

OFFICIAL USE ONLY – SECURITY RELATED INFORMATION



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

February 12, 2018

Mr. Tom Ray
Site Vice President
Duke Energy Carolinas, LLC
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078

SUBJECT: MCGUIRE NUCLEAR STATION, UNITS 1 AND 2 – STAFF ASSESSMENT OF FLOODING FOCUSED EVALUATION (CAC NOS. MG0127 AND MG0128; EPID L-2017-JLD-0017)

Dear Mr. Ray:

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 March 12, 2014 (ADAMS Accession No. ML14083A415), Duke Energy Carolinas, LLC (Duke, the licensee) submitted its flood hazard reevaluation report (FHRR) for McGuire Nuclear Station, Units 1 and 2 (McGuire).

By letters dated September 3, 2015 (ADAMS Accession No. ML15230A070), and October 31, 2016 (ADAMS Accession No. ML16293A666), the NRC issued an interim staff response (ISR) and staff assessment to the FHRR, respectively, describing the reevaluated flood hazards that exceeded the current design basis (CDB) for McGuire and were considered suitable inputs for the mitigating strategies assessment (i.e., defines the mitigating strategies flood hazard information described in Nuclear Energy Institute (NEI) guidance document NEI 12-06). As stated in the letters, because the local intense precipitation (LIP), streams and rivers, failure of dams, and probable maximum storm surge (PMSS) flood-causing mechanisms at McGuire are not bounded by the plant's CDB, additional assessments of these flood hazard mechanisms are necessary.

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

OFFICIAL USE ONLY – SECURITY RELATED INFORMATION

T. Ray

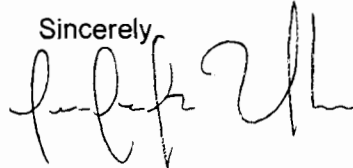
- 2 -

By letter dated June 28, 2017 (ADAMS Accession No. ML17187A172), the licensee submitted the focused evaluation (FE) for McGuire. The FEs are intended to confirm that licensees have adequately demonstrated, for unbounded mechanisms identified in the ISR letter for the reevaluated flood hazard, 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 local intense precipitation. The purpose of this letter is to provide the NRC's assessment of the McGuire FE.

As set forth in the attached staff assessment, the NRC staff has concluded that the McGuire FE was performed consistent with the guidance described in 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 exists for the LIP, streams and rivers, failure of dams, and PMSS flood mechanisms during a beyond-design-basis external flooding event at McGuire. This closes out the licensee's response for McGuire for the reevaluated flooding hazard portion of the 50.54(f) letter and the NRC's efforts associated with EPID L-2017-JLD-0017 (previously CAC Nos. MG0127 and MG0128).

If you have any questions, please contact me at 301-415-3809 or via e-mail at Juan.Uribe@nrc.gov.

Sincerely,



Juan F. Uribe, Project Manager
Beyond-Design-Basis Management Branch
Division of Licensing Projects
Office of Nuclear Reactor Regulation

Docket Nos. 50-369 and 50-370

Enclosures:

1. Staff Assessment of to the Flooding
Focused Evaluation for McGuire (non-public)
2. Staff Assessment of to the Flooding
Focused Evaluation for McGuire (public)

cc w/encl: Distribution via Listserv

~~OFFICIAL USE ONLY—SECURITY RELATED INFORMATION~~

STAFF ASSESSMENT BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO THE FOCUSED EVALUATION FOR
MCGUIRE NUCLEAR STATION, UNITS 1 AND 2
AS A RESULT OF THE REEVALUATED FLOODING HAZARD NEAR-TERM TASK FORCE
RECOMMENDATION 2.1 - FLOODING
(CAC NOS. MG0127 AND MG0128; EPID L-2017-JLD-0017)

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 (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 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

Enclosure 2

Recommendation 2.1, Flood Hazard Reevaluation" (ADAMS Accession No. ML16162A301). Therefore, NEI 16-05, Revision 1, as endorsed, describes acceptable methods for demonstrating that McGuire Nuclear Station, Units 1 and 2 (McGuire) has effective flood protection.

2.0 BACKGROUND

This 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 focused evaluation.

