



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

February 4, 2016

Mr. Ken Peters, Senior Vice President
and Chief Nuclear Officer (Acting)
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 05000445/2015004 and 05000446/2015004**

Dear Mr. Peters:

On December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Nuclear Power Plant, Units 1 and 2. On January 7, 2016, the NRC inspectors discussed the results of this inspection with T. McCool, Site Vice President (Acting), and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented six findings of very low safety significance (Green) in this report. Five of these findings involved violations of NRC requirements. Further, inspectors documented three licensee-identified violations which were determined to be of very low safety significance in this report. 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

K. Peters

- 2 -

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Sincerely,

/RA/

Jeremy Groom, 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 05000445/2015004
and 05000446/2015004
w/Attachment: Supplemental Information

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Letter to Ken Peters from Jeremy Groom dated February 4, 2016

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT-NRC INTEGRATED
INSPECTION REPORT 05000445/2015004 and 05000446/2015004

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000445, 05000446

License: NFP-87, NFP-89

Report: 05000445/2015004 and 05000446/2015004

Licensee: Luminant Generation Company LLC

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

Location: 6322 N. FM-56, Glen Rose, Texas

Dates: October 1 through December 31, 2015

Inspectors: J. Josey, Senior Resident Inspector
R. Kumana, Resident Inspector
M. Chambers, Physical Security Inspector
G. George, Senior Reactor Inspector
G. Guerra, CHP, Emergency Preparedness Inspector
J. Watkins, Reactor Inspector
P. Hernandez, Health Physicist
J. Tice, Project Engineer
J. Choate, Project Engineer
G. Guerra, CHP, Emergency Preparedness Inspector

Approved By: Jeremy Groom
Chief, Project Branch A
Division of Reactor Projects

SUMMARY

IR 05000445/2015004 and 05000446/2015004; 10/01/2015 – 12/31/2015; Comanche Peak NPP, Units 1 and 2; Integrated Inspection Report: Inservice Inspection Activities, Maintenance Effectiveness, Operability and Functionality Assessments, Surveillance Testing, and Radiological Hazard Assessment and Exposure Controls.

The inspection activities described in this report were performed between October 1, 2015, through December 31, 2015, by the resident inspectors at the Comanche Peak Nuclear Power Plant and inspectors from the NRC's Region IV and Headquarters offices. Six findings of very low safety significance (Green) are documented in this report. Five 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 50, Appendix B, Criterion IX, "Control of Special Processes," because the licensee failed to assure that visual examination activities for the reactor vessel dissimilar metal nozzle welds and bottom-mounted instrumentation nozzles were accomplished in accordance with the visual acuity requirements of ASME Code Case N-722-1. In response to the issue, for Unit 2, the licensee scheduled reexamination of the welds prior to the end of the outage, and, for Unit 1, performed a reasonable degradation evaluation to determine that reexamination of the welds could be delayed to the next outage. This finding was entered into the corrective action program as Condition Report 2015-009586.

The inspectors determined that the failure to assure visual examination activities were accomplished in accordance with the visual acuity requirements of ASME Code Case N-722-1 was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, routinely performing examinations with incorrect visual acuity requirements of N-722-1 has the potential to lead to missed opportunities to identify and correct relevant indications in reactor coolant system pressure boundaries. In accordance with Inspection Manual Chapter MC 0609, Attachment 4, "Significance Determination Process Initial Characterization," the inspectors determined that this finding affected the Initiating Events cornerstone as a primary system LOCA initiator contributor. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 1, "Initiating Events Screening Questions," the finding screened as having very low safety significance (Green) because after a reasonable assessment of degradation, the finding did not result in exceeding the RCS leak rate for a small LOCA and did not affect other systems used to mitigate a LOCA. The finding does not have a crosscutting aspect because the most significant contributor is not reflective of current licensee performance. (Section 1R08.1)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50.65(a)(1), for the failure to establish goals that provide reasonable assurance that the 6.9 kV electrical distribution system is capable of fulfilling its intended functions. Specifically, the 6.9 kV electrical distribution system had been in maintenance rule (a)(1) status since 2009 due to the failure of breakers to close on demand. Subsequently, in 2013 and 2015 there were additional breaker failures, which exceeded the established performance criteria, and were due to causes not previously evaluated. These additional failures were determined to be due to inadequate maintenance, but the licensee did not re-evaluate the established goals and revise the corrective actions to address these additional failures. The licensee implemented corrective actions to re-evaluate the goals and corrective actions for the 6.9 kV AC system. The licensee entered this issue into the corrective action program as Condition Report CR-2015-009077.

The licensee's failure to evaluate existing goals and corrective actions for a system that did not meet established performance 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 Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to take appropriate corrective actions adversely affected the reliability of a system scoped in the plant's maintenance rule program. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The finding has a human performance cross-cutting aspect associated with procedure adherence, in that, the licensee failed to follow maintenance rule implementing procedures. [H.8]. (Section 1R12)

- Green. The inspectors identified two examples of a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify conditions adverse to quality. Specifically, in two separate instances involving extent of condition reviews for grease on 6.9 kV breaker stabs and degraded piping in the Unit 1 service water system, the licensee failed to identify conditions adverse to quality that were reasonably within their ability to identify. As a result, the licensee failed to; 1) identify 24 additional breakers that were in a degraded condition due to grease on secondary stabs, and 2) identify a section of service water piping that was below the ASME minimum wall thickness. The licensee implemented immediate corrective actions by entering the issues into the corrective action program for resolution and performed an operability determination for the identified degraded conditions. The licensee entered these issues into the corrective action program as Condition Reports CR-2015-009992 and CR-2015-010120.

The licensee's failure to identify conditions adverse to quality for quality related systems was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to identify degraded conditions could affect the reliability or availability of multiple safety related systems. 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 is a deficiency affecting the design or qualification of a mitigating SSC, but the SSC maintained its operability. 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 extent of conditions. Specifically, the licensee failed to adequately consider the extent of the degraded conditions on similar safety related components [P.2]. (Section 1R15.2)

- Green. The inspectors identified a finding associated with the licensee's failure to follow procedural requirements for disabling a hazard barrier. Specifically, Station Procedure STA 696, "Hazard Barrier Controls," Revision 2, requires that appropriate temporary barriers be prescribed when a hazard barrier is impaired. However, in support of an auxiliary, safeguards and fuel building negative pressure test, the licensee failed to follow Procedure STA 696 and incorrectly credited alternate doors to protect safety-related equipment from the effects of a high-energy line break when disabling the primary hazard barrier. The licensee implemented corrective actions to correctly assess the activity and implemented appropriate risk management actions. The licensee entered the finding into corrective action program as Condition Report CR-2015-005583.

The licensee's failure to follow station procedures when crediting temporary hazard barriers was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment 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, opening the high energy line break door without an appropriate temporary barrier in place removed a credited barrier for safety-related electrical equipment. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. 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, and is not reflective of current licensee performance. (Section 1R22)

Cornerstone: Emergency Preparedness

- Green. The inspectors identified a non-cited violation of 10 CFR 50.54(q)(2) for a failure to meet planning standard 10 CFR 50.47(b)(4) during periodic outages of the seismic monitoring system. Specifically, during planned maintenance on the seismic monitoring system, inspectors determined that the system would not be able to perform its function of alerting control room staff of an entry condition into the emergency action levels for a seismic event, and the specified compensatory measures were not adequate. The licensee implemented correction actions to establish viable compensatory measures for periods when the seismic monitoring system is unavailable. The licensee entered these issues into corrective action program as Condition Report CR-2016-000091.

The licensee's failure to maintain the effectiveness of their emergency plan was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the ERO Performance attribute of the Emergency Preparedness cornerstone and impacted the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process," the inspector determined that the violation is of very low safety significance (Green) because the finding represented a failure to comply with planning standard (b)(4), and, using table 5.4-1, was screened as a Green finding because an emergency action level initiating condition was rendered ineffective such that an Alert would be declared in a degraded manner for a seismic event, but no Site Area Emergency or General Emergency initiating conditions were affected. The violation was entered into the licensee's corrective action program as CR-2016-000091. The inspectors determined that this finding has a problem identification and resolution cross-cutting aspect associated with resolution, because the licensee failed to take appropriate corrective action after they recognized the inadequacy of their compensatory measures [P.3]. (Section 1R15.1)

Cornerstone: Occupational Radiation Safety

- Green. The inspector identified a non-cited violation (NCV) of Technical Specification 5.7.1.a, with two examples, associated with not barricading High Radiation Areas (HRAs) with dose rates not exceeding 1.0 rem/hour at 30 centimeters from the radiation source. Specifically, access to the HRA containment trashracks and access to the HRA reactor cavity before flood up were not barricaded to prevent entry. The licensee took immediate corrective action to barricade the associated HRAs to restrict access and entered this issue into the corrective action program as CR-2015-009095 and CR-2015-009303.

The failure to barricade high radiation areas in accordance with TS 5.7.1.a was a performance deficiency. The inspector determined that the performance deficiency was more than minor, and therefore a finding, because it impacted the program and process attribute of the Occupational Radiation Safety Cornerstone and adversely affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, not barricading HRAs could lead to inadvertent worker entry into high dose rate areas without knowledge of the radiological conditions. The finding was assessed using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, and was determined to be of very low

safety significance (Green) because the problem was not an ALARA planning issue; there was no overexposure, nor substantial potential for an overexposure; and the licensee's ability to assess dose was not compromised. The finding was associated with a cross-cutting aspect of Resolution in Problem Identification and Resolution area. Specifically, the organization's corrective actions to address HRA issues raised by Nuclear Oversight, the NRC and independent assessments in a timely manner commensurate with their safety significance have not been effective [P.3]. (Section 2RS1)

Licensee-Identified Violations

Violations of very low safety significance that were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and associated corrective action tracking numbers are listed in Section 4OA7 of this report.

