

# Comanche Peak 2

## 3Q/2008 Plant Inspection Findings

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### Initiating Events

**G**

**Significance:** Sep 21, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **"Failure to Control Transient Combustibles"**

The inspectors identified a noncited violation of Technical Specification 5.4.1.d for the licensee's failure to obtain an approved transient combustible permit before introducing transient combustibles into plant areas. As a result, the licensee placed undocumented and unanalyzed transient combustibles in the plant without compensatory measures on five different occasions. The licensee entered the finding into their corrective action program for resolution.

This finding was more than minor because it affected the protection against external factors attribute of the initiating events cornerstone, and it directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the condition represented a low degradation of fire prevention and administrative controls and the amount of combustibles was within the combustible loading calculations. The cause of the finding was related to the Human Performance crosscutting component of Work Practices, in that, the licensee failed to effectively communicate expectations, and that personnel failed to follow procedures.

Inspection Report# : [2008004](#) (*pdf*)

**G**

**Significance:** Jun 22, 2008

Identified By: NRC

Item Type: FIN Finding

#### **Instrument Tubing Failure Causes Plant Trip**

The inspectors reviewed a self-revealing finding for the licensee's failure to follow a tubing installation specification when installing condenser vacuum instrument tubing. Specifically, the installation did not follow Tubing Specification CPSES-I-1018 for general flexibility or thermal growth considerations, ultimately resulting in tubing failure. The tubing failure caused turbine trip instrumentation to fail low, causing a Unit 2 turbine and reactor trip. The licensee entered the finding into their corrective action program and modified the instrument tubing in both Units 1 and 2 to prevent another failure.

The finding is greater than minor because it is associated with the Initiating Events Cornerstone attribute of design control and affected the cornerstone objective, in that it caused a turbine and reactor trip that challenged critical safety functions. The finding is of very low safety significance because, although the likelihood of a reactor trip increased, all mitigating systems were available. The cause of this finding is related to the human performance cross-cutting component of Work Practices, in that, the licensee failed to provide proper oversight of contractors such that nuclear safety is supported.

Inspection Report# : [2008003](#) (*pdf*)

**G**

**Significance:** Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to Use a Procedure Appropriate to the Circumstances Led to Inadvertent Actuations of the Turbine Drive Auxiliary Feedwater Pump**

A Green self-revealing non-cited violation of Technical Specification 5.4.1.a was identified for the failure to use a procedure appropriate to the circumstances when performing maintenance on safety-related equipment. Specifically, on October 22, 2006, the licensee used a procedure not appropriate to the circumstances when making adjustments to the Exhaust Pilot Valve 2-HV-2452-1-PR3 on the Main Steam Line 2-04 to Auxiliary Feedwater Pump Turbine Steam Supply Valve 2-HV-2452-1. The adjustments to the exhaust pilot valve eventually led to three inadvertent operations of the turbine driven auxiliary feedwater pump, on March 12, 2007. The licensee entered the finding into their corrective action program. One corrective action included adding additional information and guidance to the procedures.

This issue was determined to be more than minor because it is similar to Example b of Section 4, "Insignificant Procedural Errors," in Manual Chapter 0612, Appendix E, "Examples of Minor Issues." Specifically, this issue is more than minor because it led to a plant transient that resulted in a reduction in reactor power. Additionally, this issue is associated with the Initiating Events cornerstone attribute of human performance and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. This 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 or functions would not be available. The cause of the finding

is related to the cross-cutting aspect of Human Performance in that the licensee failed to use a systematic decision making process to determine unintended consequences that would occur in decreasing the stroke time of the exhaust pilot valve (H.1.(a)).

Inspection Report# : [2007005](#) (pdf)

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## Mitigating Systems

**Significance:**  Sep 21, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### "Failure to Follow Diesel Generator Test Procedure"

A self-revealing noncited violation of Technical Specification 5.4.1.a was reviewed for the failure of the licensee to follow the procedure for testing the emergency diesel generator. As a result, a cylinder indicator cock was left open and cylinder performance was affected. The licensee entered the finding into their corrective action program for resolution.

The finding was more than minor because it was associated with the availability/reliability of equipment performance attribute of the mitigating systems cornerstone, and it directly affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Characterization and Screening of Findings," the finding screened as having very low safety significance because it resulted in a minimal degradation of a diesel generator cylinder. The cause of this finding was related to the Human Performance crosscutting component of resources, in that, the licensee failed to provide adequate equipment to close the indicator cock.

