



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

March 24, 2023

Ken Peters, Senior Vice President
and Chief Nuclear Officer
Vistra Operations Company, LLC
VISTRA Operating Company, LLC
P.O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2 – BIENNIAL
PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000445/2023010 AND 05000446/2023010

Dear Ken Peters:

On February 9, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution inspection at your Comanche Peak Nuclear Power Plant, Units 1 and 2, and discussed the results of this inspection with Steven Sewell, Acting Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspection team reviewed the station's problem identification and resolution program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for problem identification and resolution programs. The team identified findings in problem identification, implementation of the process for prioritizing and evaluating these problems, and the effectiveness of corrective actions taken to resolve these problems. Additionally, the team identified a weakness associated with completion of timely and effective corrective actions.

The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally, the team reviewed the station's programs to establish and maintain a safety conscious work environment and interviewed station personnel to evaluate the effectiveness of these programs. Although the team determined that the vast majority of individuals indicated that they would raise safety concerns without fear of retaliation, not all individuals felt this way, and the team noted some facts and indicators that indicate there is a need for station focus and attention in some areas to ensure the station maintains a safety conscious work environment.

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

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 or a finding not associated with a regulatory requirement 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 (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,



Signed by Hay, Michael
on 03/24/23

Michael C. Hay, Deputy Director
Division of Operating Reactor Safety

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

Enclosure:
As stated

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COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2 – BIENNIAL PROBLEM
IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000445/2023010 AND
05000446/2023010 DATED – MARCH 24, 2023

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Nos.: 05000445 and 05000446

License Nos.: NPF-87 and NPF-89

Report Nos.: 05000445/2023010 and 05000446/2023010

Enterprise Identifier: I-2023-010-0000

Licensee: Vistra Operations Company, LLC

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

Location: Glen Rose, Texas 76043

Inspection Dates: January 23, 2023, to February 09, 2023

Inspectors: D. Dodson, Senior Reactor Inspector
J. Ellegood, Senior Resident Inspector
C. Jewett, Physical Security Inspector
S. Schwind, Senior Resident Inspector

Approved By: Michael C. Hay, Deputy Director
Division of Operating Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a biennial problem identification and resolution 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 Initiate Issue Reports			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000445/2023010-01 Open/Closed	[H.14] - Conservative Bias	71152B
The inspectors reviewed a Green, self-revealed finding for the licensee's failure to recognize risk in multiple cases and document issues in accordance with STI-421.01, "Initiation of Issue Reports," Revision 0. Specifically, the licensee failed to enter a displacement probe failure and alarm suppression into the issue report system, which significantly contributed to a turbine trip and reactor trip; similarly, the licensee failed to enter other minor conditions into the issue report system.			

Failure to Adequately Identify Contributors in a Root Cause Analysis			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000445/2023010-02 Open/Closed	[H.4] - Teamwork	71152B
The inspectors identified a Green finding for the licensee's failure to adequately identify organizational, programmatic, or behavior contributors to an event in a root cause analysis in accordance with STI-422.06, "Root Cause Analysis," Revision 0. Specifically, the root cause evaluation associated with the September 5, 2022, main turbine and reactor trip did not adequately identify that the licensee's final design analysis (FDA) associated with main turbine shaft displacement probes neither considered environmental conditions nor relevant operating experience, which were organizational contributors to the event.			

Failure to Timely Complete Corrective Actions to Preclude Repetition			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445,05000446/2023010-03 Open/Closed	[H.1] - Resources	71152B
The inspectors identified a Green non-cited violation of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly correct a significant condition adverse to quality. Specifically, following failure of the centrifugal charging pump (CCP) main lubricating oil pump 2-02, the licensee failed to implement corrective action to prevent repetition modifications to all affected			

CCP main lubricating oil pumps, including failing to complete the Unit 2 CCP 2-01 main lubricating oil pump modification approximately 8.5 years later.

Failure to Adjust Testing and Preventive Maintenance Activities

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445/2023010-04 Open/Closed	[P.3] - Resolution	71152B

The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, for the licensee's failure to adequately adjust testing and preventive maintenance activities following safety related equipment failures in accordance with procedure STA-677, "Preventive Maintenance Program," Revision 13. Specifically, the licensee did not adequately adjust preventive maintenance tasks for fan motor starter coils associated with safety related pump room coolers in accordance with industry guidance and in consideration of internal operating experience.

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.

OTHER ACTIVITIES – BASELINE

71152B - Problem Identification and Resolution

Biennial Team Inspection (IP Section 03.04) (1 Sample)

- (1) The inspectors performed a biennial assessment of the effectiveness of the licensee's problem identification and resolution program, use of operating experience, audits and self-assessments, and safety conscious work environment.
 - Problem Identification and Resolution Effectiveness: The inspectors assessed the effectiveness of the licensee's problem identification and resolution program in identifying, prioritizing, evaluating, and correcting problems. The inspectors also evaluated the station's compliance with NRC regulations and licensee standards for corrective action programs. The inspectors sampled over 250 condition reports and their associated cause evaluations, as applicable. The inspectors also conducted a five-year review of the auxiliary feedwater system and evaluated degraded emergency preparedness communications equipment issues. These reviews included failures, maintenance issues; surveillances; corrective and preventive maintenance; reliability; and maintenance rule performance. Additionally, inspectors reviewed findings and violations issued during the biennial assessment period.
 - Operating Experience: The inspectors assessed the effectiveness of the licensee's processes for use of operating experience.
 - Self-Assessments and Audits: The inspectors assessed the effectiveness of the licensee's identification and correction of problems identified through review of audits and self-assessments.
 - Safety Conscious Work Environment: The inspectors assessed the effectiveness of the station's programs to establish and maintain a safety conscious work environment.

INSPECTION RESULTS

Assessment	71152B
Corrective Action Program Effectiveness	
<p>Based on the samples reviewed, the inspectors determined that the licensee's corrective action program was adequate and supported nuclear safety. However, the inspectors noted recent challenges in the areas of problem identification, evaluation and prioritization of issues, operating experience, and safety conscious work environment, as well as a weakness associated with completion of timely and effective corrective actions. The inspectors determined that this represents a declining trend associated with the problem identification and resolution program.</p>	
<u>Problem Identification</u>	
<p>The inspectors found that the licensee was generally identifying and documenting problems at an appropriately low threshold that supported nuclear safety. During the approximate 1.5-year period being assessed by the inspectors, the licensee entered approximately 2,000 issue reports into the corrective action program and initiated over 5,200 other issue reports. However, the inspectors noted some current performance challenges in the Operations department associated with not initiating issue reports appropriately. FIN 05000445/2023010-01, "Failure to Initiate Issue Reports," which is documented in this report, captures both minor and more-than-minor examples of the licensee's failures to recognize risk and document new and changing conditions within the corrective action program. In each of these cases, the inspectors found that personnel evaluated conditions outside of the corrective action program, which can result in operability issues not being timely evaluated, significant conditions or conditions adverse to quality not being timely or effectively addressed, and organizational ignorance of conditions that deserve management attention.</p> <p>The inspectors documented one observation, "Large Quantity of Service Water Fouling Conditions," that may relate to identification of common cause issues.</p>	
<u>Problem Prioritization and Evaluation</u>	
<p>The inspectors found that the licensee was adequately prioritizing and evaluating problems; however, the inspectors identified recent challenges associated with implementing rigorous and thorough evaluations using corrective action program procedures. Specifically, the inspectors reviewed the lone root cause evaluation that the licensee completed during the inspection assessment period. The inspectors determined that the evaluation did not rigorously evaluate or explore important contributors to the event and that the root cause evaluation did not identify all organizational, programmatic, or behavior contributors to the event in accordance with station procedures. Hence, the inspectors documented FIN 05000445/2023010-02, "Failure to Adequately Identify Contributors in a Root Cause Analysis," in this report.</p> <p>Additionally, the inspectors documented three minor performance deficiencies associated with problem prioritization and evaluation challenges. Specifically, the first three minor performance deficiencies documented in the "Inspection Results" section of this report involved incorrect closure of corrective action program items, failure to take all appropriate actions for an indeterminate cause, and failure to adequately classify conditions within the corrective action program. These minor performance deficiencies, which include multiple</p>	

examples, represent failures to adhere to corrective action program procedures and ensure that issues are appropriately evaluated and conditions appropriately classified within the corrective action program.

