



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

November 19, 2015

Mr. Rafael Flores, Senior Vice President
and Chief Nuclear Officer
Luminant Generation Company LLC
Comanche Peak Nuclear Power Plant
P.O. Box 1002
Glen Rose, TX 76043

**SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT-NRC INTEGRATED
INSPECTION REPORT 05000445/2015003 and 05000446/2015003**

Dear Mr. Flores:

On September 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Nuclear Power Plant, Units 1 and 2. On September 29, 2015, the NRC inspectors discussed the results of this inspection with Mr. Ken Peters, Site Vice President, and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. One of these findings involved violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the violations or significance of these NCVs, 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, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the 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 Regional Administrator, Region IV; and the NRC resident inspector at the Comanche Peak Nuclear Power Plant, Units 1 and 2.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's

R. Flores

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Sincerely,

/RA/

Jeremy R. Groom, Branch Chief
Projects Branch A
Division of Reactor Projects

Dockets Nos. 50-445 and 50-446

License Nos. NPF-87 and NPF-89

Enclosure: Inspection Report 05000445/2015003 and 05000446/2015003
w/Attachment: Supplemental Information

cc w/ encl: Electronic Distribution

R. Flores

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Letter to Rafael Flores from Jeremy Groom dated November 19, 2015

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT-NRC INTEGRATED
INSPECTION REPORT 05000445/2015003 and 05000446/2015003

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Electronic Distribution for Comanche Peak Nuclear Power Plant

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000445, 05000446
License: NFP-87, NFP-89
Report: 05000445/2015003 and 05000446/2015003
Licensee: Luminant Generation Company LLC
Facility: Comanche Peak Nuclear Power Plant, Units 1 and 2
Location: 6322 N. FM-56, Glen Rose, Texas
Dates: July 1 through September 30, 2015
Inspectors: J. Josey, Senior Resident Inspector
R. Kumana, Resident Inspector
J. Drake, Senior Reactor Inspector
J. Reynoso, Resident Inspector
Approved By: Jeremy R. Groom
Chief, Project Branch A
Division of Reactor Projects

SUMMARY

IR 05000445/2015002 and 05000446/2015002; 07/01/2015 – 09/30/2015; Comanche Peak NPP, Units 1 and 2; Integrated Inspection Report: Maintenance Effectiveness, Follow-up of Events and Notices of Enforcement Discretion

The inspection activities described in this report were performed between July 1, 2015, through September 30, 2015, by the resident inspectors at the Comanche Peak Nuclear Power Plant and inspectors from the NRC's Region IV and Headquarters offices. Two findings of very low safety significance (Green) are documented in this report. One of these findings involved a violation of NRC requirements. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas." Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Cornerstone: Initiating Events

- **Green.** The inspectors identified a non-cited violation of 10 CFR Part 50.65(a)(1) for the failure to take appropriate corrective actions for a system that did not meet established goals. Specifically, the Unit 1 instrument air system had been in maintenance rule (a)(1) status since 2011 due to dryer component failures. In 2014, the instrument air system experienced additional failures that resulted in water accumulating in air operated valve actuators on Unit 1. The water intrusion resulted in abnormal operation of the air operated valves in the Unit 1 main feedwater system. These failures were determined to be due to inadequate maintenance on the instrument air dryers unrelated to the 2011 failures. However, the licensee failed to revise their corrective actions to address the causes of the water intrusion. The licensee entered these issues into corrective action program as Condition Report CR-2015-009077.

The licensee's failure to take appropriate corrective actions for a system that did not meet established goals was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the equipment performance attribute of the Initiating Events cornerstone and 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 take appropriate corrective actions adversely affected the reliability of a system scoped in the plant's maintenance rule program. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding affected a support system initiator but did not involve the loss of a support system that contributed to the likelihood of an initiating event and affected mitigation equipment. The finding has a problem identification and resolution cross-cutting aspect associated with evaluation, in that, the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes. Specifically, the licensee performed an inadequate cause evaluation and failed to identify the cause of the water intrusion [P.2]. (Section 1R12).

- Green. The inspectors reviewed a self-revealing finding associated with an inadequate procedure which resulted in a unit down power. Specifically, the procedure used for over speed testing of the main feedwater pumps did not provide adequate guidance for operation of the test push button which resulted in a trip of main feedwater pump 1A and subsequent unit power reduction. The licensee entered this issue into the corrective action program as Condition Report CR-2015-005195, and took actions to increase the maintenance frequency on the mechanical trip device, and to reduce power when performing mechanical over speed testing in the future.

