UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

June 29, 2023

R. Keith Brown
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
3535 Colonnade Parkway
Birmingham, AL 35243

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT - COMPREHENSIVE ENGINEERING TEAM INSPECTION (CETI) BASELINE INSPECTION REPORT 05000348/2023010 AND 05000364/2023010

Dear R. Keith Brown:

On June 5, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Joseph M. Farley Nuclear Plant and discussed the results of this inspection with Mr. Delson Erb and other members of your staff. The results of this inspection are documented in the enclosed report.

Eight findings of very low safety significance (Green) are documented in this report. Eight 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.

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 II; the Director, Office of Enforcement; and the NRC Resident Inspector at Joseph M. Farley 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 II; and the NRC Resident Inspector at Joseph M. Farley 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 Baptist, James
on 06/29/23

James B. Baptist, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos. 05000348 and 05000364
License Nos. NPF-2 and NPF-8

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT – COMPREHENSIVE ENGINEERING TEAM INSPECTION (CETI) BASELINE INSPECTION REPORT 05000348/2023010 AND 05000364/2023010 Dated June 29, 2023

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NAME	B. Bishop	J. Baptist				
DATE	06/26/23	06/29/23				

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000348 and 05000364
License Numbers:	NPF-2 and NPF-8
Report Numbers:	05000348/2023010 and 05000364/2023010
Enterprise Identifier:	I-2023-010-0041
Licensee:	Southern Nuclear Operating Co., Inc.
Facility:	Joseph M. Farley Nuclear Plant
Location:	Columbia, AL
Inspection Dates:	April 10, 2023 to April 28, 2023
Inspectors:	B. Bishop, Sr. Project Engineer S. Downey, Senior Reactor Inspector T. Fanelli, Senior Reactor Inspector C. Franklin, Reactor Inspector L. Jones, Senior Reactor Inspector J. Lizardi-Barreto, Reactor Inspector G. Nicely, Electrical Contractor D. Terry-Ward, Reactor Inspector
Approved By:	James B. Baptist, Chief Engineering Branch 1 Division of Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a comprehensive engineering team inspection (CETI) at Joseph M. Farley 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.

List of Findings and Violations

Failure to Justify the Quality and Reliability for Agastat relays			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-01 Open/Closed	[H.3] - Change Management	71111.21M
The NRC identified a Green finding and associated Non-cited Violation (NCV) of Technical Specifications (TS) 5.4.1.a, "Procedures," and Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," dated November 1972, for failure to establish an effective maintenance strategy to assure the quality and reliability of Agastat T3A control relays used in the safety-related systems. The RG in Appendix A, Section I, requires in part, that preventive maintenance schedules should be developed to specify inspection of replacement parts that have a specified lifetime.			

Failure to Assure the MCC Component Installation Design Requirements			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-02 Open/Closed	None (NPP)	71111.21M
The NRC identified a Green finding and associated NCV of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, "Design Control." For the failure to assure that components could perform their safety functions for the time required in the environmental conditions developed inside the motor control centers (MCC's) located in emergency diesel generator (EDG) room.			

Failure to Meet the 10 CFR 50.55a(b)(3)(ii) Valve Program			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-03 Open/Closed	[H.6] - Design Margins	71111.21M
The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50.55a, "Codes and Standards," with four examples, for the licensee failure to meet the conditions of the station Motor Operated Valve (MOV) program requirements.			

Failure to Assure the Seismic Design of Class 1E Battery Racks			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section

Initiating Events	Green NCV 05000348,05000364/2023010-04 Open/Closed	None (NPP)	71111.21M
The NRC identified two examples of a Green finding and associated NCV of Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee failure to assure the seismic design of Class 1E battery racks. 1. Modifications of the battery racks resulted in a loss of configuration control. 2. The seismic qualification report of record did not assure that the qualification requirements were met.			

Failure to Correct Alternate Source Term Leakage Test Requirements			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000348,05000364/2023010-05 Open/Closed	[P.2] - Evaluation	71111.21M
The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50 Appendix B Criterion XVI, "Corrective Actions," for the licensee failure to correct a violation for properly categorizing the MOVs 8809A/B in the Inservice Test (IST) program and begin testing required for the alternate source term (AST) leakage paths.			

Failure to Identify Corrosion on MOV 3209B			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-06 Open/Closed	[P.1] - Identification	71111.21M
The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50 Appendix B Criterion XVI, "Corrective Actions," for the licensee failure to identify corrosion on MOV 3209B that affected its structural integrity.			

Inadequate Work Instructions for Cable Bend Radius			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-07 Open/Closed	[H.5] - Work Management	71111.21M
The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50 Appendix B Criterion V, "Instructions, Procedures, and Drawings," for the licensee failure to include precautions about cable bend radius in work orders to replace the Class 1E batteries.			

Inadequate Thermal Overload Calculations and Use of Related Software			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-08 Open/Closed	[H.5] - Work Management	71111.21M
The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the licensee failure to assure that Thermal Overload (TOL) relays for MOV circuits were properly sized and documented in quality-controlled calculations			

and the use of a nonfunctional Plant Data Management System (PDMS) to automatically calculate TOL specifications.

Additional Tracking Items

None.

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. 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), inspectors were directed to begin telework. In addition, regional baseline inspections were evaluated to determine if all or a 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 some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.21M - Comprehensive Engineering Team Inspection

The inspectors evaluated the following components and listed applicable attributes, permanent modifications, and operating experience:

Structures, Systems, and Components (SSCs) (IP section 03.01) (11 Samples)

For each component sample, the inspectors reviewed the licensing and design bases. The inspectors reviewed a sample of operator actions, corrective action program documents, internal and external operating experience, test records, preventive maintenance records, work orders, aging management programs, and performed a walkdown of the component or procedure. Additional component specific design attributes reviewed by the inspectors are:

(1) Ultimate Heat Sink

- Performance testing of the service water system and UHS (71111.21M, appendix E, UHS item c)
- Service water system piping integrity review (71111.21M, appendix E, UHS item d)
- Service water pond (71111.21M, appendix E, UHS containment device item a)

(2) Service Water to Auxiliary Building Header Isolation Valves (Q1P16MOV3084A, Q1P16MOV3084B, Q2P16MOV3084A, Q2P16MOV3084B)

- Compliance with UFSAR, TS, and TS Bases
- Visual inspection during walkdown of various components in system
- Surveillance testing and maintenance records
- Aging management

(3) U1 Motor Driven Auxiliary Feedwater to 1B Steam Generator Isolation Valve (Q1N23MOV3764D)

- Compliance with Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS), and TS Bases
- Visual inspection during walkdown of various components in system
- Setup calculation assumption agreement with installed configuration
- Surveillance testing & maintenance records
- Conformance with manufacturer instructions for installation, maintenance, testing and operation.
- Time critical operator action E01: Response to worst case, MFW line rupture Stop AFW flow to faulted SG
  a. Verified the adequacy of the operating procedures to support the design and verify that key operator actions can be performed within the constraints of the design analyses.
  b. Observed demonstration in the simulator used to validate operator actions.

(4) U2 Service Water to Motor Driven Auxiliary Feedwater Isolation Valve (Q2N23MOV3209B)

- Compliance with Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS), and TS Bases
- Visual inspection during walkdown of various components in system
- Setup calculation assumption agreement with installed configuration
- Calibration of demand signal
- Surveillance testing & maintenance records
- Conformance with manufacturer instructions for installation, maintenance, testing and operation.
- Torque/Thrust, voltage load flow and voltage drop, and thermal overload relay sizing, to verify valve and actuator functionality is within acceptable limits.
- Reviewed Electrical/Mechanical interfaces to ensure voltages from electrical calcs are translated correctly into the mechanical calcs.
- Maintenance and diagnostic testing procedures and latest test results to verify valve and actuator functionality is within acceptable limits.
- Time critical operator action E02: Response to loss of normal AFW supply from CST, Align AFW suction to SW
  a. Verified the adequacy of the operating procedures to support the design and verify that key operator actions can be performed within the constraints of the design analyses.
  b. Observed demonstration in the simulator used to validate operator actions.

(5) RCS Filter Q1E21F003 and Q2E21F003

- Compliance with Updated Final Safety Analysis Report (UFSAR)
- Visual inspection during walkdown of various components in system
- Walkdown of procedures and equipment used to change out filter

(6) HPR/RHR MOV Unit 2 Q2E11MOV8706A/B

- Design Basis documents and calculations including Torque/Thrust, voltage load flow and voltage drop, protective device settings, including thermal

overload relay sizing, and EQ documents to verify valve and actuator functionality is within acceptable limits

- Reviewed Electrical/Mechanical interfaces to ensure voltages from electrical calcs are translated correctly into the mechanical calcs.
- Maintenance and diagnostic testing procedures and latest test results to verify valve and actuator functionality is within acceptable limits.
-

Time critical operator action E10: Response to dilution during refueling, Isolate dilution path and stop RMW pumps

a. Verified the adequacy of the operating procedures to support the design and verify that key operator actions can be performed within the constraints of the design analyses

b. Observed demonstration in the simulator used to validate operator actions.

