UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

June 24, 2022

Mr. Christopher P. Domingos
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 PLANT – TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000282/2022010 AND 05000306/2022010

Dear Mr. Domingos:

On May 11, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Prairie Island Nuclear Plant and discussed the results of this inspection with Harlan Hansen and other members of your staff. The results of this inspection are documented in the enclosed report.

Two findings of very low safety significance (Green) are documented in this report. Two of these findings involved violations of NRC requirements. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

Licensee-identified violations which were determined to be of very low safety significance are documented in this report. We are treating these violations as NCVs consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement; and the NRC Resident Inspector at Prairie Island Nuclear Plant.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at Prairie Island Nuclear Plant.

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,

Signed by Skokowski, Richard
on 06/24/22

Richard A. Skokowski, Chief
Engineering Branch 3
Division of Reactor Safety

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

Enclosure:
As stated

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Letter to Christopher P. Domingos from Richard A. Skokowski dated June 24, 2022.

SUBJECT: PRAIRIE ISLAND NUCLEAR PLANT – TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000282/2022010 AND 05000306/2022010

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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:	05000282/2022010 and 05000306/2022010
Enterprise Identifier:	I-2022-010-0042
Licensee:	Northern States Power Company
Facility:	Prairie Island Nuclear Plant
Location:	MN, Red Wing
Inspection Dates:	March 28, 2022 to April 15, 2022
Inspectors:	K. Barclay, Reactor Inspector B. Daley, Senior Reactor Inspector J. Gilliam, Senior Reactor Inspector
Approved By:	Richard A. Skokowski, Chief Engineering Branch 3 Division of Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a triennial fire protection inspection at Prairie Island Nuclear 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. Licensee-identified non-cited violations are documented in report section: 71111.21N.05.

List of Findings and Violations

Failure to Perform Aging Management External Walkdowns of Systems in High Radiation Areas			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000306,05000282/2022010-01 Open/Closed	[H.7] - Documentation	71111.21N.05
The inspectors identified a finding of very low safety significance (Green) and a Non-Cited Violation (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to periodically accomplish instructions for external monitoring. Specifically, procedural Update Safety Analysis Report (USAR) specifications and associated work orders for external monitoring of the Chemical and Volume Control System (CVCS) were not performed periodically and documented properly for components in High Radiation areas.			

Failure to Protect the Motor-Driven Fire Pump Controller from Moisture Intrusion			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000282,05000306/2022010-02 Open/Closed	None (NPP)	71111.21N.05
A self-revealed finding of very low safety significance (Green) and associated a Non-Cited Violation (NCV) of License Condition 2.C(4) occurred when the licensee failed to implement a corrective action program that promptly identified and corrected a condition adverse to quality. Specifically, after identifying that the motor-driven fire pump (MDFP) controller enclosure was permitting water intrusion, which was degrading the internal 480-volt controller components, the licensee failed to correct the adverse condition and protect the controller from water intrusion.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000282,05000306/ 2021010-01	Unexpected Opening of the Battery Charger Output Breaker	71111.21N.05	Closed

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/reading-rm/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." 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.

REACTOR SAFETY

71111.21N.05 - Fire Protection Team Inspection (FPTI)

Structures, Systems, and Components (SSCs) Credited for Fire Prevention, Detection, Suppression, or Post-Fire Safe Shutdown Review (IP Section 03.01) (4 Samples)

The inspectors verified that components and/or systems will function as required to support the credited functions stated for each sample. Additional inspection considerations are located in the fire hazards analysis (FHA) or safe shutdown analysis (SSA).

(1) Unit 1 Turbine-Driven Auxiliary Feedwater Pump (11 TDAFW)
(2) 12 Charging Pump
(3) Pre-Action Suppression System (Unit 1, FA 25)
(4) Fire Pumps

Fire Protection Program Administrative Controls (IP Section 03.02) (2 Samples)

The inspectors verified that the selected control or process is implemented in accordance with the licensee's current licensing basis. If applicable, ensure that the licensee's Fire Protection Program contains adequate procedures to implement the selected administrative control. Verify that the selected administrative control meets the requirements of all committed industry standards.