The failure to provide adequate procedures for main feedwater pump over speed testing was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the procedural quality attribute of the Initiating Events Cornerstone, and directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations, and is therefore a finding. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined that this finding does not have a cross-cutting aspect because the most significant contributor of this finding would have occurred more than three years ago, in 2001, and is not reflective of current licensee performance. (Section 4OA3)

PLANT STATUS

Unit 1 began the inspection period at approximately 100 percent power and operated at that power level for the entire inspection period.

Unit 2 began the inspection period at approximately 100 percent power and operated at that power level for the entire inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate AC Power Systems

a. Inspection Scope

On September 8, 2015, the inspectors completed an inspection of the station's off-site and alternate-ac power systems. The inspectors inspected the material condition of these systems, including transformers and other switchyard equipment to verify that plant features and procedures were appropriate for operation and continued availability of off-site and alternate-ac power systems. The inspectors reviewed outstanding work orders and open condition reports for these systems. The inspectors walked down the switchyard to observe the material condition of equipment providing off-site power sources.

These activities constituted one sample of summer readiness of off-site and alternate-ac power systems, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walk-downs of the following risk-significant systems:

- July 9, 2015, Unit 2, emergency core cooling system train A while residual heat removal pump 2-02 and safety injection pump 2-02 were inoperable
- September 30, 2015, Unit 1, emergency diesel generator 1-02 while emergency diesel generator 1-01 was inoperable

The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the systems. They visually verified that critical portions of the systems were correctly aligned for the existing plant configuration.

These activities constituted two partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Inspection

a. Inspection Scope

The inspectors evaluated the licensee's fire protection program for operational status and material condition. The inspectors focused their inspection on five plant areas important to safety:

- September 15, 2015, Unit 2, turbine driven auxiliary feed water pump 2-01 room
- September 15, 2015, Unit 2, motor driven auxiliary feed water pump 2-01 room
- September 15, 2015, Unit 1, train A switchgear room 1-083
- September 16, 2015, Unit 2, train B switchgear room 2-103
- September 16, 2015, Unit 2, train A component cooling water pump room

For each area, the inspectors evaluated the fire plan against defined hazards and defense-in-depth features in the licensee's fire protection program. The inspectors evaluated control of transient combustibles and ignition sources, fire detection and suppression systems, manual firefighting equipment and capability, passive fire protection features, and compensatory measures for degraded conditions.

These activities constituted five quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

.2 Annual Inspection

a. Inspection Scope

On September 16, 2015, the inspectors completed their annual evaluation of the licensee's fire brigade performance. This evaluation included observation of two fire drills:

- September 2, 2015, unannounced drill, fire in the component cooling water heat exchanger room
- September 16, 2015, unannounced drill, fire in the Unit 2 cable spreading room

During these drills, the inspectors evaluated the capability of the fire brigade members, the leadership ability of the brigade leader, the brigade's use of turnout gear and fire-fighting equipment, and the effectiveness of the fire brigade's team operation. The inspectors also reviewed whether the licensee's fire brigade met NRC requirements for training, dedicated size and membership, and equipment.

These activities constituted one annual inspection sample, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On September 24, 2015, the inspectors observed simulator training for an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed the modeling and performance of the simulator during the training activity.

These activities constitute completion of one quarterly licensed operator requalification program sample, as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.2 Review of Licensed Operator Performance

a. Inspection Scope

The inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity and risk. The inspectors observed the operators' performance of the following activities:

- July 20, 2015, Unit 2, observation during reactor trip breaker testing
- September 29, 2015, Unit 2, observation during main steam safety valve testing

In addition, the inspectors assessed the operators' adherence to plant procedures, including the conduct of operations procedure and other operations department policies.

These activities constitute completion of one quarterly licensed operator performance sample, as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed instances of degraded performance or condition of safety-related structures, systems, and components (SSCs):

- August 18, 2015, Units 1 and 2, drain valves from Units 1 and 2 safety chiller room to the electrical and control building
- September 10, 2015, Unit 1, instrument air system dryer failures
- September 10, 2015, Unit 2, station blackout sequencer component failures

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

These activities constituted completion of three maintenance effectiveness samples, as defined in Inspection Procedure 71111.12.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50.65(a)(1), "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," for the failure to take appropriate corrective actions for a system that did not meet established goals. After incurring failures that were due to causes not previously evaluated, the licensee failed to meet established goals. The licensee failed to take appropriate corrective actions for not meeting those goals because they did not address the additional failures.