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 in coast down at approximately 98 percent power. On October 3, 2015 while performing a planned shutdown for 2RF-15 a control issue with a valve resulted in operators manually tripping the reactor. On November 4, 2015, the outage ended when operators synchronized the main generator with the grid and began power ascension. On November 17, 2015, the unit returned to 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 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

On December 7, 2015, the inspectors completed an inspection of the station's readiness for seasonal extreme weather conditions. The inspectors reviewed the licensee's adverse weather procedures for cold weather and evaluated the licensee's implementation of these procedures. The inspectors verified that prior to the onset of cold weather, the licensee had corrected weather-related equipment deficiencies identified during the previous cold weather period.

The inspectors selected three risk-significant systems that were required to be protected from cold weather:

- Diesel generator fuel oil transfer system
- Condensate storage tanks
- Reactor water storage tanks

The inspectors reviewed the licensee's procedures and design information to ensure the systems or components would remain functional when challenged by adverse weather. The inspectors verified that operator actions described in the licensee's procedures were adequate to maintain readiness of these systems. The inspectors walked down portions of these systems to verify the physical condition of the adverse weather protection features.

These activities constituted one sample of readiness for seasonal adverse weather, 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:

- October 5, 2015, Unit 2, emergency diesel generator 2-02 while emergency diesel generator 2-01 was inoperable.
- October 8, 2015, Unit 2, low temperature overpressure protection system while the reactor vessel was in cooldown.
- November 10, 2015, Unit 2, motor driven auxiliary feedwater pump 2-01 while the turbine driven pump was out of service.
- November 17, 2015, Unit 2, turbine driven auxiliary feedwater pump following restoration from maintenance
- November 18, 2015, Unit 1, 480V AC common busses while all common busses were aligned to Unit 1.

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 five partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On November 17, 2015, the inspectors performed a complete system walk-down inspection of the unit 1 and 2 service water systems. 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 five plant areas important to safety:

- November 4, 2015, Unit 2, containment corridor outside steam generator compartment
- November 4, 2015, Unit 2, reactor coolant system loop rooms
- November 4, 2015, Unit 1, control building elevation 778', room X-114
- November 4, 2015, Unit 1, fuel building elevation 810', rooms X-255 and railroad loading area

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.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On December 23, 2015, 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 area containing risk-significant structures, systems, and components that were susceptible to flooding:

- Room 162, Unit 1 valve and pipe area

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.

In addition, on December 8, 2015, the inspectors completed an inspection of underground bunkers susceptible to flooding. The inspectors selected two underground bunkers that contained risk-significant or multiple-train cables whose failure could disable risk-significant equipment:

- MH-E1B1, unit 1 train B service water
- MH-E1B2, unit 1 train B service water

The inspectors observed the material condition of the cables and splices contained in the bunkers and looked for evidence of cable degradation due to water intrusion. The inspectors verified that the cables and vaults met design requirements.

These activities constitute completion of one flood protection measures sample and one bunker/manhole sample, as defined in Inspection Procedure 71111.06.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

The activities described in subsections 1 through 4 below constitute completion of one inservice inspection sample, as defined in Inspection Procedure 71111.08.

.1 Non-destructive Examination (NDE) Activities and Welding Activities

a. Inspection Scope

The inspectors directly observed the following nondestructive examinations:

| <u>SYSTEM</u> | <u>COMPONENT IDENTIFICATION</u> | <u>EXAMINATION TYPE</u> |
|----------------------------|-----------------------------------|-------------------------|
| Reactor Coolant System | TCX-1-4304-4, Pipe to Elbow Weld | Ultrasonic Test |
| Reactor Coolant System | TCX-1-4304-H6, Pipe Restraint | Visual Test, VT-3 |
| Reactor Coolant System | TCX-1-4304-H7, Pipe Restraint | Visual Test, VT-3 |
| Auxiliary Feedwater System | TCX-2-2103-33, Pipe to Valve Weld | Ultrasonic Test, UT |

The inspectors reviewed records for the following nondestructive examinations:

| <u>SYSTEM</u> | <u>COMPONENT IDENTIFICATION</u> | <u>EXAMINATION TYPE</u> |
|------------------------------------|---|------------------------------------|
| Safety Injection System | TCX-2-2566-H24, Pipe Restraint | Visual Test, VT-3 |
| Safety Injection System | TCX-2-2566-H43, Pipe Restraint | Visual Test, VT-3 |
| Chemical Volume and Control System | TCX-1-4110-H4, Snubber | Visual Test, VT-3 |
| Main Steam System | TCX-2-2100-H6, Variable Spring Support | Visual Test, VT-3 |
| Reactor Coolant System | Bottom Mounted Instrumentation Dissimilar Metal Welds | Visual Examination, Augmented VT-2 |
| Reactor Coolant System | Reactor Vessel Hot Leg Nozzle Dissimilar Metal Welds | Visual Examination, Augmented VT-2 |

During the review and observation of each examination, the inspectors observed whether activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspectors reviewed indications that were previously examined, and observed whether the licensee evaluated and accepted the indications in accordance with the ASME Code and/or an NRC approved alternative. The inspectors also reviewed the qualifications of all nondestructive examination technicians performing the inspections to determine whether they were current.

The inspectors directly observed a portion of the following welding activities:

| <u>SYSTEM</u> | <u>WELD IDENTIFICATION</u> | <u>EXAMINATION TYPE</u> |
|----------------------------|---|-------------------------|
| Auxiliary Feedwater System | AF-2-124, Weld TUX 4-1, Structural Weld Overlay | Magnetic Test, MT |

The inspectors reviewed whether the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code Section IX requirements. The inspectors also determined whether essential variables were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications.

b. Findings

Incorrect Visual Resolution Requirements in Augmented Dissimilar Metal Weld Visual Examination Procedures

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criterion IX, "Control of Special Processes," for failure to assure that visual

examination activities for the reactor vessel dissimilar metal nozzle welds and bottom-mounted instrumentation nozzle were accomplished in accordance with the visual resolution requirements of ASME Code Case N-722-1.

Description. The inspectors reviewed the visual examination procedures for the examination of reactor coolant system pressure boundary dissimilar metal welds. These procedures were "Reactor Vessel Lower Head Visual Examination Plan," Revision 3, and "RCS Pressure Boundary Dissimilar Metal Weld Visual Examination Plan," Revision 5. These procedures were written and implemented in accordance with ASME Code Case N-722-1, "Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components with Alloy 600/82/182 Material, Section XI, Division 1," as required by 10 CFR 50.55a, "Codes and Standards."

The visual examination procedures contain equipment qualification requirements that state:

The optical tools and techniques employed, shall be able to resolve the 0.158-inch (4-mm) character height under conditions similar to those for the actual inspection (lighting, view angle, etc.).

This procedure requirement is contrary to the requirements of ASME Code Case N-722-1, Table 1, Note (3)(c) which states:

The direct VE shall be performed at a distance not greater than 4-ft (1.2m) from the component and with a demonstrated illumination level sufficient to allow resolution of lower case characters having a height of not greater than 0.105-inch (2.7mm).

Upon identification of the nonconformance, the licensee entered the adverse condition into the corrective action program as Condition Report 2015-009586. Because of the nonconformance, the licensee scheduled reexamination of the Unit 2 reactor vessel hot leg nozzles prior to reactor restart because they could not assure that prior examinations met ASME Code requirements. Since Unit 1 was not in a refueling outage, the licensee completed a reasonable degradation assessment, using the results of previous inspections, to determine that there was reasonable assurance the reactor vessel was operable and inspection could be delayed until the next refueling outage in April 2016.

To assure the inspection of the Unit 1 and Unit 2 bottom mounted instrumentation nozzles met ASME Code Case N-722-1 requirements, the inspectors and the licensee reviewed photographic records of the equipment calibration for the lower vessel head inspections that occurred during prior outages to determine if resolution of the lower character height was achieved. The photographs clearly resolved the 0.105-inch character height.

Analysis. The inspectors determined that the failure to assure visual examination activities were accomplished in accordance with the visual acuity requirements of ASME Code Case N-722-1 was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, routinely performing examinations with incorrect visual acuity requirements of N-722-1 has the potential to lead missed opportunities to identify and correct relevant

indications in reactor coolant system pressure boundaries. In accordance with Inspection Manual Chapter MC 0609, Attachment 4, "Significance Determination Process Initial Characterization," the inspectors determined that this finding affected the Initiating Events cornerstone as a primary system LOCA initiator contributor. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 1, "Initiating Events Screening Questions," the finding screened as having very low safety significance (Green) because after a reasonable assessment of degradation, the finding did not result in exceeding the RCS leak rate for a small LOCA and did not affect other systems used to mitigate a LOCA. The finding does not have a crosscutting aspect because the most significant contributor to the finding is not reflective of current licensee performance.

Enforcement. Title 10 CFR 50, Appendix B, Criterion IX, "Control of Special Processes," states, in part, measures shall be established to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements. Contrary to this requirement, since March 11, 2009, Comanche Peak failed to assure that special processes, including welding, heat treating, and nondestructive testing, were performed in accordance with applicable codes, standards, specifications, criteria, and other special requirements. Specifically, the licensee failed to assure that visual examination activities for the reactor vessel dissimilar metal nozzle welds and bottom-mounted instrumentation nozzle were accomplished in accordance with the visual acuity requirements of ASME Code Case N-722-1, as required by 10 CFR 50.55a. In response to the issue, for Unit 2, the licensee scheduled reexamination of the welds prior to the end of the outage, and, for Unit 1 performed a reasonable degradation evaluation to determine that reexamination of the welds could be delayed to the next outage. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as Condition Report 2015-009586. (NCV 05000445/2015004-01; 05000446/2015004-01, "Incorrect Visual Resolution Requirements in Augmented Dissimilar Metal Weld Visual Examination Procedures.")

