



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

October 26, 2017

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

**SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT – NRC INTEGRATED
INSPECTION REPORT 05000445/2017003 and 05000446/2017003**

Dear Mr. Peters:

On September 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Nuclear Power Plant, Units 1 and 2. On September 27, 2017, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. Both 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 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; and the NRC resident inspector at the Comanche Peak Nuclear Power Plant.

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

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 made available electronically for public inspection in the NRC's Public Document Room or the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

K. Peters

2

To the extent possible, your response, if any, should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Sincerely,

/RA/

Mark S. Haire, Chief
Project Branch A
Division of Reactor Projects

Docket Nos. 5000445 and 5000446
License Nos. NPF-87 and NPF-89

Enclosure:
Inspection Report 05000445/2017003 and
05000446/2017003
w/ Attachment: Supplemental Information

COMANCHE PEAK NUCLEAR POWER PLANT – NRC INTEGRATED INSPECTION REPORT
05000445/2017003 and 05000446/2017003 – Dated October 26, 2017

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000445, 05000446

License: NPF-87, NPF-89

Report: 05000445/2017003 and 05000446/2017003

Licensee: Vistra Operations 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, 2017

Inspectors: J. Josey, Senior Resident Inspector
R. Kumana, Resident Inspector
M. Chambers, Physical Security Inspector
P. Elkmann, Senior Emergency Preparedness Inspector
S. Hedger, Emergency Preparedness Inspector
B. Correll, Project Engineer

Approved By: Mark S. Haire
Chief, Project Branch A
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000445/2017003; 05000446/2017003; 07/01/2017 – 09/30/2017; Comanche Peak Nuclear Power Plant; Operability Determinations and Functionality Assessments; Problem Identification and Resolution

The inspection activities described in this report were performed between July 1 and September 30, 2017, by the resident inspectors at Comanche Peak Nuclear Power Plant and inspectors from the NRC's Region IV office. Two findings of very low safety significance (Green) are documented in this report. Both of these findings involved violations of NRC requirements. The significance of inspection findings is indicated by their color (i.e., Green, greater than Green, White, Yellow, or Red), determined using Inspection Manual Chapter 0609, "Significance Determination Process," dated April 29, 2015. Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014. 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," dated July 2016.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," associated with the licensee's failure to take timely corrective actions for a condition adverse to quality. Specifically, the licensee failed to take corrective actions for a leak in the hydraulic snubbers for the Unit 2, loop 3 steam generator, resulting in the level in the hydraulic fluid reservoir going below the minimum level in the sight glass on multiple occasions. This issue does not represent an immediate safety concern because the licensee took action to refill the hydraulic fluid reservoir. The licensee entered this issue into its corrective action program as Condition Report CR-2017-009071.

The licensee's failure to take timely and adequate corrective actions to correct a condition adverse to quality was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is associated with the protection against the external events performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to correct the leak resulted in the hydraulic fluid reservoir level dropping below the minimum sight glass level, and loss of reasonable assurance of adequate oil in the snubbers to support their operation. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, and Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process for Findings At-Power," Exhibit 4, "External Events Screening Questions," the inspectors determined the finding was of very low safety significance (Green) because: (1) the loss of the equipment by itself during the external initiating event it was intended to mitigate would not cause a plant trip or initiating event, would not degrade two or more trains of a multi-train system or function, and would not degrade one or more trains of a system that supports a risk significant system or function, and (2) the finding did not involve the total loss of any safety function that contributes to external event initiated core damage accident sequences. The finding has a human performance cross-cutting aspect associated with work management, in that, the licensee failed to ensure that the process of planning, controlling, and executing work

activities was implemented to ensure nuclear safety was the overriding priority [H.5]. (Section 1R15)

- Green. The inspectors identified 51 examples of a non-cited violation of Operating Licenses NPF-87 and NPF-89, License Condition 2.G, "Fire Protection Program," for the failure to control transient combustibles in accordance with the station's Fire Protection Report. Specifically, Fire Protection Report, Revision 29, identifies areas that require strict control of transient combustible materials such that they are not introduced into these areas without compensatory measures in place prior to introduction. Contrary to this, the licensee allowed storage of combustible materials in 51 areas without compensatory measures. This issue does not represent an immediate safety concern because the licensee removed the combustible materials when they were identified. The licensee entered this issue into its corrective action program as Condition Report CR-2017-008728.

The failure to control transient combustible materials in accordance with the approved Fire Protection Report is a performance deficiency. The performance deficiency was more than minor and therefore a finding because it was associated with the protection against the external factors attribute of the Mitigating System 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 introduction of transient combustible materials decreased the external event mitigation for fire prevention. Furthermore, the inspectors determined that this was a programmatic issue since multiple departments were responsible for the inappropriate introduction of combustible materials into the exclusion areas. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, the inspectors determined that the finding pertained to a failure to adequately implement fire prevention and administrative controls for transient combustible materials. As a result, the inspectors were directed to Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," September 20, 2013, and determined that the finding was of very low safety consequence (Green) because the fire prevention and administrative controls finding would not prevent the reactor from reaching and maintaining a safe shutdown condition because none of the examples impacted both trains of safe shutdown equipment. The finding has a human performance cross-cutting aspect associated with procedure adherence, in that station personnel failed to follow procedure requirements when introducing transient combustible materials into exclusion areas [H.8]. (Section 4OA2)

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 shutdown in Mode 5. Unit 2 went critical on August 11, 2017. Subsequently, while reactor power was at 10 percent the main turbine tripped due to a component issue, and reactor power was lowered to 3 percent. Unit 2 returned to full power on August 14, 2017. On September 1, 2017, unit 2 was manually tripped due to an electrical issue which resulted in two dropped control rods. Unit 2 returned to full power on September 6, 2017, and operated at that power level for the rest of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Partial Walk-Down

a. Inspection Scope

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

- July 26, 2017, Unit 2, diesel generator 2-01 while diesel generator 2-02 was out of service for maintenance.
- August 11, 2017, Unit 2, motor driven auxiliary feedwater pumps during startup activities.
- September 19, 2017, Unit 2, train B service water system during maintenance on service water pump 2-01.

