

# Wolf Creek 1

## 3Q/2016 Plant Inspection Findings

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### Initiating Events

**Significance:**  Jun 30, 2016

Identified By: NRC

Item Type: FIN Finding

#### **Failure to evaluate and address failures of prior corrective actions to prevent repeat events**

The team identified several examples in which multiple station events had occurred due to similar programmatic or organizational-behavior causes (i.e., potential gaps in nuclear safety culture). The licensee's evaluations for these repeat events and issues having similar causes to previous events do not effectively evaluate why corrective actions for the earlier events had failed to eliminate the safety culture or organizational performance gaps that allowed the events to occur, despite requirements in the licensee's corrective action program procedures to perform such evaluations.

The licensee's failure to determine and correct the causes of previous events when evaluating subsequent events for cause and corrective actions, as required by corrective action program procedures, was a performance deficiency. This performance deficiency was more than minor because if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, the licensee's continued failure to ensure causes of conditions are effectively corrected has the potential to lead to a preventable initiating event. Therefore, this finding is associated with the Initiating Events cornerstone. Using the transient initiators and support system initiators screening questions from Exhibit 1 of Inspection Manual Chapter 0609 Appendix A, the team determined that this finding was of very low safety significance (Green) because the finding did not cause a reactor trip or the complete or partial loss of a support system that contributed to the likelihood of an initiating event. This was a programmatic failure within the corrective action program that contributed to, but did not directly cause, the individual events; each individual event that evidenced this programmatic failure had been previously evaluated by the NRC to determine if a performance deficiency existed and, if so, separately screened. This finding has an evaluation cross-cutting aspect in the problem identification and resolution cross-cutting area because the organization failed to thoroughly evaluate issues to ensure that resolutions addressed causes and extents of condition commensurate with their safety significance (P.2). Specifically, underlying organizational and safety culture contributors to issues were not thoroughly evaluated and given the necessary time and resources to be clearly understood, and managers failed to effectively conduct effectiveness reviews of significant corrective actions to ensure that the resolution effectively addressed the causes. Inspection Report# : [2016009 \(pdf\)](#)

**Significance:**  Nov 24, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

#### **Failure to Provide Adequate Instructions for Control of Feedwater Flow in Startup Procedures**

The inspectors reviewed a self-revealing Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because the licensee did not assure the procedures for reactor startup were appropriate to the circumstances. Specifically, prior to May 3, 2015, the licensee failed to include adequate instructions for transferring feedwater flow from the main feedwater regulating valve bypass valves to the main feedwater regulating valves in Procedure GEN 00-003, "Hot Standby to Minimum Load." As a result, operations personnel did not properly control feedwater flow during a reactor startup, which led to a plant trip on May 3, 2015.

The licensee entered this condition into their corrective action program as Condition Reports 96064 and 100583. The corrective action taken to restore compliance was to revise Procedure GEN 00-003 to update the process for transferring main feedwater control from the main feedwater regulating valve bypass valves to the main feedwater regulating valves, including the monitoring of necessary parameters steam flow and feedwater flow.

The failure to assure the procedures for reactor startup were appropriate to the circumstances was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the human performance attribute of the initiating events cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, prior to May 4, 2015, the licensee did not provide adequate guidance for the control of feedwater flow during plant startup, resulting in a plant trip on May 3, 2015. Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, the inspectors determined that the finding was of very low safety significance (Green) because the finding did not cause a trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. Specifically, following the plant trip, all mitigation equipment responded as designed.

