UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 24, 2018

Mr. J. J. Hutto
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
P.O. Box 1295, Bin 038
Birmingham, AL 35201-1295

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 – STAFF ASSESSMENT OF FLOODING FOCUSED EVALUATION (CAC NOS. MF9863 AND MF9864; EPIDS 000495/05000348/L-2017-JLD-0043 AND 000495/05000364/L-2017-JLD-0043)

Dear Mr. Hutto:

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340), the U.S. Nuclear Regulatory Commission (NRC) issued a request for information to all power reactor licensees and holders of construction permits in active or deferred status, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.54(f), "Conditions of Licenses" (hereafter referred to as the "50.54(f) letter"). The request was issued in connection with implementing lessons learned from the 2011 accident at the Fukushima Dai-ichi nuclear power plant, as documented in the NRC's Near-Term Task Force (NTTF) report (ADAMS Accession No. ML111861807). Enclosure 2 to the 50.54(f) letter requested that licensees reevaluate flood hazards for their sites using present-day methods and regulatory guidance used by the NRC staff when reviewing applications for early site permits and combined licenses (ADAMS Accession No. ML12056A046). By letter dated October 21, 2015 (ADAMS Accession No. ML15294A530, non-public), Southern Nuclear Operating Company, Inc. (the licensee) responded to this request for Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley).

After its review of the licensee's response, by letter dated December 10, 2015 (ADAMS Accession No. ML15343A379), the NRC issued an interim staff response (ISR) letter for Farley. The ISR letter provided the reevaluated flood hazard mechanisms that exceeded the current design basis (CDB) for Farley and parameters that are suitable for other assessments associated with NTTF Recommendation 2.1 "Flooding". As stated in the letter, because the local intense precipitation (LIP) and combined effects (probable maximum flood with dam failure with wind-induced waves) flood-causing mechanisms at Farley are not bounded by the plant's CDB, additional assessments of the flood hazard mechanisms are necessary.

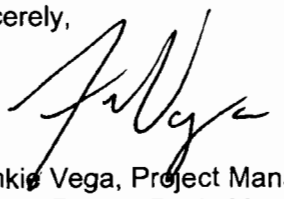
Enclosure 1 transmitted herewith contains Security-Related Information. When separated from Enclosure 1, this document is decontrolled.

By letter dated June 22, 2017 (ADAMS Accession No. ML17173A713, non-public), the licensee submitted the focused evaluation (FE) for Farley. The FEs are intended to confirm that licensees have adequately demonstrated, for unbounded mechanisms identified in the ISR letter, that: 1) a flood mechanism is bounded based on further reevaluation of flood mechanism parameters; 2) effective flood protection is provided for the unbounded mechanism; or 3) a feasible response is provided if the unbounded mechanism is LIP. The purpose of this letter is to provide the NRC's assessment of the Farley FE.

As set forth in the enclosed staff assessment, the NRC staff has concluded that the Farley FE was performed consistent with the guidance described in Nuclear Energy Institute (NEI) 16-05, Revision 1, "External Flooding Assessment Guidelines" (ADAMS Accession No. ML16165A178). Guidance document NEI 16-05, Revision 1, has been endorsed by Japan Lessons-Learned Division (JLD) interim staff guidance (ISG) JLD-ISG-2016-01, "Guidance for Activities Related to Near-Term Task Force Recommendation 2.1, Flood Hazard Reevaluation" (ADAMS Accession No. ML16162A301). The NRC staff has further concluded that the licensee has demonstrated that effective flood protection, if appropriately implemented, exists for the LIP and the combined effects (probable maximum flood with dam failure with wind-induced waves) flood-causing mechanisms during a beyond-design-basis external flooding event at Farley. This closes out the licensee's response for Farley for the reevaluated flooding hazard portion of the 50.54(f) letter and the NRC's efforts associated with CAC Nos. MF7924 and MF7925.

If you have any questions, please contact me at 301-415-1617 or e-mail at Frankie.Vega@nrc.gov.

