NEXTera® ENERGY
POINT BEACH

June 22, 2017

NRC 2017-0032
10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Point Beach Nuclear Plant, Units 1 and 2
Docket 50-266 and 50-301
Renewed License Nos. DPR-24 and DPR-27

NextEra Energy Point Beach, LLC, Focused Evaluation for Local Intense Precipitation

References:

1. 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 (ML12073A348)
2. NextEra Energy Point Beach, LLC, Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.1, Flooding – Submittal of Flooding Hazards Reevaluation Report, dated March 12, 2015 (ML15071A413)
3. NRC Letter, Point Beach Nuclear Plant, Units 1 and 2 – Interim Staff Response to Reevaluated Flood Hazards Submitted in Response to 10 CFR 50.54(f) Information Request – Flood-Causing Mechanism Reevaluation (TAC Nos. MF6100 and MF6101), dated December 10, 2015 (ML15321A063)
4. Nuclear Energy Institute (NEI), Report NEI 16-05, Revision 1, External Flooding Assessment Guidelines, dated June 2016 (ML16165A178)
5. U.S. Nuclear Regulatory Commission, JLD-ISG-2016-01, Revision 0, Guidance for Activities Related to Near-Term Task Force Recommendation 2.1, Flooding Hazard Reevaluation; Focused Evaluation and Integrated Assessment, dated July 11, 2016 (ML16162A301)
6. NextEra Energy Point Beach, LLC Mitigating Strategies Assessment (MSA) Report Submittal, dated November 22, 2016 (ML16327A099)
7. NRC Letter, Point Beach Nuclear Plant, Units 1 and 2 – Staff Assessment of Response to 10 CFR 50.54(f) Information Request – Flooding-Causing Mechanism Reevaluation (CAC Nos. MF6100 and MF6101), dated May 19, 2017 (ML17136A322)

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued a 50.54(f) letter to all power reactor licensees and holders of construction permits in active or deferred status. Reference 1, Enclosure 2, requested submittal of a flooding hazards reevaluation report (FHRR). By letter dated March 12, 2015 (Reference 2), Point Beach Nuclear Plants, Units 1 and 2 (Point Beach), submitted a FHRR. By letter dated December 10, 2015 (Reference 3), NRC issued an interim staff response to the reevaluated flood hazards, and by letter dated May 19, 2017 (Reference 7), NRC issued a staff assessment of response to the 10 CFR 50.54(f) request. References 3 and 7 document the need to perform a focused evaluation for local intense precipitation (LIP). This letter provides the focused evaluation.

Point Beach's focused evaluation for local intense precipitation was performed in accordance with NRC endorsed guidance (References 4, 5) and used LIP flood information from the FHRR (Reference 2) and an additional analysis described in the focused evaluation. The focused evaluation was performed using Path 3, Demonstrate a Feasible Response to LIP, as described in NEI 16-05 (Reference 4). Point Beach's focused evaluation and Mitigating Strategies Assessment (MSA) for flooding (Reference 6) conclude that the current station procedures for implementing the FLEX strategy provide an acceptable method of assuring safe shutdown. The focused evaluation also includes an analysis using NEI 16-05, Path 2, Demonstrate Effective Flood Protection, that concludes equipment vulnerabilities are mitigated by reliability of existing credited flood protection features for the postulated LIP flood. As stated in the focused evaluation, one station change is necessary for demonstrating flood protection using Path 2. The change is to provide flood protection for the "B" train emergency diesel generator exhaust stacks to ensure availability of emergency alternating current (AC) power during a postulated LIP event.

The focused evaluation is included as Enclosure 1 to this letter.

This submittal contains one new regulatory commitment:

1. NextEra will provide flood protection for the "B" train emergency diesel generator exhaust stacks to ensure availability of emergency AC power during a postulated LIP event.

If you have any questions please contact Ms. Kim Locke, Acting Licensing Manager, at (920) 755-7655.

I declare under penalty of perjury that the foregoing is true and correct. Executed on June 22, 2017.