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 or trains were correctly aligned for the existing plant configuration.

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

b. Findings

No findings were identified.

.2 Complete Walk-Down

a. Inspection Scope

On September 14, 2017, the inspectors performed a complete system walk-down inspection of the unit 1 and unit 2 125 VDC power system. The inspectors reviewed the licensee's procedures and system design information to determine the correct system lineup for the existing plant configuration. The inspectors also reviewed outstanding work orders, open condition reports, in-process design changes, temporary modifications, and other open items tracked by the licensee's operations and engineering departments. The inspectors then visually verified that the system was correctly aligned for the existing plant configuration.

These activities constituted one complete system walk-down sample, 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 four plant areas important to safety:

- July 18, 2017, Fire area EA73, Units 1 and 2, control room air conditioning room in the Electrical and Control Building.
- July 25, 2017, Fire area AA21d, Units 1 and 2 auxiliary building hallway X-219/X-207.
- July 26, 2017, Fire area AA153, Unit 1 safety-related chilled water system (CHS) room.
- July 28, 2017, Fire area EH52, Units 1 and 2, battery 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 four quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

.2 Annual Inspection

a. Inspection Scope

On August 4, 2017, the inspectors completed their annual evaluation of the licensee's fire brigade performance. This evaluation included observation of an unannounced fire drill for a fire in the unit 2 charging pump room on June 27, 2017.

During this drill, 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.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On September 12, 2017, the inspectors completed an inspection of the station's ability to mitigate flooding due to internal causes. After reviewing the licensee's flooding analysis, the inspectors chose one plant areas containing risk-significant structures, systems, and components that were susceptible to flooding:

- Unit 2, diesel generator rooms.

The inspectors reviewed plant design features and licensee procedures for coping with internal flooding. The inspectors walked down the selected areas to inspect the design features, including the material condition of seals, drains, and flood barriers. The inspectors evaluated whether operator actions credited for flood mitigation could be successfully accomplished.

These activities constituted completion of one flood protection measures sample, as defined in Inspection Procedure 71111.06.

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 18, 2017, the inspectors observed an evaluated simulator scenario performed by an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance.

These activities constituted 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

On August 11, 2017, 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 during start-up of Unit 2.

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

These activities constituted 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)

.1 Routine Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed one instance of degraded performance or condition of safety-significant structures, systems, and components (SSCs):

- August 22, 2017, Unit 1 125 VDC power system.

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 one maintenance effectiveness sample, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed four risk assessments performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk:

- July 10, 2017, Unit 2, risk management during 2FO17.
- July 20, 2017, Unit 2, class 1E under voltage testing.
- August 23, Unit 2, risk management actions during charging system maintenance.
- September 27, 2017, Unit 1, diesel generator 1-01 planned maintenance.

The inspectors verified that these risk assessments were 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 assessments and verified that the licensee implemented appropriate risk management actions based on the result of the assessments.

Additionally, on August 23, 2017, the inspectors observed portions of Unit 2, diesel generator 2-02, emergent work activities that had the potential to affect the functional capability of mitigating systems.

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 constituted completion of five 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:

- July 12, 2017, Unit 2, CR-2017-006871 steam generator 2-03 degraded snubber.
- July 21, 2017, Units 1 and 2, CR-2017-007577 Safeguards inverters breaker coordination.
- July 22, 2017, Units 1 and 2, IR-2017-008221 environmental qualification of limit switches.
- September 5, 2017, Unit 1, CR-2017-009928 condensate storage tank bladder excess nitrogen.
- September 27, 2017, Units 1 and 2, CR-2017-009296 solenoid valve beyond environmental qualified life.

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 constituted completion of five operability and functionality review samples as defined in Inspection Procedure 71111.15.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," associated with the licensee's failure to take timely corrective actions for a condition adverse to quality. Specifically, the licensee failed to take corrective actions for a leak in the hydraulic snubbers for the Unit 2, loop 3 steam generator, resulting in the level in the hydraulic fluid reservoir going below the minimum level in the sight glass on multiple occasions.

Description. On March 9, 2017, while performing preventive maintenance to check the Unit 2, steam generator 2-03 upper lateral support hydraulic snubber oil reservoir oil level, the licensee discovered it was low at $\frac{1}{4}$ inch from the bottom of the reservoir sight glass. The minimum specification is $\frac{1}{2}$ inch from the bottom. The licensee documented this in CR-2017-003019 and initiated work order 5403960 to refill the reservoir. The condition report was closed to the work order.