Finally, the inspectors documented two observations associated with evaluation of issues. Specifically, the “Inspection Results” section of this report documents the observations, “Reactivity Management Issue Reports,” and “Issue Report Screening Bases.” These observations relate to potential vulnerabilities that could impact appropriate classification and evaluation of conditions adverse to quality or conditions adverse to regulatory compliance within the corrective action program.

Effectiveness of Corrective Actions

The inspectors concluded that the station’s development of corrective actions and timely implementation of those actions for problems evaluated in the corrective action program was adequate and supported nuclear safety. However, the inspectors concluded that the station has a weakness associated with completion of timely and effective corrective actions. The inspectors concluded that the station has a weakness associated with completion of timely and effective corrective actions based on a review of recently documented performance issues and additional concerns identified during this inspection. Specifically, the inspectors noted three cited violations associated with failing to restore compliance, a non-cited violation associated with a failure to take corrective actions documented in the 2022 second quarter integrated report, two non-cited violations (NCVs) documented in this report, and five observations documented in this report.

With respect to the failures to restore compliance, the inspectors noted the following three issues that were documented within the last two years:

- NOV 05000445/2021011-05, “Failure to Restore Compliance and Evaluate Inverter Fault Interrupting Capability During Design Basis Loss of Offsite Power and Seismic Conditions,” issued May 6, 2021
- NOV 05000446/2021011-06, “Failure to Restore Compliance for Inadequate Voltage Calculations for the 120 VAC Buses,” issued May 6, 2021
- NOV 05000445/2022003-01, “Failure to Restore Compliance for Non-Cited Violation 05000445/2019001-02 ‘Failure to Evaluate a Change to the Facility DC Power System’,” issued November 1, 2022

In each case, the licensee’s corrective actions failed to correct previously identified NCVs.

With respect to the aforementioned NCV associated with a failure to take corrective actions, the inspectors noted that NRC Inspection Report 05000445/2022002 and 05000446/2022002, issued August 5, 2022 (ADAMS Accession Number: ML22213A116), documented NRC identified NCV 05000445, 05000446/2022002-03, “Condensate Storage Tank Level Inaccuracies,” associated with a 10 CFR 50, Appendix B, Criterion XVI failure to correct a condition adverse to quality. Specifically, the licensee identified that level indication of the condensate storage tank was adversely influenced by nitrogen overpressure resulting in non-conservative level indications, and the condition was not corrected until the inspectors inquired about the condition.

Finally, with respect to items identified during this inspection, the inspectors identified the following NCVs and observations:

- NCV 05000445,05000446/2023010-03, “Failure to Timely Complete Corrective Actions to Preclude Repetition”
- NCV 05000445/2023010-04, “Failure to Adjust Testing and Preventive Maintenance Activities”
- Observations documented in the “Inspection Results” section of this report include:
 - “Emergency Response Data System Unavailability”
 - “Excessive Extensions of Some Issues”
 - “Tracking of Actions to Ensure Regulatory Compliance Outside the Corrective Action Program”
 - “Linking of Actions to Causal Factors”
 - “Root Cause Analysis Report (CR-2022-006527) Corrective Actions and the SMARTER Approach”

In the case of both NCVs documented in this report, opportunities existed for the station to take timely and effective corrective actions to address conditions, but station decisions and evaluations did not ensure that appropriate actions were taken timely. In the cases of the observations associated with this section, the inspectors noted potential vulnerabilities that could impact whether conditions adverse to quality or conditions adverse to regulatory compliance receive timely and effective corrective actions.

Assessment	71152B
<u>Audits and Self-Assessments</u>	
<p>The inspectors reviewed a sample of Comanche Peak Nuclear Power Plant’s self-assessments and audits to assess whether performance trends were regularly identified and effectively addressed. The inspectors also reviewed audit reports to assess the effectiveness of assessments in specific areas. Overall, the inspectors concluded that the licensee had an adequate departmental self-assessment and audit process.</p>	

Assessment	71152B
<u>Use of Operating Experience</u>	
<p>The inspectors reviewed a variety of sources of operating experience including Part 21 notifications and other vendor correspondence, NRC generic communications, and publications from various industry groups including the Institute of Nuclear Power Operations and the Electrical Power Research Institute. The inspectors determined that Comanche Peak Nuclear Power Plant is adequately screening and addressing issues identified through operational experience that apply to the station, and this information is being evaluated in a timely manner once it is received. However, the inspectors did note some recent performance</p>	

challenges in this area. Specifically, the inspectors noted that FIN 05000445/2023010-02, “Failure to Adequately Identify Contributors in a Root Cause Analysis,” which is documented in this report, related to the licensee’s failure to adequately consider relevant internal operating experience during the final design analysis (FDA) process. Similarly, the inspectors noted that other recent performance issues like NCV 05000445,05000445/2022001-01, “Failure to Maintain FLEX Strategy,” included cross-cutting aspect P.5, “Operating Experience,” associated with the licensee failing to evaluate and address extent of condition associated with internal operating experience.

Assessment

71152B

Safety Conscious Work Environment

The inspectors conducted safety conscious work environment focus group interviews with approximately 48 individuals from various departments and organizations across the site including: non-licensed and licensed operators; mechanical, fire protection, and instrumentation and control maintenance; engineering; security; and chemistry. The inspectors also observed interactions between employees during routine management review committee and plan-of-the-day meetings, interviewed the Employee Concerns Program lead, reviewed the results of the latest safety culture surveys and any case files that may relate to safety conscious work environment, and evaluated anonymous condition reports. Based upon all these interviews, observations, and document reviews, the inspectors concluded that the station has a safety conscious work environment—the vast majority of individuals indicated that they would raise safety concerns without fear of retaliation. However, not all individuals felt this way.

The inspectors noted some facts and indicators that demonstrate there is a need for station focus and attention in some areas to ensure the station maintains a safety conscious work environment. Specifically, the significant majority of personnel feel that some types of concerns are not being addressed. Individuals stated that issues are not being addressed unless they directly relate to technical specification compliance or nuclear safety. Specifically, individuals stated that issues do not get attention unless they are already a problem, and some individuals indicated that personnel are no longer bringing up some types of concerns because the issues are never addressed. As a result, some issues may not be receiving appropriate operations operability, maintenance rule, or other reviews to assess and correct conditions commensurate with their safety significance.

Individuals indicated that significant resource issues are impacting departments—with the exception of engineering—across the site, and individuals expressed that they do not have confidence that resource issues are adequately being addressed or will improve. Additionally, some individuals perceive that if issues are brought to certain parts of their management chain that the individuals’ concerns will be dismissed.

Finally, the inspectors also documented one related observation, “Employee Concerns Program Visibility and Awareness,” in the “Inspection Results” section of this report.

