



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

May 06, 2021

Mr. Ken Peters, Senior Vice President
and Chief Nuclear Officer
Attention: Regulatory Affairs
Vistra Operations Company LLC
P.O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2 – DESIGN
BASIS ASSURANCE INSPECTION (TEAMS) INSPECTION REPORT
05000445/2021011 AND 05000446/2021011 AND NOTICE OF VIOLATION

Dear Mr. Peters:

On March 25, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Comanche Peak Nuclear Power Plant, Units 1 and 2 and discussed the results of this inspection with Mr. Thomas McCool, Site Vice President and other members of your staff. The results of this inspection are documented in the Enclosure 2.

The enclosed report discusses two violations associated with findings of very low safety significance (Green). The NRC evaluated these violations in accordance Section 2.3.2 of the NRC Enforcement Policy, which can be found on the NRC website at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. We determined that these violations did not meet the criteria to be treated as non-cited violations (NCVs) because the licensee failed to restore full compliance for the documented NCVs 05000416/2013007-02 and 05000445/2015007-01. You are required to respond to this letter and should follow the instructions specified in the Notice of Violation (Enclosure 1) when preparing your response. You are required to submit a written explanation or statement under Title 10 of the “Code of Federal Regulations” (10 CFR) 2.201 within 30 days of the date of the issuance of this Notice of Violation. The NRC’s review of your response will also determine whether further enforcement action is necessary to ensure your compliance with regulatory requirements.

Additionally, four findings of very low safety significance (Green) are documented in this report. All of these findings involved violations of NRC requirements. We are treating these violations as (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement; and the NRC Resident Inspector at Comanche Peak Nuclear Power Plant, Units 1 and 2.

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 IV; and the NRC Resident Inspector at Comanche Peak Nuclear Power Plant, Units 1 and 2.

This letter, its enclosure, and your response 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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Vincent G. Gaddy, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos. 05000445 and 05000446
License Nos. NPF-87 and NPF-89

Enclosures:

1. Notice of Violation
2. Inspection Report

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COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2 – DESIGN BASIS
 ASSURANCE INSPECTION (TEAMS) INSPECTION REPORT 05000445/2021011 AND
 05000446/2021011 AND NOTICE OF VIOLATION – DATED MAY 06, 2021

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NOTICE OF VIOLATION

Vistra Operations Company LLC
Comanche Peak Nuclear Power Plant,
Units 1 and 2

Docket Nos.: 05000445 and 05000446
License Nos.: NPF-87 and NPF-89

During an NRC inspection conducted from February 2, 2021 through March 25, 2021, two violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

- A. Title 10 CFR Part 50, Appendix B, Criterion III, requires, in part, that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, from June 20, 2013, to March 25, 2021, the licensee did not assure that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the 125 VDC calculation did not account for the maximum inrush currents and actual accident loading, and the 120 VAC calculation did not properly account for low voltage when the buses are supplied from their alternate source.

This violation is associated with a Green SDP finding.

- B. Title 10 CFR Part 50, Appendix B, Criterion III requires in part, that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, from June 18, 2015, to March 25, 2021, the licensee did not assure that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to verify or check the adequacy of the design by performing an analysis or test that demonstrated that the Class 1E inverters would continue to operate reliably when subjected to the effects of electrical faults that could be postulated to occur at non-Class loads, due to a lack of seismic qualification of the loads, during and after a design basis loss-of-offsite power and seismic event.

This violation is associated with a Green SDP finding.

Pursuant to the provisions of 10 CFR 2.201, Vistra Operations Company LLC, is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 1600 E. Lamar Blvd., Arlington, TX 76011, and to the NRC Resident Inspector at the Comanche Peak Nuclear Power Plant, and emailed to R4Enforcement@nrc.gov within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if

Enclosure

the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy or proprietary information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information).

Dated this 6th day of May 2021

**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 05000445 and 05000446

License Numbers: NPF-87 and NPF-89

Report Numbers: 05000445/2021011 and 05000446/2021011

Enterprise Identifier: I-2021-011-0002

Licensee: Vistra Operations Company LLC

Facility: Comanche Peak Nuclear Power Plant, Units 1 and 2

Location: Glen Rose, Texas

Inspection Dates: February 08, 2021 to March 25, 2021

Inspectors: J. Braisted, Reactor Inspector
S. Hedger, Emergency Preparedness Inspector
R. Kopriva, Senior Reactor Inspector
S. Makor, Reactor Inspector
C. Smith, Senior Reactor Inspector
F. Thomas, Reactor Inspector

Approved By: Vincent G. Gaddy, Chief
Engineering Branch 1
Division of Reactor Safety

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting a design basis assurance inspection (teams) inspection at Comanche Peak Nuclear Power Plant, Units 1 and 2, 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 Update a Calculation for Station Service Water Cross-Connect Operability			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445,05000446/2021011-01 Open/Closed	None (NPP)	71111.21M
The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> Part 50, Appendix B, Criterion III, “Design Control,” for the failure to update a calculation for station service water cross-connect operability for modifications and a power uprate that impacted design input values.			

Failure to Provide Adequate Technical Justification for the Reduction in Minimum Bend Radius for the Unit 1 Station Service Water Pump Motor Leads			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445/2021011-02 Open/Closed	[H.7] - Documentation	71111.21M
The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> Part 50, Appendix B, Criterion III, “Design Control,” for the failure to provide adequate technical justification that supports the reduction in the minimum bend radius requirement for motor leads on the safety related Unit 1 Station Service Water Pump replacement motor.			

Failure to Perform Adequate Periodic Testing of Class 1E Molded Case Circuit Breakers			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445/2021011-03 Open/Closed	None (NPP)	71111.21M
The inspectors identified a Green finding and associated Non-cited Violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> Part 50, Appendix B, Criterion XI, “Test Control,” for the failure to schedule all Class 1E molded case circuit breaker functional testing to detect deterioration and to demonstrate continued operability.			

Failure to Maintain Proficiency of Operators to Meet Time Critical Operation Actions			
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Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000445,05000446/2021011-04 Open/Closed	[H.9] - Training	71111.21M
The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> Part 50, Appendix B, Criterion III, "Design Control," for the failure to ensure that operators are able to implement specified actions in response to operational events and accidents. Specifically, three groups of operators could not achieve a time-critical action within the analysis time requirements for the inadvertent operation of the emergency core cooling system response as described in the licensee's safety analysis report.			

Failure to Restore Compliance and Evaluate Inverter Fault Interrupting Capability During Design Basis Loss of Offsite Power and Seismic Conditions			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NOV 05000445/2021011-05 Open	None (NPP)	71111.21M
The inspectors identified a Green finding and associated notice of violation (NOV) of Title 10 of the <i>Code of Federal Regulations</i> Part 50, Appendix B, Criterion III, "Design Control," for the failure to restore compliance of previously identified non-cited violation NCV 05000445/2015007-01. The violation identified the licensee's failure to verify or check the adequacy of the design by performing an analysis or test that demonstrated that the Class 1E inverters would continue to operate reliably when subjected to the effects of electrical faults that could be postulated to occur at non-Class loads, due to a lack of seismic qualification of the loads, during and after a design basis loss-of-offsite power, and seismic events.			

Failure to Restore Compliance for Inadequate Voltage Calculations for the 120 VAC Buses			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NOV 05000446/2021011-06 Open	None (NPP)	71111.21M
The inspectors identified a Green finding and associated notice of violation (NOV) of Title 10 of the <i>Code of Federal Regulations</i> Part 50, Appendix B, Criterion III, "Design Control," for the failure to restore compliance of previously identified non-cited violation NCV 05000446/2013007-02. The violation identified the licensee's failure to perform accurate voltage calculations for the 125 VDC system and 120 VAC bus.			

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.

REACTOR SAFETY

71111.21M - Design Bases Assurance Inspection (Teams)

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

Design Review - Risk-Significant/Low Design Margin Components (IP Section 02.02) (6 Samples)

From February 8, 2021 to March 25, 2021, the team inspected the following components and listed applicable attributes.

- (1) Safety Chill Water Storage Tank - Unit 2 (SCW-TNK-ATST02)
 - Material condition and installed configuration (e.g., visual inspection/walkdown).
 - Normal, abnormal, and emergency operating procedures.
 - Consistency among design and licensing bases and other documents/procedures.
 - System health report, maintenance effectiveness and records, and corrective action history.
 - Design calculations for sizing capacity and seismic adequacy.

- (2) Motor Driven AFW Pump Unit 2-02 and motor.
 - Material condition and installed configuration (e.g., visual inspection/walkdown).
 - Normal, abnormal, and emergency operating procedures.
 - Consistency among design and licensing bases and other documents/procedures.
 - System health report, maintenance effectiveness and records, and corrective action history.
 - Design calculations for net positive suction head, service water system hydraulics, setpoints, and cross-connect operability.
 - Surveillance testing and recent test results.
 - Vendor manuals for the pump and motor.
 - System and component level performance monitoring.