The licensee also developed an operability evaluation to justify continued operation with the assumption that the snubber was no longer required. The licensee referenced a letter issued by Westinghouse in 2007 following a leak from the Unit 2 loop 4 steam generator snubbers. The letter documented a conclusion that the unit could be operated

for the remainder of the cycle but the licensee needed to perform a detailed analysis to support this. The letter also stated that an analysis could likely be performed to justify removal of the snubbers, based on an analysis that had recently been performed for the replacement Unit 1 steam generators. Although the letter only documented acceptability for the existing cycle (2007), the licensee began using this letter as a justification for operability for snubber oil leaks well past that time frame, and did not perform an analysis to justify continued operation with a degraded snubber. In operability evaluations prior to 2014, the licensee had only justified continuing to operate with a degraded snubber until the oil could be refilled. Starting in 2014, the licensee began stating in their operability evaluations that the steam generators were operable because the snubbers were not required. Although Westinghouse had only concluded that an analysis to justify removing the snubbers could be performed, the licensee used the potential ability to perform the analysis as equivalent to having an analysis, without actually performing the analysis. In the operability determination for CR-2017-03019, the licensee concluded that the steam generators were operable because they believed the snubbers were not required.

During the subsequent refueling outage, the work order 5403960 was not included in the scope of work. On two separate occasions, an additional condition report was generated documenting the low level in the reservoir, but no additional actions were taken and no action was taken to prioritize the work order. On May 10, Unit 2 was restarted with no action taken to correct the condition. On May 30, 2017, when performing the same preventive maintenance, the licensee discovered that the reservoir was empty. The licensee documented this in CR-2017-006871, but closed the condition report with no additional action based on the continuing assumption that the snubber was not required, and that the low reservoir level was not required to be corrected. The inspectors reviewed CR-2017-006871 and questioned the basis for this decision.

Following additional inspection and development of the timeline described above, the inspectors determined that the Westinghouse letter did not form an adequate basis for operability of the steam generators beyond the conditions described in the letter, and that the hydraulic snubbers were still required for Unit 2. Furthermore, inspectors determined that the licensee had not performed the detailed evaluation to support operating with the degraded snubber as required by Westinghouse in their letter in 2007. The inspectors also discovered that a prior instance of an empty reservoir had existed in 2014, and had not been corrected until 2015. The inspectors discussed the issue with the licensee and questioned the operability of the steam generator with the degraded snubbers. Subsequently, the licensee entered a forced outage for Unit 2, and entered a mode where the steam generators were no longer required to be operable. On June 17, 2017, following repeated questions from the inspectors, the licensee completed the work order to refill the snubber, prior to entering a mode where the steam generators were required. The licensee ultimately generated a condition report (CR-2017-009071) documenting that the snubbers were leaking and that it was a degraded condition requiring corrective action.

Analysis. The licensee's failure to take timely and adequate corrective actions to correct a condition adverse to quality was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is associated with the protection against the external events performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable

consequences. Specifically, the failure to correct the leak resulted in the hydraulic fluid reservoir level dropping below the minimum sight glass level, and loss of reasonable assurance of adequate oil in the snubbers to support their operation. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, and Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process for Findings At-Power," Exhibit 4, "External Events Screening Questions," the inspectors determined the finding was of very low safety significance (Green) because: (1) the loss of the equipment by itself during the external initiating event it was intended to mitigate would not cause a plant trip or initiating event, would not degrade two or more trains of a multi-train system or function, and would not degrade one or more trains of a system that supports a risk significant system or function, and (2) the finding did not involve the total loss of any safety function that contributes to external event initiated core damage accident sequences. The finding has a human performance cross-cutting aspect associated with work management, in that, the licensee failed to ensure that the process of planning, controlling, and executing work activities was implemented to ensure nuclear safety was the overriding priority [H.5].

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, from March 2017 through July 2017, for quality related components associated with the steam generator hydraulic snubbers, to which 10 CFR Part 50, Appendix B applies, the licensee failed to assure that conditions adverse to quality were promptly identified and corrected. Specifically, the licensee failed to take corrective actions for a leak in the hydraulic snubbers for the Unit 2, loop 3 steam generator, resulting in the level in the hydraulic fluid reservoir going below the minimum level in the sight glass on multiple occasions. In response to this issue, the licensee refilled the hydraulic snubber and also performed an operability determination which established a reasonable expectation of operability pending implementation of long term 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-2017-009071, this violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000446/2017003-01, Failure to Promptly Correct a Condition Adverse to Quality)

1R18 Plant Modifications (71111.18)

.1 Permanent Modifications

a. Inspection Scope

On date September 7, 2017, the inspectors reviewed a permanent plant modification to change the rod control disconnect cabinets for unit 2.

The inspectors reviewed the design and implementation of the modification. The inspectors verified that work activities involved in implementing the modification did not adversely impact operator actions that may be required in response to an emergency or other unplanned event. The inspectors verified that post-modification testing was adequate to establish the functionality of the SSC as modified.

These activities constituted completion of one sample of permanent modifications, as defined in Inspection Procedure 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- July 6, 2017, Unit 1, inverter 1IV1/3 following repair of synchronization problem.
- July 27, 2017, Unit 2, diesel generator 2-02 following repair of DC power supply.
- August 14, 2017, Unit 2, valve stroke of 2-LV-2163 following work.
- September 3, 2017, Unit 2, control rod drive power supply testing following repair.
- September 17, 2017, Unit 2, service water pump 2-01 following breaker maintenance.

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 constituted completion of five post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During the station's unit 2 outage that concluded on August 11, 2017, the inspectors evaluated the licensee's outage activities. The inspectors verified that the licensee considered risk in developing and implementing the outage plan, appropriately managed personnel fatigue, and developed mitigation strategies for losses of key safety functions. This verification included the following:

- Review and verification of the licensee's fatigue management activities
- Monitoring of shut-down and cool-down activities

- Verification that the licensee maintained defense-in-depth during outage activities
- Monitoring of heat-up and startup activities

These activities constituted completion of one outage activities sample, as defined in Inspection Procedure 71111.20.