Failure to Initiate Issue Reports			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000445/2023010-01 Open/Closed	[H.14] - Conservative Bias	71152B
<p>The inspectors reviewed a Green, self-revealed finding for the licensee's failure to recognize risk in multiple cases and document issues in accordance with STI-421.01, "Initiation of Issue Reports," Revision 0. Specifically, the licensee failed to enter a displacement probe failure and alarm suppression into the issue report system, which significantly contributed to a turbine trip and reactor trip; similarly, the licensee failed to enter other minor conditions into the issue report system.</p> <p><u>Description:</u> On September 5, 2022, the Unit 1 main turbine automatically tripped on indications of excessive shaft displacement. By design, this caused an automatic Unit 1 reactor trip.</p> <p>The licensee subsequently performed a root cause analysis and determined the trip occurred as a result of the failure of three main turbine shaft displacement probes. Visual inspection of the probe assemblies revealed each channel's cable conductor was exposed, and the licensee determined that cable signals were grounded to the turbine casing. The licensee determined that chafing of the cables occurred because the cables were rubbing on a corner over which the cables were routed.</p> <p>Normally, two out of three probes indicating excessive shaft displacement would result in a turbine trip and subsequent reactor trip. Operators have the ability to suppress or defeat displacement probe channels. Suppressing a channel differs from defeating a channel—channel suppression results in a default maximum displacement signal vice a displacement signal of zero when a channel is defeated.</p> <p>The licensee developed a timeline of the failures of the displacement probes. Specifically, on June 13, 2022, displacement probe channel 3 began alarming with increased frequency. Later, on June 21, the station defeated displacement probe channel 3, and as a result, the protection scheme required two out of two probes indicating excessive displacement to result in a turbine trip. On August 20, 2022, displacement probe channel 2 began alarming with increased frequency. Subsequently, on August 22, 2023, control room operators suppressed displacement probe channel 2, and as a result, the protection scheme required just one of one additional probe to indicate excessive displacement to result in a turbine trip and subsequent reactor trip. Finally, on September 5, 2022, displacement probe channel 1 spuriously indicated excessive shaft displacement, and the main turbine and reactor tripped occurred.</p> <p>In the configuration from August 22 through September 5, the protection scheme required only the channel 1 probe to indicate excessive displacement to result in a turbine and subsequent reactor trip. When operators suppressed channel 2 on August 22, 2023, they failed to document the condition in the issue report tracking system or otherwise communicate the condition to other operations staff. The failure to adequately recognize the risk of a plant trip and document the condition in the issue report system significantly contributed to the licensee's ability to take appropriate actions and limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations.</p>			

Station procedure STI-421.01, "Initiation of Issue Reports," Revision 0, provides standards for entering issues into either the corrective action program or the issue report system. Specifically, Step 6.2.1 states, "Personnel shall ensure the condition is documented on an Issue Report in a timely manner, commensurate with the potential significance or consequences of a condition."

Like the turbine shaft displacement probe issue, the inspectors identified an additional minor example of the licensee failing to enter issues into the issue report system and a similar licensee-identified adverse trend. Specifically, the inspectors noted a comment in one of the actions associated with circulating water system leakage that indicated a ratchet strap "gave" while tightening it, indicating to the worker that the strap was crushing the pipe. Station personnel neither initiated another action nor informed management of this condition. As a result, there was no contemporaneous evaluation of the condition. The inspectors determined through interviews that the sensation felt by the worker was the strap slipping on a stud and not indicative of the pipe being crushed. Although the new information associated with the circulating water piping met the threshold for documentation in the issue report system and needed to be documented, the inspectors determined that no cornerstone objectives were adversely impacted by the circulating water issue, and no other more-than-minor criteria were otherwise met since the condition could not be reasonably viewed as a precursor to a significant event or have the potential to lead to a more significant safety concern if left uncorrected. As previously noted, the licensee also documented in TR-2022-001109 an adverse trend in documenting adverse conditions in the action tracking system (issue report system) in a timely manner.

Corrective Actions: Actions to address the concern included providing reinforcement of timeliness requirements to operations staff and revising procedures addressing turbine supervisory alarms.

Corrective Action References: The site has entered the issue into the action tracking system as condition report (CR)-2023-000956.

Performance Assessment:

Performance Deficiency: The licensee failed to recognize risk and document issues in the issue report system as required by procedure STI-621.01, "Initiation of Issue Reports," Revision 0. Specifically, on August 20, 2022, displacement probe channel 2 began alarming with increased frequency, and on August 22, 2023, control room operators suppressed displacement probe channel 2, but a corresponding issue report was not initiated.

Screening: The inspectors determined the performance deficiency was more-than-minor because it was associated with the Human Performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to recognize risk and initiate an issue report documenting relevant facts associated with main turbine shaft displacement probe channel 2 alarming and being suppressed, significantly contributed to the September 5, 2022, main turbine and reactor trips and upset plant stability.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors assessed the significance of the finding using Exhibit 1, "Initiating Events

Screening Questions,” of Inspection Manual Chapter 0609, Appendix A, and determined that although the finding contributed to a reactor trip, the finding did not cause the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition (e.g., loss of condenser, loss of feedwater). Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: H.14 - Conservative Bias: Individuals use decision making-practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, leaders did not consider long-term consequences when determining how to resolve emergent concerns, which resulted in a failure to identify the new condition in the corrective action program.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

Failure to Adequately Identify Contributors in a Root Cause Analysis			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000445/2023010-02 Open/Closed	[H.4] - Teamwork	71152B
<p>The inspectors identified a Green finding for the licensee’s failure to adequately identify organizational, programmatic, or behavior contributors to an event in a root cause analysis in accordance with STI-422.06, “Root Cause Analysis,” Revision 0. Specifically, the root cause evaluation associated with the September 5, 2022, main turbine and reactor trip did not adequately identify that the licensee’s final design analysis (FDA) associated with main turbine shaft displacement probes neither considered environmental conditions nor relevant operating experience, which were organizational contributors to the event.</p> <p><u>Description:</u> On September 5, 2022, the Unit 1 main turbine automatically tripped on indications of excessive shaft displacement. By design, this also caused a subsequent automatic reactor trip of Unit 1. Following the trip, the licensee determined the trip occurred as a result of the failure of three main turbine displacement probes. The licensee determined that a root cause analysis needed to be conducted to identify the root cause(s) of the failure, the extent of condition, and to identify appropriate corrective actions to prevent similar failures from reoccurring.</p> <p>The Root Cause Analysis Report, “Unit 1 Reactor and Turbine Trip Due to Main Turbine Shaft Displacement Probe Failure,” CR-2022-006527, identified the direct cause as the “failure of the main turbine channel 1 shaft displacement probe.” Similarly, the licensee determined that the root cause was, “the main turbine shaft displacement probe cabling is inadequately protected against chafing against the turbine pedestal.” Finally, the root cause analysis identified contributing causes related to communication of the suppression of the Unit 1 main turbine channel 2 shaft displacement probe, multiple locked-in or recurrent turbine supervisory instrumentation alarms desensitizing control room personnel, and failure to recognize the risk represented in TR-2022-002765 regarding nicked cables for all three Unit 1 main turbine shaft displacement probes.</p> <p>The inspectors noted a series of similar issues that had occurred at the station. Specifically, in July 2010, a Unit 1 probe failed, and the faulty trip signal was defeated. The issue was</p>			

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000445/2023010-02 Open/Closed	[H.4] - Teamwork	71152B

The inspectors identified a Green finding for the licensee’s failure to adequately identify organizational, programmatic, or behavior contributors to an event in a root cause analysis in accordance with STI-422.06, “Root Cause Analysis,” Revision 0. Specifically, the root cause evaluation associated with the September 5, 2022, main turbine and reactor trip did not adequately identify that the licensee’s final design analysis (FDA) associated with main turbine shaft displacement probes neither considered environmental conditions nor relevant operating experience, which were organizational contributors to the event.

Description: On September 5, 2022, the Unit 1 main turbine automatically tripped on indications of excessive shaft displacement. By design, this also caused a subsequent automatic reactor trip of Unit 1. Following the trip, the licensee determined the trip occurred as a result of the failure of three main turbine displacement probes. The licensee determined that a root cause analysis needed to be conducted to identify the root cause(s) of the failure, the extent of condition, and to identify appropriate corrective actions to prevent similar failures from reoccurring.

The Root Cause Analysis Report, “Unit 1 Reactor and Turbine Trip Due to Main Turbine Shaft Displacement Probe Failure,” CR-2022-006527, identified the direct cause as the “failure of the main turbine channel 1 shaft displacement probe.” Similarly, the licensee determined that the root cause was, “the main turbine shaft displacement probe cabling is inadequately protected against chafing against the turbine pedestal.” Finally, the root cause analysis identified contributing causes related to communication of the suppression of the Unit 1 main turbine channel 2 shaft displacement probe, multiple locked-in or recurrent turbine supervisory instrumentation alarms desensitizing control room personnel, and failure to recognize the risk represented in TR-2022-002765 regarding nicked cables for all three Unit 1 main turbine shaft displacement probes.

