



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

August 28, 2017

Mr. Scott D. Northard
Vice President
Northern States Power Company - Minnesota
Prairie Island Nuclear Generating Plant
1717 Wakonade Drive East
Welch, MN 55089-9642

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 - STAFF
ASSESSMENT OF FLOODING FOCUSED EVALUATION (CAC NOS. MF9052
AND MF9053)

Dear Mr. Northard:

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. ML12056A048). By letter dated May 9, 2016 (ADAMS Accession No. ML16133A041), Northern States Power Company - Minnesota (the licensee) responded to this request for Prairie Island Nuclear Generating Plant, Units 1 and 2 (PINGP).

After its review of the licensee's response, by letter dated October 17, 2016 (ADAMS Accession No. ML16286A161), the NRC issued an interim staff response (ISR) letter for PINGP. The ISR letter provided the reevaluated flood hazard mechanisms that exceeded the current design basis (CDB) for PINGP and parameters that are a suitable input for the mitigating strategies assessment (MSA). As stated in this letter, because the local intense precipitation (LIP) flood-causing mechanism at PINGP is not bounded by the plant's CDB, additional assessments of the flood hazard mechanism are necessary.

By letter dated December 13, 2016 (ADAMS Accession No. ML16351A209), the licensee submitted a focused evaluation (FE) for PINGP. 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 a 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 local intense precipitation.

The purpose of this letter is to provide the NRC's assessment of the PINGP FE.

As set forth in the attached staff assessment, the NRC staff has concluded that the PINGP 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 flood mechanism during a beyond-design-basis external flooding event at PINGP. This closes out the licensee's response for PINGP for the reevaluated flooding hazard portion of the 50.54(f) letter and the NRC's efforts associated with CAC Nos. MF9052 and MF9053.

If you have any questions, please contact me at 301-415-2833 or at Peter.Bamford@nrc.gov.

Sincerely,

A handwritten signature in black ink that reads "Peter Bamford". The signature is written in a cursive style with a large, prominent "P" and "B".

Peter J. Bamford, Senior Project Manager
Orders Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Enclosure:
Staff Assessment Related to the
Flooding Focused Evaluation for Prairie Island

Docket Nos: 50-282 and 50-306

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STAFF ASSESSMENT BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO THE FOCUSED EVALUATION FOR
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2
AS A RESULT OF THE REEVALUATED FLOODING HAZARD NEAR-TERM TASK FORCE
RECOMMENDATION 2.1 - FLOODING
CAC NOS. MF9052 AND MF9053

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. ML12056A048). 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. On 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 (ADAMS Accession No. ML15153A104), the NRC staff issued COMSECY-15-0019, describing the closure plan for the reevaluation of flooding hazards for operating nuclear power plants. 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 focused evaluation in response to the 50.54(f) letter. The NRC's endorsement of NEI 16-05, including exceptions, clarifications, and additions, is described in 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, as endorsed, describes acceptable methods for demonstrating that Prairie Island Nuclear Generating Plant, Units 1 and 2 (PINGP, Prairie Island) has effective flood protection.

2.0 BACKGROUND

This NRC staff assessment is the last 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, the background section includes a discussion of the reevaluated flood information provided by the licensee and the associated staff assessments. 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 May 9, 2016 (ADAMS Accession No. ML16133A041), Northern States Power – Minnesota, (NSPM, the licensee) doing business as Xcel Energy, responded to the 50.54(f) letter for PINGP and submitted its FHRR. After the review of the licensee’s response, by letter dated October 17, 2016 (ADAMS Accession No. ML16286A161), the NRC issued an interim staff response (ISR) letter for PINGP. The ISR letter provided the reevaluated flood hazard mechanisms that exceeded the CDB for PINGP and parameters that are a suitable input for the MSA. As stated in the letter, because the local intense precipitation (LIP) flood-causing mechanism at PINGP is not bounded by the plant’s CDB, additional assessments of the flood hazard mechanisms are necessary. The staff issued a final staff assessment of the FHRR by letter dated May 26, 2017 (ADAMS Accession No. ML17144A154). The staff’s conclusions regarding LIP exceeding the PINGP CDB remained unchanged from the information provided in the NRC’s ISR letter.

Mitigation Strategies Assessment

By letter dated December 13, 2016 (ADAMS Accession No. ML16351A213), NSPM submitted the MSA for PINGP. The MSAs are intended to confirm that licensees have adequately addressed the reevaluated flooding hazards within their mitigating strategies for beyond-design-basis external events. By letter dated April 13, 2017 (ADAMS Accession No. ML17080A440), the NRC issued its assessment of the PINGP MSA. The NRC staff concluded that the PINGP 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 December 13, 2016 (ADAMS Accession No. ML16351A209), the licensee submitted its FE for PINGP. 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 a 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 3 options associated with performing an FE are referred to as Path 1, 2, or 3, respectively, 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 PINGP 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. As described in the ISR letter, the LIP flooding mechanism was found to exceed the plant's CDB flood at PINGP, and was addressed by NSPM in the PINGP FE. Therefore, this technical evaluation will address the following topics: characterization of flood parameters; evaluation of flood impact assessments; evaluation of available physical margin (APM); reliability of flood protection features; and overall site response.

