

Wolf Creek 1

1Q/2009 Plant Inspection Findings

Initiating Events

Significance:  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*)

Significance:  Jun 28, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate transformer procedure resulted in an unplanned reactor trip and forced outage

A self-revealing finding was identified for an inadequate maintenance procedure that resulted in a reactor trip due a loss of all condensate pumps. On March 17, 2008, plant operators observed that steam generator water level was lowering and main feed pump speed was decreasing. Based on these indications, Wolf Creek operators manually tripped the plant. Approximately 12 hours prior to the transformer trip, Wolf Creek had removed from service XPB04 transformer for planned maintenance and cross connected XPB04 transformer PB004 bus loads to the XPB03 transformer PB003 bus. This arrangement powered all three condensate pumps from PB003 4.16kv bus. The licensee's investigation of the cause of the transformer trip determined that two phases of the XPB03 transformer 4.16kv output cables had overheated and failed because two multi-directional conductor connectors used to terminate two phases of the 1000 MCM 4.16kv bus cables were installed using the incorrect configuration. The resident inspectors reviewed Work Order 06-291275-000, Revision 0, in which the licensee had performed maintenance on the XPB03 transformer on March 4, 2008, that required removal of the XPB03 transformer 4.16kv output cables. The work order provided general guidance to disconnect the high/low side. The inspectors noted that neither the work order nor Procedure MTE TL-001 contained any guidance or specified the conductor connector configuration and only provided general guidance to disconnect and re-term the cables. It was also noted that this work was performed by first time performers who had no experience with this type of connector. The inspectors reviewed electrical maintenance training and did not identify any training that would have provided knowledge or skills on multi-directional conductor connectors.

The 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. This finding also affected the procedure quality attribute for 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). The inspectors evaluated the significance of this finding and because two cornerstones were affected, a Phase 2 analysis was required. The consequences were assessed using a Phase 3 analysis by the Region IV senior reactor analyst. The consequence of the performance deficiency was a reactor trip with a loss of normal feedwater. This event occurred 13 days following maintenance using the flawed procedure. Consequently, the finding was determined to be of very low safety significance. This finding has human performance crosscutting aspects in the area associated with resources component because the licensee failed to provide an adequate maintenance procedure to assure nuclear safety [H.2(c)].

Inspection Report# : [2008003](#) (*pdf*)

Mitigating Systems

Significance:  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 unavailable. 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-001 was 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:  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:  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: TBD 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-

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:  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:  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:  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:  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:  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:  Jun 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement transient combustible control permit requirements for a propane tank

A noncited violation (NCV) TS 5.4.1.d was identified for failing to control combustible materials in an area of the plant that contained safety related equipment. During a walkdown on May 1, 2008, inspectors noted that a temporary propane cylinder for a generator contained 33.5 pounds of propane. The inspectors identified that the propane cylinder did not have a transient combustible materials permit. Operators informed the inspectors that there were no active permits or impairments for this propane cylinder. The operators further stated that no such actions would be necessary because the generator and its propane cylinder are exempted from permit controls. The inspectors reviewed Procedure AP 10-102, "Control of Combustible Materials," Revision 13. Section 7.10 of this procedure stated that the, "propane cylinder... is exempt from the transient combustible permit requirements of this procedure." Section 6.2.1 also states, in part, that a transient combustible materials permit is required if two gallons of flammable liquid or 14 pounds of flammable gas (not connected with hot work) are used. The inspectors spoke with Wolf Creek fire protection and licensing personnel and expressed that there seemed to be an inadequacy in their fire protection program. These personnel stated that their exemption of the propane was a long standing policy of the station and fire protection plan. The inspectors contacted NRC regional fire protection specialists. The specialists informed the inspectors that Wolf Creek's position was contrary to industry standards and practice. The specialists stated that industry standards also consider heat of combustion or fire load, and a potential fire hazard and combustible characteristics of a material, i.e., an explosion. The inspectors determined that the licensee's interpretation that the propane cylinder should be exempted from permit requirements was inappropriate.

