

Wolf Creek 1

1Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Bases Change Causes Violation of Low Temperature Overpressure Protection Technical Specification

The inspectors identified a non-cited violation of Technical Specification 3.4.12, "Low Temperature Overpressure Protection System," for exceeding the maximum allowed number of centrifugal charging pumps capable of injecting to the reactor coolant system during low temperature operations. Inspectors found that Wolf Creek inappropriately made a technical specification bases change that allowed a second charging pump to be capable of injection, contrary to the wording of the associated technical specification. Wolf Creek submitted a request for a technical specification interpretation. In response, the NRC's Office of Nuclear Reactor Regulation stated that Technical Specification 3.4.12 allows one charging pump to be capable of injection during low temperature operations. This was entered into the Wolf Creek corrective action program as Condition Report 53012.

The failure to operate Wolf Creek in accordance with the technical specifications during low temperature conditions is a performance deficiency. The performance deficiency was more than minor because it impacted the Initiating Events Cornerstone objective of configuration control to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 2, the inspectors determined this finding to be of very low safety significance, because it did not cause the loss of mitigating capability of core heat removal, inventory control, power availability, containment control, or reactivity control. Inspectors did not identify a cross-cutting aspect because the Technical Specification 3.4.12 Bases change occurred in 1999 and is not indicative of current licensee performance.

Inspection Report# : [2012005](#) (*pdf*)

Significance: Y Aug 06, 2012

Identified By: NRC

Item Type: VIO Violation

Failure to provide adequate oversight of contractors during maintenance on the Startup Transformer

The team reviewed a self-revealing apparent violation of Technical Specification 5.4.1.a and Regulatory Guide 1.33 for the failure to follow procedures. Specifically, the electrical penetration seal and wiring assembly associated with the H1/CT4 and H2/CT5 current transformers installed in the startup transformer (XMR01) were replaced without insulating two of the splices, as required by Work Order 11-240360-006, Revision 3. This affected safety-related equipment on January 13, 2012, when the startup transformer experienced a spurious trip and lockout during a plant trip because the two uninsulated wires touched and provided a false high phase differential signal to the protective relaying circuit. The protective lockout caused a prolonged loss of offsite power to Train B equipment. The licensee's root cause analysis concluded that the Startup Transformer failure on January 13, 2012, was caused by the failure to provide adequate oversight of contractors. As a result, the licensee failed to identify that electrical maintenance contractors had failed to install insulating sleeves on wires that affected the differential current protection circuit. This issue was entered into the corrective action program as Condition Report 47653. The licensee's corrective actions

included reworking the current transformer junction block to correct the missing insulation sleeves and updating station procedures to require oversight of contractors performing work on risk significant components. This finding was more than minor because it affected the human performance attribute of the Initiating Events Cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions. This deficiency resulted in the failure of the fast bus transfer and the failure to maintain offsite power to safety-related loads during a reactor/turbine trip. The team performed the significance determination using NRC Inspection Manual Chapter 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," dated January 10, 2008, because it affected the Initiating Events Cornerstone while the plant was at power. The Phase 1 screened to a Phase 3 because the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available; it was also potentially risk significant due to seismic external initiating event core damage sequences. A Senior Reactor Analyst performed a Phase 3 analysis using the Wolf Creek SPAR model, Revision 8.20. The performance deficiency was determined to impact all transient sequences, particularly those involving losses of essential service water and/or component cooling water that led to a reactor coolant pump seal loss of coolant accident. The loss of cooling water prevented successful room cooling for mitigation equipment as well as loss of containment recirculation phase cooling. The analyst used half (98.5 days) of the period since the last successful load transfer, since the actual time of failure could not be determined from the available information. Credit for recovery of limited non-vital loads on the startup transformer was given based on licensee troubleshooting results, however no recovery credit was available for room cooling, since the licensee had no preplanned alternate room cooling measures. The evaluation of external events showed a small contribution due to fires. The increase in the core damage probability (ICCDP) was determined to be $2.59E-5$. This was a YELLOW significance.

The evaluation of large early release failures resulted in an ICLERP of $1.62E-7$. This was a WHITE significance, which is superseded by the YELLOW significance of the ICCDP.

This finding had a human performance cross-cutting aspect associated with the work control component in that licensee personnel associated with the oversight of the work did not appropriately coordinate work activities, and address the impact of changes to the work scope consistent with nuclear safety [H.3(b)] (Section 40A5.2).