Sincerely,

NextEra Energy Point Beach, LLC

Robert Coffey
Site Vice President

cc: Director, Office of Nuclear Reactor Regulation
Administrator, Region III, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC

ENCLOSURE 1

POINT BEACH NUCLEAR PLANT FLOODING
FOCUSED EVALUATION (FE) SUMMARY

NEEPBX071-REPT-001, REVISION 0

(18 pages follow)

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Title:	POINT BEACH NUCLEAR PLANT FLOODING FOCUSED EVALUATION (FE) SUMMARY	REPORT NO.: NEEPBX071-REPT-001 REVISION: 0 Client: NextEra Project Identifier: NEEPBX071

Item	Cover Sheet Items	Yes	No
1	Does this Project Report contain any open assumptions, including preliminary information that require confirmation? (If **YES**, identify the assumptions.)	☐	☒
2	Does this Project Report supersede an existing Project Report? (If **YES**, identify the superseded Project Report.) **Superseded Project Report No.** _____	☐	☒

Scope of Revision:
Initial Issue

Revision Impact on Results:
N/A

Safety-Related ☐ **Non-Safety-Related** ☒

Originator: Mark Reiff

Design Verifier [1] **(Reviewer for Non-Safety-Related):** Brian Froese

Approver: Jared Monroe R. FROESE FOR J. MONROE PER EMAIL **Date:** 5/31/2017

Note 1: Design Verification is required for all safety-related Project Reports. A review is adequate for non-safety-related Project Reports.

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PROJECT REPORT REVISION STATUS

REVISION	DATE	DESCRIPTION
0	5/31/2017	Initial Issue

ATTACHMENT REVISION STATUS

APPENDIX NO.	NO. OF PAGES	REVISION	ATTACHMENT NO.	NO. OF PAGES	REVISION
N/A					

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POINT BEACH NUCLEAR PLANT FLOODING FOCUSED EVALUATION (FE) SUMMARY

1.0 EXECUTIVE SUMMARY

This Focused Evaluation is prepared in response to the request for information (RFI) related to External Flooding required by the March 12, 2012 10 CFR 50.54(f) letter (Ref 1). The RFI was issued as part of implementing lessons learned from the Fukushima Dai-ichi accident, to address Recommendation 2.1 of the NRC's Near-Term Task Force report. This FE applies the requirements of JLD-ISG-2016-01 (Ref 10) and the guidance contained in NEI 16-05 (Ref 9).

The Point Beach Nuclear Plant (PBNP) site Flood Hazard Reevaluation Report (FHRR) was submitted to the NRC on March 12, 2015 (Ref 3) and is outlined in the Mitigating Strategies Assessment (MSA) Report submittal dated November 22, 2016 (Ref 12). No changes to the flooding analysis have been made since the issuance of the FHRR. However, an additional analysis has been developed (Ref 15) to reassess conservative assumptions in the original analysis and also to correct an error in the FLO-2D model which was reported by Enercon Services Inc. under 10 CFR 21 as EN-52394. The FLO-2D model corrections do not affect previous submittals because the only effect is on drainage systems, which were not credited in the Point Beach analysis. The additional analysis (Ref 15) is used as an input to this Focused Evaluation (FE).

As stated in the FHRR (Ref 3), one flood mechanism exceeds the design basis flood level at the Point Beach Nuclear Plant. The flood mechanism is Local Intense Precipitation (LIP) and is the subject of this FE.

Local Intense Precipitation (LIP)

Associated effects (AE) and flood event duration parameters are assessed as a part of the MSA which was submitted November 22, 2016 (Ref 12). The MSA concludes that FLEX procedures provide an acceptable method of assuring safe shutdown, which is consistent with Path 3 as described in NEI 16-05 (Ref 9).

This FE also concludes that equipment vulnerabilities are mitigated by reliability of existing credited flood protection features in a postulated LIP flood. The conclusion is that all KSFs remain available in a postulated LIP flood, after resolution of the issued identified in Section 5.3. This approach demonstrates a defense-in-depth approach using the guidance of Path 2 in NEI 16-05 (Ref 9).

While the primary basis of this FE is Path 3, a defense-in-depth approach concludes that the intent of adequate flood protection is also met, as defined in Path 2 per the guidance of NEI 16-05, Rev 1. This submittal completes the actions related to External Flooding required by the March 12, 2012 10 CFR 50.54(f) letter (Ref 1) without the need for the NRC staff to perform Phase 2 decision making per JLD-ISG-2016-01 (Ref 10) and NEI 16-05 (Ref 9).

2.0 BACKGROUND

On March 12, 2012, the NRC issued a Request for Information (Ref 1) associated with Near-Term Task Force (NTTF) Recommendation 2.1 for Flooding. One of the Required Responses directed licensees to submit a FHRR. For Point Beach Nuclear Plant, Units 1 and 2, the FHRR was submitted on March 12, 2015 (Ref 3).

