



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

March 5, 2018

Mr. Scott M. Sharp
Site Vice President
Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota
1717 Wakonade Drive East
Welch, MN 55089

**SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 -
ISSUANCE OF AMENDMENT RE: REVISION TO THE PRAIRIE ISLAND
NUCLEAR GENERATING PLANT, UNITS 1 AND 2 EMERGENCY PLAN (CAC
NOS. MF9345 AND MF9346; EPID L-2017-LLA-0175)**

Dear Mr. Sharp:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 223 to Renewed Facility Operating License No. DPR-42 and Amendment No. 210 to Renewed Facility Operating License No. DPR-60 for the Prairie Island Nuclear Generating Plant, Units 1 and 2 (PINGP), respectively. The amendments are in response to your application dated February 23, 2017, as supplemented by letter dated September 20, 2017.

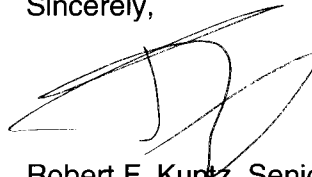
The amendment consists of changes to the PINGP Emergency Plan to increase the staff augmentation times for certain emergency response organization positions from 30 and 60 minutes to 60 and 90 minutes. Additionally, the changes define facility activation, remove references to augmenting resources from the Monticello Nuclear Generating Plant, remove 30-minute Electrical Maintenance and 30-minute Radwaste Operator Responders, clarify transfer of Direction and Control responsibilities, and implement various administrative changes to position titles, figures, etc.

S. Sharp

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A copy of our related safety evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink, appearing to be 'R. Kuntz', written over a horizontal line.

Robert F. Kuntz, Senior Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-282 and 50-306

Enclosures:

1. Amendment No. 223 to DPR-42
2. Amendment No. 210 to DPR-60
3. Safety Evaluation

cc: Listserv



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

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-282

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1

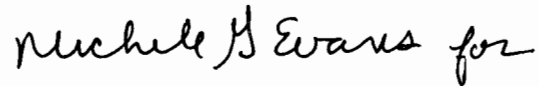
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 223
License No. DPR-42

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northern States Power Company (NSPM, the licensee), dated February 23, 2017, as supplemented by letter dated September 20, 2017, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, by Amendment No. 223, Renewed Facility Operating License No. DPR-42 is hereby amended to authorize revision to the Prairie Island Nuclear Generating Plant, Units 1 and 2, Emergency Plan as set forth in the licensee's application dated February 23, 2017, as supplemented by letter dated September 20, 2017, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.

3. This license amendment is effective as of its date of issuance and shall be implemented within 180 days.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink that reads "Michele Evans for". The signature is written in a cursive, flowing style.

Brian E. Holian, Acting Director
Office of Nuclear Reactor Regulation

Date of Issuance: March 5, 2018



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

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-306

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 210
License No. DPR-60

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northern States Power Company (NSPM, the licensee), dated February 23, 2017, as supplemented by letter dated September 20, 2017, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, by Amendment No. 210, Renewed Facility Operating License No. DPR-60 is hereby amended to authorize revision to the Prairie Island Nuclear Generating Plant, Units 1 and 2, Emergency Plan as set forth in the licensee's application dated February 23, 2017, as supplemented by letter dated September 20, 2017, and evaluated in the NRC staff's safety evaluation enclosed with this amendment.

3. This license amendment is effective as of its date of issuance and shall be implemented within 180 days.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink that reads "Michelle B. Evans for". The signature is written in a cursive, flowing style.

Brian E. Holian, Acting Director
Office of Nuclear Reactor Regulation

Date of Issuance: March 5, 2018



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 223

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-42

AND AMENDMENT NO. 210 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-60

NORTHERN STATES POWER COMPANY

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2

DOCKET NOS. 50-282 AND 50-306

1.0 INTRODUCTION

By application dated February 23, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17055C359), as supplemented by letter dated September 20, 2017 (ADAMS Accession No. ML17263A433), Northern States Power Company, doing business as Xcel Energy (Xcel Energy, the licensee), requested changes to the Prairie Island Nuclear Generating Plant, Units 1 and 2 (PINGP), Emergency Plan. The proposed changes would revise the PINGP Emergency Plan to increase the staff augmentation response times for certain emergency response organization (ERO) response functions. The proposed revisions include:

- Extending augmented response time for certain ERO functions from 30 minutes from notification to 60 minutes from declaration of an Alert or higher classification;
- Extending augmented response time for certain ERO functions from 60 minutes from notification to 90 minutes from declaration of an Alert or higher classification;
- Extending dispatch of two (2) offsite survey teams at 30 minutes to one (1) team at 60 minutes and one (1) team at 90 minutes from declaration of an Alert or higher classification;
- Extending response time of the Core Thermal Engineer from 30 minutes to 60 minutes from declaration of an Alert or higher classification;

- Removing of one (1) Electrical Maintenance Responder and the Radwaste Operator (RWO) from the augmentation list;
- Defining Facility Activation criteria for the Operations Support Center (OSC), Technical Support Center (TSC) and Emergency Operations Facility (EOF);
- Removing of references to additional Radiation Protection support coming from the Monticello Nuclear Generating Plant within 2–3 hours;
- Removal of references to performance of post-accident in-plant surveys by non-licensed plant operators;
- Clarifying transfer of Direction and Control responsibilities among the TSC and EOF; and
- Implementing various administrative changes to position titles, figures, etc.

The supplemental letter dated September 20, 2017, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on April 11, 2017 (82 FR 17459).

2.0 REGULATORY EVALUATION

The regulatory requirements and guidance on which the NRC staff based its acceptance are as follows.

2.1 Regulatory Requirements

The regulation at Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.47, "Emergency plans," sets forth emergency plan requirements for nuclear power reactors. The planning standards in 10 CFR 50.47(b) establish the requirements that the onsite and offsite emergency response plans must meet for the NRC staff to make a finding that there is reasonable assurance that the licensee can, and will, take adequate protective measures in the event of a radiological emergency. Specifically, on-shift and augmented emergency response staffing is addressed under:

- 10 CFR 50.47(b)(1), which states, in part, that "...each principal response organization has staff to respond and to augment its initial response on a continuous basis," and
- 10 CFR 50.47(b)(2), which states, in part, that the emergency response plan must ensure that, "...adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available...."

In addition, Appendix E to 10 CFR Part 50, Section IV, Part A, "Organization," states, in part, that "The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization...."

2.2 Guidance

Regulatory Guide (RG) 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors" (ADAMS Accession No. ML090440294), provides guidance on methods acceptable to the NRC staff for implementing specific parts of the NRC's regulations—in this case, 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. RG 1.101 endorses Revision 1 to NUREG-0654/FEMA-REP-1 (NUREG-0654), "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (ADAMS Accession No. ML040420012), which provides specific acceptance criteria for complying with the standards set forth in 10 CFR 50.47(b). These criteria provide a basis for NRC licensees and State and local governments to develop acceptable radiological emergency plans and improve emergency preparedness.

NUREG-0654, Section II, "Planning Standards and Evaluation Criteria," Evaluation Criteria II.B.1 and II.B.5 address the 10 CFR 50.47(b)(2) planning standard. Evaluation Criteria II.B.1 specifies the onsite emergency organization of plant staff personnel for all shifts, and its relation to the responsibilities and duties of the normal shift complement. Evaluation Criteria II.B.5, states, in part, that:

Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." The minimum on-shift staffing levels shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1.

Regulatory Issue Summary 2016-10, "License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation," dated August 5, 2016 (ADAMS Accession No. ML16124A002), provides examples of the scope and detail of information that should be provided in license amendment requests (LARs) to facilitate NRC review.

3.0 TECHNICAL EVALUATION

The NRC staff has reviewed the licensee's regulatory and technical analyses in support of the proposed changes to the PINGP Emergency Plan as described in the application dated February 23, 2017, as supplemented by letter dated September 20, 2017. An evaluation based upon the major functional areas of the PINGP ERO was performed, and many of the changes are supported by enhancements to equipment (technology), procedural improvements, training, process improvements (i.e., dose assessments), and increases in staffing levels in excess of NUREG-0654, Table B-1 levels. These enhancements compensate for the increases in augmentation timing and the reduction in available on-shift maintenance expertise. The NRC staff's technical evaluation is detailed below.