Inspection Report# : [2012009](#) (pdf)

Significance: G Jun 29, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Incorrect Leak Seal Injection Port Installation

A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Inspections, Procedures, and Drawings," was identified as a result of a leaking watertight door that was observed on January 13, 2012. Station procedure MPM XX-002, "Watertight Door Preventive Maintenance Activities," failed to ensure the proper position of the alignment screws, which resulted in leakage through a misalignment between the door and its threshold. During the January 13, 2012, loss of offsite power, the auxiliary building general area sump pumps did not operate for approximately 36 hours. Condensed steam and other effluents slowly accrued in the stairwell area outside the containment spray pump rooms to a depth of 24 to 36 inches. The train B containment spray pump room watertight door leaked approximately 10 gallons per minute and pooled in both the containment spray pump room and the residual heat removal pump room to a depth of three inches. This issue was entered into the corrective action program under condition report 51622. The licensee corrected the procedure and realigned the affected watertight doors. Failure to properly adjust safety-related watertight door alignment screws during testing activities is a performance deficiency. The performance deficiency is more than minor and therefore a finding because, if left uncorrected it could lead to a more significant safety concern. Using Inspection Manual Chapter 0609, Appendix A, the finding was characterized using Exhibit 4, "Seismic, Flooding, and Severe Weather Screening Criteria." The finding was determined to be of very low safety significance (Green) because the degraded flood protection equipment would not have caused a plant trip or other initiating event, would not degrade two or more trains of a multi-train safety system, would not degrade one or more trains of a supporting system, and the finding does not involve the total loss of any

safety function. The inspectors determined the cause of this finding was not indicative of current performance. (Section 1R06).

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Dec 31, 2009

Identified By: NRC

Item Type: VIO Violation

Failure to Correct Vessel Head Vent Path

The inspectors identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," due to an inadequate vent path for the reactor vessel head. The inadequate vent path resulted in the formation of voids in the reactor vessel head during Refueling Outage 17. Failure to ensure an adequate vent path in the reactor vessel head was the subject of a noncited violation in NRC Inspection Report 05000482/2008004. During and after Refueling Outage 16, Wolf Creek initiated a root cause evaluation and corrective actions to prevent occurrence. When one of the possible root causes was disproven in Refueling Outage 17, no additional action was taken to determine the cause of the vessel head vent blockage. However, the licensee could not exclude blockage in the piping. This issue was entered into the corrective action program and the licensee plans to conduct a more thorough inspection of the piping during the next refueling outage. This issue is being tracked by the licensee as Condition Report 22501.

The inspectors determined that the failure to provide adequate vessel head vent path to prevent gas accumulation in the reactor vessel during depressurized plant operations was a performance deficiency. The inspectors determined that this finding, which was associated with the Initiating Events Cornerstone, was more than minor because if left uncorrected, it would have become a more significant safety concern. Specifically, without an adequate vent path the reactor vessel does not have an effective means of relieving noncondensable gases to prevent a loss of reactor coolant system inventory. The inspectors evaluated this finding using Inspection Manual Chapter 0609, Appendix G, Attachment 1, and determined it be of very low safety significance based upon the demonstrated availability of mitigating systems and the flooded reactor cavity inventory. The inspectors determined the cause of the finding had a problem identification and resolution aspect in the corrective action program. Specifically, Wolf Creek's corrective actions were not successful to address the vent path blockage in a timely manner [P.1(d)].

Inspection Report# : [2009005](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

Failure Rates Exceed Twenty Percent for Biennial Requalification Exam

The inspectors reviewed a self-revealing finding associated with licensed operator performance on the biennial requalification exam. Specifically, 19 of 52 operators failed at least one portion of the biennial requalification examinations. As an immediate corrective action, the licensed operators who failed any portion of the examinations were remediated (i.e., the licensed operators were retrained and successfully retested) prior to returning to shift. The licensee entered this issue into their corrective action program as Condition Report 59491.

The inspectors determined that the licensed operator failures constituted a performance deficiency because licensed operators are expected to operate the plant within acceptable standards of knowledge and abilities demonstrated through periodic testing. The inspectors determined that the finding was more than minor in accordance with

Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because the performance deficiency was associated with the Mitigating Systems Cornerstone attribute of human performance, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, 19 of 52 licensed operators failed to demonstrate a satisfactory understanding of the required knowledge and abilities required to safely operate the facility under normal, abnormal, and emergency conditions. The inspectors determined that the finding could be evaluated using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix I, "Licensed Operator Requalification Significance Determination Process." The finding was of very low safety significance (Green) because the finding was related to the requalification exam results, did not result in a failure rate of greater than 40 percent, and the majority of the failed licensed operators were remediated (i.e., the licensed operators were retrained and successfully retested) prior to returning to shift. Two licensed operators had not completed the remediation process and remained off shift at the end of the inspection period. The finding has a cross-cutting aspect in the area of human performance associated with resources, because the licensee failed to ensure that personnel were adequately trained to assure nuclear safety. Specifically, the licensee failed to use sufficiently challenging weekly written evaluations during the weekly training cycles to assess licensed operator knowledge.

