

## Comanche Peak 2

### 2Q/2006 Plant Inspection Findings

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## Initiating Events

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## Mitigating Systems

**Significance:**  Jun 23, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### Operators Unable to Meet Some Critical Action Times During Alternate Shutdown Walkthrough

The team identified a Green noncited violation of License Condition 2.G and Technical Specification 5.4.1.d for failure to complete simulated operator actions within analyzed times and for the inability to perform some of the required actions with five examples. Specifically, the following deficiencies were identified: (1) the shift manager was unable to easily obtain the keys needed to access the transfer and hot shutdown panels, which delayed taking the required actions; (2) directions for starting the safety chiller, if not already operating, were not provided, which could have delayed accomplishing the task; (3) the licensee had not accounted for 1.5 minutes needed by operators to perform required actions prior to evacuating the control room; (4) operators took 4 minutes to mitigate a spuriously open power-operated relief valve, whereas, the analysis used 3 minutes; and (5) the 3.5 minutes needed to don the flash protective gear prevented completion of subsequent procedure steps within the time analyzed. The cause of the finding is related to the crosscutting aspect of human performance because: (1) operations personnel were unfamiliar with procedures and did not have some pertinent procedure steps available, and (2) organizations failed to communicate changes to the procedure that impacted the response time.

The team determined that this finding had more than minor significance because the inadequate procedure impacted the mitigating systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of the system that responds to the event to prevent undesirable consequences. A Phase 3 analysis of the above issues concluded the finding was of very low risk significance. Specifically, the Phase 3 analysis concluded that the 8-minute delay in transferring equipment from the control room and an additional 10-minute delay in accessing the remote shutdown room, did not result in a significant increase in risk. The analyst determined that a hot-short to a power operated relief valve was the most risk significant situation. The risk associated with a stuck open power-operated relief valve combined with a fire in the control room panel not suppressed was determined to be 2.7E-11/year. The analyst concluded that it would require a 22 percent increase in the stress levels of the operators to result in the risk exceeding the threshold to be considered greater than that of very low risk significance.

Inspection Report# : [2006003\(pdf\)](#)

**Significance:**  Oct 07, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### Inoperability of Emergency Power to a Safety Bus Due to Degraded Relay

A Green self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion XVI was identified for failure to take prompt and adequate corrective action for a condition adverse to quality. Specifically, on October 19, 2004, an unplanned loss of the preferred offsite power caused the Unit 2, Train B, 6.9 kV safeguards bus to de-energize. A degraded Agastat relay delayed the normal power supply breaker from opening for 30 seconds, which delayed powering the bus from the alternate offsite AC power supply or the emergency diesel generator. This issue had crosscutting aspects in the area of problem identification and resolution because the licensee previously identified that aged Agastat relays were unreliable and should be replaced if they were in service greater than 12 years. The failed relay had been in service for 16 years.

The licensee's failure to identify the cause and implement corrective actions to prevent repetitive failures of safety-related Agastat relays was a performance deficiency. The violation was more than minor because it impacted the Mitigating Systems Cornerstone objective of availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," the finding was determined to be of very low safety significance because the likelihood of a medium or large break loss of coolant accident coincident with a loss of offsite power, which are the only conditions where the deficiency would cause a non-negligible change in the baseline risk profile, is less than or equal to 1E-6 per year. Therefore the change in core damage frequency will be less than 1E-6 per year. The licensee captured the issue in their corrective action program as Smart Form SMF-2004-003528.

Inspection Report# : [2005005\(pdf\)](#)

**Significance:**  Sep 23, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate control room heat exchanger surveillance**

NRC identified, noncited violation of Technical Specification Requirement 3.7.11.1 was identified because the licensee's surveillance that was performed to demonstrate compliance with the requirement was inadequate. Specifically, the acceptance criteria did not account for all differences between test conditions and accident conditions. The licensee performed an operability assessment to demonstrate current operability.

The failure to provide an adequate surveillance procedure to demonstrate the control room air conditioning system operability was a performance deficiency. The issue was more than minor because, if left uncorrected, it could become a more significant safety concern. Using the Phase 1 significance determination process worksheet, the finding was of very low risk significance because it was a qualification deficiency that did not result in a loss of function per Generic Letter 91-18, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions," Revision 1. The licensee captured the issue in their corrective action program as Smart Form 2005-000937-00.

Inspection Report# : [2005004\(pdf\)](#)

**G**

**Significance:** Jul 29, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Evaluation Resulted in Failure to Identify a Failed Containment Pressure Channel**

A noncited violation of Technical Specification 3.3.2 was identified after the licensee failed to place an inoperable containment pressure channel isolation function in trip within 6 hours. While operating in Mode 1 on August 5, 2004, a control room containment pressure channel deviation alarm occurred. The licensee failed to recognize that the channel was inoperable. On August 6, 2004, the licensee identified that a grounded transmitter shield wire had caused the channel deviation alarm. Using a Channel Statistical Allowance analysis the licensee determined that the pressure channel became inoperable at the time of the alarm. The channel was inoperable for a total of 31 hours.

This finding is greater than minor because, if left uncorrected, the failure to recognize inoperable mitigating systems instrumentation would become a more significant safety concern. This finding is only of very low safety significance because the condition was not a design or qualification deficiency confirmed to result in loss of function per Generic Letter 91-18; did not result in an actual loss of safety function of a system; did not increase the likelihood of a fire; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding involved the failure of operations personnel to implement a Technical Specification action requirement and was associated with the crosscutting area of human performance. The licensee entered this condition into their corrective action program (SMF-2005-002752 and SMF-2005-003157).