3.1 Enhancements

Plant Monitoring System (PMS) and the Safety Assessment System (SAS): Xcel Energy provides that the new technology, such as the site Emergency Response Computer System (ERCS), collects and processes field data for display to plant personnel. For example,

monitoring of Critical Safety Function (CSF) Status Tree uses the ERCS to graphically display plant conditions relative to limits or required actions and provides a recommendation on which emergency operating procedure (EOP) applies. Upgrades in plant computer capability have also contributed to the reduction in burden for the performance of operations related activities. The site ERCS, composed of the PMS and SAS, collects and processes field data for display to plant personnel. The data are displayed in a concise and consistent format on displays in the control room, TSC, EOF, and backup EOF. The SAS Primary display includes CSF Status Trees, trending, and top level displays. Additionally, the PMS provides for scan, log, alarm, display and trending, archival, and periodic reporting functions. The data are displayed in a concise and consistent format on displays in the control room, TSC, EOF, and backup EOF. Display of these data is also available to all plant personnel through the business computer network. This information, in its multiple forms, is used to assist personnel in the proper implementation of emergency procedures during an accident condition covered by these procedures. The system also provides control room personnel with access to relevant information to assist them during operational transients. During normal operation, the system provides assistance in determining the status and performance of the core and other plant systems. These systems are designed with fully redundant servers, network switches and multiple independent workstations providing a high degree of availability. These systems are powered by an uninterruptible power supply (UPS) and non-safeguards batteries. Non-safeguards diesel generators support operation when the UPS and batteries are unavailable.

Dose Assessment: Xcel Energy provides that PINGP uses Radiological Assessment System for Consequence Analysis (RASCAL) software that was updated in 2014 to include the Unified RASCAL Interface (URI). The URI application is available on emergency response facility (ERF) dose assessment computers. The URI program greatly reduces the data entry needs and the number of program windows the user needs to access to perform a dose projection. It also incorporates a rapid dose projection option, which allows personnel to perform dose assessments during the initial phases of a rapidly evolving event. Manual dose calculation capability is maintained as a backup to the URI system. With the use of the current dose assessment program, as well as plant status, meteorological, and radiation monitoring data, one (1) person can perform dose assessments during emergency conditions easily and rapidly.

Automated ERO Call-Out Systems: Xcel Energy provides that PINGP uses a pager network and the Auto Dial System. The Auto Dial System is an automatic call-out process utilizing multiple outgoing telephone lines that was implemented. When activated, it will call and deliver an emergency message to the ERO responder's home and mobile telephones to staff the ERFs.

Procedure Improvements: Xcel Energy provides that many procedural enhancements related to the PINGP Emergency Plan and response to radiological events have been made. Improvements to how EOPs and emergency plan implementing procedures have been integrated, particularly for emergency action level (EAL) determination, has improved the overall emergency classification process.

Training: Xcel Energy provides that the training of PINGP Operations staff has been improved and includes response to events where implementation of the PINGP Emergency Plan is required based upon an emergency classification level (ECL) declaration. The control room staff, through the use of simulator-based training, demonstrates the ability to: recognize and classify events; determine the appropriate ECL; determine the appropriate protective action recommendation (PAR) as necessary, and to make all required notifications (ERO, State/county, and to the NRC). The ability of the on-shift Operations staff to manage PINGP

Emergency Plan responsibilities, without compromising the situational awareness of the event, demonstrates that the increase in augmentation timing does not negatively impact the response to the event and timely implementation of the PINGP Emergency Plan. In addition, the Shift Technical Advisor (STA) training was enhanced based on Institute of Nuclear Power Operations' guidelines. The STA assists the Shift Manager with operability and risk and reportability determinations including EAL classifications.

On-Shift Staffing Levels: Xcel Energy provides that the current PINGP on-shift staffing consists of 18 personnel, which is an increase from the 10 positions identified in Table B-1 to NUREG-0654, and an increase from 6 positions identified in Revision 2 to the PINGP Emergency Plan. This robust on-shift staffing provides additional personnel to support PINGP Emergency Plan functions, while also allowing for the on-shift staff to perform mitigative strategies to limit the consequences to the public from a radiological event. In particular, the ability to dedicate an on-shift communicator removes the need for an on-shift position needing to be responsible for offsite communications while also being responsible for other collateral functions.

