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10 CFR 50.54(f)

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

Duke Energy LLC (Duke Energy)
McGuire Nuclear Station (MNS), Units 1 and 2
Docket Nos. 50-369 and 50-370
Renewed License Nos. NPF-9 and NPF-17

Subject: Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.3, Flooding Update - Review of Available Physical Margin (APM) Assessments

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, (ADAMS Accession No. ML12053A340).
2. NEI 12-07, *Guidelines for Performing Verification Walkdown of Plant Flood Protection Features*, Revision 0-A, dated May 2012, (ADAMS Accession No. ML12144A401)
3. NRC Letter to Nuclear Energy Institute (NEI), Endorsement of Nuclear Energy Institute (NEI) 12-07, *Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features*, dated May 31, 2012, (ADAMS Accession No. ML12144A142).
4. Flooding Walkdown Information Requested by 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 November 26, 2012, (ADAMS Accession No. ML12361A006)
5. NRC letter, Request for Additional Information associated with Near-Term Task Force Recommendation 2.3, Flooding Walkdowns; dated December 23, 2013, (ADAMS Accession No. ML13325A891)

ADD1
NRR

Ladies and Gentlemen:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) staff issued Reference 1 requesting information pursuant to Title 10 of the Code of Federal Regulations 50.54(f). Enclosure 4 of that letter contains requested information associated with Near-Term Task Force Recommendation (NTTF) 2.3 for flooding. NEI 12-07 (Reference 2) was endorsed by NRC letter dated May 31, 2012 (Reference 3). By Reference 4, MNS submitted the 180-day response to Reference 1 requiring the flooding walkdown report addressing the items in Appendix D of NEI 12-07.

Following the NRC staff's initial review of the walkdown reports, regulatory site audits were conducted by the NRC staff at a sampling of plants. Based on the walkdown report reviews and site audits, additional information was determined to be necessary to allow the NRC staff to complete its assessments.

By letter dated December 23, 2013 (Reference 5), the NRC requested additional information regarding the determination and documentation of APM during flooding walkdowns. The NRC staff requested that a response be provided no later than January 31, 2013. The Duke Energy response for MNS is enclosed.

This letter contains no new Regulatory Commitments and no revision to existing Regulatory Commitments.

Should you have any questions regarding this submittal, please contact George Murphy at (980) 875-5715.

I declare under penalty of perjury that the foregoing is true and correct. Executed on January 30, 2014.

Sincerely,

Steven D Capps

Enclosure: MNS Response to the NRC Request for Additional Information (RAI) Regarding Available Physical Margin (APM) during Flooding Walkdowns

xc:

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Enclosure

McGuire Nuclear Station

Response to the NRC Request for Additional Information (RAI)

Regarding Available Physical Margin (APM) during Flooding Walkdowns

Determination and documentation of available physical margin (APM)

Background:

The NRC staff observed that several licensees did not consistently determine and/or document available physical margin (APM) in a manner that met the expected interpretation of NEI 12-07 during audits associated with review of the NTTF Recommendation 2.3 report submittals. APM is defined in Section 3.13 of NEI 12-07 and the process for obtaining and evaluating APM values is described in Section 5.8 of NEI 12-07. Consistent with NEI 12-07, a numerical value for APM should be determined and documented for every applicable flood protection feature (e.g., wall, penetration, berm, door, etc.). This would normally be a numerical value reflecting the difference between the licensing basis flood height at the location of the feature and the point at which the function of the flood protection feature is compromised (e.g., the top of a barrier or the height of the first unsealed penetration in a barrier) such that the resulting flood can affect a structures, systems, and components important to safety. Next, in accordance with Section 5.8 of NEI 12-07, if the APM appears to be small and the consequences of flooding appear to be significant, the licensee should enter the condition into the CAP and appropriate action be taken. While NEI 12-07 does not require that a specific numerical threshold value for "small" APM be defined for each site, doing so establishes a consistent basis for determining what instances need to be entered into the CAP. If a numerical APM value cannot be determined for any flood protection feature, the licensee should perform an assessment of the ability of the barrier to withstand the licensing basis flood plus the contribution of the additional water corresponding to the pre-established small-margin threshold value. If the barrier can withstand this flood, the APM for the feature is "not small" and further evaluation in accordance with Section 5.8 of NEI 12-07 is not required. It is further noted that conclusions regarding "large" values of APM should be based on engineering evaluations or existing design documents.

