Xcel Energy®

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

February 26, 2015

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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's Fourth Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)(TAC Nos. MF0834 and MF0835)

References:

1. NRC Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012 (ADAMS Accession No. ML12054A735).

2. NRC Interim Staff Guidance JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0, dated August 29, 2012 (ADAMS Accession No. ML12229A174).

3. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012 (ADAMS Accession No. ML12242A378).

4. NSPM Letter to NRC, "Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated October 29, 2012 (ADAMS Accession No. ML12305A287).

5. NSPM Letter to NRC, "Prairie Island Nuclear Generating Plant's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 26, 2013 (ADAMS Accession No. ML13060A379).

6. NSPM Letter to NRC, "Prairie Island's First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigating Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated August 26, 2013 (ADAMS Accession No. ML13239A094).

7. NSPM Letter to NRC, "Prairie Island's Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigating Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 26, 2014 (ADAMS Accession No. ML14057A771).

8. NSPM Letter to NRC, "Prairie Island Nuclear Generating Plant's Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigating Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated October 20, 2014, Corrected (ADAMS Accession No. ML14295A761).

9. NSPM Letter to NRC, "Prairie Island's Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigating Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated August 25, 2014 (ADAMS Accession No. ML14237A512)

On March 12, 2012, the NRC staff issued Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," (Reference 1) to all NRC power reactor licensees and holders of construction permits in active or deferred status. Reference 1 was immediately effective and directs Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, to develop, implement and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities following a beyond-design-basis external event for the Prairie Island Nuclear Generating Plant (PINGP). Specific requirements are outlined in Attachment 2 of Reference 1.

Pursuant to Condition C of Section IV, Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (ISG), an

overall integrated plan, and status reports at six-month intervals following the submittal of the overall integrated plan. The ISG (Reference 2) endorses, with exceptions and clarifications, the industry guidance document, NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0 (Reference 3). Reference 4 provided the PINGP initial 60-day status report regarding mitigation strategies. Reference 5 provided the overall integrated plan for PINGP. The first, second, and third six-month status reports were provided in References 6, 7, and 9 respectively. Reference 8 provided a correction to the second (Reference 7).

The purpose of this letter is to provide the fourth six-month status report pursuant to Section IV, Condition C.2 of Reference 1, which delineates the progress made in implementing the requirements of the Reference 1 Order. The enclosed report provides an update of milestone accomplishments since the overall integrated plan was submitted, including changes to the compliance method, schedule, or the need and basis for relief, if any.

Please contact Stevie DuPont, 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 February 26, 2015.

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

cc: Administrator, Region III, USNRC
Director of Nuclear Reactor Regulation (NRR), 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

Fourth Six-Month Status Report for Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

1.0 Introduction

The Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," on March 12, 2012 (Reference 1). The Order required licensees to develop, implement and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities following a beyond-design-basis external event. The Order required licensees to submit an overall integrated plan, including a description of how the requirements in Attachment 2 of the Order would be achieved. Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, submitted the overall integrated plan (Reference 2) for the Prairie Island Nuclear Generating Plant (PINGP) on February 26, 2013. In accordance with Section IV, Condition C.2 of Reference 1, NSPM submitted the first six-month status report on August 26, 2013 (Reference 3), the second six-month status report on February 26, 2014 (Reference 4), and the third six-month status report on August 25, 2014 (Reference 5).

On February 27, 2014, the NRC issued an Interim Staff Evaluation (ISE) for PING's Mitigating Strategies overall integrated plan (Reference 6). The ISE documents the NRC's conclusion that NSPM has provided sufficient information to determine that there is reasonable assurance the overall integrated plan, when properly implemented, will meet the requirements of Order EA-12-049 at PINGP. The ISE also documents the confirmatory and open items identified by the NRC as a result of their review and audit of PINGP's overall integrated plan.

In a September 30, 2013 letter (Reference 8) the NRC requested to be informed of plans to follow the NEI 12-06 Position Paper on Shutdown/Refueling Modes, dated September 18, 2013. PINGP will incorporate the supplemental guidance provided in this NEI paper to enhance the shutdown risk process and procedures.