3.2 Major Functional Areas

In the LAR dated February 23, 2017, Xcel Energy provided a justification for the proposed PINGP Emergency Plan changes that included a detailed review of each Major Functional Area and task described in NUREG-0654, Table B-1.

The current PINGP Emergency Plan describes the ERO as consisting of personnel staffing in the control room, TSC, OSC, and EOF. Xcel Energy proposes to activate the OSC and TSC within 60 minutes of declaration of Alert or higher EAL classification, and the EOF within 90 minutes of declaration of Alert or higher EAL classification. Although activation of the EOF is not required until a Site Area Emergency or higher classification, as discussed in the guidance in NUREG-0654, the proposed changes to the PINGP Emergency Plan will require the OSC, TSC, and the EOF to be activated at the Alert level or higher classification.

The NRC staff's review of the proposed changes to the PINGP Emergency Plan is described below.

3.2.1 Plant Operations and Assessment of Operational Aspects

Xcel Energy is not requesting changes to this Major Functional Area. The current on-shift staffing for Plant Operations and Operations Aspects consists of:

<u>Position</u>	<u>Number of On-Shift Personnel</u>
• Shift Manager	1
• Unit Supervisors	2
• STA	1
• Reactor Operators	4
• Auxiliary Operators	6

3.2.2 Emergency Direction and Control

NUREG-0654, Table B-1, guidance indicates that the Shift Supervisor, STA, or designated facility manager should be assigned the Emergency Direction and Control function, and they may be assigned other collateral functions. The overall direction of facility response may be transferred to the EOF Director when all centers are fully manned. NUREG-0654, Table B-1, designates an augmentation time of 60 minutes for the EOF Director.

The current and proposed PINGP Emergency Plan provide that the Shift Manager will initially perform the Emergency Direction and Control function as the Emergency Director until relieved. In the current PINGP Emergency Plan, the Emergency Manager in the EOF will relieve the Emergency Director of all offsite responsibilities as soon as practical and assume the responsibility for the management of the overall response to the emergency. Xcel Energy requested a change to allow the transfer of Emergency Direction and Control Major Functional Area from the control room to the TSC within 60 minutes of an Alert or higher EAL declaration. Offsite functions such as notification and PARs would subsequently transfer to the EOF upon activation within 90 minutes of an Alert or higher declaration.

The transition of command and control functions are depicted below:

CONTROL ROOM	TSC	EOF
<u>Shift Manager</u> (On-Shift Emergency Director)	<u>Emergency Director</u>	<u>Emergency Manager</u>
Classification ----->	Classification	
Notifications ----->	Notifications ----->	Notifications
PARs ----->	PARs ----->	PARs
Emergency Exposure -----> Controls	Emergency Exposure Controls	

The proposed revision to PINGP Emergency Plan, Figure 1, "Prairie Island Plant Emergency Organization," identifies the following minimum staff positions in the TSC needed to support activation of that facility within 60 minutes of an Alert or higher classification:

- Emergency Director,
- ERF Communicator,
- Operations Group Leader,
- Radiological Emergency Coordinator,
- Core Thermal Engineer,
- Offsite Communicator, and
- Emergency Notification System (ENS) Communicator.

Xcel Energy provides that the proposed revision to PINGP Emergency Plan would reduce the amount of time that the Shift Manager/On-Shift Emergency Director maintains responsibility for Emergency Direction and Control as the 60-minute TSC activation criteria would be initiated at the time of declaration rather than from the point of notification as is done currently.

The NRC staff finds that the extension in activation time for the EOF from 60 to 90 minutes from a declaration of an Alert or higher is acceptable due to the transfer of roles and responsibilities to the TSC as described above. Therefore, with the proposed changes, the PINGP Emergency

Plan continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50.

3.2.3 Notification and Communications

The guidance in NUREG-0654, Table B-1, provides that one (1) communicator be assigned on-shift with a dedicated communicator augmenting the on-shift communicator within 30 minutes. The current and proposed PINGP Emergency Plan assign an on-shift individual designated as the Shift Emergency Communicator (SEC) to perform the Notification/Communication function with no other functions assigned. The SEC position is staffed by a dedicated Security force individual on-shift that is not credited as part of the armed response force. Xcel Energy states that there are no conflicts between the SEC duties and any security activities associated with the Physical Security Plan.