Following the Commission's directive to NRC Staff (Ref 4), the NRC issued a letter to the industry (Ref 5) indicating that new guidance is being prepared which provides for a "graded approach to flooding reevaluations" and "more focused evaluations of local intense precipitation and available physical margin in lieu of proceeding to an integrated assessment." To assist the industry in meeting the new guidance, NEI prepared the new "External Flooding Assessment Guidelines" in NEI 16-05 (Ref 9), which was subsequently endorsed by the NRC.

NEI 16-05 indicates that each flood-causing mechanism not bounded by the design basis flood (using only still water and/or wind-wave run-up level) should follow one of the following five assessment paths:

- Path 1: Demonstrate Flood Mechanism is Bounded Through Improved Realism
- Path 2: Demonstrate Effective Flood Protection
- Path 3: Demonstrate a Feasible Response to LIP
- Path 4: Demonstrate Effective Mitigation
- Path 5: Scenario Based Approach

Completion of the actions related to External Flooding as required by the March 12, 2012, 10 CFR 50.54(f) letter without the need for the NRC staff to perform Phase 2 decision making per JLD-ISG-2016-01 and NEI 16-05, require a FE for non-bounded flood-causing mechanisms in Paths 1, 2, or 3. Non-bounded flood mechanisms in Paths 4 or 5 require an Integrated Assessment.

3.0 TERMS AND DEFINITIONS

- AIMs – Assumptions, Inputs, and Methods
- APM – Available Physical Margin
- CLB – Current Licensing Basis
- DB – Design Basis
- EDG – Emergency Diesel Generator
- ELAP – Extended Loss of A/C Power
- FE – Focused Evaluation
- FHRR – Flood Hazard Reevaluation Report
- FLEX – Diverse and flexible coping strategies covered by NRC order EA-12-049
- Key SSC – A System, Structure or Component relied upon to fulfill a Key Safety Function
- KSF – Key Safety Function, i.e. core cooling, spent fuel pool cooling, or containment function
- LIP – Local Intense Precipitation
- LUHS – Loss of Ultimate Heat Sink
- MSA – Mitigating Strategies Assessment as described in NEI 12-06 Rev 2, App G
- MSFHI – Mitigating Strategies Flood Hazard Information
- NTTF – Near Term Task Force commissioned by the NRC to recommend actions following the Fukushima Dai-ichi accidents

4.0 FLOOD HAZARD PARAMETERS FOR UNBOUNDED MECHANISMS

The NRC has completed the "Interim Staff Response to Reevaluated Flood Hazards" (Ref 7) related to the Point Beach Nuclear Plant FHRR (Ref 3). In Reference 7, the NRC states, "The NRC staff has concluded that the licensee's reevaluated flood hazards information, as summarized in Enclosure 1, is suitable for the assessment of mitigating strategies, developed in response to Order EA-12-049 (i.e., defines the mitigating strategies flood hazard information described in guidance documents currently being finalized by the industry and NRC staff) for Point Beach. Further, the NRC staff has concluded that the licensee's reevaluated flood hazard information is a suitable input for other assessments associated with Near-Term Task Force Recommendation 2.1 "Flooding". Enclosure 1 to Reference 7 includes a summary of the current design basis and reevaluated flood hazard parameters, respectively. It is also noted that NEI 16-05, Rev 1, "External Flooding Assessment Guidelines" (Ref 9) endorses the use of information contained in the MSA (Ref 12) to complete this FE.

In Table 1 of the enclosure to Reference 7, the NRC lists the following flood-causing mechanisms which are included as part of the site's Current Design Basis external flood evaluations:

- Local Intense Precipitation
- Storm Surge
- Seiche

In Table 2 of the enclosure to Reference 7, the NRC lists flood hazard information (specifically still water elevation and wind-waves run-up) for the following flood-causing mechanism that is not bounded by the Current Design Basis hazard flood level:

- Local Intense Precipitation

The following summarizes how the unbounded LIP flooding mechanism is addressed in this external flooding assessment:

Unbounded Flood Mechanism	Summary of Assessment
Local Intense Precipitation (LIP)	Using Path 3, FLEX procedures have been evaluated in the MSA as an effective method of assuring safe shutdown, with additional margins identified in this FE. Also, using Path 2 as a separate and redundant strategy, this FE shows that passive flood protection features have adequate APM to assure KSFs remain available during the LIP after resolution of the issued identified in Section 5.3. These two separate and redundant strategies (FLEX and reliability of existing flood protection) provide defense in depth to assure safe shutdown in a postulated LIP event.