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:

- September 18, Unit 2, service water pump 2-01.

Reactor coolant system leak detection tests:

- June 29, 2017, Unit 1 leak detection following increase in unidentified leak rate.

Other surveillance tests:

- July 17, 2017, Unit 2, containment spray chemical addition system vacuum breaker.
- July 19, 2017, Unit 2, motor drive auxiliary feedwater pump 2-02 discharge the steam generator 2-03 check valve.
- July 20, 2017, Unit 2 electrical under voltage relay testing.

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 constituted completion of five surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluation (71114.01)

a. Inspection Scope

The inspectors observed the August 16, 2017, biennial emergency preparedness exercise to verify the exercise acceptably tested the major elements of the emergency plan and provided opportunities for the emergency response organization to demonstrate key skills and functions. The exercise demonstrated the licensee's capability to implement its emergency plan by simulating:

- A reactor coolant leak in the Unit 1 containment that escalated to become a large break loss of coolant accident.
- A loss of reactor vessel injection from the Unit 1 because of the inability to recirculate water from the containment sump.
- An unfiltered and unmonitored radiological release to the environment from the Unit 1 emergency escape hatch.

During the exercise the inspectors observed activities in the control room simulator and the following dedicated emergency response facilities:

- Technical Support Center (TSC)
- Operations Support Center
- Emergency Operations Facility

The inspectors focused their evaluation of the licensee's performance on the risk-significant activities of event classification, offsite notification, recognition of offsite dose consequences, and development of protective action recommendations.

The inspectors also assessed recognition of, and response to, abnormal and emergency plant conditions, the transfer of decision-making authority and emergency function responsibilities between facilities, onsite and offsite communications, protection of emergency workers, emergency repair evaluation and capability, and the overall implementation of the emergency plan to protect public health and safety and the environment. The inspectors reviewed the current revision of the facility emergency plan, emergency plan implementing procedures associated with operation of the licensee's emergency response facilities, procedures for the performance of associated emergency functions, and other documents as listed in the attachment to this report.

The inspectors attended the post-exercise critiques in each emergency response facility to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended a presentation of critique items to plant management conducted on August 23, 2017.

The inspectors reviewed the scenarios of previous biennial exercises and licensee drills conducted between November 2016 and July 2017 to determine whether the

August 16, 2017, exercise was independent and avoided participant preconditioning, in accordance with the requirements of 10 CFR 50, Appendix E, IV.F(2)(g). The inspectors also compared observed exercise performance with corrective action program entries and after-action reports for drills and exercises conducted between November 2016 and July 2017 to determine whether identified weaknesses had been corrected in accordance with the requirements of 10 CFR 50.47(b)(14), and 10 CFR 50, Appendix E, IV.F.

The inspectors discussed the integrated exercise with staff at the Federal Emergency Management Agency (FEMA), Region VI, to determine whether the exercise scenario supported the FEMA exercise evaluation objectives and the results continued to support that participants could adequately protect the health and safety of the public.

These activities constituted one exercise evaluation sample as defined in Inspection Procedure 71114.01.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors observed an emergency preparedness drill on June 28, 2017, to verify the adequacy and capability of the licensee's assessment of drill performance. The inspectors reviewed the drill scenario, observed the drill from the TSC, and simulator, and attended the post-drill critique. The inspectors verified that the licensee's emergency classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the licensee in the post-drill critique and entered into the corrective action program for resolution.

These activities constituted completion of one emergency preparedness drill or training observation sample, as defined in Inspection Procedure 71114.06.

b. Findings

No findings were identified.

1EP8 Exercise Evaluation – Scenario Review (71114.08)

a. Inspection Scope

The licensee submitted the preliminary exercise scenario for the August 16, 2017, biennial exercise to the NRC on June 8, 2017, in accordance with the requirements of 10 CFR 50, Appendix E, IV.F(2)(b). The inspectors performed an in-office review of the proposed scenario to determine whether it would acceptably test the major elements of the licensee's emergency plan and provide opportunities for the emergency response organization to demonstrate key skills and functions. The inspectors discussed the

preliminary scenario with staff at FEMA Region VI to determine whether the preliminary scenario supported the FEMA exercise evaluation objectives.

These activities constituted completion of one exercise scenario evaluation sample as defined in Inspection Procedure 71114.08.

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 Mitigating Systems Performance Index: Emergency AC Power Systems (MS06)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of July 1, 2016, through June 30, 2017, 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 for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index: High Pressure Injection Systems (MS07)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of July 1, 2016, through June 30, 2017, 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 high pressure injection systems for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index: Heat Removal Systems (MS08)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of July 1, 2016, through June 30, 2017, 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 heat removal systems for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors reviewed a sample of the licensee's evaluated drills, exercises, and training evolutions conducted between January 2016 and June 2017 to verify the accuracy of the licensee's data for classification, notification, and protective action recommendation (PAR) opportunities. The inspectors reviewed a sample of the licensee's completed classifications, notifications, and PARs to verify their timeliness and accuracy. The inspectors used Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data. The specific documents reviewed are described in the attachment to this report.

These activities constituted verification of the drill/exercise performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.5 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors reviewed the licensee's records for participation in drills, exercises, and training evolutions conducted between January 2016 and June 2017 to verify the accuracy of the licensee's data for drill participation opportunities. The inspectors verified that all members of the licensee's emergency response organization (ERO) in the identified key positions had been counted in the reported performance indicator data. The inspectors reviewed the licensee's basis for reporting the percentage of ERO

members who participated in a drill. The inspectors reviewed drill attendance records and verified a sample of those reported as participating. The inspectors used Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data. The specific documents reviewed are described in the attachment to this report.