Inspection Report# : [2005009\(pdf\)](#)

## Barrier Integrity

**G**

**Significance:** Jul 29, 2005

Identified By: Self-Revealing

Item Type: FIN Finding

**Inadequate Post Modification Test Resulted in the Introduction of Loose Parts into the Reactor Cavity**

A self-revealing finding associated with inadequate postmodification testing of the Unit 2 refueling machine festoon was identified. The festoon failed during refueling operations, resulting in the introduction of loose parts into the lower internals storage area of the refueling cavity. The licensee installed the festoon during Refueling Outage 5 to replace the older take-up reel on the refueling machine, however the festoon rails were not adequate to allow bridge travel to the mechanical stops. When the bridge was operated beyond the length of the festoon rails, the cable trolleys became compacted and enough stress was placed on the tow rods to break the welds of the base plates holding the rods in place. The postmodification test only verified festoon clearance for bridge travel to the electrical bridge stops.

Failure of the licensee to perform a postmodification test that demonstrated that the festoon would perform satisfactorily in service was a performance deficiency. This finding is more than minor because the barrier integrity cornerstone objective to provide reasonable assurance that physical barriers (including the fuel clad) to protect the public from radionuclide releases caused by accidents or events is affected. The introduction of loose parts into the reactor cavity during refueling is associated with the fuel clad attributes of human performance and foreign material exclusion. The team analyzed the finding using Appendix G, "Shutdown Operations," of Manual Chapter 0609, "Significance Determination Process," Attachment 1, Checklist 4. The team concluded that the finding did not require a quantitative assessment because the condition does not increase the likelihood of a loss of reactor coolant system inventory or loss of reactor coolant system level instrumentation, does not degrade the licensee's ability to terminate a leak path or add reactor coolant system inventory when needed, and does not degrade the ability to recover decay heat removal once it is lost. Since a quantitative assessment was not required, the finding was of very low safety significance.

Inspection Report# : [2005009\(pdf\)](#)

## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:**  May 19, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### Three Examples of a Failure to Conspicuously Post a Radiation Area

The inspector identified three examples of a non-cited violation of 10 CFR 20.1902(a) because the licensee failed to conspicuously post a radiation area. Specifically, on May 18, 2006, two discrete radiation areas in the fuel building and one in the auxiliary building were identified as not being conspicuously posted. The highest general area dose rate was 15 millirem per hour. The licensee conspicuously posted these areas and entered the finding into their corrective action program as Smart Form SMF-2006-001787-00.

The finding was greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Program and Process and affected the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation because not alerting workers to the presence of radiation could prevent them from taking measures to minimize radiation exposure. The finding was processed through the Occupational Radiation Safety Significance Determination Process and determined to be of very low safety significance because it was not an as low as reasonably achievable finding, there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised.

Inspection Report# : [2006003\(pdf\)](#)

**Significance:**  Sep 23, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### Failure to follow radiation work permit requirements

The inspector reviewed two examples of a self-revealing, non-cited violation of Technical Specification 5.4.1(a) resulting from failures to follow radiation work permit requirements. In the first example, workers entered the Unit 2 808-foot Incore Guide Tube Room even though the thimble guide tube were withdrawn because they were not cognizant of the radiation work permit requirements. A radiation protection technician failed to prevent the entry because the technician was also unfamiliar with the requirements of the applicable radiation work permit. In the second example, an operator failed to follow a general access permit instruction requiring radiation protection representative notification before accessing an area in the Unit 2 Room 077A overhead. Consequently, the operator became contaminated.

This finding is greater than minor because it is associated with the Occupational Radiation Safety Human Performance (Proficiency) Attribute and affected the cornerstone in that the failure to follow a radiation work permit requirement could increase personnel dose. The inspector determined that the finding was of very low safety significance because it did not involve: (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding had cross-cutting aspects associated with human performance. The radiation workers, the operator, and the radiation protection technician did not review the radiation work permits sufficiently to understand the requirements, which directly contributed to the finding. The examples of this finding were placed into the licensee's corrective action program as Smart Forms 2005-1692 and 2005-1912.

Inspection Report# : [2005004\(pdf\)](#)

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## Public Radiation Safety

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## Physical Protection

[Physical Protection](#) information not publicly available.

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## Miscellaneous

**Significance:** N/A Jul 29, 2005

Identified By: NRC

Item Type: FIN Finding

### Problem Identification and Resolution Inspection (PI&R) Team's Overall Assessment of the Licensee's PI&R Program

The team reviewed 151 risk significant issues, apparent and root cause analyses, and other related documents, to assess the effectiveness of the

licensee's problem identification and resolution processes and systems. The team concluded that the licensee's management systems were generally effective. However, the team identified poor evaluation, prioritization, and corrective actions associated with longstanding safety related Agastat relay problems. A similar performance concern was documented in the last problem identification and resolution assessment. The team also concluded that licensee corrective actions taken to address an historical adverse trend in human performance have not been effective.

The team concluded that the licensee established a safety-conscious work environment at Comanche Peak Steam Electric Station. The team determined that employees and contractors felt free to enter issues into the corrective action program and raise safety concerns to their supervision, to the employees concern program, and to the NRC. All plant personnel, interviewed by the team, stated that potential safety issues were addressed by the licensee. However, the licensee had identified long-term organizational effectiveness issues within the operations department, which continued to challenge the safety-conscious work environment for shift operations personnel. The team concluded that licensee's past actions to improve operations department organizational effectiveness had not been fully effective.

Inspection Report# : [2005009\(pdf\)](#)

Last modified : August 25, 2006