Wolf Creek 1
1Q/2010 Plant Inspection Findings

Initiating Events

Significance: G 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.

Inspection Report# : 2009005 *(pdf)*

Significance: G Dec 22, 2009
Identified By: NRC
Item Type: FIN Finding
Failure to Enter Adverse Conditions into the Corrrective Action Program
The team identified a finding associated with the licensee’s failure to recognize the adverse conditions related to their offsite power system as prescribed by Procedure AP 28A 100, “Condition Reports.” Specifically, the licensee failed to enter pertinent switchyard operating experience and six occurrences of offsite power line losses as adverse conditions in their corrective action program as of August 2009. The licensee entered these deficiencies in their corrective action program as Wolf Creek Condition Reports 00022242 and 00022241.

This finding is greater than minor because, if left uncorrected, the failure to fully utilize the corrective action program could become a more significant safety concern. The inspectors determined that this finding impacted the Initiating Events Cornerstone equipment maintenance attribute and affected the cornerstone objective to limit events that upset plant stability and challenge critical safety functions during power operations. Using Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the issue screened as having very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available.

Inspection Report# : 2009007 *(pdf)*

Significance: G Dec 22, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Adequately Control Steam Generator Water Levels
The team identified a self-revealing noncited violation of Technical Specification 5.4.1.a, "Procedures," after operator's failure to monitor and maintain steam generator water levels resulted in an unanticipated turbine trip signal and feedwater isolation. On August 21, 2009, while in Mode 3, Wolf Creek operators, using an intermittent method of feeding steam generators over shift turnover, lost control of the level in steam generator A. This resulted in increased levels above the P 14 feedwater isolation actuation setpoint. Contributing to the loss of level control was the disabling of a previously established operator selectable alarm for the steam generator level. The licensee entered this deficiency in their corrective action program as Wolf Creek Condition Report 00019295.

This finding is greater than minor because it impacted the Initiating Events Cornerstone human performance attribute and affected the cornerstone objective to limit events that upset plant stability and challenge critical safety functions during power operations. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the issue screened as having very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available and it did not increase the likelihood of a fire or internal/external flooding. This finding has a crosscutting aspect in the area of human performance associated with the decision making component because licensee personnel failed to make safety-significant or risk-significant decisions using a systematic process especially when faced with uncertain or unexpected plant conditions to ensure that safety is maintained [H.1(a)]

Inspection Report# : 2009007 *(pdf)*

Significance: G Dec 22, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Operator Actions Disable Circuit Breaker Coordination and Could Initiate Secondary Fires
The inspectors identified a noncited violation of License Condition 2.C.(5), "Fire Protection," for the failure to implement and maintain the approved fire protection program. Specifically, the licensee prescribed mitigating actions in response to certain fire scenarios that would result in a loss of circuit breaker coordination and could initiate secondary fires in plant locations outside of the initial fire area. The licensee entered this issue into their corrective action program as Condition Report 2008 005210.

This finding was more than minor because it was associated with the Protection Against External Factors attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The risk significance of this finding was determined using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The finding was determined to be of very low safety significance using a Phase 2 evaluation. This finding was not assigned a crosscutting aspect because the cause was not representative of current performance.

Inspection Report# : 2009005 *(pdf)*

Significance: G Dec 16, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Obtain Vendor Data Necessary for Plant Modification
On December 16, 2009, inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," involving failure to obtain vendor design data for a modification. In August 2009, a component cooling water modification was made to the reactor coolant pump thermal barrier heat exchangers' flow rates as a corrective action to VIO 05000482/2009002 07 (EA-09-110). A flow rate above the previous design value was justified by an internal memo of a vendor opinion from a telephone conversation in 1992. The inspectors found this to be contrary to Procedure AP 05-005, for obtaining data from vendors. The notice of violation will remain open until

full compliance has been restored. Wolf Creek consulted with Westinghouse, confirmed the acceptability of the increased flow rate, and requested a formal calculation. This issue is captured in Condition Report 22824.
The inspectors determined that this finding was more than minor because this issue aligned with Inspection Manual Chapter 0612, Appendix E, example 2.f, in that the modification relied on verbal statements to raise the allowable flow through the heat exchanger. This is a significant deficiency in the modification package. The inspectors determined this finding was associated with the design control attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609.04 and determined that the finding was of very low safety significance because assuming worst case degradation, the finding would not result in exceeding the technical specification limit for identified reactor coolant system leakage and would not have likely affected other mitigation systems resulting in a total loss of their safety function because seal injection was available. This finding has a crosscutting aspect in the area of human performance associated with work practices in that management was unsuccessful in communicating expectations on procedure use and adherence in engineering
Inspection Report# : 2009005 *(pdf)*

Significance: G Oct 23, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Sources of Boron Leakage
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” involving the licensee’s failure to identify sources of boron leakage and document them in a corrective action document. Specifically, prior to October 23, 2009, the licensee failed to accomplish the requirements of Procedure AP 16F-001, “Boric Acid Corrosion Control Program,” Revision 5, step 6.4.1, which states, in part, “Sources of boron seepage/leakage shall be identified/verified and documented in the applicable corrective action document.” During a boric acid walkdown, the inspectors identified 11 sources of boron leakage which had not been previously identified and documented by the licensee. The licensee entered this finding into their corrective action system as Condition Report 00021274.
The finding was determined to be more than minor because it was associated with the Initiating Events Cornerstone attribute of human performance and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors used Inspection Manual Chapter 0609, “Significance Determination Process, Attachment 4, Phase 1 – Initial Screening and Characterization of Findings,” and determined the finding was of very low safety significance (Green) because the issue would not result in exceeding the technical specification limit for identified reactor coolant system leakage or affect other mitigating systems resulting in a total loss of their safety function. The inspectors also determined that the finding had a crosscutting aspect in the area of problem identification and resolution, operating experience, where the licensee did not institutionalize operating experience through changes to station processes, procedures, equipment, and training programs.

Inspection Report# : 2009005 *(pdf)*

Significance: G Jun 30, 2009
Identified By: Self-Revealing
Item Type: FIN Finding
Inadequate Fuse Thermography Procedure Resulted in Blown Fuses and Unplanned Reactor Trip
A self-revealing finding was identified for an inadequate thermography maintenance procedure. Inadequate procedural guidance resulted in thermography failing to identify an overheated fues which resulted in a reactor trip due a loss of power to a main feed regulating valve controller. On April 28, 2009, the main feedwater regulating valve controller power supply fuses blew, isolating flow to steam Generator B. The fuses blew due to overheating of the fuse holder. Wolf Creek’s root cause found that vendor information was previously used in 1995 to detect a process cabinet main power fuse holder that was hot. However, this guidance was not incorporated into the preventive maintenance thermography procedure. This issue was entered into the corrective action program as Condition Report 00016455.
Failure to develop an adequate maintenance procedure for the 7300 process rack fuses was a performance deficiency. The inspectors determined that this finding was more than minor because it is associated with the procedure quality attribute of the Initiating Events cornerstone and it affected the cornerstone objective to limit the likelihood of those