The inspectors concluded that the finding reflected current licensee performance and had a cross-cutting aspect in the area of human performance, avoid complacency, in that the licensee did not recognize and plan for the possibility of mistakes, latent issues, and inherent risk even while expecting successful outcomes. Specifically, the licensee did not recognize and plan for potential of mistakes when using a procedure that did not contain adequate guidance for minimizing mismatches in steam flow and feedwater flow.(H.12)

Inspection Report# : [2015009](#) (*pdf*)

**G**

**Significance:** Nov 24, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

**Failure of the Plant Referenced Simulator to Demonstrate Expected Plant Response**

The inspectors reviewed a self-revealing Green non-cited violation of 10 CFR 55.46(c)(1), "Plant-referenced Simulators," due to the licensee's failure to maintain a plant-referenced simulator used for the administration of the operating test such that it would demonstrate expected plant response to operator input and to normal, transient, and accident conditions to which the simulator has been designed to respond. Specifically, until June 13, 2015, the licensee failed to maintain the simulator consistent with actual plant response when using the main feed regulating valves in manual control. The licensee entered this condition into their corrective action program as Condition Report 96252. The corrective action taken to restore compliance was to change the simulator modeling of the main feedwater regulating valve controller to match the installed plant controllers.

The failure to maintain the plant-referenced simulator such that it would accurately reproduce the operating characteristics of the facility was a performance deficiency. The performance deficiency is more than minor because it adversely affected the human performance attribute of the initiating events cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, prior to June 13, 2015, the licensee failed to maintain the simulator consistent with actual plant response when using the main feed regulating valves in manual control, which impacted operator control of the plant during power operations. Using NRC Inspection Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)," issued December 6, 2011, the inspectors determined that the finding was of very low safety significance (Green) because the deficient simulator performance did not negatively impact operator personnel performance in the actual plant during a reportable event. Specifically, after the trip occurred the operators took all appropriate required actions.

The inspectors concluded that the finding did not have a cross-cutting aspect because the finding was not indicative of current performance. The configuration change that introduced the error occurred more than three years before the event. Specifically, the discrepancy between the simulator and the plant manual controller rates had existed since

simulator use began in 1985.

Inspection Report# : [2015009](#) (*pdf*)

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## Mitigating Systems

**Significance:**  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Adequately Adjust Testing and Preventive Maintenance for Safety-Related Lockout Relays**

The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, for the licensee's failure to adequately adjust testing and preventive maintenance activities in accordance with Procedure AP 16B-003, "Planning and Scheduling Preventive Maintenance," Revision 5. Specifically, the licensee did not adjust a preventive maintenance task for a General Electric HEA 86 lockout relay and test the relay in accordance with vendor recommendations and industry operating experience, which resulted in the NB0215 186/M lockout relay associated with the B essential service water pump motor breaker failing as-found testing on August 2, 2016. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, for the licensee's failure to adequately adjust testing and preventive maintenance activities in accordance with Procedure AP 16B-003, "Planning and Scheduling Preventive Maintenance," Revision 5. Specifically, the licensee did not adjust a preventive maintenance task for a General Electric HEA 86 lockout relay and test the relay in accordance with vendor recommendations and operating experience, which resulted in the NB0215 186/M lockout relay associated with the B essential service water pump motor breaker failing as-found testing on August 2, 2016. The licensee's corrective actions included replacing the armature assembly associated with the relay and retesting the relay satisfactorily. Additional corrective actions to address the preventive maintenance activities are expected as a result of Condition Reports 108440 and 108548.

This finding is more than minor because it is associated with 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, with the NB0215 186/M lockout relay failed on or before August 2, 2016, the safety-related 4160 volt NB02 bus was susceptible to locking out as a result of an overcurrent condition. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined this finding is not a deficiency affecting the design or qualification of a mitigating structure, system, or component that maintained its operability or functionality; the finding does not represent a loss of system and/or function; the finding does not represent an actual loss of function of at least a single train for greater than its Technical Specification-allowed outage time; and 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. The finding has a cross-cutting aspect in the area of problem identification and resolution, operating experience, because the organization did not systematically and effectively evaluate relevant internal and external operating experience in a timely manner. This issue is indicative of current performance because the station did not take corrective actions to address the station's failure to adequately consider operating experience, the station did not recognize the need to revise the testing and maintenance strategy following the August 2, 2016, failure, and the same failure would be expected to occur.

