

## Comanche Peak 2 2Q/2014 Plant Inspection Findings

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### Initiating Events

**Significance:**  Jun 26, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Failure to Follow the Site Design Modification Procedures.**

The inspectors reviewed a self-revealing finding for the failure to follow the design modification process. The licensee implemented a design modification using incorrect technical information. The personnel who conducted the design modification walkdowns did not fully understand their responsibility and the licensee's work organization did not ensure that anyone actually verified the physical details of the cable route. As a result, the design modification was inadequate and an incorrect cable was cut which caused a loss of all offsite power to the safety related 6.9 kV busses on both units. The licensee suspended the modification activities, repaired the damaged offsite power cable, and restored offsite power to the safety-related 6.9 kV busses. The licensee entered the finding into the corrective action program as Condition Report CR 2013-012287.

The failure to follow the electronic design change process procedure was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 1, "Initiating Event Screening Questions," the finding was determined to be of very low safety significance (Green) because although the finding involved the complete loss of a support system that caused an initiating event, it did not involve the loss of affected mitigation equipment. The finding has a human performance cross-cutting aspect associated with field presence because the licensee failed to ensure proper oversight of contractors to ensure deviations from standards and expectations were promptly corrected [H.2].

Inspection Report# : [2014003](#) (*pdf*)

**Significance:**  Jun 26, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Failure to Follow Procedure to Provide Adequate Work Instructions.**

The inspectors reviewed a self-revealing finding for the failure to properly plan and review work activities to ensure equipment and personnel safety. Specifically, the licensee failed to ensure the work instructions met the requirements of Procedure STA-606, "Control of Maintenance and Work Activities," Revision 32. As a result, during the implementation of a modification, personnel used an inadequate work instruction and cut the incorrect cable which caused a loss of all offsite power to the safety related 6.9 kV busses on both units. The licensee suspended the modification activities, repaired the damaged offsite power cable, and restored offsite power to the safety-related 6.9 kV busses. The licensee entered the finding into the corrective action program as Condition Report CR-2013-012287.

The failure to follow procedure and provide adequate work instructions was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the

Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 1, "Initiating Event Screening Questions," the finding was determined to be of very low safety significance (Green) because although the finding involved the complete loss of a support system that caused an initiating event, it did not involve the loss of affected mitigation equipment. The finding has a human performance cross-cutting aspect associated with avoiding complacency because the licensee failed to ensure that work planning personnel planned for the possibility of mistakes and latent issues and did not implement appropriate error reduction tools [H.12].

Inspection Report# : [2014003](#) (*pdf*)

**Significance:**  Sep 25, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

### **Failure to Properly Install Auxiliary Condenser Tube Plugs Causes Steam Generator Chemistry Excursion and Unit Power Reduction**

The inspectors reviewed a self-revealing finding for the licensee's failure to ensure the heat exchanger tube plugging procedure was adequate. As a result, auxiliary condenser plugs were improperly inserted and caused a tube to leak. This caused high sodium levels in the steam generators and a Unit 2 power reduction from 100 percent to less than 50 percent power. The licensee entered the finding into the corrective action program as Condition Report CR-2012-011805. The finding was more than minor because it was associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective, in that, it increased the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the finding was determined to be of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment. The finding has a human performance cross-cutting aspect associated with work practices in that the licensee supervision failed to provide appropriate oversight to the tube plugging procedure and plugging activity [H.4(c)].

Inspection Report# : [2013004](#) (*pdf*)

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## **Mitigating Systems**

**Significance:**  Jun 26, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Follow Procedure for Brazing Copper Tubing**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to follow procedure for brazing copper joints. Specifically, personnel failed to follow procedure and exercise sufficient care to assure the copper tubing was not overheated during a brazing activity. As a result, personnel overheated copper joints and caused the inoperability of an uninterruptible power supply air conditioning unit when the component developed a leak. The licensee repaired the leak to the uninterruptible power supply air conditioning unit. The licensee entered the finding into the corrective action program as Condition Report CR 2013 002298.

The failure to follow procedure for brazing copper tubing was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance attribute of the Mitigating Systems

Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 2, "Mitigating System Screening Questions," the finding was determined to be of very low safety significance (Green) because the finding did not represent an actual loss of at least a single train of equipment for greater than its technical specification allowed outage time. The inspectors determined that the finding was not representative of current license performance and no cross-cutting aspect was assigned.