events that upset plant stability. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609.04, and determined the finding to be Green because it did not result in both a reactor trip and loss of accident mitigation equipment. Consequently, this finding was determined to be of very low safety significance (Green). The inspectors also determined that the cause of the finding has a crosscutting aspect in the problem identification and resolution area associated with operating experience because Wolf Creek failed to use vendor information to assure plant safety. Specifically Wolf Creek utilized but failed to subsequently institutionalize operating experience in 1995 and 2009 by updating the thermography maintenance procedure.
Inspection Report# : 2009003 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: VIO Violation
Failure to correct component cooling water valve closures
The inspectors identified a cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” involving Wolf Creek’s failure to correct the cause of the reactor coolant pump thermal barrier component cooling water heat exchanger outlet valves stroking closed on high flow. Specifically, between 2001 and 2009, Wolf Creek experienced repeated cases of the reactor coolant pump thermal barrier component cooling water heat exchanger outlet valves stroking closed during component cooling water pump swaps and during isolations of the radioactive waste evaporators. Wolf Creek reinitiated evaluation of the issue after the inspector’s questions but did not review the impact on the operators’ ability to open the valves given the valves’ circuit breakers opening. Repeated throttle valve adjustments have not been successful in stopping the valve closures. This issue and the corrective actions are being tracked by the licensee in Condition Report 2007 002074 and has corrective action pending to modify valve circuitry but it has not been implemented.
The failure to correct a condition adverse to quality of ensuring reactor coolant pump seal cooling as described in the Updated Safety Analysis Report is a performance deficiency. The finding is more than minor because it is associated with the equipment performance attribute for the Initiating Events Cornerstone; and, it affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding was determined to be of very low safety significance because the finding would not result in exceeding the Technical Specification limit for identified reactor coolant system leakage and would not have affected other mitigation systems resulting in a total loss of the seal cooling safety function. This finding is being cited because the licensee failed to establish measures to assure this condition adverse to quality was promptly identified and corrected. This finding has a crosscutting aspect in the area of human performance associated with the decision making component because, even though numerous instances of valve closures occurred since the first noncited violation, Wolf Creek downgraded the condition report. Using nonconservative assumptions, the licensee consistently viewed this issue as not having a risk impact because seal injection was not simultaneously lost. [H.1.b]

Inspection Report# : 2009002 *(pdf)*
Inspection Report# : 2009005 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Procedure for a Main Feed Pump Trip
The inspectors identified a Green noncited violation of Technical Specification 5.4.1.a, “Procedures,” for the failure of Wolf Creek control room personnel to follow procedures for a main feedwater pump trip. During a review of the posttrip data and operator statements, the inspectors noted that control room operators took manual control and reset main feedwater Pump A, which was not in accordance with station procedures. This issue was entered into the licensee's corrective action program as Condition Report 24011.
This finding was greater than minor because it was associated with the Mitigating Systems Cornerstone attribute of human performance and it affected the 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 evaluated the significance of this finding using Inspection Manual Chapter 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” and screened the finding to Phase 2 because the finding represents a loss of auxiliary feedwater actuation system safety Function g. The finding screened to Phase 3 because of the failure to start of both motor-driven auxiliary feedwater pumps. The senior reactor analyst performed a Phase 3 analysis and concluded that the finding was Green because the probability of an initiator occurring within any 10-second exposure time is approximately 3E-7. Additionally, auxiliary feedwater pumps would have been automatically started on lo-lo steam generator level if required. The inspectors also determined that the cause of the finding has a crosscutting aspect in the area of problem identification and resolution associated with operating experience because Wolf Creek failed to communicate relevant operating experience to affected internal stakeholders.
Inspection Report# : 2010002 *(pdf)*

Significance: G Mar 10, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Establish goals and Monitor for a(1) Offgas Radiation Monitor GERE0092
The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(1) for failure establish goals per paragraph (a)(1) to monitor the performance of the main condenser offgas radiation Monitor GERE0092. Multiple failures occurred which exceeded the monitoring goals and the function was not moved to 50.65(a)(1) status for corrective action and goal setting. Wolf Creek engineering subsequently evaluated the issues and determined that the function should have been moved to a(1) for goal setting. This is captured in Condition Report 24423.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and determined that this finding is of very low safety significance, Green. Specifically, the associated function (SP-04) to detect primary to secondary leakage and then isolate the steam generator blowdown flow path does not result in a loss of any safety function. The inspectors determined that this finding has a crosscutting aspect in the problem identification and resolution area associated with corrective action program because Wolf Creek failed to take appropriate corrective actions to address the system reliability issue and adverse radiation monitor performance trends in a timely manner, commensurate with safety significance and complexity.
Inspection Report# : 2010002 *(pdf)*

Significance: G Mar 03, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Degraded Fire Barriers for Auxiliary Feedwater
The inspectors identified a noncited violation of License Condition 2.C(5)(a) for degraded fire seals that separated redundant safe shutdown equipment. Specifically, silicone foam and ceramic fiber board seals separating the auxiliary feedwater trains from the turbine building and the condensate storage tank valve house were degraded so that they no longer provided a 3-hour rated fire barrier. The licensee entered the finding into the corrective action program as Condition Report 23828.
The finding was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of protection against external events and affected the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix F, Attachment 2, “Degradation Rating Guidance Specific to Various Fire Protection Program Elements,” under Fire Barrier Degradation, Table A2.2, the finding was associated with Moderate B degradation due to the seal not being in a tested or evaluated condition. Using Inspection Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process,” in supplemental screening for fire confinement findings, the finding screens as Green due to exposing Fire Area A33 featuring an automatic full area water-based suppression system. No crosscutting aspect was assigned as this condition was not reflective of current licensee performance.
Inspection Report# : 2010002 *(pdf)*

Significance: G Mar 03, 2010
Identified By: NRC
Item Type: FIN Finding
Failure to Perform Adequate Posttrip Review
The inspectors identified a Green finding for the failure to adequately implement the posttrip review procedure following a reactor trip caused by low steam generator water levels on March 2, 2010. Specifically, Wolf Creek's posttrip evaluation was not adequate because it failed to identify or evaluate anomalous equipment performance associated with the main feedwater pump that caused the trip. Additionally, the inspectors determined that the Wolf Creek's posttrip review failed to identify that some aspects of operator response to the trip of the main feedwater pump were not in accordance with station procedures. Wolf Creek evaluated the individual issues and deficiencies listed above and entered them into the corrective action program as Condition Reports 23932, 23966, 24043, 23982, and 23981.

This finding was greater than minor because the information omitted from the posttrip review was associated with the human 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. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," this finding was determined to be of very low safety significance since the finding does not represent a loss of system safety function, nor does the finding represent actual loss of safety function for single train for a greater time than permitted by technical specifications. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because Wolf Creek failed to fully evaluate plant computer data and operator statements associated with the March 2, 2010, reactor trip.
Inspection Report# : 2010002 *(pdf)*

Significance: G Dec 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Procedure Results in Draining of Emergency Core Cooling System Pump Oil
On November 23, 2009, a self-revealing violation of Technical Specification 5.4.1.a was identified when a technician failed to follow procedure and emptied 45 gallons of oil from centrifugal charging Pump A. The technician was supposed to remove the temperature indicator for calibration but instead removed the thermowell which breached the lube oil subsystem of centrifugal charging Pump A. An unplanned entry into Technical Specification 3.5.2, Condition A, was made for approximately 10 hours. The licensee entered this issue in their corrective action program as Condition Report 21993.
The failure to follow station procedures and correctly remove the detector was a performance deficiency. The finding was more than minor because it was 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. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609.04, and determined that the finding was of very low safety significance (Green) because the pump was inoperable for less than 24 hours. Also, the finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors identified a human performance crosscutting in the area of work practices because self-checking and communication with the supervisor failed to prevent the event.