Inspection Report# : [2008004](#) (pdf)

**Significance:**  Sep 21, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### "Failure to Ensure Roll-up Fire Doors Complied With Fire Code"

The inspectors identified a noncited violation of License Condition 2.G because the licensee failed to ensure that two fire-rated roll up doors complied with the mounting requirements in National Fire Protection Association (NFPA) 80 1977. Specifically, during original construction, the licensee used bolts with a diameter less than the required 3/8-inch. The licensee entered this finding into their corrective action program for resolution as Smartform SMF 2008 001637.

Failure to meet the mounting requirements of NFPA 80 1977 for fire-rated roll up doors is a performance deficiency. The inspectors determined this deficiency was more than minor because it was similar to the more than minor description in Manual Chapter 0612, Appendix E, Example 3.g. This finding affected the mitigating systems cornerstone. This fire confinement finding was assigned a Moderate A degradation rating because the fire-rated roll up door had improperly installed fire door hardware. Using NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Phase 1, Step 1.3.2, Question 5, the exposed fire area contained no potential damage targets closer than 20 feet (i.e., passive barrier) to the exposing fire area that would result in a demand for safe shutdown and the fire barrier would remain functional for at least 20 minutes. Therefore, the degraded fire-rated roll up doors had very low risk significance.

Inspection Report# : [2008004](#) (pdf)

**Significance:**  Jun 22, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### Inadequate Fire Protection Compensatory Actions During Refueling Outage.

The inspectors identified a noncited violation for failure to establish adequate compensatory measures for inoperable containment fire hose stations as required by the fire protection program as defined in Unit 2 License Condition 2.G. This resulted in a period of eighteen days during a refueling outage where inadequate compensatory measures were established to fight a fire in containment with hoses. Specifically, fire protection water to hose stations inside containment was isolated and the established compensatory measure was for the fire brigade to connect hoses from an operable outside containment hose station in order to reach the postulated fire in containment or to pressurize another hose station inside of containment. This compensatory measure would have required that fire hose be run through the personnel airlock and then pressurized. The fire preplan for a fire in containment on the 905' elevation, states "keep airlock access closed to prevent release," This guidance conflicts with the compensatory measure provided. In addition, other procedures such as a loss of inventory or loss of shutdown cooling may require the personnel airlock to be closed, preventing the fire brigade from running fire hose through the personnel airlock. Therefore, the inspectors determined that the licensee failed to provide adequate compensatory actions during the time that fire protection water to containment was isolated. The licensee entered the finding into their corrective action program for resolution.

This finding is more than minor because it is associated with the Protection Against External Factors attribute of the Mitigating Systems Cornerstone and affected the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Characterization and Screening of Findings," the inspectors determined that this finding should be evaluated using NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," because it affects fire protection defense-in-depth strategies involving manual suppression equipment. However, Appendix F, Assumptions and Limitations states that the fire protection significance determination process does not address the potential risk significance of fire protection inspection findings for shut down reactors. Therefore, the significance of this finding was assessed using Manual Chapter 0609 Appendix M, "Significance Determination Process Using Qualitative Criteria". The finding is of very low safety significance because there were a limited number of postulated fires that could affect shutdown cooling, a single fire could not credibly affect both residual heat removal system loops, and a postulated fire could not have formed a hot-gas layer affecting the equipment.

Inspection Report# : [2008003](#) (pdf)

**Significance:**  Jun 22, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Expediently Restore Fire Hose Stations in Containment to Service**

The inspectors identified a noncited violation for failure to expediently return to service a manual isolation valve for fire protection water to containment as required by the fire protection program as defined in Unit 2 License Condition 2.G. This resulted in the Unit 2 containment fire hose stations to be out-of-service for thirteen additional days during a refueling outage following maintenance. The valve was closed in order to perform leak rate testing of the containment penetration, however, after the test was complete, the valve was left closed. The licensee entered the finding into their corrective action program for resolution.

This finding is greater than minor because it was similar to Example 4.g in NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues and met the "not minor if" criteria because certain postulated fires would have restricted operator access to the valve for environmental reasons. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Characterization and Screening of Findings," the inspectors determined that this finding should be evaluated using NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," because it affects fire protection defense-in-depth strategies involving manual suppression equipment. However, Appendix F, Assumptions and Limitations states that the fire protection significance determination process does not address the potential risk significance of fire protection inspection findings for shut down reactors. Therefore, the significance of this finding was assessed using Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria". The finding is of very low safety significance because there were a limited number of postulated fires that could affect shutdown cooling, a single fire could not credibly affect both residual heat removal system loops, and a postulated fire could not have formed a hot-gas layer affecting the equipment. The cause of the finding is related to the human performance cross-cutting component of work control, in that, the licensee did not appropriately coordinate work activities both because of lack of communication and a failure to plan work activities to limit fire protection system unavailability.