Inspection Report# : [2014003](#) (*pdf*)

**Significance:**  Jun 26, 2014

Identified By: NRC

Item Type: VIO Violation

**Failure to Correct Fire Protection Violations in a Timely Manner.**

The inspectors identified a violation of License Condition 2.G for the failure to implement and maintain in effect all provisions of the approved fire protection program. Specifically, the inspectors identified two examples where the licensee failed to implement corrective actions and restore compliance in a timely manner for two non-cited violations associated with the fire protection program. The licensee implemented compensatory measures that included: hourly fire watches, changes to the safe shutdown procedures, and administrative changes to the fire protection program. The licensee entered the finding into the corrective action program as Condition Report 2014-007713.

The failure to implement corrective actions and restore compliance in a timely manner for two violations associated with the fire protection program was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the potential loss of the credited charging pump or spurious opening of a power operated relief valve adversely affected the availability, reliability, and capability of the systems required to achieve and maintain safe shutdown in the event of a fire. The inspectors evaluated the finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," because it affected the ability to reach and maintain safe-shutdown conditions in case of a fire. A senior reactor analyst performed a Phase 3 evaluation to determine the risk significance of this finding. The senior reactor analyst determined this finding was of very low safety significance (Green). The finding has a human performance cross-cutting aspect associated with work management because the licensee failed to include the identification and management of risk commensurate to the work performed [H.5].

Inspection Report# : [2014003](#) (*pdf*)

**Significance:**  Mar 19, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Update Procedures for Cable Label Controls**

The team reviewed a Green self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings," for the failure to ensure that quality related procedures provide adequate guidance for labeling and terminating cables during implementation of circuit modifications. Specifically, procedure CMP-EL-1006, "Cable Terminations," Revision 3, did not prescribe the appropriate human performance standards and cable label controls when installing new cable. As a result, a wiring error caused one of the two turbine-driven auxiliary feedwater pump steam supply valves to fail open when the hot shutdown panel transfer/isolation switch was taken to the remote position. The licensee entered this into the corrective action program as condition report CR-2013-000140. The corrective actions included: confirming that the same error did not exist for the other steam supply valve

or for the Unit 1 transfer switch, retiring procedure CMP-EL-1006 and revising other maintenance section generic procedures that will be used to implement future circuit modifications.

The licensee's failure to ensure that procedures provide adequate guidance for labeling and terminating cables during circuit modifications was a performance deficiency. The finding was more than minor because if left uncorrected this could have the potential to lead to a more significant safety concern. Specifically, operation of the hot shutdown panel auxiliary feedwater transfer/isolation switch cannot be reliably performed. Using NRC Inspection Manual Chapter 0609, Appendix F, Attachment 1, "Part 1: Fire Protection SDP Phase 1 Worksheet," dated September 30, 2013, the finding was determined to be of very low safety significance (Green), by answering Step 1.3.1, Question 2, because the finding did not affect the reactor to be able to reach and maintain a safe shutdown condition. The finding had a human performance cross-cutting aspect in resources because leaders failed to ensure that personnel and procedures were available and adequate to support nuclear safety. [H.1]

Inspection Report# : [2014008](#) (*pdf*)

**Significance:**  Dec 31, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Cutting Incorrect Cable Results in an Inoperable Offsite Power Source**

The inspectors reviewed a self-revealing finding for the failure of maintenance personnel to follow work instructions. Specifically, maintenance personnel failed to follow instructions and cut the wrong cable during a transformer modification. As a result, one offsite power source to both units was unavailable during the repair of the damaged cable. The licensee entered the finding into the corrective action program as Condition Report CR-2013-011124.

The finding was more than minor because it was associated with the human performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At Power," the finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency; did not represent an actual loss of safety function of a system or train; and did not result in the loss of one or more trains of non-technical specification trains of equipment. The finding has a human performance cross-cutting aspect associated with work practices in that the licensee personnel failed to use human performance error prevention techniques such as self and peer checking when cutting cables [H.4(a)].

Inspection Report# : [2013005](#) (*pdf*)

**Significance:**  Nov 20, 2013

Identified By: NRC

Item Type: FIN Finding

#### **Failure to Perform Cause Evaluations for Maintenance Preventable Functional Failures**

The team identified a Green finding for a failure to follow procedures that required the licensee to perform cause evaluations for maintenance preventable functional failures (MPFFs). Two MPFFs were not evaluated for their causes because a condition report was not generated to perform the evaluation. After identification of this performance deficiency, the licensee generated condition reports to evaluate the two MPFFs for causes.