(1) Combustible Control Program
(2) Fire Watches

Fire Protection Program Changes/Modifications (IP Section 03.03) (2 Samples)

The inspectors reviewed the following changes to the plant's National Fire Protection Association (NFPA) 805 program:

(1) FPCE 18-017, Rev. 1, Loss of Control Room Cooling and 121 Portable 480 Volt Diesel Generator Maintenance
(2) FPCE 19-005, Post Fire Nuclear Safety Capability Assessment Report

INSPECTION RESULTS

Failure to Perform Aging Management External Walkdowns of Systems in High Radiation Areas			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000306,05000282/2022010-01 Open/Closed	[H.7] - Documentation	71111.21N.05

The inspectors identified a finding of very low safety significance (Green) and a Non-Cited Violation (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to periodically accomplish instructions for external monitoring. Specifically, procedural Update Safety Analysis Report (USAR) specifications and associated work orders for external monitoring of the Chemical and Volume Control System (CVCS) were not performed periodically and documented properly for components in High Radiation areas.

Description:

The Prairie Island USAR, Appendix L, Section L.2.14, describes the External Surfaces Monitoring Program. It states that “periodic system inspections and walkdowns are conducted to visually inspect accessible external surfaces of piping, piping components, ducting, and other metallic and non-metallic components (including bolting) for aging degradation.” Additionally, the NRC Safety Evaluation Report (SER) for the Prairie Island license renewal states that these inspections and walkdowns will “ensure that surfaces that are inaccessible or not readily visible during plant operations will be inspected during refueling outages.” These external inspections and walkdowns are specified to be performed for the CVCS system.

Contrary to this specification, inspectors found that work orders used to conduct these procedural inspections and walkdowns for the CVCS system have not been periodically performed in High Radiation areas at the plant. In the work order for the CVCS system, High Radiation areas were categorized as inaccessible areas, and therefore equipment in the areas did not receive an external walkdown inspection. However, the areas themselves are not inaccessible during refueling outages, and portions of the system can be walked down and inspected. While the licensee clearly could inspect other facets of systems in these areas (In-Service Inspection, Micro-Biologically Induced Corrosion, etc.,) during refueling outages, there were not documented records showing designated external inspections that could be credited to show that all accessible surfaces were inspected per the aging management program.

Corrective Actions: The licensee entered this issue in their corrective action process. Items to be evaluated to correct the performance deficiency include adding instructions to work orders to ensure external monitoring is completed for components that are accessible and in the aging management program, and providing clearer guidance so that aging management requirements for walkdowns are clearer for performers of the walkdowns. The licensee also reviewed the results of external inspection for other systems' components in the area, and because of the acceptability of those components, the licensee determined it reasonable that the CVCS components in the same area would similarly be acceptable.

Corrective Action References: CAP 501000062256 - Inaccessible External Surfaces Review, and CAP 501000062304, External Surfaces Program Documentation

Performance Assessment:

Performance Deficiency: The inspectors determined that the failure to perform external monitoring of the CVCS system for components in High Radiation areas was contrary to their periodic aging management procedural USAR specifications and did not fully accomplish the associated work orders.

Screening: The inspectors determined the performance deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the failure to perform external monitoring could lead to the failure of components due to aging mechanisms that could have been prevented by identification through inspection.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The finding was determined to be of very low safety significance (Green), because the failure to perform external monitoring in this case did not affect the operability of any equipment.

Cross-Cutting Aspect: H.7 - Documentation: The organization creates and maintains complete, accurate and up-to-date documentation. The licensee did not document external inspection of CVCS components in High Radiation Areas, and instead justified not performing the inspections by deeming the areas inaccessible, thereby designating the work orders as complete.

Enforcement:

Violation: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.

Contrary to the above, prior to April 15, 2022, the licensee has not had a procedure for periodically accomplished instructions for external monitoring. Specifically, procedural USAR requirements and associated work orders for external monitoring of the CVCS system have not been performed periodically and documented properly for components in High Radiation areas that were accessible during refueling outages.

Enforcement Action: This violation is being treated as an NCV consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Protect the Motor-Driven Fire Pump Controller from Moisture Intrusion			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000282,05000306/2022010-02 Open/Closed	None (NPP)	71111.21N.05
A self-revealed finding of very low safety significance (Green) and associated a Non-Cited Violation (NCV) of License Condition 2.C(4) occurred when the licensee failed to implement a corrective action program that promptly identified and corrected a condition adverse to			

quality. Specifically, after identifying that the motor-driven fire pump (MDFP) controller enclosure was permitting water intrusion, which was degrading the internal 480-volt controller components, the licensee failed to correct the adverse condition and protect the controller from water intrusion.