Inspection Report# : 2009005 *(pdf)*

Significance: G Dec 22, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform an Operability Evaluation
The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," regarding the licensee's failure to follow the requirements of Procedure AP 26C-004, "Technical Specification Operability." Specifically, licensee personnel failed to perform an operability evaluation for the impact of the 2009 water hammer and internal corrosion on the entire essential service water system. The Wolf Creek

essential service water system was degraded by a significant water hammer on August 19, 2009. Also in 2009 widespread internal corrosion resulted in at least three through wall leaks. Discovery of these conditions had been documented in the corrective action program but had not resulted in performance of an operability evaluation of the current and potentially future impact on the system as a whole. The licensee entered this deficiency in their corrective action program as Wolf Creek Condition Report 00022240.

This finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of equipment performance and adversely affected the objective to ensure equipment availability and reliability. Using Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the issue screened as having very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, did not create a loss of system safety function of a single train for greater than the technical specification allowed outage times, and did not affect seismic, flooding, or severe weather initiating events. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because licensee personnel failed to thoroughly evaluate problems such that the resolutions address causes and extent of conditions [P.1(c)]

Inspection Report# : 2009007 *(pdf)*

Significance: G Dec 22, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Correctly Screen Essential Service Water Piping Leaks for Significance
The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” regarding the licensee’s failure to follow the requirements of Procedure AI 28A-010, “Screening Condition Reports.” Specifically, licensee personnel failed to properly screen condition reports for the essential service water system adverse conditions of internal corrosion and loss of offsite power induced water hammer since April 2008. The adverse conditions met the procedure’s ‘marginal’ consequence and probable frequency definitions which should have, but did not, result in a requirement to perform a root cause analysis prior to September 2009. The licensee entered this deficiency in their corrective action program as Wolf Creek Condition Report 00022239.

This finding is greater than minor because, if left uncorrected, the failure to fully utilize the corrective action program could become a more significant safety concern. The inspectors determined that this finding impacted the Mitigating Systems Cornerstone. Using Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the issue screened as having very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, did not create a loss of system safety function of a single train for greater than the technical specification allowed outage times, and did not affect seismic, flooding, or severe weather initiating events. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because licensee personnel failed to thoroughly evaluate problems such that the resolutions address causes and extent of conditions [P.1(c)]

Inspection Report# : 2009007 *(pdf)*

Significance: G Dec 22, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Ensure Adequate Acceptance Criteria and Extent of Condition Guidance in Lake Water and Corrective Action Program Procedures
The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” regarding the licensee’s failure to provide adequate guidance to identify and address pitting, corrosion, and surface indications in the essential service water system. A 2007 licensee self-assessment on lake water corrosion issues recommended improvements in lake water chemistry control procedures to establish a pit monitoring program. In September 2009 NRC inspectors noted that the lake water monitoring and chemistry control procedures did not contain quality standards or acceptance criteria for newly discovered flaws or abnormal gross degradation due to erosion, pitting, or corrosion. Not having such procedural quality standards resulted in allowing repairs to not be performed until such degradations (pitting) had become through-wall leaks. Several instances of internally identified

corrosion were not entered into the corrective action program until essential service water piping had thinned to below the minimum ASME code allowed wall thickness. The licensee entered this deficiency in their corrective action program as Wolf Creek Condition Report 00022243.

This finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of procedure quality and adversely affected the objective to ensure equipment availability and reliability. Using Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the issue screened as having very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, did not create a loss of system safety function of a single train for greater than the technical specification allowed outage times, and did not affect seismic, flooding, or severe weather initiating events. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because licensee personnel failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner [P.1(d)]

Inspection Report# : 2009007 *(pdf)*

Significance: G Dec 22, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedure Resulted in Failure to Discover Essential Service Water System Leakage Following a Water Hammer Event
The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” regarding the licensee’s failure to provide adequate guidance to address the impact of a loss of offsite power event on the essential service water system. On August 19, 2009, seven hours following a loss of offsite power induced water hammer of the essential service water system, the NRC senior resident identified that the licensee was unaware of significant leakage from the piping on the 1988’ elevation of the auxiliary building. Wolf Creek Procedure STN PE 040G, “Transient Event Walkdown,” required that systems subject to expected transient dynamic forces following a reactor trip to have a post-trip walkdown to identify any structural damage. This procedure did not include the essential service water system as a vulnerable system. The procedure only specifically identified portions of systems inside containment. As a result, no walkdown was performed for the essential service water system on August 19, 2009. The licensee entered this deficiency in their corrective action program as Wolf Creek Condition Report 00022265.

This finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of procedure quality and adversely affected the objective to ensure equipment availability and reliability. Using Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the issue screened as having very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, did not create a loss of system safety function of a single train for greater than the technical specification allowed outage times, and did not affect seismic, flooding, or severe weather initiating events. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the operating experience component because the licensee failed to institutionalize lessons learned through changes to station walkdown procedures [P.2(b)]

Inspection Report# : 2009007 *(pdf)*

Significance: G Dec 22, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Initiate Timely Fire Protection Impairment Control Permit and Implement Compensatory Measures
The team identified a noncited violation of License Condition 2.C.(5), “Fire Protection,” for the failure to establish a compensatory fire watch in a timely manner per the station fire protection program. On August 19, 2009, a complete loss of offsite power resulted in fire protection trouble alarms on fire protection panel KC 008. The control room supervisor acknowledged the alarms. Procedure ALR KC 888, “Fire Protection Panel KC 008 Alarm Response,” required an impairment and compensatory measures for the affected smoke detectors. The following day it was

noticed that impairments and fire watches for the 13 affected fire zones on KC 008 had not been initiated. The licensee entered this deficiency in their corrective action program as Wolf Creek Condition Report 00019320.

