

# Comanche Peak 1

## 1Q/2016 Plant Inspection Findings

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### Initiating Events

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Incorrect Visual Resolution Requirements in Augmented Dissimilar Metal Weld Visual Examination Procedures**

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion IX, "Control of Special Processes," because the licensee failed to assure that visual examination activities for the reactor vessel dissimilar metal nozzle welds and bottom-mounted instrumentation nozzles were accomplished in accordance with the visual acuity requirements of ASME Code Case N-722-1. In response to the issue, for Unit 2, the licensee scheduled reexamination of the welds prior to the end of the outage, and, for Unit 1, performed a reasonable degradation evaluation to determine that reexamination of the welds could be delayed to the next outage. This finding was entered into the corrective action program as Condition Report 2015-009586.

The inspectors determined that the failure to assure visual examination activities were accomplished in accordance with the visual acuity requirements of ASME Code Case N-722-1 was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, routinely performing examinations with incorrect visual acuity requirements of N-722-1 has the potential to lead to missed opportunities to identify and correct relevant indications in reactor coolant system pressure boundaries. In accordance with Inspection Manual Chapter MC 0609, Attachment 4, "Significance Determination Process Initial Characterization," the inspectors determined that this finding affected the Initiating Events cornerstone as a primary system LOCA initiator contributor. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 1, "Initiating Events Screening Questions," the finding screened as having very low safety significance (Green) because after a reasonable assessment of degradation, the finding did not result in exceeding the RCS leak rate for a small LOCA and did not affect other systems used to mitigate a LOCA. The finding does not have a crosscutting aspect because the most significant contributor is not reflective of current licensee performance.

Inspection Report# : [2015004](#) (*pdf*)

**Significance:**  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Take Appropriate Maintenance Rule Corrective Actions for the Instrument Air System**

The inspectors identified a non-cited violation of 10 CFR Part 50.65(a)(1) for the failure to take appropriate corrective actions for a system that did not meet established goals. Specifically, the Unit 1 instrument air system had been in maintenance rule (a)(1) status since 2011 due to dryer component failures. In 2014, the instrument air system experienced additional failures that resulted in water accumulating in air operated valve actuators on Unit 1. The water intrusion resulted in abnormal operation of the air operated valves in the Unit 1 main feedwater system. These failures were determined to be due to inadequate maintenance on the instrument air dryers unrelated to the 2011 failures. However, the licensee failed to revise their corrective actions to address the causes of the water intrusion. The licensee

entered these issues into corrective action program as Condition Report CR-2015-009077.

The licensee's failure to take appropriate corrective actions for a system that did not meet established goals was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the equipment performance attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to take appropriate corrective actions adversely affected the reliability of a system scoped in the plant's maintenance rule program. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding affected a support system initiator but did not involve the loss of a support system that contributed to the likelihood of an initiating event and affected mitigation equipment. The finding has a problem identification and resolution cross-cutting aspect associated with evaluation, in that, the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes. Specifically, the licensee performed an inadequate cause evaluation and failed to identify the cause of the water intrusion [P.2].

Inspection Report# : [2015003](#) (*pdf*)

**Significance:**  Sep 30, 2015

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Inadequate Maintenance Procedure Results in Power Reduction**

The inspectors reviewed a self-revealing finding associated with an inadequate procedure which resulted in a unit down power. Specifically, the procedure used for over speed testing of the main feedwater pumps did not provide adequate guidance for operation of the test push button which resulted in a trip of main feedwater pump 1A and subsequent unit power reduction. The licensee entered this issue into the corrective action program as Condition Report CR-2015-005195, and took actions to increase the maintenance frequency on the mechanical trip device, and to reduce power when performing mechanical over speed testing in the future.

The failure to provide adequate procedures for main feedwater pump over speed testing was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the procedural quality attribute of the Initiating Events Cornerstone, and 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, and is therefore a finding. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined that this finding does not have a cross-cutting aspect because the most significant contributor of this finding would have occurred more than three years ago, in 2001, and is not reflective of current licensee performance.