3.1 Characterization of Flood Parameters

The FE credits passive protection features to demonstrate that key structures, systems, and components (SSCs) are protected from the LIP flooding mechanism. The calculated water levels from a LIP event are below the controlling CDB event, which is a slowly developing probable maximum flood (PMF) on the Mississippi River. The majority of the PINGP site is passively protected for CDB flood levels, with the exception of certain plant features such as doorways, where temporary protection features are installed during the CDB event warning time. For a LIP event, these temporary features will not be in place due to the lack of warning time. Thus, the licensee's FE evaluates the impact of the LIP event in the absence of the PMF-based temporary protection features to show that key SSCs are not impacted by floodwaters during the LIP event.

3.2 Evaluation of Flood Impact Assessment for LIP

3.2.1 Description of Impact of Unbounded Hazard

The PINGP FE references the LIP flood evaluation levels that range from 694.74 feet to 695.35 feet National Geodetic Vertical Datum of 1929 (NGVD29) at representative locations around the site. Any elevations described in this FE are referenced to NGVD29. The CDB stillwater elevation for the Mississippi River PMF is 703.6 feet, with a CDB flood elevation, including associated effects, of 706.7 feet. The nominal site grade elevation at PINGP is 695 feet.

3.2.2 Evaluation of Available Physical Margin and Reliability

The licensee relies on passive features to demonstrate key safety functions of core cooling, spent fuel pool cooling, and containment are maintained for the postulated LIP event. Based on the locations of plant equipment needed to maintain the key safety functions, the licensee evaluates several critical plant structures for potential LIP event water intrusion. Generally, the licensee's FE discusses protection for key SSCs in the applicable structures that are at the lowest elevation. Other key SSCs may be located in the same structures, but they are not discussed in the licensee's FE because they are not limiting in terms of elevation. The structures evaluated in the FE are the Turbine Building, the Auxiliary Building, the D5/D6 Building, the D5/D6 Fuel Oil Tank Vault, and the Screenhouse.

The licensee's FE describes Unit 1 and Unit 2 Turbine Buildings. The staff notes that the licensee's Updated Safety Analysis Report (USAR), Section 1.3.2, describes one structure (Turbine Building) housing equipment for both units. For the Turbine Building, this staff assessment reflects the presentation in the licensee's FE submittal, with the understanding that the Unit 1 and Unit 2 Turbine Buildings are interconnected within one overall structure.

Regarding the Unit 1 Turbine Building, the licensee identifies the D1/D2 Emergency Diesel Generator (EDG) Room (housing the two EDGs for PINGP, Unit 1) as the key SSC to be protected. The licensee's LIP evaluation shows that the projected flooding elevations at the Unit 1 Turbine Building exterior doors are below the critical elevation of 694.90 feet where water could enter the building. The projected APM varies from 0.08 to 0.14 feet. Thus, the licensee does not project water intrusion into the Unit 1 Turbine Building from the outside under LIP conditions. The only possible pathway into the Unit 1 Turbine Building would be through the connected Unit 2 Turbine Building (discussed below). In the event that water does enter the Unit 1 Turbine Building, the licensee indicates that the water would collect in the lowest elevation, the condenser pit, which has a large volume available for water collection (89,537 cubic feet, or approximately 669,783 gallons). According to the licensee, this volume would have to be filled before a key SSC could be affected. The licensee's FE concludes that there is adequate APM for the Unit 1 Turbine Building.

The Unit 2 Turbine Building can hydraulically communicate with the Unit 1 Turbine Building and the licensee's FE indicates that the key SSC related to the Unit 2 Turbine Building is the Unit 1 EDG Room, discussed above. The Unit 2 Turbine Building has one exterior door location where LIP water could ingress. Based on the LIP evaluation parameters (elevation, duration, and door size), the licensee calculates that 3700 cubic feet of water could ingress into the building. Similar to the Unit 1 configuration, the Unit 2 condenser pit would collect any water that entered the building. The Unit 2 condenser pit can accommodate 101,673 cubic feet (approximately 760,566 gallons) of water, well in excess of the predicted 3700 cubic feet calculated for the LIP event. Thus, the licensee concludes that there would be no impact to key SSCs because any water that enters the Unit 2 Turbine Building would be intercepted by the Unit 2 condenser pit before approaching the Unit 1 EDGs. Based on this evaluation, the licensee states that there is adequate APM for the Unit 2 Turbine Building.

