

Ernest J. Harkness
Vice President440-280-5382
Fax: 440-280-8029March 26, 2015
L-15-097

10 CFR 2.202

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-001**SUBJECT:**Perry Nuclear Power Plant
Docket No. 50-440, License No. NPF-58
Request for Schedule Relief/Relaxation from NRC Order Modifying Licenses with
Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External
Events (Order Number EA-12-049) (TAC No. MF0962)

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Order Number EA-12-049 (Reference 1) to FirstEnergy Nuclear Operating Company (FENOC) for the Perry Nuclear Power Plant (PNPP). 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 (also known as FLEX strategies).

FENOC submitted its original overall integrated plan for PNPP, by letter dated February 27, 2013 (Reference 2). Subsequently, FENOC submitted a revision to the overall integrated plan for PNPP, by letter dated September 25, 2014 (Reference 3). In accordance with Reference 1, licensees are required to complete full implementation no later than two refueling cycles after submittal of the overall integrated plan, or December 31, 2016, whichever comes first. In accordance with Reference 1, the first refueling outage for PNPP occurred in spring 2013. The second refueling outage required date for Reference 1 implementation for PNPP is prior to startup from the spring 2015 refueling outage.

Section IV of Reference 1 states that licensees proposing to deviate from requirements contained in NRC Order EA-12-049 may request that the Director, Office of Nuclear Reactor Regulation, relax those requirements. FENOC hereby requests that the Director, Office of Nuclear Reactor Regulation, relax the schedule requirements for completion of full implementation for PNPP as prescribed in Section IV.A.2 of Reference 1 to July 31, 2015 to allow for completion of plant modifications needed to fully implement the required strategies.

FENOC considers that, upon approval by the NRC, the alternative full implementation date regarding Reference 1 proposed in the attachment will constitute a condition of the NRC Order for PNPP.

Also, in response to the NRC request pursuant to 10 CFR 50.54(f) (Reference 4), FENOC submitted, by letters dated June 11, 2012 (Reference 5) and October 29, 2012 (Reference 6), the responses to communications requests, the communications assessment, and implementation schedules for planned communications enhancements for PNPP.

In an NRC letter dated January 23, 2013 (Reference 7), addressed to all power reactor licensees and holders of construction permits in active or deferred status, the NRC staff identified generic technical issues regarding Reference 6 that needed to be resolved in order for the staff to complete its review. By letter dated February 22, 2013 (Reference 8), FENOC provided responses to the NRC's generic technical issues.


The NRC provided a safety assessment of communications for the FENOC nuclear sites, including PNPP, by letter dated June 27, 2013 (Reference 9). In the safety assessment, the NRC staff determined that (1) FENOC assessments are reasonable, and (2) FENOC interim measures, analyzed existing systems, and proposed enhancements will help to ensure that communications are maintained. The NRC also requested to be informed if there are significant changes to the interim measures, proposed enhancements or schedules.

As noted herein, the schedule and scope of the completion of some communication enhancements have changed and will not be completed in accordance with the original schedule. However, interim measures as described within Reference 8 will continue to remain in place until all enhancements have been fully implemented. Completion of these communications enhancement modifications will be coordinated with the Reference 1 implementation schedule. FENOC intends to provide final details of changes to the communications modifications in the compliance letter required by Reference 1.

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 March 26, 2015.

Sincerely,



Ernest J. Harkness

Attachment:

Request for Relaxation of NRC Order EA-12-049 Requirement IV.A.2 for Perry Nuclear Power Plant

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. FENOC Letter; 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.
3. FENOC Letter; FirstEnergy Nuclear Operating Company's (FENOC's) Revision of Overall Integrated Plan for Perry Nuclear Power Plant 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 September 25, 2014.
4. NRC Letter; Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident; dated March 12, 2012.
5. FENOC Letter; Response to NRC Letter, Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, Dated March 12, 2012; dated June 11, 2012.
6. FENOC Letter; Response to NRC Letter, Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident; dated October 29, 2012.
7. NRC Letter; Follow-up Letter on Technical Issues for Resolution Regarding Licensee Communication Submittals Associated with Near-Term Task Force Recommendation 9.3 (TAC No. ME7951); dated January 23, 2013.
8. FENOC Letter; Supplement to Response to NRC Letter, Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (TAC No. ME7951); dated February 22, 2013.
9. NRC Letter; Davis-Besse Nuclear Power Station, Unit No. 1; Beaver Valley Power Station, Units 1 and 2; and Perry Nuclear Power Plant, Unit No. 1 – Safety Assessment of Communications (TAC Nos. ME9941, ME9942, ME9952, and ME9976); dated June 27, 2013.