Inspection Report# : [2012005](#) (*pdf*)

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure that All License Conditions are Met for Licensed Operators

The inspectors identified a non-cited violation of 10 CFR 55.53, "Conditions of License," for the failure of the licensee to ensure that licensed operators met all the conditions of their licenses in order to be considered an active watch stander. Specifically, the licensee failed to ensure that six licensed operator reactivations met the complete plant tour requirement specified in 10 CFR 55.53(f) prior to license reactivation and subsequent performance of licensed operator duties. The licensee entered this finding into their corrective action program as Condition Report 58233.

Failure to ensure that all authorized individuals who operate the controls of the facility met the conditions of their licenses as defined in 10 CFR 55.53 was a performance deficiency. This finding was more than minor because it was associated with the human performance attribute of the Mitigating System Cornerstone and affected the cornerstone's objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, licensed operators that do not properly complete the requirements of 10 CFR 55.53(f) prior to resuming control room watchstanding duties may commit operator errors that could cause mitigating systems to fail to respond properly. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheets, the team was directed to use Appendix I, "Licensed Operator Requalification Significance Determination Process," to process the violation. However, the team determined that NRC Inspection Manual Chapter 0609, Appendix I, could not be used to process this finding due to a recent revision to the appendix. Based on direction from headquarters and regional management to use NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," the finding was determined to have very low safety significance because a prior similar violation's significance bounded this finding's significance. The prior similar violation occurred at Comanche Peak (NCV 05000445/2011004-02), and was determined to have very low safety significance per the last revision of NRC Manual Chapter 0609, Appendix I, because more than 20 percent of the license reactivation records reviewed contained these deficiencies. This finding was determined to have a cross-cutting aspect in the area of human performance, associated with resources, because the licensee failed to ensure complete, accurate, and up-to-date procedures were available and adequate to assure nuclear safety. Specifically, the licensee failed to specify in a procedure what plant areas must be included to meet the requirements of a complete plant tour.

Inspection Report# : [2012005](#) (*pdf*)

Significance: G Sep 28, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Operability Evaluations for a Single A/C Cooling its Associated Train

On August 30, 2012, inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for an operability evaluation that failed to adequately evaluate the operability of safety-related electrical equipment. On July 9, 2012, the inspectors identified that train B air conditioning unit SGK05B had a flow rate of 1,028 cfm below that of its design flow rate of 11,500 cfm during a flow rate surveillance test on June 8, 2011. Wolf Creek performed an operability evaluation when the inspectors questioned the test results. The inspectors found that the evaluation contained non-conservative errors in cooling coil capacity specifications, incorrect assumptions for heat conducted into the switchgear rooms, unaccounted for latent and sensible heat sources, and a single failure that was not considered. Wolf Creek then expanded the operability evaluations to both trains, was performing cause evaluations on the repetitive operability evaluations, and planned to reconstitute the design basis for the system. This was captured in condition reports 54791, 54865, 55712, 55994, 56020, 56253, 56014, 56966, and 28252.

The failure to perform an operability evaluation that accurately reflected the plant design was a performance deficiency. The performance deficiency is more than minor because it impacted the design control attribute of the Mitigating Systems Cornerstone and affected the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences because the licensee had to re-perform the evaluations to demonstrate that adequate capability existed. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," this finding was determined to be of very low safety significance because operability evaluations were ultimately able to demonstrate adequate heat removal capability for the Class IE electrical equipment rooms. The inspectors identified the cause of the finding had a crosscutting aspect in the area of problem identification and resolution because Wolf Creek did not thoroughly evaluate the problem such that the resolutions address causes and extent of conditions, as necessary. Specifically, the reduced flow rate was a narrow focus of the evaluation and did not consider ongoing system design problems in evaluating the losses of margin [P.1.c]. (Section 1R15).

