

# Comanche Peak 2

## 1Q/2011 Plant Inspection Findings

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### Initiating Events

**Significance:**  Dec 31, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Inadequate Control of Test Equipment Causes Ground Interaction**

The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1.a for the failure to establish controls for grounded test equipment. As a result, the test equipment caused a ground interaction that degraded safety-related instrumentation. The licensee entered the finding into the corrective action program as Condition Report CR 2009 008643.

The finding 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 those events that upset plant stability. Specifically, grounding interactions caused instrument channel deviation and unintended control rod movement. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. The finding has a problem identification and resolution crosscutting aspect associated with the corrective action program because the licensee failed to thoroughly evaluate the problem and identify the cause of the issue.

Inspection Report# : [2010005](#) (*pdf*)

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### Mitigating Systems

**Significance:**  Mar 19, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Emergency Boration Flow Path Isolated**

The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1.a for the failure to implement a boric acid system procedure. As a result, an emergency boration flow path was isolated. The licensee entered the finding into the corrective action program as Condition Report CR-2011-000590.

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 availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, an emergency boration flow path was inadvertently isolated. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to represent an actual loss of safety function of non technical specification equipment designated as risk-significant per 10 CFR 50.65 for greater than 24 hours.

Therefore, the finding was determined to require an Appendix A significance determination process phase 2 analysis. The inspectors determined that, for evaluation purposes, a total failure of emergency boration capability bounded the event. The inspectors evaluated the finding using the phase 2 pre-solved table for "operator fails to initiate emergency boration." Since the flow path was isolated from January 17 to January 18, 2011, the inspectors used the less than 3 days section of the table for evaluating the finding and determined the finding was of very low safety significance. The finding has a human performance crosscutting aspect associated with work practices because licensee personnel proceeded in the face of unexpected circumstances and did not consult supervision.

Inspection Report# : [2011002](#) (pdf)

**Significance:**  Mar 19, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Fire Drill Evaluation**

The inspectors identified a noncited violation of Technical Specification 5.4.1.d for the failure of the licensee to identify a critical item failure during an unannounced fire drill. As a result, the licensee evaluated the control room operators' performance during a fire drill as being successful when the actual performance resulted in a drill failure. The licensee entered the finding into the corrective action program as Condition Report CR-2011-001803.

The finding was more than minor because the failure of the licensee to identify fire drill performance deficiencies, if left uncorrected, would have the potential to lead to a more significant safety concern. Findings associated with operator performance during fire drills are not evaluated using NRC Manual Chapter 0609, Attachment F, "Fire Protection Significance Determination Process," and require NRC management review using Appendix M, "Significance Determination Process Using Qualitative Criteria." Regional management concluded that the finding was of very low safety significance because it reflected personnel performance during a training drill rather than during an actual fire. The finding has a human performance crosscutting aspect associated with resources because the licensee failed to ensure that the procedure, drill package F11-01, was complete to adequately assure nuclear safety.

Inspection Report# : [2011002](#) (pdf)

**Significance:**  Mar 19, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Identify and Correct Safety Injection Reset Malfunction**

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action" for the failure of the licensee to promptly identify and correct a safety injection reset malfunction caused by a design error. As a result, this malfunction could have delayed the termination of an inadvertent safety injection, a time critical action for avoiding the reactor coolant system reaching water solid conditions. The licensee entered the finding into the corrective action program as Condition Report CR-2011-003476.

The finding was more than minor because it was associated with the design control attribute of the initiating events cornerstone and adversely affected the cornerstone objective, in that, the finding increased the likelihood of the reactor coolant system reaching water solid conditions during an inadvertent safety injection. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to require a phase 2 analysis because, as a potential loss of coolant accident initiator, the worst case degradation of ineffective operator actions would result in exceeding reactor coolant system leakage limits. The inspectors determined that a phase 2 analysis was not applicable to the performance deficiency. A senior reactor analyst reviewed the licensee's risk estimate and determined that no further analysis was needed to conclude that the conditional risk of an inadvertent safety injection was very low. The licensee's analysis did not consider the risk related to a steam line break inside containment where the recovery would be complicated by multiple valve manipulations needed to restore reactor coolant pump thermal barrier cooling before securing the charging pumps. However, the low frequency of a sufficiently-sized steam line break inside containment combined with the low probability, two percent, that the safety injection could not be reset reduced the scenario of concern to a frequency of less than 1.0E-6/yr. Therefore, the analyst concluded that the performance deficiency was of very low safety significance. The finding has a problem identification and resolution crosscutting aspect associated with the corrective action program because the licensee failed to thoroughly evaluate the problem.