Sincerely,



Frankie Vega, Project Manager
Beyond-Design-Basis Management Branch
Division of Licensing Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Staff Assessment Related to the Flooding Focused Evaluation for Farley (non-public)
2. Staff Assessment Related to the Flooding Focused Evaluation for Farley (public)

Docket Nos. 50-348 and 50-364

cc w/encl: Distribution via Listserv

STAFF ASSESSMENT BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE FOCUSED EVALUATION FOR

JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2,

AS A RESULT OF THE REEVALUATED FLOODING HAZARD NEAR-TERM TASK FORCE

RECOMMENDATION 2.1 - FLOODING

(CAC NOS. MF9863 AND MF9864; EPIDS 000495/05000348/L-2017-JLD-0043;

000495/05000364/L-2017-JLD-0043)

1.0 INTRODUCTION

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340), the U.S. Nuclear Regulatory Commission (NRC) issued a request for information to all power reactor licensees and holders of construction permits in active or deferred status, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.54(f) (hereafter referred to as the "50.54(f) letter"). The request was issued in connection with implementing lessons learned from the 2011 accident at the Fukushima Dai-ichi nuclear power plant, as documented in the NRC's Near-Term Task Force (NTTF) report (ADAMS Accession No. ML111861807).

Enclosure 2 of the 50.54(f) letter requested that licensees reevaluate flood hazards for their respective sites using present-day methods and regulatory guidance used by the NRC staff when reviewing applications for early site permits and combined licenses (ADAMS Accession No. ML12056A046). If the reevaluated hazard for any flood-causing mechanism is not bounded by the plant's current design basis (CDB) flood hazard, an additional assessment of plant response would be necessary. Specifically, the 50.54(f) letter stated that an integrated assessment should be submitted, and described the information that the integrated assessment should contain. By letter dated November 30, 2012 (ADAMS Accession No. ML12311A214), the NRC staff issued Japan Lessons-Learned Division (JLD) interim staff guidance (ISG) JLD-ISG-2012-05, "Guidance for Performing the Integrated Assessment for External Flooding."

On June 30, 2015, the NRC staff issued COMSECY-15-0019, describing the closure plan for the reevaluation of flooding hazards for operating nuclear power plants (ADAMS Accession No. ML15153A104). The Commission approved the closure plan on July 28, 2015 (ADAMS Accession No. ML15209A682). COMSECY-15-0019 outlines a revised process for addressing cases in which the reevaluated flood hazard is not bounded by the plant's CDB. The revised process describes a graded approach in which licensees with hazards exceeding their CDB flood will not be required to complete an integrated assessment, but instead will perform a focused evaluation (FE). As part of the FE, licensees will assess the impact of the hazard(s) on their site and then evaluate and implement any necessary programmatic, procedural, or plant modifications to address the hazard exceedance.

Nuclear Energy Institute (NEI) 16-05, Revision 1, "External Flooding Assessment Guidelines" (ADAMS Accession No. ML16165A178), has been endorsed by the NRC as an appropriate

methodology for licensees to perform the FE in response to the 50.54(f) letter. The NRC's endorsement of NEI 16-05, including exceptions, clarifications, and additions, is described in NRC JLD-ISG-2016-01, "Guidance for Activities Related to Near-Term Task Force Recommendation 2.1, Flood Hazard Reevaluation" (ADAMS Accession No. ML16162A301). Therefore, NEI 16-05, Revision 1, describes acceptable methods for demonstrating that Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley) has effective flood protection.

2.0 BACKGROUND

This document provides the final NRC staff assessment associated with the information that the licensee provided in response to the reevaluated flooding hazard portion of the 50.54(f) letter. Therefore, this background section includes a summary description of the reevaluated flood information provided by the licensee and the associated assessments performed by the NRC staff. The reevaluated flood information includes: 1) the flood hazard reevaluation report (FHRR); 2) the mitigation strategies assessment (MSA); and 3) the FE.

Flood Hazard Reevaluation Report

By letter dated October 21, 2015 (ADAMS Accession No. ML15294A530, non-public), Southern Nuclear Operating Company, Inc. (SNC, the licensee) submitted the FHRR for Farley. After reviewing the licensee's response, by letter dated December 10, 2015 (ADAMS Accession No. ML15343A379), the NRC issued an interim staff response (ISR) letter for Farley. The ISR letter discussed the reevaluated flood hazard mechanisms that exceeded the CDB for Farley and parameters that are a suitable input for the MSA and the FE. As stated in the ISR letter, because the local intense precipitation (LIP) and combined effects (probable maximum flood (PMF) with embankment seepage and dam failure with wind-induced waves) flood-causing mechanisms at Farley are not bounded by the plant's CDB, additional assessments of the flood hazard mechanisms are necessary. The NRC staff issued a final staff assessment of the FHRR in a letter dated November 4, 2016 (ADAMS Accession No. ML16288A150). The NRC staff's overall conclusions regarding LIP and combined effects flooding mechanisms exceeding the Farley CDB remained unchanged from the information provided in the ISR letter.