5.0 OVERALL SITE FLOODING RESPONSE

5.1 DESCRIPTION OF SITE RESPONSE – FLEX STRATEGIES

The FLEX strategies and procedures for flooding have been evaluated previously in the MSA (Ref 12), and accepted by the NRC (Ref 13). The MSA identifies and evaluates all expected local operator actions which could be challenged by flooding in a LIP event. LIP flood levels build up very quickly over a one-hour period, and then recede very quickly by draining to Lake Michigan. During the period of inundation, flood water gets into some areas of the plant which challenges operator access to some plant equipment. The conclusion is that LIP waters recede quickly enough that operator actions can be reasonably completed in the time required.

5.2 DESCRIPTION OF SITE RESPONSE – EFFECTIVE FLOOD PROTECTION

Assumptions, Inputs and Methodology

As requested by the NRC in the original Request for Information (Ref 1), very conservative and bounding assumptions were used in the original submittal of the FHRR (Ref 3). In the Point Beach submittal of the MSA (Ref 12), the assumption of coincidental high lake level was removed based on extremely low probability, and to provide more realism into the MSA scenario. Guidance in NEI 16-05 (Ref 9) is applied for this Focused Evaluation, and three additional assumptions are adjusted to reflect a more realistic scenario. These include:

1. Storm Drain System. The storm drainage system is assumed to flow, but at reduced capacity, based on the following justification.

   EPRI Report 3002008113 (Ref 19) and NUREG / CR-7046 (Ref 20) both discuss acceptable methods for justification of partial credit of the storm drainage system. The methods involve consideration of site-specific hydrometeorological data which is provided in Ref 3 for PBNP. Ref 3 concludes that sediment at the site is not significant. Ref 3 also provides data on water velocities during the LIP event which can be used to judge the potential contribution of site debris transport which could result in clogging of the storm drain system.

   In general, the FHRR (Ref 3) reports the velocities of flood water during the LIP event range between 1.0 to 3.0 feet per second on the west side of the plant. On the east side, velocities are higher due to the sloping grade into Lake Michigan. In these ranges, it would be reasonable for available debris to be transported by the flood water. However, the availability of debris is limited on site due to control and monitoring programs. Specifically, procedure MA-AA-100-1008 (Ref 18) provides administrative restrictions on debris. The emphasis of the procedure is to limit debris that could become a hazard during natural events such as tornadoes, high wind and storms. The drainage basin credited in the

FHRR (Ref 3), and thus the area available as debris sources, includes the protected area of the power plant and some limited areas north and west of the plant. In addition, procedure NP 7.7.9 (Ref 17) provides monitoring of the yard drain system twice per year for obstructions and flow, and also annually to verify the engineering basis is valid.

Further details of the clogging of grated inlets to storm drain systems as it applies to the Point Beach site are discussed in references to Engineering Evaluation 2015-0016 (Ref 15). The assumptions and guidance provided indicate that the inlets should be reduced by 50% capacity and the flow perimeter should be reduced by 25% to account for debris clogging. These parameters were used in the additional analysis documented in Engineering Evaluation 2015-0016 (Ref 15).

2. Surface Depressions and Ponding. The assumption was removed which stated that surface depressions and ponding effects are ignored. The existence and the parameters of these surface depressions were verified as part of the topography mapping in the FHRR (Ref 3).

3. Maximum Storage and Temporary Structures. The assumption was removed which stated that maximum storage areas exist around the station grounds and that they are unavailable for water storage and flow. This assumption was made in the FHRR (Ref 3) to be as conservative as possible, but for this FE, it is reasonable to revise the storage areas based on the justification below.

   Flood Zones are defined and controlled in Procedure NP 8.4.17, "PBNP Flooding Program" (Ref 21). In a LIP event, the most important flood zones are the areas north and south of the Circulating Water Pump House, which provide the ultimate drain path to Lake Michigan for much of the LIP flood water on site. Large portions of that area are very conservatively assumed to be blocked by temporary structures in the FHRR, which significantly obstructs the drain path to Lake Michigan. However, the site administratively precludes temporary structures in that area under Procedure NP 7.5.2, "PBNP Owner controlled Area Temporary Structure Limitations" (Ref 16). In general, Ref 16 also requires permits for all temporary structures and that the structure is elevated to allow flow of flood water underneath the structure, which further minimizes the impact on the flooding analysis.