Flood Hazard Reevaluation Report

By letter dated March 12, 2014 (ADAMS Accession No. ML14083A415), Duke Energy Carolinas, LLC (Duke, the licensee) submitted its FHRR for McGuire. By letters dated September 3, 2015 (ADAMS Accession No. ML15230A070), and October 31, 2016 (ADAMS Accession No. ML16293A666), the NRC issued an interim staff response (ISR) and staff assessment to the FHRR, respectively, describing the reevaluated flood hazards that exceeded the CDB for McGuire and were considered suitable inputs for further assessments. As stated in those letters, because the local intense precipitation (LIP), streams and rivers, failure of dams, and probable maximum storm surge (PMSS) flood-causing mechanisms at McGuire are not bounded by the plant's CDB, further assessments were necessary in order to evaluate the site's response to these flooding mechanisms.

Mitigation Strategies Assessment

By letter dated December 15, 2016 (ADAMS Accession No. ML16355A210), Duke submitted the McGuire MSA for review by the NRC staff. The MSAs were 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 May 19, 2017 (ADAMS Accession No. ML17124A087), the NRC issued its assessment of the McGuire MSA. The NRC staff concluded that the McGuire 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 also 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 28, 2017 (ADAMS Accession No. ML17187A172), the licensee submitted its FE for McGuire. 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 local intense precipitation. These 3 options associated with performing a 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 McGuire FE.

3.0 TECHNICAL EVALUATION

In its FE submittal, Duke stated that it followed Path 2 of NEI 16-05, Revision 1 and utilized Appendices B and C for guidance on evaluating the site strategy. The McGuire FE addresses the LIP, streams and rivers, failure of dams, and PMSS flooding mechanisms, which were found to exceed the plant's CDB, as described in the ISR letter. This technical evaluation addresses, as applicable, 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

Table 3.1 describes the reevaluated flood hazards that exceeded the CDB for McGuire and were considered suitable inputs for further assessments as described in the September 3, 2015, ISR letter. The NRC staff notes that for McGuire, the plant yard is located at elevation 760.0 feet (ft.) mean sea level (MSL).

Table 3.1 Summary of Reevaluated Flood Hazards Elevations Included in the McGuire FE.

| Flood-Causing Mechanism | Stillwater Elevation (MSL) | Wind-Wave Runup Height (MSL) | Maximum Flood Elevation (MSL) | Plant Design or Licensing Basis (MSL) | Bounded or Not Bounded (NB) |
|---|-----------------------------------|-------------------------------------|--------------------------------------|--|------------------------------------|
| LIP | 761.1 ft. | Minimal | 761.1 ft. | 760.4 ft. | NB |
| Streams and Rivers | 777.9 ft. | Not Applicable | 777.9 ft. | 773.0 ft. | NB |
| Dam Failure | | | | | |
| Upstream (Combined Event) | [[REDACTED]] | [[REDACTED]] | [[REDACTED]] | [[REDACTED]] | NB |
| Standby Nuclear Service Water Pond Dam (downstream) | [[REDACTED]] | [[REDACTED]] | [[REDACTED]] | [[REDACTED]] | NB |
| PMSS | 778.5 ft. | 0 ft. | 778.5 ft. | 774.8 ft. | NB |

The associated effects (AE) and flood event duration (FED) parameters were assessed by Duke and have already been reviewed by the NRC, as summarized by letter dated May 18, 2017 (ADAMS Accession No. ML17124A087). Duke used the AE and FED parameters as input to the McGuire FE and concluded that the site's flood strategy is effective in protecting structures, systems, and components (SSCs) that support key safety functions (key SSCs). Duke supported its conclusion of adequate flood protection by demonstrating adequate available physical margin and reliable flood protection features for LIP, streams and rivers, failure of dams, and PMSS. In its FE, the licensee also stated that no changes to the flooding analysis

have been performed since the issuance of the ISR letter. The strategy for each unbounded flood mechanism is described below.

3.2 Flooding Impacts on Plant Conditions

With regards to the streams and rivers, dam failures, and PMSS flood-causing mechanisms, the original analysis determined that the protective embankments [[REDACTED]] were overtopped as a result of the maximum water elevations expected to occur. In its FE, the licensee stated that the protective embankments are no longer overtopped due to the installation of permanent barriers that raise the minimum height of the embankment to elevation [[REDACTED]]. Therefore, no impact to the site is currently expected to occur as a result of these modifications.