Inspection Report# : [2016003](#) (*pdf*)

**Significance:**  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Adequately Establish Control Room Air Conditioning System Testing Flow Rate Acceptance Criteria**

The inspectors identified a Green non-cited violation of Technical Specification Limiting Condition for Operation 3.7.11 and 3.0.3 for the licensee's failure to place the unit in mode 3 within 7 hours, mode 4 within 13 hours, and mode 5 within 37 hours with two trains (SGK04A and SGK04B) of the control room air conditioning system (CRACS) inoperable. Specifically, the licensee failed to adequately establish CRACS testing flow rate acceptance criteria, which resulted in train A of the safety-related CRACS being inoperable from October 11, 2005, to August 13, 2013; and train B being inoperable from October 3, 2002, to July 18, 2013. The licensee's immediate corrective actions included corrective maintenance on the CRACS to increase the airflow to meet acceptance criteria limits. Condition Report 105208 was initiated by the licensee for any necessary process changes and extent of condition actions.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors utilized Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 2 of Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," and determined this finding was not a deficiency affecting the design or qualification of a mitigating SSC that maintained its operability or functionality, the finding did not represent a loss of system and/or function, the finding did not represent an actual loss of function of at least a single train for greater than its Technical Specification allowed outage time, and the finding did not represent an actual loss of function of one or more non-Technical Specification trains of equipment designated as high safety-significant. Therefore, the inspectors determined the finding was of very low safety significance (Green). The finding has a cross-cutting aspect in the area of human performance, change management, because leaders did not use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, there is not currently a formal process for procedure writers to consider measurement uncertainty when establishing and changing testing acceptance criteria, which resulted in extended inoperability of both the SGK04A and SGK04B units following significant changes to Technical Specifications that included adding surveillance requirements for the SGK04A and SGK04B units in 1999. This issue is indicative of current performance because the same issue would be expected to occur today.

Inspection Report# : [2016002](#) (*pdf*)

**Significance:** G Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Identify and Correct Negative Trend in Breach Permit Corrective Actions**

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," associated with the licensee's failure to identify and correct a condition adverse to quality. Specifically, between October 2012 and June 2016, the licensee identified 15 instances of individuals failing to properly issue or use breach permits per the licensee's procedures, yet failed to identify or address this site-wide adverse trend.

The failure to identify and correct a negative trend in the proper issuance and use of breach permits was a performance deficiency. This performance deficiency was more than minor because it negatively affected the protection against external factors attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, the team determined that this finding was of very low safety significance (Green) because it did not result in the loss of operability or functionality of the system, structure, or component. This finding has a trending cross-cutting aspect in the problem identification and resolution cross-cutting area because the licensee failed to periodically analyze information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues (P.4). Specifically, the licensee did not address numerous site-wide breach permit issues concerning the corrective actions, only addressing the individuals involved.

Inspection Report# : [2016009](#) (*pdf*)

**Significance:**  Apr 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Inadequate Degraded Voltage Analyses of Class 1E Systems**

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, “The design control measures shall provide for verifying or checking the adequacy of design, such as by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.” Specifically, prior to April 28, 2016, the licensee failed to verify the adequacy of the design of the Class 1E electrical equipment, because it failed to perform adequate analyses demonstrating 1) that the degraded voltage relay setpoints specified in technical specifications would ensure adequate voltage to safety-related equipment, 2) adequate voltage would be available to the safety-related loads during transient voltage conditions caused by load sequencing, and 3) that the degraded voltage relay-associated time delays provide timely separation from offsite power and transfer to the emergency diesel generator to ensure that the Class 1E safety-related loads can achieve their safety function without protective device tripping. In response to these issues, the licensee performed preliminary analyses to demonstrate that the Class 1E electrical equipment would function at degraded voltages and was operable. This finding was entered into the corrective action program as Condition Reports 47791, 104253, 104098, 104389, and 104390.

