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L-PI-16-076  
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U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

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

Prairie Island Nuclear Generating Plant, Units 1 and 2 - Supplement to the Response to March 12, 2012, Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flood Hazard Reevaluation Report

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. NSPM Letter L-PI-16-039 from S. Northard to Document Control Desk (NRC), "Prairie Island Nuclear Generating Plant, Units 1 and 2, Response to March 12, 2012, Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flood Hazard Reevaluation Report," dated May 9, 2016 (ADAMS Accession No. ML16133A030)
3. NRC electronic mail from Lauren Gibson to Lynne Gunderson, "OUO: Additional Information Needs for Prairie Island and Monticello FHRR Audits," dated August 30, 2016 (Non-public ADAMS Accession No. ML16244A684)

On March 12, 2012, the NRC issued Reference 1, which included a request for information associated with Near-Term Task Force (NTTF) Recommendation 2.1 for flooding. Enclosure 2 of Reference 1 addresses the Requested Information and Required Response. The NRC Staff requested licensees to perform a flood hazard reevaluation (Requested Information Item 1) and to provide a final report documenting the results in accordance with the NRC's prioritization plan (Required Response Item 2).

By the Reference 2 letter, Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy, provided the Flood Hazard Reevaluation Report (FHRR) for Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2. Direct responses to the Reference 1, Enclosure 2, Requested Information Item 1, were included in Appendix 1 of the PINGP FHRR.

During an audit call with NRC Staff on August 18, 2016, NSPM provided information regarding doorways that were evaluated in the Local Intense Precipitation (LIP) analysis but had not been translated into Table 2 of the FHRR (Reference 2). NSPM also noted a discrepancy between the reach #210 HEC-HMS output hydrograph and the HEC-RAS hydrograph. The NRC requested additional information on August 30, 2016 (Reference 3), which included a request to provide, by letter, an addendum document to the FHRR that explained the correction for the missing doors.

The purpose of this supplement is to provide an addendum to the PINGP FHRR that updates Table 2 in the Enclosures of the FHRR based on the omitted doorways and the updated hydrograph. The addendum also updates text from FHRR sections that were affected. For the doors that were not translated to the FHRR, no interim actions were necessary. The overall conclusion of the FHRR does not change.

Please contact Lynne Gunderson, Licensing Engineer, at 651-267-7421, if additional information or clarification is required.

#### 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 September 29, 2016.



Scott Northard  
Site Vice President, Prairie Island Nuclear Generating Plant  
Northern States Power Company - Minnesota  
Enclosure

cc: Administrator, Region III, USNRC  
Project Manager, Prairie Island Nuclear Generating Plant, USNRC  
Resident Inspector, Prairie Island Nuclear Generating Plant, USNRC

**Prairie Island Nuclear Generating Plant, Units 1 and 2 - Supplement to the  
Response to March 12, 2012, Request for Information  
Enclosure 2, Recommendation 2.1, Flooding, Required Response 2,  
Flood Hazard Reevaluation Report**

**FLOOD HAZARD REEVALUATION REPORT, ADDENDUM**

**In Response to the 50.54(f) Information Request Regarding Recommendation 2.1:  
Flooding of the Near-Term Task Force Review of Insights from the Fukushima  
Dai-ichi Accident**

**for the**

**Prairie Island Nuclear Generating Plant, Units 1 and 2**

**Discussion**

This addendum updates information in the Flood Hazard Reevaluation Report (FHRR) submitted May 9, 2016 (Reference 1) pertaining to the Local Intense Precipitation (LIP) flooding mechanism. Specifically:

- three doors that were omitted from Table 2 of the FHRR are included (Doors 420, 423, and 437), along with discussions of the effect of LIP on the doors,
- results are updated to show the slight impact of changing the lag time used for reach 210 in the hydraulic model (Doors 46, 45, 44, and 73), and
- Door 164 condition is updated to reflect that the door opening is protected by concrete block wall.

**Results of Local Intense Precipitation**

Table 2 in PINGP's FHRR is replaced with the table below. The maximum predicted flood water elevation could exceed the finished floor elevations at eight door openings. Of these eight doors, Door 47 is not maintained as normally closed while Doors 164 and 437 have installed features that protect the openings from water intrusion.

