

Comanche Peak 1

2Q/2006 Plant Inspection Findings

Initiating Events

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: Mar 24, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Perform an Adequate Receipt Inspection of Solenoid Valves

A self-revealing, noncited violation of 10 CFR Part 50, Appendix B, Criterion VII, "Control of Purchased Material, Equipment, and Services," was identified for failing to assure that purchased equipment conform to the procurement documents. This failure resulted in the installation of a solenoid coil with an alternating current voltage rating of 120 Vac, into a circuit with a direct current voltage rating of 125 Vdc, resulting in the failure of Valve 1-FV-2184. The licensee replaced the solenoid valve, reviewed for extent of condition, and revised the receipt inspection verification plan.

The violation is more than minor because it is associated with the equipment performance attribute of reliability and affected the mitigating system cornerstone objective to ensure the availability and reliability of the feedwater isolation system to respond to initiating events and prevent undesirable consequences. Using Appendix A of Manual Chapter 0609, the finding screened as very low safety significance in Phase 1 of the SDP because the finding affected the mitigation system cornerstone but did not represent a loss of system safety function, an actual loss of safety function of a single train, nor was potentially risk significant due to seismic, flooding, or severe weather initiating events. The finding has crosscutting aspects of human performance due to the inadequate receipt inspection verification plan and inattention to detail by the receipt inspection personnel.

Inspection Report# : [2006002\(pdf\)](#)



Significance: Mar 24, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to prevent foreign material from entering the station service water pump suction

A self-revealing, noncited violation was identified for the failure to implement effective corrective actions to prevent recurrence of a significant

condition adverse to quality as described in 10 CFR Part 50, Appendix B, Criterion XVI. During cleaning activities in the station service water intake bay on August 17, 2005, the vacuum hose that was being used to clean the bay floor became lodged in the pump suction housing and caused reduced flow such that the control room operator had to secure the pump. Two very similar events had occurred in 1994 and 1996, and the corrective actions proved inadequate to prevent foreign material from becoming sucked into the pumps. The licensee is currently in the process of modifying and developing procedures and evaluating facility modifications to protect the station service water pumps from foreign material intrusion.

The failure to implement adequate corrective actions for the previous events to prevent foreign material from being sucked into the station service water pumps and causing the pumps to trip or be secured was the performance deficiency. This finding is considered more than minor because it is associated with the equipment performance attribute and affected the mitigating cornerstone objective to ensure the reliability of the station service water system to respond to initiating events and prevent undesirable consequences. The finding was processed through the significance determination process and required a Phase 3 evaluation. The finding was determined to be of very low safety significance based primarily on the short time the performance deficiency actually affected plant equipment. This finding has a crosscutting aspect of problem identification and resolution due to ineffective implementation of corrective action from previous events.

Inspection Report# : [2006002\(pdf\)](#)



Significance: Oct 20, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Trip of Emergency Diesel Generator Due to Lube Oil Check Valve Installed Backwards

A Green self-revealing noncited violation of Technical Specification 5.4.1.a was identified for failure to implement the maintenance procedure to properly install a check valve in the Emergency Diesel Generator 1-01 lubrication system. On October 20, 2005, the diesel generator shutdown for lack of lube oil to the turbo-chargers after 60 seconds during a post maintenance test. The lube oil strainer check valve had been installed backwards during the previous refueling outage but the opposite strainer had been in service for the ensuing 18 months. The check valve was reinstalled properly, the flow direction of similar check valves verified, and the damaged turbo-chargers replaced.

The violation was more than minor because one of two lube oil strainers for the turbo-chargers was incapable of flow, thus affecting the reliability of the diesel generator. The finding has a human performance crosscutting aspect because the failure to follow the procedure caused the diesel generator failure. However, the error was committed in April 2004. The violation is of very low safety significance because CPSES operating experience indicated that the lube oil strainers had never been swapped outside of an outage, and then only to balance run time on the equipment. The significance determination process screened this out as Green because it only affected the mitigating systems cornerstone and it did not cause an actual loss of safety function of a single train nor a loss of safety function that contributed to external event initiated core damage sequences. This event was entered into the corrective action program as Smart Form 2005-004233.

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



Significance: Oct 20, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Trip of Station Service Water Pump Due to Degraded Motor Lead

A Green self-revealing noncited violation of Appendix B, Criterion XVI was identified for failure to implement effective corrective actions for a significant condition adverse to quality. Specifically, station service water Pump 1-01 was returned to service on October 20, 2005, and after two hours of operation tripped on an electrical fault on Phase C of the motor leads. The degraded electrical condition of the motor lead had been identified during restoration from the pump maintenance, but the actions taken to ensure the pump was reliable failed. Phase C of the motor leads was replaced prior to returning the pump to service.

The failure to take effective corrective actions was the performance deficiency. The violation was more than minor because the pump was returned to service with a degraded motor lead. At the time of the event, Unit 1 was defueled and did not require an operable station service water pump. However, Unit 2 was required by Technical Specifications 3.7.8 to have at least one operable station service water pump from the opposite unit. With Unit 2 at 100 percent power, a significance determination was performed using Appendix A of Manual Chapter 0609. The finding was determined to be of very low safety significance (Green) because it did not represent a loss of system safety function, was not an actual loss of safety function for a single Unit 2 train, did not involve equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event, and did not involve the total loss of any safety function that contributed to external event initiated sequences. The cause of this finding is related to the crosscutting aspects of problem identification and resolution. The event was entered into the corrective action program as Smart Form 2005-004220.

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\(pdf\)](#)

Barrier Integrity



Significance: Oct 21, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Corrective Actions for a Leaking Valve with a Seal Weld which Subsequently Leaked

A Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI (Corrective Action) was identified, in that licensee personnel failed to take effective corrective action for a condition adverse to quality. Specifically, licensee welders repaired a body-to-bonnet leak on Valve 1-8702B, Residual Heat Removal Pump 1-02 hot-leg recirculation isolation valve, in April 2004 by installing a seal weld. The valve required additional repair in October 2005 for a body-to-bonnet leak.

The failure to take effective corrective action for a body-to-bonnet leak on Valve 1-8702 B was a performance deficiency. This finding is greater than minor because it is similar to Example 3.g. of Appendix E of Manual Chapter 0612 because the leakage reoccurred. The inspectors found this finding screened out of the Phase 1 process as Green. The inspectors considered this finding to be of very low safety significance because the event was leakage and not a line break. The cause of this finding is related to the crosscutting aspects of problem identification and resolution.

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

Emergency Preparedness

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\(pdf\)](#)

Public Radiation Safety

Physical Protection

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

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