The inadequate control of transient combustibles in containment was more than minor because, if left uncorrected, it would become a more significant-safety concern and could potentially affect residual heat removal availability due to fire under the mitigating systems cornerstone. The finding was of very low safety significance because the finding was assigned a moderate degradation factor and the issue only affected the ability to achieve and maintain cold shutdown. The finding also had crosscutting aspects in the problem identification and resolution area associated with corrective

actions because the licensee failed to take appropriate corrective actions for a previous NRC identified deficiency in the exempted use of Class A transient combustibles [P.1(d)].

Inspection Report# : [2008003](#) (*pdf*)

Significance:  Jun 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish goals and monitor for a(1) ECCS room

An NCV of 10 CFR 50.65(a)(1) was identified by the inspectors for failure to establish a(1) goals for the safety-related room coolers and monitor room cooler performance against those goals. On May 5, 2005, the Train A residual heat removal pump accumulated enough unavailability time to exceed the 10 CFR 50.65 a(2) goal due to a 0.5 gpm through wall leak on Room Cooler SGL10A. The licensee wrote Performance Improvement Request (PIR) 2005-2507 on August 31, 2005, to document that the maintenance rule expert panel had a majority vote to move the room cooler function to a(1) status. In the coming years, the replacement schedule defined prior to PIR 2005 2507 was delayed several times. PIR 2005-2507, Action Item 4, required the expert panel to establish a(1) monitoring goals with a monitoring duration by June 30, 2006. Wolf Creek performed a 10 CFR 50.65 a(3) review on April 27, 2007, to determine if the room cooler performance was disproportionate to its established a(2) goals. The April 27, 2007, expert panel meeting minutes, in part, states that a(1) goals had not been established because all of the room coolers had not been replaced and after all room coolers are replaced, that a(1) goals and monitoring will be implemented in the future. Inspectors questioned this practice of only monitoring for performance after corrective action rather than before and after corrective action. Thus, no technically justified goals were established. The inspectors questioned the process of considering the Function a(1) for 3 years of corrective actions with no a(1) monitoring goals in the intervening time. After inspector questioning in February 2008, Wolf Creek has expedited room cooler procurement and replacement. The inspectors also determined that the replacement plan did not implement maintenance activities, which would improve the availability of the systems. This was contrary to the guidance in NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 3, which states that while waiting to implement modifications, increased preventive maintenance may be necessary to ensure the affected function will remain reliable.

This finding is more than minor because it is consistent with Inspection Manual Chapter 612, Appendix E, Example 7.a. Specifically, Wolf Creek failed to establish a(1) goals and monitor performance against those goals for the a(1) GL-5 function for 3 years. The inspectors evaluated the significance of this finding and determined that the finding is of very low safety significance because the support function (GL-5) to cool pump rooms does not result in a total loss of any safety function as identified by the licensee probability risk assessment that contributes to external event initiated core damage accident sequences (i.e., initiated by a seismic, flooding, or severe weather event). The finding has a crosscutting aspects in the problem identification and resolution area associated with corrective action program because Wolf Creek failed to take appropriate corrective actions to address this safety issue and the adverse room cooler trends in a timely manner, commensurate with safety significance and complexity [P.1(d)].

Inspection Report# : [2008003](#) (*pdf*)

Significance:  Jun 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate containment sump inspection procedure

The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion V, "Procedures, Instructions, and Drawings," for Wolf Creek's failure to specify acceptance criteria in its containment sump inspection procedure which led to unidentified gaps in containment Sump A. During a Mode 4 containment walkdown on May 9, 2008, the inspector identified a gap in containment Sump A not previously identified by Wolf Creek. Based on previous Engineering Disposition 12684, the gap acceptance criterion was 0.045 inch. The gap that the inspector identified was 1/8-inch wide by 1/2-inch tall on one of the upper sump strainers. After raising the issue to the control room, Wolf Creek declared containment Sump A inoperable and entered TS 3.5.3. Train B residual heat removal was already inoperable for maintenance. Wolf Creek subsequently entered Technical Specification 3.0.3, and repaired the sump.

Wolf Creek Procedure STS EJ 003, "Containment Sump Inspection" Revision 14, Step 8.1, contains no guidance on filter screen gap acceptance criteria, other than "verify no evidence of structural distress." Wolf Creek last implemented STS EJ-003 during their May 7, 2008, walkdown prior to ascending from Mode 5 to Mode 4. The inspectors considered this a missed opportunity as Wolf Creek should have identified these deficiencies prior to Mode 4. Although the inspectors could not determine with complete certainty that the sump screen gap existed at the time of Wolf Creek's walkdown on May 7, Wolf Creek was not able to identify any work activity performed in the recirculation sump area since that time.