(7) HPI U2 Q2E21MOV8803B

- Design Basis documents and calculations including Torque/Thrust, voltage load flow and voltage drop, protective device settings, including thermal overload relay sizing, and EQ documents to verify valve and actuator functionality is within acceptable limits.
- Reviewed Electrical/Mechanical interfaces to ensure voltages from electrical calcs are translated correctly into the mechanical calcs.
- Maintenance and diagnostic testing procedures and latest test results to verify valve and actuator functionality is within acceptable limits.

(8) Emergency Diesel Generators (EDG) 1B/2B

- Reviewed calculations including voltage load flow and voltage drop, to verify EDG functionality is within acceptable limits.
- Latest and prior Integrated Safeguards Testing results to verify compliance with industry and regulatory compliance to verify that the EDG and supporting systems will operate within design basis during a design basis event.
- OE applicability from Calvert Cliffs 2010 white violation involving Agastat time delay relay failures in the low lube oil system to determine if the same issue could occur at Farley.

(9) Unit 1 RHR Motor-Operated Valves (MOVs) 8811 and 8812

- Compliance with UFSAR
- Visual inspection during walkdown of various components in system
- Design Basis documents and calculations including Torque/Thrust to verify valve and actuator functionality is within acceptable limits.
- Maintenance and diagnostic testing procedures and latest test results to verify valve and actuator functionality is within acceptable limits.

(10) Unit 1 and 2 Auxiliary Building 125 V Batteries and Turbine Driven Auxiliary Feed Water System (TDAFW) 125V Batteries

- Compliance with Updated Final Safety Analysis Report (UFSAR)

- Visual inspection during walkdown of battery racks, connectors, cables and cell jars.
- Review of seismic qualification reports and as-built configuration.

(11) Problem Identification and resolution sample
NCV 05000348,05000364/2021011-01, Failure to Properly Categorize MOVs 8809A & B or Check Valve Q1(2)E11V0028 in the IST Program
- Reviewed corrective actions
- Compliance with UFSAR

Modifications (IP section 03.02) (1 Sample)

(1) SNC1153264, Unit 1 Encapsulation Vessel Removal from RHR and CS Sump MOVs

10 CFR 50.59 Evaluations/Screening (IP section 03.03) (6 Samples)

(1) SNC1123286 - U1 SW Header Drain Line Addition
(2) SNC1125459 - 2C SW Minimum Flow Line Reinforcement Sleeve Removal
(3) SNC1091429 - U2 Digital Rod Position Indication Advance Display
(4) SNC1127095 - Unit 2 TDAFWP Steam Admission Valve Thrust Washer Shim
(5) SNC1127557 - SF Cask Crane Design
(6) SNC1141168 System R11 - 1B Start-up Transformer Replacement

Operating Experience Samples (IP section 03.04) (2 Samples)

(1) RIS-22-02 Operational Leakage
(2) Information Notice IN 2012-006, Ineffective Use of Vendor Technical Recommendations

INSPECTION RESULTS

Failure to Justify the Quality and Reliability for Agastat relays			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-01 Open/Closed	[H.3] - Change Management	71111.21M
The NRC identified a Green finding and associated Non-cited Violation (NCV) of Technical Specifications (TS) 5.4.1.a, "Procedures," and Regulatory Guide (RG) 1.33, “Quality Assurance Program Requirements (Operation),” dated November 1972, for failure to establish an effective maintenance strategy to ensure the quality and reliability of Agastat T3A control relays used in the safety-related systems. The RG in Appendix A, Section I, requires in part, that preventive maintenance schedules should be developed to specify inspection of replacement parts that have a specified lifetime.			
Description: The team reviewed engineering justification SNC921616, "Justification for Extension of Expected Service Life for non-Environmental Qualified (EQ) Agastat E7000			

Series relays." The team reviewed the sites licensing basis for Class 1E components, which specified that their quality and reliability shall be assured (Institute of Electrical and Electronic Engineers (IEEE) 279-1971, “Criteria for Protection Systems for Nuclear Power Generating Stations” Sections 4.3 and 4.4 and IEEE 308-1971, IEEE Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations” Sections 4.8 and 5.4).

The team determined that a failure of a T3A Agastat relay at Calvert Cliffs installed in the same circuits (the EDG lube oil trip circuit) demonstrated quality and reliability concerns after approximately 13 years due to timing drift after substituting a performance monitoring program for the Agastat relays. The NRC conveyed the concerns in information notice 2012-006.

At Farley, the 16-year-old T3A relay’s replacement period was extended to 30 years based on the SNC921616 justification. The licensee discontinued the vendor recommended 10-year replacement preventive maintenance (PMs) and substituted a performance monitoring program. The team noted that other than a starting and running the EDG bi-monthly, the relay has not had any effective maintenance strategy for PMs, calibrations, or inspections for timing drift. The team's observations were captured in the corrective action program.

In addition, the justification used EPRI report TR300200541 as an input into these decisions. The EPRI report specified that the thermal life for a normally de-energized Agastat can exceed 60 years for mild environments. However, the licensee justification recognized other potential failure mechanisms that the EPRI report does not seem to have considered, such as, degradation of the relay contacts and their associated springs. The justification speculated a recommended life of 30 years instead. The team determined that failure of the diesels due to age related timing drift was a likely failure mechanism in this type of circuit and may not be identified as an actual relay failure. The team determined that the licensee’s analysis, lack of PMs, and trending did not justify the Agastat reliability for a longer period than what was determined during the original Agastat testing.

Corrective Action References: 109678694, 10967697

Performance Assessment:

Performance Deficiency: The licensee’s failure to justify the continued quality and reliability of Agastat type 7000 relays for an extended period of 30 years was a performance deficiency. If left uncorrected, it would have the potential to lead to a more significant safety concern in that lack of PMs and inspections of the T3A relay could lead to failure and affect the EDG operation and EOP implementation.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control 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 team determined the design deficiency resulted in a condition where the team had reasonable doubt that the Agastat relays could continue to operate for 30 years without adversely affecting the EDG operation.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” Exhibit 2 – Mitigating Systems Screening Questions, Item A. Mitigating SSCs and PRA Functionality (except Reactivity Control Systems), specified that if the finding affected the design or

qualification of a mitigating SSC, but it maintained its operability or PRA functionality then it screens to GREEN.

Cross-Cutting Aspect: H.3 - Change Management: Leaders use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority.

Enforcement:

Violation: TS 5.4.1.a requires in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in RG 1.33, Appendix A, November 1972. RG 1.33, Appendix A, November 1972, Section I, requires in part, that preventive maintenance schedules should be developed to specify inspection of replacement parts that have a specified lifetime. The vendor specified lifetime is 25,000 operations or 10 years from the date of manufacture, whichever occurs first, which was exceeded in February of 2017.

Contrary to the above, since June, 2009, the date of installation, the licensee failed to develop and implement a preventive maintenance schedule, or an effective maintenance strategy to ensure the quality and reliability of Agastat control relays in the safety related Unit 2B EDG system.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Assure the MCC Component Installation Design Requirements			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-02 Open/Closed	None (NPP)	71111.21M

The NRC identified a Green finding and associated NCV of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, “Design Control,” for the failure to assure that components could perform their safety functions for the time required in the environmental conditions developed inside the motor control centers (MCC’s) located in the emergency diesel generator (EDG) room.

Description: The team identified that there are five MCC’s in the rooms adjacent to the EDGs. The components inside these five MCC’s were specified and procured for operation in a maximum internal MCC temperature of 104 °F, which is the standard commercial qualification for electrical components without specific upgrades for higher temperatures. The design basis temperature in the EDG room general area, outside the MCCs, was specified to be 122 °F. The internal MCC temperature would significantly exceed 122 °F. The temperature rise would be proportional to the dissipated heat from the cumulative wattage of the components inside each MCC cubicle. The licensee documented an evaluation in June 1989, a self-initiated Safety System Assessment (SSS) of the service water intake structure (SWIS), ES-89-1501, identified this potential concern with the long-term operation of the MCCs to support the EDG. The evaluation ES-89-1501, Enclosure 1 item G, “Review of Diesel Generator Building HVAC Design (Action II.B),” noted that this evaluation specified that the MCCs components were capable of operation at 122 °F but it did not address the higher temperatures inside the MCCs. Enclosure 1 specified that the formal analysis to support this statement would not be completed until June 1990, however, when

the team requested the analysis to independently assess the methodology, Farley was unable to locate the formal analysis.

The team determined that the long-term operation of MCC components in the EDG rooms was in question because the licensee was unable to demonstrated acceptability.

Corrective Action References: 10967778

Performance Assessment:

Performance Deficiency: The failure to assure that components could perform their safety functions for the time required in the environmental conditions developed inside the MCCs located in the EDG room was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance 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 deficiency resulted in a condition where the team had reasonable doubt regarding the availability, reliability and capability of the equipment supported by the MCC's during a higher than rated temperature environment.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Exhibit 2 – Mitigating Systems Screening Questions, Item A. Mitigating SSCs and PRA Functionality (except Reactivity Control Systems), specified that if the finding affected the design or qualification of a mitigating SSC, but it maintained its operability or PRA functionality then it screens to 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.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, using alternate or simplified calculational methods, or by the performance of a suitable testing program.