Mitigation Strategies Assessment

By letter dated December 21, 2016 (ADAMS Accession No. ML16356A538, non-public), the licensee submitted the Farley MSA for NRC review. The MSA included a revised LIP model, which resulted in decreasing flood elevations as compared to Table 2 of the ISR letter. The staff reviewed this updated model and concluded that the licensee's updated LIP modeling results were acceptable for use in the MSA. The MSAs are intended to confirm that licensees have adequately addressed the reevaluated flooding hazards within their mitigation strategies for beyond-design-basis external events. By letter dated July 18, 2017 (ADAMS Accession No. ML17186A039, non-public), the NRC issued its assessment of the Farley MSA. The NRC staff concluded that the Farley MSA was performed consistent with the guidance described in Appendix G of Nuclear Energy Institute 12-06, Revision 2, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide" (ADAMS Accession No. ML16005A625). The NRC's endorsement of NEI 12-06, Revision 2, is described in JLD-ISG-2012-01, Revision 1, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (ADAMS Accession No. ML15357A163). The NRC staff further concluded 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.
Focused Evaluation

By letter dated June 22, 2017 (ADAMS Accession No. ML17173A713, non-public), the licensee submitted the FE for Farley. The FEs are intended to confirm that licensees have adequately demonstrated, for unbounded mechanisms identified in the ISR letter, that: 1) a flood mechanism is bounded based on further reevaluation of flood mechanism parameters; 2) effective flood protection is provided for the unbounded mechanism; or 3) a feasible response is provided if the unbounded mechanism is LIP. These three options associated with performing an FE are referred to as Path 1, 2, or 3, as described in NEI 16-05, Revision 1. The purpose of this staff assessment is to provide the results of the NRC's evaluation of the Farley FE.

3.0 TECHNICAL EVALUATION

The licensee stated that its FE followed Path 2 of NEI 16-05, Revision 1 and utilized Appendix B for guidance on evaluating the site strategy. The Farley FE addresses LIP and the combined effects (PMF with dam failure with wind-induced waves) flooding mechanisms, which were found to exceed the plant's CDB as described in the FHRR and ISR letter. This technical evaluation addresses the following topics: characterization of flood parameters; evaluation of flood impact assessments; evaluation of available physical margin; reliability of flood protection features; and overall site response.

3.1 Characterization of Flood Parameters

According to the licensee, the LIP water elevations, associated effects and flood event duration parameters used in the FE are the same as those used for the MSA. In the powerblock area, these elevations vary from 154.6 feet (ft.) National Geodetic Vertical Datum of 1929 (NGVD29) to 155.4 ft. NGVD29. At the Service Water Intake Structure (SWIS), the maximum LIP water elevation was 195.8 ft. NGVD29. The licensee's LIP calculation estimates that the maximum reevaluated LIP flood elevation exceeds the finish floor elevation (FFE) of 155.0 ft. NGVD29 at several exterior doors of the Auxiliary Buildings (ABs) and Containment for Units 1 and 2, the Diesel Generator (DG) building, and the SWIS. Table 4-4 of the FE provides the location of these doors, the maximum flooding depth above the FFE and the flooding duration.

For the combined effects flooding mechanism (PMF with embankment seepage and dam failure with wind-induced waves), the licensee stated that the maximum reevaluated stillwater flood elevation is [redacted] NGVD29. As stated above, this flood elevation is below the FFE of the plant. The combined effect flood elevation including wave run-up is [redacted] NGVD29 along the Kontek vehicle barrier system (VBS). The VBS is a concrete block barrier that surrounds the Farley safety-related buildings. Although not their intended function, these barriers protect safety-related buildings against wind-generated waves. Wind-generated waves are expected to result in a maximum flooding depth of 3.46 ft. at the 3.5 foot tall VBS. Therefore, the still water elevation of [redacted] and the estimated wind driven wave height of [redacted] was determined not to impact Key structures, systems, and components (SSCs).

The FE credits passive protection features to demonstrate that SSCs required for maintaining key safety functions (KSFs) are protected from the LIP and combined effects flooding mechanisms.

The NRC staff reviewed the LIP parameters listed in the licensee's FE and confirmed that these are consistent with the parameters presented in the MSA for the LIP event. Based on the review that was previously performed for the MSA, the staff concludes that the licensee's characterization of the LIP event in the FE is appropriate. The staff also concludes that the combined effects flooding mechanism was characterized consistent with the ISR, and is therefore appropriate for the FE. The potential impacts from these flood-causing mechanisms were further evaluated by the licensee as part of the Farley FE.