- (3) Service Water Pump Unit 1-02 (CP1-SWAPSW-02)
- Material condition and installed configuration (e.g., visual inspection/walkdown)
 - Normal, abnormal, and emergency operating procedures
 - Consistency among design and licensing bases and other documents/procedures
 - System health report, maintenance effectiveness and records, and corrective action history
 - Design calculations for net positive suction head, service water system hydraulics, setpoints, and cross-connect operability
 - Surveillance testing and recent test results
 - Vendor manuals for the pump and motor
 - System and component level performance monitoring
- (4) Diesel output breaker 1EG1
- Vendor manuals for EDG output breaker and ancillary components
 - Diesel generator output breaker control logic to verify the appropriate functionality was implemented.
 - Completed surveillances to verify that the technical specification requirements were met.
 - Protection/coordination and short-circuit calculations to verify the EDG was adequately protected by protective devices.
 - EDG output breaker maintenance and control voltage to verify that the components would function when required.
 - The team performed a walk down of the emergency diesel generator and breaker to assess the installed configuration, material condition, and potential vulnerability to hazards.
- (5) Safeguards Loop Component Cooling Water Supply Header Pressure Indicating Switch (2-PS-4519)
- System health report, maintenance effectiveness and records, and corrective action history
 - Vendor manuals for pressure switch
 - Calibration history and setpoint calculations
 - Plant qualification evaluation report and drawings
 - Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance.
- (6) Operator Actions
1. Control room operator actions resulting from a simulated break in the letdown system piping. From the receipt of associated alarms, actions to isolate the leak are completed within 10 minutes as described in the Final Safety Analysis Report (FSAR) (Amendment No. 110).
 2. Control room operator actions resulting from an inadvertent actuation of the emergency core cooling (ECCS) systems as described in the FSAR (Amendment No. 110).

- a. Control room operators restore decay heat removal via three of four steam generator atmospheric relief valves (ARVs) within 8 minutes of the inadvertent actuation.
 - b. Control room operators terminate ECCS injection within 14 minutes of the inadvertent actuation.
3. Control room and auxiliary operator actions to refill the refueling water storage tank (RWST) following a small break loss of coolant accident (SBLOCA), complicated by the inability to establish a containment sump recirculation lineup, within 49 minutes.
4. Control room and auxiliary operator actions to establish manual control of auxiliary feedwater flow to all four steam generators after a loss of all AC power event within 28.5 minutes.

Design Review - Large Early Release Frequency (LERF) (IP Section 02.02) (3 Samples)

From February 8 to March 25, 2021, the team inspected the following components and listed applicable attributes.

- (1) Service Water Pump Discharge Valve Unit 1-HV-4286 (LERF)
 - Procedures for motor operated valve setpoint control
 - Procedures for limitorque actuator periodic electrical and mechanical inspection
 - results of recent system health reports for 2020
 - Calculation for Westinghouse 7300 process control system scaling calculation
 - Calculation for normal operating inlet pressures for Unit 2 station service water system motor operated valves
 - Calculations for component cooling water heat exchanger 1-02 station service water outlet header temperature.
 - Design bases document and piping and instrumentation diagrams for service water system
 - Vendor manuals for limitorque operation, maintenance, and bulletins
 - Corrective action documents discussing critical and non-critical classification of certain service water valves

- (2) Motor Control Center 1EB3-3 [EPMCEB-07] (LERF)
 - System health reports, component maintenance history, and corrective action program reports to verify the monitoring and correction of potential degradation.
 - Calculations for electrical distribution, system load flow/voltage drop, short circuit, and electrical protection to verify that electrical equipment capacity and voltages remained within minimum acceptable limits.
 - The protective device settings and circuit breaker ratings to ensure adequate selective protection coordination of connected equipment during worst-case short circuit conditions.
 - Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance.

- Results of completed preventative maintenance on motor control centers and breakers.
- (3) 118Vac Safeguards BOP Inverter IV1EC1 (LERF)
- Load study for adequacy of inverter and system cable sizing.
 - Manufacturer recommended preventative maintenance performed during periodic maintenance activities.
 - Inverter fault current clearing capability for postulated faults on non-Class 1E circuits during design basis conditions.
 - Periodic testing to confirm inverter system design features and rated output capability.
 - Procedures for preventative maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance
 - The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function.

Modification Review - Permanent Mods (IP Section 02.03) (4 Samples)

From February 8 to March 25, 2021, the team inspected the following components and listed applicable attributes.

- (1) FDA-2016-000022-01-00, "Clarify optional shim construction for Station Service Water seismic supports." This FDA is being completed in response to AI-CR-2016-001306-19.
- (2) FDA-2017-000167-01-01, "DIESEL GENERATOR CP1-MEDGEE-02 # 4L cam cover has a bolt thread that is damaged." Reference IR-2017-011755 That activity proposes repairing the bolt hole with a helicoil.
Revision 1: CR 2018-002139 identifies a conflict with FDA 2017-000167-01-00 and FDA-2012-000002-07-01, A revision to this FDA will remove the option to increase bolt diameter.
- (3) FDA-2017-000196-01-00. "Revise DBD-ME-233 Attachment 1A for SSWP 1-01 preservice test."
- (4) FDA-2020-000100-01-00, "Minimum bend radius for CP1-SWAPSW-02M replacement motor." One Time Deviation to Specification 2323-ES-100 to allow minimum bend radius of service water pump motor leads (silicone insulated cable manufactured by Rowe Industries, 2AWG, stranded flexible) to be three times the outside diameter of the cable.

Review of Operating Experience Issues (IP Section 02.06) (4 Samples)

From February 8 to March 25, 2021, the team inspected the following components and listed applicable attributes.

- (1) NRC Information Notice IN- 20-02 "FLEX Diesel Generator Operational Challenges."
 - The team reviewed licensee response to this information notice under their Operating Experience Program. The team reviewed the Operating

Experience process procedure STI-426.02. Per their procedure, the licensee generated an administrative tracking report to review and take actions as deemed necessary. The licensee's actions included participation in industry FLEX summits and benchmarking activities and determined that the site was not susceptible to the concerns in IN-2020-02.

- (2) NRC Information Notice IN 17-05 “Potential Binding of Schneider Electric/Square-D Masterpact NT and NW 480-VAC Circuit Breaker Anti-Pump Feature.”
 - The team reviewed licensee response to this information notice under their Operating Experience Program. The team reviewed the Operating Experience process procedure STI-426.02. Per their procedure, the licensee determined that CPNPP does not use Masterpact 480V NT, NW or any similar breakers, and IN-2017-05 was not applicable.

- (3) NRC Information Notice IN 20-01 “Increased Electronic Equipment Issues After Electrostatic Cleaning.”
 - The team reviewed the licensee response to this information notice under their Operating Experience Program. The team reviewed Operating Experience process procedure STI-426.02. Per their procedure, the licensee determined that the information notice was not applicable and Comanche Peak Nuclear Power Plant does not use the electrostatic spray cleaning of concern.

- (4) NRC Information Notice IN-19-10 “Failures Reported in Eaton/Cutler Hammer A200 And Freedom Series Contactor.”
 - The team reviewed licensee response to this information notice under their Operating Experience Program. The team reviewed the Operating Experience process procedure STI-426.02. Per their procedure, the licensee determined that CPNPP has not purchased safety-related Eaton/Cutler Hammer A200 and Freedom Series contactors.

INSPECTION RESULTS

Failure to Update a Calculation for Station Service Water Cross-Connect Operability			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445,05000446/2021011-01 Open/Closed	None (NPP)	71111.21M
The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> (CFR) Part 50, Appendix B, Criterion III, “Design Control,” for the failure to update a calculation for station service water cross-connect operability for modifications and a power uprate that impacted design input values.			
<u>Description:</u> The station service water system (SSWS) removes heat from the component cooling water system (CCWS) heat exchangers and from the emergency diesel generators, and supplies cooling water to the safety injection, centrifugal charging pump lube oil coolers			

and the containment spray pump bearing oil coolers. In conjunction with the CCWS, the SSWS supplies cooling water to meet the plant cooling requirements during normal operation, shutdown, and during or after a postulated loss-of-coolant accident of either unit.

The technical specification for the SSWS is 3.7.8. The limiting condition for operation states that two SSWS trains and a station service water pump on the opposite unit with its associated cross-connects shall be operable in modes 1, 2, 3, and 4. Condition A requires specific actions if a station service water pump on the opposite unit or its associated cross-connects are inoperable. The basis for this condition is that, if no station service water pump on the opposite unit or its associated cross-connects are operable, the overall reliability is degraded since a back-up in the event of a loss of station service water (LOSSW) event may not be capable of performing the function. A station service water pump on the opposite unit is operable as back-up in the event of a Loss of Station Service Water (LOSSW) if it is capable of providing required flow rates.