The team determined the licensee’s failure to ensure the adequacy of the design of the Class 1E electrical equipment was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the design control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee’s electrical analyses failed to verify degraded voltage relay setpoints specified in technical specifications would ensure adequate voltage to safety-related equipment, that adequate voltage would be available to the safety-related loads during transient voltage conditions caused by load sequencing, and that degraded voltage relay time delays would provide timely separation from offsite power and transfer to the emergency diesel generator to ensure that the Class 1E safety-related loads can achieve their safety function without protective device tripping. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated July 19, 2012, the finding screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not result in 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. This finding did not have a cross-cutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : [2016007](#) (*pdf*)

**Significance:**  Apr 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Verify the Adequacy of Design of the Control Circuitry of the Fuel Oil Transfer Pumps**

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, “The design control measures shall provide for verifying or checking the adequacy of design, such as by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.” Specifically, prior to April 28, 2016, the licensee failed to verify the adequacy of the design of the fuel oil transfer pump control circuitry to ensure that the thermal overloads associated with the fuel oil transfer pump would

not activate, trip the pump, and render the emergency diesel generator inoperable in the case of excessive cycling. In response to this issue, the licensee conducted a preliminary evaluation of the fuel oil transfer pump and confirmed there is not any significant active leakage on the day tank which would lead to excessive cycling, and that starting currents are sufficiently below the thermal overload trip settings and are unlikely to trip the pump. Additionally, the licensee planned to initiate a program to determine fuel oil leakage from the day tank and require operators to initiate interim corrective actions until final corrective actions can be determined. This finding was entered into the licensee's corrective action program as Condition Report 104066.

The team determined the failure to evaluate the effects of cyclical fuel oil transfer pump operation was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the design control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the design of the fuel oil transfer pump control circuitry does not prevent activation of the pump thermal overloads that would trip the pump and render the emergency diesel generator inoperable in the event of cyclical operation of the fuel oil transfer pump. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated July 19, 2012, the finding 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. This finding did not have a cross-cutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : [2016007](#) (pdf)

**Significance:**  Apr 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Inadequate Analysis of Essential Service Water Piping**

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, "The design control measures shall provide for verifying or checking the adequacy of design, such as by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program." Specifically, prior to April 28, 2016, the licensee failed to verify the design of the essential service water piping because the analyses assumed that the essential service water piping upstream of the containment air coolers was full of water after a loss of offsite power. However, the essential service water pump check valve was never tested to ensure water would not drain from the essential service water piping. In response to this issue, the licensee conducted a preliminary evaluation using data from the last surveillance test and inspection of the check valve, and concluded that the worst-case expected leakage through the check valve was not large enough to cause a water hammer event in the piping that exceeded operability criteria. This finding was entered into the licensee's corrective action program as Condition Reports 104222 and 104184.

The team determined that the failure to verify the adequacy of the design of the essential service water piping was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the design control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to account for check valve leakage in the essential service water system led to a non-conservative assumption that the piping upstream of the containment air coolers would not drain after a loss of offsite power, which contributes to water hammer events that could challenge the integrity of the piping. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At Power," dated July 19, 2012, the finding 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. This finding was assigned a cross cutting aspect in the area of problem identification and resolution, specifically operating experience, because the water hammer issue was previously documented in several NRC inspection reports, the licensee made recent modifications to the system, and a ‘companion’ check valve in the normal service water system was installed and correctly categorized in the inservice testing basis document. The operating experience cross-cutting aspect requires that the licensee systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner.

Inspection Report# : [2016007](#) (*pdf*)

**Significance:**  Apr 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Promptly Correct Deficiencies With Operator Time Critical Actions**

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” which states, in part, “Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.” Specifically, prior to April 28, 2016, the licensee failed to correct deficiencies identified in 2012 for operator time critical actions associated with control room habitability; in 2013 after revising training materials for control room habitability time critical actions; in a 2014 condition report documenting the failure to validate scenarios in the time critical action program; and again in a 2015 self-assessment of the time critical action program. During the inspection, five out of six operators in a test crew failed to complete the control room habitability scenario within the required two minutes. In response to this finding, the licensee performed just-in-time training to remediate the crews and ensure time critical actions can be met. After re-training, each crew successfully performed the control room habitability time critical action within the two-minute requirement. This finding was entered into the licensee's corrective action program as Condition Reports 103910, 103915, and 103658.

The team determined the failure to correct the deficiencies with the control room habitability time critical action was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the human performance attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, operators failed to meet the time critical action for the control room habitability scenario within the required two minutes. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At Power,” dated July 19, 2012, the finding 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. This finding had a cross-cutting aspect in the area of human performance associated with training because the licensee failed to provide training and ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.