.2 Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

The inspectors reviewed the results of the licensee's bare metal visual inspection of the reactor vessel upper head penetrations to determine whether the licensee identified any evidence of boric acid challenging the structural integrity of the reactor head components and attachments. The inspectors also verified that the required inspection coverage was achieved and limitations were properly recorded. The inspectors reviewed whether the personnel performing the inspection were certified examiners to their respective nondestructive examination method.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control (BACC) Inspection Activities

a. Inspection Scope

The inspectors reviewed the licensee's implementation of its boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walk-down as specified in procedures STA-737, "Boric Acid Corrosion Detection and Evaluation," Revision 8, and STI-737.01, "Boric Acid Corrosion Detection and Evaluation," Revision 0. The inspectors reviewed whether the visual inspections emphasized locations where boric acid leaks could cause degradation of safety significant components, and whether engineering evaluation used corrosion rates applicable to the affected components and properly assessed the effects of corrosion induced wastage on structural or pressure boundary integrity. The inspectors observed whether corrective actions taken were consistent with the ASME Code, and 10 CFR 50, Appendix B, requirements.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

The licensee did not perform steam generator tube inspection activities during the Unit 2 Refueling Outage 2RF15. The next steam generator tube inspection will take place during Refueling Outage 2RF17.

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 December 9, 2015, the inspectors observed a portion of an annual requalification test for licensed operators. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed and the modeling and performance of the simulator during the requalification activities.

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:

- October 3, 2015, Unit 2, observation during reactor shutdown.
- November 4, 2015, Unit 2, observation during reactor startup.

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 SSCs:

- October 15, 2015, Unit 2, 6.9kV switchgear breaker maintenance

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.

The inspectors utilized Operating Experience Smart Sample (OpESS) FY2009-01, "Inspection of Electrical Connections for Motor Control Center, Circuit Breakers, and Interfaces" during the performance of the inspection.

These activities constituted completion of one maintenance effectiveness sample, 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

Plants,” for the failure to establish goals that provide reasonable assurance that the 6.9 kV electrical distribution system is capable of fulfilling its intended functions. After incurring failures in the 6.9 kV electrical distribution system that were due to causes not previously evaluated, the licensee failed to reevaluate goals to address the additional failures. Consequently, the licensee failed to take appropriate corrective actions to address the additional failures.

Description. The licensee placed the 6.9 kV electrical distribution system in maintenance rule (a)(1) status in March 2009 based on failure to close on demand of two safety related breakers. As required by 10 CFR Part 50.65(a)(1), the licensee established corrective actions, and goals for the 6.9 kV system. The licensee established goals were to accrue no additional failures to close due to either:

- A bound trip button that places the breaker in a trip free condition.
- An undersized spacer on the shaft of the operating mechanisms crank arm assembly.

Additionally, the licensee established that any failures of any 6.9 kV breaker to close on demand due to additional mechanical related issues that occur during the monitoring period required review against the above goals.

Subsequently, in 2010 there were additional failures and the corrective actions and goals were modified to address these failures. The revised goals stated that during a demand to close (either automatic or manual) the 6.9 kV breaker would not be prevented from closing due to either:

- A missing C clip associated with the mechanism operated cell switch.
- A control device failure involving:
 - A broken limit switch contact carrier,
 - A broken limit switch crank phenolic stop,
 - Or bound limit switch contact carrier.

Following an additional failure in 2011, the licensee again revised corrective actions and goals for the 6.9 kV electrical distribution system. The revised goals stated that during a demand to close (either automatic or manual), the 6.9 kV breaker would not be prevented from closing due to either:

- A missing C clip associated with the mechanism operated cell switch,
- A control device failure involving:
 - A broken limit switch contact carrier,
 - A broken limit switch crank phenolic stop,
 - Or bound limit switch contact carrier.
- Any event that constitutes a failure to close or would have prevented a demand closure failure for all 1E or Non-1E 6.9 kV breakers.

In July 2013, the 6.9 kV breaker for unit 2 service water pump 2-01 experienced a failure due to hardened grease caused by inadequate maintenance that would have prevented the breaker from opening. This failure represented a maintenance preventable functional failure (MPFF) of the breaker. Station procedures required that the failure be reviewed against established system performance criteria and goals. However, the

system engineer failed to follow the station procedure to evaluate the July 2013 failure against the established performance criteria for the 6.9 kV electrical distribution system. Consequently, the licensee failed to classify this failure as a MPFF of the 6.9 kV electrical power system. In May 2015, the unit 2 service water pump 2-01 breaker experiences an additional failure, this time due to excessive grease caused by inadequate maintenance. Similar to the July 2013 failure, this failure would also have prevented the breaker from opening when required.

The inspectors determined that the existing (a)(1) goals failed to provide reasonable assurance that the 6.9 kV electrical distribution system was capable of fulfilling its intended functions. Consequently, existing corrective actions failed to address the cause of the 2013 and 2015 system failures. Inspectors informed the licensee of their concern and the licensee entered this issue into corrective action program as Condition Report CR-2015-009077.

Analysis. The licensee's failure to evaluate existing goals and corrective actions for a system that did not meet established performance 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 Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to take appropriate corrective actions adversely affected the reliability of a system scoped in the plant's maintenance rule program. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The finding has a human performance cross-cutting aspect associated with procedure adherence, in that, the licensee failed to follow maintenance rule implementing procedures [H.8].

Enforcement. Title 10 CFR 50.65(a)(1), requires, in part, that the licensee shall monitor the performance of structures, systems, or components, in a manner sufficient to provide reasonable assurance that these structures, systems, and components are capable of fulfilling their intended functions. Contrary to the above, from July 2013 through present, the licensee failed to monitor the performance of the 6.9 kV AC system, to which 10 CFR 50.65 applies, in a manner sufficient to provide reasonable assurance that these structures, systems, and components are capable of fulfilling their intended functions. Specifically, the licensee failed to establish goals for the 6.9 kV AC system that provided reasonable assurance that system circuit breakers would perform their intended function of opening on demand. Consequently, the licensee failed to take appropriate corrective actions for failures in the 6.9 kV system that occurred in July 2013 and May 2015. The licensee implemented corrective actions to re-evaluate the goals and corrective actions for the 6.9 kV AC system. This violation is being treated as an NCV, consistent with

Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as Condition Report CR-2015-009077. (NCV 05000445/2015004-02; 05000446/2015004-02, Failure to Take Appropriate Maintenance Rule Corrective Actions for the 6.9 kV AC System)

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

a. Inspection Scope

The inspectors reviewed two 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:

- November 2, 2015, Unit 2, refueling outage 2RF15
- October 29, 2015, Unit 2, crane operations in the vicinity of emergency diesel generator 2-02

The inspectors verified that these risk assessment 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.

These activities constitute completion of two 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 eight operability determinations and functionality assessments that the licensee performed for degraded or nonconforming SSCs:

- May 28, 2015, operability determination of service water pump 2-01 circuit breaker
- June 28, 2015, operability determination of containment spray relief valve 1CT-0005
- August 26, 2015, operability determination of unit 1 personnel airlock door
- October 14, 2015, operability determination of reactor vessel penetrations
- October 17, 2015, operability determination of unit 1 service water piping
- October 21, 2015, operability determination of unit 2 diesel generator 2-01

- October 28, 2015, functionality assessment of seismic monitoring system
- December 16, 2015, operator workarounds

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

The inspectors reviewed operator actions taken or planned to compensate for degraded or nonconforming conditions. The inspectors verified that the licensee effectively managed these operator workarounds to prevent adverse effects on the function of mitigating systems and to minimize their impact on the operators' ability to implement abnormal and emergency operating procedures.

These activities constitute completion of eight operability and functionality review samples, which included one operator work-around sample, as defined in Inspection Procedure 71111.15.

b. Findings

.1 Inadequate Compensatory Measures for Seismic Monitoring System Maintenance

Introduction. The inspectors identified a Green non-cited violation of 10 CFR 50.54(q)(2) for a failure to meet planning standard 10 CFR 50.47(b)(4) during periodic outages of the seismic monitoring system.

Description. On October 28, 2015, the inspectors observed maintenance on the seismic monitoring system. The inspectors noted that during the maintenance, the system was unable to perform its function of alerting control room staff of an entry condition into the emergency action levels for a seismic event. The inspector questioned the control room staff on the compensatory measures in place while the seismic monitoring system was not functional. The inspectors determined that the operators relied on procedure ABN-907, "Acts of Nature", Revision 15, which directed staff to contact engineering to perform an engineering analysis to determine whether the seismic event had exceeded the operating basis earthquake criteria. The procedure allowed up to four hours to complete the analysis. The inspectors determined that this would result in exceeding the requirement to assess and classify an alert within 15 minutes.

On March 6, 2015, the licensee identified the proceduralized compensatory measures for the seismic monitoring system being out of service would not be successful in classifying an event within 15 minutes. The licensee also identified previous missed reports for a major loss of emergency assessment capability required under 10 CFR 50.72(b)(3)(xiii) and submitted Event Notification 50965. The inspectors documented the failure to follow and maintain the effectiveness of an emergency plan that meets the requirements of the planning standards of 10 CFR 50.47(b)(4) as a licensee identified violation in Inspection Report 2015002. The inspectors determined that in response to this licensee identified violation, the licensee failed to identify, implement and continued

to perform maintenance on the seismic monitoring system without viable compensatory measures.

The inspectors informed the licensee of their concerns and the licensee initiated Condition Report CR-2016-000091 to capture this issue in the station's corrective action program. The licensee issued a communication on December 7, 2015, to all emergency response personnel detailing compensatory measures to take during maintenance that would allow a classification within 15 minutes. The inspectors determined that between March 6 and December 7, 2015, the licensee had performed the maintenance activity ten times without viable compensatory measures. After reviewing log entries for times that the seismic monitor was out of service, the inspectors determined that the licensee declared the seismic monitor out of service for a total of over eleven hours (11.4) without viable compensatory measures during those ten instances.

