-2016	Started	
<i>PWROG issues NSSS-specific guidelines</i>	June-2013	Complete	
<i>Issue Beaver Valley Unit 1 FSG*</i>	October-2016	Started	
<i>Issue Maintenance Procedures</i>	October-2015	Complete	

Milestone	Target Completion Date	Activity Status (as of 7/31/16)	Revised Target Completion Date
Training Complete	September-2016	Started	
<i>Develop Training Plan</i>	December-2014	Complete	
<i>Implement Unit 1 Training*</i>	September-2016	Started	
Submit Completion Report	January-2017**	Not Started	

* Milestones added as a result of relief/relaxation for Unit 1 (Reference 4)

** Submittal of completion report occurs after end of refueling outage.

*** Regional Response Center (RRC) is now called National SAFER Response Center (NSRC)

4 Changes to Compliance Method

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

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

Relief/relaxation of the Reference 2 requirement for completion of full implementation for Beaver Valley Power Station Unit No. 1 (BVPS-1) until the completion of the fall of 2016 refueling outage for reactor coolant pump shutdown (RCP) seal installation was granted on May 20, 2014 (Reference 4).

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. (Described in February-2014 status report and updated in the February-2015 status report.)
OI 2. Perform containment evaluation based on the boundary conditions described in Section 2 of NEI [Nuclear Energy Institute] 12-06. Based on the results of this evaluation, required actions to ensure maintenance of containment integrity and required instrument function will be developed.	Complete. (Described in February-2015 status report.)
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 tornadoes and can be utilized to provide core cooling when steam generators are not available.	Complete. (Described in February-2014 status report.)

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. (Described in February-2014 status report.)

ISE Confirmatory Item	Status
3.1.1.4.A Confirm that primary and secondary staging areas for the RRC [regional response center] equipment have been selected and will meet the requirements of the applicable site response plan.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)

ISE Confirmatory Item	Status
3.2.1.1.B Confirm that the application of the WCAP-17601 analysis simulating the ELAP transient is properly established.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)
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. (Described in February-2014 status report.)
3.2.2.B Confirm that opening doors provides adequate ventilation for SFP [spent fuel pool] area.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in February-2015 status report.)
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.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)

ISE Confirmatory Item	Status
3.2.4.2.C Confirm that the licensee has addressed how hydrogen concentration in the battery rooms will be limited to acceptable levels.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)
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.	Complete. (Described in August-2015 status report.)

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.
4. NRC Letter, Beaver Valley Power Station, Unit 1 – Relaxation of the Schedule Requirements for Order EA-12-049 "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events" (TAC No. MF0841), dated May 20, 2014.