

Comanche Peak 1

1Q/2011 Plant Inspection Findings

Initiating Events

Significance:  Jun 19, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure Causes Inadvertent Power Reduction

The inspectors identified a noncited violation of Technical Specification 5.4.1.a, for the failure to have an adequate procedure for placing a demineralizer resin bed in service. As a result, a reactivity management event occurred when the reactor coolant system was inadvertently borated. This caused an automatic rod withdrawal to maintain reactor coolant system temperature. Operators ultimately reduced power approximately 20 megawatts electric to stabilize the plant. The licensee entered the finding into the corrective action program as Condition Report CR-2010-002725.

The failure to adequately maintain a procedure required by Technical Specification 5.4.1.a was a performance deficiency and resulted in an unplanned boration, automatic rod withdrawal, and 20 megawatt power reduction. The finding was more than minor because it was associated with the procedure quality attribute of the initiating events cornerstone and affected the cornerstone objective, in that, it increased the likelihood of those events that upset plant stability. 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 mitigating equipment would not be available. This finding has a human performance crosscutting aspect associated with the decision making, in that, the licensee did not use conservative assumptions in the decision making process that lead to the use of the demineralizer [H.1b].

Inspection Report# : [2010003](#) (*pdf*)

Mitigating Systems

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: G 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: G Nov 04, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Incorporate Relevant Operating Experience Information into Station Procedures Regarding the Condensate Storage Tank and Diaphragm

The team identified an apparent violation of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, involving the failure of personnel to initiate a SmartForm to enter actual or potential adverse conditions into the corrective action program following receipt of operating experience. Specifically, in July 2002, the licensee received relevant information provided by the manufacturer of the Unit 1 and 2 condensate storage tank diaphragms to ensure the diaphragm integrity would be maintained but failed to enter the issue into the corrective action program as required by Comanche Peak Station Procedure STA-206, "Review of Vendor Documents and Vendor Technical Manuals," Revision 20. In addition, in November 2007, the licensee received industry-operating experience regarding a condensate storage tank diaphragm failure at the Farley Nuclear Plant but failed to enter this issue into the corrective action program as required by Procedure STA-426, "Industry Operating Experience Program," Revision 1. Because actions were not taken in response to the vendor and operating experience information, the diaphragm was susceptible to failure, which could cause a loss of suction to all three auxiliary feedwater pumps. This finding was entered into the licensee's corrective action program as Condition Reports CR 2010-005508, CR-2010-005581 and CR-2010-005962.

The team determined that the failure to incorporate relevant operating experience information into station instructions, procedures, or drawings to maintain the condensate storage tank diaphragm in a configuration where its performance during accident conditions would preclude blockage of the suction pipes to the auxiliary feedwater pumps was a performance deficiency. The 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 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 represented the degradation of equipment and

functions specifically designed to mitigate the loss of feedwater and that during an event the loss would degrade or make inoperable all three of the auxiliary feedwater pumps. Therefore, the finding was potentially risk significant and a Phase 3 analysis was required. The preliminary significance determination was based on Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," and indicated that the finding was of low to moderate safety significance (White). This finding has a crosscutting aspect in the area of human performance, work practices, because the licensee did not define and effectively communicate expectations regarding procedural compliance and personnel following procedures involving evaluation of operating experience.

Inspection Report# : [2011009](#) (pdf)

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

Significance:  Nov 04, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Test Control of the Diesel Generator Air Starting System

The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, Test Control, which states, in part, that all testing required to demonstrate that structures, systems, components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Specifically, as of June 18, 2010, the licensee failed to complete pre-operational testing required to demonstrate that the emergency diesel generator air start system receivers satisfied the requirements and acceptance limits contained in applicable design documents. This finding was entered into the licensee's corrective action program as Condition Report CR-2010-005924.

The team determined that the failure to ensure that the testing required to demonstrate that the Unit 1 emergency diesel generator air start systems will perform satisfactorily in service and in accordance with written test procedures which incorporated the requirements and acceptance limits contained in applicable design documents was a performance deficiency. The finding was more than minor because it was associated with 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 did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.

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

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

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*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 19, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Barricade and Post a High Radiation Area

The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.7.1.a for the failure to maintain a high radiation area barricaded and conspicuously posted. A high radiation area in the Unit 1 containment was posted as a radiation area. Consequently, an individual received unexpected electronic dosimeter dose rate alarm while building scaffolding in the Unit 1 containment building because the worker entered a high radiation area without the knowledge that the dose rates measured 145 millirem per hour. Subsequently, a radiation protection technician barricaded the area with rope and posted it as a high radiation area. The licensee entered the finding into the corrective action program as Condition Report CR 2010 003382.

The failure to barricade and post a high radiation area was a performance deficiency. The finding was more than minor because it was associated with the program and process attribute of the occupational radiation safety cornerstone and affected the cornerstone objective, in that, the failure to properly control a high radiation area had the potential to increase personnel dose. Using NRC Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance because: (1) it was not associated with as low as reasonably achievable (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. The finding has a human performance crosscutting aspect associated with work control because the licensee did not appropriately plan work activities by incorporating job site conditions or radiological safety [H.3a].

Inspection Report# : [2010003](#) (*pdf*)

Significance:  Jun 19, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow the Radiation Work Permit Requirements

Inspectors identified a noncited violation of Technical Specification 5.4.1.a for the failure of a rigger to follow radiation work permit requirements. Specifically, a rigger made an unauthorized entry into a high radiation area on a radiation work permit that did not grant access to that area. A radiation protection technician confirmed that the rigger was not briefed and not authorized to enter the high radiation area and had the rigger exit the area. The licensee entered the finding into the corrective action program as Condition Report CR 2010-003458.

The failure to follow the instructions on a radiation work permit was a performance deficiency. The finding was more

than minor because it was associated with the program and process attribute of the occupational radiation safety cornerstone and affected the cornerstone objective, in that, the failure to follow a radiation work permit instruction had the potential to increase personnel dose. Using NRC Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance because: (1) it was not associated with as low as reasonably achievable (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. The finding has a human performance crosscutting aspect associated with work practices because the licensee failed to effectively communicate expectations regarding procedural compliance to the rigger [H.4b].

Inspection Report# : [2010003](#) (*pdf*)

Public Radiation Safety

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.

Miscellaneous

Last modified : June 07, 2011