Table 2 – Local Intense Precipitation Flood Levels

Door/ Panel ID	Description	LIP Model Water Surface Elevation	Survey FFE* points	Modeled Maximum Depth Above FFE*	Margin
		feet NGVD 29		feet	
237	Screenhouse	694.82	694.90	-	0.08
257	Screenhouse	694.82	694.90	-	0.08
258	Screenhouse	694.82	694.90	-	0.08
238	Screenhouse	694.82	694.90	-	0.08
1	Old Administration Building	694.82	695.00	-	0.18
47	Turbine Building	695.17	694.90	0.27	-
46	Turbine Building	<u>694.74</u>	694.90	-	<u>0.16</u>
45	Turbine Building	<u>694.82</u>	694.90	-	<u>0.08</u>
44	Turbine Building/Service Building	<u>694.77</u>	694.90	-	<u>0.13</u>
73	Turbine Building	<u>694.76</u>	694.90	-	<u>0.14</u>
104	Auxiliary Building/Radioactive Waste Building	695.35	694.90 **	0.45	-
100	Auxiliary Building/Radioactive Waste Building	695.35	694.90 **	0.45	-
164	Auxiliary Building/Radioactive Waste Building	695.24	694.90	0.34	-
102	Auxiliary Building/Radioactive Waste Building	695.24	694.90	0.34	-
<u>420</u>	<u>D5/D6 Building</u>	<u>695.17</u>	<u>694.90</u>	<u>0.27</u>	-
<u>423</u>	<u>D5/D/6 Building</u>	<u>695.17</u>	<u>694.90</u>	<u>0.27</u>	-
<u>437</u>	<u>D5/D6 Building</u>	<u>695.19</u>	<u>694.90</u>	<u>0.29</u>	-

\* FFE = Finished Floor Elevation

\*\* No survey FFE point available at the door, closest FFE survey point was used

Note: Changes in Table 2 noted in italicized and underlined text.

The addition of the three doors affects the text in Sections 2.1.3, 2.10.1, 2.10.2 and 4.0 of Reference 1. The following notes the corrections to the text.

In Section 2.1.3, the first two sentences under the first bullet are updated as follows:

“The maximum predicted flood water elevation could exceed the finished floor elevations at ~~five~~ eight of the ~~14-17~~ doors. However, ~~four~~ five of the ~~five-eight~~ doors are normally closed – Doors 100, 102, 104, 420, and ~~164-423~~. Doors 164 and 437 have permanently-installed features that will protect the openings from water intrusion: Door 164 has a block wall enclosing it and Door 437 has a design basis flood protection panel installed over the opening.”

In Section 2.10.1, the first sentence is changed to state:

“...the LIP flood levels exceed finished floor elevation at ~~five~~ eight critical doors...”

In Section 2.10.2, the sixth through eighth sentences are changed to read:

”However, there are ~~five~~ six doors that will be subjected to water loading without flood protection that is only installed prior to the PMF event. Doors 47, 102, and 104 are designed to withstand 40 psf (due to wind), which bounds the pressure resulting from LIP flood level of 0.45 ft of 28.08 psf. ~~The remaining two d~~ Doors 100 is an and 164 are Overly Blast Doors that are designed to withstand a total static loading in the seated direction of 576 psf and the associated supporting structures are designed to withstand design basis flood levels. Doors 420 and 423 and their associated structures have been analyzed to withstand the hydrostatic forces of the design basis flood. Review of the door analysis is sufficient to conclude there would be no impact as a result of LIP conditions.”

In Section 4.0, Reference 15 changes from Revision 0 to Revision 1 for Calculation 180461.51.1005.

### **Conclusions:**

The overall results and conclusions of the FHRR remain unchanged. The LIP flooding mechanism is not bounded by the current design basis for PINGP. An initial evaluation of the LIP mechanism has found that no interim actions are deemed necessary in response to the reevaluated flood hazard.

### **References:**

1. NSPM Letter L-PI-16-039 from S. Northard to Document Control Desk (NRC), “Prairie Island Nuclear Generating Plant, Units 1 and 2, Response to March 12, 2012, Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flood Hazard Reevaluation Report,” dated May 9, 2016 (ADAMS Accession No. ML16133A030)