The inspectors noted a series of similar issues that had occurred at the station. Specifically, in July 2010, a Unit 1 probe failed, and the faulty trip signal was defeated. The issue was

subsequently fixed in the fall 2011 outage and no turbine trips occurred. The probe failure was determined to be due to chafing. The second relevant operating experience was associated with a Unit 2 probe failure in October 2012—the faulty trip signal was defeated, and the issue was fixed in the fall 2012 outage. The station identified nicks in the probe cabling. Similarly, in October 2017, a Unit 1 probe failed, the faulty trip signal was defeated, and the condition was corrected in the fall 2017 outage. Finally, in November 2020, a Unit 1 probe failed, and the faulty trip signal was defeated. The issue was later worked in the spring 2022 outage (1RF22), and the licensee identified nicks in the cabling for all three shaft displacement probes. The licensee completed an FDA for the replacement of all three shaft displacement probes (FDA-2022-000024-2) but only replaced one probe due to parts issues and determined that armored cabling was impractical. Subsequently, the station started up from the spring 2022 outage and then experienced the sequence of events immediately leading up to the turbine and reactor trip.

Although the licensee's root cause evaluation noted the timeline of events, the station did not rigorously consider whether the environmental conditions where the cables are mounted or whether the relevant operating experience was causal to the event or represented an organizational contributor to the event.

The inspectors noted that procedure ECE-5.08-01, "Comanche Peak Utility Design Change Process," Revision 0, Attachment 5, "Other Requirements," includes requirements for consideration of "applicable operating experience reports...for Comanche Peak as well as other nuclear power plants," and "environmental conditions anticipated during storage, construction and operation such as pressure, temperature, humidity, corrosiveness, site elevation, wind direction, nuclear radiation, electromagnetic radiation, and duration of exposure." Additionally, the inspectors noted that the root cause analysis must identify all the organizational, programmatic, or behavioral contributors of an event in accordance with Step 4.1.22 of STI-422.06. Considering all the above information, the inspectors determined that the station had not adequately identified all organizational, programmatic, or behavior contributors to the event.

Corrective Actions: The licensee documented the inspectors' concerns in the corrective action program as CR-2023-000957.

Corrective Action References: CR-2023-000957

Performance Assessment:

Performance Deficiency: The licensee failed to identify some organizational, programmatic, or behavior contributors to an event in a root cause analysis in accordance with STI-422.06, "Root Cause Analysis," Revision 0. Specifically, the root cause evaluation associated with the September 5, 2022, main turbine and reactor trip did not identify that the licensee's FDA associated with main turbine shaft displacement probes neither considered environmental conditions nor relevant operating experience, and the inspectors determined that these were organizational contributors to the event.

Screening: The inspectors determined the performance deficiency was more-than-minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, failure to identify all organizational, programmatic, or behavior contributors to an event that resulted in a reactor trip has the potential to lead to additional adverse impacts to the Initiating Events cornerstone objectives and additional upsets of plant stability, like the September 5, 2022, turbine and reactor trip.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors assessed the significance of the finding using Exhibit 1, "Initiating Events Screening Questions," of Inspection Manual Chapter 0609, Appendix A, and determined that the finding did not cause a reactor trip or the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition (e.g., loss of condenser, loss of feedwater). Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: H.4 - Teamwork: Individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, individuals did not demonstrate a strong sense of collaboration and cooperation in connection with projects and operational activities like the completion of the root cause analysis, which resulted in the failure to adequately identify organizational, programmatic, or behavioral contributors.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

Failure to Timely Complete Corrective Actions to Preclude Repetition

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445,05000446/2023010-03 Open/Closed	[H.1] - Resources	71152B

The inspectors identified a Green non-cited violation of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly correct a significant condition adverse to quality. Specifically, following failure of the centrifugal charging pump (CCP) main lubricating oil pump 2-02, the licensee failed to implement corrective action to prevent repetition modifications to all affected CCP main lubricating oil pumps, including failing to complete the Unit 2, CCP 2-01 main lubricating oil pump modification approximately 8.5 years later.

Description: The inspectors reviewed TR-2022-000292, an issue report written on January 11, 2022, which included discussion of Regulatory Commitment 4943911, "The centrifugal charging pump main lube oil pump (MLOP) couplings will be modified to eliminate the possibility of the shaft coupling pushing back on the MLOP shaft." The licensee made this commitment on October 16, 2014, but it remains open, approximately 8.5 years later.

The inspectors noted that on August 3, 2014, while starting the Unit 2 CCP 2-02, the CCP 2-02 main lubricating oil pump decoupled from its drive shaft. The licensee determined that the cause of the event was the design of the CCP main lubricating oil pump coupling requires blind fitting of the drive pins into the drive pin holes and does not definitely allow for post-installation verification. The licensee subsequently determined that the CCP-2-02 was inoperable from July 6, 2014, through August 3, 2014, due to the inability to successfully start the pump or restart the pump if it had been secured. Additionally, the other train pump associated with Unit 2, CCP 2-01, had also been inoperable on July 14 and July 18, 2014. As a result, the licensee determined that the condition was prohibited by the plant's technical specifications and could have prevented the fulfillment of the safety function of structures or systems needed to mitigate the consequences of an accident. The licensee determined that

the condition represented a significant condition adverse to quality, completed a root cause analysis, and submitted licensee event report 14-005, "Centrifugal Charging Pump Inoperable for Longer than Allowed by Technical Specifications," Revision 0.

The licensee performed a root cause analysis associated with condition report CR-2014-008651 and determined that the root cause of the event was inadequate CCP main lubricating oil pump coupling accessibility. To correct the identified root cause, the licensee created a corrective action to preclude repetition to develop and schedule implementation of a CCP main lubricating oil pump coupling modification to eliminate the possibility of the shaft coupling bushing pushing back on the main lubricating oil pump shaft. The licensee subsequently completed the modification for the two Unit 1 pumps and the CCP 2-02 main lubricating oil pump, but the licensee had not completed the modification to the CCP 2-01 main lubricating oil pump as of the inspection. Additionally, the inspectors noted that the modification had been scheduled and dropped from multiple outages over the 8.5-year period without rigorous evaluation of the potential impact of repeatedly deferring the work.

The inspectors noted that licensee procedure STA-422, "Corrective Action Program," defines a significant condition adverse to quality as, "A condition adverse to quality that, if left uncorrected, could have a serious effect on nuclear safety." Additionally, STA-422 defines a corrective action to prevent recurrence as, "An action taken to preclude repetition of a significant condition adverse to quality." Considering the licensee's classification of the condition as a significant condition adverse to quality needing to be addressed and considering the length of time and available opportunities to complete the modification to the CCP 2-01 main lubricating oil pump associated with the corrective action to prevent recurrence and regulatory commitment, the inspectors determined that the licensee had not promptly corrected the condition.

Corrective Actions: The licensee entered the inspectors' concerns into the corrective action program as CR-2023-000954.

Corrective Action References: CR-2014-008651 and CR-2023-000954

Performance Assessment:

Performance Deficiency: The licensee failed to take prompt actions to complete corrective action to prevent recurrence modifications to the CCP 2-01 main lubricating oil pump to address a significant condition adverse to quality in accordance with 10 CFR 50, Appendix B, Criterion XVI. Specifically, following failure of the CCP 2-02 main lubricating oil pump, the licensee failed to implement corrective action to prevent repetition modifications to all affected CCP main lubricating oil pumps, and the modification has not been completed for the Unit 2, CCP 2-01 main lubricating oil pump approximately 8.5 years later.