Inspection Report# : [2015003](#) (*pdf*)

## **Mitigating Systems**

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Take Appropriate Maintenance Rule Corrective Actions for the 6.9 kV System**

The inspectors identified a non-cited violation of 10 CFR Part 50.65(a)(1), for the failure to establish goals that provide reasonable assurance that the 6.9 kV electrical distribution system is capable of fulfilling its intended functions. Specifically, the 6.9 kV electrical distribution system had been in maintenance rule (a)(1) status since 2009 due to the failure of breakers to close on demand. Subsequently, in 2013 and 2015 there were additional breaker failures, which exceeded the established performance criteria, and were due to causes not previously evaluated. These additional failures were determined to be due to inadequate maintenance, but the licensee did not re-evaluate the established goals and revise the corrective actions to address these additional failures. The licensee implemented corrective actions to re-evaluate the goals and corrective actions for the 6.9 kV AC system. The licensee entered this issue into the corrective action program as Condition Report CR-2015-009077.

The licensee's failure to evaluate existing goals and corrective actions for a system that did not meet established performance goals was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to take appropriate corrective actions adversely affected the reliability of a system scoped in the plant's maintenance rule program. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The finding has a human performance cross-cutting aspect associated with procedure adherence, in that, the licensee failed to follow maintenance rule implementing procedures [H.8].  
Inspection Report# : [2015004](#) (*pdf*)

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Identify Conditions Adverse to Quality**

The inspectors identified two examples of a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify conditions adverse to quality. Specifically, in two separate instances involving extent of condition reviews for grease on 6.9 kV breaker stabs and degraded piping in the Unit 1 service water system, the licensee failed to identify conditions adverse to quality that were reasonably within their ability to identify. As a result, the licensee failed to: (1) identify 24 additional breakers that were in a degraded condition due to grease on secondary stabs, and (2) identify a section of service water piping that was below the ASME minimum wall thickness. The licensee implemented immediate corrective actions by entering the issues into the corrective action program for resolution and performed an operability determination for the identified degraded conditions. The licensee entered these issues into the corrective action program as Condition Reports CR-2015-009992 and CR-2015-010120.

The licensee's failure to identify conditions adverse to quality for quality related systems was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to identify degraded conditions could affect the reliability or availability of

multiple safety related systems. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding is a deficiency affecting the design or qualification of a mitigating SSC, but the SSC maintained its operability. The finding has a problem identification and resolution cross-cutting aspect associated with evaluation, in that, the licensee failed to thoroughly evaluate issues to ensure that resolutions address extent of conditions. Specifically, the licensee failed to adequately consider the extent of the degraded conditions on similar safety related components [P.2].

Inspection Report# : [2015004](#) (pdf)

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: FIN Finding

### **Failure to Follow Procedure When Disabling a Hazard Barrier**

The inspectors identified a finding associated with the licensee's failure to follow procedural requirements for disabling a hazard barrier. Specifically, Station Procedure STA 696, "Hazard Barrier Controls," Revision 2, requires that appropriate temporary barriers be prescribed when a hazard barrier is impaired. However, in support of an auxiliary, safeguards and fuel building negative pressure test, the licensee failed to follow Procedure STA 696 and incorrectly credited alternate doors to protect safety-related equipment from the effects of a high-energy line break when disabling the primary hazard barrier. The licensee implemented corrective actions to correctly assess the activity and implemented appropriate risk management actions. The licensee entered the finding into corrective action program as Condition Report CR-2015-005583.

The licensee's failure to follow station procedures when crediting temporary hazard barriers was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, opening the high energy line break door without an appropriate temporary barrier in place removed a credited barrier for safety-related electrical equipment. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the finding was determined to be of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The inspectors determined that this finding does not have a cross-cutting aspect because the most significant contributor of this finding would have occurred more than three years ago, and is not reflective of current licensee performance.

Inspection Report# : [2015004](#) (pdf)

**Significance:**  Nov 13, 2015

Identified By: NRC

Item Type: VIO Violation

### **Failure to Evaluate the Lack of Missile Protection on the Turbine Driven Auxiliary Feedwater Pumps' Steam Exhaust Piping**

Green. The team identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to evaluate the lack of missile protection on the turbine driven auxiliary feedwater pumps' steam

exhaust piping. Specifically, since June 13, 2012, the licensee failed to verify the adequacy of design of the turbine driven auxiliary feedwater pumps' steam exhaust piping to withstand impact from a tornado driven missile hazard, or to evaluate for exemption from missile protection requirements using an approved methodology. This issue does not represent an immediate safety concern because the licensee performed an operability evaluation, which established a reasonable expectation of operability. The licensee entered this issue into the corrective action program for resolution as Condition Report CR-2015-007869.