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cc: Director, Office of Nuclear Reactor Regulation (NRR)
NRC Region III Administrator
NRC Resident Inspector
NRC Project Manager
Ms. Jessica A. Kratchman, NRR/JLD/PMB, NRC

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Relaxation Request:

Pursuant to the procedure specified in Section IV of Nuclear Regulatory Commission (NRC) Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (Reference 1), FirstEnergy Nuclear Operating Company (FENOC) hereby submits a request for schedule relaxation for the Perry Nuclear Power Plant (PNPP) from the Order requirements for completion of full implementation currently required to be no later than two refueling cycles after submittal of the overall integrated plan (OIP), as required in Condition C.1.a of the Order, or December 31, 2016, whichever comes first.

Order requirement from which relaxation is requested:

Section IV.A.2 of Reference 1 requires completion of full implementation of the Order requirements either no later than two refueling cycles after submittal of the OIP, as required in Condition C.1.a, or December 31, 2016, whichever comes first. In accordance with the requirements of Reference 1, FENOC submitted the original OIP for PNPP (Reference 2) by letter dated February 27, 2013. Subsequently, FENOC submitted a revision to the OIP for PNPP, by letter dated September 25, 2014 (Reference 3). Additionally, pursuant to Section IV, Condition C.2, of Reference 1, six-month status reports were submitted, including any changes to the compliance method, schedule, or need for relief and basis, if any. The second refueling outage required date for Reference 1 implementation for PNPP is prior to startup from the spring 2015 refueling outage.

FENOC has experienced unanticipated complications that have delayed the completion of some plant modifications such that completion prior to startup from the spring 2015 refueling outage is not practical. The requested schedule relaxation would enable FENOC to complete installation of the equipment and modifications needed to implement mitigation strategies required by Reference 1.

Justification for relaxation request:

Reference 1 requires the development, implementation, and maintenance of 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 (BDBEE). On September 25, 2014, FENOC submitted a revision to the OIP for PNPP (Reference 3) that included three significant changes to the coping strategies (also referred to as FLEX). The revision to the OIP fundamentally provides a more robust strategy to respond to a postulated BDBEE in compliance with Reference 1. At the time of the change in strategy, no change in the PNPP implementation schedule was

anticipated. However, as detailed design and implementation work has proceeded, some unanticipated consequences to overall project resources and schedules, both direct and indirect, have resulted, such as the following:

- Expedited, fast track development of the electrical design modifications to meet the revised and more robust coping strategy resulted in several iterations of the design to achieve the design objectives with necessary quality and schedule. Although additional resources were applied from engineering for modification package completion, the iterations in design resulted in modification completion near the current refueling outage. The cascading impact on work planning, equipment procurement, and field installation has impacted the schedule for some physical activities as well as closeout of the modification.
- An initial design assumption that had to be revised when undergoing validation resulted in later than desired identification of needed safety-related cable, cable trays, and a manual transfer switch. This in turn resulted in delays in equipment procurement, qualification, and field installation.
- Substantial modifications to the missile (airborne object) barrier gates for the applicable roll-up doors for the diesel generator building and the Unit 2 auxiliary building (utilized for FLEX equipment storage) were required following the identification of underground interference during field installation preparations.
- Field walkdown of conceptual design modifications for the backup battery for the site communication system identified substantial field implementation issues with the initial cable routing and electrical penetrations that resulted in a change to a more robust and efficient design.

Consequently, final implementation of the mitigation strategies is not practical in accordance with the implementation schedule requirements of Reference 1. This issue has been documented in the FENOC Corrective Action Program. FENOC continues to pursue final implementation of the Order commensurate with the significance of the Order while maintaining shutdown safety during the PNPP spring 2015 refueling outage. A significant portion of the PNPP mitigation strategies equipment is scheduled to be installed in accordance with the original schedule requirement of Reference 1. However, FENOC requests a schedule relaxation following the currently scheduled startup from the spring 2015 refueling outage to allow for completion, as needed, of plant modifications to fully implement the required mitigation strategies for PNPP. Full compliance with the order would be achieved by July 31, 2015. FENOC intends to complete plant modifications in a manner such that no additional plant outage will be required for compliance with Reference 1. The requested schedule relaxation for PNPP does not exceed the bounding December 31, 2016 deadline established in Section IV.A.2 of Reference 1.

As a result of the delay in completion of some plant modifications, some differences in FLEX capability from that described in the PNPP OIP will exist following the startup from

the PNPP spring 2015 refueling outage. However, the primary FLEX functions of core cooling and heat removal, containment cooling, and spent fuel pool cooling can be achieved with some limitations as described below. Unless otherwise described in this request, other minimum baseline capabilities are not affected.