The licensee's failure to ensure that cause evaluations were performed for MPFFs as required by procedure was a performance deficiency. This constituted a programmatic weakness in the licensee's maintenance rule program and corrective action program and resulted in MPFFs not being prioritized and evaluated appropriately for corrective action, which could result in recurring failures. The affected systems crossed the Initiating Events, Mitigating

Systems, and Emergency Preparedness cornerstones, but because the performance deficiency was associated with a programmatic weakness of the maintenance rule program, the inspectors determined that the Mitigating Systems cornerstone was the most affected. The finding was more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process for Findings At Power,” the finding was determined to be of very low safety significance (Green) because the finding was not a deficiency affecting the design or qualification of a mitigating SSC, and did not represent a loss of system or function. The finding has a human performance cross-cutting aspect associated with work practices in that licensee supervision failed to define expectations regarding compliance with the maintenance rule and corrective action program procedures (H.4(b)).

Inspection Report# : [2013008](#) (*pdf*)

**Significance:**  Nov 20, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Provide Adequate Acceptance Criteria**

- The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to provide adequate acceptance criteria for bearing oil level in its residual heat removal pump motors. The team identified two examples of this violation, one of which resulted in pump bearing oil being low-out-of-specification. After identification of this performance deficiency, operations management issued an Operations Shift Order to ensure equipment operators appropriately verified bearing oil levels.

The failure to provide adequate acceptance criteria for an activity affecting quality was a performance deficiency. The performance deficiency was more than minor because it adversely affected the human performance attribute of the mitigating systems cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, the team determined that the finding was of very low safety significance because it did not result in the loss of operability or functionality of a safety-related system or train. The finding had a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee had failed to implement a corrective action program with a low threshold for identifying issues to ensure that an issue potentially affecting nuclear safety was promptly identified and fully evaluated (P.1(a)).

Inspection Report# : [2013008](#) (*pdf*)

**Significance:**  Nov 20, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Components of Indeterminate Quality Installed in Safety-Related Applications**

The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to control deviations from quality standards. After identifying that maintenance personnel had failed to ensure that subcomponents of 480-volt switchgear were properly identified and controlled during refurbishment, the licensee failed to document or evaluate where subcomponents of an indeterminate pedigree had been installed in safety-related applications. The licensee took immediate action to confirm the operability of the installed trip units and to determine the scope of the problem.

The failure to control deviations from quality standards as required by 10 CFR 50, Appendix B, Criterion III was a performance deficiency. This performance deficiency was more than minor because it affected the design control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of

components that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, the team determined that the finding was of very low safety significance because it did not result in the loss of operability or functionality of a safety-related system or train. The finding had a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee had failed to implement a corrective action program with a low threshold for identifying issues to ensure that an issue potentially affecting nuclear safety was promptly identified and fully evaluated (P.1(a)).

Inspection Report# : [2013008](#) (*pdf*)

**Significance:**  Sep 25, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Initiate a Condition Report for a Degraded Under Frequency Relay**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the failure to follow procedures that require initiating a condition report for degradation to safety-related equipment. During a surveillance activity, maintenance personnel discovered that a reactor coolant pump under frequency relay was outside the as-found setpoint tolerance for pick-up frequency and failed to enter the condition into the corrective action program. As a result, the cause and effect of the degraded condition was not evaluated and the relay again drifted outside the setpoint tolerance. The licensee entered the finding into the corrective action program as Condition Report CR-2013-010078.

The finding was more than minor because if the licensee continues to fail to document degraded safety-related equipment in the corrective action database, there is a potential that this could lead to a more significant safety concern, in that the cause of the degradation will not be evaluated and corrected. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” the finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency; did not represent an actual loss of safety function of a system or train; and did not represent an actual loss of a technical specification train for greater than its allowed outage time. The finding has a human performance cross-cutting aspect associated with resources in that the licensee failed to provide adequate training to personnel performing maintenance [H.2(b)].