Inspection Report# : [2016007](#) (*pdf*)

**Significance:**  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Adequately Establish and Adjust Preventive Maintenance Activities for Control Room Air Conditioning Unit SGK04A Sensing lines and Fittings**

The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a for the licensee’s failure to adequately develop and adjust preventive maintenance activities in accordance with Procedure AP 16B-003,

“Planning and Scheduling Preventive Maintenance,” Revision 5. Specifically, the licensee did not adequately develop a preventive maintenance replacement task and schedule for control room air conditioning unit SGK04A refrigerant sensing lines and fittings. The licensee’s immediate actions included securing and declaring the SGK04A system inoperable, completing corrective maintenance to eliminate the refrigerant leak, and confirming that the impacted preventive maintenance frequency was adequately established. The licensee entered this condition into the corrective action program as Condition Reports 101862 and 101867.

This finding is more than minor because it is 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. The inspectors utilized Inspection Manual Chapter 0609, Appendix A, “Significance Determination Process (SDP) for Findings At-Power,” issued June 19, 2012. The inspectors determined this finding is not a deficiency affecting the design or qualification of a mitigating structures, systems, and components (SSC) that maintained its operability or functionality, the finding does not represent a loss of system and/or function, the finding does not represent an actual loss of function of at least a single train for greater than it Technical Specification allowed outage time, and 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. Therefore, the inspectors determined the finding was of very low safety significance (Green). The finding has a cross-cutting aspect in the area of human performance, resources, because leaders did not ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, leaders did not ensure procedures and other resource materials were available to support successful work performance when setting preventive maintenance activity base dates, which resulted in the licensee failing to adequately develop and adjust preventive maintenance activities associated with control room air conditioning unit SGK04A refrigerant sensing lines and fittings.

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

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: VIO Violation

#### **Inadequate Measures to Assure SGK05A Issues Were Promptly Corrected**

The inspectors identified a Green cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s inadequate measures to assure that corrective action was taken to preclude repetition of a significant condition adverse to quality. Specifically, measures to correct train A Class 1E electrical equipment air conditioning system (SGK05A) issues following two trips of the unit on October 18, 2013, failed to preclude repetition, which resulted in the SGK05A unit tripping twice on May 15, 2015; the train A safety-related batteries, inverters, and alternating and direct current buses being declared inoperable due to the loss of area cooling; two separate Technical Specification 3.0.3 entries; and separate technical specification required reactor power reductions to 93 and 94.7 percent. The licensee’s immediate corrective actions included troubleshooting to determine the direct cause of the compressor trips, stationing a dedicated operator following the second trip on May 15, 2015, and subsequently implementing Temporary Modification 15-013-GK-00, which restored compliance. Actions to prevent recurrence following the May 15, 2015, SGK05A trips, documented in apparent cause evaluation 96392, included conducting a seminar with station managers to review lessons learned from the event, completing a change package to replace the SGK05A compressor that has been the source of residual contamination that has led to numerous trips of the unit, and tracking of the timely replacement of the SGK05A compressor with a due date of December 15, 2016. Wolf Creek entered this issue into its corrective action program as Condition Reports 96392 and 96397.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated 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 train A safety-related batteries, inverters, and alternating and direct current buses became inoperable and their capability to respond to initiating events to prevent undesirable consequences was impacted as a result of the



SGK05A unit tripping. In accordance with Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 3 of Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and April 29, 2015, respectively, the performance deficiency affects a mitigating structure, system, and component. The performance deficiency does not affect the design or qualification of a mitigating structure, system, and component, and the structure, system, and component did not maintain its functionality. Additionally, the finding does not represent a loss of system and/or function, the finding does not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time or two separate safety systems out-of-service for greater than their technical specification allowed outage time, and 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. Therefore, the inspectors determined that this finding is of very low safety significance (Green). In accordance with Inspection Manual Chapter 0310, "Aspects Within The Cross-Cutting Areas," issued December 4, 2014, the finding has a cross cutting aspect in the area of human performance, resources, because the licensee did not ensure that personnel, equipment, procedures, and other resources were available and adequate to support nuclear safety. Specifically, senior managers did not ensure successful completion of the replacement of the SGK05A compressor in Refueling Outage 20, which was a missed opportunity that resulted in the SGK05A unit tripping twice on May 15, 2015, as a result of the same direct cause [H.1].