3.2 Evaluation of Flood Impact Assessment for LIP

3.2.1 Description of Impact of Unbounded Hazard

The Farley FE identified the potential impacts on key SSCs as a result of water ingress due to LIP. The LIP event leads to flood water surface elevations above the FFE at some locations. In order to assess the impacts of the unbounded flood levels, the licensee identified the maximum water surface elevations at the exterior door openings, maximum flood depths above the door threshold, and duration of when the flood levels are above the door threshold. With this information, the licensee assessed the impact of water ingress and potential for accumulation into rooms housing key SSCs. In addition, the licensee indicated that it analyzed the potential for impacts of the unbounded flood levels on the exterior doors of the plant buildings, including their hydrostatic and hydrodynamic loading.

The licensee's evaluation indicated that the ingress of flood waters during a LIP event could impact key SSCs in the following locations:

- Auxiliary Buildings - The total flood water volume estimated by the licensee's analysis to flow through the AB doors results in a maximum flooding depth of 0.44 ft. and 0.28 ft. in the turbine driven auxiliary feedwater (TDAFW) pump rooms of the Unit 1 and Unit 2 ABs, respectively. Each TDAFW pump is mounted on a pedestal 2 ft. above the floor, protected by a 0.5 ft. flood protection curb; therefore, LIP flood water will stay below the flood protection curbs and TDAFW pump pedestals.

- Containment buildings - The licensee estimated that no leakage past the Containment water-tight doors is assume and therefore, no impact to key SSCs is expected.

- DG buildings – The total flood water volume estimated by the licensee's analysis to flow through the DG building doors results in a maximum flooding depth of 0.26 ft. in the DG Switchgear Room. Since the lowest elevation of key SSCs is 1 ft. above the floor, no impact to any key SSCs is expected.

- SWIS - The total flood water volume estimated by the licensee's analysis to flow through the SWIS doors results in a maximum flooding depth 0.43 ft. in the lowest level of the SWIS and a depth of 0.77 ft. was calculated for the SWIS CO2 Bottle Room. No impact to any key SSCs is expected.

The licensee concluded that:

- Flood water ingress due to higher LIP levels will not impact the plant's KSFs because the estimated water accumulation will not reach the elevation of safety related SSCs;

- The walls and doors are structurally adequate with margin to withstand flood loading.

3.2.2 Evaluation of Available Physical Margin and Reliability of Flood Protection Features

Evaluation of Available Physical Margin

The licensee relies on passive features and existing doors to justify that there is physical margin. The licensee emphasized that, for the areas where building in-leakage was possible, the LIP flood depths will not exceed flood protection curbs. Maximum LIP flooding elevations inside safety-related buildings and elevations of KSFs are summarized in Section 3.2.1 of this assessment. Based on this information and the conservative assumptions used to calculate rainfall and associated flooding depths, the licensee concludes that the available physical margin (APM) for the LIP is adequate.

The staff reviewed a series of figures provided as part of SNC design calculation package titled SNCF-16-001 Version 1, "MSA Hazard Evaluation," which provided details regarding the flood protection curbs and pedestals credited for protecting key SSCs. Specifically, the staff verified the height and location of the curbs and pedestals credited for flood protection in Auxiliary Buildings for Units 1 and 2 and confirmed that the maximum estimated LIP flood depths inside safety related buildings are lower than the height of the flood protection curbs. Therefore, the staff agrees that available physical margin exists. Also, as documented in the MSA staff assessment, the NRC staff finds that the licensee's estimation of water accumulation is acceptable. Therefore, the NRC staff concludes that the licensee has demonstrated that there is sufficient APM, as described in Appendix B of NEI 16-05, Rev 1, which can protect key SSCs from the LIP event.

Evaluation of Reliability of Protection Features

Farley relies on permanent passive flooding protection features such as exterior doors and building walls to provide protection from LIP flooding.