Prairie Island has one common Auxiliary Building for both units. According to the FE, the water surface elevation near the exterior doors is below the critical elevation of any key SSC. Specifically, the licensee identifies the Unit 1 and Unit 2 residual heat removal (RHR) pits (where the RHR pumps are located) as the critical equipment in the Auxiliary Building needing protection. The RHR pits are located below the ground level elevation of the Auxiliary Building, however the openings into the pits are protected by a barrier up to the 695.75 foot elevation. Thus, the licensee states that even if the exterior doors were assumed to be open and the water level inside the building were to equalize with the maximum LIP water surface elevation, the maximum possible level would be 695.35 feet, which is below the protected level, with 0.40 feet of margin. The licensee notes that there are doors connecting the Turbine Building to the Auxiliary Building; however, any water entering from the Turbine Building would be intercepted by the condenser pits, as described above. Based on the calculated LIP water level not reaching the protection level, considering the conservative assumptions in the analysis, the licensee concludes that there is adequate APM for the Auxiliary Building.

The D5/D6 Building houses the two EDGs for PINGP, Unit 2. The licensee identifies the fuel oil pump motors as the critical equipment in these buildings. The LIP water surface elevation at the external doors is above the finished floor elevation. To evaluate this structure, the licensee

calculated the water ingress volume assuming the doors were open. This calculation concluded that 1069 cubic feet of water could ingress during a LIP event. The licensee also estimated the volume of water that could be accommodated in the building before a key SSC (fuel oil pump motor) would be impacted. For the D5 Room the available volume is 2240 cubic feet and for the D6 Room it is 2356 cubic feet. Either of these values exceeds the total projected ingress of 1069 cubic feet, and thus the licensee concludes there is positive APM. The licensee notes that the doors are normally closed and thus the conservatism of assuming the doors are open justifies the APM.

The D5/D6 vault houses the fuel oil storage tanks for the Unit 2 EDGs. The vault is below grade with access covers that are designed to be watertight. Thus, the licensee does not expect in-leakage into the vault during a LIP, especially considering that the covers are designed for a much higher head of water such as would occur during a CDB flood (PMF). The licensee also notes that if the covers did leak, the vault could accommodate 45,932 gallons (6140.3 cubic feet) of water before water could enter the tanks. The licensee concludes that the cover design and available capacity in the vault provides adequate APM. The NRC staff notes that the licensee's USAR, Section 2.4.3.5, describes the diesel fuel tanks and fuel storage vaults as designed to resist the hydrostatic forces, as well as other effects, associated with the PMF.

For the Screenhouse, the key components are the safety-related power cables for the cooling water pumps. The licensee's evaluation estimates that the LIP water would not enter the Screenhouse, with 0.08 feet of margin. The licensee notes that the Screenhouse could accommodate 378,114 gallons of in-leakage before the cables could be adversely impacted and that this margin, combined with the short duration of the LIP event, provides adequate APM.

3.2.3 NRC Evaluation of Available Physical Margin and Reliability

In order to review the licensee's assessment of APM for the FE, the staff reviewed its MSA assessment for PINGP, as documented by letter dated April 13, 2017 (ADAMS Accession No. ML17080A440). The licensee's MSA included a description of a structural evaluation of the key site buildings potentially impacted by the LIP event. Since these buildings are designed for significantly higher flood levels than the LIP, the CDB hydrostatic and hydrodynamic loadings were generally bounding, with the exception of several doors which would not have bulkheads installed due to a lack of warning time for the LIP event. The licensee then evaluated the loadings on these doors, assuming LIP conditions, and found them to be acceptable. The buildings with susceptible doors were the Turbine, Auxiliary, and D5/D6 Buildings; the Screenhouse did not have any susceptible doors because the LIP water elevation is predicted to be below the finished floor elevation. The staff's MSA assessment evaluated the LIP parameters and the licensee's structural evaluation, as well as the associated APM, and concluded that the SSCs important to safety in the Turbine, Auxiliary, and D5/D6 Buildings would not be affected by a LIP event, as it relates to mitigating strategies. In the FE, some of the key equipment is different from the MSA; however, many of the locations in the plant are similar. Specifically, for the FE, the staff concludes that the MSA evaluation of the structural capability and the adequacy of the APM for the (Unit 1 and Unit 2) Turbine Building and the D5/D6 Building would also apply to the FE. The staff also concludes that the MSA evaluation of the structural capability of the Auxiliary Building applies to the FE. Finally, the staff concludes that the Screenhouse structural capability is acceptable for LIP conditions because the projected water level does not reach the finished floor elevation.

In addition to the structural evaluation, the staff's MSA assessment also found the licensee's evaluation of the watertight design of the covers on the D5/D6 vault, with the resulting

conclusion that water would not enter the fuel oil tanks during a LIP event, to be reasonable. This conclusion from the MSA assessment is also applicable to the FE.