Xcel Energy proposed to extend the 30-minute augmented responder to 60 minutes and add a second 60-minute responder position, such that State/local and Federal notifications are completed by separate positions in the TSC. The proposed change also extends the two 60-minute responders to 90 minutes and designates them as reporting to the EOF.

Xcel Energy states that the proposed change impacts the staffing of the notification function by extending the response time of the 30-minute responder to 60 minutes. The proposed PINGP Emergency Plan maintains the SEC position on-shift to ensure that notification functions are completed without conflicts. State/local notifications will transition from the SEC in the control room to the Offsite Communicator in the TSC upon activation of the TSC within approximately 60 minutes under the proposed revision. ENS notifications will continue to transition from the control room to the TSC within 60 minutes as required under the current Emergency Plan.

Xcel Energy further states that the notification of licensee personnel is initiated through an automated call-out process, which is initiated by the SEC. The proposed change does not impact the call-out process or the notification of licensee personnel.

Based on the SEC, having no other duties that would detract from the ability to perform the notification/communication function, the NRC staff concludes that there is no loss of function or impact on the timing for performing notifications. Therefore, with the proposed changes, the PINGP Emergency Plan continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50.

3.2.4 Radiological Accident Assessment and Support of Operational Accident Assessment/Protective Actions (In-Plant)

The function of onsite radiological assessment is to: review radiological conditions onsite using data from available instrumentation; assess the impact of changing radiological conditions on emergency classification; assist in accident assessment based upon those changing radiological conditions; and recommend appropriate onsite protective measures. This Major Functional Area includes the following tasks:

Overall Utility Emergency Management and Offsite Agency Interface: This Major Task was discussed previously in the Emergency Direction and Control Major Functional Area.

Offsite Dose Assessment and PARs: The guidance in NUREG-0654, Table B-1 identifies one (1) person to perform the offsite dose assessment function as a 30-minute augmented position. Xcel Energy proposed to extend the Radiological Emergency Coordinator response to the TSC from 30 to 60 minutes of an Alert or higher EAL classification.

Xcel Energy states that in the current PINGP Emergency Plan, dose assessment is performed by an on-shift Chemistry Technician and is transferred to the Radiological Emergency Coordinator in the TSC. After activation of the EOF, the Radiation Protection Support Supervisor will assume responsibility for the offsite activities. The result of the changes to the offsite dose assessment function would be that the on-shift Chemistry Technician would be responsible for performing dose assessment for up to 60 minutes after event declaration until relieved by the Radiological Emergency Coordinator in the TSC.

Xcel Energy stated that specifically designed displays have been developed for obtaining the necessary plant, radiological effluent, area radiation monitor, and meteorological information that is used by personnel on-shift through the RASCAL URI program. The URI application program can be run from computer stations located in the control room, TSC, EOF, and the backup EOF. The URI program greatly reduces the data entry needs and the number of program windows the user needs to access to perform a dose projection. It also incorporates a rapid dose projection option, which allows personnel to perform dose assessments during the initial phases of a rapidly evolving event. Manual dose calculation capability is maintained as a backup to the URI system.

Based on Xcel Energy's current dose assessment capability and the use of a dedicated on-shift position to perform dose assessment, the NRC staff concludes that there is no loss of function or impact on the timing for performing dose assessment. Therefore, with the proposed changes, the PINGP Emergency Plan continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50.

Offsite and Onsite Surveys, and In-Plant Surveys: The guidance in NUREG-0654, Table B-1 identifies two (2) persons to perform the offsite survey function as 30-minute augmented positions, with two (2) additional persons as 60-minute augmented positions. Additionally, the guidance in NUREG-0654, Table B-1 identifies one (1) person to perform the onsite survey (out-of-plant) function as a 30-minute augmented position, with one (1) additional person as a 60-minute augmented position. It further identifies one (1) person on-shift to perform in-plant surveys, with one (1) person augmenting in 30 and 60 minutes of an Alert or higher EAL classification, respectively.

