Wolf Creek 1
2Q/2009 Plant Inspection Findings

Initiating Events

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)*

Significance: G Sep 27, 2008
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Inadequate reactor vessel vent path
A self-revealing green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was identified due to an inadequate vent path for the reactor vessel head. The inadequate vent path resulted in the formation of a maximum void size of 2600 gallons in the reactor vessel head on March 23, 2008, while the plant was shutdown and depressurized. Wolf Creek found indirect evidence of a loop seal due to water that came out of the hard pipe at the end of the outage during vacuum filling of the reactor coolant system. However, the root cause team 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 hard pipe during the next refueling outage.

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 it was left uncorrected, it would have become a more significant safety concern. Specifically, 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 mitigation systems and the flooded reactor cavity inventory. Because Wolf Creek did not inspect the portions of the piping or identify why the vent was blocked, no cause of the finding related to the crosscutting aspects could be identified.

Inspection Report# : 2008004 *(pdf)*

Mitigating Systems

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 Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Unacceptable preconditioning of control rods prior to surveillance testing
On February 6, 2009, the inspectors identified a noncited violation of 10 CFR 50 Appendix B, Criterion XI, "Test Control" for a procedure that allowed unacceptable preconditioning of the control rods prior to Technical Specification Surveillance 3.1.4.2. Wolf Creek did not perform any preconditioning acceptability review when adopting operating experience and revising Procedure STS SF-001. The licensee entered this issue into the corrective action program as Condition Report 2009-000598.
Unacceptable preconditioning of the control rods is a performance deficiency. The finding was more than minor because it was 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. The inspectors evaluated the significance of this finding under the mitigating systems cornerstone using Phase 1 of Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because, it did not represent an actual loss of safety function and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding was determined to have a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because the condition report that adopted the operating experience failed to evaluate NRC guidance regarding preconditioning during surveillance testing which should have disallowed the procedure change. Therefore, the applicable procedures were not complete and accurate.
Inspection Report# : 2009002 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: FIN Finding
Untimely corrective actions result in room temperature below boric acid solubility limit
The inspectors identified a finding for allowing low room temperature to cause a boric acid flow path to be inoperable. The inspectors reviewed a performance improvement request from 2005, which identified that boric acid could decrease below its limits if the room cooler was started while lake temperature was low which would render the system inoperable. The inspectors reviewed operator logs of safety injection Room A temperature data and found an instance where room temperature had decreased below the solubility limit for boric acid which had not been noted by operators. The licensee entered this issue into the corrective action program as Condition Reports 2009 000516 and 2009 001495.
The failure to implement the heat tracing corrective action within 3 years to maintain the boric acid injection piping operable during the winter 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 heat tracing was required by Condition Reports 2005-3461 and 2007-2472 but was not installed and the room temperature dropped below the boron solubility limit. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609, Appendix G, Attachment 1, Checklist 3, and determined that the finding was of very low safety significance because Wolf Creek maintained shutdown margin in compliance with its Technical Specifications. No violation of regulatory requirements occurred. The inspectors determined that this finding has a cross cutting aspect in the area of human performance associated with the resources component because Wolf Creek did not maintain long term plant safety by not correcting this long term (3 years) equipment issue and its compensatory measure with the boric acid system.

Inspection Report# : 2009002 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Degraded fire barrier for auxiliary feedwater
The inspectors identified a noncited violation of License Condition 2.C(5)(a) for a degraded fire seal that separated redundant safe shutdown equipment. Specifically, a silicone foam seal and ceramic fiber board separating redundant motor driven auxiliary feedwater trains was degraded so that it no longer provided a 3 hour rated fire barrier. The licensee entered the finding into their corrective action program as Condition Report 2009-001087.
The finding was more than minor because it was similar to example 2.e. of NRC Inspection Manual Chapter 0612, Appendix E, “Examples of Minor Issues,” in that, the performance deficiency impacted the ability of the seal to perform its function. In addition, the performance deficiency 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. Under NRC Inspection Manual Chapter 0609, Appendix F, Attachment 2, “Degradation Rating Guidance Specific to Various Fire Protection Program Elements the finding was associated with a Moderate B degradation due to the seal not being in a tested or evaluated condition. Using Appendix F, 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. 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 failed to identify the degraded seal and missing ceramic board during previous post waterhammer walkdowns.