Contrary to the above, since June 1990, the licensee failed to provide for measures to ensure that the components inside the MCCs controlling the EDG could perform their safety functions by the performance of design reviews, using alternate or simplified calculational methods to demonstrate that they would not adversely affect EDG operation.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Meet the 10 CFR 50.55a(b)(3)(ii) Valve Program			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section

Mitigating Systems	Green NCV 05000348,05000364/2023010-03 Open/Closed	[H.6] - Design Margins	71111.21M

The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50.55a, "Codes and Standards," with four examples, for the licensee failure to meet the conditions of the station MOV program requirements.

Description: Example one; Title 10 CFR Part 50.55a(b)(3)(ii), "OM condition: Motor-Operated Valve (MOV) testing," required in part that licensees "must establish a program to ensure that MOVs continue to be capable of performing their design basis safety functions." Southern Company established several MOV program procedures to satisfy the requirements of this rule, which are applicable to Farley. One of these procedures, NMP-ES-017-002, "Motor Operated Valve Design Basis Setpoint Determination," Section 4.8, "Valve Maximum Thrust and Torque Limits," stated, in part, "the valve assembly is subject to structural limitations that must be addressed in establishing a value for the maximum valve operating torque and thrust. The structural capability of the MOV SHALL be established such that no physical damage could occur that would adversely affect the ability of the MOV to perform a safety function." It further stated that:

> "the structural limits are determined by stress analysis of each of the loaded parts including the body, bonnet, bonnet bolting, yoke, stem, seats, operator and yoke bolting. Loads and load combinations SHALL appropriately represent the conditions (e.g., thrust, torque, line pressure, differential pressure, temperature, or seismic) to which the MOV could be subjected. The Valve Maximum Thrust / Torque Limits in the open and close directions are obtained from the Maximum Allowable Valve (Weak Link) calculations. In addition, the valve may have a Seismic Thrust Limit that has been evaluated separately from the Weak Link."

The valves structural capability (valve maximum thrust or torque limit) is one of several factors used when calculating MOV margin, as shown in another MOV program procedure, NMP-ES-017-003, "Motor Operated Valve Performance Trending and Margin Management." The margin is then used to determine a periodic verification test frequency as part of the licensee's committed MOV program. The licensee failed to determine the limiting structural capabilities used to establish the margins for each design basis safety function (open and close as applicable). In response to Generic Letter 89-10, in a letter dated December 28, 1989, the licensee stated that "valve vendors and the FNP designers are requested to provide certain design data" and that "typical of the data requested are… maximum valve and actuator thrust ratings." The licensee was using valve structural limits provided to them by the vendors or designers, however, when several source calculations were reviewed by the team it was evident that the calculations had not evaluated internal components of the valves that are required to perform the MOVs' design basis safety functions. There were valve components that would have to withstand the stem thrust load that did not have their structural thrust limits determined by stress analysis in the source calculations. This was contrary to the licensee's NMP-ES-017-002 requirement to determine the thrust limits for each valve. Since the licensee cannot demonstrate the performance of the MOV active safety functions in accordance with 10 CFR Part 50.55a, the MOVs are in an unanalyzed condition. The team determined that the licensee could not support any operability considerations using margins based on unproven assumptions.

The team reviewed the licensee condition report (CR) 10980342. The team found the some of the content of the CR was inaccurate and contrary to the violation. For instance, the CR

stated, that “the MOVs have a structural value for the open and closed directions, which are used as design limits. These limits have been developed since the initial implementation of the MOV program under GL 89-10. These limits have been developed from actual Farley test data, vendor supplied data, specific weak link calculations from the valve manufacturer, actuator vendor specific thrust and torque limits, etc.” The team was able to determine that these values were taken from seismic calculations that did not, in any way, account for the active components necessary to provide the MOV safety functions. In addition, it stated, that “the MOV program valve/actuator design inputs for open and close weak link values are acceptable to ensure MOV performance.” The team determined “program valve/actuator design inputs for open and close weak link values” were not determined by a weak link analysis and were not demonstrated to bound the critical components necessary to perform any of the MOV safety functions. Further, the CR based operability on the historical performance of the MOVs. The team determined that the MOV performance described did not include the design basis conditions required by 10 CFR 50.55a, since the testing relied upon was not performed under design basis conditions and the, at this point unknown, structural limits may be challenged during the design conditions.

After the onsite inspection ended, the licensee found that Westinghouse electric company (WEC) had some seismic specific analyses for the 8000 series MOVs and some seismic specific analyses performed by others for the 3000 series MOVs, None of the analyses addressed the valve components that supported the active safety functions etc. as described above in NMP-ES-017-002. Some of the expected active functions included, but were not limited to, the stem for the close stroke and the stem-to-disc connection for the open stroke. The team determined that single value used by the licensee for both directions form PDMS was not demonstrated to be suitable to bound the structural limits for the MOV safety functions.

The team determined that the failure to stipulate the limiting margins based on the structural capability of the valve active components was an example of the performance deficiency.

Corrective Actions: CR 10967773, CR 10980342: The licensee determined the MOVs were operable. However, the violation must be placed in the corrective action program to restore compliance with the rule 10 CFR 50.55a(b)(3)(ii). The Condition Report (CR) did not recognize the unanalyzed condition that exists since their calculated margins reviewed were not based on the active components necessary to perform the valve safety functions. Complete evaluations of the limiting structural capabilities of valve components need to be performed of the MOVs design basis safety functions. In addition, the CR included language that indicated the licensee belief that it was not necessary to address the specific components necessary to actively accomplish the MOV design basis safety functions. The CR justified the lack of structural analyses because the limits used “…have been developed from actual Farley test data, vendor supplied data, specific weak link calculations from the valve manufacturer, actuator vendor specific thrust and torque limits, etc.,” The CR, as written, appeared to justify the currently in-use structural limits without compliance with established licensee programmatic controls for performing the limiting structural analyses which are intended to comply with the MOV program requirement in 10 CFR 50.55a(b)(3)(ii).

Example two; One of the required safety functions of the RHR system is to establish long-term recirculation for reactor cooling after a loss of coolant accidents (LOCA). The containment sump MOVs 8811A/B and MOV8812A/B must open and close to perform this active safety function. Until revision 10 of calculation SM-90-1653-003, the licensee

considered approximately 469 psid as the maximum DP across these valves in accordance with Westinghouse WCAP 13097, Volume 3, “System Operating Basis for Motor-Operated Valves,” Rev. 0. The WCAP was published as part of recommendations for implementing Generic Letter (GL) 89-10, “Safety-Related Motor-Operated Valve Testing and Surveillance." Section 5.2, “Design Basis Review,” concerned pressure buildup in the RHR piping system at the MOV 8811 and 8812 due to bypass leakage from the piping systems interconnected with the Reactor Coolant System. In addition, it was Identified the RHR piping system can reach these pressures when the RHR pumps are in min-flow recirculation. For design purposes, the potential pressure would be limited by the allowed leakage of the valves and the setpoint of the pressure relief valve in this piping system. The team noted that the allowed leakage across valves in the relevant piping system was 5 gallons per minute, enough to cause this issue. The GL 89-10 stipulations were incorporated into 10 CFR Part 50.55a as MOV requirements.

In 2010, after revision 10 of SM-90-1653-003, the licensee changed the design basis maximum DP of 469 psid to a DP of 69 psid without justifying the change in accordance with 10 CFR Part 50.59 “Changes, tests and experiments.”. The licensee did not document how or why the change occurred. As a result of the inspection, the licensee determined the valves could be required to open at the 469 psid DP. The prior change was not justified. With the MOV parameters known at the time of the inspection, a negative open margin existed. The MOV motor torque could not meet higher torque required by the higher DP. The higher DPs require higher MOV actuator thrust to successfully operate. To evaluate operability at the time of the inspection, the licensee’s used test data that was identified by them to be inaccurate.

Because of the significant loss of margin in several valves, the licensee had to change the inputs and methodology used in their calculations to gain a small amount of positive margin. The licensee program required more frequent testing for these valves.

The team determined that the failure to maintain design basis for containment sump valves required DP was an example of the performance deficiency.

Corrective Actions (CR 10966977, CR 10979536): the licensee changed the inputs and methodology used in their calculations to gain a small amount of positive margin.

Example three; Farley lost design control measures for installed MOV brakes. The installed brakes were removed from the site electrical and MOV programs design basis documents without justification. The site did not know that motor brakes were still installed on these MOVs and lost track of the brake specifications and related data. The site cannot produce the letter from 1994 where site claimed that Limitorque stated that the effects of brakes failures would be bounded by a 25% motor torque reduction to determine acceptable MOV margins. The team noted that the brakes are wired in parallel with the motors making them more likely to fail electrically during a design basis accident when plant voltages are unstable hence the design requirement for a 25% torque reduction.

The team reviewed calculation SM-90-1653-002, Attachment C, that specified that there were 14 Class 1E MOV actuators in each unit with installed motor brakes, including inspection sample valves Q1(2)P16MOV3209A&B. The team noted that the site has not maintained the maintenance quality of the brakes. This adversely affects the brakes' reliability and increases their adverse effects on torque reduction. Limitorque maintenance update 92-2 stated, in part, that motor brakes need to be adjusted and maintained for proper operation. It was the brakes proper mechanical operation that limited the torque reduction to 25%.. The lack of brake

quality increased the likelihood that brake failure could significantly exceed the 25% torque reduction claimed by the licensee.