This finding was more than minor since it was associated with the protection against external factors attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process,” the inspectors determined that the finding had an adverse affect on the fixed fire protection systems element of fixed fire detection systems. This finding was ultimately determined, by a senior reactor analyst, to be of very low safety significance because of a low exposure time of the uncompensated deficiency. This finding has a crosscutting aspect in the area of human performance associated with the work practices component because the licensee failed to ensure supervisory oversight of work activities such that nuclear safety is supported [H.4(c)]

Inspection Report# : 2009007 *(pdf)*

Significance: G Nov 12, 2009
Identified By: NRC
Item Type: VIO Violation
Failure to Correct Discolored Boric Acid Deposits
The inspectors identified a cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for failure to take action to stop leakage from the base of the refueling water storage tank or evaluate the leakage and wastage for acceptability. Specifically, the licensee did not take actions to prevent recurring discolored boric acid deposits for approximately 11 years. Failure to correct leakage from the refueling water storage tank base was the subject of a noncited violation in NRC Inspection Report 05000482/2007006. This issue was entered into the licensee's corrective action program as Condition Report 22866.
The failure to implement corrective actions for the refueling water storage tank leakage was a performance deficiency. The inspectors determined this issue impacted the Mitigating Systems Cornerstone and was greater than minor because if left uncorrected, the failure to correct the presence of boric acid leakage could become a more significant safety concern in that continued wastage could impact tank operability. Using the Phase 1 worksheets in Inspection Manual Chapter 0609.04, "Significance Determination Process," the finding was determined to have very low safety significance because it did not result in a system or component being inoperable and it did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors identified a crosscutting aspect in the area of human performance associated with resources. Specifically, Wolf Creek did not maintain long term plant safety minimizing corrective maintenance deferrals and this long standing equipment issue.

Inspection Report# : 2009005 *(pdf)*

Significance: G Nov 05, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Operability Evaluation of Essential Service Water Pumps
On November 5, 2009, inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the failure to perform an adequate operability evaluation required by procedure. The inspectors identified that Operability Evaluation EF 09 010, Revisions 0 and 1, did not demonstrate that the essential service water pumps could withstand a safe shutdown earthquake. Revision 2 of the operability evaluation included calculations to demonstrate acceptable stresses and included pump impeller clearances. This issue is captured in the corrective action program as condition reports 22798 and 21572.
The failure to perform an adequate operability evaluation per Procedures AP 28 001 and AP 26C 004 was a performance deficiency. The inspectors determined that this finding was more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and it affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, this issue relates to the availability and reliability examples of the equipment performance attribute because a latent common mode failure mechanism was not correctly evaluated. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609, Appendix A, and determined that the finding was of very low safety significance (Green) because the issue was not a design or

qualification deficiency confirmed to result in loss of operability or functionality, did not represent a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, an actual loss of safety function of a nontechnical specification risk-significant equipment train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The cause of the finding has a problem identification and resolution crosscutting aspect associated with the corrective action program because Wolf Creek failed to thoroughly evaluate the failure mechanism such that the resolutions address the causes and extent of conditions, as necessary.

Inspection Report# : 2009005 *(pdf)*

Significance: G Oct 21, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Control of Transient Ignition Sources.
The inspectors identified a noncited violation of Technical Specification 5.4.1.a, for an inadequate Procedure AP-10-101, "Control of Transient Ignition Sources." On October 21, 2009, the inspectors observed maintenance personnel performing weld preparation work on essential service water piping to containment cooler B using a flapper wheel. The inspectors observed that the ignition control barriers for the hot work were insufficient in that the sparks from the preparation work extended four to five feet from the job site and there was no fire watch posted. On December 4, 2003, a procedure revision inappropriately incorporated a change to the procedure where a fire watch did not have to be posted when using "wire brushes, flapper wheels, polishing devices, or Rol-Lok type buffing pads mounted on power grinder motor drives or air tools." The maintenance supervisor stopped the work until a fire watch was posted. The licensee entered this into their corrective action system as Condition Report 20993.

This finding is more than minor because it affected the Mitigating Systems Cornerstone attribute of "Protection Against External Factors - Fires," 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 lack of a posted fire watch could adversely affect the ability to achieve and maintain safe shutdown in the event of a severe fire in the affected area. Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," could not be used to effectively evaluate the finding and defense-in-depth strategies because the 2003 changes to the fire watch program affected multiple fire areas and conditions. Therefore, in accordance with Inspection Manual Chapter 0609, Appendix M, the safety significance was determined by regional management review who concluded that the finding was of very low safety significance (Green). This finding was reviewed for crosscutting aspects and none were identified. The original change occurred in 2003 and was not indicative of current performance.

Inspection Report# : 2009005 *(pdf)*

Significance: G Oct 21, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Incorporate Requirements of Regulatory Guide 1.182 into Shutdown Risk
The inspectors identified a noncited violation of 10 CFR 50.65(a)(4) involving the failure to adequately perform shutdown risk assessments during Refueling Outage 17. Between October 10 and November 17, 2009, Wolf Creek did not appropriately consider electrical power, decay heat removal, and containment when assessing shutdown risk. This changed the outcome or color of the qualitative calculation on several occasions. The licensee entered this issue in their corrective action program as Condition Reports 22295 and 22296.
The failure to meet shutdown risk assessment requirements in the daily shutdown risk assessment process is a performance deficiency. The inspectors determined this finding was associated with the Mitigating Systems Cornerstone and was more than minor because it involved incorrect risk assessment assumptions by omitting requirements specified in committed guidance without providing justification for that omission. Such errors of omission have the potential to change the outcome of the licensee's maintenance risk assessment as described above. Per Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," licensees who only perform qualitative analyses of plant configuration risk due to maintenance activities, the significance of the deficiencies must be determined by an internal NRC management

review using risk insights where possible in accordance with Inspection Manual Chapter 612, “Power Reactor Inspection Reports.” The NRC management review concluded that this finding was of Green safety significance because missing risk management actions did not result in loss of key shutdown risk functions. Additionally, the cause of the finding has a human performance crosscutting aspect in the area associated with the resources. Specifically, Wolf Creek did not ensure that Procedure APF 22B-001-02 was complete, accurate, and up-to-date

Inspection Report# : 2009005 *(pdf)*

Significance: G Oct 15, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Corrective Action Procedure
On October 15, 2009, the inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for failure to follow Procedure AP 28A-100, “Condition Reports.” Wolf Creek failed to initiate a condition report for evaluation of corrosion on containment cooler A piping. After inspector challenging, Wolf Creek initiated condition reports, performed nondestructive testing, replaced corroded studs, and evaluated the cause of the corrosion.
The inspectors determined that the failure to follow AP 28A-100, Appendix C, was a performance deficiency. This issue was more than minor because it was 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. Using Inspection Manual Chapter 0609.04, the issue screened to Green because there was not a loss of operability and the finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. A crosscutting aspect was identified in the problem identification and resolution area of the corrective action program. Specifically, Wolf Creek failed to implement a corrective action program with a low threshold for identifying issues.

Inspection Report# : 2009005 *(pdf)*

Significance: G Oct 15, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Unevaluated Scaffold Against Component Cooling Water Piping
The inspectors identified a noncited violation of Technical Specification 5.4.1.a for failure to properly implement Procedure AP 14A-003, “Scaffold Construction and Use,” when scaffolding was erected against operable safety-related equipment. On October 15, 2009, the inspectors walked down containment and identified scaffolding in contact with component cooling water piping. The tag on the scaffold explicitly stated that it was not seismically qualified. At the time, both steam generators were inoperable and both trains of residual heat removal were required to be operable. The inspectors reviewed the bases for Technical Specification 3.4.7, “RCS Loops - Mode 5, Loops Filled,” which required an operable heat sink path from residual heat removal to component cooling water to essential service water. This issue was entered into the corrective action program as Condition Report 22464.
The construction of an unqualified scaffold against operable component cooling water piping was a performance deficiency. The inspectors determined that this finding was more than minor because it is associated with the equipment performance attribute for the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, this issue relates to the availability and reliability examples of the equipment performance attribute because a latent failure mechanism was not evaluated. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609, Appendix G, Attachment 1, “Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for Both PWRs and BWRs.” The inspectors determined that Checklist 3 was applicable because the unit was in cold shutdown with the refueling cavity level less than 23 feet. Using Appendix G, Attachment 1, Checklist 3, Phase 2 analysis was not needed and the finding was of very low safety significance (Green) because the licensee was able to demonstrate that the seismically unqualified scaffolding would not have resulted in a loss of safety function. The inspectors determined the cause of the finding had a human performance aspect in the area of resources. Specifically, Procedure AP 14A-003 was inadequate because it had conflicting guidance that allowed seismically unqualified scaffolds in Modes 5 and 6.