In response to NRC Generic Letter 91-13, "Request for Information Related to the Resolution of Generic Issues 130, 'Essential Service Water System Failures at Multi-Unit Sites'," the licensee developed calculation ME-CA-0400-3218, "Service Water Cross-Connect Operability," dated November 4, 1993, in support of these changes. Specifically, the licensee developed ME-CA-0400-3218 to ensure the adequacy of one service water pump providing adequate flow to remove heat loads on both units for certain postulated operating scenarios. The scenarios involved a unit initially in modes 5 or 6 (the "shutdown" unit) and the other unit initially in modes 1, 2, 3, or 4 (the "operating" unit). The scenarios also included analyses of isolating service water to various non-safety-related and safety-related heat loads.

The inspectors reviewed ME-CA-0400-3218 and noted that it had not been revised since 1993 despite the 2007 stretch power uprate and other station modifications. Subsequently, the inspectors identified several concerns and questioned whether: 1) the assumed safety-related and non-safety-related heat loads remained bounding given the power uprate and modifications; 2) the single running service water pump could provide adequate flow without experiencing a runout condition given certain system alignments; 3) an assumption of a time delay to reduce the heat loads given the station's operating procedures and technical specifications; and 4) the operating unit remaining in mode 4 given the station's current technical specifications. The licensee reviewed the calculation and confirmed the inspectors' concerns that the heat loads were not bounding, the service water pump would reach a run out condition if valves were not throttled properly, the delay time was inconsistent with station procedures, and technical specifications would require taking the operating unit to mode 5, not mode 4. The licensee also identified that another assumption for the shutdown unit in some of the scenarios—a two-train residual heat removal system cooldown—was also incorrect. Given the above, the inspectors concluded there was a reasonable doubt as to whether a single service water pump could provide the flow rates required for adequate heat removal to both units without exceeding pump runout conditions or other system temperature limits.

Licensee procedure ECE-5.01, "Design Control Program," established the general requirements for design control at the station and the functional responsibilities required to ensure that safety-related and non-safety-related design activities, subject to 10 CFR Part 50, Appendix B, are conducted in a planned and controlled manner. The procedure applied to all design activities during the maintenance, modification, and operation of the station in the preparation of design drawings, calculations, design basis documents, specifications, and

design change documents. This also included updating design documents to reflect the as-built plant conditions accurately, subsequent to completion of plant modifications. Given that the licensee did not update ME-CA-0400-3218 after the stretch power uprate and modifications between approximately 1993 and 2007, the inspectors concluded that the licensee's established design control measures failed to verify the adequacy of design of a single station service water pump to perform its LOSSW function.

Corrective Actions: The licensee documented the condition in their corrective action program and performed an operability determination. The operability determination reanalyzed the most limiting scenario from ME-CA-0400-3218 and determined the SSWS remained operable. Therefore, the condition does not represent an immediate safety concern.

Corrective Action References: CR-2021-001358

Performance Assessment:

Performance Deficiency: The failure to update a calculation for station service water cross-connect operability for modifications and a power uprate that impacted design input values 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 calculational errors and out of date inputs resulted in a reasonable doubt of the availability, reliability, and capability of the service water system in that it could not be reasonably determined that a single service water pump could provide the flow rates required for adequate heat removal to both units without exceeding pump runout conditions or other system temperature limits.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Exhibit 2, "Mitigating Systems Screening Questions," issued November 30, 2020, the inspectors determined this finding is not a deficiency affecting the design or qualification of a mitigating structure, system, or component; the finding does not represent a loss of function of a Technical Specification train, system, or two separate Technical Specification systems for greater than their Technical Specification allowed outage time; the finding does not represent a loss of system and/or function for greater than 24 hours; and the finding does not represent an actual loss of function of one or more non-Technical Specification trains of equipment designated as risk-significant in accordance with the licensee's maintenance rule program. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: Not Present Performance. No cross cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable

testing program. The licensee established quality procedure ECE-5.01, "Design Control Program," to ensure safety-related and nonsafety-related design activities subject to 10 CFR Part 50, Appendix B, are conducted in a planned and controlled manner.

Contrary to the above, from August 2007 (estimated) to February 22, 2021, the licensee's design control measures did not provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. Specifically, procedure ECE-5.01 did not ensure that calculation ME-CA-0400-3218, which was developed to demonstrate the adequacy of design of a single service water pump to provide adequate cooling to two units during a loss of station service water event, remained valid following the stretch power uprate and other modifications to the station. As such, the licensee did not identify calculational errors in ME-CA-0400-3218, leading to a reasonable doubt as to whether a single service water pump could perform its loss of station service water function.

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

Failure to Provide Adequate Technical Justification for the Reduction in Minimum Bend Radius for the Unit 1 Station Service Water Pump Motor Leads

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445/2021011-02 Open/Close	[H.7] - Documentation	71111.21M

The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* Part 50, Appendix B, Criterion III, "Design Control," for the failure to provide adequate technical justification that supports the reduction in the minimum bend radius requirement for motor leads on the Unit 1 Station Service Water Pump replacement motor.

Description: The inspectors reviewed modification document FDA-2020-000100-01-00 and the Electrical Installation Specification 2323 ES-100, Revision 121. The scope of work for the FDA-2020-000100-01-00 modification was the one time deviation to Specification 2323-ES-100 to allow minimum bend radius of service water pump motor leads (silicone insulated cable manufactured by Rowe Industries, 2AWG, stranded flexible) to be three times the outside diameter (3 x OD) of the cable. The Electrical Installation Specification section 1.8.2.1 states that "Motor leads for Station Service Water pump motors may be provided by Rowe Industries. These motor leads utilize a silicone rubber insulation and are white in color. These motor leads shall have a minimum bend radius of five times the motor lead outside diameter."

The Engineering Basis section of FDA-2020-000100-01-00 (page 8 of 12), states, in part, that "the 2AWG motor lead wire is a silicon insulated wire provided by Rowe Industries. The conductor with a high number of strands is flexible and the silicon insulation is also flexible. This will ensure that the conductor and insulation stresses, due to reduced bend radius, are minimized." It also states, "the ampacity of 2AWG conductor in air for a conductor temperature of 90 degrees Celsius and ambient air temperature of 40 degrees Celsius is 195 Amperes (IPCEA 46-426 page 215). The motor full load amps are 72 Amperes (Ref: EE-CA-0008-3097). This shows that the conductor is lightly loaded. Low loading of the conductor will minimize any adverse impact on conductor life due a reduced bend radius." Furthermore,

the Engineering Basis states, in part, " the cable configuration and circuit loading are such that a reduced cable bend radius has no adverse impact on cable life, and that it is acceptable to allow a cable bend radius of 3 x OD for CP1-SWAPSW-02M."

Based on the review of all provided documentation, the inspectors concluded that the perceived flexibility of the cable and the light loading is not an adequate justification for reducing the minimum bend radius without vendor information or other specific data stating that the 3 x OD minimum bend radius was acceptable. Furthermore, the inspectors discussed the concern with the electrical subject matter experts in the NRC Office of Nuclear Reactor Regulation (NRR). The subject matter experts concurred that there was not adequate technical justification for reducing the minimum bend radius, and that manufacturer documentation (data sheet or specification) or consensus standards would be required. The inspectors determined that the perceived flexibility and light loading of the cable was not sufficient justification in that light loading indicates that the cable is performing within its rating and will have lower thermal stress when operating at rated conditions. Light loading is not a justification for reducing the bend radius, since the bend radius relates to physical properties of the cable (damaging/overstressing the cable insulation and jacket). The licensee did not provide any manufacturer information indicating that reducing the bend radius to 3 x OD would not have any impacts to cable function over the service life of the cable. Also, there was no consensus standard information provided indicating that the bend radius for silicone insulated cable manufactured by Rowe Industries could be reduced.

Corrective Actions: The licensee entered this concern into their corrective action program. The condition does not present an immediate safety concern because satisfactory post maintenance testing of the Unit 1 Station Service Water Pump Motor CP1-SWAPSW-02M was completed on October 22, 2020.

Corrective Action References: IR-2021-001493

Performance Assessment:

Performance Deficiency: The failure to provide adequate technical justification to support the change in minimum bend radius from 5 x OD to 3 x OD is 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 failure to adequately justify the change in minimum bend radius from 5 x OD to 3 x OD could adversely affect the availability, reliability, and capability of Unit 1 Station Service Water Pump Motor_CP1-SWAPSW-02M. This is critical in that there is no means to verify that the motor leads were installed in a configuration that will not cause degradation of the lead cable.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Exhibit 2, "Mitigating Systems Screening Questions," issued November 30, 2020, the inspectors determined this finding is not a deficiency affecting the design or qualification of a mitigating structure, system, or component; the finding does not represent a loss of function of a Technical Specification train, system, or two separate Technical Specification systems for greater than their Technical Specification allowed outage time; the finding does not represent a loss of

system and/or function for greater than 24 hours; and the finding does not represent an actual loss of function of one or more non-Technical Specification trains of equipment designated as risk-significant in accordance with the licensee’s maintenance rule program. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: H.7 - Documentation: The organization creates and maintains complete, accurate and up-to-date documentation. Specifically, the licensee failed to create and maintain up to date technical documentation for the motor leads on the Unit 1 Station Service Water Pump that ensured the safe and reliable operation of the pump when they approved a reduced cable bend radius without documenting an adequate technical basis for the change.