In addition, with brakes applied to the motor, the reduced MOV rpm will increase the MOV stroke times, some, significantly. The subject motors have maximum allowable stroke times. This effect on stroke time has not been addressed. Since the brakes and motors are wired in parallel, potential higher currents from degraded brakes during DBAs could cause TOL relays to trip causing the MOVs to fail.

The team determined that the failure to maintain design control measures for maintaining configuration of motor brakes installed on MOVs was an example of the performance deficiency.

Corrective actions:CR 10967483: Farley performed preliminary re-runs of the applicable MIDAS calcs with the 25% torque reduction and determined a significant reduction in margin that required a change to testing frequencies. If left uncorrected, it would have the potential to lead to a more significant safety concern in that MOVs that have installed motor brakes could adversely affect MOV operation and EOP implementation.

Example four; Generic letter 89-10 Attachment A and Supplement 6 gave notice that rotor degradation must be addressed in the MOV program. The PWR and BWR licensee owners' groups developed reports for the inspection of this phenomenon and provided examples for when the rotors are considered degraded or failed. The licensee created procedure NMP-ES-017-009 based on the owners group report (BWROG-TP-09-005, Inspection of Motor Operated Valve Limitorque AC Motors with Magnesium Rotors.) This procedure provided visual acceptance criteria for degraded rotors to ensure MOV operability. The procedure established the conditional visual criteria that reveal the onset of degradation. Further, the owners group documents specified that degradation could lead to MOV failures during operation where more severe conditions may exist. The team noted that the sump isolation MOVs were removed from there protective shells and the sump valve rooms are a location where more severe conditions could exist.

The team sampled inspection reports of the sump isolation MOVs that have magnesium rotors. The report SNC1047269, dated 9/18/2022, for MOV-8811 documented no degradation when compared to the acceptance criteria. The as found condition was recorded as superior. The teams review of the photographic evidence however, revealed that the magnesium's corrosion on both ends of the rotor exceeded the degraded examples in the procedure and the owners group reports. The report SNC479239, dated 2/27/2014, for MOV-8812 also documented no degradation and was removed from the inspection program without photographic evidence. The completed procedure for MOV-8812 also reported no degradation and thus was removed from the program. The as found condition was recorded as satisfactory, which was below the superior rating record for 8811. The team believed removing the motor from the magnesium inspection program was in error.

The team determined that the documented degradation together with the modification that removed MOV protective shells that insulated the MOVs from severe conditions could cause the MOVs to fail in a DBA.

The team determined that the failure to identify magnesium rotor degradation was an example of the performance deficiency.

Corrective actions: CR 10979515: The licensee entered this into the corrective action program to re-evaluate how the visual inspections are performed.

Corrective Action References: CR 10967773, CR 10980342, CR 10966977, CR 10979536, CR 10967483, CR 10979515

Performance Assessment:

Performance Deficiency: The licensee failure to meet the conditions of the station MOV program requirements was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control 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 failure to meet the MOV program requirements adversely affected the availability, reliability, and capability of MOVs required to respond to initiating events to prevent undesirable consequences.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Exhibit 2 – Mitigating Systems Screening Questions, Item A. Mitigating SSCs and PRA Functionality (except Reactivity Control Systems), specified that if the finding affected the design or qualification of a mitigating SSC, but it maintained its operability or PRA functionality then it screens to GREEN. The licensee determined they had reasonable assurance of MOV operability given the historical performance of the valves under non-design basis conditions.

Cross-Cutting Aspect: H.6 - Design Margins: The organization operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defense-in-depth, and safety related equipment.

Enforcement:

Violation: 10 CFR Part 50.55a(b)(3)(ii) required in part that licensees "must establish a program to ensure that MOVs continue to be capable of performing their design basis safety functions."

Contrary to the above, the licensee did not establish a program that ensured that MOVs continue to be capable of performing their design basis safety functions. Specifically, the program, as implemented, did not ensure the MOVs structural limits would not be exceeded, during the performance of their design basis safety functions, did not ensure to maintain design basis for containment sump valves required DP, did not ensure design control measures for maintaining configuration of motor brakes installed on MOVs, and did not ensure the identification of magnesium rotor degradation.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Assure the Seismic Design of Class 1E Battery Racks			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section

Initiating Events	Green NCV 05000348,05000364/2023010-04 Open/Closed	None (NPP)	71111.21M

The NRC identified two examples of a Green finding and associated NCV of Title 10 Part 50, Appendix B, Criterion III, "Design Control," for the licensee failure to assure the seismic design of Class 1E battery racks. 1. Modifications of the battery racks resulted in a loss of configuration control. 2. The seismic qualification report of record did not assure that the qualification requirements were met.

Description: The team reviewed the site licensing basis for seismic qualification, IEEE 344-1975, “IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations.” This standard provides the requirements for qualification by testing, analysis, or a combination of testing and analysis. This included earthquake environment and equipment response to it, i.e., equipment with bolted connections that can produce impacts, rattling, chatter, or banging. Impacts such as these can be transmitted throughout the racks and result in increased acceleration levels at frequencies much higher than originally considered. In addition, Section 7.3, “Extrapolation for Similar Equipment,” required, in part, that for complex equipment, test results are combined with preceding analysis to produce a verified analytical model that can be used to qualify the similar equipment.

1. Modifications of the battery racks resulted in a loss of configuration control:
To inform walkdowns, the team reviewed drawing U-211521, “125V Station Battery Auxiliary Building Rack 2A/2B Layout.” The team noted that the layout required channel/spring nuts to be seated on the Unistrut rail channel sections such as the slots in the spring nuts were fully engaged with the rail’s folded edges. During the walkdown, the team observed that a number of these spring nuts were misaligned (improperly seated) and some not engaged (loose) from the Unistrut. The misaligned spring nuts can come dislodged from the Unistrut channel due to seismic vibrations. This made the racks improperly assembled. The team observed that this condition could cause increased equipment responses as described above. The team found improperly installed spring nut in all four Class 1E battery rooms.

The team reviewed U419471, “GNB Battery Racks Modifications for C&D TYPE LCU-27,” and noted that this document provided instructions to modify the existing battery racks to fit new smaller battery cells (LCU-27). The modification required changes to the racks including tie rods and shims. For this, the racks were partially disassembled and reassembled. The team determined this was the source of the improperly assembled racks. The team determined that, for some racks, the misaligned spring nuts were grouped such that those segments could become dislodged as supports for battery cells.

2. The seismic qualification report of record did not assure that the qualification requirements were met:
The team requested the seismic qualification reports to determine the effects of the improper rack assembly. The team reviewed seismic qualification reports U419743 and U279795. The team noted that the qualification was determined by a combination of test and analysis. The report did not model the as built configuration of the racks for analysis including the number of rack sections, rack size and frame construction. In addition, they did not address the modification to the racks or the changes for the new battery cells.

The team reviewed a credited test performed in WYLE Test No. 43450-1 which concluded that the testing response spectra “completely envelope the Farley Plant seismic spectra OBE [operating basis earthquake] and SSE [safe shutdown earthquake] RRS [required response

spectrum] at all test frequencies without exception." The team noted that the test was of a completely different type and size of rack than the racks installed at Farley.

None of these qualification reports documented a similarity analysis and extrapolation analysis of the seismic differences, bolted connections, including natural/resonant frequencies between the various reports and as built racks. This did not meet qualification requirements in the licensing basis. As such, the team determined that there was no objective evidence to support the statement made in U419471 about the rack modifications, which stated, in part, "the differences do not degrade the seismicity below acceptable limits (may require some additional analyses or testing) including any additional supporting data."

Further, the GNB Battery Rack Design Analysis, ES-84-279, "Seismic Calculation of Battery Racks," documented natural frequencies that deviated from those specified in the Farley qualification reports (U419743 and U279795). It specified that the rack structure exhibited high rigid frequencies in several directions and high frequency in another, and this was not reconciled by the licensee. The qualification did not address the criteria for bolted connections as described in the first paragraph of this description.

The licensee qualification did not meet the licensing basis for seismic qualification, and thus the team could not use them to support the verification of the seismic qualification of these battery racks.

Corrective Actions: The licensee corrected the observable misaligned spring nuts. Approximately half the population of spring nuts cannot be inspected without specialized tools. The licensee is continuing to determine the qualified status of the racks.

Corrective Action References: Condition Reports 10964538 and 10967767

Performance Assessment:

Performance Deficiency: The licensee's failure to assure the seismic design of Class 1E battery racks met qualification requirements was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, installation of the battery racks in a way that could not meet a seismically qualified condition and the lack of a qualification record that meets the site licensing basis adversely affected the reliability and capability of the rack to perform in a seismic environment.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The team screened the significance of the finding using Exhibit 2 and Exhibit 4 of IMC 0609 Appendix A and determined that a detailed risk evaluation was required because the condition involved the potential degradation of the ability of the Class 1E batteries to mitigate the impact of a seismic event as a result of the performance deficiency. A detailed risk evaluation was performed by a regional Senior Reactor Analyst using SAPHIRE Version 8.2.8 and NRC Farley SPAR model Version 8.81. A conditional analysis was performed for Unit 1 and for Unit 2 to evaluate the risk increase due to the failure to ensure the seismic qualification of the Class 1E batteries. A maximum SDP condition exposure period of one

year was assessed for all seismic initiators to account for battery failure due to either battery rack nonconformances or the lack of seismic qualification integrity. No credit was provided in the analysis for post-failure recovery of equipment impacted by performance deficiency. For conservatism no credit was provided in the analysis for FLEX mitigation strategies. The dominant sequences involved a seismic initiator followed by consequential small break loss of coolant accident and loss of offsite power accompanied by seismic-induced failure of the 600 Volt load centers. The risk of the finding was mitigated by the relatively low seismic event initiator frequencies for Farley. The analysis determined that the estimated increase in Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) was less than 1E-06/year for delta-CDF and less than 1E-07/year for delta-LERF, representing a finding of very low safety significance (GREEN) for Unit 1 and for Unit 2

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.