These activities constituted verification of the emergency response organization drill participation performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.6 Alert and Notification System Reliability (EP03)

a. Inspection Scope

The inspectors reviewed the licensee's records of Alert and Notification System tests conducted between January 2016 and June 2017 to verify the accuracy of the licensee's data for siren system testing opportunities. The inspectors reviewed procedural guidance on assessing alert and notification system opportunities and the results of periodic alert and notification system operability tests. The inspectors used Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data. The specific documents reviewed are described in the attachment to this report.

These activities constituted verification of the alert and notification system reliability performance indicator 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.

.2 Semiannual Trend Review

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program, performance indicators, system health reports, and other documentation to identify trends that might indicate the existence of a more significant safety issue. The inspectors focused on the stations control of fire areas that allowed zero transient combustible materials. The inspectors performed walkdowns of these areas, reviewed documents, and planned work schedules and interviewed personnel to determine if the licensee completely and accurately identified problems in a timely manner commensurate with its significance, evaluated and dispositioned operability issues, considered the extent of condition, prioritized problems commensurate with their safety significance, identified appropriate corrective actions, and completed corrective actions in a timely manner commensurate with the safety significance of the issue. The inspectors verified that the licensee was taking corrective actions to address identified adverse trends.

These activities constituted completion of one semiannual trend review sample, as defined in Inspection Procedure 71152.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of Operating Licenses NPF-87 and NPF-89, License Condition 2.G, "Fire Protection Program," for the failure to control transient combustibles in accordance with the station's Fire Protection Report.

Description. The inspectors noted that Fire Protection Report, Revision 29, and fire safe shutdown analyses (evaluations EV-CR-2011-002807-1 and EV-CR-2016-003083-1), identified 68 areas (Group B storage areas and Combustible Free areas) that required strict control of transient combustibles. Specifically these areas require that compensatory measures be established when transient combustibles are introduced into these areas. Because of the large number of areas and issues that had been previously identified, the inspectors decided to perform walk downs of all these areas.

The inspectors also reviewed station procedure STA-729, Control of Transient Combustibles, Ignition Sources and Fire Watches, Revision 11, which is the procedure used by the licensee to control transient combustibles. The inspectors noted that this procedure contained the following definitions:

Group B No Storage Areas - Rooms/areas that require compensatory measures whenever transient combustibles are within them. These rooms are designated as "No Storage Areas" based on deviations in the Fire Protection Report, Partial Sprinkler Coverage Evaluation, Cable Tray Hanger Analysis, Commitments, or areas with a permanent, high fire load. Stairwells are included in this designation to ensure a safe evacuation route for plant personnel in the event of a fire/plant emergency.

Combustible Free Area - Rooms/Areas that have compensatory measures enacted due to Fire Safe Shutdown Analysis (FSSA) concerns in EV-CR-2011-

002807-1 (Ref. 3.1.17) and EV-CR-2016-003083-1 (Ref. 3.1.18). Combustible Free Areas require a heightened level of awareness when work activities necessitate the use of transient combustible items/materials. No Hot Work is allowed without the approval of Fire Protection Maintenance Supervisor and a documented evaluation by the Fire Protection Engineer.

The inspectors noted that procedure STA-729, "Control of Transient Combustibles, Ignition Sources and Fire Watches," clearly identified which areas these restrictions applied to by specified room number and fire zone.

Between July 31, and September 5, 2017, inspectors performed walkdowns of 64 of the 68 areas (4 areas were not accessible). During these walkdowns inspectors identified that 51 fire areas had transient combustibles stored in them without compensatory measures established. The inspectors also determined that these transient combustibles were the result of multiple departments storing materials in the susceptible fire areas, therefore inspectors determined this to be a programmatic issue.

Based on these observations, the inspectors determined that the licensee had failed to implement the requirements of the station's approved Fire Protection Report when storing combustible materials. Inspectors informed the licensee of their concern and the licensee initiated Condition Report CR-2017-008728 to capture this programmatic issue in the station's corrective action program. The licensee also removed all combustible material from the exclusion areas, and/or established appropriate compensatory measures in accordance with the Fire Protection Report.

Analyses. The failure to control transient combustible material in accordance with the approved Fire Protection Report is a performance deficiency. The performance deficiency was more than minor and therefore a finding because it was associated with the protection against the external factors attribute of the Mitigating System 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 introduction of transient combustible materials decreased the external event mitigation for fire prevention. Furthermore, the inspectors determined that this was a programmatic issue since multiple departments were responsible for the inappropriate introduction of combustible materials into the exclusion areas. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, the inspectors determined that the finding pertained to a failure to adequately implement fire prevention and administrative controls for transient combustible materials. As a result, the inspectors were directed to Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," September 20, 2013, and determined that the finding was of very low safety consequence (Green) because the fire prevention and administrative controls finding would not prevent the reactor from reaching and maintaining a safe shutdown condition because none of the examples impacted both trains of safe shutdown equipment. The finding has a human performance cross-cutting aspect associated with procedure adherence, in that station personnel failed to follow procedure requirements when introducing transient combustibles into exclusion areas [H.8].

Enforcement. Comanche Peak Unit 1, Operating License NPF-87, Condition 2.G, “Fire Protection,” requires, in part, that the licensee implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report through Amendment 78 and as approved in the Safety Evaluation Report and its supplements through Supplement 24.