Inspection Report# : [2011002](#) (pdf)

**Significance:**  Nov 04, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Analysis of Emergency Diesel Generator Frequency**

The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, which states, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Specifically, as of June 18, 2010, the licensee failed to properly translate technical specification allowable diesel generator frequency range to design documents. This finding was entered into the licensee's corrective action program as Condition Report CR-2010-005563.

The team determined that the failure to analyze the emergency diesel generators for operation over the entire range of allowed frequency was a performance deficiency. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of safety systems that respond to initiating events to prevent undesirable consequences. The team performed a Phase 1 screening in accordance with Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because it was a design or qualification issue confirmed not to result in a loss of operability or functionality, it did not result in the loss of a system safety function, it did not represent the loss of a single train for greater than technical specification allowed outage time, it did not represent a loss of one or more non-technical specification risk significant equipment for greater than 24 hours, and it did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding has a crosscutting aspect in the area of problem identification and resolution because the licensee did not effectively incorporate operating experience into the preventive maintenance program for the emergency diesel generators. Specifically, the licensee failed to incorporate information provided in Information Notice 2008-02, which could have affected the capability of equipment such as safety related motor operated pumps to perform their safety function under the most limiting conditions.

Inspection Report# : [2010006](#) (pdf)

**Significance:**  Nov 04, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Evaluation of Hydrogen Generation for Safety-Related and NonSafety-Related Batteries**

The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control which states, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Specifically, as of June 18, 2010, the licensee failed to perform an adequate hydrogen evolution calculation, for the safety-related and nonsafety-related batteries, using the most limiting expected condition of forcing maximum current into a fully charged battery which led to a ventilation system design that did not limit hydrogen accumulation to less than two percent of the total volume of the battery areas during all conditions. This finding was entered into the licensee's corrective action program as Condition Reports CR 2010 005941, CR 2010 005941, and CR-2010-006561.

The team determined that the failure to adequately perform the hydrogen evolution calculation for the safety-related battery, using the most limiting condition, was a performance deficiency. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone attribute of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Phase 1 screening in accordance with Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because it was a design or qualification issue confirmed not to result in a loss of operability or functionality, it did not result in the loss of a system safety function, it did not represent the loss of a single train for greater than technical specification allowed outage time, it did not represent a loss of one or more non-technical specification risk significant equipment for greater than 24 hours, and it did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : [2010006](#) (pdf)

**Significance:** SL-IV Nov 04, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

**Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients**

The team identified a noncited violation of 10 CFR 50.9, Completeness and Accuracy of Information, which states, in part, that information provided to the Commission by a licensee shall be complete and accurate in all material respects. Specifically, on June 20, 2007, the licensee asserted in their response to Generic Letter 2007-01, “Inaccessible or Underground Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients,” Request 2, that Comanche Peak “periodically performs visual inspection for corrosion and degradation of cable tray supports and a preventive maintenance program for inspection/removal of water from manholes.” The team determined the licensee had no preventive maintenance program or procedures in place to govern the inspection or preventive maintenance activities described in their response, and there was no evidence that these manholes, raceways, and supports had ever been inspected prior to November 2009. This finding was entered into the licensee’s corrective action program as Condition Report CR-2010-005784.

The team determined that the failure to provide accurate information in the licensee’s response to Generic Letter 2007-01 was a performance deficiency. The finding is more than minor because the information was material to the NRC’s decision-making processes. Specifically, the information requested by Generic Letter 2007-01 was to enable NRC staff to determine whether the applicable regulatory requirements identified in the generic letter (10 CFR Part 50, Appendix A, General Design Criteria 4, 17, and 18; 10 CFR 50.65(a)(1); 10 CFR Part 50, Appendix B, Criterion XI), were being met with regard to the operational readiness of critical systems that could cause a plant transient or mitigate accidents, and to obtain further information on cable failures.