The licensee's failure to analyze the effects of a tornado missile strike on the turbine driven auxiliary feedwater pumps' steam exhaust piping was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events factors attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to evaluate a design nonconformance on the turbine driven auxiliary feedwater pumps' steam exhaust piping for lack of missile protection. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the team determined that the finding is of very low safety significance (Green) because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. The finding has a human performance cross-cutting aspect associated with conservative bias because individuals failed to use decision making practices that emphasize prudent choices over those that are simply allowable [H.14]. (Section 4OA2.5a)

Inspection Report# : [2015008](#) (*pdf*)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Properly Assess and Document the Basis for Operability associated with the Turbine Driven Auxiliary Feedwater Pumps' Steam Exhaust Piping not being Evaluated for Tornado Generated Missil**

Green. The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated the licensee's failure to perform adequate operability assessments when a degraded or nonconforming condition was identified associated with the turbine driven auxiliary feedwater pumps' steam exhaust piping not being evaluated for tornado generated missile impacts. Specifically, operators used probabilistic assumptions and failed to adequately assess and document the basis for operability when a degraded or nonconforming condition was identified associated with the turbine driven auxiliary feedwater pumps' steam exhaust piping not being evaluated for tornado generated missile impacts. This issue does not represent an immediate safety concern because the licensee performed a subsequent operability evaluation, which established a reasonable expectation of operability. The licensee entered this issue into the corrective action program for resolution as Condition Report CR-2015-007919.

The licensee's failure to properly assess and document the basis for operability when a degraded or nonconforming condition associated with the turbine driven auxiliary feedwater pumps' steam exhaust piping not being evaluated for tornado generated missile impacts was identified, was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events factors attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to evaluate a design nonconformance on the turbine driven auxiliary feedwater pumps' steam exhaust piping for lack of missile protection. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process

(SDP) for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” dated June 19, 2012, the team determined that the finding is of very low safety significance (Green) because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee’s maintenance rule program for greater than 24 hours. The finding has a human performance cross-cutting aspect associated with conservative bias because individuals failed to use decision making practices that emphasize prudent choices over those that are simply allowable [H.14]. (Section 40A2.5b)

Inspection Report# : [2015008](#) (pdf)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Inadequate Procedure for Surveillance on Safety-Related Service Water Systems**

Green. The team identified a non-cited violation of Technical Specification (TS) 5.4.1, “Procedures,” for an inadequate procedure for performing surveillances on the station service water (SSW) systems in units 1 and 2. Specifically, Procedures OPT-207 A and B, “Service Water System,” were modified in September 2010 so that failure of any SSW vacuum breaker to OPEN was considered a degraded condition and not an inoperable condition of the associated SSW System train. However, per DBD-ME-233, “Station Service Water,” Revision 33, “Active Valves,” vacuum breakers are required by ASME [Code Section] III on the inlet and outlet piping to the diesel generator jacket water coolers to mitigate the effects of water hammer due to water column separation and subsequent rejoining following a pump trip. This issue does not represent an immediate safety concern because the licensee confirmed that all of the vacuum breakers in service had passed their most recent surveillance test. The licensee entered this issue into the corrective action program for resolution as Condition Report CR-2015-010800.

The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the licensee did not ensure the guidance incorporated into quality related procedures was accurate and consistent with the design basis analysis for the systems and this conflict resulted in inadequate operability determinations associated with the SSW System. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” dated June 19, 2012, the team determined that the finding is of very low safety significance (Green) because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee’s maintenance rule program for greater than 24 hours. This finding has a human performance cross cutting aspect associated with design margins because the licensee failed to operate and maintain the SSW system equipment within design margins. Rather than ensure that margins are carefully guarded and changed only through a systematic and rigorous process, the licensee failed to re-evaluate SSW system operability with failed vacuum breaker valves even when additional test information indicated previous assumptions were incorrect [H.6]. (Section 40A2.5c)

Inspection Report# : [2015008](#) (pdf)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Maintain Adequate Controls for Design Calculations**

Green. The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," with two examples associated with the licensee's failure to ensure that design changes were subject to design control measures commensurate with those applied to the original design and were approved by the designated responsible organization. Specifically: (1) The licensee instituted an engineering change package to modify the design and setpoints for the station service water (SSW) system vacuum breaker valves (CP1/2-SWVAVB-01/02/03/04) and did not consider the allowable tolerance for the setpoint for all design basis events and operating conditions. The licensee adequately addressed this issue by reperforming the calculation incorporating the setpoint allowable tolerance. (2) The licensee failed to account for system design leakage in design calculation DBD-CS-096, for the safe shutdown impoundment minimum level. The licensee evaluated the water loss from the impoundment due to evaporation, but failed to account for losses due to system design leakage. The licensee adequately addressed this issue by applying the design system leak rate for a 30-day mission time to the available water in the safe shutdown impoundment.