Screening: The inspectors determined the performance deficiency was more-than-minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the performance deficiency was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and could lead to additional failures of a CCP main lubricating oil pump if modifications associated with corrective actions to prevent recurrence of a significant condition adverse to quality are not completed timely.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors assessed the significance of the finding using Exhibit 2 of Inspection Manual

Chapter 0609, Appendix A, and determined this finding is not a deficiency affecting the design or qualification of a mitigating SSC; the finding does not represent a loss of the probabilistic risk assessment function of a single train technical specification system or a multi-train technical specification system; the finding does not represent a loss of the probabilistic risk assessment function of two separate technical specification systems for greater than 24 hours or a probabilistic risk assessment system and/or function for greater than 24 hours; and the finding does not represent a loss of the probabilistic risk assessment function of one or more nontechnical specification trains of equipment designated as risk-significant in accordance with the licensee's maintenance rule program for greater than 3 days. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: H.1 - Resources: Leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, executives and senior managers did not ensure a rigorous evaluation of the nuclear safety implications of deferred work, which resulted in modifications associated with a corrective action to prevent recurrence not being completed for approximately 8.5 years.

Enforcement:

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

Contrary to the above, since August 3, 2014, measures established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances were not promptly corrected. Specifically, in the case of a corrective action to prevent recurrence and Regulatory Commitment 4943911—developing and scheduling implementation of a CCP MLOP coupling modification to eliminate the possibility of the shaft coupling pushing back on the MLOP shaft—implementation of the modification to correct and prevent recurrence has not been completed after 8.5 years.

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

Failure to Adjust Testing and Preventive Maintenance Activities

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000445/2023010-04 Open/Closed	[P.3] - Resolution	71152B

The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, for the licensee's failure to adequately adjust testing and preventive maintenance activities following safety related equipment failures in accordance with procedure STA-677, "Preventive Maintenance Program," Revision 13. Specifically, the licensee did not adequately adjust preventive maintenance tasks for fan motor starter coils associated with safety related pump room coolers in accordance with industry guidance and in consideration of internal operating experience.

Description: On October 2, 2022, the motor driven auxiliary feedwater pump 1-01 room fan cooler fan unit 1-07 motor breaker failed. The station entered an unplanned 72 hour limiting condition of operations and entered the condition into the corrective action program as CR-2022-007100. Work order 22-48251 was initiated and noted the as-found condition stating, "Starter coil was burnt looking and leaking in three places." The starter coil was replaced from donor motor control center bucket 1EB3-1/3F/CTR, and the fan motor was then function checked satisfactorily and returned to operable status.

The licensee performed an equipment failure investigation and maintenance rule evaluation of the 2022 event. The licensee determined that the cause of the event was a bad coil in the fan motor starter and identified a contributing cause of coil failure due to age. The equipment failure investigation also identified that the current criticality determination was run-to-maintenance with no prior preventive maintenance strategy. Corrective actions to address these causes and insights included performing a criticality determination and performing an extent of condition review.

The licensee's maintenance rule evaluation determined that this event constituted a repetitive maintenance preventable functional failure. Specifically, failure of the 42 coil occurred previously and impacted the CCP 1-02 room fan cooler, as documented in CR-2020-008903 on November 26, 2020. Following the failure documented in CR-2020-008903, action item (AI)-CR-2020-008903 documented the recommendation to create end-of-life replacement preventive maintenance activities for the fan motor starter coils for all safety related pump room coolers. The corrective action documentation noted that none of the starters, which included the motor driven auxiliary feedwater pump 1-01 room fan cooler fan unit 1-07 motor breaker, had been replaced and were beyond Electrical Power Research Institute recommended replacement dates. Ultimately, end-of-life preventive maintenance activities for four locations were approved by the preventive maintenance review committee but were rejected for 34 other locations, including the motor driven auxiliary feedwater pump 1-01 room fan cooler fan unit 1-07. The equipment failure investigation associated with CR-2022-007100 notes that the station's reasoning for disapproval in 2020 "included cost of motor starter replacement" and the system health/plant health committee being more appropriate avenues for resolution.

The inspectors noted that STA-677, "Preventive Maintenance Program," Revision 13, Attachment 8.H, "Basic Equipment Protection [Preventive Maintenance] Program Summary," Step 1.2 states, "Determination of the basic equipment protection [preventive maintenance] activities is based upon a consideration of the vendor's recommendations, operating experience at [Comanche Peak Nuclear Power Plant], industry experience, estimated equipment usage, and judgment." Similarly, Step 1.3 states, "The [preventive maintenance] activity frequencies...should be revised based upon preventive maintenance feedback, engineering assessment, operating experience, design changes, change in equipment operation, etc." In consideration of the 2022 motor driven auxiliary feedwater pump 1-01 room fan cooler fan unit 1-07 failure and the Comanche Peak operating experience and industry guidance documented in CR-2020-008903, the inspectors determined that the station did not adequately adjust preventive maintenance activities or take other appropriate action associated with the impacted population of safety related fan motor starter coils for safety related pump room coolers.

Corrective Actions: The licensee entered the condition into the corrective action program as CR-2023-000955.

Corrective Action References: CR-2022-007100 and CR-2023-000955

Performance Assessment:

Performance Deficiency: The licensee's failure to adequately adjust testing and preventive maintenance activities following safety related equipment failures in accordance with Procedure STA-677, "Preventive Maintenance Program," Revision 13, was a performance deficiency. Specifically, the licensee did not adjust preventive maintenance tasks for fan motor starter coils associated with safety related pump room coolers in accordance with industry guidance and in consideration of internal operating experience following a 2020 failure.

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 reliability and capability of the safety related motor driven auxiliary feedwater pump room fan cooling unit was adversely impacted when the starter coil unit failed.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors assessed the significance of the finding using Exhibit 2 of Inspection Manual Chapter 0609, Appendix A, and determined this finding is not a deficiency affecting the design or qualification of a mitigating SSC; the finding does not represent a loss of the probabilistic risk assessment function of a single train technical specification system or a multi-train technical specification system; the finding does not represent a loss of the probabilistic risk assessment function of two separate technical specification systems for greater than 24 hours or a probabilistic risk assessment system and/or function for greater than 24 hours; and the finding does not represent a loss of the probabilistic risk assessment function of one or more nontechnical specification trains of equipment designated as risk-significant in accordance with the licensee's maintenance rule program for greater than 3 days. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-Cutting Aspect: P.3 - Resolution: The organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, corrective actions did not resolve and correct identified issues, including causes and extent of condition associated with fan motor starter coils for safety related pump room coolers.

Enforcement:

Violation: Technical Specification 5.4.1.a, requires, in part, that procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Section 9.b of Appendix A to Regulatory Guide 1.33, Revision 2, requires, in part, that preventive maintenance schedules be developed to specify replacement of parts that have a specific lifetime. The licensee established procedure STA-677, "Preventive Maintenance Program," which provides direction for implementing the preventive maintenance program to meet the Regulatory Guide 1.33 requirements. Attachment 8.H of STA-677 requires, in part, that preventive maintenance activity frequencies be revised based upon preventive maintenance feedback, engineering assessment, operating experience, etc.

Contrary to the above, since June 3, 2021, preventive maintenance activity frequencies were

not revised based upon preventive maintenance feedback, engineering assessment, operating experience, etc. Specifically, following failure of the CCP 1-02 room fan cooler, as documented in CR-2020-008903 on November 26, 2020, preventive maintenance activity frequencies for safety related room cooler fan motor starter coils were neither revised nor other appropriate action taken based upon industry guidance, engineering assessment, operating experience, etc. As a result, the safety related motor driven auxiliary feedwater pump room cooler fan motor failed to start on October 2, 2022.