In the proposed PINGP Emergency Plan, the composition of the survey teams is maintained; however, augmentation would be extended such that the first team would be dispatched at 60 minutes and the second team dispatched at 90 minutes after declaration of an Alert or higher classification, rather than 30 and 60 minutes respectively at the Site Area Emergency or higher classification. Additionally, the proposed revision eliminates the commitment for survey team resources coming from the Monticello Nuclear Generating Plant within approximately 2-3 hours.

Xcel Energy states that installed plant radiological instrumentation is sufficient for monitoring for the release of radioactivity during the initial stages of an accident, and offsite survey data are used to validate the offsite dose assessment. This effectively supports event classification as well as onsite and offsite protective actions, such that performance of this major task at 60 minutes does not adversely impact site response. Initial field team response involves primarily environmental radiation and contamination assessments, plume tracking, and using dose assessment instrumentation. Actions include driving to and from field positions, reading dose rate instrumentation, and communicating results to the TSC and/or EOF. The first survey team can effectively track any potential plume and/or cover the necessary area to identify whether a plume exists during the early stages of an event. The second team, dispatched at 90 minutes, will support continued plume tracking capability, as well as sampling activities.

Xcel Energy states that enhancements have been made in the ability to remotely monitor overall radiological plant conditions supporting in plant emergency response. The Radiation Monitoring System consists of either process radiation monitors or area radiation monitors. The process radiation monitors provide information about radioactive concentration in various systems, leakage across boundaries of closed systems, and radioactive concentrations in liquid and gaseous effluents. The process monitors consist of a remote detector and a rack mounted module, which provides indication, control functions, and alarms. In addition, the area radiation monitors provide information useful in assessing radiation exposure to personnel in areas that may have radiation and/or occupancy potential during both normal and abnormal plant conditions. The area monitors are equipped with an indicator and an alarm in the vicinity of the detector.

Integration of the radiation monitoring systems with the ERCS has increased the availability of normal and accident condition radiological information, which results in enhanced work processes. These systems display plant radiological information so that correct decisions can be made with respect to deployment of personnel in the event of a radiation incident, as well as providing local alarms at key points where substantial radiation level changes may occur.

The proposed PINGP Emergency Plan changes maintain the commitment for two (2) on-shift Radiation Protection Specialist responsible for performance of the in-plant survey function, as well as the augmented Radiation Protection Specialist at 60 minutes, and add an additional Radiation Protection Specialist augmented at 90 minutes. The on-shift Radiation Protection Specialist can quickly determine radiological conditions utilizing the plant area radiation monitors. Real time plant data are also displayed to plant desktop computers. These data can be used to brief on-shift operators and response teams on area conditions. It is also used to determine areas that may require followup radiological surveys.

In addition, the current PINGP Emergency Plan identifies that non-licensed operators are qualified to conduct post-accident in-plant surveys for the first hour of an emergency. Xcel Energy is removing this reference to the operators performing these surveys based on the addition of the second Radiation Protection Specialist on-shift.

Based on the licensee's current dose assessment capability, the use of installed plant radiological instrumentation, and the on-shift complement of two (2) Radiation Protection Specialists, the NRC staff concludes that there is no loss of function or impact on the timing for performing offsite and onsite surveys, and in-plant surveys.

Therefore, with the proposed changes, the PINGP Emergency Plan continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50.

Protective Actions: The guidance in NUREG-0654, Table B-1 specifies the major task of Protective Actions (In-Plant) to be fulfilled on-shift by a total of two (2) personnel and "[m]ay be provided by shift personnel assigned other functions." Additionally, the guidance in NUREG-0654, Table B-1 identifies two (2) persons to perform this function as 30-minute augmented positions, with two (2) additional persons as 60-minute augmented positions.

In the current PINGP Emergency Plan, augmentation of the Radiation Protection Functions are met by one (1) Radiation Protection Specialist within 30 minutes of declaration of an Alert or higher EAL and one (1) Radiation Protection Specialist within 60 minutes of declaration. The proposed augmentation of the Radiation Protection Functions will met by one (1) Radiation Protection Specialist within 60 minutes of declaration of an Alert or higher EAL and one (1) Radiation Protection Specialist within 90 minutes of declaration of an Alert or higher EAL classification.

