



Prairie Island Nuclear Generating Plant
1717 Wakonade Drive East
Welch, MN 55089

January 31, 2014

L-PI-14-007
10 CFR 50.54(f)

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

Prairie Island Nuclear Generating Plant Units 1 and 2
Docket Nos. 50-282 and 50-306
Renewed Facility Operating License Nos. DPR-42 and DPR-60

Prairie Island Nuclear Generating Plant's Response to Requests for Additional Information Associated with Near-Term Task Force Recommendation 2.3, Flooding Walkdowns

- 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. ML12056A046.
 2. NRC Letter, "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.
 3. NSPM Letter to NRC, "PINGP 90-Day Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendations 2.1 and 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated June 11, 2012, ADAMS Accession No. ML12164A235.
 4. NSPM Letter to NRC, "PINGP Final Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated November 26, 2012, ADAMS Accession No. ML12332A302.
 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.

On March 12, 2012, the Nuclear Regulatory Commission (NRC) Staff issued a request for information regarding Near-Term Task Force (NTTF) insights from the Fukushima Dai-ichi accident, to all NRC power reactor licensees and holders of construction permits in active or deferred status (Reference 1). Enclosure 4 of the March 12, 2012 letter contains specific Requested Actions, Requested Information, and Required Responses associated with Near-Term Task Force (NTTF) Recommendation 2.3, Flooding.

In a letter to the NRC dated June 11, 2012 (Reference 3), Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy, confirmed that it would use the flooding walkdown procedure NEI 12-07, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features," endorsed by the NRC in Reference 2, as the basis for performance of the flooding walkdowns at the Prairie Island Nuclear Generating Plant (PINGP). NSPM submitted the required responses to the Requested Information for NTTF Recommendation 2.3, Flooding, in a letter dated November 26, 2012 (Reference 4). Reference 4 included the results of the external flooding walkdowns completed at the PINGP following the guidance of NEI 12-07.

NEI 12-07 directs licensees to identify the available physical margin (APM) associated with each applicable flood protection feature, determine if the margin provided is small, and evaluate any small margins that have potentially significant consequences through the corrective action process. The results of this effort were to be maintained on site for future NRC audits.

Following the NRC Staff's initial review of the flooding walkdown reports, regulatory site audits were conducted at a sampling of plants. Based on the walkdown report reviews and site audits, the staff identified additional information necessary to allow them to complete its assessments. On December 23, 2013, the NRC Staff provided Requests for Additional Information (RAI) in Reference 5, regarding the NTTF Recommendation 2.3, Flooding Walkdowns. The enclosure to this letter provides NSPM's responses to these NRC RAIs.

If there are any questions, or if additional information is needed, please contact Ms. Jennie Wike, Licensing Engineer, at 612-330-5788.

Summary of Commitments:

This letter makes no new commitments and no revisions to existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on January 31, 2014.



Kevin Davison
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosure

cc: Administrator, Region III, USNRC
Director, Office of Nuclear Reactor Regulation (NRR)
NRR Project Manager, Prairie Island Nuclear Generating Plant, USNRC
Senior Resident Inspector, Prairie Island Nuclear Generating Plant, USNRC

Enclosure

Prairie Island Nuclear Generating Plant's Response to Requests for Additional Information Associated with NTTF Recommendation 2.3, Flooding Walkdowns

1.0 INTRODUCTION

On March 12, 2012, the Nuclear Regulatory Commission (NRC) Staff issued a request for information regarding Near-Term Task Force (NTTF) insights from the Fukushima Dai-ichi accident, to all NRC power reactor licensees and holders of construction permits in active or deferred status (Reference 1). Enclosure 4 of Reference 1 requested that licensees conduct flood hazard walkdowns to verify the plant configuration with the current licensing basis, in order to address the NTTF Recommendation 2.3, Flooding.

The Nuclear Energy Institute (NEI) prepared industry guidance to assist licensees in responding to this NRC request. The industry guidance document, NEI 12-07, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features," dated May 2012 (Reference 5), was endorsed by the NRC on May 31, 2012 (Reference 2).

Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy, utilized the guidance in Reference 5 to complete the Requested Actions for Recommendation 2.3, Flooding, for Prairie Island Nuclear Generating Plant (PINGP) Units 1 and 2. By letter dated November 26, 2012 (Reference 3), NSPM submitted the required flooding walkdown reports for PINGP Units 1 and 2 in response to the 10 CFR 50.54(f) information request.

Following the NRC Staff's initial review of the industry's walkdown reports, regulatory site audits were conducted at a sampling of plants. Based on the walkdown report reviews and site audits, the NRC Staff identified, in Reference 4, the additional information necessary to allow the NRC Staff to complete its assessments.

This enclosure provides the NSPM response to the RAIs in Reference 4. This enclosure provides the background for determination and documentation of APM, as provided in Reference 4, and also quotes each NRC RAI in italics followed by the NSPM response.

2.0 BACKGROUND FOR DETERMINATION AND DOCUMENTATION OF AVAILABLE PHYSICAL MARGIN

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 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.

3.0 REQUESTS FOR ADDITIONAL INFORMATION AND RESPONSES

NRC RAI-1:

Confirmation that the process for evaluating APM was reviewed.

NSPM Response RAI-1:

NSPM has completed a review of the process used at PINGP to evaluate APMs for the original walkdown effort.

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.

NSPM Response RAI-2:

The original walkdown effort, documented in Reference 3, followed the guidance provided in NEI 12-07 (Reference 5) and the guidance provided in the NRC's RAI letter (Reference 4) for documenting APM. Subsequent to the submittal of Reference 3, NSPM completed the restricted access walkdowns during the PINGP Unit 2 refueling outage (4th Quarter 2013). The documentation for these walkdowns is currently being reviewed by site personnel. NSPM initiated an action request in its Corrective Action Program to verify that the process used to evaluate APM for the restricted access walkdowns meets the guidance provided in the NRC RAI and NEI 12-07.

NRC RAI-3:

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

NSPM Response RAI-3:

As stated in the response above, the original walkdown effort followed the guidance provided in NEI 12-07. No changes were necessary to the documentation of the APMs.

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.*

NSPM Response RAI-4:

As part of the actions taken to address this RAI, NSPM reviewed the process used to determine the APM for applicable flood protection features, and concluded that NSPM used Approach B to determine the APM for seals. The review determined that the APM for a flood barrier seal is greater than the APM established for the flood barrier or structure. Also, the seals were designed/procured, installed, and controlled as flooding seals in accordance with the flooding licensing basis.

The initial walkdowns performed prior to November 2012 recorded a numerical APM value for each of the applicable flood protection features. A numerical threshold was pre-established in order to support the identification of small APM. Flood protection features with potentially small APM were entered into the Corrective Action Program (CAP) to determine whether or not the consequences of flooding should be classified as

significant. NSPM identified two penetrations with potentially small APM, and initiated an Action Request in the CAP. The CAP evaluation process determined that there were no significant consequences associated with the small APM for flood levels exceeding the elevation of the conduit penetrations. Therefore, no interim actions were necessary.

4.0 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," dated March 12, 2012, ADAMS Accession No. ML12056A046.
2. NRC Letter, "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.
3. NSPM Letter to NRC, "PINGP Final Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flooding Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated November 26, 2012, ADAMS Accession No. ML12332A302.
4. 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.
5. NEI 12-07, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features," Revision 0A, dated May 2012, ADAMS Accession No. ML12172A038.