Analysis. The licensee's failure to maintain the effectiveness of their emergency plan was a performance deficiency. The violation was more than minor, and therefore a finding, because it affected the ERO Performance attribute of the Emergency Preparedness cornerstone and impacted the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process," the inspector determined that the violation is of very low safety significance (Green) because the finding represented a failure to comply with planning standard (b)(4), and, using table 5.4-1, was screened as a Green finding because an emergency action level initiating condition was rendered ineffective such that an Alert would be declared in a degraded manner for a seismic event, but no Site Area Emergency or General Emergency initiating conditions were affected. The violation was entered into the licensee's corrective action program as CR-2016-000091. The inspectors determined that this finding has a problem identification and resolution cross-cutting aspect associated with resolution, because the licensee failed to take appropriate corrective action after they recognized the inadequacy of their compensatory measures. [P.3]

Enforcement. Title 10 CFR 50.54(q)(2) requires, in part, that licensees shall follow and maintain the effectiveness of an emergency plan that meets the requirements of the planning standards of 10 CFR 50.47(b). Contrary to the above, between March 6, 2015 and December 7, 2015, the licensee failed to maintain the effectiveness of an emergency plan that meets the requirements of the planning standards of 10 CFR 50.47(b). Specifically, 10 CFR 50.47(b)(4) requires, in part, that a standard emergency classification and action level scheme is in use by the licensee. The licensee's emergency classification and action level scheme provide criteria for classifying an alert due to a seismic event based on an alarm condition on their seismic monitoring system panel. However, on ten different occasions the licensee took the seismic monitoring system out of service without implementing viable compensatory measures that impacted the ability to classify an alert based on seismic activity. The licensee implemented corrective actions to establish viable compensatory measures for the unavailability of the seismic monitoring system. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as Condition Report CR-2016-000091.

(NCV 05000445/2015004-03; 05000446/2015004-03, Inadequate Compensatory Measures for Seismic Monitoring System Maintenance)

.2 Failure to Identify Conditions Adverse to Quality

Introduction. The inspectors identified two examples of a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify conditions adverse to quality. Specifically, in two separate instances, extent of condition reviews for grease on 6.9 kV breaker stabs and degraded piping in the Unit 1 service water system, the licensee failed to identify conditions adverse to quality that were reasonably within their ability to identify.

Description. Example 1: On May 28, 2015, the licensee discovered the unit 2 service water pump 2-01 breaker red closure light not lit indicating that the breaker was in a failed state. The licensee reviewed the condition and determined that the extinguished light was an indication of a failure that could affect the ability of the breaker to open and declared it inoperable. Following removal and inspection, the licensee determined that excessive grease on the secondary connections caused a loss of connectivity on the closing coil.

Evaluations by the licensee identified that the service water pump 2-01 breaker also failed in 2013, as indicated by a red closure light not lit, due to loss of connectivity associated with hardened grease on the secondary connections. Corrective actions for this failure were to change the procedure to remove the addition of grease. However, the licensee implemented this procedure change after installation of service water pump 2-01 breaker with grease on the secondary connections. The licensee determined that the corrective actions from 2013 were inadequate because they changed the maintenance procedure to stop applying grease to the secondary connections, but failed to remove already applied grease on the breaker.

The inspectors reviewed the licensee's evaluation and extent of condition review and determined that the licensee failed to review maintenance records for other safety related breakers that had received maintenance where grease was reapplied to secondary stab connections. Inspectors informed the licensee of their concerns and the licensee re-performed their extent of condition review and identified 24 additional safety related breakers that still had grease on the secondary connections. The licensee entered this issue into the corrective action program as Condition Report CR-2015-009992. The licensee determined that the 24 additional breakers were operable but degraded.

Example 2: On October 17, 2015, the licensee identified corrosion on unit 2 service water piping, in an infrequently entered tunnel, which resulted in the piping being below the ASME minimum required wall thickness. The tunnel also contained unit 1 service water piping located in close proximity to the unit 2 piping. The inspectors questioned whether the licensee knew the cause of the corrosion and if the unit 1 piping was susceptible to similar corrosion. On October 22 2015, due to concerns that the licensee had still not inspected the piping for unit 1, the inspectors entered the tunnel and identified significant corrosion on the unit 1 piping.

The inspectors informed the licensee of their observations and the licensee entered this into the station's corrective action program as Condition Report CR-2015-010120. The

licensee subsequently planned to perform ultra-sonic inspections of the piping during the next unit 1 outage in 2016. Inspectors questioned their basis for delaying the ultra-sonic inspections. Based on the questions from the inspectors, the licensee performed ultra-sonic inspections and determined that the piping was below the ASME required minimum wall thickness. Further evaluations by the licensee established a reasonable expectation for operability pending restoration of the piping to full compliance with code.

Analysis. The licensee's failure to identify conditions adverse to quality for quality related systems was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to identify degraded conditions could affect the reliability or availability of multiple safety related systems. 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 is a deficiency affecting the design or qualification of a mitigating SSC, but the SSC maintained its operability. 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 extent of conditions. Specifically, the licensee failed to adequately consider the extent of the degraded conditions on similar safety related components [P.2].

Enforcement. Title 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance's are promptly identified and corrected. Contrary to the above, on May 28, 2015 and October 17, 2015, for quality related components associated with the 6.9 kV electrical and service water systems, to which 10 CFR Part 50, Appendix B applies, the licensee failed to assure that conditions adverse to quality were promptly identified. Specifically, the licensee did not identify excessive grease on multiple safety related 6.9 kV breakers, and did not identify piping corrosion on the unit 1 service water system. The licensee implemented immediate correction actions to enter these conditions into the corrective action program for resolution. The licensee also performed an operability determination for each of the previously unidentified degraded conditions. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as Condition Report CR-2015-009992 and CR-2015-010120. (NCV 05000445/2015004-04; 05000446/2015004-04, Failure to Identify Conditions Adverse to Quality)

1R18 Plant Modifications (71111.18)

.1 Permanent Modifications

a. Inspection Scope

The inspectors reviewed two permanent plant modifications that affected risk- SSCs:

- December 22, 2015, Unit 2 safety injection pump 2-02 suction vent valve
- October 13, 2015, Unit 2, temporary modification to fuel transfer system fuel container and car assembly

The inspectors reviewed the design and implementation of the modifications. The inspectors verified that work activities involved in implementing the modifications 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 operability or functionality of the SSCs as modified.

These activities constitute completion of two samples 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 twelve post-maintenance testing activities that affected risk-significant SSCs:

- October 21, 2014, Unit 1, 6.9 kV bus 1EA2 circuit breakers following secondary stab replacements
- January 15, 2015, Unit 1, component cooling water valve 1-FV-4537 following maintenance
- July 24, 2015, Unit 2, Service water pump 2-01 circuit breaker following secondary stab replacement
- September 21, 2015, Unit 2, auxiliary feedwater steam supply valve following diaphragm replacement
- October 2, 2015, Unit 1, diesel generator 1-01 following governor and governor load switch change out.
- October 17, 2015, Unit 2, residual heat removal valve 2-8812A following fire safety modifications.
- November 12, 2015, Unit 2, Safety Chiller 2-06 component cooling water return valve 2-PV-4553 following maintenance
- November 23, 2015, Unit 1, turbine driven auxiliary feedwater pump following governor speed stop maintenance

- November 24, 2015, Unit 1, steam generator 4 flow control valve 1-FCV-540 following maintenance
- November 24, 2015, Unit 1 pressurizer level transmitter following replacement.
- November 30, 2015, Unit 1 chemical and volume control system flow switch 1-FIS-0406 following replacement
- December 11, 2015, Unit 2 chemical and volume control system following 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 constitute completion of twelve 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 refueling outage that concluded on November 4, 2015, 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 of the licensee's outage plan prior to the outage
- 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
- Observation and review of reduced-inventory and mid-loop activities
- Observation and review of fuel handling activities
- Monitoring of heat-up and startup activities

These activities constitute completion of one refueling outage 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 six 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:

- December 20, 2015, Unit 1, Inservice test of component cooling water pump 1-01

Containment isolation valve surveillance tests:

- October 12, 2015, Unit 2, Loop 1 reactor coolant sample line isolation valve

Other surveillance tests:

- June 22, 2015, Unit 1 primary plant ventilation test
- October 28, 2015, Unit 2 diesel generator 2-02 integrated test sequence
- December 8, 2015, Unit 1 steam generator 1-02 flow loop calibration
- December 9, 2015, Unit 1 emergency filtration filter testing
- December 22, 2015, Unit 1 turbine driven auxiliary feedwater pump comprehensive operability test

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 seven surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

Introduction. The inspectors identified a Green finding associated with the licensee's failure to follow procedural requirements when disabling a hazard barrier. Specifically, the licensee failed to evaluate the adequacy of a temporary high-energy line break barrier used while performing negative pressure testing on the auxiliary, safeguards and fuel handling buildings.

Description. While reviewing Work Order 4690886, used to perform negative pressure testing on the auxiliary, safeguards and fuel handling buildings, the inspectors identified a concern with how the licensee's test procedure established conditions for the auxiliary building. Specifically, Station Procedure PPT-SX-7516, "Auxiliary, Safeguards and Fuel Building Negative Pressure Test – Train B," Revision 5, directed operators to shift the ventilation and high energy line break boundary to doors S1-35G or S2-35G during testing to allow for opening of a pass through door between rooms 95B and 96.

Inspectors reviewed the licensee's assessment for crediting a temporary barrier documented in Barrier Impairment Forms EV-CR-2001-000034-1-36, and EV-CR-2015-000079-7, which superseded EV-CR-2001-000034-1-36. The inspectors noted that doors S1-35G or S2-35G had not been evaluated for their ability to withstand high-energy line break conditions and that the licensee made incorrect assumptions with regard to the physical configuration of the doors. Inspectors noted that this was contrary to the requirements of Station Procedure STA 696, "Hazard Barrier Controls," Revision 2, Step 5.3.4, which requires, in part, that the responsible engineering organization will prescribe appropriate temporary barriers when required to support the impairment of an applicable hazard barrier. Based on this inspectors questioned whether these doors established the appropriate boundary because the pass through doors were high energy line break barriers credited for protecting safety-related electrical equipment, and doors S1-35G or S2-35G had not been evaluated to demonstrate that they could perform this function.

Inspectors informed the licensee of their concerns and the licensee initiated Condition Report CR-2015-005583 to capture this issue in the station's corrective action program, and stopped work until the concerns could be resolved. During subsequent walkdowns the licensee determined that the barrier was not in the configuration that had been assumed in 2001 when this configuration had originally been approved in Barrier Impairment Forms EV-CR-2001-000034-1-36. Because this activity had yet to commence inspectors determined that this issue was of minor significance.

