



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

April 28, 2020

Mr. Scott Sharp
Site Vice President
Prairie Island Nuclear Generating Plant
Northern States Power Company, Minnesota
1717 Wakonade Drive East
Welch, MN 55089-9642

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT – INTEGRATED
INSPECTION REPORT 05000282/2020001 AND 05000306/2020001

Dear Mr. Sharp:

On March 31, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Prairie Island Nuclear Generating Plant. On April 9, 2020, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Hironori Peterson, Chief
Branch 3
Division of Reactor Projects

Docket Nos. 05000282 and 05000306
License Nos. DPR-42 and DPR-60

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to Scott Sharp from Hironori Peterson dated April 28, 2020.

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT – INTEGRATED
INSPECTION REPORT 05000282/2020001 AND 05000306/2020001

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers: 05000282 and 05000306

License Numbers: DPR-42 and DPR-60

Report Numbers: 05000282/2020001 and 05000306/2020001

Enterprise Identifier: I-2020-001-0052

Licensee: Northern States Power Company, Minnesota

Facility: Prairie Island Nuclear Generating Plant

Location: Welch, Minnesota

Inspection Dates: January 01, 2020 to March 31, 2020

Inspectors: E. Fernandez, Reactor Inspector
L. Haeg, Senior Resident Inspector
I. Hafeez, Reactor Inspector
K. Pusateri, Resident Inspector
L. Rodriguez, Reactor Inspector

Approved By: Hironori Peterson, Chief
Branch 3
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Prairie Island Nuclear Generating Plant, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

No findings or violations of more than minor significance were identified.

Additional Tracking Items

None.

PLANT STATUS

Units 1 and 2 operated at or near full power for the entirety of the inspection period, with the exception of brief power reductions to perform surveillance testing or flexible power operations.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/readingrm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." From January 1 – March 19, 2020, the inspectors performed plant status activities described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), resident inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time the resident inspectors performed periodic site visits each week and during that time conducted plant status activities as described in IMC 2515, Appendix D; and observed risk significant activities when warranted. In addition, resident and regional baseline inspections were evaluated to determine if all or portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In the cases where it was determined the objectives and requirements could not be performed remotely, management elected to postpone and reschedule the inspection to a later date.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Impending Severe Weather Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the adequacy of the overall preparations to protect risk-significant systems from impending severe weather (heavy snow storm) on 01/15/2020

External Flooding Sample (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated flood protection barriers, mitigation plans, procedures, and equipment are consistent with the licensee's design requirements and risk analysis assumptions for coping with external flooding on 03/09/2020

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) 122 control room chiller on 01/15/2010
- (2) D5 and Bus 25 during D6 maintenance window on 01/23/2020
- (3) 11 containment spray pump with 12 containment spray out of service for surveillance test on 02/20/2020

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated system configurations during a complete walkdown of the D1 and D2 emergency diesel generators on 01/30/2020

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Fire detection zone 89: guard house and emergency generator building on 01/10/2020
- (2) Fire detection zone 87: unit 1 rod drive room on 01/13/2010
- (3) Fire detection zone 75: Plant screenhouse safeguards traveling screens during hotwork on 02/05/2020
- (4) Fire detection zone 11: Unit 1 safeguards Bus 15 room on 01/25/2020

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 03.01) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

- (1) Auxiliary building and postulated internal flood analysis on 01/17/2020

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during Unit 1 main feedwater leading-edge flowmeter troubleshooting on 03/02/2020

Licensed Operator Regualification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated operator re-qualification training in the control room simulator on 03/13/2020

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) Motor-operated valve program deferrals on 01/27/2020
- (2) Maintenance effectiveness procedure use and adherence on 02/28/2020

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed;

- (1) Maintenance risk during D6 maintenance window on 01/21/2020
- (2) Bus 26 load sequencer unplanned LCO on 01/24/2020
- (3) 22 component cooling pump emergent outboard beaming maintenance on 02/24/2020

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) D1 air start issue Part 21 review on 01/21/2020
- (2) Bus 26 breaker 26-16 incorrect breaker sizing past operability on 01/27/2020
- (3) Steam generator vendor weld qualification issue (AR 501000036873) on 01/29/2020
- (4) Cooling water through-wall leak (AR 501000036454) on 02/05/2020
- (5) 122 fuel oil storage tank pump motor cable low insulation resistance issue (AR 501000038846) on 3/20/2020

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) D5/D6 fuel oil day tank volume change (EC 601000000142) on 01/09/2020

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the following post maintenance test activities to verify system operability and functionality:

- (1) 22 turbine driven auxiliary feed water pump following maintenance on 01/17/2020
- (2) D6 following maintenance on 01/27/2020
- (3) 21 fan coil unit following breaker troubleshooting (WO 700070246) on 02/07/2020
- (4) 12 diesel driven cooling water pump following instrument calibrations on 03/04/2020
- (5) 22 diesel-driven cooling water pump following maintenance on 03/16/2020

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (3 Samples)

- (1) SP 1093; D1 Diesel Generator Monthly Slow Start Test on 01/13/2020
- (2) SP 1106B; 22 Diesel Cooling Water Pump Monthly Test on 01/30/2020
- (3) SP 1295; D1 Diesel Generator 6-month Fast Start Test on 03/09/2020

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) SP 2089B; 21 RHR Pump and Suction Valve from the Reactor Water Storage Tank Quarterly Test on 03/30/2020

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (2 Samples)

- (1) Unit 1 1Q19 through 4Q19 on 01/08/2020
- (2) Unit 2 1Q19 through 4Q19 on 01/08/2020

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (2 Samples)

- (1) Unit 1 1Q19 through 4Q19 on 01/10/2020
- (2) Unit 2 1Q19 through 4Q19 on 01/10/2020

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (2 Samples)

- (1) Unit 2 1Q19 through 4Q19 on 01/09/2020
- (2) Unit 1 1Q19 through 4Q19 on 01/09/2020

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (2 Samples)

- (1) Unit 1 1Q19 through 4Q19 on 01/13/2020
- (2) Unit 2 1Q19 through 4Q19 on 01/13/2020

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) D5/D6 emergency diesel generator extreme cold performance reconstitution effort on 01/07/2020

INSPECTION RESULTS

Observation: D5/D6 emergency diesel generator extreme cold weather evaluation	71152
<p>The inspectors reviewed the licensee's efforts to re-evaluate extreme cold weather performance and operability limits for the Unit 2 D5 and D6 emergency diesel generators. This effort was in response to extreme cold weather that occurred in late-January of 2019; challenging operability of the D5 and D6 systems.</p> <p>The inspector's review consisted of analyses and calculations performed by a vendor to demonstrate lower temperature limits from existing values. The inspectors also reviewed the method for incorporating information for plant operators if/when extreme cold weather was experienced in the future. Based on the inspector's review, no concerns were identified.</p>	

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On April 9, 2020, the inspectors presented the integrated inspection results to Mr. S. Sharp, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Procedures	AB-2	Severe Weather	46
		AB-4	Flood	57
71111.04	Calculations	NL-40960-2A	D1 and D2 Emergency Generator Governor Full Load Position Indicator Microswitch Mounting	11/27/1972
	Corrective Action Documents	AR 501000018362	D1 Governor Ready Lights Not Responding	10/12/2018
		AR 501000019870	D1 Governor Ready Lights Not Lit	11/14/2018
		AR 501000032206	121 CR Chiller Purge Unit Rusting	10/24/2019
		AR 501000032206	121 CR Chiller Purge Unit Rusting	09/22/2019
		AR 501000036567	121 Control Room Chiller Purge Unit	01/16/2020
		AR 501000036690	Surface Rust on the Base Plate-Excessive Leakage During TP 1687	01/17/2020
		AR 501000037469	D1 Governor Ready Lights Not Lit	02/10/2020
	Corrective Action Documents Resulting from Inspection	AR 500001011327	NRC Identified Concerns With D1/D2 Operability	03/29/2006
		AR 501000038509	Fuel Oil Leak on D2 FO Pump Discharge	03/09/2020
	Drawings	NE-40006-1	4160V Switchgear Safeguard Unit 1 and 2 - Schematic Diagram	08/18/1994
		NF-39603-4	Flow Diagrams - Cooling and Chilled Water System and Fire Protection for Vent Filters in Auxiliary and Containment Buildings	12
		NF-40325-1	Interlock Logic Diagram Diesel Generator System Units 1 and 2: D1 Diesel Generator Voltage Regulator Control Logic	77