Inspection Report# : 2009002 *(pdf)*

Significance: G Mar 31, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Inattentive on-duty senior reactor operator
A self-revealing noncited violation of Technical Specification 5.4.1(a) was identified when an on-duty operations shift manager was observed to be inattentive on multiple occasions in 2004 and 2005. This limited his ability to monitor the safe operation of the plant, assist the control room supervisor with the control room command function, and respond in the event of an accident. The licensee entered this issue into the corrective action program as Condition Report 2008 000572.
The failure of the shift manager to remain attentive is considered a performance deficiency. This finding is more than minor because it adversely impacts the Human Performance attribute of the Mitigating Systems cornerstone, and if left uncorrected this performance deficiency has the potential to lead to a more significant safety concern because the shift manager plays an important role in the oversight of post-accident response by all licensed operators on shift. This issue was reviewed by NRC management using Inspection Manual Chapter 609, Appendix M, Significance Determination Process Using Qualitative Criteria. NRC management reviewed the qualitative factors involved with this finding and determined that this finding is Green. No crosscutting aspect was identified because the shift manager has not stood watch for several years, and therefore this issue was not considered current performance.

Inspection Report# : 2009002 *(pdf)*

Significance: G Nov 25, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Equipment out of service log definitions redefined outside of procedure change process
The inspectors identified a noncited violation of Technical Specification 5.4.1.a, procedures, for changing the equipment out of service log outside of the procedure change process. On November 25, 2008, the inspectors questioned the status of excess letdown Valve 8153B because its equipment out of service log entry changed from available to unavavailable. The inspectors were informed that the meaning of unavailable was verbally changed to

mean that the valve was inoperable but considered available. This contradicted the words of the electronic log and Procedure AP 21F-001, “Equipment Out of Service Control.” Operations management was aware of the change to the terminology. Inspectors reviewed Procedures AP 21F-001 and found it required a senior operator to make and maintain the equipment out of service log. Procedure AP 15C-004, “Preparation, Review and Approval of Procedures, Instructions and Forms,” defines ‘AP’ class procedures as those that, in part, implement activities that can significantly affect nuclear safety. Inspectors did not identify any other formal change processes that led to the log changes. Inspectors found no formal training or communication to all licensed and nonlicensed operations staff on this change.

The failure to implement AP 21F-001was considered a performance deficiency. The finding was determined to be more than minor because it could become a more significant safety concern if procedures and configuration controls are changed outside the required process. The inspectors evaluated the significance of this finding under the mitigating systems cornerstone using Phase 1 of Inspection Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” and determined that the finding was of very low safety significance (Green) because no systems, structures, or components were inappropriately out of service for greater than 24 hours due to errors in the log. Specifically, no equipment status was lost such that it was returned to service inappropriately. Further, none of the affected equipment was risk significant for the mitigation of external events such as flooding. The inspectors determined that this finding has a crosscutting aspect in the area of Human Performance associated with the Decision Making component because Wolf Creek did not use its procedure change process to demonstrate that changing the equipment out service log the change was a safe course of action. Although roles and authority are defined in Procedure AP 15C-004, these roles and authorities were not implemented for a safety significant decision.

Inspection Report# : 2008005 *(pdf)*

Significance: G Oct 24, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Ensure a Fire Pump Would Automatically Start for One Fire Area
The team identified a non-cited violation of License Condition 2.C.(5), “Fire Protection,” for the failure to ensure that a water supply for the manual fire suppression system credited by the fire protection program would be promptly available in the event of a fire in the communications corridor. The team determined that cables for both fire pumps were routed in cable trays in the communications corridor. As a result, a single fire could result in the failure of any fire pump to start automatically or manually from the control room. A fire pump could be started locally to restore the water supply, but the delay would reduce the effectiveness of the fire suppression systems in limiting the growth of a fire and minimizing damage to safety-related equipment. The licensee entered this issue into the corrective action program as Condition Report 2008-005190.