Comanche Peak Unit 2, Operating License NPF-89, Condition 2.G, “Fire Protection,” requires, in part, that the licensee implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report through Amendment 87 and as approved in the Safety Evaluation Report and its supplements through Supplement 27.

The station’s approved fire protection program includes Fire Protection Report, Revision 29, which identifies areas that require strict control of transient combustibles such that they are not introduced into these areas without compensatory measure in place prior to introduction. Contrary to the above, between July 31, 2017, and September 5, 2017, the licensee failed to strictly control transient combustibles such that they are not introduced into identified areas without compensatory measure in place prior to introduction. Specifically, the licensee allowed storage of combustible materials in 51 areas without required compensatory measures for the deviation from the Fire Protection Report. This issue does not represent an immediate safety concern because, upon identification, the licensee removed the combustible materials. Since this violation was of very low safety significance (Green) and has been entered into the corrective action program as Condition Report CR-2017-008728, this violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy. (NCV 05000445/2017003-02; 05000446/2017003-02, Programmatic Failures to Control Transient Combustible Material in Accordance with a Fire Protection Procedure)

40A3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 Turbine Trip and Auxiliary Feedwater Actuation During Unit 2 Startup

a. Inspection Scope

On August 11, 2017, during startup of Unit 2 following a forced outage, the unit’s turbine and feedwater pumps tripped during initial synchronization due to a valid actuation of Steam Generator Hi-Hi Level Permissive (P-14) interlock. The crew entered their abnormal procedure for a turbine trip and restored steam generator water level control. The reactor was not required to trip and remained critical. The crew stabilized power at 3 percent in Mode 2. During the initial swell following turbine loading, the licensed operator was unable to prevent water level in the 2-02 steam generator from reaching 81.5 percent because the steam generator 2-02 feedwater control bypass valve (2-LV-2163) did not close on demand. Inspectors did not identify a performance deficiency during the initial plant response to the event.

The inspectors evaluated operator performance, and reviewed operator logs and plant computer data. The inspectors reviewed the licensee’s evaluation of the system response and cause of the trip, and their immediate corrective actions.

b. Findings

No findings were identified.

.2 Reactor Trip on Unit 2

a. Inspection Scope

On September 1, 2017, during normal operations at 100 percent power, the on shift crew of Comanche Peak Unit 2 inserted a manual reactor trip due to two dropped rods. The plant responded with no complications. The operators placed the plant in Mode 3 with steam dumps and the auxiliary feedwater system in operation.

During the operators' response to the reactor trip, the control room received a report of a fire in the X-01 service air compressor, outside of the Unit 1 turbine building. The fire was extinguished by the site fire brigade within 30 minutes.

The inspectors evaluated operator performance, and reviewed operator logs and plant computer data. The inspectors reviewed the licensee's evaluation of the system response and cause of the trip, and their immediate corrective actions. The inspectors also reviewed the licensee's response to the fire, and verified that the licensee appropriately classified the event as a non-emergency event.

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report 05000446/2015-002-00, Reactor Trip Due to Feedwater Flow Controller Malfunction

a. Inspection Scope

On October 3, 2015, Unit 2 was operating at approximately 43 percent while shutting down for the 15th refueling outage when operators in the control room received a level deviation alarm in steam generator 2-03. Operators noted that level in steam generator 2-03 continued rising and took manual control of the feedwater flow control valve, but they were unable to control feed flow. At 9:58 a.m. local time, a manual reactor trip was initiated in anticipation of an automatic turbine trip. The motor driven auxiliary feedwater pumps were manually started per operations procedures to control auxiliary feedwater flow, minimize cool down, and maintain steam generator levels. All systems responded normally during and following the trip.

A failure analysis determined that the steam generator 2-03 feedwater flow control valve malfunctioned due to a degraded positioner upper O-ring. This O-ring separates the air supply port from the positioner outlet port. The degraded O-ring allowed supply air to bypass the upper plunger seat which allowed supply air to pass uncontrolled through the positioner to the actuator diaphragm, which kept the feedwater flow control valve open. The positioner upper O-ring failed due to hardening and compression set. This was attributed to the valve manufacturer using an improper material for the valve positioner upper O-ring.

Corrective actions included replacing all four Unit 2 feedwater flow control valve positioners and establishing periodic monitoring of both units' feedwater flow control valve demand as an early detection of a positioner failure.

The inspectors reviewed the licensee's evaluation and corrective actions. The inspectors determined that the failure of the O-ring was not within the licensee's ability to foresee and correct, and therefore was not a performance deficiency. As a result, the inspectors concluded there was no violation associated with the condition. The inspectors also determined that the licensee took appropriate corrective actions to correct the defect.

b. Findings

No findings were identified.

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

40A6 Meetings, Including Exit

Exit Meeting Summary

On July 18, 2017, the inspectors discussed the in-office review of the preliminary scenario for the August 16, 2017, biennial exercise, submitted June 8, 2017, with Mr. J. Hull, Manager, Emergency Preparedness, and other members of the licensee staff. The licensee acknowledged the issues presented.

On August 31, 2017, the inspectors presented the results of the onsite inspection of the biennial emergency preparedness exercise conducted August 16, 2016, to Mr. K. Peters, Senior Vice President and Chief Nuclear Officer, 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.