Inspectors also reviewed Work Order 4345000, used for the previous performance of the negative pressure testing on the auxiliary, safeguards and fuel handling buildings in 2013. The inspectors noted that the work order directed the testing to be performed in accordance with procedure PPT-SX-7516 using the same boundary configuration as discussed previously, and evaluated using Forms EV-CR-2001-000034-1-36. Based on this, inspectors determined that the licensee had failed to follow the requirements of Station Procedure STA-696 when crediting a temporary barrier when during the impairment of a hazard barrier.

Subsequently, the licensee determined that the procedure/barrier impairment evaluation(s) were not adequate for the activity. This issue was captured in the corrective action program as Condition Report CR-2015-005583, and prior to performing the testing again the licensee appropriately evaluated the temporary barrier.

Analysis. The licensee's failure to follow station procedure requirements when crediting a temporary hazard barrier was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment 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, opening

the high energy line break door without an appropriate temporary barrier in place removed a credited barrier for safety-related electrical equipment. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. 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, 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 Reports CR-2015-002004 and CR-2015-007524, it is identified as a finding. (FIN 05000445/2015004-05, "Failure to Follow Procedure When Disabling a Hazard Barrier")

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspector performed an in-office review of changes to the Comanche Peak Nuclear Power Plant Emergency Plan, Revision 40, submitted to the NRC by letter, dated October 29, 2015. The revision made changes to the staffing commitments listed in Table 1.1, "Staffing Requirements for Emergencies," to incorporate the results of the staffing assessment performed to address functions related to the Fukushima Near Term Task Force recommendations.

This revision was compared to its previous revision, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q)(3) and 50.54(q)(4). The inspector verified that the revision did not reduce the effectiveness of the emergency plan. This review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection.

These activities constitute completion of one emergency action level and emergency plan change sample as defined in Inspection Procedure 71114.04.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

On August 5 and September 24, 2015, the inspectors observed emergency preparedness drills to verify the adequacy and capability of the licensee's assessment of drill performance. The inspectors reviewed the drill scenarios, observed the drills from the simulator, TSC, and EOF, and attended the post-drill critiques. 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 critiques and entered into the corrective action program for resolution.

These activities constitute completion of two emergency preparedness drill observation samples, as defined in Inspection Procedure 71114.06.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

The inspectors assessed the licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities. The inspectors assessed the licensee's implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures. The inspectors walked down various portions of the plant and performed independent radiation dose rate measurements. The inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors reviewed licensee performance in the following areas:

- The hazard assessment program, including a review of the licensee's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels
- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions

- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability
- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage and contamination controls, the use of electronic dosimeters in high noise areas, dosimetry placement, airborne radioactivity monitoring, controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools, and posting and physical controls for high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements
- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

These activities constitute completion of one sample of radiological hazard assessment and exposure controls as defined in Inspection Procedure 71124.01.

b. Findings

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.7.1.a, with two examples, for not barricading High Radiation Areas (HRAs) with dose rates not exceeding 1.0 rem, per hour at 30 centimeters from the radiation source. Specifically, access to the HRA containment trashracks and access to the HRA reactor cavity before flood up were not barricaded to prevent entry.

Description. On October 6, 2015, while performing a Radiological Controlled Area walkdown of the Unit 2 containment, the inspector and licensee staff were traversing the 808' elevation and observed a ladder conspicuously posted as a High Radiation Area. The ladder was attached to the side of the containment recirculation sumps or trashracks. An HRA existed at the top of the trashracks and access to this HRA was not barricaded. The initial containment entry survey on October 3, 2015, showed general area dose rates up to 175 millirem per hour and subsequent surveys on October 6, 2015 and October 9, 2015 showed fluctuating dose rates up to 100 millirem per hour. The licensee took immediate corrective action to set up a barricade impeding access to the high radiation area. The issue was entered into the licensee corrective action program as CR-2015-009095.

On October 9, 2015, the inspector was observing radiation protection job coverage for the reactor head lift and cavity floodup at the 860' elevation radiation protection (RP) control point. This control point had two desks, one for RP and one for the foreign material exclusion (FME) monitor, with anything needed to control and support access to the cavity HRA (e.g., postings, barricades, straps, ties, tools). RP controlled access into the HRA by barricading the entry with a rope suspended across adjustable-height metal poles and an HRA posting.

Prior to flooding the reactor cavity, contractors used a walkway at the 860' elevation to cover the cavity with large tarps. To allow easier access for the contractors and the tarps, the HRA adjustable-height poles and barricade were raised above the 5 foot standard to not impede entry. While the cavity was being covered, the FME monitor walked through the raised barricade to observe the activities. After interviewing the FME monitor, the inspector determined that the RWP did not allow access into an HRA nor had an HRA briefing been given to the FME monitor. The inspector determined that when the FME monitor passed under the HRA barricade, radiological control had been circumvented and it was only fortuitous that the FME monitor did not enter the area with HRA dose rates exceeding 100 millirem per hour at 30 centimeters from the radiation source. The licensee took immediate corrective actions, restricting the FME monitor's RCA access, and restoring the barricade height to impede access. The issue was entered into the licensee corrective action program as CR-2015-009303.

The licensee has had vulnerabilities with controlling HRAs in the recent past. The licensee's Nuclear Oversight assessment for January 2014 – April 2014 identified that a "significant weakness exists in the areas of Briefings and Access to High Radiation Areas." Another assessment identified that radiation protection technicians and workers sometimes do not follow radiation protection standards which resulted in workers entering high radiation areas without complete knowledge of radiological conditions. In the second quarter 2014 consolidated inspection report, the NRC issued a non-cited violation of T.S. 5.7.1 for the licensee's failure to properly inform workers of the high radiation area radiological conditions prior to entry.

Analysis. The failure to barricade high radiation areas in accordance with TS 5.7.1.a was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it impacted the program and process attribute of the Occupational Radiation Safety Cornerstone and adversely affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, not barricading HRAs could lead to inadvertent worker entry into high dose areas without knowledge of the radiological conditions. The finding was assessed using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, and was determined to be of very low safety significance (Green) because the problem was not an ALARA planning issue; there was no overexposure, nor substantial potential for an overexposure; and the licensee's ability to assess dose was not compromised. The finding was associated with a cross-cutting aspect of Resolution in Problem Identification and Resolution area. Specifically, the organization's corrective actions to address HRA issues raised by Nuclear Oversight, the NRC and independent assessments in a timely manner commensurate with their safety significance have not been effective [P.3].

Enforcement. Technical Specification Section 5.7.1.a states, in part, that each entryway to a high radiation area shall be barricaded and conspicuously posted as a high radiation area. Contrary to the above, on October 6, 2015 and October 9, 2015, the entryways to high radiation areas were not barricaded and conspicuously posted as high radiation areas. Specifically, the entries to the 808' trashracks and the 860' cavity access were not barricaded to impede access into the HRAs. The immediate action of the licensee was to put barricades in place to impede HRA access. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as CR-2015-009095 and CR-2015-009303, this violation is being treated as a

non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy. (NCV 05000445/2015004-06; 05000446/2015004-06, "Failure to Barricade High Radiation Areas")

2RS3 In-plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

The inspectors evaluated whether the licensee controlled in-plant airborne radioactivity concentrations consistent with ALARA principles and that the use of respiratory protection devices did not pose an undue risk to the wearer. During the inspection, the inspectors interviewed licensee personnel, walked down various portions of the plant, and reviewed licensee performance in the following areas:

- The licensee's use, when applicable, of ventilation systems as part of its engineering controls
- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of NIOSH certified equipment, qualification and training of personnel, and user performance
- The licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions, status of SCBA staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Audits, self-assessments, and corrective action documents related to in-plant airborne radioactivity control and mitigation since the last inspection

These activities constitute completion of one sample of in-plant airborne radioactivity control and mitigation as defined in Inspection Procedure 71124.03.

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

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index: Residual Heat Removal Systems (MS09),
Cooling Water Support Systems (MS10)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of October 2014 through September 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 residual heat removal systems and cooling water support systems for Units 1 and 2, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors verified that there were no unplanned exposures or losses of radiological control over locked high radiation areas and very high radiation areas during the period of January 1, 2014 to September 30, 2015. The inspectors reviewed a sample of radiologically controlled area exit transactions showing exposures greater than 100 mrem. 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 occupational exposure control effectiveness performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed corrective action program records for liquid or gaseous effluent releases that occurred between January 1, 2014 to September 30, 2015 and were reported to the NRC to verify the performance indicator 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 radiological effluent technical specifications (RETS)/offsite dose calculation manual (ODCM) radiological effluent occurrences 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 verified that the licensee was taking corrective actions to address identified adverse trends.

The inspectors reviewed the licensee's efforts to identify, trend, and correct deficiencies in work order quality. The inspectors reviewed several licensee generated work orders from various work groups to assess whether the licensee had taken appropriate corrective actions. The inspectors identified that the licensee still had problems with meeting their standards for work orders with regard to post maintenance testing. Specific information is detailed below.

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

b. Observations and Assessments

The inspectors identified multiple examples where work orders used to perform quality related work on safety-related components did not specify the required post maintenance testing.

The inspectors determined that the licensee had not been specifying post maintenance testing in work orders for safety related circuit breakers.

During the unit 1 outage in fall 2014, the inspectors observed the replacement of secondary stabs for the 1EA2 bus tie 6.9 kV breaker in the 1EA2 switchgear. The inspectors also reviewed the work orders for the breakers for unit 1 containment spray pump 2, component cooling water pump 2, diesel generator 2, and the supply breakers for the 1EB2 and 1EB4 busses. Inspectors determined that the work affected the quality of the breakers and that 10 CFR Part 50, Appendix B requires appropriate acceptance criteria to demonstrate that the breakers could perform their specified safety function following the maintenance. Inspectors noted that the work orders did not specify any required post maintenance testing. The inspectors discussed the issue with the licensee and the licensee entered the concern into their corrective action program.