Description:

On May 28, 2019, the licensee received multiple alarms in the control room, including a valid fire alarm. The licensee's fire brigade responded to the MDFP room and confirmed that no fire was present; however, they did identify that the MDFP controller enclosure was hot and smoking, with electrical charring evident. The licensee's investigation found that water dripping from above had entered the controller and likely caused arcing or a fault within the controller. The licensee replaced the complete controller and restored the MDFP on October 4, 2019.

Discussions with licensee staff that were involved in the controller replacement revealed that a patch plate was not flush with the enclosure surface and a channel or gap existed that allowed accumulated water to enter the enclosure. The patch plate was in place because a conduit hole that was previously cut in the top of the enclosure was either originally cut in the wrong location or the conduit was moved sometime in the past and the original hole had to be patched. A review of photos found that the current conduit configuration existed prior to October 2011.

The inspectors reviewed the licensee's apparent cause evaluation (ACE) for the 2019 MDFP failure and found that in October of 2011, while starting the MDFP, a short caused electrical sparks and smoke, which was attributed to an inadequately sized lug on the 'B' phase conductor. During controller repairs, extensive corrosion was identified in the enclosure and the system engineer recommended corrective actions to change the enclosure and install a heater, these actions were to eliminate / reduce moisture intrusion and mitigate humidity impacts in the area. The associated condition evaluation stated, in part, "walkdown performed and the degradation within the panel is significant. A new enclosure qualified for the environment should be installed to prevent further degradation." A corrective action was created to track initiation of an Engineering Initiation Request (EIR) for replacement of the enclosure; however, because of EIR funding threshold requirements, a work request (WR) was generated instead. The WR / work order (WO) did not contain the necessary detail or requirements to replace the enclosure. The licensee's 2019 ACE stated, in part, "The WO did not appropriately specify the scope of the work needing to be performed, resulting in corrective actions that only performed repair versus addressing the inadequate design of the cabinet." The inspectors independently reviewed the WO, which consisted of two tasks, and did not identify any corrective actions to address water intrusion of the enclosure. The first task had a stated purpose to clean the corrosion and rust from the equipment and wiring mounted on the back plates of the controller; however, the inspectors found that the step to clean and inspect the components was marked as not applicable. The second task was associated with rust removal and painting of the lower portion of the enclosure. The inspectors did not identify any issues with the performance of the second task.

The inspectors review found evidence of moisture intrusion that was also documented in May of 2017. Specifically, while investigating a ground on Bus 180, the licensee-identified that the MDFP relief valve had sprayed onto the MDFP controller enclosure. During the process of drying out the enclosure they identified that the interior and starter components were severely rusted and needed to be cleaned and inspected. The licensee closed the corrective action document to a WR / WO. The inspectors reviewed the WO notification

details associated with a preliminary walkdown and found that it stated, in part, “motor driven fire pump starter panel is very rusty / dirty and needs to be cleaned. This will require replacement of the contactor as the component is probably beyond any reasonable type of cleanup.” The 2019 ACE documented that the WO was never performed. It was originally scheduled for June 2019, but in May 2019, prior to the controller failure, the WO was extended to 2020.

The inspectors also reviewed revisions of the licensee’s Quality Assurance Topical Report (QATR), Section A.6 Corrective Action, from 2011 through 2019, which all stated, in part, “NSPM [Northern States Power Company - Minnesota] implements a corrective action program to promptly identify, control, document, classify, and correct conditions adverse to quality.” The licensee confirmed that QATR, Section A.6 was applicable to their fire protection program.

The inspectors found that Chapter 500, Electric Drive Controllers, Section 513, Item (c) of National Fire Protection Association (NFPA) 20, *Standard for the Installation of Stationary Pumps for Fire Protection* 1969, which is the Prairie Island code of record for fire pumps, stated, in part, that the structure or panel shall be securely mounted in an enclosure which will protect the equipment from falling drops of water striking the enclosure from the downward vertical.

Corrective Actions: The licensee replaced the MDFP controller and enclosure with a cabinet appropriate for the environment to eliminate moisture intrusion. The licensee also provided information sharing to its staff about validating that conditions adverse to quality (CAQs) are addressed via WOs and reinforced the concept that WOs are an extension of the corrective action program to ensure risk is appropriately managed via timely and quality correction of CAQs.