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

Minor Performance Deficiency	71152B
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Minor Performance Deficiency: The inspectors identified that the licensee inappropriately closed some corrective action program issues to non-corrective action program tracking reports (TRs), which was not in accordance with procedure STI-422.04, "Processing of Condition Reports," Revision 0. In one case, the licensee initiated a review of FLEX staffing under CR-2021-008180, corrective actions identified under this review were closed to TR-2022-4812, and the corresponding FDA was not issued in accordance with procedure. Specifically, procedure STI-422.04 limits closure of condition reports to future actions. The site planned to close the CR to an FDA; however, STI-422.04, Section 6.11.1, only permits closure when the FDA achieves an issue status. In another example, the licensee initiated CR-2022-000419 to document the Unit 2 safety injection discharge header slowly pressurizing but closed CR-2022-000419 to two non-corrective action program issue reports (TR-2022-000422 and TR-2022-000423). Procedure STI-422.04, Section 6.9.3.2, requires that CRs remaining open need to be at an equal to or higher condition level than the CR being closed. The licensee documented the minor performance deficiency examples in the corrective action program as CR-2023-000802 and CR-2023-001879.

Screening: The inspectors determined the performance deficiency was minor. These examples reflect administrative issues related to closure of an action. The underlying assessment of FLEX staffing confirmed that the site had adequate staffing to complete FLEX actions should they be needed. Similarly, closure of CR-2022-000419 to two TRs also reflected an administrative issue that did not adversely affect a cornerstone objective, would not lead to a more significant safety concern if left uncorrected, and could not reasonably be viewed as a precursor to a significant event.

Minor Performance Deficiency	71152B
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Minor Performance Deficiency: The inspectors identified that the station was not completing all appropriate actions in accordance with STI-422.03, "Performing Coaching and Investigations," Revision 5, when a licensee evaluation associated with fire safe shutdown equipment had indeterminate causes. Specifically, the licensee documented TR-2022-006832, on bad charging boards and a bad relay associated with emergency lights CP1-ELBPSG-260 and CP1-ELBPSG-264. The licensee performed an equipment failure investigation associated with these issues and concluded that CP1-ELBPSG-260 had a bad charging board and CP1-ELBPSG-264 had a bad charging board and bad relay due to "unidentified reasons." Section 6.5.4.8 of STI-422.03 includes administrative actions to provide a brief summary as to why the cause could not be determined, to apply a special code to the analysis, and in the case of indeterminate causes for equipment-related

conditions or long-term unexplained conditions, to identify the consequences and potential interactions with interfacing systems to confirm no adverse condition exists to impact safety or reliability. The inspectors confirmed through interviews and document reviews that these actions had not been completed at the time of the inspection. The licensee entered this condition into the corrective action program as issue report (IR)-2023-000882.

Screening: The inspectors determined the performance deficiency was minor. The inspectors determined that the performance deficiency did not adversely affect a cornerstone objective, would not lead to a more significant safety concern if left uncorrected, and could not reasonably be viewed as a precursor to a significant event.

Minor Performance Deficiency	71152B
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Minor Performance Deficiency: The inspectors identified three examples of a minor performance deficiency associated with the licensee failing to follow corrective action program procedures and inappropriately classifying three issue reports associated with conditions adverse to quality or regulatory compliance. Specifically, issue reports associated with a missing residual heat removal/component cooling water return piping support cotter pin (TR-2022-004667), failed fire safe shutdown emergency lighting (TR-2022-006832), and a safety injection comprehensive testing procedure missing a step for a code required hold time (TR-2021-005818) were dispositioned as non-corrective action program conditions. The licensee established STI-421.02, "Issue Report Reviews," to describe reviews of issue reports, and STI-421.02 defines non-corrective action program conditions as issues that may warrant management resolution but do not meet requirements for resolution in the corrective action program. Contrary to this guidance, the three examples of conditions adverse to quality or regulatory compliance were dispositioned as non-corrective action program conditions. The licensee entered these performance deficiency examples into the corrective action program as CR-2023-000857, CR-2023-001879, and CR-2023-001897, respectively.

Screening: The inspectors determined the performance deficiency was minor. The inspectors determined the performance deficiency did not adversely affect a cornerstone objective, would not lead to a more significant safety concern if left uncorrected, and could not reasonably be viewed as a precursor to a significant event.

Observation: Reactivity Management Issue Reports	71152B
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The inspectors observed that STI-421.02, "Issue Report Reviews," lacked examples or clear guidance on how to classify conditions associated with reactivity. Specifically, Attachment 8.D, "SCAQ, CAQ, CARC, Non-CAP Guidance," of STI-421.02 provides guidance and examples of conditions that meet the significant condition adverse to quality, condition adverse to quality, condition adverse to regulatory compliance, and non-corrective action program thresholds. However, the inspectors noted that the attachment was silent on close to threshold conditions associated with reactivity that may represent conditions adverse to quality or regulatory compliance vice non-corrective action program issues. For example, TR-2021-008073 documents boric acid counter issues, and Attachment 8.D provided no supporting guidance for the station to classify this condition. The inspectors observed that the lack of guidance on reactivity conditions could result in some conditions being inappropriately classified as non-corrective action program items given the right circumstances.

Observation: Issue Report Screening Bases	71152B
<p>The inspectors observed that some condition screenings utilized operability as the basis for determining conditions were not conditions adverse to quality or regulatory compliance. For example, the inspectors noted six issues that documented screening bases that relied on operability. Specifically, conditions associated with nitrogen system leakage with the potential to impact main steam isolation valve operability (TR-2022-001857); fire sprinkler leakage in a safety related area (TR-2022-001117); feedwater isolation valve nitrogen leakage issues (TR-2022-001114); nitrogen system leakage with the potential to impact main steam isolation valve operability (TR-2022-1857); deficient tuning of a flow controller impacting charging flow (TR-2021-008524); and a boric acid counter not working appropriately (TR-2021-008073) all utilized a variation of the bases, "Condition that does not affect the function or operability of a safety related component," to justify screening these issues outside the corrective action program. Although the inspectors did not identify any performance deficiencies in these specific cases, the inspectors observed that continuing to utilize operability as the sole basis for determining whether an issue meets the threshold for placement in the corrective action program as a condition adverse to quality or regulatory compliance leaves the station susceptible to excluding some conditions adverse to quality or regulatory compliance outside the corrective action program.</p>	
Observation: Large Quantity of Service Water Fouling Conditions	71152B
<p>The inspectors noted that there were approximately 50 condition reports associated with station service water fouling between January 25, 2021, and December 12, 2022. The station determined that each of these issues was a C3 level condition adverse to quality or regulatory compliance warranting broke/fix actions or a simple cause determination, evaluation, or assessment in accordance with STI-421.02. Although the inspectors did not identify any performance deficiencies associated with this group of condition reports, the inspectors observed that documentation of 50 similar condition reports over approximately the last 2 years may represent an opportunity for a more wholistic review to determine if any common causes exist.</p>	
Observation: Employee Concerns Program Visibility and Awareness	71152B
<p>The inspectors noted during focus group interviews that station personnel inconsistently knew where the Employee Concerns Program office was located, the name of the program, and who to reach out to with concerns. Specifically, during focus group interviews some individuals knew where to find the Employee Concerns Program office, some knew the office's location, and some acknowledged seeing the Employee Concerns Program coordinator around the site. However, a noteworthy portion of others interviewed knew some or none of this information. Decreased personnel awareness of the Employee Concerns Program has the potential to impact the use of the Employee Concerns Program given the right circumstances.</p>	
Observation: Emergency Response Data System Unavailability	71152B
<p>The inspectors noted the emergency response data system (ERDS) has been unavailable on several occasions over the previous 18 months. On these occasions, issues with ERDS resulted in loss of functionality that were identified in either drills or during routine testing. The inspectors noted that since tests occur only once per quarter, up to 89 days of lost functionality could accrue before detection. The inspectors did not identify any performance deficiencies associated with the licensee's actions, but the inspectors noted that additional actions may be necessary to ensure ERDS remains appropriately reliable.</p>	