On July 22, 2015, the inspectors reviewed the work order for the replacement of a secondary stab and a control device for the unit 2 containment spray pump 2-03 breaker. The inspectors determined that the post-maintenance test only required an operability test of the pump and this did not test the function of all components replaced. Inspectors questioned this since the operability test would not test all of the components affected by the maintenance.

On July 24, 2015, the inspectors reviewed the work order for the replacement of the secondary stab for the unit 2 service water pump 2-01 breaker. The inspectors noted that the work order failed to specify the correct post maintenance test for the service water pump breaker. Inspectors questioned this and informed the licensee of their concern.

The licensee determined that the post maintenance test for all of the above circuit breakers consisted of the breaker racking procedure, in conjunction with an operational test of the associated components. Inspectors determined that; 1) this procedure was not being treated as a post maintenance testing procedure, and completed copies were not being maintained, and 2) this procedure did not test all of the components affected by the maintenance activity. Inspectors informed the licensee of their conclusion. After further research, the licensee determined that additional testing done by operations (not as post maintenance testing) tested the other breaker components.

The inspectors identified additional examples where work orders did not have the correct post-maintenance testing.

On October 28, 2014, the inspectors reviewed the work order for valve seat repair of the unit 1 reactor coolant loop 4 pressurizer spray valve. The inspectors determined that the post maintenance test was inadequate for the valve seat work, because the test only verified the actuator was not leaking and did not test the valve seat. The valve repair was later determined to be unsuccessful. The licensee entered this into their corrective action program. Although the post maintenance test was inadequate and the valve was not successfully repaired, this violation was minor because the seat leakage of the pressurizer spray valve did not impact any of the reactor safety cornerstone objectives.

On September 30, 2015, the inspectors reviewed the work order for post maintenance testing of a unit 1 emergency diesel generator. The inspectors determined that the work order failed to specify the required post maintenance testing. The licensee determined

that the required test was entered in the electronic system and ultimately performed, but was not transferred to the work order used by maintenance personnel.

The inspectors determined that the work planning procedure STI-606.03, "Work Planning", Revision 1, requires that the specification of any necessary post maintenance test when post work testing is applicable is required in the work order. The inspectors determined the licensee had failed to follow this procedure on multiple occasions when preparing work orders for safety related components, a minor violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings." Inspectors raised these questions to the licensee, and the licensee initiated Condition Reports CR-2015-001960, CR-2015-003140, CR-2015-003234, CR-2015-007311, CR-2015-007971, and CR-2016-000301 for the examples listed above.

c. Findings

No findings were identified.

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected one issue for an in-depth follow-up:

- On September 12, 2014, a spurious actuation of Unit 1 train A sequencer occurred due to a power supply failure.

The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to correct the condition.

These activities constitute completion of one annual follow-up sample as defined in Inspection Procedure 71152.

b. Findings

No findings were identified.

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

.1 (Closed) Licensee Event Report 05000446/14-003-01, Two Pressurizer Safety Valves As-Found Lift Settings Found Outside Technical Specification Limits

a. Inspection Scope

On May 19, 2014, the licensee discovered that two of the three pressurizer safety valves which had been removed from the system and shipped off-site for testing failed their as-found lift tests with lift pressures above the setpoint of 2485 psig specified in Technical Specification 3.4.10, "Pressurizer Safety Valves." Although the exact time of failure could not be determined, the licensee assumed that the failure could have occurred prior to plant shutdown, and reported the failure as a condition prohibited by the plant's

Technical Specifications. The cause of the failure was determined to be setpoint drift. The licensee replaced both valves prior to restarting.

The inspectors reviewed the licensee's evaluation and corrective actions. The inspectors determined that the failure of the pressurizer safety valves was not within the licensee's ability to foresee and correct and was not a performance deficiency. The inspectors did identify that the licensee's apparent cause evaluation did not follow the requirements of the licensee's corrective action program, because the cause evaluation did not identify corrective actions that would resolve the apparent cause. The licensee identified that the apparent cause was that the valve tolerance was narrow for the testing frequency used, but did not specify corrective actions in the evaluation that would address that condition. The inspectors determined that, subsequently, the licensee changed the testing frequency such that all valves would be tested during each refueling outage. The failure to specify corrective actions for an apparent cause was a failure to follow CAP-101, "Performing Apparent Cause Evaluations," Revision 7, a quality related procedure. This is a violation of 10 CFR Part 50, Appendix B, Criterion V, "Procedures." The inspectors determined that the performance deficiency was minor because the licensee had ultimately taken appropriate correction actions, and therefore did not represent a condition that could lead to a more significant safety concern, affect a performance indicator threshold, affect any cornerstone objective, or result in actual consequences. This violation was entered into their corrective action program as CR-2016-000445.

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report 05000445/15-001-00, Unanalyzed Condition During MSSV Testing

a. Inspection Scope

In late September 2014, just prior to the start of 1RF17, testing of Unit 1 main steam safety valves was performed in accordance with maintenance procedure MSM-S0-8702, "Main Steam Safety Valve Testing," Revision 4. During the conduct of that maintenance, maintenance personnel leave one of the two doors to the Main Steam-Main Feed room open for personnel egress in the event of a steam leak and for heat stress considerations. Testing of the MSSVs was completed satisfactorily and Unit 1 entered its scheduled refueling outage.

In late January 2015, the NRC Senior Resident questioned the conduct of the main steam safety valve testing performed prior to the 1RF17 outage. He was concerned that the effect of leaving one of the room's watertight doors open had not been considered prior to conducting the maintenance. He stated that failure to evaluate the effect of leaving the watertight door open may have placed the Unit in an unanalyzed condition.

On February 19, 2015, it was determined the conduct of the main steam safety valve testing had inadvertently placed Unit 1 in an unanalyzed condition. Furthermore, placing the Unit in an unanalyzed condition was reportable under 10 CFR 50.73(a)(2)(ii)(B). The cause of this event was the main steam safety valve testing work process did not consider the operability of safety related equipment when the Main Steam-Main Feed

room doors were open. Corrective actions include revising procedures to provide site personnel with guidance sufficient to avoid situations such as the unanalyzed condition resulting from the main steam safety valve testing.

b. Findings

A green non-cited violation was associated with this issue, and was documented as NCV 05000445/2015001-01; 05000446/2015001-01, "Failure to Evaluate Operability When Breaching Hazard Barriers."

.3 (Closed) Licensee Event Report 05000445/14-003-00, Safety Chiller Inoperable for Longer Than Allowed by Technical Specifications

a. Scope

On August 28 2014, the condenser pressure on the Unit 1, train A Safety Chiller was determined to be 20 psig and rising. On November 20, 2014, a past operability review was completed that determined the Unit 1, train A Safety Chiller was inoperable for approximately 192 hours from August 21, 2014 to August 29, 2014, which exceeded the 72 hour completion time of Technical Specification 3.7.19, "Safety Chilled Water."

The cause of this event was the pressure switch on the safety chilled water purge system failed to actuate a purge valve to remove non-condensable gases from the safety chiller. Corrective actions included replacement of the purge high pressure switch and revising the maintenance procedures to require a verification of the purge unit function on start-up of the chiller prior to declaring the chiller operable.

b. Findings

No findings were identified.

These activities constitute completion of three 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.

40A6 Meetings, Including Exit

Exit Meeting Summary

On October 14, 2015, the inspectors presented the radiation safety 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.

On October 15, 2015, the inspectors presented the 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.

On December 15, 2015, the inspector discussed the in-office review of the emergency plan change, submitted October 29, 2015, with Mr. J. Hull, Manager, Emergency Preparedness, and other members of the licensee staff. The licensee acknowledged the issues presented.

On January 7, 2016, the inspectors presented the resident inspection results to Mr. K. Peters, Interim 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.

40A7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as non-cited violations.

- Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be accomplished in accordance with documented instructions, procedures, or drawings, of a type appropriate to the circumstances. Station Procedure STI-442.01, "Operability Determination and Functionality Assessment Program," Revision 3, an Appendix B quality related procedure, provides instructions for evaluating the operability of safety-related components. Procedure STI-442.01, Step 6.1, requires, in part, that when a potential degraded or nonconforming condition is identified, the shift manager should ensure the operability determination process is initiated to determine the operability of the structure, system or component. Contrary to the above, on July 26, 2015, when a potential degraded or nonconforming condition was identified, the shift manager failed to ensure the operability determination process was initiated to determine the operability of the structure, system or component. Specifically, the licensee failed to adequately assess

and demonstrate the operability of Unit 1 train B containment spray system when a degraded condition was identified. Using Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, inspectors determined that this finding was of very low safety significance (Green) because the finding: did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic event, and (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The violation was entered into the licensee's corrective action program as Condition Report CR-2015-006785.

- Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be accomplished in accordance with documented instructions, procedures, or drawings, of a type appropriate to the circumstances. Station Procedure STI-442.01, "Operability Determination and Functionality Assessment Program," Revision 3, an Appendix B quality related procedure, provides instructions for evaluating the operability of safety-related components. Procedure STI-442.01, Step 6.1, requires, in part, that when a potential degraded or nonconforming condition is identified, the shift manager should ensure the operability determination process is initiated to determine the operability of the structure, system or component. Contrary to the above, on October 14, 2015, when a potential degraded or nonconforming condition was identified, the shift manager failed to ensure the operability determination process was initiated to determine the operability of the structure, system or component. Specifically, the licensee failed to enter the operability determination process, as required by Station Procedure STI-442.01, step 6.1, when a degraded or nonconforming condition was identified associated with incorrectly performed visual examination required by the ASME code. Using Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, inspectors determined that this finding was of very low safety significance (Green) because the finding: did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic event, and (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The violation was entered into the licensee's corrective action program as Condition Report CR-2015-009586.
- Title 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," states, in part, "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified

and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents.”