Corrective Action References:

QID 501000027914; Received Multiple Unexpected Alarms
QID 501000027900; Water Intrusion and Short Damage
QIM 501000028580; Plans to Repair 121 MD Fire Pump
QIM 501000028169; Water Dripping On 121 MDFP PNL, Storms

Performance Assessment:

Performance Deficiency: The failure to implement a corrective action program that promptly corrected a condition adverse to quality was a performance deficiency. Specifically, after identifying that the MDFP enclosure was permitting water intrusion, which was degrading the 480-volt internal controller components, the licensee failed to take corrective actions that protected the controller from water intrusion.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the resulting water intrusion caused a fault in the MDFP controller and loss of the MDFP for over 4 months. The inspectors also compared the finding with the examples listed in IMC 0612, *Power Reactor Inspection Reports*, Appendix E, *Examples of Minor Issues*. Example 4.f was found to be similar in that a failure to correct a condition adverse to quality resulted in a loss of function for a component.

Significance: The inspectors assessed the significance of the finding using Appendix F, "Fire Protection and Post - Fire Safe Shutdown SDP." The inspectors applied Appendix F, Attachment 1, *Fire Protection Significance Determination Process Worksheet*, and determined that the finding impacted the fire water supply. The inspectors answered Yes to question 1.3.1-A, "Based on the criteria in Attachment 2, is the finding assigned a "Low" degradation rating?" Specifically, the inspectors reviewed Appendix F, Attachment 2, *Degradation Rating Guide*, and concluded that the loss of the MDFP did not result in a non-functional system and represented a low degradation rating. The inspectors found that the licensee retained the diesel-driven fire pump and a screen wash pump that could also supply the fire suppression system. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: Not Present Performance. No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance. Specifically, the inspectors believe that the latest opportunity for the licensee to assign corrective actions would have been the May 2017 timeframe when they assigned actions to clean and inspect the enclosure after observing the rusted enclosure internals.

Enforcement:

Violation: License condition 2.C(4) of the Prairie Island Nuclear Generating Plant, Unit 1 and Unit 2 Renewed Facility Operating Licenses, requires, in part, that the licensee implement and maintain in effect all provisions of the approved fire protection program that comply with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.48(a) and 10 CFR 50.48(c), "National Fire Protection Association (NFPA) Standard NFPA 805," as specified in the licensee's amendment request dated September 28, 2012, as supplemented, and as approved in the Safety Evaluation dated August 8, 2017. Section 3.5.3 of NFPA 805, states, in part, fire pumps, designed and installed in accordance with NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, shall be provided to ensure that 100 percent of the required flow rate and pressure are available assuming failure of the largest pump or pump power source.

NFPA 20, 1969, Chapter 500, Electric Drive Controllers, Section 513, Item (c), states, in part, that the structure or panel shall be securely mounted in an enclosure which will protect the equipment from falling drops of water striking the enclosure from the downward vertical.

Contrary to the above, from August 8, 2018, to October 4, 2019, the licensee failed to provide a fire pump designed and installed in accordance with NFPA 20. Specifically, the licensee failed to provide an enclosure for the MDFP controller that protected the equipment from falling drops of water striking the enclosure from the downward vertical.

Enforcement Action: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

URI	Unexpected Opening of the Battery Charger Output Breaker URI 05000282,05000306/2021010-01	71111.21N.05

Description:

As a result of the evaluation of Information Notice (IN) 2017-06 dated August 13, 2018, the licensee obtained vendor information in regard to the response characteristics of the

21 Battery Charger. This information displayed the expected response of the battery charger to a fault experienced downstream of the charger. Contrary to past licensee assumptions that the charger would interrupt current flow when current levels were greater than or equal to 315 Amps, information from the vendor showed that the battery charger would actually supply up to 6000 Amps during the first 10 milliseconds of the fault event rather than interrupting the current flow when the current was 315 Amps or more. Current levels in excess of 315 Amps could potentially cause the breaker downstream of the battery charger to inadvertently open. The licensee did not recognize the potential for the downstream breaker to open until it was identified by the inspectors.

