

December 7, 2018  
L-18-252

10 CFR 50.54(f)

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

**SUBJECT:**

Perry Nuclear Power Plant  
Docket No. 50-440, License No. NPF-58  
Request for Deferral of Actions Related to Beyond-Design-Basis External Events  
Flooding Actions (CAC No. MF7960, EPID L-2016-JLD-0007)

By this letter, FirstEnergy Nuclear Operating Company (FENOC) requests deferral of actions related to beyond-design-basis external events flooding actions for Perry Nuclear Power Plant (PNPP).

By letter dated April 25, 2018 (Accession No. ML18115A007), FENOC provided notification to the Nuclear Regulatory Commission (NRC) that PNPP would cease power operations in 2021. In light of the decision to permanently shut down and defuel, activities planned between now and the 2021 shutdown were reviewed. One of the activities scheduled during this period was performance of the PNPP focused evaluation for flooding to meet the evaluation request documented in NRC letter dated September 1, 2015, "Coordination of Requests for Information Regarding Flooding Hazard Reevaluations and Mitigating Strategies for Beyond-Design-Basis External Events" (Accession No. ML15174A257).

FENOC no longer considers the performance of the focused evaluation to be necessary given the site modifications performed to date to divert the off-site streams and rivers flooding (SRF) hazards, the ability to implement the FLEX strategies as written without impact from SRF and probable maximum storm surge (PMSS) flooding, and limited safety benefit to complete the previously planned evaluations and modifications (including implementation) to address the beyond-design-basis local intense precipitation (LIP) flooding such that a meaningful improvement to safety is achieved prior to defueling the plant.

In accordance with Updated Safety Analysis Report (USAR) descriptions, the PNPP site is currently protected from external flooding hazards via a combination of passive topographic or geologic features. As licensed, PNPP does not utilize incorporated barriers or warning times. Because documentation of substantiating analyses for the USAR description could not be located, a prompt functionality assessment (PFA) was generated, in accordance with the FENOC Corrective Action Program, to provide reasonable expectation of continued safe operation. This PFA credits use of temporary barriers in the form of sandbags and flood panels (or equivalent) and establishes procedural actions for deployment of the barriers. These measures remain in place.

FENOC informed the NRC that the actions required by NRC Orders EA-12-049 and EA-12-051 have been completed for PNPP (Accession Nos. ML15232A594 and ML15154B199, respectively). Compliance with these orders provides the ability to establish an indefinite coping capability to prevent damage to the fuel in the reactor and spent fuel pools and to maintain the containment function under extended loss of alternating current power or loss of normal access to the ultimate heat sink events. Specific to external flooding hazards, FENOC has also performed and submitted the PNPP mitigating strategy assessment (Accession No. ML17205A336) using the beyond-design-basis reevaluated flood hazards. The NRC staff has reviewed the mitigating strategy assessment (MSA) and concluded that the PNPP MSA was performed consistent with the guidance described in Appendix G of Nuclear Energy Institute (NEI) 12-06, Revision 2, and that the licensee has demonstrated that the mitigation strategies, if appropriately implemented, are reasonably protected from reevaluated flood hazards conditions for beyond-design-basis external events. More specifically, the NRC staff noted that FENOC demonstrated the capability to deploy the existing FLEX strategies against a postulated beyond-design-basis event for streams and rivers, and storm surge, and that for LIP, FENOC described changes and modifications to the site that once implemented, appear to be reasonable and are expected to allow FLEX strategies to be implemented, as designed.

The PNPP MSA for flood hazards identified that the revised SRF and PMSS flooding mechanisms do not impact the site; and, therefore, the current FLEX strategies can be deployed with no substantial modifications in order to account for these reevaluated hazards. No inundation impact on the site power block area is expected from the SRF and PMSS flooding mechanisms. Although the SRF floods the site access road for a short period (approximately 2.5 hours until waters have receded), sufficient margin exists in the FLEX timeline to allow for this short delay in site access. PMSS flooding has no impact on the site due to the site location on a bluff overlooking Lake Erie at an elevation approximately 40 feet above the water surface. The stillwater surge elevation is 582.8 feet, with a maximum wave runup elevation of 609.5 feet. In either case, the maximum PMSS level, considering wind and wave effects, remains well below the site grade of 620.0 feet.

A modification to the site installed a new stream, referred to as the Diversion Stream, to divert the Minor Stream located east-northeast of the site directly to Lake Erie, reducing flooding conditions at the site. An engineered earthen embankment, referred to as the Diversion Stream berm, was also installed to separate the LIP domain from the Diversion Stream and the original Minor Stream watershed. The Remnant Minor Stream is now modeled as part of the LIP domain, and analyses show that the power block area is not impacted by SRF.

As identified in the PNPP MSA for the LIP event, the FLEX strategies would potentially be impacted given that water surface elevation would inundate the power block area. The inundation of the power block could potentially pose challenges for the implementation of FLEX strategies due to flooding of the deployment paths and staging areas, in addition to water levels above critical doors that are important for FLEX strategies. The maximum LIP water level is elevation 621.65 feet, with an estimated duration of overall inundation of the site as approximately 1 to 2 hours. The flood event duration parameters for the LIP indicate an available preparation time estimate of greater than 24 hours.

As stated in the MSA, FENOC was in the process of reconstituting the flooding design basis at PNPP, which included the LIP event. The design basis reconstitution was expected to utilize a time-based warning protection scheme in which incorporated barriers and specific trigger points would be required. Implementation actions for this reconstitution effort would prevent LIP from impacting the site and allow the FLEX strategies to be implemented as described.

The reconstitution would involve a submittal of a license amendment request accompanied by two exemption requests. However, with the limited operating time left, there is insufficient time to complete evaluations, submit and obtain approval of the requests, design and approve changes to the plant, and then implement those changes such that an appreciable safety benefit is achieved prior to the defueling of the plant.

With the decision to permanently shut down and defuel PNPP, flooding activities being performed to meet the NRC 10 CFR 50.54(f) request for information (Accession No. ML12053A340) and any related support actions planned between now and the 2021 cessation of power operations are requested to be deferred. This has been entered into the FENOC Corrective Action Program so that the activity will be restored should a change in direction be made to continue power operations at PNPP.

There are no regulatory commitments contained in this letter. If there are any questions or if additional information is required, please contact Mr. Phil H. Lashley, Acting Manager, FENOC Nuclear Licensing and Regulatory Affairs, at (330) 315-6808.

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I declare under penalty of perjury that the foregoing is true and correct. Executed on  
December 7, 2018.

Sincerely,



David B. Hamilton

cc: Director, Office of Nuclear Reactor Regulation (NRR)  
NRC Region III Administrator  
NRC Resident Inspector  
NRR Project Manager