Inspection Report# : [2012004](#) (*pdf*)

Significance: G Jul 09, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Safety-Related Fan Flow Rate Acceptance Criteria Reduced Below Design Basis

On July 9, 2012, the inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for inappropriately reducing the vital air conditioning unit fan flow rate test acceptance criteria to a value less than that used in the Updated Safety Analysis Report and supporting calculations. The inspectors identified that the train B air conditioning unit fan SGK05B improperly passed its surveillance test, procedure STS PE-16B, on June 8, 2011, at 10,472 cfm when the design flow rate is 11,500 cfm. A flow rate of 11,500 cfm was specified in all of Wolf Creek's design basis calculations. Reviewing the history, the inspectors found condition report 2001-3149 led to changing the test acceptance criteria on January 15, 2002. In that change, Wolf Creek misapplied standards for filtration and charcoal absorber units to the control building air conditioning units in order to justify reducing the minimum flow rate acceptance criteria by 10 percent for procedures STS PE-16A and -16B, "Train A[B] Class IE Elect System A/C System Flow Rate Verification," Revision 2. Wolf Creek initiated condition report 54791 and assessed the reduced flow rate impact in operability evaluation GK-12-011.

Changing surveillance test acceptance criteria by incorrectly applying standards while lowering the acceptance criteria below the minimum required flow rate is a performance deficiency. The performance deficiency is more than minor because it impacted the design control attribute of the Mitigating Systems Cornerstone and affected the 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,” this finding was screened to a Green because operability evaluation GK-12-011 demonstrated that the train B vital air condition unit had approximately 0.7 percent margin to cool the train B batteries, battery chargers, switchgear, and inverters. Therefore, there was not a loss of operability or functionality of a risk significant component. This issue did not screen as significant for fires, floods, or seismic events. The inspectors found the cause of the finding was not indicative of current performance because the inappropriate test procedure changes were made approximately 11 years ago (Section IR22).

Inspection Report# : [2012004](#) (*pdf*)

Significance: G Jun 29, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Unacceptable Leakage through Safety-Related Watertight Door during Loss of Offsite Power

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for a work order that did not accomplish a leak seal repair in accordance with its engineering evaluation. Valve BMV0037 is a safety related ASME Code Class 2 steam generator blowdown valve that had a body-to-bonnet steam leak. Wolf Creek and its vendor produced modification documents to perform a leak-seal repair. The inspectors identified that on December 10, 2011, Wolf Creek installed an injection port in the valve body in close proximity of another injection port. Work orders allowed the location of the injection ports to be determined by the work. The pair was not installed in accordance with change package 9385. After inspector questioning, Wolf Creek performed an evaluation that demonstrated that the valve body retained structural integrity. This issue was entered into the corrective action program under condition report 52992.

The failure to ensure that the configuration of a safety-related steam generator blowdown was controlled in accordance with the approved engineering change package during leak seal activities is a performance deficiency. This finding was more than minor because it impacted the procedure quality attribute of the Initiating Events Cornerstone and affected the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609, Appendix A, this finding was determined to be of very low safety significance because an evaluation after the modification was able to demonstrate structural integrity. Therefore, the finding does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment will not be available. The inspectors identified the cause of the finding had a human performance crosscutting aspect in the area of resources. Specifically, the licensee did not ensure that the work order instructions were complete, accurate, and reflected up-to-date design documentation sufficiently to control plant configuration in accordance with design [H.2.c] (Section 1R18).

Inspection Report# : [2012003](#) (*pdf*)

Significance: G Jun 01, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct a Condition Adverse to Fire Protection

The team identified a non-cited violation of License Condition 2.C.5.a for the failure of the licensee to identify and correct a condition adverse to fire protection. Specifically, the licensee failed to identify an adverse trend in the diesel driven fire water pump oil samples and take appropriate corrective actions. The licensee’s corrective actions included installing a new diesel driven fire water pump, revising the oil sample procedure to increase the sensitivity to the presence of water, and evaluating further corrective actions. This issue was entered into the licensee’s corrective action program as Condition Report 43710.

This performance deficiency was more than minor because it affected the Mitigating Systems Cornerstone attribute of protection against external factors (fire) and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Corrective actions to address the adverse condition were not taken, which led to the catastrophic failure of the right-angle drive for the diesel driven fire water pump. The team performed the significance determination using NRC Inspection Manual

Chapter 0609, Attachment 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” dated January 10, 2008, because it affected the Mitigating Systems Cornerstone while the plant was at power, and concluded the finding needed additional screening under Appendix F, “Fire Protection Significance Determination Process,” dated February 28, 2005. The team determined that the condition represented a low degradation of the fire protection program element of fixed fire protection systems due to a loss of the diesel driven fire water pump, and using Figure F.1 the finding was determined to be of very low safety significance based on Task 1.3.1. In addition, this finding had a problem identification and resolution cross cutting aspect associated with the corrective action program component in that the licensee failed to thoroughly evaluate problems such that resolutions address causes and extent of condition [P.1(c)] (Section 40A5.10).