   Temporary storage areas for equipment and materials were also evaluated for impact. Temporary storage in Flood Zones is controlled administratively, under procedure NP 8.4.17, "PBNP Flooding Program" (Ref 21). The procedure requires permits for temporary storage in Flood Zones with specific criteria for approval. Additional reviews of temporary storage of equipment and materials is

required by procedure MA-AA-100-1008, "Station Housekeeping and Material Control" (Ref 18). These administrative controls provide additional assurance that the flood zones near the Circulating Water Pump House remain open and available for drainage to Lake Michigan in a LIP event.

The most likely time periods for increased external storage areas or temporary structures is during a unit refueling outage which further minimizes the vulnerability.

In addition, all external flood zones are monitored twice per year by Maintenance personnel and once per year by Engineering in accordance with Procedure NP 7.7.9, "Facilities Monitoring Program" (Ref 17).

Based on the administrative controls, it is extremely unlikely that storage areas would take up the space assumed in the FHRR (Ref 3). Control programs for temporary structures and storage areas exist specifically to avoid impacts on external flooding and thus this assumption is removed to provide more realism for the FE.

The effects of these three assumptions are evaluated in an Engineering Evaluation 2015-0016 (Ref 15). Ref 15 also incorporates correction of the FLO-2D errors which were reported separately by Enercon Services Inc. FLO-2D issues had no impact on previous analyses.

The results of Ref 15 demonstrate that all required KSFs will remain available during a LIP event (after resolution of the issue identified in Section 5.3 below). One key SSC for each unit (the "A" train EDGs) is challenged by postulated LIP flooding due to their location at lower elevations. However, using the same methodologies and relying on the same flooding features as the CLB flooding events, the additional analysis (Ref 15) shows that the separate and redundant "B" train EDGs remain available during LIP flooding due to their location at higher elevations (after resolution of the issue identified in Section 5.3 below). One "B" train EDG is capable of supplying Emergency Power to "B" train for both PBNP units. In the rare occurrence that one of the "B" train EDGs is out of service for maintenance, the in-service "B" train EDG is aligned to provide emergency power to both units as directed by site procedures.

Thus (after resolution of the issue identified in Section 5.3 below), one Key SSC for each unit ("A" Train EDG) is considered inoperable due to the LIP flood, but the overall KSF (Emergency AC Power) remains available via the "B" train EDGs. Existing passive flood protection features that are credited for the CLB floods are sufficient to assure all KSFs remain available in the LIP flooding event.

5.3 Summary of Plant Modifications and Changes

Following issuance of the FHRR (Ref 3), internal review of the LIP event has revealed vulnerability with respect to the "B" train Emergency Diesel Generators. The exhaust stacks are exposed to precipitation, and the stack drain valves are currently maintained

normally closed to prevent carbon monoxide from building up in the "B" train EDG mechanical equipment room. Thus, the "B" train diesels may not operate if the water anticipated in the postulated LIP event accumulates in the exhaust stacks. This issue is being evaluated by Site Engineering for solutions. However, it does not directly affect this FE based on the Path 3 method of NEI 16-05, which assumes that no Emergency AC Power is operable. The "B" train EDG exhaust stack flooding issue does have an impact on evaluation of the Path 2 discussion in this FE, which is presented as defense-in-depth. Resolution of the issue is being tracked in the Corrective Action Program.

6.0 LIP FLOOD IMPACT ASSESSMENT

6.1 DESCRIPTION OF FLOODING IMPACTS

As described in the Mitigating Strategies Assessment (Ref 12), the LIP flooding duration is 60 minutes and peak flood heights exceed peak CLB flood heights at several exterior doors around the station. However, most of the site is situated 8 ft to 26 ft above the nominal level of Lake Michigan, so the high volumes of water from the LIP will drain naturally into Lake Michigan very quickly. Within two to four hours of the start of the LIP event, most critical areas have returned to very low levels (Ref 3). Therefore, the FLEX strategies can be implemented as described in the MSA (Ref 12).