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” required, in part, that “measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled.”

Contrary to the above, the licensee failed to assure that deviations from applicable quality standards and requirements for the seismic design and installation of safety-related battery racks were controlled.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Correct Alternate Source Term Leakage Test Requirements			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000348,05000364/2023010-05 Open/Closed	[P.2] - Evaluation	71111.21M

The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50, Appendix B Criterion XVI, "Corrective Actions," for the licensee failure to correct a violation for properly categorizing Motor Operated Valves (MOVs) 8809A/B in the Inservice Test (IST) program and begin testing required for the alternate source term (AST) leakage paths.

Description: The licensee was issued a violation for the failure to properly categorize the MOVs 8809A/B in the Inservice Test (IST) program and begin leak checking the valves that isolate the Refueling Water Storage Tank (RWST) from the Residual Heat Removal (RHR) system during sump recirculation after a Design Basis Accident (DBA) (NCV 05000348,05000364/2021011-01). The licensee corrective actions did not address the American Society of Mechanical Engineers (ASME) classification or leakage requirements for the 8809A/B MOVs. As a result of a licensee amendment to use AST for offsite dose requirements, the RWST became a radiation leakage path with a specific allowed leakage amount. This makes the valves in this path ASME category A with prescribed leakage test requirements.

The team pointed out that the Updated Final Safety Analysis Report (UFSAR) Section

15.4.1.7.4, “RWST Release Pathway,” stated in part, “the ESF leakage pathways include those through valves that isolate containment sump water from interfacing systems. Seat leakage past valves which isolate recirculation flow to the RWST is included. The adjusted leakage rate from the sump, through the RWST, to the environment is modeled as a direct connection between the sump and the environment.” Further, that the UFSAR Table 6.3-7, “Single Active Failure Analysis for Emergency Core Cooling System Components Short-Term Phase, and long-Term Phase,” stated in part “Residual heat removal pumps suction line to refueling water storage tank – [if] Fails to close – [the] Check valve in series with one gate valve operation of only one valve required.” There are two gate valves (8809A/B) each in series with the same check valve (Q1(2)E11V0028) to the RWST.

The team determined that the “valves that isolate containment sump water,” from the UFSAR Section 15.4.1.7.4, included both gate valves and the check valve. The team determined that the licensee failed to correct the violation related to leak checking the AST pathway through the RWST as described in the UFSAR.

Corrective Actions: The licensee will develop operational testing that can measure and assure the active leakage as required in the AST calculations values at design basis temperature and pressures.

Corrective Action References: CR 10967853

Performance Assessment:

Performance Deficiency: The failure to correct a violation for properly categorizing the MOVs 8809A/B in the IST program and begin testing required for the AST leakage paths was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the SSC and Barrier Performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, higher leakage through the MOV 8809A/B valve does not provide reasonable assurance that physical design barriers protect the public from radionuclide releases.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix H, “Containment Integrity SDP.” The team determined this was a type B finding because it would not have an impact on CDF. The team used Section 6.1, Approach for Assessing Type B Findings at Full Power, Step 2: Screening of Finding to determine if the finding was associated with an SSC(s) important to LERF, using Table 6.1 “Phase 1 Screening-Type B Findings.” The team determined the finding to be GREEN because the finding screened out of this process.

Cross-Cutting Aspect: P.2 - Evaluation: The organization thoroughly evaluates issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance.

Enforcement:

Violation: 10 CFR Part 50 Appendix B, Criterion XVI, states, in part, conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

Contrary to the above, since (the POV inspection) the licensee failed to correct a nonconformance with ensuring leakage requirements for MOVs 8809 A/B in accordance with the sites commitments to the AST required leakage paths.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Identify Corrosion on MOV 3209B			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-06 Open/Closed	[P.1] - Identification	71111.21M

The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50, Appendix B Criterion XVI, "Corrective Actions," for the licensee failure to identify corrosion on MOV 3209B that affected its structural integrity.

Description: The team walked down the service water supply valve (MOV 3209B) to the motor driven auxiliary feed water pump. The team identified that water leakage down the sides of the MOV caused significant corrosion on the bonnet. The amount of corrosion adversely affected the integrity of the MOV. The licensee had not identified this corrosion. The team noted that there was a leakage path t0 the valve body below insulation that was installed around it. The insulation obscured observation of this area. With the amount of corrosion on the bonnet, there is an increased likelihood that the body is corroded.

Corrective Actions: The licensee is performing a ultrasonic test to determine how much material has deteriorated from the bonnet.

Corrective Action References: CR 10962571

Performance Assessment:

Performance Deficiency: The failure to identify corrosion on MOV 3209B that affected its structural integrity was a performance deficiency.

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, a failure of the bonnet integrity would allow flooding of the AFW pump room and disable an alternate water source for the AFW pump.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” Exhibit 2 – Mitigating Systems Screening Questions, Item A, The degraded condition did not represent a loss of the PRA function of one or more non-TS trains of equipment designated as risk-significant in accordance with the licensee’s maintenance rule program for greater than 3 days – Screen to GREEN

Cross-Cutting Aspect: P.1 - Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program.

Enforcement:

Violation: Title 10 CFR Part 50 Appendix B, Criterion XVI, "Corrective Actions," states, in part, measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

Contrary to the above, the licensee failed to implement measures to assure that conditions adverse to quality, such as deficiencies, deviations, defective material and equipment were promptly identified. Specifically, the licensee failed to inspect MOV 3209B to identify corrosion that effects the structural integrity of the valve.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Inadequate Work Instructions for Cable Bend Radius

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-07 Open/Closed	[H.5] - Work Management	71111.21M

The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50, Appendix B Criterion V, "Instructions, Procedures, and Drawings," for the licensee failure to include precautions about cable bend radius in work orders to replace the Class 1E batteries.

Description: The team identified that the 2A Class 1E batteries main power cable exceeded the specified bend radius. The radius was approximately 4-inches when licensee procedure, NMP-ES-038-GL02, required a 20-inch radius. Several of the other Class 1E battery cables appeared questionable. The team reviewed several work orders that were used to replace all the Class 1E batteries. There were no precautions, limitations, or other information to control the cable bend radius as work instructions. Excessive cable bends if left uncorrected can cause insulation breakdown and flashover of the conductor to the nearest conductor resulting in short circuit and an unavailability of the battery. In addition, these batteries are replaced every 13 to 15 years when necessary. The act of unbending tight cable bends on large stiff cables and then re-bending them to connect the new batteries fatigues the copper strands which could cause arcing inside the cable at stress fractures. This can cause failures of the batteries from flash overs.

Corrective Actions: The licensee created work orders to check the cable insulation for any signs of cracking as well as a check for hot spots using thermal imaging camera. Long-term, the bend radius should be restored.

Corrective Action References: CR 10964531

Performance Assessment:

Performance Deficiency: The failure to include precautions about cable bend radius in work orders to replace the Class 1E batteries was a performance deficiency.

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, Excessive cable bends if left uncorrected can cause insulation breakdown and flashover of the conductor to the nearest conductor resulting in short circuit and an unavailability of the battery.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” Exhibit 2 – Mitigating Systems Screening Questions, item A. Mitigating SSCs and PRA Functionality (except Reactivity Control Systems), specified that if the finding affected the design or qualification of a mitigating SSC, but it maintained its operability or PRA functionality then it screens to GREEN.

Cross-Cutting Aspect: H.5 - Work Management: The organization implements a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. The work process includes the identification and management of risk commensurate to the work and the need for coordination with different groups or job activities.

Enforcement:

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

Contrary to the above, the licensee failed to prescribe activities affecting quality by documented instructions of a type appropriate to the circumstances in battery replacement work orders.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Inadequate Thermal Overload Calculations and Use of Related Software			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000348,05000364/2023010-08 Open/Closed	[H.5] - Work Management	71111.21M
The NRC identified a Green finding and associated NCV of Title 10 CFR Part 50, Appendix B, Criterion III, Design Control for the licensee failure to assure that Thermal Overload (TOL) relays for MOV circuits were properly sized and documented in quality-controlled calculations and the use of a nonfunctional Plant Data Management System (PDMS) to automatically calculate TOL specifications.			
Description: The team reviewed SNC1086636 (Unit 1) and SNC1112528 (Unit 2) which installed permanent jumpers to bypass Class 1E TOL relays in MOVs in accordance with Regulatory Guide (RG) 1.106, “Thermal Overload Protection for Electric Motors on Motor operated Valves”, Rev. 1.” The team noted that the RG was an acceptable method that allowed the licensee to either bypass the TOLs during power operation or to size them properly and periodically test them. The team reviewed calculations associated with TOLs (their use and sizing). Calculations SE-SNC5299029-001 “Unit 1 Minimum expected Voltage Study” Version 2, Attachment 6 and SE-SNC5299029-002 “Unit 2 Minimum expected Voltage			

Study", Version 1, Attachment 6, both specified that PDMS was the source for TOL relay sizing calculation.