Enforcement:

Violation: Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion III, “Design Control,” requires in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, are correctly translated into specifications, drawings, procedures, and instructions. These 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, from October 22, 2020, to March 25, 2021, the licensee failed to assure that applicable regulatory requirements and the design basis, were correctly translated into specifications, drawings, procedures, and instructions and that deviations from appropriate quality standards were controlled. Specifically, the licensee failed to provide adequate technical justification or analysis to support the change in minimum bend radius from 5 x OD to 3 x OD for motor leads on the Unit 1 Station Service Water Pump replacement motor CP1-SWAPSW-02M.

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

Failure to Perform Adequate Periodic Testing of Class 1E Molded Case Circuit Breakers

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445/2021011-03 Open/Closed	None (NPP)	71111.21M

The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* Part 50, Appendix B, Criterion XI, “Test Control,” for the failure to schedule all Class 1E molded case circuit breaker functional testing to detect deterioration and to demonstrate continued operability.

Description: The inspectors reviewed design basis information and other documents pertaining to Class 1E motor control center (MCC) 1 EB3-3 including the associated General Electric THED 136015 molded case circuit breakers (MCCBs). Included in the inspector’s review was the functional testing program for Class 1E equipment. The Comanche Peak Nuclear Power Plant Updated Final Safety Analysis Report, subsection: 8.3.1.2.1 Compliance, section 2, references 10 CFR Part 50, Appendix A, General Design Criteria 18. General Design Criteria 18 states that electric power systems are designed to permit inspection and testing of all Class 1E systems. Periodic testing is performed on a scheduled

basis to demonstrate the operability and continuity of all safety-related systems and components. Furthermore, it states that plant design also provides testing capability of other Class 1E equipment as required by the Institute of Electrical and Electronic Engineers (IEEE) standard IEEE 308.

The inspectors noted that IEEE 308-1974, Section 4.9 "Connection of Non-Class IE Equipment," stated "non-Class IE equipment which is required to maintain the station in a safe and orderly condition, may be supplied from Class IE power systems, provided that the Class IE systems are maintained at an acceptable level with respect to the requirements of this document." Furthermore, IEEE 308-1974, Section 5.2 "Alternating-Current Power Systems," subsection 5.2.2, "Distribution System," Paragraph 4, "Surveillance," stated, "the distribution system shall be monitored to the extent that is shown to be ready to perform its intended function." Section 6, "Surveillance Requirements", Subsection 6.3, "Periodic Equipment Tests," stated, in part, "tests shall be performed at scheduled intervals to:

1. Detect the deterioration of the system toward unacceptable condition.
2. Demonstrate that standby power equipment and other components that are not exercised during normal operation of the station are operable."

MCC 1 EB3-3 and MCCB-3M are safety related Class 1E components. The Class 1E MCCB-3M supplies a 480/120 VAC Transformer for MCC and motor space heaters, which are non-class 1E components. Isolation of non-Class 1E "MCC and Motor Space Heaters" from safety related bus 1EB3-3 is provided by compartment 3M safety related breaker. The breaker is tripped by the safety injection signal to isolate the non-Class 1E load from the safety related bus on occurrence of a design basis accident. The breaker is also coordinated with bus 1EB3-3 feed breaker MCC 1EB3-3 in switchgear 1B3, to ensure selective isolation of circuit faults by MCCB-3M to prevent any adverse impact on MCC Bus 1EB3-3 or its loads. The inspectors inquired about why preventive maintenance activities were not being performed on MCCB-3M, and whether or not there was an analysis to prove that a failure of the MCCB-3M would not affect other Class 1E components. The licensee indicated that the breaker was classified as Run-to-Maintenance and Non-Critical based on their component criticality classification system. With the Run-to-Maintenance classification, there are no recurring preventative maintenance tasks unless the Preventative Maintenance Review Committee approves a regular preventative maintenance task for this component. Furthermore, the licensee indicated that an analysis to ensure that a failure of MCCB-3M would not affect bus 1EB3-3 and its safety related loads was not required. Based on the information provided by the licensee, the inspectors determined that Preventive Maintenance tests were not being performed on MCCB-3M, installed in MCC 1EB3-3. Upon review of the inspector's concern, regulatory requirements, and other governing documents, the licensee indicated that a failure of a safety related MCCB-3M to perform its function may adversely impact Train A system bus 1EB3-3 and its loads. However, a Single Failure of MCCB-3M breaker would not have any adverse impact on the redundant Train B system to adequately perform their functions.

The inspectors did discover that the licensee does cycle this breaker periodically as a part of Train A Safeguards Slave Relay K615 Actuation Testing done by procedure OPT-469A, Revision 12. The inspectors also discovered that the licensee's procedure "Molded Case Circuit Breaker Test and Inspections," performed in MSE-S0-6303, Revision 9, includes testing criteria for the General Electric THED136015 that test for thermal overload and instantaneous trip functions. This procedure also includes insulation resistance testing. However, none of these tests were being performed on MCCB-3M.

Corrective Actions: The licensee entered this concern into their corrective action program and determined that there was no immediate safety concern because the last surveillance test involving the function this breaker was performed satisfactorily on July 3, 2019.

Corrective Action References: IR-2021-001393

Performance Assessment:

Performance Deficiency: The failure to schedule all Class 1E molded case circuit breaker functional testing to detect deterioration and demonstrate operability 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, inadequate testing to detect deterioration and to demonstrate continued operability was a programmatic deficiency that would adversely affect the reliability of Class 1E molded case circuit breakers to perform satisfactorily in service.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Exhibit 2, "Mitigating Systems Screening Questions," issued November 30, 2020, the inspectors determined this finding is not a deficiency affecting the design or qualification of a mitigating structure, system, or component; the finding does not represent a loss of function of a Technical Specification train, system, or two separate Technical Specification systems for greater than their Technical Specification allowed outage time; the finding does not represent a loss of system and/or function for greater than 24 hours; and the finding does not represent an actual loss of function of one or more non-Technical Specification trains of equipment designated as risk-significant in accordance with the licensee's maintenance rule program. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: Not Present Performance. No cross cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion XI, "Test Control," requires in part, that a test program shall assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents.

Contrary to the above, prior to February 23, 2021, the licensee failed to assure that testing required to demonstrate that structures, systems and components would perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Specifically, the licensee failed to assure that all required testing was performed on MCCB-3M to detect deterioration and demonstrate operability in accordance with IEEE 308-1974.

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

Failure to Maintain Proficiency of Operators to Meet Time Critical Operation Actions

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000445,05000446/2021011-04 Open/Closed	[H.9] - Training	71111.21M

The inspectors identified a Green finding and associated Non-cited Violation (NCV) of Title 10 of the *Code of Federal Regulations* Part 50, Appendix B, Criterion III, "Design Control," for the failure to ensure that operators are able to implement specified actions in response to operational events and accidents. Specifically, three groups of operators could not achieve an action within the analysis time requirements for the inadvertent operation of the emergency core cooling system response as described in the licensee's safety analysis report.

Description: For proper operation of the components installed in the plant, and to meet their design requirements in the most limiting accident conditions, specific components have restrictions as to how long it takes for the components to operate or be manually operated. As part of the inspection, the licensee arranged evaluation opportunities for the inspectors to observe whether operators could meet the assumed time critical action times detailed in their FSAR document, human reliability analysis, and other licensing basis documentation. The inspectors selected the scenario of an inadvertent actuation of the emergency core cooling system (ECCS) event as described in section 15.5.1 of the FSAR.

On February 22 and 24, 2021, the inspectors observed a licensee evaluation of the assumed action times associated with mitigating the effects of an inadvertent operation of the ECCS event. Two actions described in the Final Safety Analysis Review FSAR, Section 15.5.1.2, assumption 8 (Amendment Number 108) are to manually open at least three of the four steam generator atmospheric relief valves (ARVs) within 8 minutes, and to secure ECCS flow within 14 minutes. The times were evaluated with three licensed operator groups in the plant simulator.

The licensed operator groups were successful in securing ECCS flow within 14 minutes in all cases. For the action to manually operate steam generator ARVs, it took one licensed operator group 8.33 minutes to accomplish the task. The two other groups performing the tasks, failed to take action to manually operate the ARVs following ECCS flow termination, and the event evaluation was terminated at 14.96 and 12.28 minutes. This demonstrated that the licensee had not implemented design control measures to verify that this time critical operator action time, as described in their FSAR, could be adequately met or maintained.