With regards to the LIP event, the licensee stated that several passive flood protection features in the Auxiliary Building (AB) will be overtopped, which will consequently impact SSCs that have key safety functions (KSFs). All SSCs with KSFs located in the AB below the flood levels listed were conservatively assumed to be impacted by the licensee. All other SSCs with KSFs are either not impacted (i.e., Reactor Building, due to the design and location) or are listed as SSCs with no KSFs and are therefore outside the scope of the FE.

3.3 Evaluation of Flood Impact Assessment for LIP

The LIP event has the potential to impact external doors without flood protection barriers (specifically, the un-sealed portions of the door frame) located at the AB, therefore causing water to ingress and impacting SSCs with KSFs below 761.1 ft. MSL. With regards to the flood protection design of the AB, the McGuire UFSAR (Rev. 18 dated April 24, 2014) states that:

1. "All low level piping into the Auxiliary Building, such as nuclear service water pipes, are encased in the structural foundation slabs or walls and do not require seals.
2. All exterior entrances are at El. 760.5 feet or above, or they are provided with curbs, drains, or inclined ramps to prevent the inflow of water.
3. The only piping penetrating the exterior wall of the Auxiliary Building that is not encased in the concrete structure is piping for the fire protection system. The lower elevation of which this piping penetrates the building, is Elevation 755 feet plus 4 inches...."

Given that the CDB external flood protection passive features protect against flood levels up to elevation 760.5 ft. MSL, the expected additional height of water as a result of a LIP event is approximately 0.6 ft.

3.3.1 Warning Time

As discussed in the MSA response dated May 19, 2017, the NRC concluded that the warning time of 72 hours was computed appropriately and in accordance with acceptable guidance described in NEI 15-05, "Warning Time for Local Precipitation Events," (ADAMS Accession No. ML18005A076). This advanced warning time is relied upon for the completion of time sensitive actions such as the installation of temporary flood protection barriers.

The NRC staff notes that the period of inundation (2.5 hours) and the period of recession (with minimal impacts expected to the site) have been previously discussed in more detail in the MSA and FHRR responses, and therefore are not evaluated in this assessment.

3.3.2 Overall Site Response

As discussed in the FHRR and MSA responses, the site preparations begin before the initiating event. Once McGuire personnel receives reports from the meteorologist that rain is expected to exceed 5.35 inches over a 24-hour period within the next 3-day forecast (i.e., 72 hours later), this monitoring trigger starts the actions described in procedure OP/0/B/6100/031, such as material alignment and organization. At 48 hours before the predicted event, the site personnel will further mobilize and additional organization activities will be performed. At 24 hours before the event, if the rainfall is still expected to exceed the 5.35 inch threshold over a 24-hour period, the temporary barriers will be installed. Specifically, McGuire procedure OP/0/B/6100/031 lists all doors that are impacted and that have passive flood barriers pre-staged nearby. The scope of the procedure involves the protection of nine single personnel doors and two rollup doors. The procedure also contains guidance and signoffs for different levels of McGuire staff in order to ensure communication and awareness throughout the implementation process. As described in the FE and McGuire Work Order #02132219 – Task #28, the licensee stated that the total time to install the temporary barriers was approximately 1.4 hours, thus providing considerable margin between the anticipatory time available and the beginning of the flood due to the LIP event.

The licensee stated that the feasibility of the time sensitive actions described above have been validated and evaluated per the guidance described in NEI 12-06, Appendix E and G, as documented in McGuire references MCC-1100.00-00-0005, Rev. 0, "McGuire Nuclear Station Flood Mitigating Strategies Assessment (MSA) Verification (NTTF Recommendation 2.1)."

Finally, the licensee also stated that additional defense-in-depth exists given that, while not needed for the LIP event protection, the FLEX strategies make additional portable pumps as well as heavy debris-removal equipment available that can help mitigate the flood.

3.3.3 Available Physical Margin

With regards to available physical margin (APM) for the portions of the AB that are relied upon as part of the flood protection barrier, the licensee stated that the walls are designed to withstand design basis wind, tornado, and missile loads (additional details related to the construction and design of the AB can be found in the McGuire Updated Final Safety Analysis Report). In its FE, Duke stated that the additional load caused by adding approximately 0.6 ft. of water as a result of the LIP event was calculated to be a static linear load of 11.2 lb/ft. This force is considerably smaller than the wind load for which the walls were designed. In addition, the site has a drainage system that was conservatively assumed to be inoperable, therefore adding additional conservatism to the analysis.