Calculation SE-94-0-0378-001, "MOV Combination Starter Component Sizes and settings", Rev.5, for Units 1 and 2, Section 3 stated, in part "the PDMS calculation provides a range of acceptable TOLs based on this input." Section 6.3 states "PDMS is used to determine TOL heater sizes for MOV's" and section 6.3.4 states "Operational criteria for the valve must be met and there should be adequate motor protection for the TOL to be considered properly sized." The TOLs in these circuits were in use during power operation prior to the modifications. Correct sizing calculations ensure that TOL devices would not prevent the MOVs from performing their safety functions.

The team requested the sizing calculations but was informed that PDMS reports do not document the calculations. The team inquired about the qualifications and capabilities of the PDMS software since it was a qualified vendor supplied TOL sizing software. In response, they submitted procedure DS-CM-001 "PDMS Software Use and Access Control", Version 3.1 for review. The procedure stated, in part, that "this procedure applies to the use of PDMS for engineering and data management activities…Outputs from PDMS are used for the preparation of design change documents, studies, and in design change implementation…", and that "PDMS is a nuclear safety-related software program supplied by Jensen Hughes that has the capability to store and analyze design information in electronic format."

The inspectors noted that PDMS TOL sizing capabilities were not specified in this procedure. The licensee stipulated that the TOL feature was a new custom feature. The team inquired about the qualification of this feature and was informed that it did not have a separate qualification. The team asked for a walkthrough of the feature. The licensee randomly selected seven TOLs sizing calculations in the PDMS. The seven samples produced incorrect TOL sizing. The sizes generated would not protect the motors. The licensee informed the team that, historically, they were generating TOL specifications by the use of alternate methods and entering the specification values into the PDMS database because PDMS has never been able to correctly size TOLs. The alternate TOL sizing was not supported by documented Class 1E calculations. The team questioned how this met Appendix B requirements since this TOL feature was specified in most of the licensee Class 1E electrical procedures that the team reviewed. There was no acceptable answer. In addition, the team noted that the PDMS inputs for this feature were incorrectly entered. The incorrect motor damage curve, M1480A with a 12s time to damage, was entered into PDMS for MOV Q2E1MOV8803B. The correct damage curve should have been M1480 with an 8s time to damage. This incorrect input would cause an incorrect TOL sizing calculation even if perform by traditional methods. The team noted that this was not the cause of the prior incorrect PDMS TOL sizing. That appeared to be a software design and quality error.

The team noted that procedure NMP-ES-039-001, "Calculations - Preparation and Revision", Version 7.0 specified, in part, that calculations utilizing analytical software (PDMS Sizing Calc) required a documented calculation to confirm the outputs of the software. The team requested the calculation(s). The licensee could not provide any Class 1E calculation(s) to support the TOL sizing for any MOV. Corrective action document 10967713 was issued.

Corrective Action References: CR 10967713

Performance Assessment:

Performance Deficiency: The failure to assure that TOL relays in MOV circuits were properly sized and documented in quality-controlled calculations and the use of a nonfunctional PDMS to automatically calculate TOL specifications was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control 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, incorrectly sized TOLs could adversely affect the reliable operation of safety related MOVs when they are required to operate.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Exhibit 2 – Mitigating Systems Screening Questions, item A. Mitigating SSCs and PRA Functionality (except Reactivity Control Systems), specified that if the finding affected the design or qualification of a mitigating SSC, but it maintained its operability or PRA functionality then it screens to GREEN.

Cross-Cutting Aspect: H.5 - Work Management: The organization implements a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. The work process includes the identification and management of risk commensurate to the work and the need for coordination with different groups or job activities.

Enforcement:

Violation: Title 10 CFR Part Part 50, Appendix B, Criterion III, "Design Control," states, in part, design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, using alternate or simplified calculational methods, or by the performance of a suitable testing program.

Contrary to the above, as of April 2023, measures had not been established to verify and ensure that Thermal Overload relays installed in thirty-four (34) safety-related MOV circuits by the performance of design reviews, using alternate or simplified calculational methods to demonstrate that they would not adversely affect MOV operation.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

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

- On April 27, 2023, the inspectors presented the Technical Debrief inspection results to Mr. Keith Brown and other members of the licensee staff.
- On May 2, 2023, the inspectors presented the design basis assurance inspection (teams) inspection results to Mr. Delson Erb and other members of the licensee staff.
- On June 5, 2023, the inspectors presented the Re-exit inspection results to Mr. Delson Erb and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Calculations	A350972	Criteria for Selection/Evaluation of TOLs	Rev. 1
71111.21M	Calculations	E-095	Battery Capability Verification	Rev. 14
71111.21M	Calculations	ES-84-279	Seismic Calculation of Battery Racks	October 5, 1984
71111.21M	Calculations	ES-87-882	FNP Battery Racks	November 11, 1987
71111.21M	Calculations	FNP-Q1E11MOV8706A	MIDAS Calc for MOV 8706A	Rev. 3
71111.21M	Calculations	FNP-Q1E21MOV8803B	MIDAS Calc for MOV8803B	Rev. 2
71111.21M	Calculations	FNP-Q1N23MOV3209B	Thrust And Torque Calculation FNP-Q2N23MOV3209B (FNPS-2)	Rev. 2
71111.21M	Calculations	Job No. 7597-03/20	Joseph M. Farley Nuclear Units 1 and 2 Final Seismic Response Spectra	December 1972
71111.21M	Calculations	SC-90-1-6421-001	Farley Unit 1 &2 Qualify Lighting Support for 2/1 Lighting Support-Aux Bldg.	3
71111.21M	Calculations	SE-90-1653-001	MOV Thrust Requirements	Rev. 17
71111.21M	Calculations	SE-90-1653-002	Non-LOCA MOV Starting Voltages	Rev. 6
71111.21M	Calculations	SE-90-1714-12	Overload Heater Sizing and Resistance	Rev. 5
71111.21M	Calculations	SE-90-1714-12	Overload Heater Sizing and Resistance	Rev. 5
71111.21M	Calculations	SE-91-1976-1	Motor Starter Control Circuit Study	Rev. 7
71111.21M	Calculations	SE-94-0-0378-001	MOV Combination Starter Component Sizes & Settings	Rev. 5
71111.21M	Calculations	SE-94-0-0378-001	MOV Combination Starter Component Sizes and settings	Rev. 5
71111.21M	Calculations	SE-99-0-2010-001	Verification Package for Computer Software used to calculate MOV thermal Overload Heater sizes	10/27/99
71111.21M	Calculations	SE-SNC529029-001	Unit 1 Minimum Expected Voltage Study	Version 2
71111.21M	Calculations	SE-SNC529029-002	Unit 2 Minimum Expected Voltage Study	Version 1
71111.21M	Calculations	SJ-SNC529029-001	Determination of Setpoints, Reset Points, and LOOP Uncertainties for 4160V Degraded Voltage Relays	Rev. 1
71111.21M	Calculations	SM-90-1653-001	MOV Thrust Requirements for Gate & Glob	Version 17