This Enclosure provides the fourth six-month status report. This status report includes an update of milestone accomplishments since submittal of the overall integrated plan including changes to the compliance method, schedule, or the need and basis for relief, if any.

2.0 Milestone Accomplishments

The original milestone schedule with target dates was provided in Attachment 2 of the Reference 2 Enclosure. No original milestones were scheduled for completion subsequent to the previous six-month status report and prior to January 31st, 2015. Therefore, NSPM has no milestone accomplishments to discuss.

3.0 Milestone Schedule Status

The following Table 1 provides an update of the milestone schedule for the overall integrated plan. This table includes a brief milestone status and a revised target date if the target date has changed. The target dates are planning dates subject to change as design and implementation details are developed. The following are schedules changes since the previous August 25, 2014 update.

- Issue Procedures updated for FLEX strategies

  The target completion date for issuing procedures for use in the FLEX strategies was changed from June 2015 to Fall 2015. The procedures cannot be issued until the FLEX strategies modifications are completed during the implementing outage. The procedures will be issued prior to startup from Unit 2 Fall 2015 Implementation Outage.

- National SAFER Response Center Operational

  The target completion date for the National Safer Response Center to be operational to support PINGP was changed from January 2015 to August 2015 to support the National Safer Response Center's schedule.

- Commence Installation for Online Modifications – Phase 2 and 3

  PINGP determined that online modifications are not needed to complete the implementation of the requirements of Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," (Reference 1). Therefore, PINGP is not pursuing online modifications and the milestone is not applicable.

Table 1 – Overall Integrated Plan Milestone schedule			
Milestone	**Target Completion Date**	**Activity Status**	**Revised Target Date**
Submit 60 Day Status Report	October 2012	Complete	
Submit Overall Integrated Plan	February 2013	Complete	
Submit First Six-Month Status Update	August 2013	Complete	
Commence Engineering Modification Design – Phase 2 & 3	September 2013	Complete	
Submit Second Six-Month Status Update	February 2014	Complete	
National SAFER Response Center Operational	January 2015	Started	August 2015
Procure Equipment	September 2015	Started	
Submit Third Six-Month Status Update	August 2014	Complete	
Commence Installation for Online Modifications – Phase 2 and 3	April 2015	Not Applicable	Online modifications are not needed
Implement Storage	September 2015	Not Started	
Issue Maintenance Procedures	September 2015	Not Started	
Implement Training	August 2015	Started	
Submit Fourth Six-Month Status Update	February 2015	Complete with this submittal	
Submit Phase 2 Staffing Assessment	Four months prior to 2R29	Not Started	
Implement Communication Recommendations	Four months prior to 2R29	Started	

Table 1 – Overall Integrated Plan Milestone schedule (Continued)			
Milestone	**Target Completion Date**	**Activity Status**	**Revised Target Date**
Issue Procedures updated for FLEX strategies	June 2015	Started	Fall 2015 prior to startup from Unit 2 Implementation Outage
Submit Fifth Six-Month Status Update	August 2015	Not Started	
Unit 2 Implementation Outage	Fall 2015	Not Started	
Submit Sixth Six-Month Status	February 2016	Not Started	
Unit 1 Implementation Outage	Fall 2016	Not Started	
Validation Walk-throughs	Fall 2016	Not Started	
Submit Seventh Six-Month Status	August 2016	Not Started	
Submit Completion Report	December 2016	Not Started	

4.0 Proposed Changes to Compliance Method

There are changes to the compliance method as documented in the overall integrated plan (Reference 2). These changes and additional clarifications or updates to information in the OIP are discussed below.

- OIP Compliance Change – Performance criterion for portable steam generator (SG) makeup pumps

  The Overall Integrated Plan submitted for PINGP included the following regarding SG makeup pumps performance Criteria:

  > *400 gpm and discharge pressure sufficient to provide required flow against SG backpressure of 350 psig.*

  PINGP revised the 400 gpm criterion to 200 gpm. As clarification, the flow rate of 400 gpm described in the OIP would provide 200 gpm to each unit and is representative of the required auxiliary feedwater flow rate achieved shortly after

the unit is shutdown (Phase 1 of OIP strategies). However, the OIP does not call for the installation of the portable SG makeup pumps until approximately 24 hours later (OIP Phase 2 strategies) and thus the required flow rate is much less (on the order of 60 gpm per unit). The change of 400 gpm to 200 gpm criterion does not reduce the effectiveness of the Phase 2 strategies.