Description. The Unit 1 instrument air system had been in maintenance rule (a)(1) status since 2011 due to dryer component failures. The scoped function of the instrument air system is to provide clean plant air at the required pressure and desired humidity in all modes. In January 2014, the licensee identified multiple instances of water accumulating in air operated valve actuators on unit 1. The water was discovered when it caused the following abnormal operation of valves in the feedwater system:

- On January 2, 2014, the Loop 1 flow control bypass valve cycled several times, resulting in steam generator level transient of approximately 1.5 percent. This was discovered on January 6 during data review and attributed to water in the pressure regulator.
- On January 5, 2014, maintenance personnel found water spraying from an instrument air header drain valve.
- On January 6, 2014, the operators received a low level alarm for feedwater heater 4B. The operators responded to the alarm and discovered the pressure regulator for the alternate drain valve had failed due to water in the instrument air supply line.
- On January 6, 2014, operators discovered water in the air supply regulators for all four feedwater flow control bypass valves.

The licensee performed a cause evaluation that determined the additional failures were a result of water intrusion caused by a combination of extreme low temperatures and moisture ingress into the instrument air system via Fick's law. This physical phenomenon describes the ingress of moisture into high pressure air systems through leaks in the downstream piping. The inspectors questioned the evaluation based on several observations: (1) The dew point of the system was designed to be -40°F which is far lower than the lowest ambient temperature experienced during that time; (2) The amount of water discovered exceeded what could reasonably be expected from vapor migration through unidentified leaks; (3) The water only appeared in the unit 1 subsystem despite both units being exposed to the same environmental conditions; and (4) The licensee had identified multiple alarms on the unit 1 air dryers, but did not account for these alarms in their evaluation.

In September 2014, the licensee contracted a vendor to audit their instrument air system. The vendor identified inadequate maintenance on the instrument air dryers as the likely cause of the water accumulation. Specifically, the vendor identified incorrect sweep cycle settings on the unit dryers, moisture indicators being isolated and not restored, and dew point monitors not being calibrated. However, the licensee failed to revise their earlier cause evaluation for water intrusion in the instrument air system, and consequently failed to re-classify the water intrusion as maintenance preventable functional failures. The instances of water intrusion represented failures of the instrument air system to provide air at the desired humidity and could have been prevented by properly setting and calibrating the dryers. This resulted in the licensee exceeding the existing (a)(1) goals set in 2011 of no more than three functional failures for a 24 month period.

In December 2014, the licensee reviewed maintenance rule performance of the unit 1, unit 2, and common instrument air systems. The licensee identified that the instrument air train 1-02 had maintenance rule (a)(1) goals of three functional failures for a 24 month period, but had incurred eight failures. Inspectors determined that the licensee failed to identify that the four examples of water intrusion were additional failures that should have been classified as maintenance preventable functional failures. The inspectors determined that the licensee had missed classifying the failures properly

because the initial cause evaluation failed to identify the correct cause of the water intrusion, and the licensee's failure to reevaluate existing goals and corrective actions following the vendor audit identification of inadequately performed maintenance.

The licensee initiated Condition Report CR-2015-009077 to capture this issue in the stations corrective action program. The licensee is evaluating the maintenance rule action plan to determine appropriate corrective actions for the water intrusion.

Analysis. The licensee's failure to take appropriate corrective actions for a system that did not meet established goals was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the equipment performance attribute of the Initiating Events cornerstone and 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 take appropriate corrective actions adversely affected the reliability of a system scoped in the plant's maintenance rule program. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding affected a support system initiator but did not involve the loss of a support system that contributed to the likelihood of an initiating event and affected mitigation equipment. The finding has a problem identification and resolution cross-cutting aspect associated with evaluation, in that, the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes. Specifically, the licensee performed an inadequate cause evaluation and failed to identify the cause of the water intrusion [P.2].