Failure to ensure that a fire pump would be promptly available for manual fire suppression in the event of a fire in the communications corridor is a performance deficiency. This finding is more than minor because it is associated with the Protection Against External Factors attribute of the Mitigating Systems Cornerstone and could affect the availability, reliability, and capability of systems that respond to fire events to prevent undesirable consequences. The team judged the delay in starting a fire pump to be approximately five minutes. Using guidance in Manual Chapter 0609, Appendix F, Table 2.7.1 and Manual Chapter 0609, Appendix F, Attachment 2, the team determined this issue to be categorized as a fixed fire protection finding with a low degradation. This finding is of very low safety significance because the finding was assigned a low degradation rating. This finding was not assigned a cross-cutting aspect because it has existed since original construction and does not represent current performance.

Inspection Report# : 2008010 *(pdf)*

Significance: G Oct 24, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Operator Actions Affect the Ability to Operate Post Fire Safe Shutdown Equipment
The team identified a non-cited violation of License Condition 2.C.(5), “Fire Protection,” for operator actions taken in

response to a fire in Fire Area A-27 (Reactor Trip Switchgear Room 1403) that remove the ability to remotely operate equipment required for post-fire safe shutdown. Specifically, Procedure OFN KC 016, “Fire Response,” directs operators to remove the Train B 125V dc control power supply if a fire in Fire Area A-27 causes the Train B power-operated relief valve to spuriously open and its associated block valve fails to close. Removing the Train B 125V dc control power supply affects several of the functions credited for post-fire safe shutdown in Fire Area A-27. The licensee entered this issue into the corrective action program as Condition Report 2008-005210.

Removing the ability to remotely operate equipment required for post-fire safe shutdown, as specified in Procedure OFN KC-016, is a performance deficiency. This finding is more than minor because it is associated with the Protection Against External Factors attribute of the Mitigating Systems Cornerstone and could affect the availability, reliability, and capability of systems that respond to fire events to prevent undesirable consequences. The team determined the risk significance using Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process.” This finding is of very low safety significance since all fire ignition sources screened out and a hot gas layer would not form in this area. This finding was not assigned a cross-cutting aspect because the cause was not representative of current performance.

Inspection Report# : 2008010 *(pdf)*

Significance: G Oct 24, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Evaluate Changes to the Approved Fire Protection Program
The team identified a Severity Level IV non-cited violation for making changes to the approved fire protection program in a manner contrary to the requirements of License Condition 2.C.(5).(b). Prior to 2005, the licensee made multiple revisions to Procedure OFN RP 017, “Control Room Evacuation,” without demonstrating the changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. Specifically, the licensee had revised the alternative shutdown procedure to allow some manual actions to be completed in times longer than the approved time commitments. When revising the alternative shutdown procedure, the licensee did not evaluate the changes to ensure they would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. The licensee entered this issue into the corrective action program as Performance Improvement Request 2005-3317.

Failure to demonstrate that changes to the approved fire protection program would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire prior to changing the alternative shutdown procedure is a performance deficiency. This finding is more than minor because it is associated with the Protection Against External Factors attribute of the Mitigating Systems Cornerstone and could affect the availability, reliability, and capability of systems that respond to fire events to prevent undesirable consequences. This finding was assessed using traditional enforcement since it had the potential for impacting the NRC’s ability to perform its regulatory function. Using the guidance in Section D.3 of Supplement I of the NRC Enforcement Policy, this violation was determined to be a Severity Level IV violation since the licensee implemented corrective actions, provided a technical evaluation for the new alternative shutdown procedure, and performed an evaluation of the changes made in the alternative shutdown procedure. This finding was not assigned a cross-cutting aspect because the procedure changes were made in the 2005 timeframe and do not represent current performance.