The licensee stated that water ponding could occur outside several doors of buildings housing SSCs. In the FE, Table 4-4 shows doors that could potentially serve as pathways into structures containing key SSCs. The same table provides the estimated maximum flood elevations at such doors. In the MSA, Table 5-1 presents the maximum impact and static loads at each door. The licensee stated that these static loads would not exceed the door's design loads. The staff reviewed the maximum estimated flood elevations at each of the doors. As stated in the FE, these flood elevations are not expected to exceed .4 ft.; therefore, the resulting hydrostatic loads at such doors are expected to be low and not to exceed design loads for such doors. In addition, the staff noted that these doors were inspected as part of NTTF Recommendation 2.3 flooding walkdowns performed at Farley (ADAMS Accession No. ML12333A146). Several deteriorated doors seals and thresholds were identified. Conditions that did not meet the acceptance criteria were entered into the corrective action program and were corrected. The staff concludes that such doors meet the definition of being reliable to maintain KSFs found in Appendix B of NEI 16-05, Revision 1.

As stated in the FE and summarized above, the licensee relies on flood protection curbs to protect key SSCs. The staff notes that these flood protection curbs are concrete barriers. Since building interior flood depths are expected to be less than 5 ft. the corresponding hydrostatic loads at these curbs are not expected to exceed the design load of these curbs. Therefore, staff

concludes that such curbs meet the definition of being reliable to maintain KSFs found in Appendix B of NEI 16-05, Revision 1.

The licensee also stated that, since the reevaluated LIP elevations exceed the CDB, there may be penetrations below the lowest elevation for water ingress of 154.77 ft. NGVD29 that will require seals. These penetrations could provide a potential pathway for water ingress and possibly impact key SSCs. As stated in Section 5.2 of the FE, the licensee has identified several conduits and penetrations that would require to be capped/sealed to prevent a potential internal flood in safety-related buildings. As stated in the MSA, these modifications are documented in plant's configuration control condition reports. Proper sealing of these potential water pathways is a key activity that needs to be effectively performed to support the licensee's conclusions regarding protection of KSFs, as provided in the FE. According to the licensee, these activities were entered into the plant's corrective action program resulting in several work orders that were created and completed in 2017. One remaining work order is planned to be completed in 2018.

Because increased focus has been placed on flood protection since the accident at Fukushima, licensees and NRC inspectors have identified deficiencies with equipment, procedures, and analyses relied on to either prevent or mitigate the effects of external flooding at a number of licensed facilities. Recent examples include those found in Information Notice 2015-01, "Degraded Ability to Mitigate Flooding Events" (ADAMS Accession No. ML14279A268). In addition, the NRC is cooperatively performing research with the Electric Power Research Institute to develop flood protection systems guidance that focuses on flood protection feature descriptions, design criteria, inspections, and available testing methods in accordance with a memorandum of understanding dated September 28, 2016 (ADAMS Accession No. ML16223A495). The NRC staff expects that licensees will continue to maintain flood protection features in accordance with their current licensing basis. The NRC staff further expects that continued research involving flood protection systems will be performed and shared with licensees in accordance with the guidance provided in Management Directive 8.7, "Reactor Operating Experience Program" (ADAMS Accession No. ML122750292), as appropriate.

If modifications are completed as described by the licensee, the NRC staff concludes that the Farley flood protection features described above are reliable to maintain key safety functions as defined in Appendix B of NEI 16-05, Rev 1.

3.2.3 Overall Site Response

The licensee does not rely on any personnel actions or new modifications to the plant in order to respond to the LIP event. As described above, the licensee's evaluation relied on passive existing flood protection features to demonstrate adequate flood protection; therefore, there is no need to review overall site response.

3.3 Evaluation of Flood Impact Assessment for Combined Effects Flooding Mechanism

3.3.1 Description of Impact of Unbounded Hazard

As described in the FE, the maximum stillwater elevation from the combined effects flooding mechanism (PMF with dam failure with wind-induced waves), is [redacted] NGVD29 and the flood elevation including wave run-up is [redacted] NGVD29. The licensee stated that the lowest elevation for water ingress is 154.77 ft. NGVD29. The licensee also stated that the VBS

effectively prevents wave action from propagating to the plant's safety-related buildings since the maximum expected flooding against the VBS is 3.46 ft. and the VBS is 3.5 ft. high. As stated above, the still water elevation and the estimated wind driven wave height was determined not to impact Key SSCs.