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Calculations	SM-90-1653-002	Reduced Voltage Torque/Thrust Capability for Gate & Globe Valves in the FNP MOV Program	Version 23
71111.21M	Calculations	SM-90-1653-002	Reduced Voltage Torque/Thrust Capability	Rev. 23
71111.21M	Calculations	SM-90-1653-003	Design Basis Differential Pressure for the MOV Program	8
71111.21M	Calculations	SM-90-1653-003	Design Basis Differential Pressure for the MOV Program	15
71111.21M	Calculations	SM-92-2216-03	Expected Temp Inside the EDG Building	Rev. 2
71111.21M	Calculations	SM-94-0470-005	Unit 2 Load Study Summary	Rev. 8
71111.21M	Calculations	SM-94-0470-007	Unit 2 As-Built Load Study	Rev. 9
71111.21M	Calculations	SM-97-1407-002	Condensate Storage Tank (CST) Low-Low Level Setpoint	Version 1
71111.21M	Calculations	SM-SNC5290029-002	Unit 2 Minimum Expected Voltage Study	Rev. 1
71111.21M	Calculations	U279795	Report Number QR-74314-01 Environmental and Seismic Qualification Report of Type LCU-27 125 Volt DC Station Service Batteries 2A & 2B Auxiliary Building	May 12, 1993
71111.21M	Calculations	U400445, 7697-03	MOV 3209B Seismic Analysis 8" 50# O.S.Y. Gate Valve	12/20/1973
71111.21M	Calculations	U405413	MOV 3764D - Seismic Analysis - Velan 4 inch gate vlv	2/8/1974
71111.21M	Calculations	U419743	Environmental and Seismic Qualification Report – Auxiliary Building 125 Volt DC Station Batteries 1A & 1B	2
71111.21M	Calculations	U735621	Seismic & Environmental Qualification Report of 125 Volt DC 4LCY-07 Battery & 2-Step Battery Rack, 1-Tier Battery Rack	1
71111.21M	Calculations	V-EC-1321	Seismic Analysis of MOV 8803A/B	11/16/1992
71111.21M	Calculations	V-EC-703	Seismic Analysis of MOV 8811/8812	10/27/1989
71111.21M	Corrective Action Documents	10653474	Engineering review of thermal overload methodology in calculations	10/10/19
71111.21M	Corrective Action Documents	10894266, 10210736, 10705431, 10759281, 10777260, 10951159, 10653474, 10206648, 10781626,		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		10777229, 10932243, 10735066, 10902518, 10742390, 10735066, 10964675, 10965380, 10935351, 10939868, 10653474		
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10962571	NRC Identified – Rust build up on valve Q2N23V0014B	04/05/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10964188	NRC CETI walkdown results - Q1E11MOV8812B	04/12/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10964531	NRC identified cable bend radius	04/13/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10964536	NRC identified light fixture issue	04/13/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10964538	NRC Identified - Seismic concern on 1B/2B aux bldg battery racks	04/13/2023
71111.21M	Corrective Action Documents Resulting from	CR 10964675	NMP-OS-014-001 Attachment 2 needs to be updated based on a change to FNP-1/2-EEP-0.0	04/14/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Inspection			
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10965378	MOV actuator Q1E11MOV8811B needs painted	04/18/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10965380	NMP-OS-014-001 Attachment 2 needs to be updated based on a change to FNP-1/2-ESP-0.1	04/18/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10965508	for boric acid on Q1E11MOV8811B	04/18/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10965915	Minor Revision Required for NMP-ES-017-009	04/20/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10966072	NRC Identified - Seismic Concern on U1 TDAFW UPS Battery Rack Bracing	04/20/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10966892	Identified – Rust build-up on Q1P16V001A flange	04/25/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10966977	Change in Maximum DP for Containment Sump Valves Inadequately Documented	04/25/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10966990	NRC Identified – Analysis for U1/2 MOV 3209 A/B	04/25/2023
71111.21M	Corrective Action	CR 10967359	NRC Identified – Seismic concern on 2A aux bldg. battery	04/26/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents Resulting from Inspection		racks	
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967469	2023 NRC CETI documentation - mag rotor inspection Q1E11MOV8811B	04/26/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967477	2023 NRC CETI inspection - mag rotor inspection Q1E11MOV8812B	04/27/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967479	MOV Trend CR - 2023 NRC CETI inspection Q1E21MOV8803B	04/27/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967482	2023 NRC CETI inspection - test equipment used on Q1E11MOV8812B	04/27/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967483	2023 NRC CETI inspection - motor brakes on specific MOVs	04/27/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967506	2023 NRC CETI inspection - use of EPRI PPM	04/27/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967710	NRC Finding: Failure to perform adequate corrective action for CR 10777260	04/27/2023
71111.21M	Corrective Action Documents Resulting from	CR 10967713	2023 NRC CETI: PDMS TOL Sizing	04/27/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Inspection			
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967767	2023 NRC CETI - AB Battery Rack Seismic Qualification Report	04/27/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967773	2023 NRC CETI - Weak Link Analysis Document Request	04/28/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967778	2023 NRC CETI Inspection – EDG Room Temp and MCCs	04/28/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967802	2023 NRC CETI - 2A AB Battery Lighting II/I concern	04/28/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967839	2023 NRC CETI - EDG steady state TS limit of 3740V	04/28/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10967853	2023 NRC CETI - MOV 8809 Inadequate Corrective Action	04/28/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10968803	2023 NRC CETI – 1B EDG SI Test	05/03/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10972352	Inactivation of PM without adequate justification	05/17/2023
71111.21M	Corrective Action	CR 10972742	2023 NRC CETI - Failure to perform adequate corrective	05/18/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents Resulting from Inspection		actions for CR 10777260 and TE 1083113	
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10972749	2023 NRC CETI - Inadequate justification of Agastat service life extension	05/18/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10973935	2023 NRC CETI inaccurate test documentation on Q1E11MOV8811B	05/23/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10974521	2023 NRC CETI – Failure to evaluate environmental conditions of MCCS in EDG rooms	05/25/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10976358	2023 NRC CETI – Invalid seismic qualification of AB battery racks 1A/B and 2A/B	06/01/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10979135	Follow up to 2023 NRC CETI inspection CR 10967483	06/12/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10979515	Follow up to 2023 NRC CETI inspection CR 10973935 (magnesium rotor inspection)	06/13/2023
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10979536	2023 NRC CETI – Maximum Differential Pressure Change Not Justified for CTMT Sump Isolation Valves	06/13/2023
71111.21M	Corrective Action Documents Resulting from	CR 10980310	2023 NRC CETI – Magnesium Rotor Inspection	06/15/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Inspection			
71111.21M	Corrective Action Documents Resulting from Inspection	CR 10980342	NRC CETI Issue of Weak Link / Seismic Analysis	06/15/2023
71111.21M	Drawings	A-177542	Lighting Details & Notes, Series Drawing Sheets 1 through 29	0
71111.21M	Drawings	B-203554	Electrical Conduit Supports General Notes, Series Drawing Sheets 1	11
71111.21M	Drawings	B-203554	Electrical Conduit Supports Standard Types, Series Drawing Sheets 2 through 25	3
71111.21M	Drawings	B207556 Sht 10	600V MCC 2V	Rev. 0
71111.21M	Drawings	D-175007	P&ID Auxiliary Feedwater System	Version 1
71111.21M	Drawings	D-177608	Elementary Diagram – Charging/SI Pumps 575V motor operated Valves	Version 6
71111.21M	Drawings	D-177620	Elementary Diagram 575V Motor Operated Valves Sh. 17A - AFW Pump Discharge MOV's	Rev. 1
71111.21M	Drawings	D-181900 28A	Installation Details for Environmentally Qualified Telemecanique (ITE) Motor Control Center 1U, SH 28A	Version 7
71111.21M	Drawings	D-181900 28B	Installation Details for Environmentally Qualified Telemecanique (ITE) Motor Control Center 1V, SH 28B	Version 6
71111.21M	Drawings	D-203096	Unit 2 Key Diagram	Rev. 0
71111.21M	Drawings	D-207006	Single Line – 4160V Switchgear Bus 2G	Rev. 0
71111.21M	Drawings	D-207044	Single Line – 4160V Switchgear Bus 2L	Rev. 2
71111.21M	Drawings	D-207570	Unit 2 575V MOV8706A	Rev. 1
71111.21M	Drawings	D-207614	Unit 2 575V MOV88013B-AB	Rev. 1
71111.21M	Drawings	D-207626	Unit 2 575V MOV3209B	Rev. 1
71111.21M	Drawings	U-211521	125V Station Battery Auxiliary Building Rack 2A/2B Layout	2
71111.21M	Drawings	U-278948	Gate Valve 300# Motor Operator 14” Class Q2E11V025A	3
71111.21M	Drawings	U-732406	Interface Control Drawings (ICD'S) Containment Sump Passive Strainer/Screen	1
71111.21M	Drawings	U176261	Battery Rack 1A & 1B Layout of 60 Cells (Heavy Seismic Resistant)	3
71111.21M	Drawings	U205093	8" 150# OSY Gate Valve	12/15/1975

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Drawings	U259520	4" 900# Pressure-Seal Gate Valve	Version 1
71111.21M	Drawings	U735431	Tow Step & Single Tier EP3 4LCY-7 Battery Racks	1
71111.21M	Engineering Changes	SNC1085311	2R28- 4kV Breaker Replacement	Rev. 2
71111.21M	Engineering Changes	SNC1086636	U1 LOCA MOV TOL Sizing Degraded	Rev. 1
71111.21M	Engineering Changes	SNC1112528	Bypass Thermal Overloads for Unit 2 LOCA Motor Operated Valves	Rev. 1
71111.21M	Engineering Changes	SNC1123286	U1 SW Header Drain Line Addition	Rev. 0
71111.21M	Engineering Changes	SNC1125459	2C SW Minimum Flow Line Reinforcement Sleeve Removal	Rev. 0
71111.21M	Engineering Changes	SNC1127561	By-pass Unit 1 and Unit 2 LOCA MOVs (online)	Rev. 0
71111.21M	Engineering Changes	SNC1141168	1B Startup Transformer 1B Replacement Change Package	Rev. 0
71111.21M	Engineering Changes	SNC1255545	Replace General Electric (GE) AK DC Breakers	Rev. 5
71111.21M	Engineering Changes	SNC1426773	Replace and re-route cable for FT477, FT487, FT497, and PT446	Rev. 1
71111.21M	Engineering Evaluations	1053781	Technical Evaluation Quality Record, Engineering review of thermal overload methodology in calculations	02/21/20
71111.21M	Engineering Evaluations	1122582	Determine if MOV Procedures have been updated to remove and reinstall the jumper during Testing	03/09/23
71111.21M	Engineering Evaluations	1122890	Update Documents: DBAI FASA: MOV Thermal Overload Bypass Modification Issues	03/01/23
71111.21M	Engineering Evaluations	1122892	Determine if DCP requires an update: DBAI FASA: MOV Thermal Overload bypass modification issue	03/01/23
71111.21M	Engineering Evaluations	2071575301-02	NSSS MOV Test Differential Pressure Determination	2
71111.21M	Engineering Evaluations	FNP-0-ESB-1.2	Farley Nuclear Plant Specific Background Document For FNP-1/2-ESP-1.2 L Post LOCA Cooldown And Depressurization	3