Following the observations, the inspectors inquired as to what training and evaluation had recently been performed to ensure that operators could meet the time critical assumptions. Information provided revealed the following:

- Training materials regarding safety injection (SI) termination procedure EOS-1.1A mention that there are timed operator actions associated with an inadvertent ECCS actuation. However, training on plant recovery techniques from a safety injection actuation do not include a verification that the reactor coolant system heat removal tasks that satisfy part of the time assumptions, which are performed in EOP-0.0A,

Step 9, have been addressed. During instances where EOS-1.1A is being implemented following an inadvertent ECCS actuation, this action has the most significance (references “LOCA ERGs/E-1 Series,” dated July 1, 2019; and document LO21ERGE11, “EOS 1.1, SI Termination,” dated February 16, 2021).

- The operators had been evaluated once during the present performance period on performing actions required for this specific design basis event. On April 4, 2018, twelve licensed operator groups were evaluated on their ability to meet time assumptions in the ECCS inadvertent operation event. Eleven of the twelve groups were able to meet both of the associated time assumptions. One of the groups took action to terminate ECCS flow within 14 minutes but failed to take any action by the end of the evaluation period to manually open the steam generator ARVs. For these evaluations, the licensee had provided each group with an additional operator above the Technical Specification minimum crew staffing. The results provided an indication that even with additional operating group members allowed, there was still a possibility that the operator population could still fail to take the assumed actions associated with the steam generator ARVs. In addition, an evaluation with more than the Technical Specification minimum crew staffing for a design basis accident scenario masked any performance issues that may exist.

Following the failures to meet the time critical operator actions detailed above, the licensee evaluated whether the results of the inadvertent ECCS actuation analysis would be maintained if operating groups did not take any action to open three of four steam generator ARVs. As previously evaluated, the results with successful timely action were that the pressurizer would not fill solid, nor would water pass through the pressurizer power operated relief valves (PORVs) or safety valves. Relieving water through these valves could escalate the event to a small break loss of coolant accident (LOCA) if the valves stick open. The licensee’s recent evaluation demonstrated that not taking timely action to operate the steam generator ARVs would result in the pressurizer filling to a solid condition, with PORV and safety valve operation likely. However, the licensee has the capability to make up for these losses using their normal makeup system, so there is no immediate safety concern.

Corrective Actions: The licensee entered these issues into the corrective action program. In addition, the licensee conducted an analysis of the as-found conditions. Evaluation of this analysis and other mitigating factors result in no immediate safety concern.

Corrective Action References: IR-2021-001490.

Performance Assessment:

Performance Deficiency: The failure to ensure time critical operator actions could be implemented as stated in their design analysis 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 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, it impacted the design control attribute because the inadvertent safety injection could propagate to a loss of coolant accident.

Significance: The inspectors assessed the significance of the finding using Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” Using Manual Chapter

609, Attachment 4, Tables 1, 2, and 3 worksheets (effective date December 13, 2019); and the corresponding Attachment A, Exhibit 1 (issue date November 30, 2020), the inspectors determined this finding would not result in exceeding a reactor coolant system leak rate in excess of normal makeup system capacity, nor would it likely affect other systems used to mitigate a loss of coolant accident. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: H.9 - Training: The organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values. Specifically, the combination of periodic training and evaluation over the present performance period for the operators did not ensure that the operator population could demonstrate the capabilities necessary to meet the inadvertent emergency core cooling system actuation response assumptions.

Enforcement:

Violation: Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

Contrary to the above, from approximately April 4, 2018 until February 26, 2021, the licensee did not provide for verifying and checking the adequacy of design. Specifically, the licensee failed to ensure that operators remained proficient and knowledgeable of time critical operations could be completed by the operators as required by the licensing documents.

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

Failure to Restore Compliance and Evaluate Inverter Fault Interrupting Capability During Design Basis Loss of Offsite Power and Seismic Conditions

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NOV 05000445/2021011-05 Open	None (NPP)	71111.21M

The inspectors identified a Green finding and associated notice of violation (NOV) of Title 10 of the *Code of Federal Regulations* Part 50, Appendix B, Criterion III, "Design Control," for the failure to restore compliance of previously identified non-cited violation NCV 05000445/2015007-01. The violation identified the licensee's failure to verify or check the adequacy of the design by performing an analysis or test that demonstrated that the Class 1E inverters would continue to operate reliably when subjected to the effects of electrical faults that could be postulated to occur at non-Class loads, due to a lack of seismic qualification of the loads, during and after a design basis loss-of-offsite power, and seismic events.

Description: In 2015, an NRC inspection had selected the plant's essential electrical inverter as a component to inspect. The essential inverters in each of the four safety related instrumentation power channels provide an uninterruptible 120 VAC power supply to safety-related plant protection system equipment and other safety-related Class 1E systems

including equipment in the power channel through a Class 1E breaker distribution panel. In addition, the inverter-backed Class 1E breaker distribution panel provided power to non-Class 1E system equipment through two non-Class 1E fuses provided in series to the non-Class 1E equipment. The inspectors identified that the inverter itself was not capable of interrupting faults on its output in all cases, and therefore relied on an automatic transfer to an alternate alternating current bypass source designed and sized to provide sufficient current to operate the breakers and fuses that protect circuits from faulted conditions. However, during a design basis loss of offsite power event, the bypass source would not be available during the time period when the loss of offsite power occurred and before the diesel generator was supplying standby power to the Class 1E electric power system.

The inspectors were concerned that if the bypass alternating current source was not available, such as during a loss of offsite power condition when the diesel generator has not yet provided power to the inverter bypass alternating current source, the inverter could go into a current limiting condition when providing current to a postulated faulted non-Class 1E circuit. The current limiting condition is an inherent protection feature of the inverter, whereby the voltage output of the inverter collapses as a result of a current overload condition that is above the inverter rated output capability. The inspectors requested the licensee's fault current and coordination study for the condition when only the inverter was available to supply the necessary fault current for the protective devices to operate and found that the licensee's staff had not evaluated this condition. The inspectors issued non-cited violation, NCV 05000445/2015007-01.

The licensee initiated condition report CR-2015-005530 to evaluate the condition. The licensee performed an operability evaluation to identify the most limiting circuit loading that the non-Class 1E fuses could experience. The review also evaluated conditions for entering current limiting conditions that would adversely affect the inverter output voltage.

During the 2021 Design Basis Assurance Inspection, the inspectors sampled the effectiveness of corrective actions implemented by the licensee to address concerns identified during previous Component Design Basis Inspections and Design Basis Assurance Inspections. In the review of non-cited violation NCV 05000445/2015007-01, the inspectors identified that the licensee had failed to complete the corrective actions in condition report CR-2015-005530, which were to verify or check the adequacy of the design by performing an analysis or test that demonstrated that the Class 1E inverters would continue to operate reliably when subjected to the effects of electrical faults that could be postulated to occur at non-Class loads, due to a lack of seismic qualification of the loads, during and after a design basis loss-of-offsite power and seismic events. At the time of the 2021 Design Basis Assurance Inspection the licensee determined that a calculation or test was required to verify and document the adequacy of the design, but they had not determined which resolution they intended to implement to establish compliance with the design basis.

Corrective Actions: There was no immediate safety concern or additional risk. The 2015 non-cited violation was addressed in 3 condition reports. Condition report CR-2015-012009 is closed. Condition report CR-2015-005530 is still open with 20 actions to review for non-1E loads on various panels. Condition report CR-2015-008479 is also still open to perform a review to ensure that the Finding/Cross Cutting Aspect was properly addressed in their Corrective Action Program.

Corrective Action References: CR-2015-005530, CR-2015-008479, CR-2015-012009, and CR-2021-001500.

Performance Assessment:

Performance Deficiency: The failure to restore compliance of the previously identified non-cited violation NCV 05000445/2015007-01, which identified the failure to evaluate the fault clearing capability of the Class 1E inverters, 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 licensee failed to evaluate the fault clearing capability of the inverter during design basis loss of offsite power and seismic conditions which resulted in a reasonable doubt of the operability of the system.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Exhibit 2, "Mitigating Systems Screening Questions," of Inspection Manual Chapter (IMC) 0609, issued November 30, 2020, the inspectors determined this finding did not represent a loss of function of a Technical Specification train, system, or two separate Technical Specification systems for greater than their Technical Specification allowed outage time; the finding does not represent a loss of system and/or function for greater than 24 hours; and the finding does not represent an actual loss of function of one or more non-Technical Specification trains of equipment designated as risk-significant in accordance with the licensee's maintenance rule program. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: Not Present Performance. No cross cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, from June 18, 2015 to March 25, 2021, the licensee did not assure that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to verify or check the adequacy of the design by performing an analysis or test that demonstrated that the Class 1E inverters would continue to operate reliably when subjected to the effects of electrical faults that could be postulated to occur at non-Class loads, due to a lack of seismic qualification of the loads, during and after a design basis loss-of-offsite power and seismic event. Condition report CR-2015-005530 is still open with 20 actions to review for non-Class 1E loads on various panels. Condition report CR-2015-008479 is also still open to perform a review to ensure that the Finding/Cross Cutting Aspect was properly addressed in their Corrective Action Program.