Inspection Report# : 2008010 *(pdf)*

Significance: G Sep 27, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Use of hammer to reduce accumulator check valve leakage
Inspectors identified a green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” when Wolf Creek hammered the side of check Valve EP8818D such that the body of the valve was dented numerous times. This activity was performed under a troubleshooting work order to reduce valve seat leakage. The subsequent evaluation stated that this was an acceptable practice and that it would strengthen the

surface metal of the valve body. Wolf Creek subsequently initiated Condition Report 2008-2284 to evaluate the practice.

The inspectors determined that the failure to utilize work instructions appropriate to the circumstances and properly evaluate the effects was a performance deficiency. The inspectors determined that this issue is more than minor because it could become a more safety-significant concern if the cold working or peening practice is not discontinued. Inspectors determined that the finding was not appropriate for evaluation under Inspection Manual Chapter 0609, Attachment 4. The inspectors applied Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The inspectors used a bounding qualitative case, and in consultation with NRC management, determined that the operability of the valve was not impacted. Therefore, the finding was determined to be of very low safety significance, or Green. The inspectors determined that the cause of the finding has a problem identification and resolution crosscutting aspect in the area associated with the corrective action program because the licensee failed to evaluate the problem of seat leakage such that the resolution (a hammer) appropriately addressed the possible causes of valve seat leakage.

Inspection Report# : 2008004 *(pdf)*

Significance: G Sep 27, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to adequately evaluate submerged safety-related cables
The inspectors identified a green noncited violation of 10 CFR, Part 50, Appendix B, Criterion III, "Design Control," because Wolf Creek failed to adequately demonstrate that 4160v cables that are under water are qualified for such service, and that they will remain operable, although the cables are presently operable. Since NRC Information Notice 2002-12 was issued, Wolf Creek had several opportunities to implement a preventive maintenance program and/or thoroughly evaluate the submerged cables. These cables include those of residual heat removal, containment spray, and essential service water. Wolf Creek has subsequently written Condition Report 2008-5073 and work orders to inspect cables and dewater cable vaults.

The failure to perform an engineering evaluation that demonstrated continued operability was considered a performance deficiency. The inspectors determined that this finding was more than minor using Inspection Manual Chapter 0612, Appendix E, example 3.j, because the NRC was able to show that Wolf Creek's operability evaluation needed significant change to demonstrate continued operability. The finding was determined to be of very low safety significance, Green, using the Significance Determination Process Phase 1. Specifically, the deficiency did not result in the present loss of operability or functionality and did not represent a risk significant external event such as flooding. The inspectors determined that the cause of the finding has a problem identification and resolution crosscutting aspect in the area associated with the corrective action program. Despite several opportunities since 2002, Wolf Creek failed to perform a thorough evaluation for continued operability of submerged safety-related cables to assure continued nuclear safety.

Inspection Report# : 2008004 *(pdf)*

Significance: G Sep 27, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
EDG lube oil heat exchanger leak due water hammer
On April 7, 2008, the inspectors identified a green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," due to an approximately 10 to 15 gpm leak on the Emergency Diesel Generator B lubricating oil heat exchanger cover plate. The water hammer caused part of the cover plate gasket to be ejected from the heat exchanger and created the leak. The inspectors found that the work order to assemble the heat exchanger were inadequate. Wolf Creek evaluations did not identify that vendor manual steps were not incorporated into the installation work order which led to loose cover plate nuts which caused the leak. Wolf Creek subsequently wrote Condition Report 2008-004982.

Wolf Creek's failure to ensure that the configuration of both emergency diesel generator lube oil heat exchangers was per plant design was considered a performance deficiency. The finding was determined to be of very low safety significance, Green, by using the Significance Determination Process Phase 1 screening worksheet for mitigating systems. Specifically, the deficiency did not result in the loss of operability or functionality and did not represent a risk significant external event such as flooding. The inspectors determined that the cause of the finding has a human performance crosscutting aspect in the area associated with resources. Specifically, Wolf Creek did not ensure that Work Order 08-305289-000 was adequate to assure nuclear safety by including vendor instructions or acceptance criteria for both emergency diesel generator lube oil heat exchanger cover plates.