- OIP Compliance Change – Replacement of 4.16 kV FLEX diesel generators with two per unit, 1000 kW turbine generators.

  Throughout the OIP, the strategy for portable equipment for Phase 3 includes installation of two 4.16 kV FLEX diesel generators.

  The National SAFER Response center (NSRC) determined that diesel generators capable of carrying 2000 kW load each were not feasible, e.g., too heavy to be transported via available helicopters. The NSRC revised their plan to provide for each PINGP unit, two turbine generators (capable of providing 1000 kW each).

- OIP Compliance Change – Phase 2 Maintain Spent Fuel Pool Cooling, modification to install a 2 ½ inch hose connection to the SFP skimmer system.

  The Overall Integrated Plan submitted for PINGP included the following regarding a Phase 2 modification to install a 2 ½ inch hose connection to the SFP skimmer system:

  > *A 2 ½ inch hose connection will be added to the SFP skimmer system to allow makeup to the SFP without requiring access to the SFP deck area.*

  PINGP will not install this permanent modification. Instead, a prepared and stored 90 degree elbow with a hose connection will be available at the time of the event, to be installed in place of an existing blind flange in the skimmer system. This change will maintain the ability to provide spent fuel pool cooling and to meet the objectives of the Phase 2 strategy without installing a permanent plant modification.

- OIP Compliance Change – Backup to Turbine Driven Auxiliary Feedwater (TDAFW) pump.

  The Overall Integrated Plan submitted for PINGP included the following regarding a backup to the TDAFW Pump:

  > *As a backup to the TDAFW Pump, portable feedwater capability will be installed. The discharge from the portable pump will be split to provide flow into a connection into the AFW lines downstream of each Motor Driven AFW Pumps (MDAFWP) - shown on Figure 3 in Attachment 3. This will provide flow to the SGs in both Units. In addition, the AFW System*

includes the capability to cross-connect the piping downstream of each MDA WFP. This cross-connection would provide the capability to feed the SGs for one or both of the Units from either of the two FLEX connection points.

The above describes a new connection located on the discharge piping of 21 MDAFWP and the alternate connection would be a new connection located on the discharge piping of 12 MDAFWP via the cross-connect. Because the modifications are the AFW system requires the system to be out of service, the modification to the discharge piping of 21 MDAFWP will occur during the Fall 2015 refueling outage. Since both the primary and alternate connections are required for Unit 2 to be in compliance with the order, the current modification plan would require the Unit 1 12 MDAFWP to be installed prior to or during the Fall 2015 outage. This would necessitate either an entry into a Unit 1 Limiting Condition of Operation Action Statement, or placing Unit 1 in Mode 4 with RHR in service. To avoid this operational burden on Unit 1, the Unit 2 alternate SG makeup connection point will be changed until the Unit 1 modification in 2016 are installed.

The revised Unit 2 alternate connection point for the portable SG makeup pump is the 12 MDAFWP discharge check valve (dis-assembled during Phase 2 of the event as described in NEI 12-06, Section 3.2.2).

- OIP Compliance Change – Phase 2 Portable equipment with fuel storage tanks sufficient for at least 24 hours operation.

  The Overall Integrated Plan submitted for PINGP included the following regarding fuel storage tanks for Phase 2 portable equipment:

  Portable equipment used in Phase 2 will be equipped with fuel storage tanks sufficient for at least 24 hours of operation without refueling to minimize actions required to keep equipment running...

  PINGP revised the strategy to state that "To support the implementation strategies used during Phase 2, all portable equipment will be refueled as needed..."

  PINGP is performing calculations associated with the implementation modification, to include fuel oil volume systems available, supply pathways during Phase 2, and fuel consumption rates of Phase 2 portable equipment, in order to demonstrate that margin exists with on-site supplies until off-site resources are available.

- OIP Compliance Change – Support implementation strategies used in Phase 2 portable equipment refueled as needed.