Inspection Report# : [2012009](#) (*pdf*)

Significance: G Jun 01, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure for Temporary Fire Pump

The team reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.d for the failure to have procedures appropriate for the implementation of fire protection compensatory measures. Specifically, Procedure SYS FP-290, “Temporary Fire Pump Operations,” Revision 10, did not have appropriate guidance for the installation and operation of a temporary diesel driven fire water pump. This pump was a compensatory action for the nonfunctional normally installed diesel driven fire water pump. The licensee’s corrective actions included revising Procedure SYS FP-290 to provide adequate instructions to operate the temporary diesel driven fire water pump continuously to preclude another loss of fire water suppression capability; completing a temporary modification for the installation of the temporary diesel driven fire water pump; and replacing the permanently installed diesel driven fire water pump. This issue was entered into the licensee’s corrective action program as Condition Reports 43710 and 51821.

This performance deficiency was more than minor because it affected the Mitigating Systems Cornerstone attribute of protection against external factors and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inadequate procedure contributed to the delayed recovery of the fire water system for approximately 9 hours. A Phase 1 screening identified that the issue should be evaluated under NRC Inspection Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process.” A Region IV Senior Reactor Analyst, who determined that NRC Inspection Manual 0609, Appendix F, “Fire Protection Significance Determination Process,” was not a good tool to evaluate this issue because the firewater system was credited in both the fire suppression and the internal events probabilistic risk assessment models. Therefore the analyst performed a bounding detailed risk evaluation for this performance deficiency. The exposure period of 68 days was used for the time when the pump was placed in a cold-weather alignment. The senior reactor analyst determined that bounding change to the core damage frequency was $5.9E-7$ per year. The dominant core damage sequences included loss of offsite power initiating events (including fire induced loss of offsite power events), the failure of component cooling water, and the failure to establish alternate lube oil cooling to the charging and high pressure safety injection pumps. The availability of the motor-driven pump, the limited frequency of risk significant fire induced loss of offsite power events, and the availability of front line lube oil cooling systems, such as component cooling water, helped to mitigate the finding’s significance. This finding had a human performance cross-cutting aspect associated with the decision making component in that the licensee failed to make safety-significant decisions using a systematic process to ensure safety was maintained while reviewing changes to the plant and procedures necessary to implement required compensatory measures [H.1(a)] (Section 40A5.8).

Inspection Report# : [2012009](#) (*pdf*)

Significance: G Jun 01, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Preventative Maintenance Procedure on Turbine Driven Auxiliary Feedwater Pump

The team reviewed a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the failure to have an adequate preventative maintenance procedure, PM 28129, “Refueling Inspection of the Trip Tappet.” Specifically, the dimensional criterion for the head lever to tappet nut engagement was not verified to be in accordance with vendor recommended criteria. The licensee’s corrective actions included replacement of the trip tappet nut, trip lever, and trip linkage spring, as well as, inspecting all contact points on the trip linkage for damage or wear and specifying a more precise method of measuring the head lever to tappet nut engagement. This issue was documented in the licensee’s corrective action program as Condition Report 47658. This finding was more than minor because it affected the Mitigating Systems Cornerstone attributes of Human Performance and Procedure Quality and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This deficiency resulted in the potential of the turbine driven auxiliary feedwater pump to trip during a seismic, or other jarring events. The team performed the significance determination using NRC Inspection Manual Chapter 0609, Attachment 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” dated January 10, 2008, because it affected the Mitigating Systems Cornerstone while the plant was at power. The Phase 1 screened to a Phase 3 because the finding was potentially risk significant due to seismic external initiating event core damage sequences. A Senior Reactor Analyst performed a Phase 3 analysis. The performance deficiency was determined to impact seismic events, since a seismic event could jar the mechanism enough to trip the turbine. Assuming all seismic events would trip the turbine, the analyst used SPAR-H to evaluate operator action to reset the trip mechanism. Considering the recovery, and conservatively assuming a zero baseline, the Delta-CDF of the finding was 7.9E-9/yr, or very low safety significance (Green). This finding did not have any cross-cutting aspects because the preventative maintenance procedure was changed in 1999 and no other procedure changes since then would have caused the licensee to review this change, therefore, it is not representative of current licensee performance (Section 40A5.3).