Inspection Report# : [2013004](#) (*pdf*)

## Barrier Integrity

**Significance:**  Jun 26, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow 10 CFR 50.59 for a Change to the Spent Fuel Pool Configuration.**

The inspectors identified a non-cited violation of 10 CFR 50.59, “Changes, Tests, and Experiments,” for failure to conduct an adequate safety evaluation and submit a license amendment for a change to the facility that required a technical specification amendment. Specifically, the licensee changed Procedure NUC-211, “Surveillance of Region II Storage Limitations,” Revision 1, to allow for storage of uprated fuel in Region II (high density racks) of the spent fuel pool using a methodology for fuel burnup penalties that had not been previously approved by the NRC and therefore, required an amendment to Technical Specification 3.7.17 “Spent Fuel Assembly Storage” prior to implementation. Subsequently, the licensee stopped all fuel movement in Region II of the spent fuel pool unless notifying the NRC prior to the movement. The licensee entered the finding into the corrective action program as Condition Report CR-2014-004693.

The failure to perform an adequate 10 CFR 50.59 evaluation and obtain prior NRC approval for a change to the facility that involved a change to the technical specifications was a performance deficiency. The inspectors concluded that this issue involved traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. This performance deficiency is more than minor because it was associated with the reactivity control attribute of the Barrier Integrity Cornerstone and adversely the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Because the significance determination process does not directly address spent fuel pool criticality, a senior reactor analyst evaluated this issue using Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." Based on calculations provided by the licensee, the analyst determined that even with all uncertainties included in the calculations, the spent fuel pools would remain subcritical under all conditions, including a complete dilution of the borated water. The analyst qualitatively considered a completed dilution of the spent fuel pools to be a very low probability event. Therefore, the analyst concluded that this issue was of very low safety significance (Green). Because this issue was considered to be Green, it is treated as a Severity Level IV violation in traditional enforcement. The inspectors determined that the finding was not representative of current license performance and no cross-cutting aspect was assigned.

Inspection Report# : [2014003](#) (*pdf*)

**Significance:**  Jun 26, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Provide Appropriate Instructions for Filling the Component Cooling Water System.**

The inspectors reviewed a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to have documented instructions of a type appropriate to the circumstances when performing an activity affecting quality. Specifically, the licensee failed to have appropriate instructions for filling a Unit 2 component cooling water heat exchanger. As a result, component cooling water was inadvertently isolated spent fuel pool heat exchanger X-02. The operators immediately stopped the filling activity and restored cooling water to the spent fuel pool heat exchanger. The licensee entered the finding into the corrective action procedure as Condition Report CR-2014-004111.

The failure to have appropriate instructions for filling a Unit 2 component cooling water heat exchanger was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that spent fuel pool design barriers protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 3, "Barrier Integrity Screening Questions," the finding was determined to be of very low safety significance (Green) because the finding did not adversely affect decay heat removal capabilities from the spent fuel pool causing the pool temperature to exceed the maximum analyzed temperature limit specified in the site-specific licensing basis. The finding has a human performance cross-cutting aspect associated with work management because the licensee failed to ensure that the work process identified and managed the risk commensurate with the work [H.5].

Inspection Report# : [2014003](#) (*pdf*)

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## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:**  Jun 26, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure to Adequately Brief Workers on Radiological Conditions Prior to Entry into High Radiation Areas.**

The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.7.1 resulting from the licensee's failure to control high radiation areas with radiation levels of 100 millirem per hour or greater on three separate occasions. In each instance, the licensee failed to adequately inform the worker of current radiological dose rates prior to entry and the worker entered a posted high radiation area without proper knowledge of the radiological conditions (dose rates). Consequently, the workers received unanticipated high dose rate alarms on their electronic alarming dosimeters at 563 millirem per hour, 274 millirem per hour, and at 750 millirem per hour, respectively. As immediate corrective actions, the licensee performed follow-up surveys, coached the involved individuals, and reviewed the radiologically controlled area entry card requirements. The licensee entered the three issues into the corrective action program as Condition Reports CR 2013-004154, CR-2014-003464, and CR-2014-003997.

The failure to provide workers with proper knowledge of high radiation area radiological conditions prior to entry is a performance deficiency. The performance deficiency is more than minor because it impacted the program and process attribute (exposure control) of the Occupational Radiation Safety Cornerstone and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically, worker entry into high radiation areas without knowledge of the radiological conditions placed them at increased risk for unnecessary radiation exposure. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance (Green) because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The finding has a human performance cross-cutting aspect associated with teamwork because the workers failed to demonstrate and execute a strong sense of communication and collaboration in connection with the operational activities involved in the finding to ensure nuclear safety was maintained [H.4].

Inspection Report# : [2014003](#) (*pdf*)

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## Public Radiation Safety

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### Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## **Miscellaneous**

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