The licensee's failure to evaluate properly the effects of modifying the setpoint including allowable tolerances for all modes of operation and all sources of water loss from the safe shutdown impoundment was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the configuration control attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the team determined that the finding is of very low safety significance (Green) because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. The inspectors determined that this finding does not have a cross-cutting aspect because the most significant contributor of this finding occurred more than three years ago and does not reflect current licensee performance. (Section 40A2.5d)

Inspection Report# : [2015008](#) (*pdf*)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Adequately Evaluate Operability for a Degraded Condition**

The inspectors identified seven examples of a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to perform adequate operability assessments for a degraded or nonconforming condition. Specifically, when vacuum breakers installed in the service water system failed to actuate during surveillance testing, the licensee completed an operability evaluation that relied on judgement, and was contrary to the station design analysis. In particular, the licensee concluded that the vacuum breakers were not required to support operability of the service water system. Following questions from inspectors, the licensee determined that this judgement was not correct and performed a new evaluation to establish operational parameters necessary to ensure operability of the service water system with a failed vacuum breaker. The licensee entered this issue into corrective action program as Condition Report CR-2015-008334.

The failure to properly assess and document the basis for operability for a degraded or nonconforming condition was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, service water vacuum breakers failing to open resulted in a condition where structures, systems, and components necessary to mitigate the effects of a column separation event may not

have functioned as required. Using Inspection Manual Chapter (IMC) 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated June 19, 2012, inspectors determined that this finding was of very low safety significance (Green) because the finding (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee’s maintenance rule program. The inspectors determined that this finding does not have a cross-cutting aspect because the most significant contributor of this finding occurred more than three years ago, and is not indicative of current licensee performance.

Inspection Report# : [2015008](#) (*pdf*)

Inspection Report# : [2016001](#) (*pdf*)

**Significance:**  Aug 03, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Evaluate Inverter Fault Interrupting Capability During Design Basis Loss of Offsite Power and Seismic Conditions**

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, “Measures shall be established to assure that applicable regulatory requirements and the design basis, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. The design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.” Specifically, prior to June 18, 2015, the licensee failed to check the adequacy of the design by performing an analysis or test that demonstrated that the Class 1E inverters would continue to operate reliably when subjected to the effects of electrical faults that could be postulated to occur at non-Class loads, due to a lack of seismic qualification of the loads, during and after a design basis loss-of-offsite power and seismic event. In response to this issue, the licensee performed an analysis of the condition and an operability determination, and concluded, upon their review of all non-1E loads connected to 1E inverters, that the load protective devices would actuate in time to prevent a loss of function to the 1E loads. This finding was entered into the licensee’s corrective action program as Condition Report CR-2015-005530.

The team determined that the failure to evaluate the fault clearing capability of the Class 1E inverters was a performance deficiency. This 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 to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to evaluate the fault clearing capability of the inverter during design basis loss of offsite power and seismic conditions which resulted in a reasonable doubt on the operability of the system. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated June 19, 2012, Exhibit 2, “Mitigating Systems Screening Questions,” the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not result in the loss of operability or functionality, did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. The team determined that this finding did not have a cross-cutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : [2015007](#) (*pdf*)

**Significance:**  Aug 03, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Validate Inverter Output Demand Factor and to use the Correct Value of Inverter Efficiency when Determining Inverter Input D-C Power Requirements.**

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, "Measures shall be established to assure that applicable regulatory requirements and the design basis, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions." Specifically, prior to June 30, 2015, the licensee did not correctly evaluate the inverter output loading by assuming an incorrectly low demand factor, and also did not correctly identify the inverter efficiency when determining the inverter input d-c power required from the Class 1E station battery. In response to this issue, the licensee performed an operability evaluation and reevaluated the battery inverter loads. The corrected inverter loads were compared with the inverter load performance test data. Based on Design Engineering bounding calculations, all of the safety-related battery inverters remained operable and capable of meeting the four hour mission time. This finding was entered into the licensee's corrective action program as Condition Report CR-2015-005805.