Enforcement Action: This violation is being cited because the licensee failed to restore compliance within a reasonable period of time after the violation was identified consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Restore Compliance for Inadequate Voltage Calculations for the 120 VAC Buses			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NOV 05000446/2021011-06 Open	None (NPP)	71111.21M

The inspectors identified a Green finding and associated Notice of Violation (NOV) of Title 10 of the *Code of Federal Regulations* Part 50, Appendix B, Criterion III, "Design Control," for the failure to restore compliance of previously identified non-cited violation NCV 05000446/2013007-02. The violation identified the licensee's failure to perform accurate voltage calculations for the 125 VDC system and 120 VAC bus.

Description: In 2013, an NRC inspection had selected the plant's essential electrical inverters as a component to inspect. The 118 VAC uninterruptible power system supplies critical instrumentation and control circuits from battery powered inverters. There are four Class 1E inverters per train, two for the reactor protection system and the other two for the balance of plant systems. Each inverter is connected independently to one Class 1E distribution panel. Two sources of backup 120V AC power are also provided to the inverter panels (one source per train). Four of the eight distribution panels are connected to each source. Each distribution panel can receive power from the 120 VAC backup source under operator control. The backup source for each train consists of a 480/120V transformer connected to a Class 1E 480V MCC. The transformers do not have automatic voltage regulation capability, so when connected to the transformer source, the 120 VAC distribution panel voltage will fluctuate with the voltage on the upstream 480V MCC source.

Branch Technical Position PSB-1, to which the licensee is committed, requires that the setpoints for the degraded voltage relays be determined from an analysis of the voltage requirements of the Class 1E loads at all onsite system distribution levels. The inspectors reviewed voltage calculation EE-1E-1EB4-1, which determined voltage at MCC 1EB4-1, for bypass transformer T1EC4. The inspectors noted that the calculation used an available voltage at the motor control center considerably higher (444.96V) than the voltage provided by the degraded voltage relays (433V) under accident loading conditions. In response to the inspector's inquiries, the licensee initiated condition report CR-2013-006396 and provided preliminary calculations showing that voltage required at the motor control centers, supplying the bypass transformers, was considerably higher than previously analyzed and higher than voltage provided by the degraded voltage relays. For instance, the preliminary calculations showed that for Transformer T1EC3, a voltage of 466.32V was required at motor control center 1EB3-1 to ensure operability of downstream 120V vital loads during steady state conditions, and 505.32V was required to ensure adequate voltage to loads requiring uninterruptible power during voltage dips associated with the starting of large loads at the start of an accident. Based on these results, condition report CR-2013-06396 concluded that when aligned to the 120 VAC transformer bypass source, the affected 120V vital bus should be considered inoperable, and LCO 3.8.9 action B1 which requires restoration of the vital bus to operable status in 2 hours would be applicable, instead of LCO 3.8.7 which would permit operation of a vital bus on 120 VAC bypass power for up to 24 hours. The licensee issued Limiting condition for operation action requirement (LOCAR) TX-130098 to implement this action and the inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix

B, Criterion III, "Design Control," for the licensee's failure to perform accurate voltage calculations for the 125 VDC system and 120 VAC bus. (NCV 05000446/2013007-02).

In 2017, the licensee reviewed LOCAR TX-13-0098 for risk significance. After reviewing the LOCAR and concluding that there was no increase in risk, the licensee exited the LOCAR per condition report CR-2017-00600. Per AI-CR-2013-008394-36, the licensee determined that the vital panels would remain operable when fed from bypass power supply as long as the 480V bus voltages were within technical specification limits. The licensee still needed to complete a new calculation to justify this analysis. Additionally, EV-CR-2017-000600-3 and -4 provided justification for ensuring operability of the vital panels while powered from the bypass power supply.

During the 2021 Design Basis Assurance Inspection, the inspectors sampled the effectiveness of corrective actions taken by the licensee to issues identified during previous Component Design Basis Inspections and Design Basis Assurance Inspections. In the review of non-cited violation NCV 05000446/2013007-02, the inspectors identified that the licensee had completed the calculation and corrective actions associated with the 125 VDC calculation that did not take into account the maximum inrush currents and actual accident loading, but had not completed the revision to the 120 VAC calculation that did not properly account for low voltage when the buses were supplied from their alternate source. Additionally, review of operator logs for the prior three years was performed and confirmed that there were no instances of a 120V vital bus having been aligned to its alternate transformer source in excess of two hours. As a result of the review, the inspectors concluded that prior to June 20, 2013 to February 28, 2021, the licensee had failed to restore compliance of non-cited violation NCV 05000446/2013007-02 because they had failed to revise the 120 VAC calculation that did not properly account for low voltage when the buses are supplied from their alternate source.

Corrective Actions: There was no immediate safety concern or additional risk. Condition reports CR-2013-006396 and CR-2013-006273 were closed to CR-2013-008394 which has 25 actions currently open to revise calculations for panel and load voltages.

Corrective Action References: CR-2013-006273, CR-2013-006396, CR-2013-008394, CR-2017-00600, and CR-2021-01499.

Performance Assessment:

Performance Deficiency: The failure to restore compliance of previously identified non-cited violation NCV 05000446/2013007-02, which required the correction of the 120 VAC calculation, 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 licensee failed to complete the 120 VAC calculation which had not properly accounted for low voltage when the buses are supplied from their alternate source, which would affect the capability of the system that respond to initiating events to prevent undesirable consequences.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Exhibit 2, "Mitigating Systems Screening Questions," of Inspection Manual Chapter (IMC) 0609, issued November 30, 2020, the inspectors determined this finding does not represent a loss of function of a Technical Specification train, system, or two separate Technical Specification systems for greater than their Technical Specification allowed outage time; the finding does not represent a loss of system and/or function for greater than 24 hours; and the finding does not represent an actual loss of function of one or more non-Technical Specification trains of equipment designated as risk-significant in accordance with the licensee's maintenance rule program. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: Not Present Performance. No cross cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, from June 20, 2013, to March 25, 2021, the licensee did not assure that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the 125 VDC calculation did not account for the maximum inrush currents and actual accident loading, and the 120 VAC calculation did not properly account for low voltage when the buses are supplied from their alternate source. Condition reports CR-2013-006396 and CR-2013-006273 were closed to CR-2013-008394 which has 25 actions currently open to revise calculations for panel and load voltages.

Enforcement Action: This violation is being cited because the licensee failed to restore compliance within a reasonable period of time after the violation was identified 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 March 25, 2021, the inspectors presented the design basis assurance inspection (teams) inspection results to Mr. Thomas McCool, Site Vice President and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Calculations	0214-260-2-SW-4286-DP	Design Basis Review Calculation - 2-HV-4286	0
71111.21M	Calculations	1-SC-04-02	Westinghouse 7300 Process Control Systems Scaling Calculation 1-T-4268 Component Cooling Water Heat Exchanger 02 Station Service Water Outlet Header Temperature	4
71111.21M	Calculations	16345-ME(B)-088	Station Service Water System Steady State Hydraulic Calculations	8
71111.21M	Calculations	16345-ME(B)-372	Service Water Pumps NPSH and Submergence	2
71111.21M	Calculations	16345-ME-162	Auxiliary Feedwater Pump Suction Flow Relief Valve Sizing	1
71111.21M	Calculations	2-ME-0049	Normal Operation Inlet Pressures for Unit 2 SSWS MOV's	0
71111.21M	Calculations	2-SC-04-02	Westinghouse 7300 Process Control Systems Scaling Calculation, 2-T-4268, Component Cooling Water Heat exchanger-02 Station Service Water Outlet Header Temperature	1
71111.21M	Calculations	911024-513	MOV Calculations - MOV Design Basis Reviews and Thrust/Torque Calculations Unit #2	01/11/1993
71111.21M	Calculations	CN-TA-07-59	Comanche Peak Units 1 and 2 (TBX/TCX) Inadvertent ECCS Actuation at Power Analysis for the Power Uprate Program	1
71111.21M	Calculations	EE-1E-1EB3-3	480 VAC Motor Control Center CP1-EPMCEB-07 (1EB3-3) Bus Based Calculation	01
71111.21M	Calculations	EE-AC-Methodology	AC Distribution Panels below 480V	4
71111.21M	Calculations	EE-CA-0008-169	Coordination Study - 480V Class 1E Unitized MCC Buses	03
71111.21M	Calculations	EE-MCC-METHODOLOGY	480 MCC, Distribution Panel and Switchgear Methodology	11
71111.21M	Calculations	EE-SC-U1-1E	Unit 1 and Unit 2 Class 1E System Short Circuit Study with Unit 1 Preferred Source Lineup	5
71111.21M	Calculations	EE-VP-U1-1E	Unit 1 Class 1E System Voltage Profile	5
71111.21M	Calculations	ME-CA-0000-1093	Design Data for CPSES Units 1, 2, Common Safety-Related Motor-Operated Valves (MOV) within the Scope of NRC	26