In its MSA assessment, the staff reviewed the LIP parameters and projected inflow to the Turbine Building and D5/D6 Building as it relates to the mitigating strategies equipment and found it to be acceptable. The staff concludes that this also applies to the FE because the same rationale (allowable versus projected inflow, equipment elevation) applies to the key SSCs located in those buildings.

For the Auxiliary Building, the licensee's FE describes slightly different SSCs requiring protection as compared to the MSA submittal. Specifically, the RHR pits are identified as critical, as compared to the FLEX connection points and charging pumps described in the MSA. The RHR pits are located at a lower building elevation than the MSA equipment, thus further review is warranted for the FE. The licensee's evaluation postulates that the LIP water may enter the Auxiliary Building, however it will not rise to a level that will overflow the metal curbs around the RHR pit openings. Thus, the presence and functionality of the RHR pit curbs are critical to the licensee's evaluation. Using the audit process, performed in accordance with a generic audit plan dated July 18, 2017 (ADAMS Accession No. ML17192A452), the staff confirmed that the design function of the metal curbs is for internal flooding protection. Specifically, the staff reviewed Design Change 143, "RHR Pit Flooding," dated August 25, 1975, which identifies the design intent of the curbs. The curbs are designed to protect the equipment in the RHR pits from flooding that may be present on the floor above. In addition the staff reviewed procedure 5AWI 8.9.0, "Internal Flooding Drainage Control," Revision 19, which identifies the RHR pit curbs as flood barriers. In this procedure, flood barriers are defined as devices credited with maintaining required equipment operable with postulated internal flooding. Thus, the staff was able to confirm that the curbs are designed to protect the equipment in the RHR pits against postulated flooding sources and should function as described in the licensee's FE for a LIP event. The staff also reviewed the licensee's APM justification and concludes that the calculated APM of 0.40 feet is acceptable based on: 1) the relatively torturous path that water must traverse to get to the key equipment; 2) the licensee's conservative assumption that the applicable doors will be open when they are normally maintained closed; and 3) the large volume of water (23,939 cubic feet, or approximately 179,225 gallons) that would have to enter the Auxiliary Building during the limited duration LIP event to reach the top of the RHR pit curbs.

For the Screenhouse, the staff notes that there is a large amount of building in-leakage that can be accommodated before there is any possible impact to a key SSC. Based on this margin, the staff concludes that the 0.08 feet of APM is acceptable.

In order to evaluate reliability considerations, the staff noted that site topography and building external flood boundaries are already credited as part of the PINGP design-basis flood protection, and thus concludes that a reliability analysis of these features is not necessary. These features include: (1) the exterior building design; other than the doorways discussed in the FE; (2) the barrier around the RHR pit openings; and (3) the cover on the D5/D6 vault.

Regarding the Turbine Building condenser pits, the staff considers that the very large volumes available in comparison to the projected in-leakage to be a significant factor in evaluating the reliability of this feature. In order for the condenser pits to not function as described, either a path between a Turbine Building water entrance point and the edge of the pits would have to be blocked or the pits would have to be filled prior to the event with a liquids or solids displacing a large portion of the available volume. The staff finds that the perimeter of the condenser pits is large enough to provide assurance that completely blocking it would be extremely unlikely. The

staff also finds that having such a large, relatively inaccessible volume displaced to the point that would adversely impact the FE assumptions is likewise unlikely. The staff views the use of operating experience, as described below, in conjunction with the licensee's corrective action program, to be sufficient to ensure that the flooding features described in the FE are maintained on a continual basis.

Similar to the Turbine Building condenser pit reliability evaluation and consistent with the MSA conclusion, the staff also concludes that the D5/D6 Building and Auxiliary Building internal volumes are passive and reliable such that they will accommodate LIP water inflow as described in the licensee's FE.

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.

The NRC staff concludes that the PINGP flood protection features described above have adequate APM and are reliable to maintain key safety functions, as described in Appendix B of NEI 16-05, Revision 1.

3.2.4 Overall Site Response

The licensee does not rely on any personnel actions or new modifications to the plant in order to respond to the beyond-design-basis LIP event. As described above, the licensee's evaluation relies on passive existing flood protection features to demonstrate adequate flood protection. Therefore, the staff concludes that no specific LIP-based site response evaluation is required.

4.0 AUDIT REPORT

The generic audit plan dated July 18, 2017, 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 PINGP audit included a review of the licensee's FE submittal, MSA submittal, USAR, site procedures, and engineering change documents 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 NRC staff's letter dated July 18, 2017.

5.0 CONCLUSION

The NRC staff has concluded that NSPM performed the PINGP 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 PINGP 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.

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 – STAFF ASSESSMENT OF FLOODING FOCUSED EVALUATION DATED AUGUST 28, 2017

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