As defense in depth, additional analysis provided in Engineering Evaluation 2015-0016 (Ref 15) evaluates the dynamic flooding effects in critical rooms and areas of the plant due to postulated LIP flooding. The methodology uses the same plant models, relies on the same passive flood features, and uses the same acceptance criteria as the evaluations for the CLB flood. Ref 15 determined that one Key SSC for each unit ("A" Train EDGs) could be inoperable due to the LIP flood, but the overall KSF (Emergency AC Power) remains available due to the higher elevation of the redundant "B" train EDGs. The "A" train EDGs are located 8 ft above nominal level of Lake Michigan. After resolution of the issue described in Section 5.3, the "B" train EDGs will remain available due to their location 28 ft above nominal Lake Michigan level. All other key SSCs remain available during this reevaluated flooding mechanism.

6.2 EFFECTIVE OVERALL SITE RESPONSE USING FLEX (PATH 3)

Adequacy of the flood protection features and the associated manual actions for FLEX are described in detail in the MSA (Ref 12). The assessments in Ref 12 were developed in accordance with the requirements of NEI 12-06 (Ref 6) and meet the requirements of Section B.2 of NEI 16-05. The following additional explanation is provided for this Focused Evaluation.

Adequacy of Manual Actions—FLEX Strategies

As addressed in the MSA (Ref 12) peak LIP flood heights could impair access to some critical areas that are needed for local operator actions to carry out FLEX strategies. The critical areas identified in the MSA submittal (Ref 12) include the Auxiliary Feedwater Pump Room and the Vital Switchgear Room. The evaluation in Ref 12 shows that the LIP water recedes quickly enough that local operator actions can be safely performed within the time frames identified as sensitive for FLEX strategies. In addition, equipment routes and staging areas for Phase 2 (on-site staged equipment) and Phase 3 (SAFER off site equipment) have also been evaluated as acceptable within the time frames needed. No new actions have been identified beyond what has been evaluated in the MSA (Ref 12). Also, no additional procedures or training needs have been identified. Direction of all necessary actions is adequately documented in the FLEX procedures.

Mitigation of Loss of Key SSCs or KSF—FLEX Strategies

The "A" train EDGs are the only key SSCs that are identified as challenged in the LIP flood in Reference 15 (pending resolution of the issue identified in Section 5.3). If the redundant "B" train is unexpectedly inoperable then the KSF of Emergency AC Power is affected. If that would occur, the Shift Manager would declare an ELAP and implement FLEX procedures. The MSA (Ref 12) demonstrates FLEX procedures, including all manual actions anticipated during a LIP event, can be implemented without modification or changes. Thus, further evaluation per Appendix C of NEI 16-05 is not required.

6.3 Effective Flood Protection (Defense-In-Depth Using Path 2)

Engineering Evaluation 2015-0016 (Ref 15) determined that during a postulated LIP flood, the peak flood height outside the "A" train EDG rooms could challenge operability of the "A" train EDGs. As such, there is negative APM for the "A" train EDGs, but the following discussion demonstrates that the opposite and redundant "B" train EDGs, and thus the overall KSF of Emergency AC Power, remain available (after resolution of the issue described in Section 5.3). No other key SSC is identified as potentially inoperable due to the LIP flood.

Adequate APM

As part of defense in depth, consideration is given to the actual likelihood of inoperability of the "A" train EDGs. The evaluation in Ref 15 determined that the flood heights external to the "A" train EDG rooms could reach 8.04 inches above the elevation of the floors in the "A" train EDG rooms. Ref 15 conservatively assumes that the flood level inside the "A" train EDG rooms matches the outside level and thus, could also rise to 8.04 inches. The flood level could exceed the allowable flood height of 8.0 inches (Ref 15). The assumption is based on flood louvers in the external walls of both "A" train EDG rooms which would reasonably allow external flood water to enter the rooms. However, the LIP flood is a transient flood and the calculated peak flood exceeds 8.0 inches for less than three minutes during the transient (Ref 15). The small amount of driving head from the external flood through the louvers for the short time frame may not actually result in flooding above 8.0 inches inside the rooms. Thus, in an actual LIP flood, it is reasonable that one or both of the "A" train EDGs would remain available. This would add redundancy to the flooding evaluation because both trains of Emergency Power (the KSF) could remain available. This Focused Evaluation does not credit availability of either "A" train EDG and this discussion is only provided as additional defense-in-depth.

Justification of KSF Remaining Available During the LIP Event

The Emergency AC Power System at Point Beach consists of two independent trains ("A" and "B"). The "B" train EDGs are not challenged by the LIP, due to their higher elevation (pending resolution of the issue identified in Section 5.3).