71111.04	Procedures	C1.1.20.7-6	D2 Diesel Generator Auxiliaries and Room Cooling Local Panels	13
		C1.1.20.7-8	D2 Diesel Generator Circuit Breakers and Panel Switches	18
		IC20.7	D1/D2 Diesel Generators	54
		SP 1295	D1 Diesel Generator 6-Month Fast Start Test	67
		SP 1305	D2 Diesel Generator Monthly Slow Start Test	62
71111.05	Fire Plans	Fire Detection Zone 11-F5 Appendix A	Fire Detection Zone 11 - Fire Areas 20 and 81; Cables/Miscellaneous	41
		Fire Detection Zone 75- F5 Appendix A	Fire Detection Zone 75 - Fire Areas 41 and 41A - Open Areas From Elevation 670'	44
		Fire Detection Zone 87	Unit 1 Rod Drive Room	7
		Fire Detection Zone 89	Guard House and Emergency Generating Building	44
71111.06	Calculations	ENG-ME-448	Auxiliary Building Flooding Analysis	2
71111.11Q	Miscellaneous	Simulator Exercise Guide PI-LOR-20C-002S	Cycle 20C Simulator Session #2	0
	Procedures	AR 501000038248	LEFM Behavior During Flex Ops	03/01/2020
71111.12	Corrective Action Documents	AR 501000035269	Algae in Sightglass to 2CL-128-6	12/03/2019
		AR 501000036851	MOV Program Health Color Change	01/22/2020
		AR 501000037993	22 CC Pump Outboard Bearing Oil Leak	02/22/2020
		AR 501000038128	Corporate Elevation: VM WO Preps / Exec	02/27/2020
		AR 501000038128	Elevation / Escalation Letter Template	02/27/2020
		AR 501000038129	Potential Trend in Procedure Use and ADH	02/27/2020
	Drawings	NF-39216-1	Flow Diagram Cooling Water Screenhouse Units 1 and 2	04/11/2007

		XH-1048-5	#10096 "CPK" Heat Exchanger 5-046-10-096-005	3
	Miscellaneous	X-HIAW-48-34	Lubrication System and Piping Detail for 200L-26	D
	Procedures	ICPM 2-063-22	22 DD Clg Water Pump Bearing Water Pressure Switch Calibration	5
	Work Orders	WO 700028834-0010	Replace DDCLP Heat Exchanger O-Rings	11/08/2018
		WO 700028834-0020	22 Olg Water Pump Diesel Jacket Heat Exchanger	11/17/2018
71111.13	Corrective Action Documents	AR 501000036964	Unsatisfactory SP 2095, Bus 26 Sequencer, Error 11	01/24/2020
		AR 501000036976	Breaker 29-16 Charging Motor Wire Issue	01/26/2020
		AR 501000037073	D6 Lessons Learned-SP 2095 Schedule	01/27/2020
		AR 501000037074	D6 Lessons Learned-PMT Sequence	01/27/2020
		AR 501000037078	D6 Lessons Learned PMT & RTS Work Plans	01/28/2020
		AR 501000037079	D6 Lessons Learned-PMT Quality Issue	01/28/2020
		AR 501000037993	22 CC Pump Outboard Bearing Oil Leak	02/22/2020
		AR 501000038027	22 CC Pump Vibes Step Change	02/25/2020
	Drawings	XH-105-1	Component Cooling Water Pump Section Drawing	2
	Procedures	2C20.7 AOP3	Bus 26 Load Sequencer Out of Service	15
		SP 2155B	CC System Quarterly Test Train B - 22 CC Pump and Motor Vibration Data	31
	Work Orders	WO 700070775-0010	Replace 22 CC Pump Outboard Seal and Bearings	2
71111.15	Corrective Action Documents	AR 501000036454	Clg Water Thru Well Drip 3-CL-88	01/10/2020
		AR 501000036873	Framatome Additional SG Welding Issues	01/23/2020
		AR 501000036932	Breaker 26-16 Found Wrong Frame Size	01/24/2020

		AR 501000038846	Low Megger: 122 FOST PMP MTR PE4826	03/17/2020
	Drawings	NE-40006 Sheet 59	12 MDAFWP-Auxiliary Feedwater Pump Bus 16 Cub 3	80
71111.18	Corrective Action Documents	AR 501000036878	D6 Cracked Flame Arrestor Relocation	01/23/2020
		AR 501000036884	D6 Day TK Flame Arrestor Flange Cracked	01/23/2020
	Procedures	DC 601000000142	D5/D6 Fuel Oil Day Tank Volume Change	0
71111.19	Procedures	ICPM 1-012A	12 Diesel Cooling Water Pump Instrument Calibration - Part A	21
		SP 2307	D6 Diesel Generator 6-Month Fast Start Test	46
	Work Orders	WO 700070246- 0010	Perform PE MCC-G7 on Breaker 212J-2	02/06/2020
71111.22	Procedures	SP 1106B	22 Diesel Cooling Water Pump Monthly Test	98