The team determined that the failure to correctly evaluate the inverter input d-c power requirement 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 adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to correctly evaluate the inverter input d c power requirements that resulted in a condition where there was reasonable doubt on the operability of the system. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not result in the loss of operability or functionality, did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. The team determined that this finding did not have a cross-cutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : [2015007](#) (pdf)

**Significance:** G Aug 03, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Follow Operability Determination Procedure for Tornado Missile Impact of Diesel Vents**

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," which states, in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished." Operability Determination Procedure STI-422.01 Step 6.2 G, states in part, "ODs should be documented in sufficient detail so the basis for the determination can be understood during subsequent reviews.... justification for the basis of the operability should be documented." Specifically, on May 4, 2015, the licensee had performed an operability determination for tornado driven missiles impacting the diesel generator fuel oil vent piping. The licensee failed to follow the operability evaluation procedure in that they did not adequately justify the basis of the operability. The team identified that the licensee had not adequately justified the exclusion of horizontally generated missiles in their analysis. In response to this issue, the licensee re-performed the operability determination, using a revised analysis using the correct parameters for horizontal missiles generated by a tornado, and concluded that the diesel generators would still perform their safety function. This finding was entered into the licensee's corrective action program as Condition Report CR 2015 005848.

The team determined that the licensee's failure to follow procedure for performing an operability determination for the diesel generator fuel oil vent piping was a performance deficiency. This finding was more than minor because it was associated with the protection against external factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to adequately document the basis for operability of the diesel generator system because it excluded horizontal tornado missiles in the analysis. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. The team determined that this finding had a crosscutting aspect in the area of problem identification and resolution, because the organization failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance.

Inspection Report# : [2015007](#) (pdf)

**Significance:**  Aug 03, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Evaluate Changes to Ensure They Did Not Require Prior NRC Approval**

The team identified a Severity Level IV, non-cited violation of 10 CFR 50.59, "Changes, Test, and Experiments," which states in part, "Section (c)(1), that a licensee may make changes in the facility as described in the Updated Safety Analysis Report without obtaining a license amendment pursuant to 10 CFR 50.90 only if: (i) a change to the technical specifications incorporated in the license is not required, and (ii) the change, test, or experiment does not meet any of the criteria in paragraph (c)(2). Section(c)(2), states in part, "A licensee shall obtain a license amendment pursuant to Section 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would: (ii) Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the final safety analysis report." Specifically, on March 12, 2013, the licensee performed a 10 CFR 50.59 evaluation for the unprotected turbine driven auxiliary feedwater pump exhaust stack, and during the Applicability Determination phase, determined that exempting the exhaust stack from being protected was acceptable without NRC approval. The licensee failed to recognize that the proposed change would result in more than a minimal increase in the likelihood that the turbine driven auxiliary feedwater pump's steam exhaust piping would be susceptible to tornado driven missiles during a station black out, when the turbine driven auxiliary feedwater pump would be required to be operational. In response to this issue, the licensee has demonstrated that the auxiliary feedwater system is capable of safely shutting down the plant in the event of a tornado missile strike on the turbine driven auxiliary feedwater pump's steam exhaust piping and the single failure of an additional auxiliary feedwater pump. This finding was entered into the licensee's corrective action program as Condition Report CR-2015-007625.

The team determined that the licensee's failure to implement the requirements of 10 CFR 50.59 and adequately evaluate changes to determine if prior NRC approval is required was a performance deficiency. Because this performance deficiency had the potential to impact the NRC's ability to perform its regulatory function, the team evaluated the performance deficiency using traditional enforcement. In accordance with Section 2.1.3.E.6 of the NRC Enforcement Manual, the team evaluated this finding using the significance determination process to assess its significance. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, the finding was determined to have very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one

or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. In accordance with Section 6.1.d.2 of the NRC Enforcement Policy, the team characterized this performance deficiency as a Severity Level IV violation. The team determined that this finding did not have a cross-cutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : [2015007](#) (*pdf*)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Adequately Assess Risk and Implement Risk Management Actions for Proposed Maintenance**

The inspectors identified a non-cited violation of 10 CFR 50.65(a)(4), “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” for the licensee’s failure to adequately assess risk and implement required risk management actions for a planned maintenance activity. Specifically, the licensee failed to evaluate the risk associated with the use of a non-seismically qualified crane when moving loads over an operable train of service water during installation of a temporary modification in 2014. This issue did not represent an immediate safety concern because, at the time of identification, the maintenance activity was no longer in progress. The licensee entered this issue into the corrective action program for resolution as Condition Report CR-2015-001203.