Inspection Report# : 2009005 *(pdf)*

Significance: G Sep 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inability to perform manual actions for risk assessment
The inspector identified a noncited violation of 10 CFR 50.65(a)(4) for failure to adequately assess and manage the increase in risk during fuse inspection of component cooling water valves supplying cooling loads inside containment. On March 18, 2009, component cooling water Valves EG HV 16 and EG HV-54 were out of service for fuse inspections to verify wiring for fire protection analyses. The inspectors observed that the evolution was not included in the weekly risk assessment and that operations and maintenance personnel did not have guidance or briefings for restoration of the valves. Review of the risk assessment revealed that the impact of de-energizing the valves in the closed position was neglected and that restoration actions credited by the risk analyst were unknown to the control room and craft workers. The issue was entered into the corrective action program as Condition Report 15318.
The failure to adequately assess and manage risk in accordance with AP 22C 003 and the preplanned risk assessment for the use of local actions to ensure component cooling water cooling to loads inside containment was a performance deficiency. The finding is more than minor because the licensee failed to effectively manage prescribed significant compensatory measures for maintenance activities that could increase the likelihood of initiating events. The finding was of very low safety significance because the magnitude of the calculated risk deficit was less than IE-6 even though risk management actions were not in place. The inspectors also determined that the finding has a human performance crosscutting aspect in the area associated with work control because the risk assessment procedure and clearance order procedure assumed local actions could be accomplished but there was no communication regarding this during the work planning stages [H.3(b)]

Inspection Report# : 2009004 *(pdf)*

Significance: G Sep 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Use of Nonsafety Related Power to Ensure Operability of Safety Related Boric Acid System
The inspectors identified a noncited violation of 10 CFR 50 Appendix B, Criterion III, “Design Control,” for failing to translate the boric acid design basis into procedures that ensure time sensitive operator actions are completed to achieve the core shutdown margin specified in the core operating limits report. Performance Improvement Request 2005-3461 identified that if the room coolers were started while lake temperature was low, the boric acid solution temperature may decrease below the solubility limit. Corrective actions for heat tracing and room temperature logging took approximately 3 years to implement and stopped short of addressing boric acid system operation when nonsafety power is lost to the heat tracing and the plant must be taken to cold shutdown in accordance with technical specifications. The licensee entered this issue in their corrective action program as Condition Report 20717.
The failure to translate the design bases into procedures that ensure the function of the safety related boric acid system upon loss of nonsafety related heat tracing is a performance deficiency. The inspectors determined that this finding was more than minor because this issue aligned with Inspection Manual Chapter 0612, Appendix E, example 2.f, because the pipe temperature was required to stay above the boric acid solubility limit and the loss of the heat tracing and or room temperature decrease will block the boric acid system. This issue was 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. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At Power Situations," and determined that the finding screened to phase 2 because the issue was a design or qualification deficiency confirmed to result in loss of operability or functionality The inspectors evaluated the significance of this finding using Phase 2 of Inspection Manual Chapter 0609, Risk Informed Inspection Notebook for Wolf Creek Generating Station, and determined that the finding was of very low safety significance because loss of the boric acid system in Table 3.9 for one year resulted in a 1E-7 CDF when giving recovery credit for the refueling water storage tank. The inspectors determined that this finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because Wolf Creek did not take appropriate corrective actions to resolve known deficiencies in the design and operation of the boric acid system for approximately 4 years. The issue was re-evaluated in 2009, and the licensee

failed to correct the deficiencies identified in 2005. [P.1.d]

Inspection Report# : 2009004 *(pdf)*

Significance: SL-IV Sep 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Changes to the Approved Fire Protection Program Without Prior Staff Approval
The inspectors identified a Severity Level IV noncited violation of License Condition 2.C.(5), “Fire Protection,” for making changes to the approved fire protection program without the required prior Commission approval. Specifically, the licensee made a change to the Updated Safety Analysis Report that allowed the licensee to violate the requirements of 10 CFR Part 50, Appendix R, Section III.L. Specifically, when the licensee recognized that fire damage could cause a pressurizer power operated relief valve to open long enough to create a void in the reactor vessel, this was documented as acceptable when it was not in compliance with this regulatory requirement. The licensee entered this issue into their corrective action program as Performance Improvement Request 2008 004869. This finding was assessed using traditional enforcement since it had the potential for impacting the NRC’s ability to perform its regulatory function. This finding is more than minor since the change required prior staff review and approval prior to implementation and it did not receive the required approval. A senior reactor analyst performed a Phase 3 evaluation and determined this performance deficiency was of very low risk significance. In accordance with the guidance in Supplement I of the Enforcement Policy, this issue is considered a Severity Level IV noncited violation because it is of very low risk significance. This finding had a crosscutting aspect in the area of human performance associated with resources because the licensee failed to maintain long term plant safety by maintaining design margins. Specifically, the licensee’s choice to allow reactor vessel head voiding during an alternative shutdown in lieu of restoring the plant to compliance with the requirements of 10 CFR Part 50, Appendix R, Section III.L constituted a reduction in safety margin [H.2(a)]
Inspection Report# : 2009004 *(pdf)*

Significance: G Aug 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Mode Change Under Technical Specification 3.0.4.b without Required Risk Management Actions
On November 18, 2009, the inspectors identified a noncited violation of Technical Specification 3.0.4.b for ascension from Mode 4 to Mode 3 without establishing required risk management actions. Wolf Creek used technical specification Limiting Condition for Operation 3.0.4.b to permit mode ascension after performance of a risk assessment and identification of risk management actions to maintain safety in the next mode. The turbine driven auxiliary feedwater pump was inoperable per Technical Specification 3.7.5. As a risk management action, protected train signs would be placed on the doors to the motor driven auxiliary feedwater Pump A and B room doors. A walkdown conducted by the inspector on the morning of November 18, 2009, found that the protected train signs on the motor driven auxiliary feedwater pump rooms were not in place. Also, a maintenance crew was performing radiography in the motor driven auxiliary feedwater pump Room B. The motor driven auxiliary feedwater Pumps A and B were also made inoperable (at separate times) later on the morning of November 18, 2009. The licensee entered this issue in their corrective action program as Condition Report 21926.
Mode ascension under Technical Specification LCO 3.0.4.b without establishing required risk management actions is a performance deficiency. The finding was more than minor because it was associated with the configuration control and alignment 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. The configuration control issues not only included the work being completed on the turbine driven auxiliary feedwater pump, but also included containment isolation valve testing and radiography that was performed on the motor driven auxiliary feedwater pumps which was not included in the risk assessment. The inspector used Inspection Manual Chapter 0609.04, to determine that the finding was of very-low safety significance (Green) because it did not result in a loss of system safety function; did not exceed allowable technical specification outage time; and was not a seismic, flooding, or severe weather concern. Additionally, the cause of the finding has a human performance crosscutting aspect in the area associated with decision making. Specifically, Wolf Creek used a risk assessment form and an informal mode change form to communicate between departments the requirement for risk management actions. The two forms were in conflict and the personnel who implemented the risk management actions were not informed.