Contrary to the above, on October 20, 2015, the licensee failed to incorporate adequate acceptance limits in a quality-related written procedure that demonstrates components will perform satisfactorily. Specifically, the licensee failed to use appropriate acceptance limits for integrated testing of the station emergency diesel generators. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee’s maintenance rule program. The violation was entered into the licensee’s corrective action program as Condition Report CR-2015-009990.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Flores, Senior Vice President and Chief Nuclear Officer
K. Peters, Interim Senior Vice President and Chief Nuclear Officer
T. McCool, Interim Site 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
J. Barnette, Consulting Licensing Technologist, Regulatory Affairs
E. Dalasta, Welding Engineer, Engineering Programs
R. Green, Alloy 600 Engineer, Engineering Programs, Plant Reliability
J. Hicks, Consulting Licensing Engineer, Regulatory Affairs
J. Howard, ISI Consultant, Engineering Programs, Plant Reliability
C. LaSoya, Project Manager, Wesdyne
S. Miller, Boric Acid Engineer, Engineering Programs, Plant Reliability
J. Patton, Manager, Nuclear Oversight
A. Thomas, Program Engineer, Engineering Programs, Plant Reliability
B. Thompson, Engineer, Engineering Programs, Plant Reliability
C. Tran, Manager, Engineering Programs, Plant Reliability
S. Dixon, Consulting Licensing Analyst
D. O'Connor, Manager, Radiation Protection
G. Madison, Senior Health Physicist
W. Mandrell, Supervisor, ALARA
B. Knapp, Supervisor, Rad Material Control
K. Powell, Supervisor, Health Physics
J. Goodrich, Supervisor, S & C
K. Kilgariff, Radiation Protection Technician
C. Kelly, Radiation Protection Technician
B. Adkison, Radiation Protection Technician
J. Hull, Manager, Emergency Preparedness

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

| | | |
|---------------------|-----|---|
| 05000445/2015005-01 | NCV | Incorrect Visual Resolution Requirements in Augmented |
| 05000446/2015005-01 | | Dissimilar Metal Weld Visual Examination Procedures |
| 05000445/2015005-02 | NCV | Failure to Take Appropriate Maintenance Rule Corrective |
| 05000446/2015005-02 | | Actions for the 6.9 kV AC System |
| 05000445/2015005-03 | NCV | Inadequate Compensatory Measures for Seismic Monitoring |
| 05000446/2015005-03 | | System Maintenance |
| 05000445/2015005-04 | NCV | Failure to Identify Conditions Adverse to Quality |

05000446/2015005-04

05000445/2015005-05 FIN Failure to Follow Procedure When Disabling A Hazard Barrier

05000445/2015005-06 NCV Failure to Barricade High Radiation Areas

05000446/2015005-06

Closed

05000446/14-003-01 LER Two Pressurizer Safety Valves As-Found Lift Settings Found Outside Technical Specification Limits

05000445/15-001-00 LER Unanalyzed Condition During MSSV Testing

05000445/14-003-00 LER Safety Chiller Inoperable for Longer Than Allowed by Technical Specifications

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

Condition Reports

| | | | | |
|-------------|-------------|-------------|-------------|-------------|
| 2012-000749 | 2014-012081 | 2015-007991 | 2015-008014 | 2015-008112 |
| 2015-007321 | 2015-004489 | 2015-002531 | 2015-007839 | 2015-010120 |

Procedures

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

Miscellaneous Documents

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|---------------|--|-------------|
| DBD-EE-041 | 480V and 120V AC Electrical Power System | 31 |

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 |

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| 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 |
| 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 | September 2, 2015 |
| FD15-15 | Fire Drill Scenario | September 16, 2015 |

Section 1R08: Inservice Inspection Activities

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| --- | RCS Pressure Boundary Dissimilar Metal Weld Visual Examination Plan | 5 |
| --- | Reactor Vessel Lower Head Visual Examination Plan | 3 |
| --- | Reactor Vessel Closure Head Visual Examination Plan | 4 |
| EPG-9.02 | CPNPP Alloy 600 Management Program | 1 |
| STA-737 | Boric Acid Corrosion Detection and Evaluation | 8 |
| STA-760 | RCS Material Management Program | 3 |
| STI-737.01 | Boric Acid Corrosion Detection and Evaluation | 0 |
| TX-ISI-302 | Ultrasonic Examination of Austenitic Piping Welds | 5 |
| TX-ISI-8 | VT-1 and VT-3 Examination Procedure | 8 |

Calculations

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|-----------------|---|-----------------|
| ME-CA-0000-5435 | Determination of the EDY parameter for the Reactor Pressure Vessel Head | 0 |
| ME-CA-0000-5468 | Determination of the Frequency of Examination of the Reactor Pressure Vessel Head utilizing the RIY parameter | 0 |

Miscellaneous

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| CPES-P-1079 | Specification: Field Fabrication and Erection of Pipe Supports | 11 |
| --- | Unit 2- Third Interval ASME Section XI Inservice Inspection Program Plan | 0 |
| --- | RCS Materials Management Strategic Plan | 5 |

Condition Reports

| | | | | |
|-------------|-------------|-------------|-------------|-------------|
| 2014-001977 | 2013-012241 | 2014-007668 | 2015-009112 | 2015-009181 |
| 2014-003413 | 2015-005054 | 2015-009180 | 2015-009672 | 2015-009671 |
| 2015-007292 | 2014-004275 | 2014-004201 | 2015-009115 | 2015-009215 |
| 2015-009250 | 2015-009281 | 2009-005347 | 2015-009586 | 2015-009587 |

Boric Acid Evaluations

2009-005347-00-1 2009-005347-00-2 2013-012241-1 2014-003413-1 2014-003413-4
2015-005054-1

Work Orders

4949195 5005972 5006940 5006960 5006972

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

2010-004213 2015-004874 2013-007687 2013-009216 2015-009669

2015-007298

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| MSE-P0-6000 | 6.9 kV Switchgear Cleaning and Inspection | 6 |
| MSE-P0-6000 | 6.9 kV Switchgear Cleaning and Inspection | 5 |
| MSE-C0-6305 | 6.9 kV 7.5 HK Circuit Breaker Enhanced Maintenance | 3 |
| MSE-S0-6301 | 6.9 kV Air Circuit Breaker Inspection and Cleaning | 6 |

Miscellaneous Documents

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|---------------|-------------------------------------|-------------|
| MS 3.2.1.9-1 | Medium Voltage Switchgear Equipment | D |

Work Orders

4681502 4681212 5061203

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|------------------------------|-----------------|
| STI-604.04 | Outage Safety Function Guide | 2 |

Section 1R15: Operability Determinations and Functionality Assessments

Calculations

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|-----------------------------|-------------------------------------|-----------------|
| EE-EDG-LOAD- MEHTODOLOGY | EDG Loading Methodology Calculation | 4 |
| EE-EDG-LOAD- UNIT1 | EDG Unit 1 Loading Calculation | 0 |
| EE-EDG-LOAD- UNIT2 | EDG Unit 2 Loading Calculation | 1 |

Condition Reports

2015-007699 2015-009945 2013-007687 2015-004874 2015-007791
2015-007703 2015-009736

Drawings

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| E2-0031-41 | 6.9 kV Switchgear Bus 2EA1 Station Service Water Pmp 21 Tag CP2-SWAPSW-01 Bkr 2APSW1 Schematic Diagram | CP-5 |

Section 1R18

Calculations

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|-----------------------|--|-----------------|
| RH-2-070 | Pipe Stress Calc RHR Pump Discharge to RHR HX and SI Pump Suction | 1 |
| SEQSP- MS20A.1-020 | Seismic Qualification of Rockwell Valve Model ¾ - 15104T1 | 10 |

Miscellaneous Documents

| <u>Number</u> | <u>Title</u> | <u>Revision/ Date</u> |
|------------------------|---|---------------------------|
| DBD-CS-018 | Design Criteria for Pipe Stress and Pipe Supports | 10 |
| FDA-2015- 000071-01 | -- | 00 |

Work Orders

5087095

Section 1R19: Post-Maintenance Testing

Condition Reports

2015-000455 2011-012023 2015-001960 2015-003140 2014-009237
2015-002686

Drawings

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| E1-0031-11 | 6.9 kV Switchgear Bus 1EA2 Bus Tie Breaker BT-1EA2 Schematic Diagram | CP-5 |
| E1-0031-19 | 6.9 kV Switchgear Bus 1EA2 Transf T1EB4 Feeder Bkr Schematic Diagram | CP-3 |
| E1-0031-27 | 6.9 kV Switchgear Bus 1EA2 Component Cooling Water PP 12 Tag CP1-CCAPCC-02 Bkr 1APCC2 Schematic Diagram | CP-8 |
| E1-0031-23 | 6.9 kV Switchgear Bus 1EA2 Diesel Gen Bkr 1EG2 Schematic Diagram | CP-9 |
| E1-0031-31 | 6.9 kV Switchgear Bus 1EA2 Containment Spray Pump 13 Tag CP1-CTAPCS-03 Bkr 1APCS3 Schematic Diagram | CP-4 |

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| MSE-P0-6000 | 6.9 kV Switchgear Cleaning and Inspection | 6 |
| SOP-603A | 6900 V Switchgear | 16 |
| SOP-603B | 6900 V Switchgear | 10 |
| STI-606.01 | Work Control Process | 1 |
| STI-606.03 | Work Planning | 1 |

Work Orders

| | | | | |
|---------|---------|---------|---------|---------|
| 4271290 | 4271285 | 4271286 | 4271287 | 4271288 |
| 4271289 | 5061312 | 4913605 | 4541956 | |

Section 1R20

Condition Reports

| | | | | |
|-------------|-------------|-------------|-------------|-------------|
| 2015-006794 | 2015-010107 | 2015-008977 | 2015-009762 | 2015-009600 |
| 2015-009009 | 2015-009755 | 2015-001496 | | |

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| RFO-302 | Handling of Fuel Assemblies | 18 |
| MSM-C0-9907 | Reflective Insulation Removal, Rework, and Installation | 2 |
| MSM-C0-9903 | Reactor Lower Internals Removal and Installation | 5 |

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| STA-615 | Fatigue Management and Staff Work Hours | |

Work Orders

| | |
|---------|---------|
| 5006972 | 4859264 |
|---------|---------|

Section 1R22: Surveillance Testing

Condition Reports

| | |
|-------------|-------------|
| 2015-009990 | 2015-009736 |
|-------------|-------------|