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Generic Letter 89-10	
71111.21M	Calculations	ME-CA-0000-3264	Safe Shutdown Impoundment Hydrothermal Analysis	4
71111.21M	Calculations	ME-CA-0000-3339	Flow of SW Into AF System, With Backflow to Idle SW Train	0
71111.21M	Calculations	ME-CA-0233-5117	The Impact of Increasing the SSW Traveling Screens DP Alarm Setpoint	1
71111.21M	Calculations	ME-CA-0313-4079	UPS Inverter Rooms Temperature Transient Following Station Blackout	3
71111.21M	Calculations	ME-CA-0400-3218	Service Water Cross-Connect Operability	0
71111.21M	Calculations	MEB-200-00	Normal Operation Inlet Pressures for Station Service Water System Motor Operated Valves	0
71111.21M	Calibration Records	16345-ME(B)-205	Service Water System Op & Design Conditions	1
71111.21M	Corrective Action Documents	2020-008526, 2015-007472, 2017-000600, 2015-012009, 2013-006273, 2013-006396, 2013-008394, 2015-005530, 2017-07577, 2018-003367		
71111.21M	Corrective Action Documents	Condition Report (CR-)	2012-000023, 2012-009009, 2013-001105, 2013-005889, 2013-006566, 2014-011024, 2014-011089, 2015-007980, 2016-007329, 2019-008102, 2019-009636, 2020-007650, 2020-007695, 2020-008600, 2020-008929, 2020-009221, 2016-001306	
71111.21M	Corrective Action Documents	Tracking Report (TR-)	2017-005862, 2017-009844, 2018-007012, 2017-001459, 2016-007615, 2017-007801, 2016-004759, 2020-007917, 2020-007741	
71111.21M	Corrective Action	Issue Report (IR-)	2021-001086, 2021-001358	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents Resulting from Inspection			
71111.21M	Corrective Action Documents Resulting from Inspection	Tracking Report (TR-)	2021-001051	
71111.21M	Drawings	10-102722	Outline 10KVA inverter 125VDC, 120VAC, 1PH, 60Hz	3/29/96
71111.21M	Drawings	10-102722	Outline 10kva Inverter One Line Diagram	3/29/96
71111.21M	Drawings	10-102723	Outline 10KVA Inverter Front Panel Identifications	3/29/96
71111.21M	Drawings	BRP-SW-1-SI-003	Station Service Water	CP-4
71111.21M	Drawings	E1-0001	Plant One Line Diagram - Units 1 and 2	CP-35
71111.21M	Drawings	E1-0004	6.9 KV Auxiliaries One Line Diagram Safeguard Buses	CP-44
71111.21M	Drawings	E1-0005	480V Auxiliaries One Line Diagram - Safeguard Buses	CP-27
71111.21M	Drawings	E1-001	Plant One Line Diagram Unit 1 and Common Distribution Panels	CP-18
71111.21M	Drawings	E1-0014	Service Water Intake Structure and Diesel Generator Safeguard 480V MCC'S, One Line Diagram	CP-33
71111.21M	Drawings	E1-0018	118V AC Instrument Bus Distribution One Line Diagram	CP-26
71111.21M	Drawings	E1-0018	120V AC Bypass Distribution One Line Diagram	CP-9
71111.21M	Drawings	E1-0018	118V AC Instrument Bus Distribution One Line Diagram	CP-3
71111.21M	Drawings	E1-0020	125V DC One Line Diagram	CP-23
71111.21M	Drawings	E1-0020	125V DC One Line Diagram	CP-18
71111.21M	Drawings	E1-0030	6.9 KV Switchgear Bus 1EA1 Lockout Relays 86-1/1EA1 and 86-2/1EA1 Schematic Diagram	CP-3
71111.21M	Drawings	E1-0030	6.9 KV Switchgear Safeguard Bus 1EA1 Undervoltage AUX [Auxiliary] Relays	CP-11
71111.21M	Drawings	E1-0031	6.9 KV SWITCHGEAR BUS 1EA1 STATION SERVICE WATER PP 11 TAG CP1-SWAPSW-0 1 BKR 1APSW1 SCHEMATIC DIAGRAM	CP-5
71111.21M	Drawings	E1-0043	Service Water System Schematic and Connection Diagrams Index	CP-9
71111.21M	Drawings	E1-0043	Motor Operated Valve 1-HV-4268 Station Service Water PP-	CP-7

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			01 Discharge To Strainer Isolation Valve	
71111.21M	Drawings	E1-0043	SERVICE WATER PUMPHOUSE VENTILATION EXHAUST FAN 06 TAG CPX-VAFNWV-96	CP-6
71111.21M	Drawings	E1-0066	BOP Miscellaneous System Schematic and Connection Diagram Index	CP-19
71111.21M	Drawings	E1-0066	Safeguard DC SWBD 1ED1 Battery Chargers BC1ED1-1,2 and DC Inverters IV1PC	CP-7
71111.21M	Drawings	E1-0066	BOP MISCELLANEOUS SYSTEM SCHEMATIC AND CONNECTION DIAGRAM INDEX	CP-19
71111.21M	Drawings	E1-0067	MONITOR LIGHT BOX 1-MLB-9 MCC FEEDER BREAKER OPEN INDICATION SCHEMATIC DIAGRAM	CP-1
71111.21M	Drawings	E1-0071	1-SS11-1 118V AC and Bus Tie Bkr Schematic Diagram	CP-12
71111.21M	Drawings	E1-0076	Annunciator Lamp Cabinet 1-ALB-10B Schematic Diagram Sh3	CP-7
71111.21M	Drawings	E1-0079	Annunciator Lamp Cabinet 1-ALB-10B Window Engravings	CP-7
71111.21M	Drawings	E1-2400	Protective Device Settings D.C. System	CP-2
71111.21M	Drawings	F43795 - 2HV4268	24 inch Type 9220 Valve with Limitorque SMB-00/15 H3BC Actuator	A
71111.21M	Drawings	M1-0233	Flow Diagram Station Service Water System	CP-45
71111.21M	Drawings	M1-2200	Instrumentation & Control Diagram Safety System Inoperable Indicator Logic	CP-8
71111.21M	Drawings	M1-2233	Instrumentation and Control Diagram Station Service Water System Channel 4250/4251	CP-9
71111.21M	Drawings	M1-2233, Sht 5	2/4287 Station Service Water System Instrumentation and Control Diagram Channel 4282/4287	CP-5
71111.21M	Drawings	M1-2401	CPSES Unit 1 Motor Operated Valve Setpoint Control Document	CP-3
71111.21M	Drawings	S-0791	EC Bldg EL 790'-6" Rooms 119, 121 & 125 Inverter, Battery Charger & UPS Plan View Location Drawing	CP-5
71111.21M	Drawings	S-0791	E.C. Bldg EI 790'-6' Rm 121 Unit 1 "A" Train Inverter & Battery Charger & UPS Equipment Base Plate Details	CP-2
71111.21M	Drawings	S-1114	S.W. Intake Struct. Concrete Inserts	7
71111.21M	Engineering	FDA-2017-	EDG cam cover bolt thread helicoil replacement	01

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Changes	000167-01-01		
71111.21M	Engineering Changes	FDA-2020-000100-01-00	Minimum bend radius for CP1-SWAPSW-02M replacement motor.; One Time Deviation to Specification 2323-ES-100 to allow minimum bend radius of service water pump motor leads (Silicone Insulated Cable manufactured by Rowe Industries, 2AWG, stranded flexible) to be 3 time the outer diameter of the cable.	10/23/2020
71111.21M	Engineering Evaluations	ER-EA-010	Risk-Based In-Service Testing Program, Integrated Decision-Making Panel 2018 Periodic Reassessment	5
71111.21M	Miscellaneous		Inservice Testing Plan for Pumps & Valves, Third Interval	2
71111.21M	Miscellaneous	2014-0009 Final Report	SSW [Station Service Water] Motor Refurbishment	5/28/2014
71111.21M	Miscellaneous	2323-ES-100	Specification - Electrical Installation	121
71111.21M	Miscellaneous	2nd Quarter FY 20	CPNPP System Status, Service Water System, System Health Report	2nd Quarter, 2020
71111.21M	Miscellaneous	4th Quarter FY 20	CPNPP System Status , Service Water System, System Health Report	4th Quarter, 2020
71111.21M	Miscellaneous	661-76268-003	Limatorque Operation and Maintenance Manual and Bulletins	48
71111.21M	Miscellaneous	CP-0010-001	Station Service Water Pumps	23
71111.21M	Miscellaneous	CP-0411A-002	Service Water Motor Pumps	13
71111.21M	Miscellaneous	CPES-P-1079	Field Fabrication and Erection of Pipe Supports	11
71111.21M	Miscellaneous	DBD-EE-041	480V and 120V AC Electrical Power System	32
71111.21M	Miscellaneous	DBD-ME-007	Pipe Break Postulation and Effects	16
71111.21M	Miscellaneous	DBD-ME-011	Diesel Generator Sets	41
71111.21M	Miscellaneous	DBD-ME-026	Station Blackout	14
71111.21M	Miscellaneous	DBD-ME-027	Radiological Accident Analysis	13
71111.21M	Miscellaneous	DBD-ME-029	Seismic Qualification of Equipment	10
71111.21M	Miscellaneous	DBD-ME-206	Auxiliary Feedwater System	40
71111.21M	Miscellaneous	DBD-ME-233	Station Service Water System	38
71111.21M	Miscellaneous	DBD-ME-233	Design Basis Document - Station Service Water System	38
71111.21M	Miscellaneous	DBD-ME-312	Service Water Intake Structure Ventilation System	10