Inspection Report# : 2009005 *(pdf)*

Significance: G Jun 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Testing Equipment Used for Alignment Verification of Emergency Diesel Lube Oil Piping
The inspectors identified a noncited violation for an inadequate control of measuring and test equipment used to verify the design basis of a safety related system. On June 2, 2009, Wolf Creek measured pipe gaps and angles of deflection associated with Smith-Blair couplings on the emergency diesel generator lube oil and jacket water systems. Wolf Creek used commercial grade tape measures and protractors to determine whether the piping met vendor and design requirements or if the piping had to be refitted. Some of the measurements indicated little or no margin from the maximum pipe gap tolerances. Instrument degradation and human error were not factored into the assessment of design margin when using commercial grade tools. The design specification called for a measurement to one-hundredth of one inch, whereas the tape measure was only graduated to one-sixteenth of one inch. This issue was entered into the corrective action program as Condition Report 00017781.
Failure to use appropriately qualified measuring and test equipment when verifying the design specifications of a safety related system was a performance deficiency. The inspectors determined that this finding was more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective to ensure the availability, reliability, and capability of mitigating systems. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609.04, and determined the finding to be Green because it did not result in the loss of operability or functionality and was not affected by external events such as earthquakes or floods. Consequently, this finding was determined to be of very low safety significance (Green). The inspectors also determined that the cause of the finding has a crosscutting aspect in the human performance area associated with work controls because Wolf Creek failed to place adequate instructions into the work order to assure that the use of the proper measuring and test equipment requirements were specified.

Inspection Report# : 2009003 *(pdf)*

Significance: G Jun 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Evaluation of Emergency Diesel Generator for Common Cause Failure in the Supporting Essential Service Water System
On June 30, 2009, the inspectors identified a noncited violation of Technical Specification 3.8.1 for failure to perform an adequate common cause evaluation within 24 hours to demonstrate no common cause failure mechanism existed between the emergency diesel generators after a through-wall leak was discovered on the essential service water piping. Wolf Creek did not start the opposite train emergency diesel generator and declared that the through-wall flaw was not a common cause failure without any evaluation or supporting statements. Nondestructive testing had not been started at this time. Subsequent evaluation of the flaw per American Society of Mechanical Engineers (ASME) Code Case N513.2 restored operability to the essential service water piping. The licensee entered this issue in their corrective action program as Condition Report 18347.
The inspectors determined that the failure to demonstrate, per Technical Specifications 3.8.1 Required Actions B.3.1 or B.3.2, that no common cause failure existed for the emergency diesel generators was a performance deficiency. The inspectors determined that this finding was more than minor because it is associated with the equipment performance attribute for 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. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At Power Situations," and determined that the finding was of very low safety significance (Green) because the issue was not a design or qualification deficiency confirmed to result in loss of operability or functionality, did not represent a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, an actual loss of safety function of a nontechnical specification risk-significant equipment train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The cause of the finding has a problem identification and resolution crosscutting aspect in the area associated with the corrective action program because

Wolf Creek failed to thoroughly evaluate the failure mechanism such that the resolutions address the causes and extent of conditions, as necessary. Specifically Wolf Creek did not properly consider the possibility of common-cause pitting failures which could have impacted the essential service water piping Train A structural integrity thereby affecting its cooling loads, including the Emergency Diesel Generator A [P.1(c)]

Inspection Report# : 2009004 *(pdf)*

Significance: G Jun 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate instructions for changing modes of operation of the residual heat removal system
The inspectors identified a noncited violation of Technical Specification 5.4.1, "Procedures," associated with the licensee's failure to ensure that adequate procedures were available for changing modes of operation of the residual heat removal system from shutdown cooling to emergency core cooling system operation. Specifically, station procedures allowed the residual heat removal system to be realigned to the emergency core cooling system mode of operation following operation in the shutdown cooling mode with suction temperatures as high as 350°F without properly cooling the entire suction header. This resulted in both trains of the residual heat removal system being inoperable during periods of operation in Modes 3 and 4. This issue was entered into the licensee's corrective action program as Condition Reports 2008-3810 and 2008 4997.
The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and it directly affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the inspectors concluded that a Phase 2 evaluation was required because this finding represented a loss of safety function of the residual heat removal system.

The inspectors performed a Phase 2 analysis using Appendix A, "Determining the Safety Significance of Reactor Inspection Findings for At-Power Situations," of Inspection Manual Chapter 0609, "Significance Determination Process," and the plant specific Phase 2 presolved tables and worksheets for Wolf Creek. The inspectors determined that the Phase 2 presolved tables and worksheets did not contain appropriate target sets to accurately estimate the risk input of the finding. Therefore, it was determined that a Phase 3 analysis was required. Senior risk analysts performed a Phase 3 analysis of this issue. The estimated Conditional Core Damage Probability was determined to be 2.84E-7, and the estimated Conditional Large Early Release Probability was determined to be 2.72E-9. Based on these results, the finding was determined to be of very low safety significance. This finding was determined to have a crosscutting aspect in the area of Problem Identification and Resolution associated with the corrective action program [P.1(c)], in that the licensee failed to appropriately and thoroughly evaluate problems such that the resolutions address the causes

Inspection Report# : 2009006 *(pdf)*

Barrier Integrity

Significance: G Mar 03, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inoperable Containment Cooler Condensate Monitoring System
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, due to all containment cooler drip pans being degraded such that the containment cooler condensate monitoring system could not perform its design basis safety function to quantify reactor coolant system leakage into the containment atmosphere. Wolf Creek initiated Condition Report 24005 and Work Order 10-325741-000 to clean and repair the drip pans.
This issue is more than minor because it was associated with the equipment performance aspect of the Barrier Integrity Cornerstone and impacted the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, it affected the licensee's ability to detect a reactor coolant system leak. The inspectors used Inspection Manual Chapter 0609.04,

“Phase 1 - Initial Screening and Characterization of Findings,” to analyze the significance of this finding. The inspectors concluded the finding is of very low safety significance because the condition was not related to pressurized thermal shock. The inspectors also determined that the cause of the finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because Wolf Creek failed to identify adverse postwork conditions after the coolers received maintenance in the 2009 refueling outage
Inspection Report# : 2010002 *(pdf)*

Significance: G Dec 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Inoperable P-6 Interlock and Intermediate Range Detector
On December 30, 2009, the inspectors identified a noncited violation of Technical Specification Table 3.3.1-1, Function 18.a, when Wolf Creek restarted on May 18, 2005. During a reactor shutdown on October 7, 2006, intermediate range neutron detector Nuclear Instrument 36 did not decrease below 6E -11 amps and energize source range detector Nuclear Instrument 32. The detector was not replaced until Refueling Outage 16 in March 2008. The licensee entered this issue in their corrective action program as Condition Report 22450
The inspectors determined that the failure to ensure that the P-6 interlock was operable per the technical specification as defined in the bases was a performance deficiency. The finding was more than minor because it was associated with the configuration control (reactivity control) attribute of the Barrier Integrity Cornerstone, and it affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609.04, and determined that the finding screened to Green because the P-6 interlock only affected the fuel barrier. This finding was not assigned a crosscutting aspect because the cause was not representative of current performance.