The failure to adequately assess the risk and implement required risk management actions for proposed maintenance activities was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix K, “Maintenance Risk Assessment and Risk Management Significance Determination Process,” dated May 19, 2005, Flowchart 2, “Assessment of Risk Management Actions,” the inspectors determined the need to calculate the risk deficit to determine the significance of this issue. Based on a review of the licensee’s risk model it was determined that the incremental core damage probability associated with this finding was less than  $1 \times 10^{-6}$ ; therefore, this finding is determined to have very low safety significance (Green). The finding has a human performance cross-cutting aspect associated with consistent processes because the licensee failed to use a consistent, systematic approach to evaluate risk for planned maintenance activities. [H.13]

Inspection Report# : [2015002](#) (*pdf*)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Evaluate and Appropriately Approve Design Changes**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” associated with the licensee’s failure to ensure that design changes were subject to design control measures commensurate with those applied to the original design and were approved by the designated responsible organization. Specifically, the licensee changed required embedment depths for safety-related concrete expansion anchors associated with manhole covers but failed to re-perform the design calculation to demonstrate that the new embedment depth was sufficient for tornado loading. The licensee performed an operability determination which established a reasonable expectation for operability pending final resolution of the issue. This issue was entered into the licensee’s corrective action program as Condition Report CR-2015-003152.

The licensee’s failure to ensure that changes to the facility were subject to design control measures commensurate with those applied to the original design, and were approved by the designated responsible organization was a

performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee changed required embedment depths for safety-related concrete expansion anchors associated with manhole covers but failed to re-perform the design calculation to demonstrate that the new embedment depth was sufficient for tornado loading. Using Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, inspectors determined that this finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality, (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time, and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The inspectors determined that this finding does not have a cross-cutting aspect because the most significant contributor of this finding occurred more than three years ago and does not reflect current licensee performance.

Inspection Report# : [2015002](#) (*pdf*)

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## Barrier Integrity

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## Emergency Preparedness

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Inadequate Compensatory Measures for Seismic Monitoring System Maintenance**

The inspectors identified a non-cited violation of 10 CFR 50.54(q)(2) for a failure to meet planning standard 10 CFR 50.47(b)(4) during periodic outages of the seismic monitoring system. Specifically, during planned maintenance on the seismic monitoring system, inspectors determined that the system would not be able to perform its function of alerting control room staff of an entry condition into the emergency action levels for a seismic event, and the specified compensatory measures were not adequate. The licensee implemented correction actions to establish viable compensatory measures for periods when the seismic monitoring system is unavailable. The licensee entered these issues into corrective action program as Condition Report CR-2016-000091.

The licensee's failure to maintain the effectiveness of their emergency plan was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the ERO Performance attribute of the Emergency Preparedness cornerstone and impacted the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process," the inspector determined that the violation is of very low safety significance (Green) because the finding represented a failure to comply with planning standard (b)(4), and, using table 5.4-1, was screened as a Green finding because an emergency action level initiating condition was rendered ineffective such that an Alert would be declared in a degraded manner for a seismic event, but no Site Area Emergency or General Emergency initiating conditions were affected. The violation was entered into the licensee's corrective action program as CR-2016-000091. The

inspectors determined that this finding has a problem identification and resolution cross-cutting aspect associated with resolution, because the licensee failed to take appropriate corrective action after they recognized the inadequacy of their compensatory measures [P.3].

Inspection Report# : [2015004](#) (*pdf*)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Critique Weaknesses in Radiation Protection Practices**

The NRC identified two examples of licensee failures to correct deficiencies occurring during the June 10, 2015, emergency preparedness exercise as required by 10 CFR 50.47(b)(14). Specifically, the licensee failed to identify that a lack of radiological briefings for plant repair teams and a lack of habitability assessments in the Operations Support Center were deficiencies requiring corrective action. This issue was entered into the licensee's corrective action program as Condition Report CR 2015-005496.