3.3.2 Evaluation of Available Physical Margin and Reliability of Flood Protection Features

Evaluation of Available Physical Margin

As described above, Farley relies on permanent passive flooding protection features such as the site topography and the VBS to provide protection for flooding from combined effects flooding mechanism. The licensee calculated an APM of 0.37 ft. from the reevaluated still water elevation [redacted] and the lowest ingress elevation of 154.77 ft. NGVD29. The licensee stated that all penetrations below 154.77 ft. NGVD29 were inspected and some will require seals. The licensee's plan to install the necessary seals is outlined in Section 5.2 of the FE and is summarized above. The licensee also stated that an APM from wind-driven waves is not quantifiable, as the VBS stops wave propagation before the wave can traverse to the power block. The licensee concluded that APM for the combined effects flooding was estimated to be adequate based on the conservative assumptions, inputs and methods used to calculate the maximum flooding levels.

As stated in the FHRR and MSA staff assessment, the NRC staff agrees that the licensee has demonstrated the use of appropriate assumptions, inputs, and methods when calculating water levels. Additionally, the staff agrees that if the proposed modifications are completed and proved effective, the reevaluated still water elevation would be below the main Power Block's lowest elevation of water ingress. Therefore, the NRC staff concludes that adequate margin exists for the reevaluated combined effects flooding mechanism.

Evaluation of Reliability of Protection Features

Farley relies on permanent passive flooding protection features such as site topography and the VBS to provide protection for flooding from combined effects flooding. Since the site topography features are already credited as part of the Farley design-basis flood protection, the NRC staff concludes that an additional reliability analysis of these features is not necessary in accordance with the guidance found in NEI 16-05, Revision 1.

The licensee evaluated the VBS design load capacity and verified that the increase in loads from the reevaluated combined effects flooding will not impact the capability of the VBS to stop the wave propagation. The licensee's analysis of the associated effects (hydrostatic and hydrodynamic loading and debris impact load) for the combined effects flooding hazard, was provided as part of the MSA and detailed in Southern Nuclear calculation SNCF-16-001 Version 1 "MSA Hazard Evaluation". The licensee concluded that the VBS is structurally sound and able to withstand the estimated water loads from the combined effect flooding.

As part of the MSA, the staff reviewed the methodologies, assumptions and input parameter values used to estimate the hydrostatic, hydrodynamic, and impact point loads on the VBS and found these to be acceptable and reasonable. As part of the audit process, the staff also reviewed SNC design calculation package titled SNCF-16-001 Version 1, "MSA Hazard Evaluation, which provides the calculation used to estimate the maximum design load capacity of the VBS. The staff noted that the licensee used engineering standards in accordance with

NEI 16-05 to calculate these loads. The staff also reviewed SNC Document No. U-419516 "Kontek Vehicle Barrier VK8M-20K-50-L. Ver. 2.0" to confirm the dimensions of the VBS. The staff agrees that the VBS load capacity is considerably greater than the resultant loads detailed in MSA Table 6-2; therefore, the combined effects flooding is not expected to negatively impact the VBS.
If the modifications are completed as described by the licensee, the NRC staff concludes that the licensee has demonstrated that passive flood protection features described above are reliable to maintain key safety functions, as described in Appendix B of NEI 16-05, Revision 1.

3.3.3 Overall Site Response

The licensee does not rely on any personnel actions or new modifications to the plant in order to respond to the combined effects flooding event. As described above, the licensee's evaluation relied on passive existing features to demonstrate adequate flood protection. Therefore, there is no need to review overall site response.

4.0 AUDIT REPORT

The July 18, 2017, generic audit plan describes the NRC staff's intention to issue an audit report that summarizes and documents the NRC's regulatory audit of the licensee's FE. The NRC staff's Farley audit was limited to the review of the calculations and procedures described above. Because this staff assessment appropriately summarizes the results of the audit, the NRC staff concludes a separate audit report is not necessary, and that this document serves as the audit report described in the staff's July 18, 2017, letter.

5.0 CONCLUSION

The NRC staff concludes that the licensee performed the Farley FE in accordance with the guidance described in NEI 16-05, Revision 1, as endorsed by JLD-ISG-2016-01, and that the licensee has demonstrated that effective flood protection exists from the reevaluated flood hazards. Furthermore, the NRC staff concludes that Farley screens out of performing an integrated assessment based on the guidance found in JLD-ISG-2016-01. As such, in accordance with Phase 2 of the process outlined in the 50.54(f) letter, additional regulatory actions associated with the reevaluated flood hazard, beyond those associated with mitigation strategies assessment, are not warranted. The licensee has satisfactorily completed providing responses to the 50.54(f) activities associated with the reevaluated flood hazards.

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 – STAFF ASSESSMENT OF FLOODING FOCUSED EVALUATION DATED January 24, 2018

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