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Miscellaneous	1.106	Regulatory Guide 1.106, Thermal Overload Protection for Electric Motors on motor-operated valves	Rev. 1
71111.21M	Miscellaneous	10 CFR 50.59 Screening SNC1091429	U2 DRPI Advanced Display System	Version 1.0
71111.21M	Miscellaneous	1075584	FASA – Power Operated Valves Inspection	Rev. 3
71111.21M	Miscellaneous	1083113	FASA POV: Calc SE-91-1976-1 Update for Clarification	02/24/2021
71111.21M	Miscellaneous	1095167	NON-LOCA MOV Analysis needed	10/22/2021
71111.21M	Miscellaneous	10CFR 50.59 Screening DECP SNC1127557	Spent Fuel Cask Crane Upgrades	Version 1.0
71111.21M	Miscellaneous	A-181004	Functional System Description Electrical Distribution System	Version 58.0
71111.21M	Miscellaneous	A-350972	Criteria for selection/Evaluation of Thermal overload heaters and recommendations for selection of magnetic breaker setpoints for the Telemacanique (ITE-Gould) motor control center starters controlling the motor operated valve actuators.	Rev.1
71111.21M	Miscellaneous	A181010	Functional System Description Auxiliary Feedwater System	Version 38
71111.21M	Miscellaneous	Action Item 2009202247		3/26/2009
71111.21M	Miscellaneous	C93166	CCSI Letter December 2007	12/21/2007
71111.21M	Miscellaneous	IP-ENG-001	Standard Design Process (EB-17-06)	Rev. 3
71111.21M	Miscellaneous	Item/Service Identification 1330116	Plug, Pipe, Size: 6 INCH; Material; Cast Iron; Head; Square; Construction; Black	9/14/2021
71111.21M	Miscellaneous	LDCR 2021-029 SNC 1091429	U2 Digital Rod Position Indication Advanced Display System	Version 1.0
71111.21M	Miscellaneous	LDCR 2021-058 DECP SNC1127557	Spent Fuel Cask crane Upgrades	Version 1.0
71111.21M	Miscellaneous	NMP-GM-003-F19	Design Basis Assurance Inspection FASA	Rev. 5
71111.21M	Miscellaneous	SM-SNC338705-004	AFW-CST Reference Summary	Version 3

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Miscellaneous	SNC1141168	10CFR50 Screening for 1B Startup Transformer Replacement	Rev. 2
71111.21M	Miscellaneous	SNC921616 Seq 1	Justification for Extension of Expected Service Life – Agastat E7000 series	Rev. 4
71111.21M	Miscellaneous	U-518612	Procedure Reference Manual Instruction Book for CCSI 1045DEP Nuclear Diaphragms for All Storage Tanks	Version 1.0
71111.21M	Miscellaneous	U258824	Instruction Manual-Velan Motor Operated, Manual Valves and Air Operated Valves	Version 1.0
71111.21M	Miscellaneous	U280317	Limitorque Valve Operator Instructions & Manual	Rev. M
71111.21M	Miscellaneous	U737125	Siemens MSV-FSV Operation/Instruction Manual	Rev. 3
71111.21M	Miscellaneous	V-EC-1869	Applicability of BWROG Mag Rotor Inspection Report to PWRs	Rev. 2
71111.21M	Procedures	DS-CM-001	PDMS Software Use and Access Control	Version 3.1
71111.21M	Procedures	FNP-0-EMP-1313.16	Maintenance of Seimens 4.16kV Circuit Breakers	Rev. 7
71111.21M	Procedures	FNP-0-EMP-1323.01	Inspection of MCC’s	Rev. 33
71111.21M	Procedures	FNP-0-EMP-1512.02	Molded Case Circuit Breakers Inspection and Test	Rev. 54
71111.21M	Procedures	FNP-0-M-114.0	External Surfaces Monitoring Program	Version 7.0
71111.21M	Procedures	FNP-0-PMP-500.0	Installation and Inspection of Electrical Field Cables	18.1
71111.21M	Procedures	FNP-0-STP-24.6	Service Water Buried Pipe Inspection	Version 17.1
71111.21M	Procedures	FNP-1-AOP-14.0	Secondary System Leakage	Version 15.0
71111.21M	Procedures	FNP-1-AOP-27.0	Emergency Boration	Version 18.0
71111.21M	Procedures	FNP-1-ARP-1.6	Main Control Board Annunciator Panel F	Version 93.0
71111.21M	Procedures	FNP-1-ARP-1.9	Main Control Board Annunciator Panel J	Version 54.1
71111.21M	Procedures	FNP-1-EEP-0	Reactor Trip or Safety Injection	Revision 56.0
71111.21M	Procedures	FNP-1-ESP-0.1	Reactor Trip Response	Revision 42.0
71111.21M	Procedures	FNP-1-SOP-21.0	Condensate and Feedwater System	Version 135
71111.21M	Procedures	FNP-1-SOP-22.0	Auxiliary Feedwater System	Version 84.0
71111.21M	Procedures	NMP-AD-008	Applicability Determinations	Version 22.1

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Procedures	NMP-AD-010	10 CFR 50.59 Screenings and Evaluations	Version 17.1
71111.21M	Procedures	NMP-AD-011	10 CFR 72.48 Screenings and Evaluations	Version 11.1
71111.21M	Procedures	NMP-AD-043	Regulatory Correspondence Control	Version 7.0
71111.21M	Procedures	NMP-ES-017	Motor-Operated Valve Program	11
71111.21M	Procedures	NMP-ES-017-008	MOV Mechanical and Electrical Inspections	Version 11.5
71111.21M	Procedures	NMP-ES-017-008	MOV Mechanical and Electrical Inspections	Version 11.2
71111.21M	Procedures	NMP-ES-017-020	MOV Electrical Checkout and Adjustment for SMB/SB Actuator	Version 6.9
71111.21M	Procedures	NMP-ES-017-021	MOV Diagnostic Procedure for VOTES Infinity	Version 2.4
71111.21M	Procedures	NMP-ES-017-021	MOV Diagnostic Procedure for VOTES Infinity	Version 2.3
71111.21M	Procedures	NMP-ES-017-022	Teledyne Quick Stem Sensor	Version 1.2
71111.21M	Procedures	NMP-ES-036-001	Underground Pipe and Tanks Monitoring Program Implementation	Version 12.0
71111.21M	Procedures	NMP-ES-038-GL02	Electrical Design Guideline	4.1
71111.21M	Procedures	NMP-ES-039-001	Calculations - Preparation and Revision	Version 10.3
71111.21M	Procedures	NMP-ES-058	ETAP Files Control	Rev. 5
71111.21M	Procedures	NMP-ES-069-001	Fleet Service Water Program Instructions	Version 3.4
71111.21M	Procedures	NMP-FLS-003	Electrical Work Practices	Version 12.5
71111.21M	Procedures	NMP-GM-016-002	Non-Corrective Action Program (CAP) Business Item Instructions	Version 8.0
71111.21M	Procedures	NMP-MA-018	Plant Electrical Component Temporary Configuration Control	Version 4.3
71111.21M	Procedures	NMP-MA-018-F01	Plant Electrical Component Temporary Configuration Control Documentation	Version 3.3
71111.21M	Procedures	SS-1125-001	Specification for Uninterruptible Power Supply (UPS) Turbine Driven Auxiliary Feedwater System (TDAFW) for Farley Nuclear Plant-Units 1 & 2	4
71111.21M	Procedures	U419471	GNB Battery Racks Modifications for C&D TYPE LCU-27	2
71111.21M	Procedures	U735428	Battery Rack Assembly Instructions	1
71111.21M	Procedures	Westinghouse WCAP 13097	Volume 3, “System Operating Basis for Motor-Operated Valves	0
71111.21M	Work Orders	SNC 1057207	OHI – Q2R42E002B – Replace 2B Aux Building Battery	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Bank	
71111.21M	Work Orders	SNC1089551	Q1E11MOV8812B – Install Stem Protector	0
71111.21M	Work Orders	SNC1137341	Q1R17BKRFUT4 Install Jumpers for Sizing Degrade DCP	Rev. 0
71111.21M	Work Orders	SNC1148512	Q1E21F003 - Pre-Outage RCS Filter Replacement	Rev. 0
71111.21M	Work Orders	SNC1272519	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB02 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1272520	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB03 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1272566	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB04 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1272621	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB06 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1272697	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB07 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1272743	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB08 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1272817	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB10 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1272903	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB11 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1273136	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB15 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1273170	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB18 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1273171	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB19 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1383002	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB02 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1383052	Preform Pre-Outage inspection and testing of breaker Q1R42BKRLB04 per DECP SNC1255545	Rev. 0
71111.21M	Work Orders	SNC1411972	Clean the Boric Acid Residue and Check the Packing Torque on MOV Q1E11MOV8811B	0
71111.21M	Work Orders	SNC1432383	RCS Filter DP High - Replace U2 RCS Filter	Rev. 0
71111.21M	Work Orders	SNC383463,		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		SNC782471, SNC831500, SNC1150131, SNC950814		
71111.21M	Work Orders	WO FNP-1-STP-40.0B	Safety Injection with Loss of Offsite Power Test 1B	Rev. 13