This tripping of the downstream breaker was different than what was provided in Assumption 6.2.1 of Prairie Island calculation ENG-EE-012 , "125VDC [volts direct current] Coordination Study," which states, "It is assumed that the battery charger output breakers will not operate for external faults." Additionally, this calculation was used for the plant's fire protection safe shutdown analysis. The assumption that the battery charger output breakers would not operate and the battery chargers would remain available was used in the plant specific fire protection Probabilistic Safety Assessment (PSA) which supports the National Fire Protection Association (NFPA) 805 performance-based analysis for Prairie Island fire areas. Subsequent to the inspection, the licensee discovered that under certain fire scenarios, the battery charger could be lost due to tripping from a downstream fault event. The Prairie Island PSA (also referred to as the probabilistic risk assessment (PRA)) credits the battery charger to provide DC power for the long-term plant response to these fire scenarios. Contrary to the plant PSA, the battery charger may not be available during certain plant fire scenarios.

The Operating License for Prairie Island Nuclear Plant states that the licensee "shall implement and maintain in effect all provisions of the fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c)." Code of Federal Regulations allows compliance with NFPA 805, 2001 edition, in replacement of complying with 10 CFR 50.48(b). NFPA 805, Section 2.4.3.3 states, in part, that, the PSA data shall be based on the as-built and as-operated and maintained plant, and reflect the operating experience at the plant.

Contrary to this, the fire protection PRA data at Prairie Island Nuclear Plant did not reflect the operating experience for the plant. Specifically, although the licensee evaluated the operating experience in IN 2017-06, the availability of the battery chargers was not assessed for output breaker trips that could occur due to the new information contained in IN 2017-06. This resulted in changes to the PRA to include the decreased probability of the battery charger being available in certain fire areas.

This issue has been categorized as low safety significance, and therefore as a minor violation, because, although there is an increased probability for the battery chargers to be unavailable during a fire event, the licensee had procedural guidance already in place that would provide a portable charger in the event that the battery charger was unavailable. This action was not credited and therefore was not included in the PRA, and when added, the PRA numbers from the loss of the battery chargers and the addition of the use of the temporary battery chargers tended to offset each other. The licensee entered this issue into their corrective action program as CAP 501000051933.

Additionally, this unresolved item (URI) closure and resulting minor violation was discussed with Nuclear Reactor Regulation (NRR), the Authority Having Jurisdiction (AHJ), and agreement was reached on its categorization and disposition.

Licensee-Identified Non-Cited Violation	71111.21N.05
This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.	
Violation: Prairie Island Nuclear Generating Plant, Technical Specification (TS) 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 1.l recommended “Plant Fire Protection Program” as administrative procedure. Licensee procedure, F5 Appendix K, "Fire Protection Systems Functional Requirements" Revision 32, states, in part, this procedure implements the Fire Protection Program as defined in procedure H77, Fire Protection Program and item 2.C(4) of the operating license condition. Licensee procedure, F5 Appendix K, "Fire Protection Systems Functional Requirements," Attachment 4, Non Power Operation (NPO) Administrative Controls, states, in part, procedures 1C4.1, 2C4.1, 1C4.2, 2C4.2, 1C1.3-M5, 2C1.3-M5 include steps to implement compensatory measures in accordance with this procedure. When directed in those procedures to implement NPOs Administrative Controls in accordance with this attachment, an hourly fire watch SHALL be implemented in the following fire areas depending on the Unit that is in a refueling outage/shutdown: Unit 2 – Fire Areas 8, 22, 29, 30, 31, 32, 33, 36, 41A, 41B, 58, 59, 66, 71, 80, 81, 97, and 98. Contrary to the above, between October 6 - 8, 2019, while Unit 2 was in a refueling outage, the licensee failed to implement a written procedure covering a procedure recommended in Regulatory Guide 1.33, Appendix A, February 1978. Specifically, the licensee failed to perform hourly fire watches in fire areas 29, 30, 33, 36, 41A, 71, 80, 97 and 98. As required by procedure F5 Appendix K, "Fire Protection Systems Functional Requirements" Revision 32, Attachment 4, when directed by procedure 2C1.3-M5. Significance/Severity: Green. The inspectors evaluated the significance of this issue using Inspection Manual Chapter 0609, Appendix G, Attachment 1, *Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings*, Exhibit 2, "Initiating Events Screening Questions" and answered “No” to the Section 10, “External Events Initiators” question. Corrective Action References: QIM 501000032916, FP Admin Controls Not Implemented	

Licensee-Identified Non-Cited Violation	71111.21N.05
This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.	
Violation: Prairie Island Nuclear Generating Plant, Technical Specification (TS) 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 1.l recommended “Plant Fire Protection Program” as administrative procedure.	