FLEX equipment, facilities, and communications enhancements that will not be available:

- A redundant FLEX 4160 volts alternating current (Vac) generator backed power supply to the alternate decay heat removal (ADHR) pump and the suppression pool clean up (SPCU) pump will not be available. However, the normal power supply and the ADHR and SPCU systems remain functional. The pumps, which are utilized for some core cooling and containment control functions, would be unavailable on the occurrence of an extended loss of all alternating current power (ELAP).
- The missile (airborne object) barrier gates for the roll-up doors for the FLEX storage facilities located in the diesel generator building and the Unit 2 auxiliary building will not be completed. However, the storage facilities will be functional and staged with credited FLEX portable equipment. These facilities would only be unavailable on the occurrence of a postulated severe storm with high winds and airborne objects BDBEE.
- The modification being made to the plant communications system adds a battery to the system, and this modification will not be complete. The modification to link the satellite phone communication system with the control room will also not be complete; however, satellite phone capability remains. Interim measures as described within Reference 4 will continue to remain in place until all enhancements have been fully implemented.

Assessment of primary FLEX capabilities that will be available:

Core Cooling and Heat Removal

Phase 1 core cooling and heat removal utilizing reactor core isolation cooling (RCIC) as described in the OIP is not affected. The alternate Phase 2 core cooling and heat removal methods utilizing the SPCU and ADHR pumps will not be available during an ELAP; however, the RCIC system remains available. The standby liquid control (SLC) alternate injection and the alternate core sprays injection (utilizing the FLEX Lake Water pumps) are available dependent upon FLEX storage facility equipment availability for power. The primary method of Phase 3 core cooling capability, which credits the residual heat removal (RHR) system in shutdown cooling, is available as are the secondary methods of SLC alternate injection and alternate core sprays injection (utilizing the FLEX Lake Water pumps). Each method is dependent upon restoration of power with a 4160 Vac generator.

Containment Control

As described in the OIP, no equipment is credited for Phase 1 of containment control. For Phase 2, the primary and secondary methods of containment pressure control utilizing the ADHR and SPCU pumps in a closed suppression pool cooling loop will be unavailable during an ELAP. However, the suppression pool makeup (SPMU) function remains available to extend the suppression pool/containment heat capacity, and, if needed, Lake Erie water can be transferred to the suppression pool via the low pressure core spray (primary) or the high pressure core spray (secondary) systems via installed emergency service water hose connections in the auxiliary building. Both methods are dependent upon FLEX storage facility equipment availability for power. In addition, the N+1 FLEX 4160 Vac generator staged in the Unit 2 auxiliary building may be available to power the RHR system to remove containment heat. Phase 3 containment control capability, which credits the RHR system in shutdown cooling as the primary performance method, is available dependent upon restoration of power with a 4160 Vac generator.

Spent Fuel Pool Cooling

Equipment credited for the spent fuel pool cooling strategy will be available as described in the PNPP OIP dependent upon restoration of power with a site 4160 Vac generator.

Assessment of BDBEE capability:

Although some FLEX functional capabilities will not be available in accordance with the original implementation schedule, the FLEX capabilities that are planned to be in place will be capable of mitigating postulated seismic, external flooding, snow, ice and extreme cold and extreme heat BDBEEs. The ability to cope with the severe storms with high winds and airborne objects BDBEE will not be established until the installation of the missile (airborne object) barrier gates for the applicable roll-up doors for both the diesel generator building and Unit 2 auxiliary building. However, the redundancy of the two FLEX storage facilities, their diverse orientation and physical separation, helps to minimize the vulnerability to a common cause loss of both facilities.

Based on the current assessment of engineering design, equipment procurement, field installation, equipment testing, plant procedures, and personnel training activities, the requested schedule relaxation to July 31, 2015 is sufficient to achieve full compliance with Reference 1. The report of full compliance, as required in Section IV.C.3 of Reference 1, would be provided within 60 days following the compliance date.

The mitigation strategy requirements imposed by NRC Order EA-12-049 provide additional defense-in-depth measures for mitigating consequences of a BDBEE. A sequence of events such as the Fukushima Dai-ichi accident is unlikely to occur in the United States based on current regulatory requirements and existing plant capabilities. These strategies provide enhanced plant capability to mitigate beyond-design-basis

external events. Therefore, the requested schedule relaxation does not reduce nuclear safety or impact safe plant operations.

Conclusion:

As described above, compliance with the current NRC Order EA-12-049 schedule requirement for full completion of implementation of mitigation strategies would result in hardship or unusual difficulty without a compensating increase in the level of safety. Therefore, in accordance with the provisions of Section IV of the Order, FENOC requests relaxation of the requirement described in Section IV.A.2, as explained above.

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. FENOC Letter; 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.
3. FENOC Letter; FirstEnergy Nuclear Operating Company's (FENOC's) Revision of Overall Integrated Plan for Perry Nuclear Power Plant 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 September 25, 2014.
4. FENOC Letter; Supplement to Response to NRC Letter, Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (TAC No. ME7951); dated February 22, 2013.