Inspection Report# : [2008003](#) (pdf)

**Significance:**  May 22, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Post-Fire Safe Shutdown Procedures**

A noncited violation of Technical Specification 5.4.1.d was identified concerning the failure to maintain adequate written procedures covering fire protection program implementation. Specifically, procedures for operation of Valves 1-8000A and 1-8000B (power-operated relief valve block valves) and Valves 1-8701A and 1-8702B (residual heat removal loop hot-leg recirculation valves) had local manual actions that might not be completed successfully because of potential fire damage. Procedures ABN-804A, "Response to a Fire in the Safeguards Building," Revision 5, and ABN 806A, "Response to a Fire in the Electrical and Control Building," Revision 5, directed operators to open the valves from their electrical power supplies because of potential fire damage to control circuits between the main control room and the electrical breakers. Plant operators were instructed to depress a breaker contactor to stroke the valve open. After the operator depresses the contactor, control power is required to hold the contactor closed while the valve strokes. The team identified that potential fire damage to control circuits between the main control room and the electrical breakers could cause a control power fuse to fail, preventing the valve from stroking. The licensee has entered this issue into their corrective action program as Smart Form SMF 2008-000311-00.

Failure to provide adequate procedures for the implementation of the fire protection program was a performance deficiency. This finding was more than minor because it is associated with the Protection Against External Factors attribute of the Mitigating Systems Cornerstone and could affect the availability, reliability, and capability of systems that respond to fire events to prevent undesirable consequences. The significance of this finding was assessed using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The evaluation determined that the procedural deficiency only affected valves required to reach and maintain cold shutdown conditions; therefore, the finding screened as having very low safety significance (Green).

Inspection Report# : [2008006](#) (pdf)

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## Barrier Integrity

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**Significance:** Sep 21, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### "Unevaluated Temporary Modification of Containment Isolation Valve"

The inspectors identified a noncited violation of Technical Specification 5.4.1.a for the licensee's failure to control a fire hose that was used to redirect the discharge of a vent chill water relief valve, which is also a containment isolation valve. As a result, a hose was left on the discharge piping at various times for approximately 10 years without documentation or evaluation. The hose affected the relief valve, in that, operators could not directly observe leakage from the valve. In addition, the hose created a backpressure on the valve that increased its lift setpoint, therefore, potentially affecting the containment penetration integrity. The licensee entered the finding into their corrective action program for resolution.

This finding was greater than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," Example 4.a, and met the "not minor if" criteria because the licensee routinely failed to perform evaluations on this issue, and the inspectors determined that the safety-related equipment was adversely affected. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Characterization and Screening of Findings," the inspectors determined that the issue was of very low safety significance because the finding did not result in an actual open pathway of the reactor containment. The cause of this finding was related to the Human Performance crosscutting component of Work Practices, in that, the licensee failed to define and effectively communicate expectations regarding procedural compliance and personnel failed to follow procedures.

Inspection Report# : [2008004](#) (*pdf*)

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**Significance:** Sep 15, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### B.5.b. Phase 2 and 3 Mitigating Strategy

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has no cross-cutting aspect. See inspection report 2008-008 for more details.

Inspection Report# : [2008008](#) (*pdf*)

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**Significance:** Jun 22, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### Failure to Ensure a Flow Path for Containment Spray Pumps

The inspectors identified a non-cited violation of Technical Specification 5.4.1.a for failure to implement Procedure OPT-435B. This resulted in the Unit 2 Train B containment spray pumps recirculation valves being closed when they were required to be open during pump operations to support testing. The licensee entered this violation into their corrective action program.

The finding is greater than minor because it could be viewed as a precursor to a significant event, in that, not implementing the prerequisites prior to performing test on other safety-related pumps could lead to significant damage. Unique features of the containment spray system design prevented damage to the pumps. The same failure to ensure a flow path for other safety-related pumps would have resulted in significant damage. The violation is associated with the Barrier Integrity cornerstone attribute of structure, system, and component reliability. Since Unit 2 was in Mode 6 on residual heat removal cooling, Appendix G of Manual Chapter 0609 applied and Checklist 4 determined this to be of very low safety significance. The cause of this violation is related to the human performance crosscutting component of Work Practices in that operations management failed to effectively communicate expectations regarding procedural requirements and operations personnel failed to follow procedures.