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

Inspection Report# : [2016009](#) (pdf)

**Significance:** G Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Ensure Essential Service Water Valves were Adequately Protected from External Flooding Hazards**

The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to establish measures to assure that applicable regulatory requirements and the design basis, for applicable structures, systems, and components, are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to ensure that safety-related essential service water valves in the control building were adequately protected from external flooding hazards in the event of a design basis local intense precipitation event, which resulted in a reasonable doubt on the operability of safety-related essential service water valves. The station's immediate corrective actions included entering the condition into the corrective action program and performing a prompt operability evaluation that showed the essential service water valves remained operable. Additional corrective actions include accelerating three Fukushima project schedules that include a new sump pump in the turbine building area four cable vault, ground and surface water improvements for non-safety related electrical duct banks, and new sump pumps in electrical manholes near the turbine building. The violation was entered into the licensee's corrective action program as Condition Report 102250.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the associated 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, during design basis local intense precipitation events, the safety-related essential service water train A and B service water cross-connect motor-operated valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and the essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and EFHV0042 were susceptible to external flooding hazards, and there was a reasonable doubt on the operability of these essential service water valves; however, subsequent evaluation determined that the essential service water valves would not have been impacted in the event of a design basis local intense precipitation event, and the valves were determined to be operable. In accordance with Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 2 of Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and April 29, 2015, respectively, the performance deficiency affects mitigating structures, systems, and components. The finding is a deficiency affecting the design or qualification of mitigating

structures, systems, and components, and the structures, systems, and components maintained their operability and functionality. Therefore, the inspectors determined that this finding is of very low safety significance (Green). In accordance with Inspection Manual Chapter 0310, "Aspects Within The Cross-Cutting Areas," issued December 4, 2014, the finding has a cross cutting aspect in the area of human performance, challenge the unknown, because Wolf Creek individuals did not stop when faced with uncertain conditions. Specifically, the licensee did not maintain a questioning attitude during flooding walk-downs performed in accordance with NEI 12-07 or during evaluation of Condition Report 59257 to identify and resolve unexpected conditions like the floor drain pathway from the communication corridor to the control building basement (room 3101), which was an opportunity for the station to identify the open pathway from the exterior of the plant [H.11].

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

**Significance:** G Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Perform an Adequate Operability Determination and Consider Design Basis Events**

The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to accomplish activities affecting quality in accordance with Procedure AP 26C-004, "Operability Determination and Functionality Assessment," Revision 31. Specifically, the licensee failed to document an operability determination of sufficient scope to address the capability of safety-related essential service water valves in the control building to perform their specified safety functions in the event of a design basis local intense precipitation event. Immediate corrective actions included completing a prompt operability determination and performing analyses that determined the valves remained operable. Additional corrective actions include accelerating three Fukushima project schedules that include a new sump pump in the turbine building area four cable vault, ground and surface water improvements for non-safety related electrical duct banks, and new sump pumps in electrical manholes near the turbine building. The violation was entered into the licensee's corrective action program as Condition Report 100299.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated 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, during design basis local intense precipitation events, the safety-related essential service water train A and B service water cross-connect motor-operated valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and the essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and EFHV0042 were susceptible to external flooding hazards, and there was a reasonable doubt on the operability of these essential service water valves; however, subsequent evaluation determined that the essential service water valves would not have been impacted in the event of a design basis local intense precipitation event, and the valves were determined to be operable. In accordance with Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 2 of Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and April 29, 2015, respectively, the performance deficiency affects mitigating structures, systems, and components. The finding is not a deficiency affecting the design or qualification of mitigating structures, systems, and components; the finding does not represent a loss of system and/or function; the finding does not represent an actual loss of function of at least a single train or two separate safety systems out-of-service for greater than their allowed outage times; and the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment. Therefore, the inspectors determined that this finding is of very low safety significance (Green). In accordance with Inspection Manual Chapter 0310, "Aspects Within The Cross-Cutting Areas," issued December 4, 2014, the finding has a cross-cutting aspect in the area of human performance, conservative bias, because Wolf Creek did not use decision making-practices that emphasize prudent choices over those that are simply allowable, and proposed action was not determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee did not consider long-term consequences or design basis events when determining how to resolve emergent concerns like the unexpected water in room 3101,