Xcel Energy states that extension of the augmentation times for the Radiation Protection Specialist from 30 to 60 minutes is acceptable due to, in part, the addition of a second Radiation Protection Specialist to the on-shift complement. Enhancements have been made to access control equipment and processes. These improvements have streamlined access control by automating the issuance of dosimetry and by providing emergency radiation work permits that program the dosimeters with dose and dose rate thresholds appropriate to post-accident conditions. Computerized radiation protection work processes require personnel to sign-in electronically on radiation work permits and obtain electronic self-reading dosimeter (SRDs) to enter radiologically controlled areas (RCAs). Turnstiles are provided that verify proper dosimetry prior to allowing RCA access, further reducing burden on the Radiation Protection Specialists. The same dosimetry is used as a key to unlock turnstiles to allow access to the RCA. An emergency re-entry process has been developed for use during a declared emergency. The SRDs' emergency dose and dose rate alarms are manually set as directed by the radiation work permits.

Xcel Energy states that a remote dose monitoring system is maintained at the PINGP site, which is accessible from designated computers on the network. It allows for real time monitoring of workers wearing transmitting SRDs and monitoring of in-field instruments that are equipped with transmitters. Workers wearing a transmitting SRD will appear after logging into the automated access control and will be removed after log out. Alarm set points are different from actual alarm set points on the electronic SRD. They are meant to assist the person providing job coverage by providing pre-alarms on the SRD screen. The actual dosimeter dose or dose rate alarm is set to respond when 100 percent of the radiation work permit set point is reached in the SRD. Use of the remote monitoring system allows the Radiation Protection Specialist to monitor multiple work groups simultaneously from remote points reducing the time and effort required for job coverage while maintaining adequate protection for workers.

Based on technological improvements for dose assessment, access control to RCAs, the assignment of an additional Radiation Protection Specialist on-shift for a total of two (2), and the extensive installed radiation monitoring system at PINGP, the NRC staff concludes that there is no loss of function or impact on the timing for performing protective actions. Therefore, with the proposed changes, the PINGP Emergency Plan continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50.

3.2.5 Plant System Engineering, Repair and Corrective Actions

This Functional Area includes the following tasks:

Technical Support: The guidance in NUREG-0654, Table B-1 identifies one (1) on-shift STA, core/thermal hydraulics engineering expertise to be available in 30 minutes, and Electrical and Mechanical engineering expertise to be available in 60 minutes. The current PINGP Emergency Plan maintains three (3) on-shift senior reactor operators, an STA, as well as a 30-minute Core Thermal Engineer, and augmentation by Mechanical and Electrical Engineers reporting to the TSC within 60 minutes of declaration of an Alert or higher EAL classification.

The proposed PINGP Emergency Plan extends the augmentation timing of the Core Thermal Engineer to 60 minutes and maintains the augmentation by Mechanical and Electrical Engineers reporting to the TSC within 60 minutes of declaration of an Alert or higher EAL classification.

Xcel Energy provides that enhancements in the STA's ability to perform required actions on-shift have resulted from improvements in training, adoption of symptom-based EOPs, and significant improvements in the ability to use computer parameters to efficiently monitor core conditions. The EOPs interface well with new technology, such as the site ERCS. For example, monitoring of CSF Status Trees uses the ERCS to graphically display plant conditions relative to limits or required actions and provides a recommendation on which EOP applies. Upgrades in plant computer capability have also contributed to the reduction in burden for the performance of STA related activities. The site ERCS, composed of the PMS and SAS, collects and processes field data for display to plant personnel. The data is displayed in a concise and consistent format on displays in the Control Room, TSC, EOF, and backup EOF. The SAS primary display includes CSF Tree, trending, and top level displays. Additionally, the PMS provides for scan, log, alarm, display and trending, archival, and periodic reporting functions. These display capabilities enhance the STA's ability to monitor core thermal conditions and provide advice to the operating crew.

Based on the improved monitoring systems available to the STA, the NRC staff concludes that there is no loss of function or impact on the timing for performing technical support. Therefore, with the proposed changes, the PINGP Emergency Plan continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50.