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|----------------------------------|-----------------|
| OPT-503B | Cntmt Isol Valves ASME Testing | 12 |
| OPT-430B | Train A Integrated Test Sequence | 8 |

Work Orders

| | | | |
|---------|---------|---------|---------|
| 5158141 | 4835058 | 4830132 | 5165266 |
|---------|---------|---------|---------|

Section 1EP6

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| EPP-204 | Activation and Operation of the Technical Support Center (TSC) | 15 |

Miscellaneous Documents

| <u>Number</u> | <u>Title</u> | <u>Revision/Date</u> |
|---------------|---|----------------------|
| | Green Team Exercise August 5, 2015 Final Report | December 28, 2015 |
| | Red Team Exercise September 24, 2015 Final Report | December 28, 2015 |

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| RPI-104 | Radiation Protection Procedures, Shift Orders and Procedure Use and Adherence | 7 |
| RPI-106 | Radiation Protection Outage Preparation | 2 |
| RPI-115 | Alarm Response | 7 |
| RPI-212 | Radioactive Source Control | 13 |
| RPI-213 | Survey and Release of Material and Personnel | 22 |
| RPI-215 | Waste Stream Sampling | 7 |
| RPI-271 | Interim Storage of Low Level Radioactive Waste | 3 |
| RPI-400 | Decontamination Program | 21 |
| RPI-402 | Personnel Decontamination | 28 |
| RPI-506 | Calculation and Tracking of Personnel Exposures to Airborne Radioactive Material | 10 |
| RPI-507 | Internal Dose Calculation | 6 |
| RPI-509 | Personnel Dosimetry Program | 15 |
| RPI-521 | General Area Monitoring Program | 13 |
| RPI-528 | Multiple Dosimetry Badging | 12 |
| RPI-600 | Field Implementation and Use of Remote Monitoring | 3 |
| RPI-602 | Radiological Surveillance and Posting | 54 |
| RPI-604 | Radiological Control of Contamination | 3 |
| RPI-606 | Radiation Work and General Access Permits | 32 |
| RPI-608 | Control of Shielding | 14 |
| RPI-613 | Discrete Radioactive Particle Contamination Control | 7 |
| RPI-622 | Containment Refueling Job Coverage | 15 |
| RPI-624 | Resin Transfer Job Coverage | 8 |
| RPI-625 | RP Job Coverage for High Integrity Container Closure and Transfer | 2 |
| RPI-629 | Radiological Risk Management | 4 |
| RPI-700 | Sealed Source Leak Testing | 12 |
| STA-650 | General Health Physics Plan | 7 |
| STA-652 | Radioactive Material Control | 19 |

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---------------------------------|-----------------|
| STA-655 | Exposure Monitoring Program | 21 |
| STA-660 | Control of High Radiation Areas | 15 |

Condition Reports (CRs)

| | | | | |
|-------------|-------------|-------------|-------------|-------------|
| 2015-007403 | 2015-007369 | 2015-007702 | 2015-006928 | 2015-005969 |
| 2015-005264 | 2015-004381 | 2015-003201 | 2015-003481 | 2015-003024 |
| 2015-003021 | 2014-009404 | 2014-008813 | 2014-006680 | 2014-004331 |
| 2014-004323 | 2014-004303 | 2014-003569 | | |

Radiological Surveys

| <u>Number</u> | <u>Title</u> | <u>Revision/Date</u> |
|---------------|----------------------------------|----------------------|
| 15-10-0396 | U-2 RB 812' Loop 1 2-154I | October 7, 2015 |
| 15-10-0491 | U-2 RB 812' Loop 1 2-154I | October 9, 2015 |
| 15-10-0523 | U-2 RB 812' Loop 1 2-154I | October 9, 2015 |
| 15-10-0521 | U-2 RB 812' Loop 2 2-154J | October 9, 2015 |
| 15-10-0307 | U-2 RB 812' Loop 2 2-154J | October 6, 2015 |
| 15-10-0329 | U-2 RB 812' Loop 3 2-154K | October 6, 2015 |
| 15-10-0678 | U-2 RB 812' Loop 2 2-154J | October 12, 2015 |
| 15-10-0073 | U-2 834' CETNA/RVLIS EPRI Survey | October 3, 2015 |
| 15-10-0185 | U-2 834' CETNA/RVLIS EPRI Survey | October 5, 2015 |
| 15-10-0288 | U-2 RB 808' Trashrack 2-154A/D | October 6, 2015 |
| 15-10-0527 | U-2 RB 808' Trashrack 2-154A/D | October 9, 2015 |

| <u>Number</u> | <u>Title</u> |
|---------------|--|
| 99 | Routine Outage Activities |
| 2100 | RP Activities in CTMT |
| 2108 | Eng/NRC/Management Walkdowns |
| 2212 | RB 842' Upper Loops Rm 2-155 H/K and 2-155 I/J |
| 2216 | Coating Repair in RCA |
| 2404 | ISI Activities |
| 2500 | Radioactive Waste and Filter Handlign Activities |

| <u>Number</u> | <u>Title</u> |
|---------------|---------------------------|
| 2600 | WEC Refueling Activities |
| 2601 | Refuel Support Activities |
| 2602 | FB Refueling Activities |

Audits, Self-Assessments, and Surveillances

| <u>Number</u> | <u>Title</u> | <u>Revision/Date</u> |
|----------------|--|----------------------|
| Eval-2015-002 | CPNPP Nuclear Oversight Evaluation Plan | April 14, 2015 |
| CR-2015-001448 | RP Area for Improvement Effectiveness Review | June 4, 2015 |

Section 2RS3: In-plant Airborne Radioactivity Control and Mitigation

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| RPI-880 | Operation of the Eberline Beta Particulate Monitor (AMS-4) | 4 |
| RPI-888 | Calibration of Portable Air Sample Equipment | 4 |
| RPI-902 | Issue and Control of Respiratory Protection Equipment | 16 |
| RPI-903 | Decontamination, Cleaning and Disinfection of Respiratory Protection Equipment | 13 |
| RPI-904 | Accountability and Inspection of Respiratory Protection Equipment | 13 |
| RPI-914 | Airline Breathing Systems | 9 |
| RPI-922 | Use and Maintenance of Portable HEPA Filter Ventilation Units | 6 |
| SAF-100 | Accountability, Issue, and Control of Respiratory Protection Equipment | 6 |
| SAF-104 | Inspection of Respiratory Protection Equipment | 11 |
| SAF-105 | Airline Breathing Systems | 3 |
| SAF-106 | Testing of Breathing Air Systems | 3 |
| SAF-107 | Operation and Maintenance of the PortaCount Fit-Test System | 12 |
| STA-659 | Respiratory Protection Program | 20 |
| STA-704 | Respiratory Health Screen Program | 17 |
| STI-659.01 | Use of Respiratory Protection | 0 |

Condition Reports (CRs)

| | | | | |
|-------------|-------------|-------------|-------------|-------------|
| 2015-007961 | 2015-006839 | 2014-013202 | 2014-003644 | 2015-002337 |
| 2015-004660 | 2014-013296 | | | |

Airborne Radiological Surveys

| <u>Number</u> | <u>Title</u> | <u>Revision/Date</u> |
|---------------|--|----------------------|
| 15-10-0561 | U-2 RB 860' Refueling Cavity Area 2-155M | October 10, 2015 |
| 15-10-0569 | U-2 RB 860' Refueling Cavity Area 2-155M | October 10, 2015 |
| 15-10-0557 | Upper Internal Lift | October 10, 2015 |
| 15-10-0560 | U-2 RB 905' Corridor 2-160A | October 9, 2015 |
| 15-10-0652 | U-2 RB 860' Refueling Cavity Area 2-155M | October 11, 2015 |
| 15-10-0555 | Upper Internal Lift | October 10, 2015 |
| 15-09-0386 | 860' Fuel Building | September 17, 2015 |
| 15-10-0850 | 2-8154 Work Zone Lower Loop 1 | October 14, 2015 |
| 15-10-0792 | Breach of Valve 2-81107B for Repack | October 13, 2015 |
| 15-10-0747 | U2 CTMT Equip Hatch | October 13, 2015 |
| 15-10-0725 | Refueling Routine | October 12, 2015 |
| 15-10-0645 | U2 CTMT 860' by RX Cavity | October 11, 2015 |
| 15-10-0618 | Repair of Upender | October 10, 2015 |

Miscellaneous Documents

| <u>Number</u> | <u>Title</u> | <u>Revision/Date</u> |
|---------------|---|----------------------|
| SAF-104-1 | Respiratory Protection Equipment Inspection Records | 2014 |
| SAF-104-1 | Respiratory Protection Equipment Inspection Records | 2015 |
| | SCBA Quals | |
| | TRACE Analytics Aircheck Report and Certificates | 2015 |
| SAF-101-2 | Bauer K14 Compressor Routine Maintenance Log | |
| SAF-106-1 | Air Quality Test Logs | |
| 15-10-0561 | U-2 RB 860' Refueling Cavity Area 2-155M | October 10, 2015 |
| 15-10-0569 | U-2 RB 860' Refueling Cavity Area 2-155M | October 10, 2015 |
| 15-10-0557 | Upper Internal Lift | October 10, 2015 |
| 15-10-000560 | U-2 RB 905' Corridor 2-160A | October 9, 2015 |
| 15-10-0652 | U-2 RB 860' Refueling Cavity Area 2-155M | October 11, 2015 |

Miscellaneous Documents

| <u>Number</u> | <u>Title</u> | <u>Revision/Date</u> |
|---------------|---------------------|----------------------|
| 15-10-0555 | Upper Internal Lift | October 10, 2015 |
| 15-09-0386 | 860' Fuel Building | September 17, 2015 |

Section 40A1: Performance Indicator Verification

Miscellaneous Documents

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

Section 40A2

Condition Reports

2015-007971 2015-008117 2012-011513

Work Orders

5152794
4271290 4271285 4271286 4271287 4271288
4271289 5061312 4913605 4541956

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

Condition Reports

2014-012764 2014-006227

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---------------------------------------|-----------------|
| CAP-101 | Performing Apparent Cause Evaluations | 6 |

Work Orders

3607770 3844082