On September 27, 2017, the inspectors presented the inspection results to Mr. Ken Peters, Senior Vice President and Chief Nuclear Officer, 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

J. Barnette, Consulting Nuclear Technologist, Regulatory Affairs
D. Davis, Manager, Organizational Development
R. Deppi, Director, Project Engineering and Support
D. Goodwin, Director, Work Management
T. Hope, Manager, Regulatory Affairs
J. Hull, Manager, Nuclear Emergency Preparedness
A. Marzloft, Director, Nuclear Oversight
K. Peters, Senior Vice President and Chief Nuclear Officer
D. Volkening, Audit Manager, Nuclear Oversight
S. Sewell, Director, Engineering and Regulatory Affairs
J. Taylor, Director, Site Engineering
C. Tran, Manager, Engineering Programs

Other Contacts

D. Bordelon, Branch Chief, Technological Hazards Branch, FEMA Region VI
N. Williams, Chairman, Radiological Assistance Committee, FEMA Region VI
S. Flowerday, Senior Site Specialist, FEMA Region VI

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000446/2017003-01	NCV	Failure to Promptly Correct a Condition Adverse to Quality (Section 1R15)
05000445/2017003-02 05000446/2017003-02	NCV	Programmatic Failures to Control Transient Combustible Material in Accordance with a Fire Protection Procedure (Section 4OA2)

Closed

05000446-2015-002-00	LER	Reactor Trip Due to Feedwater Flow Controller Malfunction (Section 4OA3)
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LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STI-600.01	Guarded Equipment Management	0
	Guarded Equipment Management Sign Posting Log	
SOP-605B	125 vdc Switchgear and Distribution System batteries and Battery Chargers	5
SOP-606A	24/48V & 125/250 VDC SWITCHGEAR AND DISTRIBUTION	11

Condition Reports

TR-2016-009023 CR-2011-007437 CR-2014-002331

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EE(B)-037	125 vdc Class 1E Load Study	10

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	DC Distribution, EPD, System Health Report, 1 st Qtr 2017	
DBD EE-044	DESIGN BASIS DOCUMENT DC POWER SYSTEMS	25
DBD EE-044	DESIGN BASIS DOCUMENT DC POWER SYSTEMS	26

Work Orders

516951	5462185	5386199	5433067	5385459
5342940	5166672	5429988		

Section 1R05: Fire Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FPI-403	Fire Preplan Instruction Manual	5

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STA-729	Control of Transient Combustibles, Ignition Sources and Fire Watches	11
ABN-803B	Response to a Fire in the Control Room or Cable Spreading Room	10

Condition Reports

CR-2017-008492 CR-2017-008526 CR-2017-008429

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
0210-063-0003	As Built Combustible Loading Calculation Auxiliary Building	18
0210-063-0006	As Built Combustible Loading Calculation Electrical and Control Building	19

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E1-2012-BT	Electrical Control Building Fire Detection Plan EL 792'0"	CP-2
E1-2012-AT	Electrical Control Building Fire Detection Plan EL 778'0"	CP-3

Section 1R12: Maintenance Effectiveness

Condition Reports

CR-2017-008482 CR-2017-008484 CR-2017-008485 CR-2017-008499 CR-2014-002331
TR-2016-009023 CR-2011-007437

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
DBD EE-044	DESIGN BASIS DOCUMENT DC POWER SYSTEMS	26

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STI-600.01-1	Guarded Equipment Management Sign Posting Log	0
OPT-201B	Charging System	8
OPT-221B	Cold Shutdown Class 1E Electrical UV Relay Test	4

Work Orders

5486765

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STI-422.01	Operability determinations and functionality assessment program	2

Condition Reports

CR-2017-008221 CR-2017-009177 CR-2017-009296 CR-2017-009928 CR-2017-006871
CR-2017-009928 CR-2017-006871 CR-2017-003019 CR-2006-004064 CR-2017-008816
CR-2017-006990 CR-2017-007577 TR-2016-010074 TR-2016-010071 CR-2014-004660

Work Orders

5403960 5404510 5369497

Section 1R18: Plant Modifications

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STA-707	10CFR50.59 and 10CFR72.48 reviews	21

Section 1R19: Post-Maintenance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPT-511B	FW Isolation Valves	13
SOP-609B	Diesel Generator System	13
OPT-506B	FW Valve Testing	9
OPT-214B	Diesel Generator Operability Test	16

Condition Reports

CR-2017-005448 CR-2017-009139 CR-2017-005448 CR-2017-008119 CR-2017-003131
CR-2017-000597 Cr-2017-008462

Work Orders

5481656 5184889 5437936 5429836 5442287
5473548 5380904

Section 1R20: Refueling and Other Outage Activities

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OPT-203B	Residual Heat Removal System	14
IPO-002B	Plant Startup from Hot Standby	10

Section 1R22: Surveillance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STA-601	Authority for Equipment Operation	17
OWI-802	Operations Department Acoustic Emissions Data Acquisition	8
OPT-221B	Cold Shutdown Class 1E Electrical UV Relay Test	4
OPT-303	Reactor Coolant System Water Inventory	