The Overall Integrated Plan submitted for PINGP included the following regarding fuel storage tanks for Phase 2 portable equipment:

> *Portable fuel containers can be used to refuel equipment, and the fuel stored in day tanks for the Emergency Diesel Generators will be available.*

OIP states that portable fuel containers can be used to refuel equipment, and the fuel stored in day tans for the Emergency Diesel Generators are available. However, due to potential concerns with residual sulfur concentrations in the Emergency Diesel Generators' storage tanks affecting operation of the FLEX equipment, it was decided to include sufficient fuel oil storage in a robust structure, i.e., part of the FLEX storage building design, to meet the refueling needs of the Phase 2 equipment.

- OIP Compliance Change – Refueling Water Storage Tank (RWST) Level. PINGP added RWST level to the essential instrumentation list for Maintaining RCS Inventory Control during Phase 2 and 3. A previous strategy change added repowering the charging pumps as a backup to the low leakage RCP seals for RCS inventory control during Phase 2. Since the charging pumps are taking suction from the RWST, the level indication is needed for the operators to monitor RWST level.

- OIP Compliance Clarification – FLEX portable diesel generators.

  The Overall Integrated Plan submitted for PINGP included the following regarding FLEX portable diesel generators:

  > *Two portable FLEX diesel generators will be provided; one to repower MCCs 1AC1 and 2AC1 and the other to repower MCCs 1 AC2 and 2AC2. The primary means to restore a train of DC 'in each Unit will be to repower MCCs 1AC2 and 2AC2. The alternate means to restore a train of DC in each unit will be to repower MCCs 1AC1 and 2AC1.*

  PINGP revised the strategy to clarify that only one portable FLEX diesel generator will be deployed to repower one train of DC power on each unit. Thus one portable diesel generator would repower MCCs 1AC2 and 2AC2 as the primary means to restore DC power and repowering 1AC1 and 2AC1 as the alternate means of restoring DC power. This is consistent with the tables listing Portable Equipment Phase 2 and statements elsewhere in the OIP.

5.0 Need and Basis for Relief from the Requirements of the Order

NSPM expects to comply with the Order implementation date and requirements and no relief is required at this time.

6.0 Open Items from Overall Integrated Plan and Interim Staff Evaluation

NSPM did not identify any open items in the PINGP mitigating strategies overall integrated plan. The NRC Interim Staff Evaluation (ISE) was issued on February 27, 2014 (Reference 6). The NRC did not identify any open items in the ISE. Closure of the ISE confirmatory items will be completed as part of the NRC's audit process, as described in Reference 7.

7.0 Potential Interim Staff Evaluations Impacts

There are no potential impacts to the ISE identified at this time.

8.0 References

The following references support the updates to the overall integrated plan described in this enclosure:

1. NRC Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012 (ADAMS Accession No. ML12054A735).

2. NSPM Letter to NRC, "Prairie Island Nuclear Generating Plant's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 26, 2013 (ADAMS Accession No. ML13060A379).

3. NSPM Letter to NRC, "Prairie Island's First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigating Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated August 26, 2013 (ADAMS Accession No. ML13239A094).

4. NSPM Letter to NRC, "Prairie Island's Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigating Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 26, 2014 (ADAMS Accession No. ML14057A771).

5. NSPM Letter to NRC, "Prairie Island's Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigating Strategies for Beyond-Design-

Basis External Events (Order Number EA-12-049)," dated August 25, 2014 (ADAMS Accession No. ML14237A512)

6. NRC Interim Staff Evaluation "Prairie Island Nuclear Generating Plant Units 1 and 2 - Interim Staff Evaluation Relating to Overall Integrated plan in Response to Order EA-12-049 (Mitigation Strategies)(TAC Nos. MF0834 and MF0835)," dated February 27, 2014 (ADAMS Accession No. ML14030A540).

7. NRC memorandum, "Supplemental Staff Guidance for Addressing Order EA-12-049 on Mitigation Strategies for Beyond-Design-Basis External Events," dated August 28, 2013 (ADAMS Accession No. ML13238A263).

8. NRC Letter Jack R. Davis to Joseph E. Pollock (NEI), dated September 30, 2013 regarding endorsements of NEI document entitled "Position Paper: Shutdown/Refueling Modes" (ADAMS Accession No. ML13267A382)