Observation: Excessive Extensions of Some Issues	71152B
<p>The inspectors noted multiple condition reports that have due dates with a large number of extensions. While extensions are allowed by process, this practice diverts resources from actual resolution of issues and may indicate a lack of commitment to resolving issues. Specifically, the inspectors noted the following examples where a large number of extensions were utilized:</p> <ol style="list-style-type: none"> 1. CR-2016-001293, which documented administrative issues impacting raceway Thermolag, has had 16 extensions since 2016. 2. CR-2016-006382, which addresses non-conservative calculation assumptions, has had 19 extensions since 2016. 3. CR-2018-1614, which addressed safety related switch preventive maintenance frequencies, has had 11 extensions since 2018. 4. The inspectors also noted 10 other CRs with 10 or more extensions. <p>The inspectors did not identify any performance deficiencies associated with these issues, but the inspectors noted that excessive extensions associated with some issues can result in adverse impacts to safety-related equipment or processes, and performance deficiencies may occur if actions are not taken timely and commensurate with issue safety significance.</p> <p>Similarly, the inspectors noted that procedure STI-426.03, "Processing Noteworthy [Operating Experience] (NOE)," Revision 2, provides timing expectations for completing various activities to support the overall completion of NOE, including a 24-month allowed timeline for closing operating experience reviews. The inspectors observed that the station is leaving itself vulnerable to excessive OE review extensions because of delayed reviews. Examples include:</p> <ol style="list-style-type: none"> 1. An NOE review of Comanche Peak's Structure Monitoring Inspection Guide determined that security structures are not listed and recommended adding security structures, including bullet resistant enclosures, to the monitoring plan. This operating experience was first documented in the licensee's system on January 20, 2022, and is scheduled to be reviewed September 30 30, 2023, approximately 20 months after it was initially documented. 2. Operating experience review evaluations of inter-utility transfers of safety-related items did not have due dates established. 3. Operating experience reviews associated with Electrical Power Research Institute guidance recommended changes to steam generator inspections were given a due date of September 15, 2022, but no actions were closed or extended as of the inspection in early 2023. <p>The inspectors did not identify any performance deficiencies associated with these issues, but the inspectors noted that delaying reviews of operating experience or failing to meet station expectations associated with establishing review timelines could leave the station vulnerable to excessive review extensions or untimely action to address operating experience.</p>	

Observation: Tracking of Actions to Ensure Regulatory Compliance Outside the Corrective Action Program	71152B
<p>The inspectors noted that the station uses the action tracking system to ensure upcoming changes to regulatory requirements or license changes are adequately tracked. Additionally, by procedure, tracking items do not need due dates and due dates can be readily changed. Although allowed by process and not covered by regulation, the inspectors observed that this practice leaves the site vulnerable to delinquent compliance if no due date is assigned or the date is changed. For example, TR-2022-007512 tracks procedure changes needed to implement the fourth interval inservice testing program, TR-2022-008444 tracks implementation of changes to 10 CFR Part 26, and TR-2022-006884 tracks a necessary change to the Updated Final Safety Analysis Report. Each of these three examples includes actions that are not currently required but will be required at some future date. By tracking these items using the action tracking system vice the corrective action program, the inspectors observed that the station is vulnerable to compliance issues in these cases if the issue tracking system is not utilized rigorously and effectively.</p>	

Observation: Linking of Actions to Causal Factors	71152B
<p>The inspectors noted that some CR/TRs that include evaluations to identify causal factors do not always identify actions to address the causal factors. For example:</p> <ul style="list-style-type: none"> • CR-2022-005030 addresses issues involving clearances. The site took numerous actions to address these issues; however, the actions taken are not included in CR-2022-005030. • CR-2022-002908 includes an investigation of operation of the fuel building crane damaging a crank handle. Although many factors are identified as contributing to the event, only one factor—visibility of the handle—is addressed. <p>The inspectors did not identify any performance deficiencies associated with these observations but noted that not rigorously linking actions taken to identified causal factors can result in causal factors not being addressed given the right circumstances.</p>	

Observation: Root Cause Analysis (CR-2022-006527) Corrective Actions and the SMARTER Approach	71152B
<p>Procedure STI-422.06, "Root Cause Analysis," Step 6.3.5.14.7. states, "Corrective Actions, Fix the Problem Actions, and Corrective Actions to Prevent Recurrence should be designed to be SMARTER." The "E" in the SMARTER acronym is for "Effective," meaning corrective actions should be developed to correct the cause. The corrective actions for the root cause evaluation associated with the September 5, 2022, main turbine and reactor trip, states "Corrective actions for the Direct and Root Causes and the Extent of Condition of this event is to develop and schedule implementation of a modification to the routing and installation of the Main Turbine shaft displacement probe cabling to preclude the possibility of cable chafing."</p> <p>The verbiage used in the corrective actions is specific to the development and scheduling of a modification, not the implementation of a modification. The specific verbiage used allows the corrective actions to be closed prior to correcting the problem. This type of vague corrective action language leaves the station susceptible to closing a condition report outside of administratively controlled processes and to causes not being addressed.</p>	

EXIT MEETINGS AND DEBRIEFS

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

- On February 9, 2023, the inspectors presented the biennial problem identification and resolution inspection results to Steven Sewell, Acting Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152B	Corrective Action Documents	CR-, IR-, OER-, or TR-	2010-006742; 2012-003864; 2013-002592; 2014-003264; 2014-008651; 2016-001293; 2016-006382; 2017-004010; 2017-010346; 2017-011736; 2018-001614; 2018-003437; 2018-003939; 2018-007076; 2019-002945; 2019-004572; 2019-006265; 2019-006601; 2019-006852; 2019-006864; 2019-007256; 2019-007541; 2019-003759; 2019-003764; 2019-003768; 2019-003772; 2019-004310; 2019-004337; 2019-004357; 2019-004491; 2020-003515; 2020-004975; 2020-008531; 2020-008667; 2020-008868; 2020-008903; 2020-009310; 2020-007769; 2021-001583; 2021-002216; 2021-002385; 2021-002599; 2021-003643; 2021-003884; 2021-004096; 2021-004162; 2021-005014; 2021-005058; 2021-005338; 2021-005552; 2021-005555; 2021-005584; 2021-005607; 2021-005618; 2021-005699; 2021-005818; 2021-005820; 2021-005852; 2021-005888; 2021-005957; 2021-005972; 2021-006042; 2021-006046; 2021-006139; 2021-006202; 2021-006278; 2021-006325; 2021-006483; 2021-006492; 2021-006651; 2021-006894; 2021-006936; 2021-006986; 2021-007201; 2021-007239; 2021-007307; 2021-007314; 2021-007419; 2021-007446; 2021-007617; 2021-007841; 2021-007968; 2021-007969; 2021-007999; 2021-008040; 2021-008073; 2021-008257; 2021-008295; 2021-008411; 2021-008420; 2021-008524; 2021-008579; 2021-008667; 2021-002743; 2021-003699; 2021-005014; 2021-005058; 2021-005340; 2021-005616; 2021-005872; 2021-005937; 2021-005987; 2021-006191; 2021-006894; 2021-007253; 2021-007593; 2021-008145; 2021-008180; 2021-008319; 2022-000079; 2022-000136; 2022-000164; 2022-000189; 2022-000202; 2022-000205; 2022-000217; 2022-000223; 2022-000292; 2022-000419; 2022-000571; 2022-000571; 2022-000574; 2022-000640; 2022-000760; 2022-000767; 2022-000819; 2022-000843; 2022-001035; 2022-001109; 2022-001114; 2022-001117; 2022-001188;	