Enforcement. Title 10 CFR Part 50.65(a)(1), "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," requires that appropriate corrective action shall be taken when the performance or condition of a system does not meet established goals. Contrary to the above, from December 2014 through present, the licensee failed to take appropriate corrective action when the performance of the instrument air system failed to meet established goals. Specifically, the licensee did not take appropriate corrective actions to address additional failures of the system due to water intrusion identified in January 2014. The issue does not represent an immediate safety concern because there have not been more instances of water intrusion in the instrument air system resulting in abnormal valve operation. The licensee generated a condition report to evaluate the goals and corrective actions. Since this violation was of very low safety significance (Green) and has been entered into the corrective action program as Condition Report CR-2015-009077, this violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000445/2015003-01, Failure to Take Appropriate Maintenance Rule Corrective Actions for the Instrument Air System)

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed one risk assessment performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in

response to elevated risk. The inspectors reviewed the risk assessment for taking emergency startup transformers XST2 out of service on September 22, 2015.

The inspectors verified that this risk assessment was performed timely and in accordance with the requirements of 10 CFR 50.65 (the Maintenance Rule) and plant procedures. The inspectors reviewed the accuracy and completeness of the licensee's risk assessment and verified that the licensee implemented appropriate risk management actions based on the result of the assessment.

The inspectors also observed portions of three emergent work activities that had the potential to cause an initiating event, or to affect the functional capability of mitigating systems:

- July 10, 2015, Unit 2, repair of safety injection pump 2-02 suction piping leak
- July 28, 2015, Unit 1, repair of containment spray heat exchanger 1-02 relief valve
- September 30, 2015, Unit 1, troubleshooting of diesel generator 1-01 failure

The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected SSCs.

These activities constitute completion of four maintenance risk assessments and emergent work control inspection samples, as defined in Inspection Procedure 71111.13.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed five operability determinations that the licensee performed for degraded or nonconforming SSCs:

- June 19, 2015, CR-2015-005538, Emergency core cooling system operability with pump switches disabled
- July 27, 2015, CR-2015-006605, Fire door S1-35D closing mechanism
- August 18, 2015, CR-2015-007371, Abnormal unit 1 service water flow indications
- August 19, 2015, WO-5060920/CR-2015-004959, Diesel generator 1-02 fuel oil transfer pump test
- September 3, 2015, CR-2015-007780, Non-conforming condition on radiation monitors

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded SSC to be operable, the inspectors verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability. The inspectors verified that the licensee had considered the effect of other degraded conditions on the operability of the degraded SSC.

These activities constitute completion of five operability review samples, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed three post-maintenance testing activities that affected risk-significant SSCs:

- February 26, 2015, Unit 1 turbine driven auxiliary feedwater pump following governor speed stop maintenance
- July 10, 2015, Safety injection pump 2-02 following suction piping drain and fill
- July 22, 2015, Containment spray pump 2-03 circuit breaker following control device and secondary stab replacement

The inspectors reviewed licensing- and design-basis documents for the SSCs and the maintenance and post-maintenance test procedures. The inspectors observed the performance of the post-maintenance tests to verify that the licensee performed the tests in accordance with approved procedures, satisfied the established acceptance criteria, and restored the operability of the affected SSCs.

These activities constitute completion of three post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed five risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the SSCs were capable of performing their safety functions:

In-service tests:

- August 18, 2015, Diesel generator fuel oil transfer pump 1-03 test

Other surveillance tests:

- May 12, 2015, Unit 2 pressurizer pressure transmitter calibration
- July 17, 2015, Unit 2 end-of-life moderator temperature coefficient measurement
- July 20, 2015, Unit 2 reactor trip breaker test
- August 4, 2015, Unit 1 and unit 2 reactor coolant system activity sample

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of the test satisfied appropriate acceptance criteria. The inspectors verified that the licensee restored the operability of the affected SSCs following testing.

These activities constitute completion of five surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Security

40A1 Performance Indicator Verification (71151)

.1 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors reviewed the licensee's reactor coolant system chemistry sample analyses for the period of April 2014 through March 2015 to verify the accuracy and completeness of the reported data. The inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample on August 4, 2015. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the reactor coolant system specific activity performance indicator for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Safety System Functional Failures (MS05)

a. Inspection Scope

For the period of April 2014 through March 2015, the inspectors reviewed licensee event reports (LERs), maintenance rule evaluations, and other records that could indicate whether safety system functional failures had occurred. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, and NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," Revision 3, to determine the accuracy of the data reported.