With regards to the AB roof, the APM was evaluated in McGuire calculation MCC-1100.00-00-0003, which found the revised roof loadings to be acceptable. In addition, the licensee stated that new roof scuppers were installed per Engineering Change (EC)-111708. These scuppers are installed in the parapet walls of the site roofing in order to limit the amount of rain water that collects on the roofs.

With regards to APM for the temporary barriers, the licensee stated that these doors were engineered to withstand flood levels of up to 30 inches. This was determined from vendor supplied information and described in McGuire references MCM-1182.00-0506.001 through MCM-1182.00-0506.008. The highest predicted flood level due to LIP is 1.1 ft (13 inches).

3.3.4 Maintenance and Inspections

The licensee stated that preventive maintenance and inspection programs for existing passive features, and below grade seals are described in McGuire calculation MCC-1612.00-00-0002. As part of the Recommendation 2.3 "Walkdowns" efforts, the NRC reviewed the CDB flood protection features at the site. In its walkdown assessment (ADAMS Accession No. ML14156A287), the NRC staff concluded that the licensee verified the plant configuration with the current flooding licensing basis; addressed degraded, nonconforming, or unanalyzed flooding conditions; and verified the adequacy of monitoring and maintenance programs for protective features. The licensee indicated in its FE that all passive features are inspected every 5 years per AD-EG-ALL-1214, Rev. 0, "Condition Monitoring of Structures," and AD-EG-MNS-1214, Rev. 1, "Condition Monitoring of Structures." With regards to inspections for the temporary barriers, the licensee stated that these barriers are inspected on a two year interval by Work Order # 20038336, as recommended by the vendor.

3.3.5 Conclusion

The NRC staff finds that based on the conservatism in the analysis, the site response, and the use of the warning time, there is reasonable assurance that the site will not be adversely impacted by a LIP event. Furthermore, the availability of adequate APM and the periodic inspection schedule supports the conclusion that the temporary flood barriers and other passive features credited for the response to a LIP event can be relied upon as effective flood protection features.

Therefore, based on the information provided by Duke and the review by the staff, the NRC staff concludes that the licensee has demonstrated that adequate passive features exist to provide flood protection of key SSCs against a beyond-design-basis LIP event.

3.4 Evaluation of Flood Impact Assessment for Streams and Rivers, Dam Failure and PMSS

As discussed in the FHRR staff assessment and the FE, the maximum water levels at Lake Norman as a result of events other than LIP reach elevation [REDACTED] MSL, which consequently overtopped the existing [REDACTED]. As a result, water inundated the site and impacted the [REDACTED] is located. Duke has subsequently installed permanent passive concrete barriers as described in EC-112499. These barriers are approximately 400 ft. in length and are located within the 780 ft. to 775 ft. MSL transition area. This results in the total embankment height raised to a minimum of 779 ft. MSL (or approximately [REDACTED]). The evaluations performed by Duke to determine the adequacy of these barriers and their implementation can be found in site references MCC-1103.01-00-0014, Rev. 0 and MCC-1103.01-00-0015, Rev. 0.

3.4.1 Structural Evaluation of Flood Protection Barriers

Duke analyzed the addition of concrete barriers with the earthen embankment for surcharge and flood load impacts in MCC-1103.01-00-0014, Rev. 0, MCC-1103.01-00-0015, Rev. 0, and MCM-110.00-0003.001 through MCM-110.00-0003.005 and determined they were adequate.

3.4.2 Available Physical Margin

The APM calculated by the licensee is approximately [REDACTED] MSL, corresponding to the difference between the protection levels of the barriers compared against the highest postulated water elevations as a result of the streams and rivers, dam failure and PMSS flood-causing mechanisms [REDACTED]. Based on the guidance in Appendix B of NEI 16-05, the adequacy of the APM is further determined by demonstrating that the flood protection barriers are an effective flood protection feature. As indicated above, the licensee has evaluated the concrete barriers and demonstrated their effectiveness.