Inspection Report# : 2008004 *(pdf)*

Significance: G Sep 27, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Waterhammer caused by loss of offsite power exceeds heat exchanger bolt yield strength
A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," occurred on April 7, 2008, when a loss of offsite power caused the service water pumps to shutdown and the essential service water pump to start. As a result, a water hammer occurred and the control room air conditioning unit Condenser B developed an approximately 60 gpm essential service water leak. This issue was entered into the corrective action program as condition report 2008-001450.

Wolf Creek's operation of the control room air conditioning and essential service water systems outside the design limits of the heat exchanger studs was determined to be a performance deficiency. The finding was determined to be more than minor because it impacted the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and operability of systems that respond to initiating events. The finding screened Green in Phase 1 of Inspection Manual Chapter 0609 because it did not cause the loss of safety function and did not impact risk for external events. The inspectors determined that the cause of the finding was related to the problem identification and resolution crosscutting aspect in the area associated with the corrective action program. Specifically, Wolf Creek previously identified that the heat exchanger joint might be inadequate, but it failed to perform any subsequent corrective action.
Inspection Report# : 2008004 *(pdf)*

Significance: G Sep 27, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Diesel generator low frequency and voltage variation not considered in calculations

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance for the licensee's failure to account for the effect of emergency diesel generator frequency variation at the lower limit of the allowable range. Specifically, emergency diesel generator voltage and frequency deviations for load sequencing was based on nominal 60 hertz operation of pumps and fans and did not account for the two percent variation allowed by Technical Specification 3.8.1. Wolf Creek could not demonstrate compliance with USAR section 8.1.4.3.b. The licensee has entered this issue into their corrective action program as Condition Report 2008-004312.

The inspectors determined that the failure to properly account for the effect of frequency variation on diesel generator was a performance deficiency. The finding was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of design control and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to account for the frequency variations at the lower limit had more than a minimal effect on the outcome of the analysis, in that, the bus frequency will decrease below the Updated Safety Analysis Report limit of 57.0 hertz for loss of coolant accident and loss of offsite power scenarios. The inspector determined that the finding screened as very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in loss of operability

Inspection Report# : 2008004 *(pdf)*

Significance: TBD Dec 29, 2005
Identified By: NRC
Item Type: AV Apparent Violation
Failure to Maintain Reactor Coolant System Subcooling During the Alternative Shutodwn
The team identified an Apparent Violation of Wolf Creek License Condition 2.C.(5)(a) concerning an inadequate alternative shutdown analysis. The licensee's alternative shutdown analysis was inadequate in that it used an acceptance criteria which was inconsistent with and less conservative than that required by the approved Fire Protection Program. The licensee developed Calculation Number AN-02-021, Revision 0, "OFN RP-017, 'Control Room Evacuation,' Consequence Evaluation", to demonstrate alternative shutdown capability for Wolf Creek in response to NRC-identified Noncited Violation 2002008-01, Inadequate alternative shutdown procedure. The calculation predicted that during an alternative shutdown, the reactor coolant system subcooling margin would not be maintained, significant voiding would occur in the core, and a steam void would form in the reactor vessel head. The licensee found the results of the calculation to be acceptable since it demonstrated that the void formation would be limited, natural circulation in the reactor coolant system would be maintained, sufficient decay heat removal would be maintained, and no fuel damage would occur. This is not consistent with the license condition to meet the technical requirements of 10 CFR Part 50, Appendix R. Section III.L of 10 CFR Part 50, Appendix R, "Alternative and dedicated shutdown capability", that states in part, "During the postfire shutdown, the reactor process variables shall be maintained within those predicted for a loss of normal a.c. power."
This finding is greater than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to external events (such as fire) to prevent undesirable consequences (i.e., core damage). It is the NRC's understanding that the licensee does not consider these circuit vulnerabilities to be violations of NRC requirements. The licensee considers the spurious operation of multiple components to be outside of the plant licensing basis for the Fire Protection Program. Specifically, in this case, both pressurizer power-operated relief valves are assumed to spuriously open because of fire induced circuit damage. The NRC staff and the industry are currently working on developing a resolution methodology to address these types of potential fire induced circuit failures. The team concluded that this violation meets the criteria of the NRC Enforcement Manual Section 8.1.7.1 for deferring enforcement actions for postulated fire induced circuit failures.
Inspection Report# : 2005008 *(pdf)*
Inspection Report# : 2008010 *(pdf)*