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			2022-001395; 2022-001448; 2022-001598; 2022-001638; 2022-001650; 2022-001656; 2022-001856; 2022-001857; 2022-001862; 2022-001896; 2022-001897; 2022-001933; 2022-002105; 2022-002147; 2022-002408; 2022-002415; 2022-002499; 2022-002504; 2022-002622; 2022-002708; 2022-002765; 2022-002908; 2022-002940; 2022-003074; 2022-003093; 2022-003152; 2022-003483; 2022-003605; 2022-003753; 2022-003800; 2022-004151; 2022-004340; 2022-004374; 2022-004505; 2022-004518; 2022-004564; 2022-004667; 2022-004746; 2022-004940; 2022-004943; 2022-005030; 2022-005304; 2022-005306; 2022-005336; 2022-005345; 2022-005515; 2022-005543; 2022-005562; 2022-005605; 2022-005644; 2022-005661; 2022-005807; 2022-005809; 2022-005846; 2022-005851; 2022-005871; 2022-005977; 2022-006199; 2022-006379; 2022-006527; 2022-006565; 2022-006613; 2022-006748; 2022-006828; 2022-006832; 2022-006840; 2022-006884; 2022-006900; 2022-006915; 2022-006952; 2022-007066; 2022-007100; 2022-007170; 2022-007252; 2022-007495; 2022-007512; 2022-007600; 2022-007683; 2022-007688; 2022-007731; 2022-007818; 2022-007931; 2022-008066; 2022-008297; 2022-008444; 2022-008456; 2022-008633; 2022-008698; 2022-008699; 2022-008700; 2022-008802; 2022-008810; 2022-008841; 2022-008843; 2022-008969; 2023-000059; 2023-000396; 2023-000428; 2023-000430; 2023-000431; 2023-000459; 2023-000489; 2023-000490; 2023-000495; 2023-000501; 2023-000503; 2023-000509; 2023-000510; 2023-000511; 2023-000512; 2023-000513; 2023-000514; 2023-000516; 2023-000517; 2023-000518; 2023-000519; 2023-000520; 2023-000521; 2023-000522; 2023-000523; 2023-000524; 2023-000525; 2023-000527; 2023-000530; 2023-000563; 2023-000566; 2023-000596; 2023-000622; 2023-000735; 2023-000802; 2023-000857; 2023-000881; 2023-000882; 2023-000887; 2023-000941; 2023-000954; 2023-000955; 2023-000956; 2023-000957; 2023-001879;	

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			2023-001880; 2023-001897	
71152B	Corrective Action Documents Resulting from Inspection	CR-, IR-, or TR-	2023-000563; 2023-000566; 2023-000596; 2023-000622; 2023-000735; 2023-000802; 2023-000857; 2023-000881; 2023-000882; 2023-000887; 2023-000941; 2023-000954; 2023-000955; 2023-000956; 2023-000957; 2023-001879; 2023-001880; 2023-001897	
71152B	Engineering Evaluations	FDA-2004-000773	Design Modification to provide resolution of various Unit 1 and Unit 2 Turbine Generator digital upgrade modification open items during 2RF10	1-28
71152B	Engineering Evaluations	FDA-2022-000024	Replace Eddy Current Probe, Driver, and Cable for Proximity Probes	04/24/2022
71152B	Miscellaneous		Outage Discovery Issue 14, Circulating Water Manway Leak	November 11, 2021
71152B	Miscellaneous		Allied Security 2022 CPNPP Safety Conscious Work Environment Pulsing Survey	
71152B	Miscellaneous		Maintenance 2022 CPNPP Safety Conscious Work Environment Pulsing Survey	
71152B	Miscellaneous		Site Engineering and Engineering Project Management 2022 CPNPP Safety Conscious Work Environment Pulsing Survey	
71152B	Miscellaneous		Operations 2022 CPNPP Safety Conscious Work Environment Pulsing Survey	
71152B	Miscellaneous		Corporate Support (HR, IT and Accounting) 2022 CPNPP Safety Conscious Work Environment Survey	
71152B	Miscellaneous		CPNPP MRM Meeting Report	November 16, 2022
71152B	Miscellaneous		CPNPP Analysis Handbook	17
71152B	Miscellaneous	ECP Case File 16891		
71152B	Miscellaneous	ECP Case File 16893		
71152B	Miscellaneous	ECP Case File 16894		
71152B	Miscellaneous	ECP Case File 16895		

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71152B	Miscellaneous	ECP Case File 16896		
71152B	Miscellaneous	ECP Case File 16897		
71152B	Miscellaneous	ECP Case File 16898		
71152B	Miscellaneous	ECP Case File 16900		
71152B	Miscellaneous	ECP Case File 16901		
71152B	Miscellaneous	ECP Case File 16902		
71152B	Miscellaneous	ECP Case File 16903		
71152B	Miscellaneous	ECP Case File 16904		
71152B	Miscellaneous	ECP Case File 16905		
71152B	Miscellaneous	ECP Case File 16908		
71152B	Miscellaneous	ECP Case File 16910		
71152B	Procedures		CPNPP Analysis Handbook	17
71152B	Procedures	2323-ES-100	Specification Electrical Installation	122
71152B	Procedures	ECE-5.08	Standard Design Process	04
71152B	Procedures	MSM-P0-4703	Centrifugal Charging Pump Speed Increaser Lube Oil Pump Coupling Inspection	2
71152B	Procedures	OPT-521A	ECCS Operability	9
71152B	Procedures	OPT-521B	ECCS Operability	10
71152B	Procedures	STA-421	Control of Issue Reports	21
71152B	Procedures	STA-422	Corrective Action Program	34
71152B	Procedures	STA-422	Corrective Action Program	36
71152B	Procedures	STA-424	Self-Assessment and Benchmarking programs	12
71152B	Procedures	STA-426	Industry Operating Experience Program	10

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71152B	Procedures	STA-501	Nonroutine Reporting	21
71152B	Procedures	STI-421.01	Initiation of Issue Reports	0
71152B	Procedures	STI-421.01	Initiation of Issue Reports	1
71152B	Procedures	STI-421.02	Issue Report Reviews	4
71152B	Procedures	STI-422.01	Operability Determination Program	06
71152B	Procedures	STI-422.03	Performing Coaching and Investigations	06
71152B	Procedures	STI-422.06	Performing Root Cause Analyses	01
71152B	Procedures	STI-422.06	Performing Root Cause Analyses	00
71152B	Procedures	STI-423.01	Processing Tracking Reports	0
71152B	Procedures	STI-426.01	Processing and Maintaining Significant OE IER Levels 1 & 2 & SOER's	02
71152B	Procedures	STI-426.03	Processing Noteworthy OE (NOE)	02
71152B	Procedures	STI-433.01	Maintaining Equipment Important to Emergency Response	Revision 8
71152B	Procedures	STI-606.01	Work Control Process	10
71152B	Procedures	STI-748.02	Single Point Vulnerability Review, Elimination, and Mitigation	04
71152B	Procedures	STI-748.02	Single Point Vulnerability Review, Elimination, and Mitigation	04
71152B	Self-Assessments	EVAL-2021-001	Audit: Emergency Preparedness	December 16, 2021
71152B	Self-Assessments	EVAL-2021-002	CPNPP Nuclear Oversight Evaluation Report: Performance Improvement	01/27/2022
71152B	Self-Assessments	EVAL-2021-006	CPNPP Nuclear Oversight Audit Report: Chemistry, Environmental, Effluent, and Radioactive Waste	03/03/2022
71152B	Self-Assessments	EVAL-2022-001	Audit: Operations Training Program	07/07/2022
71152B	Self-Assessments	EVAL-2022-003	Audit: Operations Program	September 29, 2022
71152B	Self-Assessments	EVAL-2022-008	CPNPP Nuclear Oversight Audit Report: Performance Improvement Process	12/21/2022
71152B	Work Orders	22-159909	Operator Valve Mechanical Mod# B-180-B-EX-29 Ser# STAB-09	03/21/2022
71152B	Work Orders	4-06-167105-00	Turbine Electrohydraulic Control unit	10/25/2006
71152B	Work Orders	WO 21-780941	Splice Box for 2-TE-3617B-10	10/15/2021
71152B	Work Orders	WO 21-811856	Flex Portable 12 KW Diesel Generator 120/240V X-01	01/18/2022
71152B	Work Orders	WO 21-891051	Signal Modifier Mod#B8-5806/E2 Ser#NA	12/02/2021

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71152B	Work Orders	WO 5972443	Operator Valve Mechanical Mod#38991 Ser#56645	05/10/2022