Condition Reports

CR-2017-007867

Work Orders

5444494	5442122	5443739	5443747	5443731
3760510	3760508			

Section 1EP1: Exercise Evaluation

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Revision/ Date</u>
	Comanche Peak Emergency Plan	41
EPP-109	Duties and Responsibilities of the Emergency Coordinator and Recovery Manager, Revision 15	December 30, 2013
EPP-116	Emergency Repair and Damage Control and Immediate Entries, Revision 9	August 20, 2015
EPP-201	Assessment of Emergency Action Levels, Emergency Classification, and Plan Activation, Revision 13	January 6, 2017
EPP-203	Notifications, Revision 16	November 4, 2010
EPP-204	Activation and Operation of the Technical Support Center, Revision 15	March 7, 2013
EPP-205	Activation and Operation of the Operations Support Center, Revision 12	March 21, 2011
EPP-206	Activation and Operation of the Emergency Operations Facility, Revision 16	February 2, 2012
EPP-304	Protective Action Recommendations, Revision 21	December 19, 2011
EPP-305	Emergency Exposure Guidelines and Personnel Dosimetry, Revision 14	March 12, 2013
EPP-306	Use of Thyroid Blocking Agents, Revision 11	March 12, 2013
EPP-314	Evacuation and Accountability, Revision 9	February 2, 2012
TRA-105	Emergency Preparedness Training, Revision 26	May 11, 2017
STA-655	Exposure Monitoring Program Work Order 5390628 Evaluation Report for the Exercise conducted August 6, 2015	22

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Revision/ Date</u>
	Evaluation Report for the Exercise conducted September 24, 2015	
	Evaluation Report for the Exercise conducted December 16, 2015	
	Evaluation Report for the Exercise conducted February 24, 2016	
	Evaluation Report for the Exercise conducted July 26, 2016	
	Evaluation Report for the Exercise conducted September 28, 2016	
	Evaluation Report for the Exercise conducted January 11, 2017	
	Evaluation Report for the Exercise conducted February 15, 2017	
	Evaluation Report for the Exercise conducted June 28, 2017	
	Annual Letter of Certification for Offsite Radiological Emergency Plans and Preparedness, Calendar Year 2015	
CR-2016-001082	Apparent Cause Evaluation (Low Tier) for CR-2016-001082, Unit 1 Failed Fuel Radiation Monitor Taken Out of Service Without Viable Compensatory Measure	
	NANTeL Generic EP Controller Training	0
IS47.ECA.HCI	Medical Drill – Handling a Contaminated Injured Individual	October 31, 2016
IS21.ECA.AMB	Ambulance Operation	August 20, 2004
IS21.ECA.HCI	Handling Contaminated Injured Personnel	May 28, 2015
	Letter from R. Reynolds, Glen Rose Medical Center, to P. Allen, Luminant – Comanche Peak Nuclear Power Plant	April 27, 2017

Condition Reports

CR-2015-007054	CR-2015-007090	CR-2015-008435	CR-2015-008469	CR-2015-008848
CR-2015-010350	CR-2016-000091	CR-2016-001082	CR-2016-001187	CR-2016-001241
CR-2015-009209	CR-2016-002704	CR-2016-010513	CR-2017-009355	CR-2017-009499
CR-2016-001819	CR-2016-001820	CR-2016-001971	CR-2016-002478	CR-2016-001791
CR-2016-003469	CR-2016-003587	CR-2016-007002	CR-2016-007088	CR-2016-003355
CR-2017-004721	CR-2017-007733	CR-2017-007734	CR-2017-007735	CR-2017-003869
CR-2017-009419	CR-2017-009433	CR-2017-009434	CR-2017-009498	CR-2017-009415
CR-2017-009504	CR-2017-009505	CR-2017-009508	CR-2017-009511	CR-2017-009512
TR-2015-007352	TR-2016-000283	TR-2016-001956	TR-2017-009506	CR-2017-009501
TR-2016-008564	TR-2017-000863	TR-2016-009945	TR-2016-004376	TR-2016-007224
TR-2017-001834	TR-2017-001848	TR-2017-002171	TR-2017-000860	TR-2017-000988
TR-2017-006290	TR-2017-009355	TR-2017-009360	TR-2017-002454	TR-2017-003876
TR-2017-009415	TR-2017-009416	TR-2017-009418	TR-2017-009380	TR-2017-009414
TR-2017-009433	TR-2017-009434	TR-2017-009436	TR-2017-009430	TR-2017-009432
TR-2017-009492	TR-2017-009498	TR-2017-009499	TR-2017-009438	TR-2017-009491
TR-2016-003466	TR-2017-009379	TR-2017-009501	TR-2017-009508	TR-2017-009509
TR-2017-000774	TR-2017-009419	TR-2017-009512	TR-2017-009511	TR-2017-009504
TR-2017-002380	TR-2017-009437			

Section 1EP6: Drill Evaluation

Condition Reports

CR-2017-007890

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/ Date</u>
EP37.TEX.XY1	Red Team Exercise 6/28/2017 Simulator Exercise Guide	June 5, 2017

Section 4OA1: Performance Indicator Verification

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
20160204EP	Comanche Peak Nuclear Power Plant Alert and Notification System Design Report	2
SG-012	Alert and Notification System Surveillance	24

Condition Reports

CR-2017-009360

Section 4OA2: Problem Identification and Resolution

Procedures

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

Condition Reports

CR-2017-008728 CR-2017-008974 CR-2017-009130 CR-2017-008777 CR-2017-008492
CR-2017-008526 CR-2017-008670 CR-2017-008728 CR-2017-009439 CR-2017-009943
CR-2017-008541 CR-2017-008494 CR-2017-009310 CR-2017-009037 CR-2017-009039
CR-2017-009483 CR-2017-009513 CR-2017-009624 CR-2017-010640 CR-2017-010677
CR-2017-009470 CR-2017-009486 CR-2017-009621 CR-2017-009630 CR-2017-009631
CR-2017-009639

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ABN-403	Turbine Trip Response	10
ALM-0064B	Alarm Procedure 2-ALB-6D	4
EOP-0.0B	Reactor Trip or Safety Injection	9

Condition Reports

TR-2017-009146 TR-2017-009162 CR-2017-009887