Repair and Corrective Actions: The guidance in NUREG-0654, Table B-1 specifies the major task of "Repair and Corrective Actions" to be fulfilled on-shift by a total of two (2) personnel and "[m]ay be provided by shift personnel assigned other functions." One (1) person would perform the function of a mechanic and one (1) person would perform the function of an electrician. One (1) electrician and one (1) instrument and control (I&C) technician would respond within 30 minutes to augment the ERO. One (1) mechanic/RWO and one (1) additional electrician/I&C technician would respond within 60 minutes to augment the ERO.

The current PINGP Emergency Plan has one (1) I&C technician and one (1) electrical maintenance technician reporting to the OSC within 30 minutes of declaration of an Alert or higher EAL classification. Additionally, one (1) mechanical maintenance technician, one (1) RWO, and one (1) electrical maintenance technician report to the OSC within 60 minutes of declaration of an Alert or higher EAL classification.

Xcel Energy proposed to change the timing and composition of the augmenting maintenance responders reporting to the OSC at 60 minutes and 90 minutes. The requested change will result in one (1) mechanical maintenance technician and one (1) electrical maintenance technician reporting to the OSC within 60 minutes of declaration of an Alert or higher EAL classification and one (1) I&C technician reporting to the OSC within 90 minutes of declaration of an Alert or higher EAL classification.

Xcel Energy further stated that the on-shift operators have the necessary training and expertise to perform troubleshooting and minor repairs during plant operations, and would be available to perform any minor troubleshooting and repair activities that may be needed. Due to the time needed to stabilize the plant and assess the event, the initial phase of accidents is not expected to involve a significant need for maintenance personnel. Once plant status is understood and the plant is in a stable condition, attention can be focused on corrective maintenance that may be needed to restore plant capabilities.

Additionally, Xcel Energy credited the robust emergency core cooling systems (ECCS) capability through redundant and diverse system design and protection against loss of ECCS capability due to a single component failure, which provides the basis for the position that no ECCS repair and corrective actions are necessary for on-shift personnel prior to augmentation of maintenance personnel. However, in the unlikely event of an ECCS failure, on-shift licensed and non-licensed personnel will respond to restore ECCS functions as directed by Abnormal Operating Procedures and EOPs. Licensed and non-licensed personnel are trained to perform these actions as part of their assigned duties, as such they would not be considered a collateral duty. The robust ECCS capability also provides the basis for the proposed changes to the augmentation times for maintenance personnel, as ECCS repair and corrective actions performed by augmented personnel would address restoration of redundant equipment as opposed to restoration of minimum required equipment to provide core cooling capabilities. Therefore, Xcel Energy states that the proposed change will not result in a reduction in response capability for performance of technical support, repair activities, or corrective actions.

Based on the availability of on-shift operators with the necessary training and expertise to perform minor maintenance actions to mitigate an event until augmented, the redundant and diverse ECCS system design and protection against loss, and the augmenting maintenance personnel, the NRC staff concludes that there is no loss of function or impact on the timing for performing repair and corrective actions. Therefore, with the proposed changes, the PINGP Emergency Plan continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50.

3.2.6 Fire Fighting

Xcel Energy is not requesting a change for the Fire Fighting Major Functional Area.

3.2.7 Rescue Operations and First Aid

Xcel Energy is not requesting a change for the Rescue Operations and First Aid Major Functional Area.

3.2.8 Site Access Control and Personnel Accountability

Xcel Energy is not requesting a change for the Site Access and Personnel Accountability Major Functional Area.

3.3 Summary

The NRC staff performed a technical and regulatory review of the proposed changes to the PINGP Emergency Plan. The NRC staff finds that the proposed emergency plan changes meet the standards in 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR Part 50, and provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Therefore, the NRC staff concludes that the proposed PINGP Emergency Plan changes to certain augmentation times, as described in the application dated February 23, 2017, as supplemented by the letter dated September 20, 2017, are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Minnesota State official was notified of the proposed issuance of the amendment on December 14, 2017. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change the site emergency plan. The amendments relate to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: M. Norris, NSIR

Date: March 5, 2018

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 -
ISSUANCE OF AMENDMENT RE: CONCERNING REVISION TO THE
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2
EMERGENCY PLAN (CAC NOS. MF9345 AND MF9346;
EPID L-2017-LLA-0175) DATED MARCH 5, 2018

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*-memo dated **-via e-mail w/comments

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