Licensee procedure, F5 Appendix K, "Fire Protection Systems Functional Requirements" Revisions 27-38, states, in part, this procedure implements the Fire Protection Program as defined in procedure H77, Fire Protection Program and item 2.C(4) of the operating license condition.

Licensee procedure, F5 Appendix K, "Fire Protection Systems Functional Requirements" Revision 38, Attachment 4, Non Power Operation (NPO) Administrative Controls, states, in part, procedures 1C4.1, 2C4.1, 1C4.2, 2C4.2, 1C1.3-M5, 2C1.3-M5 include steps to implement compensatory measures in accordance with this procedure. When directed in those procedures to implement NPOs Administrative Controls in accordance with this attachment, an hourly fire watch SHALL be implemented in the following fire areas depending on the Unit that is in a refueling outage/shutdown: Unit 1 – Fire Areas 1, 8 (only U1 el 715'), 20, 29, 30, 31, 32, 33, 35, 36, 41A, 41B, 58, 59, and 80; Unit 2 – Fire Areas 8 (only U2 el 715'), 20, 29, 30, 31, 32, 33, 36, 41A, 41B, 58, 59, 66, 71, 80, 97, and 98.

Contrary to the above, from September 30, 2019, to present, the licensee failed to maintain a written procedure covering a procedure recommended in Regulatory Guide 1.33, Appendix A, February 1978. Specifically, for licensee procedure F5 Appendix K, "Fire Protection Systems Functional Requirements," Attachment 4, Revisions 27 through 38, which implement the fire protection program, the licensee failed to list fire areas 2, 4, 34, 60 and 75 as requiring an hourly fire watch. The licensee determined that these fire areas were required by licensee calculation GEN-PI-097, Post Fire Non-Power Operations Report, Revisions 0-2, but were removed from F5 Appendix K, "Fire Protection Systems Functional Requirements," Attachment 4 without adequate justification or evaluation.

Significance/Severity: Green. The inspectors evaluated the significance of this issue using Inspection Manual Chapter 0609, Appendix G, Attachment 1, *Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings*, Exhibit 2, "Initiating Events Screening Questions" and answered "No" to the Section 10, "External Events Initiators" question.