Inspection Report# : [2010006](#) (pdf)

**Significance:**  Nov 04, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement Design Features for Precluding or Minimizing Long- Term Accumulation of Water in Underground Conduits Containing Medium Voltage Safety Related Cables**

The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control which states, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Specifically, as of June 18, 2010, the licensee failed to perform an adequate hydrogen evolution calculation, for the safety-related and nonsafety-related batteries, using the most limiting expected condition of forcing maximum current into a fully charged battery which led to a ventilation system design that did not limit hydrogen accumulation to less than two percent of the total volume of the battery areas during all conditions. This finding was entered into the licensee’s corrective action program as Condition Reports CR 2010 005941, CR 2010 005941, and CR-2010-006561.

The team determined that the failure to adequately perform the hydrogen evolution calculation for the safety-related battery, using the most limiting condition, was a performance deficiency. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone attribute of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Phase 1 screening in accordance with Manual Chapter 0609, Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings,” and determined that the finding was of very low safety significance (Green) because it was a design or qualification issue confirmed not to result in a loss of operability or functionality, it did not result in the loss of a system safety function, it did not represent the loss of a single train for greater than technical specification allowed outage time, it did not represent a loss of one or more non-technical specification risk significant equipment for greater than 24 hours, and it did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : [2010006](#) (pdf)

**Significance:**  Sep 18, 2010

Identified By: NRC

Item Type: FIN Finding

### "Failure to Correctly Evaluate Diesel Generator Past Operability"

The inspectors identified a finding for the failure of the licensee to adequately evaluate the past operability of the Unit 2 Train B diesel generator when its governor functioned in a droop mode during isochronous operations. As a result, the licensee's evaluation incorrectly concluded that the diesel generator was always operable. The licensee entered the finding into the corrective action program as Condition Report CR-2010-008760.

The finding was more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern in that the licensee could have used the inadequate operability evaluation to incorrectly declare a diesel generator operable with a similar performance issue in the future. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance because the finding did not result in the loss of safety function for the diesel generator. The finding has a human performance crosscutting aspect associated with decision-making, in that, licensee personnel failed to use conservative assumptions.

Inspection Report# : [2010004](#) (pdf)

**Significance:**  Sep 18, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

### "Failure to Promptly Identify and Correct a Diesel Generator Frequency Degradation"

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action" for the failure of the licensee to promptly identify and correct a diesel generator operating in a droop condition instead of the isochronous mode during emergency conditions. As a result, the ability of the diesel generator to provide power to mitigating equipment at the design frequency was degraded for approximately three years. The licensee entered the finding into the corrective action program as Condition Report CR 2010 003305.

The finding was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective, in that, the capability of the diesel generator to provide power to mitigating equipment was adversely affected by operating at a frequency lower than 60 hertz. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance because the finding did not result in the loss of safety function for the mitigating equipment supported by the diesel. The finding has a human performance crosscutting aspect associated with work practices, in that, licensee personnel proceeded in the face of unexpected circumstances during diesel generator surveillances when frequency was abnormal.

Inspection Report# : [2010004](#) (pdf)

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## Barrier Integrity

**Significance:**  Sep 18, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

### "Failure to Consider Temperature Effects on Air Accumulator Overpressure Protection"

The inspectors identified a noncited violation of 10 CFR 50 Appendix B, Criterion III, "Design Control" for the failure to consider the temperature effect on the pressurization of safety-related air accumulators for containment isolation valves in the main steam line penetration room. As a result, the accumulators could exceed their design pressure during a steam line break. The licensee entered the finding into the corrective action program as Condition Report CR-2010-006349.

The finding was more than minor because it was associated with the design control attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical barriers protect the public from radionuclide releases caused by events. Using NRC Manual Chapter 0609, Attachment 4,

“Phase 1 - Initial Screening and Characterization of Findings,” the finding was determined to be of very low safety significance because the finding did not result in an actual open pathway in the physical integrity of reactor containment. The finding did not have a crosscutting aspect because the performance deficiency was not representative of current licensee performance

Inspection Report# : [2010004](#) (*pdf*)

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **Physical Protection**

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## **Miscellaneous**

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