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Miscellaneous	DBD-ME-313	Uninterruptible Power Supply HVAC System	13
71111.21M	Miscellaneous	JPM # AO6407	Locally Control AFW to Steam Generator in Response to Loss of Instrument Air	0
71111.21M	Miscellaneous	JPM #AO5212 (U1)	Recirculate a Boric Acid Tank Through a Boric Acid Filter	0
71111.21M	Miscellaneous	LO21ERGE11	EOS 1.1, SI Termination	0
71111.21M	Miscellaneous	LO41.ERG.EO1	LOCA ERGs/E-1 Series (Lesson Plan)	7/1/2019
71111.21M	Miscellaneous	NE-15877	Comanche Peak Steam Electric Station Auxiliary Feedwater System, Reference: SWTU-4043	1/28/1988
71111.21M	Miscellaneous	PRATA-3.2	Initiate Feed and Bleed in FRH-0.1 Simulator Exercise Guide	0
71111.21M	Miscellaneous	TCA-1.1	Faulted SG - Feedline Break Simulator Evaluation Guide	0
71111.21M	Miscellaneous	TCA-1.7	Terminate ECCS Following a Spurious Safety Injection	0
71111.21M	Miscellaneous	TCA-1.8	Postulated Pipe Failure Analysis Simulator Evaluation Guide	0
71111.21M	Miscellaneous	TFEGT-PPT-50-6000-1	Comanche Peak Nuclear Power Plant MOV Diagnostic Test Instructions / Criteria	3
71111.21M	Miscellaneous	TSA-2.12	Manually Initiate a Safety Injection for a SB LOCA Simulator Evaluation Guide	0
71111.21M	Miscellaneous	TXX-19057	Comanche Peak Nuclear Power Plant, Docket Nos. 50-446 and 50-446, Updated Response to Station Blackout Rule	5/16/2019
71111.21M	Miscellaneous	TXX-92410	Comanche Peak Steam Electric Station (CPSES), Docket Nos. 50-445 and 50-446, Submittal LAR 92-002, Combined Unit 1 and 2 Technical Specifications	08/31/1992
71111.21M	Miscellaneous	TXX-92447	Comanche Peak Steam Electric Station (CPSES), Docket No. 50-445 and 50-446, Response to Station Blackout (SBO) Rule	10/1/1992
71111.21M	Miscellaneous	TXX-96405	Comanche Peak Steam Electric Stations (CPSES), Docket Nos. 50-446 and 50-446, Submittal of License Amendment Request 96-004, Uninterruptible Power Supplies (UPS) HVAC System Addition of Fan Coil Units to Technical Specifications	7/10/1996
71111.21M	Miscellaneous	TXX-96475	Comanche Peak Steam Electric Stations (CPSES), Docket Nos. 50-446 and 50-446, Additional Information for License Amendment 96-004, Uninterruptible Power Supplies (UPS)	10/1/1996

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			HVAC System Addition of Fan Coil Units to Technical Specifications	
71111.21M	Miscellaneous	WCAP-14882-P-A	RETRAN-02 Modeling and Qualification for Westinghouse Pressurized Water Reactor Non-LOCA	4/1/1999
71111.21M	Miscellaneous	WCAP-16480-P	Delta 76 Replacement Steam Generator Thermal and Hydraulic Design Analysis Report for Comanche Peak Unit 1	1
71111.21M	Miscellaneous	WCAP-16871-P	Comanche Peak Nuclear Power Plant Stretch Power Uprate Engineering Report	0
71111.21M	Miscellaneous	WCAP-16902-P	Loss of Secondary Heat Sink, Upgrade Analysis for Emergency Response Guideline FR-H.1	0
71111.21M	Miscellaneous	WPT-17340	Luminant Comanche Peak Nuclear Power Plant Units 1 and 2, Power Plant Uprating Inadvertent ECCS Actuation Analysis	6/5/2009
71111.21M	Miscellaneous	WPT-17343	Luminant Comanche Peak Nuclear Power Plant Units 1 and 2, Plant Power Uprating, Inadvertent ECCS Actuation Analysis Additional Sensitivity Studies	6/10/2009
71111.21M	Procedures	ABN-103	Excessive Reactor Coolant Leakage	10
71111.21M	Procedures	ABN-105	Chemical and Volume Control System Malfunction	8
71111.21M	Procedures	ABN-501	Station Service Water Malfunction	10
71111.21M	Procedures	ABN-601	Response to a 138/435 KV System Malfunction	13
71111.21M	Procedures	ALM-0061A	Alarm Procedure 1-ALB-6A	7
71111.21M	Procedures	Comanche Peak (Utility) Design Change Process	ECE-5.08-01	0
71111.21M	Procedures	ECA-0.0A	Loss of All AC Power	9
71111.21M	Procedures	ECA-1.1A	Loss of Emergency Coolant Recirculation	9
71111.21M	Procedures	ECE-5.01	Design Control Program	10, 11, 12
71111.21M	Procedures	ECE-5.02	Specifications	16
71111.21M	Procedures	EOP-0.0A	Reactor Trip or Safety Injection	9
71111.21M	Procedures	EOP-1.0A	Loss of Reactor or Secondary Coolant	9
71111.21M	Procedures	EOP-2.0A	Faulted Steam Generator Isolation	9
71111.21M	Procedures	EOS-1.1A	Safety Injection Termination	9
71111.21M	Procedures	ETP-501	Station Service Water System Cross Connect Flush	3

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Procedures	FRH-0.1A	Response to Loss of Secondary Heat Sink	9
71111.21M	Procedures	IST-301	Inservice Testing of Motor-Operated Valves	6
71111.21M	Procedures	MSE-C0-4318	Station Service Water Pump Motor Rework	6
71111.21M	Procedures	MSE-C0-6305	6.9 KV 7.5 HK Circuit Breaker Enhanced Maintenance	3
71111.21M	Procedures	MSE-G0-4003	Motor Insulation Resistance Testing	5
71111.21M	Procedures	MSE-G0-4004	Baker On-Line Motor Testing	5
71111.21M	Procedures	MSE-G0-6300	Breaker Removal and Installation	3
71111.21M	Procedures	MSE-P0-8349	Limiter Actuator Periodic Electrical and Mechanical Inspection	9
71111.21M	Procedures	MSE-S0-6303	Molded Case Circuit Breaker Test and Inspection	9
71111.21M	Procedures	MSE-S0-6304	Westinghouse 480 Volt Air Circuit Breaker PM and Surveillance Inspections	3
71111.21M	Procedures	MSM - C0 - 3805	EMERGENCY DIESEL ENGINE CAMSHAFT AND TAPPET MAINTENANCE	3
71111.21M	Procedures	MSM-C0-7310	Service Water Pump Maintenance	6
71111.21M	Procedures	ODA-102	Conduct of Operations	34
71111.21M	Procedures	OPT-207A	Service Water System	18
71111.21M	Procedures	OPT-468A	Train A Safeguards Slave Relay K610 Actuation Test	9
71111.21M	Procedures	OPT-469A	Train A Safeguards Slave Relay K615 Actuation Test	12
71111.21M	Procedures	PPT-S0-6000	Motor Operated Valve Risk-Informed IST Testing	3
71111.21M	Procedures	SOP-102A	Residual Heat Removal System	22
71111.21M	Procedures	SOP-304A	Auxiliary Feedwater System	17
71111.21M	Procedures	SOP-501A	Station Service Water System	20
71111.21M	Procedures	STA-214	Timed Operator Action Program	2
71111.21M	Procedures	STI-211.07	Heat Stress Management	0
71111.21M	Procedures	STI-214.01	Control of Timed Operator Actions	2
71111.21M	Procedures	STI-426.02	Processing Important OE [Operating Experience], IERL3 [INPO Event Report Level 3] & IERL4 [INPO Event Report Level 4], IN'S [Information Notices] & OPESS [Operating Experience Smart Sample] Reports	1
71111.21M	Procedures	STI-716.06	Design Attribute Review (DAR)	1
71111.21M	Work Orders	Work Order (WO-)	4627624, 5529331, 5536416, 5571820, 5705751, 5788037, 5917223, 5945664, 5948865, 5931245, 5980342, 5776536,	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			5949390, 5936084, 5967154, 5927886, 5735060, 4297555	