Corrective Action References: QIM 501000061192; NPO Controls Not IAW GEN-PI-097

EXIT MEETINGS AND DEBRIEFS

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

- On May 11, 2022, the inspectors presented the triennial fire protection inspection results to Harlan Hansen, Plant Manager and other members of the licensee staff.
- On May 11, 2022, the inspectors presented the Re-Exit Meeting for the triennial fire protection inspection results to Stewart Yuen and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.05	Calculations		Hydraulic CALC D1/D2 DG Room Sprinkler Systems	10/07/1970
			Fixed Load Calculation Report	03/28/2022
		GEN-PI-096	Nuclear Safety Capability Assessment Analysis for Compliance with NFPA 805	1
		PRA-PI-SY-SVCS	Safeguards Ventilation System Notebook	5.4
		V.SMN.10.019	Evaluation of Aux Bldg 695' Heatup Without HVAC	0
		V.SMN.19.002	Best Estimate GOTHIC Analysis for SE Areas	0
	Corrective Action Documents	500000317966	IN 2017-06 Battery Charger Fault Current Could Trip DC Output Breaker	02/22/2022
		500001310409	Replace CPNL 70392, For 121 MD Fire Pump	10/28/2011
		501000030499	12 CHG PMP DISCH VLV BA LEAK	08/08/2019
		501000032790	Gap Establishing CTMNT Hourly Fire Watch	10/06/2019
		501000032896	Non-Compliant Hot Work Area Work Stopped	10/08/2019
		501000039844	Boric Acid Buildup 12 Chg Pmp Casing	05/16/2020
		501000044228	SP 1196 Issues	09/17/2020
		501000044681	NOS: No Combustible Control Permit	09/25/2020
		501000046022	Increased Leakage 122 DDFP, 15 DPM	10/30/2020
		501000046328	NOS: Combustible Control Housekeeping	11/11/2020
		501000046467	NOS: Expired Combustible Control Permit	11/18/2020
		501000047363	SP 1053 Pressure and Flow Not Attained	12/26/2020
		501000047364	122 DDFP Strainer Constant Backwash	12/26/2020
		501000050937	122 DD Fire Pump Failed to Start	04/24/2021
		501000051005	122 DDFP "B" Batt < Required Voltage	04/24/2021
		501000055318	122 DD Fire Pump Shut Down	08/20/2021
		501000058339	FSA - ISS: Combustible Control	11/16/2021
		501000060079	Combustible Issues Identified	01/26/2022
		501000060250	Combustible and Housekeeping Issues	01/31/2022
		501000061578	WO 94024 DDFP "B" Battery	03/24/2022
	Corrective Action Documents	501000060780	Referenced FP Eval No Longer Applicable	02/21/2022
		501000061598	H77 Includes Incorrect Reference	03/24/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Resulting from Inspection	501000061624	Draft Document Included in RFI List	03/24/2022
		501000061761	121 MDFP Strainer Corrosion/Leakage	03/29/2022
		501000061764	SAP Cable “Destination” Information	03/30/2022
		501000061784	Incorrect Info Added to CAP 501000044228	03/20/2022
		501000061808	Work Order Information	04/01/2022
		501000061823	GEN-PI-096 Reference Update	03/31/2022
		501000061908	Missing Step Signoff on SP 1053	04/04/2022
		501000061924	Missed Fire Watch	04/05/2022
		501000061948	Inspection Response over 24 Hours	04/04/2022
		501000061994	H77.3 Clarification	04/05/2022
		501000062046	Update References in H77	04/07/2022
		501000062142	H77 Appendix F S-2 Item 18	04/11/2022
		501000062146	PRA Calc Editorial Error	04/12/2022
		501000062245	NFPA Code Compliance Change in Draft	04/13/2022
		501000062251	PRA Evaluation Not Applicable	04/13/2022
		501000062256	Inaccessible External Surfaces Review	04/13/2022
		501000062304	External Surfaces Program Documentation	04/15/2022
		501000062326	Inspection Response over 24 Hours	04/15/2022
		501000062327	Silting Issues with Fire Pumps	04/15/2022
	Drawings	NF-38501	Architectural Mezzanine FLR Plan @ EL. 715	76
		NF-39218	Flow Diagram Main Auxiliary Steam & Steam Dump	87
		NF-39222	Flow Diagram Feedwater & Aux Feedwater Unit 1	91
		NF-39228-1	Flow Diagram Fire Protection & Screen Wash Sys Unit 1 & Unit 2	97
		NF-40002-3	Single Line - Metering and Relaying Safeguard and Normal 4.16 kV Switchgear Feeder Unit 1 & 2	80
		NF-40018-3	230V AC Circuit Diagram Distribution Panels 119/134/135	
		NF-40021	480V Distribution Diagram Unit 1 Normal Buses	78
		NF-40022-1	Circuit Diagram 4kV and 480V Safeguard Buses	81
		NF-40036	480V Circuit Diagram Motor Control Center 1K, 1KA	80
		XH-1106-2502	Sprinkler Systems WPS-16 and DA-4 Unit 2 Plan	A
	Engineering Changes	FPCE 18-017	Loss of Control Room Cooling and 121 Portable 480 Volt Diesel Generator Maintenance	1