These activities constituted verification of the safety system functional failures performance indicator for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index: Emergency AC Power Systems (MS06), High Pressure Injection Systems (MS07), and Heat Removal Systems (MS08)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of July 2014 through June 2015 to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the mitigating system performance index for emergency ac power systems, high pressure injection systems, and heat removal systems for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

40A2 Problem Identification and Resolution (71152)

.1 Routine Review

a. Inspection Scope

Throughout the inspection period, the inspectors performed daily reviews of items entered into the licensee's corrective action program and periodically attended the licensee's condition report screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these

problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the significance of the problems identified. The inspectors also reviewed the licensee's problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 Trip of Unit 1 Main Feedwater Pump at 100% Power Due to Maintenance

a. Inspection Scope

On June 9, 2015, unit 1 main feedwater pump 1A tripped while the unit was at full power. The trip resulted in an automatic turbine runback to approximately 60 percent power. The residents reviewed the operating crew's performance in response to the event, the maintenance and recovery plan, and the evaluation of the cause.

b. Findings

Introduction. The inspectors reviewed a self-revealing, Green finding associated with an inadequate procedure which resulted in a unit down power. Specifically, the procedure used for over speed testing of the main feedwater pumps failed to provide adequate guidance for operation of the test push button which resulted in a trip of main feedwater pump 1A and subsequent unit power reduction.

Description. On June 9, 2015, while performing data gathering activities on the 1A Main Feedwater Pump to resolve an issue identified during overspeed testing, the pump tripped which resulted in an automatic runback. The licensee initiate Condition Report CR-2015-005204 to capture this issue in the station's corrective action program.

The licensee's root cause analysis performed for Condition Report CR-2015-005204, determined that Station Procedure ETP-302 A/B, "FWP Overspeed Trip/Stop Valve/Oil Pump Test," Revision 5, did not provide adequate guidance. Specifically, ETP-302 directs personnel to depress the trip button until the reset piston's indicating light changes. However, the procedure does not provide guidance for how long the trip button should be held or what actions should be taken should the indicating lights fail to change state. The licensee determined that based on this wording personnel were holding the push button until the lights changed state contrary to the vendor manual. As such, the licensee determined that the wording of ETP-302 directly led the operators to hold the push button for several minutes which resulted in damaging the trip plunger to the point of failure which caused the 1A Main Feedwater Pump to trip. Inspectors determined that the licensee's assessment of the event was appropriate.

The licensee's corrective actions included increased the maintenance frequency on the mechanical trip device, and to reduction in power when performing mechanical over speed testing.

Analysis. The failure to provide adequate procedures for main feedwater pump over speed testing was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the procedural quality attribute of the Initiating Events Cornerstone, and directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations, and is therefore a finding. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined that this finding does not have a cross-cutting aspect because the most significant contributor of this finding would have occurred more than three years ago, in 2001, and is not reflective of current licensee performance.

Enforcement. This finding does not involve enforcement action because no violation of a regulatory requirement was identified. Because the finding does not involve a violation, has very low safety significance, and has been entered into the corrective action program as Condition Report CR-2015-005195 it is identified as a finding. (FIN 05000445/2015003-02, Inadequate Maintenance Procedure Results in Power Reduction)

.2 (Open) Unit 2 Train B Safety Injection System Inoperable for Longer Than Allowed by Technical Specifications and Notice of Enforcement Discretion 15-4-02

Introduction. The inspectors opened an unresolved item associated with a potential noncompliance with Technical Specification 3.5.2 that occurred on July 10, 2015. Notice of Enforcement Discretion 15-4-02 was granted by the NRC staff agreeing not to enforce compliance with the technical specification completion time for an additional 25 hours.

Description. On July 7, 2015, a potential through wall leak from pipe segment SI-2-070 in the Unit 2, train B Safety Injection (SI) pump room was discovered during routine system walkdowns by a licensee engineer. Approximately 1-2 cups of boric acid accumulation was identified on the floor underneath valve 2SI-0055 (SIP 2-02 Suction Test Connection). The pipe insulation was removed to identify the source of the leakage, which was determined to be from a socket weld connection between the six-inch suction piping for SI Pump 2-02 and the ¾ inch vent piping to 2SI-0055.