The failure to correct deficiencies occurring during an emergency preparedness exercise is a performance deficiency within the licensee's ability to foresee and correct. The performance deficiency is more than minor because the issue is associated with the emergency response organization readiness and performance cornerstone attributes (training) and adversely affected the cornerstone objective. The performance deficiency affects the cornerstone objective because the licensee cannot assure that adequate measures will be taken to protect the health and safety of the public when deficiencies are not corrected. The finding was evaluated using Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process," dated September 23, 2014, and determined to be of very low safety significance (Green) because the performance deficiency was a failure to comply with NRC requirements and was not a degraded or lost planning standard function. The planning standard was not degraded or lost because the deficiency was not associated with a risk-significant planning standard function and the licensee identified other deficiencies that occurred during the June 10, 2014, exercise. The finding has been assigned a cross-cutting aspect of Identification in the Problem Identification and Resolution cross-cutting area because the licensee failed to identify issues completely and accurately [P.1].

Inspection Report# : [2015002](#) (*pdf*)

## **Occupational Radiation Safety**

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Barricade High Radiation Areas**

The inspector identified a non-cited violation (NCV) of Technical Specification 5.7.1.a, with two examples, associated with not barricading High Radiation Areas (HRAs) with dose rates not exceeding 1.0 rem/hour at 30 centimeters from the radiation source. Specifically, access to the HRA containment trashracks and access to the HRA reactor cavity before flood up were not barricaded to prevent entry. The licensee took immediate corrective action to barricade the associated HRAs to restrict access and entered this issue into the corrective action program as CR-2015-009095 and CR-2015-009303.

The failure to barricade high radiation areas in accordance with TS 5.7.1.a was a performance deficiency. The inspector determined that the performance deficiency was more than minor, and therefore a finding, because it impacted the program and process attribute of the Occupational Radiation Safety Cornerstone and adversely affected

the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, not barricading HRAs could lead to inadvertent worker entry into high dose rate areas without knowledge of the radiological conditions. The finding was assessed using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, and was determined to be of very low safety significance (Green) because the problem was not an ALARA planning issue; there was no overexposure, nor substantial potential for an overexposure; and the licensee's ability to assess dose was not compromised. The finding was associated with a cross-cutting aspect of Resolution in Problem Identification and Resolution area. Specifically, the organization's corrective actions to address HRA issues raised by Nuclear Oversight, the NRC and independent assessments in a timely manner commensurate with their safety significance have not been effective [P.3].

Inspection Report# : [2015004](#) (*pdf*)

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## Public Radiation Safety

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### Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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### Miscellaneous

**Significance:** N/A Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Update the UFSAR for Restrictions Associated with Shared System Operations of Component Cooling Water**

The inspectors identified a non-cited violation of 10 CFR 50.71(e), "Maintenance of Records, Making Reports," associated with the licensee's failure to update the Final Safety Analysis Report. Specifically, the licensee failed to update the Final Safety Analysis Report to include information detailing restrictions associated with shared system operations of the non-safeguards component cooling water loads between units. This issue does not represent an immediate safety concern because, at the time of identification, the component cooling water systems were not cross connected. The licensee entered this issue into the corrective action program for resolution as Condition Report CR-2014-007235.

The licensee's failure to update the Final Safety Analysis Report to reflect restrictions associated with shared system operations of the non-safeguards component cooling water loads was a performance deficiency. Because this performance deficiency had the potential to impact the NRC's ability to perform its regulatory function, inspectors evaluated the performance deficiency using traditional enforcement. Using Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," dated January 24, 2013, Appendix B, "Issue Screening," and Appendix E, "Examples of

Minor Issues,” the Reactor Oversight Program aspect of this performance deficiency was determined to be minor. Using the NRC Enforcement Policy, dated January 28, 2013, the performance deficiency was determined to be a Severity Level IV violation in accordance with Section 6.1.d.3, because the lack of up-to-date information in the Final Safety Analysis Report had not resulted in any unacceptable changes to the facility or procedures. Inspectors determined that cross-cutting was not applicable to this finding because it was strictly a traditional enforcement issue. Inspection Report# : [2015002](#) (*pdf*)

Last modified : July 11, 2016