Inspection Report# : [2012009](#) (*pdf*)

Significance:  May 26, 2012

Identified By: NRC

Item Type: VIO Violation

Failure to Take Timely corrective Action to Preclude Repetition

The inspectors identified a violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to take corrective action to preclude repetition of system leaks due to water hammer events in the essential service water system. Extensive inadequately evaluated corrosion in the system has led to multiple water-hammer-induced leaks of essential service water piping. These leaks were the subject of two previous violations issued by the NRC. The licensee failed to take timely corrective action to restore compliance. The licensee entered this finding in its corrective action program as condition report 53443.

The failure to preclude recurrence of water hammer in the essential service water system and the failure to take adequate corrective action to control internal pitting corrosion in essential service water system piping was a performance deficiency. The deficiency was more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. It is therefore a finding. Using Inspection Manual Chapter 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” the team determined that the finding was of very low safety significance (Green) because the finding was a design or qualification deficiency that was confirmed not to result in loss of system operability or functionality. This finding has a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance (P.1(d)). (Section 40A2.5.c)

Inspection Report# : [2012007](#) (*pdf*)

Significance: G May 26, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure to Implement Compensatory Measures

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to adequately translate design information into procedures and requirements. Specifically, the licensee had information that its calculation for vital switchgear cooling included nonconservative assumptions. These assumptions called into question the ability of air conditioning systems to adequately cool Class 1E switchgear under all design conditions. The licensee failed to revise procedures to include compensatory actions necessary to ensure the vital switchgear remained operable. The licensee entered this finding in its corrective action program as condition report 53393.

The inspectors determined that the licensee’s failure to adequately translate design information into procedures was a performance deficiency. The performance deficiency is more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the team determined the finding was of very low safety significance (Green) because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding has a cross-cutting aspect in the corrective action component of the problem identification and resolution cross-cutting area because the licensee failed to thoroughly evaluate the problem such that its resolution addressed its causes and extent of conditions (P.1(c)). (Section 4OA2.5.a)

Inspection Report# : [2012007](#) (*pdf*)

Significance: G May 26, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely Corrective Action

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to effectively correct deficient procedures regarding the use of clearance orders. A number of clearance-related problems revealed several deficiencies in procedures to ensure that safe tag-out of equipment occurred prior to the start of work, that independent reviews of qualified individuals were being completed during clearance order preparation, and that effective training was being conducted where performance gaps were identified. The licensee failed to correct these deficiencies in a timely manner. The licensee entered this finding in its corrective action program as condition report 53451.

The team determined that the failure to correct an adverse trend in the use of clearance orders was a performance deficiency. This finding was more than minor because if left uncorrected, it could lead to a more significant safety concern. Specifically, continued failure to establish the correct clearance order boundaries could result in the loss of configuration control for systems required to maintain nuclear safety. Using Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the team determined that this finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The team determined that this finding has a cross-cutting aspect in the resources component of the human performance cross-cutting area because the licensee failed to ensure complete, accurate and up-to-date design documentation, procedures, and work packages were available and adequate to support nuclear safety (H.2(c)). (Section 4OA2.5.d)

Inspection Report# : [2012007](#) (pdf)

Significance: G May 26, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Complete Corrective Actions

The team identified a non-cited violation of 10 CFR Part 50, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to establish adequate procedures for resolution of corrective actions. Specifically, the licensee failed to establish procedures to ensure that planned corrective actions were effectively implemented. The licensee entered this finding in its corrective action program as condition report 53432.

The failure to establish adequate procedures for resolution of corrective actions was a performance deficiency. This finding was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, failure to establish adequate procedures for resolution of corrective actions could result in important actions not being accomplished. Using Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” this finding was determined to be of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the decision making component of the human performance cross-cutting area because the licensee failed to demonstrate that nuclear safety is an overriding priority by making safety-significant or risk-significant decisions using a systematic process (H.1(a)). (Section 4OA2.5.e)

Inspection Report# : [2012007](#) (pdf)

Significance: G May 26, 2012

Identified By: NRC

Item Type: VIO Violation

Failure to Implement Procedures to Test Safety-Related Equipment

The team identified a violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to perform testing of safety-related spring-loaded tornado dampers in the emergency diesel generator and essential service water rooms. In 2008, the licensee identified that because the updated safety analysis report (USAR) incorrectly classified these active components as passive, they had not been included in a periodic testing or surveillance program. Since 2010, action items to test the dampers have received four due date extensions.

Additionally, required training for this testing was completed and closed. However, no testing or surveillance was accomplished. This failure was the subject of a previous violation issued by the NRC. The licensee failed to take timely corrective actions to restore compliance. The licensee entered this finding in its corrective action program as condition report 53363.