3.4.3 Maintenance and Inspections

The licensee stated in its FE that the earthen embankments are inspected independently by the Federal Energy Regulatory Commission every 5 years and also by McGuire personnel as part of the civil structure inspection program. Details of the inspection process are described in McGuire plant references AD-EG-ALL-1214, Rev. 0, "Condition Monitoring of Structures," and AD-EG-MNS-1214, Rev. 1, "Condition Monitoring of Structures."

The NRC staff also notes that McGuire is inspected periodically by the NRC as part of the NRC Dam Safety Program. This program inspects the site every 2 years and reviews the maintenance and surveillance on the Standby Nuclear Service Water Pond Dam and appurtenant structures to ensure that no conditions are identified that could adversely affect the immediate safety, performance, and operational reliability of the reservoir, or could present a threat to the safety of the public or the nuclear facility.

3.4.4 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 streams and rivers, dam failure and PMSS flood-causing mechanisms. As described above, the licensee's evaluation relied on permanently installed passive flood protection barriers to demonstrate adequate flood protection; therefore, there is no need to review overall site response.

3.4.5 Conclusion

Based on the licensee's evaluation and because the embankment barriers exceed the highest postulated flooding scenario, as described in the ISR letter, the staff concludes that appropriate protection features exist at McGuire against a beyond-design-basis flooding event due to streams and rivers, dam failure and PMSS flood-causing mechanisms. Furthermore, the availability of adequate APM (as demonstrated by the reliability of the passive features), and the periodic inspection schedule support the conclusion that the permanent concrete barriers and embankments can be relied upon as an effective flood protection feature.

4.0 AUDIT REPORT

The generic audit plan dated July 18, 2017 (ADAMS Accession No. ML17192A452) describes the NRC staff's intention to conduct audits related to focused evaluations and to issue an audit report that summarizes and documents the NRC's regulatory audit of the licensee's FE. During the review and as part of the audit process, the NRC staff identified additional information needed to complete its evaluation and requested a copy of the McGuire procedure

OP/0/B/6100/031, "Response to a Local Intense Precipitation (LIP) Or Probable Maximum Flood (PMF) External Flooding Event." This procedure describes in detail the steps that the site personnel need to complete in order to respond to a LIP event. The specific details of the procedure as well as the staff's evaluation have been summarized in Section 3.3.2 of this document. As such, 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 Duke performed the McGuire 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 against the reevaluated flood hazards described in the ISR letter. Furthermore, the NRC staff concludes that McGuire 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 are not warranted. The licensee has satisfactorily completed providing responses to the 50.54(f) activities associated with the reevaluated flood hazards. This closes out the licensee's response for McGuire for the reevaluated flooding hazard portion of the 50.54(f) letter and the NRC's efforts associated with EPID L-2017-JLD-0017 (previously CAC Nos. MG0127 and MG0128).

~~OFFICIAL USE ONLY - SECURITY RELATED INFORMATION~~

T. Ray

- 3 -

SUBJECT: MCGUIRE NUCLEAR STATION, UNITS 1 AND 2 – STAFF ASSESSMENT OF FLOODING FOCUSED EVALUATION DATED February 12, 2018

DISTRIBUTION:

PUBLIC

PBMB R/F

RidsNrrDlp Resource

RidsNrrDorlPl2-1Resource

RidsNrrDorl Resource

RidsNrrPMMcGuire Resource

RidsNrrLaSLent Resource

TBrown, NRR

RidsOpaMail Resource

RidsACRS_MailCTR Resource

RidsRgn2MailCenter Resource

MShams, NRR

JUriebe, NRR

JBoska, NRR

ADAMS Accession Nos.: Pkg ML18031A543; ML18010B193 (Non-Public); ML18031A564 (Public) *via e-mail

| | | | | |
|--------|-----------------|-----------------|----------------------|-----------------|
| OFFICE | NRR/DLP/PBMB/PM | NRR/DLP/PBMB/LA | NRR/DLP/PBMB/BC(A) | NRR/DLP/PBMB/PM |
| NAME | JUriebe | SLent | EBowman (BTitus for) | JUriebe |
| DATE | 1/30/18 | 1/31/18 | 2/9/18 | 2/12/18 |

OFFICIAL RECORD COPY