Barrier Integrity

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)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to follow 10 CFR 50.65a(2) for containment isolation valve failures
On February 25, 2009, the inspectors identified a noncited violation of 10 CFR 50.65 a(2), the Maintenance Rule, for failure to demonstrate that the performance of a containment isolation valve was effectively controlled through the performance of preventive maintenance such that the valve remained capable of performing its intended function. An inadequate Maintenance Rule evaluation was performed after a containment isolation valve (SJHV0005) exceeded its Maintenance Rule a(2) performance criteria, and as a result goal setting and monitoring were not performed as required by paragraph a(1) of the Maintenance Rule. This issue was entered into the licensee's corrective action program as Condition Report 2009 001667.
The failure to follow 10 CFR 50.65 a(2) and properly evaluate the failed valve, establish performance goals, and monitor its performance is considered a performance deficiency. Per Inspection Manual Chapter 0612, Appendix E, Section 7, this finding is more than minor because failure to demonstrate effective control of performance or condition and not putting the affected structures, systems, and components in (a)(1) necessarily involves degraded structures, systems, or components performance or condition. Under NRC Inspection Manual Chapter 0609.04, the Phase I Significance Screening Process, it was found that the finding is of very low safety significance because it does not represent an actual open pathway in the physical integrity of the reactor containment. This finding was determined to have a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because the licensee failed to properly classify, prioritize, and evaluate a condition adverse to quality.

Inspection Report# : 2009002 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to implement foreign material exclusion control procedure for spent fuel pool
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 January 17, 2009, inspectors conducted a walkdown of the spent fuel pool area and found numerous untracked tools and other equipment inside the fuel pool area. Inspectors also found duct tape attached to various fueling and control rod tools such that duct tape was above and below the water. Condition Report 2009-001388 was initiated identifying a loss of spent fuel pool foreign material control. Subsequently, Wolf Creek began re-inventorying all materials in the spent fuel pool area.
The inspectors determined that the failure to implement multiple steps of 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 be of very low safety significance because the finding only affected the barrier function of the spent fuel pool. This finding has a crosscutting aspect in the area of human performance associated with the work practices component because even though personnel had been made aware of Wolf Creek's policy on procedure use and adherence through site-wide communications, personnel still failed to follow numerous parts of the procedure, such that Wolf Creek was not using the procedure.

Inspection Report# : 2009002 *(pdf)*

Significance: G Sep 27, 2008
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Incompatible Procedures Result in 6400 gallon Drain of SFP
A self-revealing noncited violation of 10 CFR Part 50 Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified after the licensee followed two incompatible procedures simultaneously resulting in the inadvertent partial draining of the spent fuel pool. Consequently, approximately 6400 gallons of water was pumped from the spent fuel pool to the refueling water storage tank. Wolf Creek subsequently initiated Condition Report 2008-002035.

The failure to prevent spent fuel pool draining due to simultaneous performance of incompatible Procedures SYS EC-200 and SYS EC-320 is considered 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, “Significance Determination Process,” Phase 1 worksheets, the inspectors determined that the finding is of very low significance because the finding only affected the barrier function of the spent fuel pool. The inspectors also determined that this finding has crosscutting aspects in the human performance area associated with work control, because Wolf Creek did not coordinate work activities among separate groups, assess the impact of these concurrent evolutions or track the alignment of the fuel pool clean-up system.

Inspection Report# : 2008004 *(pdf)*

Significance: G Sep 27, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to completely close the SFP valve resulted in a loss of SFP water inventory
A self-revealing green noncited violation of Technical Specification 5.4.1.a was identified for the failure to close Valve EC-V025 during a lineup to recirculate the refueling water storage tank through the spent fuel pool cleanup system. These two systems were cross-connected for approximately 5 minutes on July 26, 2008, which resulted in approximately 1500 gallons of spent fuel pool water being inadvertently transferred to the refueling water storage tank. The licensee entered this issue into their corrective action program as Condition Report 2008-003663.