Inspection Report# : 2009005 *(pdf)*

Significance: G Dec 15, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequately Analyzed Emergency Operating Procedure Change
The NRC examiners identified a Green noncited violation of Technical Specification 5.4.1.b for failure to validate changes made to Emergency Operating Procedures. Specifically, the licensee failed to validate a change made to Emergency Operating Procedure E-0, Reactor Trip or Safety Injection. This unvalidated change to E-0 had the unintended consequence of changing the Emergency Operating Procedure mitigation strategy in the steam generator tube rupture procedure, E-3, in that it resulted in premature direction to close the main steam isolation valves which increases the likelihood and duration of a radioactive release during a tube rupture event. This was an undesirable effect that the licensee had not considered when it made the change to E-0. This was entered into the licensee’s Corrective Action Program under AR22391, and the licensee removed the change that was made to E-0.

The finding was more than minor because it adversely affected the barrier integrity cornerstone attribute of “Procedure Quality” in that the change to the emergency operating procedure increased the likelihood of an offsite release during a steam generator tube rupture casualty. Manual Chapter 0609, Attachment 4, “Initial Screening and Characterization of Findings,” was used to evaluate the finding. The finding is of very low safety significance because it did not represent a degradation of the radiological barrier function provided for the control room, auxiliary building, or spent fuel pool; it did not represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere; it did not represent an actual open pathway in the physical integrity of reactor containment; and it did not involve an actual reduction in function of hydrogen ignitors in the reactor containment. The finding had a crosscutting aspect in the area of human performance associated with decision making because the licensee failed to conduct effectiveness reviews of safety-significant decisions to verify the validity of underlying assumptions and identify possible unintended consequences.
Inspection Report# : 2009302 *(pdf)*

Significance: G Aug 22, 2009

Identified By: NRC
Item Type: NCV NonCited Violation
Positive Reactivity Addition Prohibited by Technical Specifications while in Mode 2
The inspectors identified a noncited violation of Technical Specification 3.3.1, Condition I, for making positive reactivity addition prohibited by technical specifications in Mode 2 because one source range nuclear instrument channel was inoperable. Following a reactor transient, one of the source range nuclear instrument channels experienced an unanticipated increased count rate and was declared inoperable. Wolf Creek restored the channel in an operability evaluation which cited the cause as a problem in a component which was later determined not to exist in the installed configuration; however, the improperly restored equipment had already been used for to support plant startup on August 22, 2009. Wolf Creek replaced the detector during Refueling Outage 17. This issue was entered into the correction action program as Condition Report 20208.
Reactivity addition with source range channel Nuclear Instrument-31 inoperable is a performance deficiency. The finding was more than minor because it was associated with the configuration control (reactivity control) attribute of the Barrier Integrity Cornerstone, and it affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609.04, and determined that the finding screened to Green because the finding only affected the fuel barrier. Additionally, the cause of the finding has a human performance crosscutting aspect in the area associated with the decision making. Specifically, Wolf Creek did not use conservative assumptions in decision making and adopt requirements to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action, when performing an operability evaluation for the source range Nuclear Instrument 31 detector prior to restarting from a forced outage

Inspection Report# : 2009005 *(pdf)*

Significance: G Aug 12, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Log Foreign Material in Spent Fuel Pool After Extent of Condition Evaluation
The inspectors identified a noncited violation of Technical Specification 5.4.1.a, “Procedures,” for failure to follow Procedure AP 12-003, “Foreign Material Exclusion.” On August 12, 2009, the inspectors conducted a walkdown of the spent fuel pool area and found duct tape attached to various fueling and control rod tools such that duct tape was below the water. This duct tape was not in the foreign material exclusion logs. Spent fuel pool foreign material control is required under Procedure AP 12-003. The licensee entered this issue in their corrective action program as Condition Report 20338.
The inspectors determined that the failure to log material in accordance with Procedure AP 12 003 was a performance deficiency. This finding is more than minor because it impacted the Barrier Integrity Cornerstone attribute of configuration control and affected the cornerstone objective to maintain functionality of the spent fuel pool system. Using Inspection Manual Chapter 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” this finding was determined to be of very low safety significance because the finding only affected the barrier function of the spent fuel pool. The inspectors determined that this finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because although Wolf Creek performed a root cause and extent of condition evaluation for untracked foreign material, the evaluation still failed to find the duct tape in the pool itself. This allowed the tape to continue to be untracked [P.1.c]
Inspection Report# : 2009004 *(pdf)*

Significance: G Jun 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Testing Results in P-6 Interlock Failure to Energize Source Range on Reactor Trip
On April 28, 2009, the inspectors identified a Green noncited violation of Technical Specification, Table 3.3.1-1, Function 18.a, when Wolf Creek tripped from 100 percent reactor power. During the trip, intermediate range neutron Detector NI-36 did not decrease below 10 E -10 amps and energize source range Detector NI-32. The inspectors determined that post maintenance testing of the new detector during the previous refueling outage was insufficient and caused the detector to be under compensated. A postmaintenance testing deficiency was not evaluated. After reactor

trip, this issue was entered into the corrective action program but was closed to pending recalibration of the detector. The deficiency for Function 18.a was entered into the corrective action program after the inspector's questioning. The inspectors determined that the failure to ensure that the P-6 interlock was operable per the technical specification as defined in the bases was a performance deficiency. The finding was more than minor because it was associated with the configuration control attribute of the Barrier Integrity cornerstone, and it affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, it affected the reactivity control area (reactor control systems) of the cornerstone's attribute. The inspectors evaluated the significance of this finding under the Mitigating Systems cornerstone using Phase 1 of Inspection Manual Chapter 0609.04, and determined that the finding screened to Green because the P-6 interlock only affected the fuel barrier. This issue has been entered into the corrective action program as Condition Report 00017814. The cause of this finding was determined to have a crosscutting aspect in the problem identification and resolution area associated with the corrective action program because post maintenance testing of Procedure STN IC-236 identified deficiencies as well as the post trip review; however, this did not result in initiation of condition reports and subsequent evaluation.

Inspection Report# : 2009003 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Nov 23, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Maintain Administrative Control of Keys to Locked High Radiation Areas
The inspector identified a noncited violation of Technical Specification 5.7.2.a.1 for failure to maintain administrative control of door and gate keys to high radiation areas with dose rates greater than 1 rem per hour but less than 500 rads per hour (referred to as locked high radiation areas). Specifically, as of October 21, 2009, the licensee did not have administrative controls over a single master key to locked high radiation areas. This issue was entered into the licensee's corrective action program as Condition Report 20973.