Inspection Report# : [2008003](#) (*pdf*)

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## Emergency Preparedness

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## Occupational Radiation Safety

**G****Significance:** Jun 22, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to barricade and conspicuously post a high radiation area**

The inspector identified a noncited violation of Technical Specification 5.7.1 because a high radiation area was not barricaded and conspicuously posted. The inspector identified dose rates as high as 109 millirems per hour at 30 centimeters in the compactor area on the 810-foot elevation of the fuel building. The area was controlled and posted as a radiation area. As immediate corrective action, the licensee barricaded the area with rope and posted it as a high radiation area and documented the finding in the corrective action program.

The finding is greater than minor because, if left uncorrected, the finding could become a more significant safety concern. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined the finding to have very low safety significance because (1) it was not associated with ALARA planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. Additionally, the finding had a cross-cutting aspect in the area of human performance, work control component, because the licensee did not coordinate work activities by incorporating actions to address the need for work groups to communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure human performance.

Inspection Report# : [2008003](#) (*pdf*)**G****Significance:** Oct 25, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Evaluate Radiological Conditions**

The inspector reviewed a self-revealing non-cited violation of 10 CFR 20.1501(a) for failure to conduct a radiological survey. Specifically, on April 16, 2007, a worker's electronic dosimeter alarmed when the individual attempted to move a bag containing a small vacuum cleaner from a posted contaminated and radiation area. The bag of materials had not been surveyed for radiation levels and therefore had not been labeled to indicate the potential hazard. The bag was subsequently surveyed and found to have radiation levels of 600 millirem per hour on contact and 150 millirem per hour at 30 centimeters from the surface. Corrective actions include counseling of personnel, evaluation of possible organizational changes, and generation of a training request to include this event in future training.

The failure to conduct a radiological survey is a performance deficiency. This finding is greater than minor because it is associated with the Occupational Radiation Safety Program and Process attribute and affected the cornerstone objective, which is to ensure adequate protection of worker health and safety from exposure to radiation. The failure to perform the radiation survey led to a worker receiving unintended and additional exposure. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined that the finding was of very low safety significance because it did not involve: (1) as low as is reasonably achievable planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding has a crosscutting component associated with human performance and work coordination because the licensee failed to keep workers apprised of work status and plant conditions that may affect work activities prior to removing contaminated items from the reactor containment building. (H.3.(b3)).

Inspection Report# : [2007005](#) (*pdf*)

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## Public Radiation Safety

**G****Significance:** Feb 28, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**"Failure to ship radioactive material correctly"**

The team reviewed a self-revealing, noncited violation of 10 CFR 71.5, which occurred when the licensee failed to ship radioactive material correctly. A radioactive shipment classified as an "excepted package-limited quantity" exceeded the external dose rate limit of 0.5 millirem per hour on the surface of the package. The package recipient identified dose rates of 0.9 millirem per hour on the exterior surface of the package and notified the licensee of the problem. The licensee revised its procedure to correct for this problem by limiting the inner package dose rate to 0.3 millirem per hour, thus reducing the risk for the external dose rate to be more than 0.5 millirem per hour. The finding was placed into the licensee's corrective action program as Smart Form SMF-2006-2403.

The finding is greater than minor because it was associated with a Public Radiation Safety cornerstone attribute (transportation program) and it affected the associated cornerstone objective because the failure to correctly ship radioactive material decreases the licensee's assurance that the public will not receive unnecessary dose. However, this finding cannot be evaluated by the Public Radiation Safety Significance Determination Process because it did not involve radioactive shipments classified as Schedule 5 through 11, as described in NUREG-1660, and it did not fit traditional enforcement. Therefore, the finding was reviewed by NRC management using Inspection Manual Chapter 0609, Appendix M, and determined to be of very low safety significance because the package was not accessible by the public. Additionally, this

finding has a cross cutting aspect in the area of human performance, work practices component, because the worker preparing the shipment did not use self checking as an error prevention technique to ensure that the package did not exceed the dose rate limit (H4.a).

Inspection Report# : [2008007](#) (*pdf*)

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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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