The failure to completely close Valve EC-V025 was a performance deficiency. This finding is more than minor because it is associated with 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, “Significance Determination Process,” Phase 1 worksheets, the inspectors determined that the finding is of very low significance because the finding affected only the barrier function of the spent fuel pool. The inspectors also determined that the cause of the finding has a crosscutting aspect in the problem identification and resolution area associated with the corrective action program because Wolf Creek did not take appropriate corrective actions to address the adverse trend in manual valve stem friction in a timely manner, commensurate with its safety significance and complexity

Inspection Report# : 2008004 *(pdf)*

Significance: G Sep 24, 2008
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Maintenance causes unplanned increase in reactor power
On September 24, 2008, inspectors identified a noncited violation of 10 CFR 50.54(j) in which the fix it now team manipulated limit switches for Valve ACPV186C that caused the reactor to exceed the licensed thermal power limit of 3565 MWt for 27 minutes until reactor operators reduced power. The fix it now superintendent designated this work as tool pouch maintenance which required no prior planning. When the instrumentation and controls technician

recoupled the limit switch to the stem linkage, position indication of Valve ACPV186C changed from open to closed. Unknown to the control room or the fix it now team, Valve ACPV186C is interlocked with Valve ACHV256D which is a dump valve from Moisture Separator Reheater C to the condenser. When Valve ACHV256D opened, it caused a positive reactivity addition which exceeded the licensed thermal power limit.

The failure to adequately plan a work activity that resulted in an unexpected positive reactivity addition is a performance deficiency. The inspectors determined that the finding was more than minor because it is associated with the configuration control attribute for the Barrier Integrity Cornerstone; and it affected the cornerstone objective of providing reasonable assurance that physical design barriers, such as fuel cladding, protect the public from radionuclide releases caused by accidents or events. Specifically, this issue relates to the reactor manipulation example of the configuration control attribute. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” and determined that the finding was of very low safety significance or Green because the fuel cladding barrier was affected but did not affect the reactor coolant system or containment barriers. The inspectors determined that this finding has a crosscutting aspect in the area of Human Performance associated with the Decision Making component because Wolf Creek used flawed assumptions in the work planning process for Valve ACPV186C to demonstrate that the ‘Tool Pouch’ course of action was safe.
Inspection Report# : 2008005 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance: G Sep 12, 2008
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Provide an Accuratge Shipping Manifest
The team reviewed a self-revealing, noncited violation of 10 CFR 20.2006(b) resulting from the licensee’s failure to provide an accurate shipping manifest. On May 16, 2008, the licensee shipped used radioactive resin to a waste processor. The shipment contained 65 cubic feet of resin and a total activity of 177 Curies. However, the manifest papers accompanying the shipment only indicated 35 cubic feet of resin and a total activity of 83.8 Curies. The licensee was notified of the problem by the shipment recipient. The licensee’s corrective actions were to fax a corrected shipment manifest to the processor, suspend resin shipments, and conduct an apparent cause investigation. The problem involving the incorrect manifest was documented in the corrective action program as Condition Report 2008-2357.

The finding is greater than minor because it was associated with the Public Radiation Safety cornerstone attribute, transportation program, and affected the cornerstone objective in that it provided incorrect information as part of hazard communication which could increase public dose. Using the public radiation safety significance determination process, the team determined the finding had very low safety significance because (1) radiation limits were not exceeded; (2) there was no breach of a package during transit; (3) it did not involve a certificate of compliance issue; (4) it was not a low level burial ground nonconformance; and (5) it did not involve a failure to make notifications or provide emergency information. Additionally, this finding had a crosscutting aspect in the area of human performance, resources component, in that, the licensee did not establish adequate procedures and documentation necessary to ensure that information entered on the manifest was correct before shipping the package.
Inspection Report# : 2008009 *(pdf)*

Physical Protection

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

Miscellaneous

Last modified : August 31, 2009