Failure to maintain administrative control of the master key to locked high radiation areas was a performance deficiency. This finding is greater than minor because if left uncorrected the finding has the potential to lead to a more significant safety concern in that an individual could receive unanticipated radiation dose by gaining access a locked high radiation area without the proper controls and briefing. This finding was evaluated using the occupational radiation safety significance determination process and determined to be of very low safety significance because it did not involve: (1) as low as is reasonably achievable planning or work control issue, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. Additionally, the violation has a crosscutting aspect in the area of human performance associated with the work practices component because the lack of peer and self-checking resulted in inadequate control of keys to locked high radiation areas

Inspection Report# : 2009005 *(pdf)*

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Significance: SL-IV Dec 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Report a Condition That Could Have Prevented Fulfillment of a Safety Function
The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.73 in which the licensee failed to submit a licensee event report within 60 days following discovery of events or conditions meeting the reportability criteria. On December 31, 2009, the inspectors identified a licensee event report that was not timely. Licensee Event Report 2009-009-00 was not issued within 60 days for a condition prohibited by technical specifications, and the event report did not identify that the disabling of both trains of the P 4 interlock on August 22, 2009 was also reportable per 10 CFR 50.73(a)(2)(v). The P 4 interlock was required by Technical Specification 3.3.2, function 8.a, and is discussed in USAR, Section 7.3.8, “NSSS Engineered Safety Feature Actuation System.” Wolf Creek licensee event report 2009-009 was correct in that the interlock is not credited in accident analysis. However, NUREG 1022, Section 3.2.6, specifies that inoperable systems required by the technical specifications be reported, even if there are other diverse operable means of accomplishing the safety function.

The inspectors reviewed this issue in accordance with Inspection Manual Chapter 0612 and the NRC Enforcement Manual. Through this review, the inspectors determined that traditional enforcement was applicable to this issue because the NRC's regulatory ability was affected. Specifically, the NRC relies on the licensee to identify and report conditions or events meeting the criteria specified in regulations in order to perform its regulatory function, and when this is not done, the regulatory function is impacted. The inspectors determined that this finding was not suitable for evaluation using the significance determination process, and as such, was evaluated in accordance with the NRC Enforcement Policy. The finding was reviewed by NRC management, and because the violation was determined to be of very low safety significance, was not repetitive or willful, and was entered into the corrective action program, this violation is being treated as a Severity Level IV noncited violation consistent with the NRC Enforcement Policy. This finding was determined to have a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program in that the licensee failed to appropriately and thoroughly evaluate for reportability aspects all factors and time frames associated with the inoperability of the engineered safety features actuation system .

Inspection Report# : 2009005 *(pdf)*

Significance: SL-IV Sep 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Report Conditions that Could have Presented Fulfillment of a Safety Function
The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.73, “Licensee Event Report System,” with three examples in which the licensee failed to submit licensee event reports within 60 days following discovery of an event meeting the reportability criteria. First, on April 10, 2008, Wolf Creek submitted Licensee Event Report 2008 002 00 under 10 CFR 50.73(a)(2)(i)(B) which is operation prohibited by technical specifications but failed to make a report for a loss of safety function per 10 CFR 50.73(a)(2)(v) for the same event in which both trains of the emergency core cooling system were inoperable on February 13-14, 2008. Second, Wolf Creek filed Licensee Event Report 2008-004 00 on June 6, 2008 under 50.73(a)(2)(iv)(A) for an event that caused automatic start of an emergency diesel during a loss of offsite power on April 16, 2008. No report was made under 50.73(a)(2)(v) for an event or condition that could have prevented a safety function due to the loss of offsite power. Third, on April 10, 2008, Wolf Creek filed Event Notification Report 44131 under 10 CFR 50.72(b)(3)(ii)(B) based on a possible trip of all four containment coolers. The notification was later retracted. The inspectors found insufficient evidence to show that the containment coolers would not trip and concluded the event should have been reported under 10 CFR 50.73(a)(2)(v). All three issues are collectively captured in Condition Report 15318.
The inspectors reviewed this issue in accordance with Inspection Manual Chapter 0612 and the NRC Enforcement

Manual. Through this review, the inspectors determined that traditional enforcement was applicable to this issue because the NRC's regulatory ability was affected. Specifically, the NRC relies on the licensee to identify and report conditions or events meeting the criteria specified in regulations in order to perform its regulatory function, and when this is not done, the regulatory function is impacted. The inspectors determined that this finding was not suitable for evaluation using the significance determination process, and as such, was evaluated in accordance with the NRC Enforcement Policy. The finding was reviewed by NRC management, and because the violation was determined to be of very low safety significance, was not repetitive or willful, and was entered into the corrective action program, this violation is being treated as a Severity Level IV noncited violation consistent with the NRC Enforcement Policy. This finding was determined to have a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program in that the licensee failed to appropriately and thoroughly evaluate for reportability aspects all factors and time frames associated with the inoperability of the emergency core cooling system, the offsite power system, and the containment heat removal system [P.1(c)]
Inspection Report# : 2009004 *(pdf)*

Significance: SL-IV Jun 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Report Conditons Prohibited by Technical Specifications and Safety System Functional Failures
The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.73, “Licensee Event Report System,” associated with the licensee’s failure to submit a licensee event report within 60 days following discovery of an event meeting the reportability criteria as specified. Specifically, on December 8, 2008, the licensee completed analysis of an issue associated with the residual heat removal system which determined that both trains of the system were inoperable when suction side temperature exceeded 249°F. Based on the results of this analysis as well as plant operating history, it was determined that the licensee failed to report instances where the system was operated in a condition prohibited by technical specifications, and a loss of safety function of the system existed between March 20, 2008, and December 8, 2008. The licensee entered this issue into their corrective action program as Condition Reports 2009 1261 and 2009-1326 and Action Requests 15244, 17776, and 15306.

The inspectors reviewed this issue in accordance with Inspection Manual Chapter 0612 and the NRC Enforcement Manual. Through this review, the inspectors determined that traditional enforcement was applicable to this issue because the NRC's regulatory ability was affected. Specifically, the NRC relies on licensee to identify and report conditions or events meeting the criteria specified in regulations in order to perform its regulatory function, and when this is not done, the regulatory function is impacted. The inspectors determined that this finding was not suitable for evaluation using the significance determination process, and as such, was evaluated in accordance with the NRC Enforcement Policy. The finding was reviewed by NRC management and, because the violation was determined to be of very low safety significance, was not repetitive or willful, and was entered into the corrective action program, this violation is being treated as a Severity Level IV noncited violation consistent with the NRC Enforcement Policy. This finding was determined to have a crosscutting aspect in the area of Problem Identification and Resolution associated with the corrective action program in that the licensee failed to appropriately and thoroughly evaluate for reportability aspects all factors and time frames associated with the inoperability of residual heat removal system when suction temperatures were above 249°F [P.1(c)]

Inspection Report# : 2009006 *(pdf)*

Last modified : June 02, 2010