The team determined that the licensee’s failure to implement corrective action was a performance deficiency. This finding was more than minor because it affected the equipment reliability attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failure to implement this corrective action could result in reduced reliability of safety-related equipment during an event initiated by a tornado. Using Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the team determined that this finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, and during a tornado, would not cause a plant trip if failed, would not degrade two or more trains of a multi-train safety system, and would not degrade one or more trains of a system that supports a safety system or function. This finding has a cross-cutting aspect in the resources component of the human performance cross-cutting area because the licensee failed to provide complete, accurate, and up-to-date design documentation, procedures, and work packages were available and adequate to support nuclear safety (H.2(c)). (Section 4OA2.5.f)

Inspection Report# : [2012004](#) (pdf)

Inspection Report# : [2012007](#) (pdf)

Significance:  May 26, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Prevent Recurrent of Component Cooling Water System Voiding

On February 23, 2011, a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was revealed when an anomalous start of component cooling water pump B indicated gas voiding in the component cooling water piping. This violation was due to the licensee's inadequate root cause evaluation and failure to prevent recurrence of the voiding that had previously occurred in May 2010. The licensee entered this finding in its corrective action program as condition report 33925.

The failure to properly identify design issues as a root cause and to take action to prevent the recurrence of a component cooling water system voiding was a performance deficiency. The performance deficiency is more than minor because it impacted the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, excessive voiding of the component cooling water system could lead to lack of cooling to important safety-related components. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the team determined that the issue was of very low safety significance (Green) because it did not represent a loss of system safety function or loss of a single train longer than its technical specification allowed outage time. This finding has a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee failed to thoroughly evaluate a problem such that its resolution addressed its cause and extent of condition. Specifically, condition report 25918 did not properly identify design issues as a root cause requiring immediate system modifications to preclude recurrence (P.1 (c)). (Section 4OA2.5.g)

Inspection Report# : [2012007](#) (pdf)

Significance:  May 26, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Evaluate the Suitability of Nonsafety-related Gaskets, O-Rings, and Seals Installed in Safety-Related Equipment and to Identify Extent of the Condition

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to evaluate the suitability of nonsafety-related gaskets, o-rings, and seals installed in safety-related components. These nonsafety-related parts were originally installed due to erroneous Safety Classification Assessments. After determining that the parts were inappropriate in safety-related joints, the licensee failed to promptly correct the condition and failed to fully identify which components were affected. The licensee entered this finding in its corrective action program as condition report 53456.

The failure of the licensee to evaluate the suitability of the specific nonsafety-related material installed in safety-related equipment and to determine the extent to which this condition existed was a performance deficiency. This performance deficiency was more than minor because it affected the design control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the inadequate evaluation of nonsafety-related gaskets, o-rings, and seals installed in safety-related equipment adversely affected the reliability of the affected systems. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the team determined that the finding was of very low safety significance (Green) because the finding was a design or qualification deficiency confirmed not to result in loss of operability or functionality. This performance deficiency had a cross-cutting aspect in the

corrective action program component of the problem identification and resolution cross-cutting area because the licensee did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity (P.1(d)). (Section 40A2.5.h)

Inspection Report# : [2012007](#) (*pdf*)

Significance: G May 26, 2012

Identified By: NRC

Item Type: FIN Finding

Inappropriately High Threshold for Condition Report Initiation

The team identified a finding for the licensee's failure to ensure that condition reports were initiated as required by procedure. The licensee's implementing procedure for its corrective action program did not contain clear guidance as to what conditions were required to be entered into the corrective action program, or how soon after discovery the condition report was required to be generated. The team identified several examples where condition reports were not generated, though it appeared from the guidance that they were required. The licensee entered this finding in its corrective action program as condition report 53445.

The failure of licensee personnel to promptly initiate condition reports for identified issues, contrary to procedural requirements, is a performance deficiency. This performance deficiency is more than minor because if left uncorrected, it could lead to a more significant safety concern. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the team determined that this finding was of very low safety significance (Green) because it did not involve a design or qualification deficiency, did not represent a loss of system safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the resources component of the human performance cross-cutting area because the licensee failed to ensure procedures necessary for complete, accurate, and up-to-date procedures were available and adequate to support nuclear safety. Specifically, the corrective action program procedure was vague in its guidance as to when a condition report was required (H.2(c)). (Section 40A2.5.i)

Inspection Report# : [2012007](#) (*pdf*)

Barrier Integrity

Significance: G Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Control Room Air Conditioning Technical Specification Surveillance Requirements