Licensees should ensure that the process for APM determination and evaluation used during their flooding walkdowns is consistent with the guidance in NEI 12-07. The intent of this Request for Additional Information (RAI) is not to repeat the flooding walkdowns or perform an extensive revision of the walkdown record forms and other paperwork. Instead the purpose is to verify or modify the process used to determine APM such that every site is aware of the margin at each of its flood protection features and take appropriate interim actions when the APM is small and the consequences are significant. Instances where numerical values for APM were not determined, or where the basis for the APM was found to be questionable, should be rectified by either the documentation of a specific value or an explanation of why a non-numerical value is appropriate.

NRC RAI 1:

Confirmation that the process for evaluating APM was reviewed;

Response to RAI 1:

Duke Energy has completed a review of the flooding design basis walkdown process used at McGuire to evaluate APMs.

NRC RAI 2:

Confirmation that the APM process is now or was always consistent with the guidance in NEI 12-07 and discussed in this RAI;

Response to RAI 2:

The original walkdown effort followed the guidance provided in NEI 12-07, however, no definition for small margin was included at the time of the walkdown. Engineers at McGuire have since defined small APM for the design basis flooding events. Although the original walkdown effort followed the guidance provided in NEI 12-07, a specific APM had not been assigned to the seals associated with flood protection features or to flood protection features that are below grade.

Additional actions have been taken to make the APM process consistent with the information provided in this RAI and in NEI 12-07.

NRC RAI 3:

If changes are necessary, a general description of any process changes to establish this consistency;

Response to RAI 3:

As stated above, the determination and documentation of the APM as performed during the original walkdown effort did not include a definition for a small margin and did not specifically assign an APM value to the seals associated with flood protection features or to flood protection features that were classified as below grade flood protection features. The addition of the small margin definition and assignment of an APM value for all applicable flood protection features have now been addressed in accordance with the guidance provided in this RAI. Following completion of the actions described above there were no conditions identified that would require entry into the CAP process for further evaluation.

NRC RAI 4:

As a result of the audits and subsequent interactions with industry during public meetings, NRC staff recognized that evaluation of APM for seals (e.g., flood doors, penetrations, flood gates, etc.) was challenging for some licensees. Generally, licensees were expected to use either Approach A or Approach B (described below) to determine the APM for seals:

a) If seal pressure ratings were known, the seal ratings were used to determine APM (similar to example 2 in Section 3.13 of NEI 12-07). A numerical value for APM was documented. No further action was performed if the APM value was greater than the pre-established small-margin threshold value. If the APM value was small, an assessment of "significant consequences" was performed and the guidance in NEI 12-07 Section 5.8 was followed.

b) If the seal pressure rating was not known, the APM for seals in a flood barrier is assumed to be greater than the pre-established small-margin threshold value if the following conditions were met: (1) the APM for the barrier in which the seal is located is greater than the small-margin threshold value and there is evidence that the seals were designed/procured, installed, and controlled as flooding seals in accordance with the flooding licensing basis. Note that in order to determine that the seal has been controlled as a flooding seal, it was only necessary to determine that the seal configuration has been governed by the plant's design control process since installation. In this case, the APM for the seal could have been documented as "not small".

As part of the RAI response, state if either Approach A or Approach B was used as part of the initial walkdowns or as part of actions taken in response to this RAI. No additional actions are necessary if either Approach A or B was used.

If neither Approach A or B was used to determine the APM values for seals (either as part of the walkdowns or as part of actions taken in response to this RAI), then perform the following two actions:

- Enter the condition into the CAP (note: it is acceptable to utilize a single CAP entry to capture this issue for multiple seals). CAP disposition of "undetermined" APM values for seals should consider the guidance provided in NEI 12-07, Section 5.8. The CAP disposition should confirm all seals can perform their intended safety function against floods up to the current licensing basis flood height. Disposition may occur as part of the Integrated Assessment. If an Integrated Assessment is not performed, determine whether there are significant consequences associated with exceeding the capacity of the seals and take interim action(s), if necessary, via the CAP processes. These actions do not need to be complete prior to the RAI response.

- Report the APM as "undetermined" and provide the CAP reference in the RAI response.

Response to RAI 4:

As part of the actions taken in response to this RAI, seal pressure ratings were used to determine APM in accordance with approach a) above. A numerical value for APM was documented in the applicable flood protection feature design document. Since the APM was greater than the “small” margin threshold value no further action is required.