which resulted in the licensee's failure to thoroughly evaluate and assess impacts to the plant when Condition Report 96404 was entered into the corrective action program on May 17, 2015 [H.14].

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

**Significance:** N/A Dec 16, 2015

Identified By: NRC

Item Type: VIO Violation

**Incomplete and Inaccurate Medical Information Resulted in Issuance of a Renewed Operator License Without a Required Medical Restriction**

Nov's were issued in 2015011

Wolf Creek Nuclear Operating Corporation (Wolf Creek) identified two apparent violations (AVs): (1) An apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.9, "Completeness and Accuracy of Information;" and (2) an apparent violation of 10 CFR 50.74, "Notification of Change in Operator or Senior Operator Status." Specifically, on January 10, 2010, Wolf Creek submitted certified copies of an NRC operator license application that did not specify that the applicant required a restriction (to take medication as prescribed) in order to maintain medical qualifications. The NRC issued the renewed operator's initial license on February 25, 2010, but without the necessary medical restriction (AV #1). From May 31, 2006, until July 9, 2015, Wolf Creek had several additional opportunities to identify that medication was required to compensate for a disqualifying medical condition and that a license condition was required during the licensee's biennial licensed operator requalification program reviews and medical examinations. On July 9, 2015, a period that exceeded 30 days from when the condition was identified, the facility notified the NRC of the medical condition via a letter requesting amendment to the operator's license to include the restriction (AV #2). On July 15, 2015, the NRC issued the license amendment with the new restriction. This issue was entered into Wolf Creek's corrective action program.

The inspector determined that Wolf Creek's failure to provide complete and accurate information to the NRC in the operator license application and to notify the NRC of a change in a licensed operator's status for a condition was a performance deficiency. This performance deficiency was known by the licensee and within its ability to foresee and correct and should have been prevented. The inspector determined that traditional enforcement applies, as the issue affected the NRC's ability to perform its regulatory function. Namely, the NRC relies upon Wolf Creek to ensure all licensed operators meet the medical conditions of their licenses. If, during the term of the individual operator license, an operator develops a permanent physical or mental disability that causes the operator to fail to meet the requirements of 10 CFR 55.21, "Medical Examination," the licensee shall notify the NRC within 30 days of learning of the diagnosis, in accordance with 10 CFR 50.74(c). Additionally, the NRC issued a renewed operator license to the applicant based on information that was not complete and accurate in all material aspects. The performance deficiencies were screened against the Reactor Oversight Process per the guidance of Inspection Manual Chapter 0612, Appendix B, "Issue Screening." No associated Reactor Oversight Process finding was identified and no cross-cutting aspect was assigned. These issues constitute apparent violations in accordance with the NRC's Enforcement Policy and their final significance will be dispositioned in separate future correspondence.

Inspection Report# : [2015010](#) (*pdf*)

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

**Significance:** N/A Dec 16, 2015

Identified By: NRC

Item Type: VIO Violation

**Failure to Report a Permanent Change in a Licensed Operator's Medical Status and Request a Condition be Placed on the Operator's License**

NOV was issued in inspection report 2015011

Wolf Creek Nuclear Operating Corporation (Wolf Creek) identified two apparent violations (AVs): (1) An apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.9, "Completeness and Accuracy of Information;" and (2) an apparent violation of 10 CFR 50.74, "Notification of Change in Operator or Senior Operator

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Inspection Report# : [2015010](#) (*pdf*)

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

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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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

Last modified : December 08, 2016