At 1:04 p.m. on July 7, 2015, the licensee declared unit 2, train B, Emergency Core Cooling System (ECCS) inoperable and entered Technical Specification 3.5.2, Condition B, for "one or more [ECCS] trains inoperable for reasons other than one inoperable centrifugal charging pump, and at least 100 percent of the ECCS flow equivalent to a single operable ECCS train available." Required Action B.1 of Technical Specification 3.5.2 required restoration of the train(s) to an operable status within 72 hours. Further, Technical Specification 3.5.2 required that if Required Action B.1 could not be met within 72 hours, unit 2 would be required to enter Technical Specification 3.5.2 Condition C, Required Actions C.1 and C.2, and be in Mode 3 in 6 hours and Mode 4 in 12 hours. The licensee's initial assessment determined the likely cause of the socket weld failure to be vibration induced fatigue failure. An attempted repair utilizing ASME Code Case N-666 was conducted on July 8, 2015. During the welding activity a small pinhole leak

developed in the vent piping. The licensee then initiated alternate repair activities including a freeze seal on the affected piping, installation of a new vent line and valve (to facilitate post-repair filling and venting of the SI piping), and repair of the affected weld. The licensee requested a notice of enforcement discretion and an additional 25 hours to restore safety injection pump 2-02, such that the completion time of Required Action B.1 would expire at 2:04 p.m. on July 11, 2015.

A notice of enforcement discretion was granted by the NRC staff at 9:20 a.m. on July 10, 2015. Consistent with NRC policy, the NRC agreed not to enforce compliance with the specific technical specifications in this instance, but will further review the cause(s) that created the apparent need for enforcement discretion to determine if there is a performance deficiency, if the issue is more than minor, or if there is a violation of requirements. This issue will be tracked as an unresolved item. (URI 05000446/2015003-03, Notice of Enforcement Discretion 15-4-02 for One Inoperable Train of Emergency Core Cooling Systems)

These activities constitute completion of two event follow-up samples, as defined in Inspection Procedure 71153.

40A5 Other Activities

a. Inspection Scope

The inspectors evaluated the impact of financial conditions on continued safe performance at Comanche Peak. In that the licensee's parent company, Energy Future Holdings, was under bankruptcy protection/reorganization during the inspection period, NRC Region IV conducted special reviews of processes at Comanche Peak. The inspectors evaluated several aspects of the licensee's operations to determine whether the financial condition of the station impacted plant safety. The factors reviewed included: (1) impact on staffing, (2) corrective maintenance backlog, (3) changes to the planned maintenance schedule, (4) corrective action program implementation, and (5) reduction in outage scope, including risk-significant modifications. In particular, the inspectors verified that licensee personnel continued to identify problems at an appropriate threshold and enter these problems into the corrective action program for resolution. The inspectors also verified that the licensee continued to develop and implement corrective actions commensurate with the significance of the problems identified.

The special review of processes at Comanche Peak included continuous reviews by the Resident Inspectors, as well as the specialist-led baseline inspections completed during the inspection period which are documented previously in this report.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On September 29, 2015, the inspectors presented the resident inspection results to Mr. K. Peters, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Flores, Senior Vice President and Chief Nuclear Officer
K. Peters, Site Vice President
T. McCool, Engineering and Support Vice President
J. Dreyfuss, Plant Manager
S. Sewell, Director, Organizational Effectiveness
T. Hope, Manager, Regulatory Affairs
D. Goodwin, Director, Work Management
D. McGaughey, Director, Operations
M. Stakes, Director, Maintenance
J. Taylor, Director, Site Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000445/2015003-01	NCV	Failure to Take Appropriate Maintenance Rule Corrective Actions for the Instrument Air System (Section 1R12)
05000445/2015003-02	FIN	Inadequate Maintenance Procedure Results in Power Reduction (Section 4OA3.1)

Opened

05000446/2015003-03	URI	Notice of Enforcement Discretion 15-4-02 for One Inoperable Train of Emergency Core Cooling Systems (Section 4OA3.2)
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LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STA-629	Switchyard Control and Transmission Grid Interface	7

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SOP-201B	Safety Injection System	9
SOP-609A	Diesel Generator System	21

Section 1R05: Fire Protection

Condition Reports

2015-008309

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ABN-901	Fire Protection System Alarms or Malfunctions	9
FPI-102B	Fire Preplan Instruction Manual, Unit 2 Safeguards Building Elevation 790'-6"	2
FPI-103A	Fire Preplan Instruction Manual, Unit 1 Safeguards Building Elevation 810'-6", Rad. Pen. Area & Elec. Equip. Rm	4
FPI-103B	Fire Preplan Instruction Manual, Unit 2 Safeguards Building Elevation 810'-6", Rad, Pen. Area & Elec. Equip. Rm	3
FPI-401	Fire Preplan Instruction Manual, Auxiliary Building Elevation 790'-6"	3
FPI-504	Fire Preplan Instruction Manual, Electrical and Control Building Elevation 807'0", Unit 2 Cable Spreading Room	1
STA-661	Non-Plant Equipment Storage and Use Inside Seismic Category I Structures	5
STA-722	Fire Protection Program	7
STA-724	Fire Reporting and Response	3
STA-727	Fire Brigade	6