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		FPCE 19-007	NFPA 805 Modification Reduction	0
		FPCE-19-005	Post Fire Nuclear Safety Capability Assessment Report	0
	Miscellaneous		Fire Area Health Report	03/29/2022
			Fire Watch Door Logs Associated with Impairment Permit 14275; 9:00 a.m. to 12:30 p.m.	05/20/2021
			Fire Watch Door Logs Associated with Impairment Permit 14133; 7:30 a.m. to 10:30 a.m.	03/04/2021
			Fire Watch Door Logs Associated with Impairment Permit 14326; 9:45 a.m. to 2:00 p.m.	06/15/2021
			Fire Watch Door Logs Associated with Impairment Permit 14270	12/03-04/2021 & 12/25-26/2021
			Fire Watch Door Logs Associated with Impairment Permit 50485	12/06-08/2021
			Fire Watch Door Logs Associated with Impairment Permit 14279; 9:00 a.m. to 10:00 a.m.	05/22/2021
			Fire Protection Impairment Report; March 1, 2021 – March 28, 2022	03/28/2022
			Fire Watch Logs for Impairments 14133, 14270, 14275, 14279, 14326, 50485 and 50686	
			Permit Aging Report	03/29/2022
		500000315210	Revised IN 2017-06 Response	02/25/2022
		50747	Combustible Load Permit - Fire Area: 4 - Fuel Handling Area	03/22/2022
		DBD SYS-12A	Design Basis Document for the Chemical and Volume Control System	7
		MN 10065443	501000027900 Water Intrusion and Short	05/28/2019
		MN 10141325	5010000457329 122 DD Fire Pump Unable	10/23/2020
		MN 10147930	501000047364 122 DDFP Strainer Constant Backwash	12/26/2020
		MN 10175913	501000055318 122 DD Fire Pump Shut Down	08/20/2021
		XH-106-289	Fire Protection Devices	7
		XH-50-51	Vendor Manual 121 Motor Driven Fire Pump	7
	Procedures	2C1.3-M5	Unit 2 Shutdown to Mode 5	17

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		2C1.3-M5	Unit 2 Shutdown to Mode 5	21
		5AWI 3.13.3	Hot Work	10 & 11
		C18.1	Engineered Safeguards Equipment Support Systems	61
		C31	Fire Protection & Detection Systems	79
		C47022	Alarm Response Procedure	64
		C70394	122 Diesel Fire Pump Remote Alarm Responses	6
		CD 1.1	NSPM Quality Assurance Program Structure	19
		F5 Appendix A	Detection Zones and Fire Areas	46
		F5 Appendix K	Fire Protection Systems Functional Requirements	38
		GMP TRRY-01	Auxiliary Feedwater Terry Turbine Major Maintenance	0
		H65.2.14	External Surfaces Monitoring Aging Management Program	5
		H65.2.16	Fire Water System Aging Management Program	9
		H65.2.19	Fuel Oil Chemistry Aging Management Program	6
		H65.2.22	Inspection of Internal Surfaces of Miscellaneous Piping & Ducting Components Aging Management Program	7
		H65.2.24	Lubricating Oil Analysis Aging Management Program	5
		H65.2.24	Lubricating Oil Analysis Aging Management Program	5
		H65.2.36	Selective Leaching of Materials Aging Management Program	5
		H65.2.40	Water Chemistry Aging Management Program	3
		H65.2.9	Closed-Cycle Cooling Water System Aging Management Program	7
		H71	PINGP Selective Leaching of Materials Program Procedure	5
		H77	Fire Protection Program	6
		H77.1	Fire Protection Program NFPA 805 Chapter 3 Compliance Summary	4
		H77.2	Fire Protection Program NSCA Methodology Compliance	0
		H77.3	Fire Protection Program Fire Area Assessments	2
		PM 3122-1	122 Diesel Driven Fire Pump and Strainer Annual Inspection	36
		SP 1053	Fire Protection Pumps Monthly Test	58

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		SP 1053A	122 Diesel Fire Pump Quarterly Fuel Sample	16
		SP 1202	Fire Protection System Fire Pumps 18 Month Test	32
		SP 1208	Fire Pump and Hose Flow 18 Month Test	26
	Work Orders	437290	CPNL 70392, Clean Rusted / Degraded Electrical Components	03/26/2013
		700009895	121 MD Fire Pump Contactor Severely Rusted	02/26/2020
		700045462-0040	Online License Renewal FP Systems Walkdown	07/22/2020
		700057836	121 MD Fire Pump Seal Water Valve is Bad	11/13/2019
		700059186	Replace 121 MDFP Control Panel	04/16/2020
		700059587-0020	T 1 License Renewal Systems Walkdowns	12/03/2021
		700059587-0340	Unit 1 Chemical and Volume Control System License Renewal Walkdowns	04/01/2020
		700067400	SP 1196 Fire Protection SR Sprinkler System Test	02/26/2021
		700072850	SP 1053 Fire Protection Pumps Monthly Test	11/21/2020
		700084737	SP 1053 Fire Protection Pumps Monthly Test	08/21/2021
		700091439-0010	Perform 12 Charging Pump Quarterly Oil Sample	01/10/2022