The inspectors identified a non-cited violation for failure to perform surveillance testing specified in Technical Specification 3.7.11, "Control Room Air Conditioning System." The activities the licensee was crediting to meet the requirement to verify heat removal capability were not adequate to meet the intent of the requirement. Specifically Wolf Creek was crediting their Generic Letter 89-13 heat exchanger reliability program actions to visually clean and inspect the condenser tubes to meet a heat exchanger performance test requirement which required measuring heat removal capability. Wolf Creek entered Surveillance Requirement 3.0.3 for the missed surveillance. Based on analyses by operations, engineering, and risk assessment personnel it was determined that reasonable expectation existed that air conditioning units SGK04A and SGK04B were still fully capable of meeting their specified safety function. Therefore, the air conditioning units were "Operable but Non-Conforming," and it was appropriate to consider the limiting condition for operation met for a delay time not to exceed the surveillance period of 18 months.

The licensee entered this issue into their corrective action program as Condition Report 54906.

The inspectors determined that the failure to perform sufficient testing to satisfy a technical specifications surveillance requirement is a performance deficiency. The performance deficiency was more than minor because it impacted the structures, systems, and components and barrier performance attribute for the control room and auxiliary building and the Barrier Integrity Cornerstone objective to provide reasonable assurance that the radiological barrier remains functional. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 3, "Barrier Integrity Screening Questions," the finding was determined to be of very low safety significance (Green) because it did not represent an actual degradation of the barrier function of the control room to protect the operators inside from smoke or a toxic atmosphere. The issue has no cross-cutting aspect associated with it because it is not indicative of current licensee performance.

Inspection Report# : [2012005](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Sep 28, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow ALARA Planning Procedures

The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.4.1.a, resulting from the licensee's failure to follow ALARA planning procedures. Nonsafety-related gaskets were used, inadequate walkdowns were conducted, and work activities were not planned in the most efficient manner. Consequently, the collective dose for Radiation Work Permit 11-2000 was approximately 7.626 person-rem instead of the planned 2.1 person-rem. Corrective actions were still being evaluated.

The failure to implement ALARA planning in accordance with procedural guidance was a performance deficiency. This finding was greater than minor because it was associated with the Occupational Radiation Safety Cornerstone, exposure control attribute, and affected the cornerstone objective, in that, it caused increased collective radiation dose for occupational workers. Additionally, the finding was similar to example 6(i) in Appendix E to Inspection Manual Chapter 0612, "Power Reactor Inspection Reports – Examples of Minor Issues." This example states that an issue is more than minor if it results in a collective dose greater than 5 person-rem, and the actual dose exceeds the estimated dose by greater than 50 percent. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding had very low safety significance because, although the finding involved ALARA planning and work controls, the licensee's latest 3-year rolling average collective dose was less than 135 person-rem. This finding had a crosscutting aspect in the human performance area, associated with the work practices component because the ALARA Committee provided no feedback on the quality or comprehensiveness of the planning of Radiation Work Permit 11-2000, and radiation protection and maintenance supervisors failed to provide adequate oversight of daily ALARA activities [H.4(c)] (Section 2RS02).

Inspection Report# : [2012004](#) (*pdf*)

Significance:  Sep 27, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Radiation Protection Procedures

The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.4.1.a, which resulted from a worker failing to follow radiation protection procedures. A radiation worker, in a high noise area, received an electronic alarming dosimeter dose rate alarm, but failed to immediately stop work, notify co-workers, leave the area, and contact health physics as instructed by the radiation work permit and procedures. In response, the licensee investigated the occurrence, coached the individual on human performance tool usage, and restricted the individual's access to the radiological controlled area. The licensee implemented actions to consider the use of dosimeters with enhanced sound, vibration alarms, and/or visual alarms. This issue was documented in the licensee's corrective action program as condition report 56059.

The failure to follow radiation protection procedures was a performance deficiency. The performance deficiency was more than minor because, if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Additionally, the performance deficiency was similar to an example in Appendix E to Inspection Manual Chapter 0612, "Power Reactor Inspection Reports – Examples of Minor Issues." Example 6(h) states that an issue is more than minor if an individual continues to work in a high radiation area after receiving an electronic dosimeter alarm without taking the prescribed procedural actions. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding had very low safety significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This finding had a crosscutting aspect in the human performance area, resources component, because the licensee failed to ensure adequate equipment, such as volume enhanced alarming dosimeters, were available to assure nuclear safety [H.2(d)] (Section 2RS01).

Inspection Report# : [2012004](#) (*pdf*)

Public Radiation Safety

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.

Miscellaneous

Last modified : June 04, 2013