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STA-729	Control of Transient Combustibles, Ignition Sources and Fire Watches	11

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
FD15-12	Fire Drill Scenario	9/2/15
FD15-15	Fire Drill Scenario	9/16/15

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPT-448B	Mode 1, 3 and 4 Train B SSPS Actuation Logic Test	11

Section 1R12: Maintenance Effectiveness

Condition Reports

2005-003468	2011-000038	2012-011513	2012-012280	2014-000049
2014-000049	2014-000075	2014-000080	2014-000107	2014-000221
2014-000238	2014-002922	2014-007764	2014-007781	2014-008081
2014-010008	2014-010558	2014-013307	2015-002026	2015-002459
2015-002904	2015-004900	2015-007298		

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
MSM-P0-7336	Instrument Air Dryer Maintenance	0

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Compressed Air System Analysis	Sep. 2014
13-0429	Maintenance Rule Review Panel Meeting Minutes	4/29/2013
15-0129	Maintenance Rule Review Panel Meeting Minutes	1/29/2015

Work Orders

4410558 PM 339493 PM 339501

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Condition Reports

2001-001368 2015-006692

Section 1R15: Operability Determinations and Functionality Assessments

Condition Reports

2015-006716 2015-006605 2015-005538 2015-007371 2015-001255
2015-004959 2015-007780

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FIR-302	Fire Door Tests and Inspections	8
INC-7090X	Digital Channel Operational Test, Analog Channel Operational Test, and Channel Calibration Plant Vent Stack Wide Range Gas Monitor Channels: X-RE-5570A,, X-RE-5570B	6
INC-7099X	GPRM Channel Operational Test and Channel Calibration Control Room Vent Intake South Channel X-RE-5896B or North Channel X-RE-5895A	4

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
--	Fire Protection Report	28

Work Orders

5057049 5060920

Section 1R19: Post-Maintenance Testing

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ME(B)-254	Maximum Auxiliary Feedwater Flow to the Steam Generators	1

Condition Reports

2011-012023	2014-009237	2014-009982	2014-013778	2015-000135
2015-001843	2015-001856	2015-001868	2015-001960	2015-002024
2015-002686	2015-003140	2015-007311		

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
MSM-C0-4313	Auxiliary Feedwater Pump Turbine Maintenance	5
MSM-C0-8721	Governor Valve for Terry Turbine	2
OPT-206A	AFW System	29
STI-606.01	Work Control Process	1
STI-606.03	Work Planning	1

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
NP-6909	Terry Turbine Controls Guide	

Work Orders

4271285	4271286	4271287	4271288	4271289
4271290	4514042	4622628	4664257	4913605
4976252	4990435	5061312	3-06-337175-01	

Section 1R22: Surveillance Testing

Condition Reports

2015-004372

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
BRP-SI-2-SB-010	Safety Injection	CP-5
BRP-SI-2-SB-014	Safety Injection	CP-4
M2-0262	Flow Diagram Safety Injection System Sheet 2 of 6	CP-20
M2-2251	Instrumentation & Control Diagram Reactor Coolant System Channel 0457, 0461, 0462	CP-2

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CHM-120	Primary Chemistry	15
CLI-768	Calculation of Dose Equivalent I-131	5
COP-101A	Reactor Coolant System	11
INC-2100B	Instrument Valve Lineup	1
INC-7725B	Analog Channel Operational Test and Channel Calibration Pressurizer Pressure Protection Set III, Channel 0457	1
NUC-202	At-Power MTC Measurement (EOL)	13
OPT-448B	Mode 1, 3 and 4 Train B SSPS Actuation Logic Test	11
OPT-515A	Diesel Generator Fuel Oil Transfer System	12
STA-609	Reactor Coolant Water Chemistry Control Program	11

Work Orders

5060920

Section 40A1: Performance Indicator Verification

Condition Reports

2014-005254

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/ Date</u>
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	7

Section 40A3: Follow-up of Events and Notices of Enforcement Discretion

Condition Reports

2015-005204 2015-005903 2015-006001