The design basis of PBNP assumes availability of only one train ("A" or "B") of Emergency AC Power for design basis accidents. Each of the two trains is powered by two redundant EDGs (total of four EDGs). Each of the four EDGs is designed to provide emergency AC power to its respective train of emergency AC power ("A" train or "B" train) for both operating units. Essentially, any one of the four EDGs is sufficient to provide Emergency AC Power in a Design Basis Accident. Since both "B" train EDGs are evaluated as available during the LIP event due to their elevation (Ref 15) (after resolution of the issue identified in Section 5.3), this criterion will be met, even using the more stringent requirements of a Design Basis Accident.

Based on APM, no other Key SSC is identified as inoperable due to the LIP flood scenario.

Reliability of Flood Protection Features

This FE relies upon passive flood protection features that are identified in NP 8.4.17, Rev 26, "PBNP Flooding Program" (Ref 21). Credited features include external walls and doors and some internal doors and walls as they relate to Key SSCs. Since the LIP flood postulates higher flood heights against certain doors as compared to the CLB flood, the affected doors were evaluated for the higher flood heights in the MSA (Ref 12) and considered acceptable. No additional barriers are credited in this Focused Evaluation.

Whether one or both trains of EDGs remain available, the justification is the same. Site topography and building external flood boundaries that are relied upon are already credited as part of the site CLB for flood protection. Per Appendix B of NEI 16-05 (Ref 9), a reliability analysis to reconstitute all aspects of the original barrier design is not required. There are no active components credited.

Adequate Site Response

After resolution of the issue identified in Section 5.3, it is expected that all KSFs will remain available during a LIP event and that an ELAP would not occur. While one key SCC ("A" Train EDGs) could be rendered inoperable by a LIP flood, the redundant train will remain available. Since only one train is needed, the overall KSF (Emergency AC Power) will be expected to remain available and no additional manual actions would be needed for the LIP flood mechanism. Since no manual actions are required, an overall site response is not necessary.

7.0 CONCLUSION

The LIP is the only flooding mechanism that was not bounded by the PBNP CLB. The FHRR (Ref 3) concluded that no interim actions are required and that FLEX procedures could be implemented as designed for required site response. This conclusion was also presented in more detail in the MSA (Ref 12). Thus, it is concluded that evaluation using Path 3 of NEI 16-05 assures protection for the LIP flooding mechanism.

In addition, and as defense-in-depth, this FE demonstrates that Path 2 of NEI 16-05 also provides protection. Flooding vulnerabilities due to the postulated LIP mechanism are addressed by reliable passive flood protection of KSFs. Although one Key SSC may be inoperable due to the LIP (the "A" train EDGs), the opposite and redundant "B" train EDGs are expected to remain operable in a LIP event (after resolution of the issue identified in Section 5.3). Thus, the KSF (Emergency AC Power) is expected to remain available (after resolution of the issue identified in Section 5.3). Thus, it is concluded that evaluation using Path 2 of NEI 16-05 will provide additional defense in depth for the LIP flooding mechanism.

This submittal completes the actions related to External Flooding required by the 10 CFR 50.54(f) letter dated March 12, 2012.

8.0 REFERENCES

1. 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; March 12, 2012.
2. NRC Letter, Supplemental Information Related to Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) regarding Flooding Hazard Reevaluations for Recommendation 2.1 of the Near Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 1, 2013.
3. NRC 2015-0017, Next Era Energy Point Beach, LLC, Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.1, Flooding-Submittal of Flooding Hazards Reevaluation Report, March 12, 2015.
4. NRC Staff Requirements Memoranda to COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Reevaluation of Flooding Hazards", dated March 30, 2015.
5. NRC Letter, Coordination of Requests for Information Regarding Flooding Hazard Reevaluations and Mitigating Strategies for Beyond-Design-Basis External Events, dated September 1, 2015.
6. Nuclear Energy Institute (NEI), Report NEI 12-06, Rev 2, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, dated December 2015.
7. NRC Letter, Point Beach Nuclear Plant, Units 1 and 2 – Interim Staff Response to Reevaluated Flood Hazards Submitted in Response to 10 CFR 50.54(f) Information Request – Flood-Causing Mechanism Reevaluation (TAC NOS. MF6100 AND MF6101), December 10, 2015.
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