The finding was more than minor because it affected the procedure quality and human performance attributes of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events and prevent undesirable consequences. The inspectors determined that the finding was of very low safety significance because the deficiency did not result in the complete loss of operability or functionality and did not represent a risk significant external event such as flooding. The finding has human performance crosscutting aspects in the area associated with resources. Specifically, Wolf Creek did not ensure that Procedure STS EJ-002 was adequate to assure nuclear safety including complete, accurate and up-to-date specifications or acceptance criteria for the sump [H.2(c)].

Inspection Report# : [2008003](#) (*pdf*)

Significance:  Jun 28, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate switchyard work procedure resulted in a loss of offsite power

A self-revealing finding was identified for an inadequate Wolf Creek switchyard maintenance work instruction which resulted in the loss of offsite power. On April 7, 2008, offsite power was lost to the NB02 4 kV safety-related bus when switchyard workers tripped the incorrect "breaker failure" trip relay while testing the Rose Hill 345kV offsite switchyard breakers. The incorrect closed trip relay made up the logic for the startup transformer protection circuit and extended the trip signal to all 345kV offsite breakers, resulting in the loss of power. The loss of the switchyard bus de-energized the "protected train," 4 kV Bus B. The emergency diesel generator automatically started and supplied power to the Train B bus. Offsite power was restored to Train B bus approximately 8 hours later. The plant was defueled for a refueling outage and NB01 bus was secured for maintenance. The inspectors noted that the work orders only provided generic instructions and did not contain any detailed information or any specific step-by-step instructions on how the work was to be conducted. It was also noted that the switchyard workers did not have a copy of the maintenance procedure in hand and was on the phone with another switchyard worker who coordinated/directed the work. Administrative Procedure AP 21C-001, "WCGS/WESTAR Substation," Revision 8, in part, contains steps for the Wolf Creek switchyard coordinator to review and monitor switchyard activities; and prepare a substation work authorization which describes the type of work to be performed and oversight of work needed. This review process is to ensure control of maintenance which could affect the availability of offsite power. AP 21C-001 also contains guidance that if either NB bus is de-energized, then work should not be performed that could jeopardize power to the inservice NB bus. However, this review did not catch the inadequate instructions provided to the workers nor prevented work that jeopardized power to the inservice NB bus.

This finding is greater than minor because the availability and reliability of a safety-related 4 kV bus was challenged when offsite power was lost. This finding was also associated with the equipment performance attribute of the mitigating systems cornerstone and affected the objective to ensure availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance because the finding did not increase the likelihood of a loss of reactor coolant system inventory, degrade the ability to terminate a leak path or add reactor coolant system inventory when needed during shutdown operations. This finding had human performance crosscutting aspects in the area of resources because personnel did not have adequate procedures and work instructions for switchyard maintenance to ensure that the trip relay testing would not create an inadvertent loss of offsite power [H.2(c)].

Inspection Report# : [2008003](#) (*pdf*)

Significance:  Jun 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to verify engineering design calculation prior to use

The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III (Design Control) for failure to implement engineering procedures and approve a third party calculation prior to use at Wolf Creek. Specifically, the calculation review failed to identify the incorrect design inputs to the net positive suction head calculations on two occasions for residual heat removal and containment spray. On October 5, 2006, Wolf Creek engineering approved Design Change Package 011295 which accepted the associated vendor calculation, TDI 6002 05, Revision 0, for clean strainer head loss as a design analysis calculation for the new containment sump. On January 22, 2008, an operability evaluation documented design errors that created unacceptable reductions in margin-to-net positive suction head requirements for core cooling components associated with the already installed containment recirculation sump strainer modification. Revision 0 of the calculation had omitted the head loss component associated with the as built orifices located in the strainer support plate. The size of the orifice beneath each strainer was not large enough to prevent head loss in excess of the net positive suction head required per the design conditions defined in the purchase specification supplied to the strainer vendor. This resulted in required net positive suction head being less than available. On three separate reviews, Wolf Creek engineering accepted the vendor calculation without completely evaluating the calculation as acceptable in accordance with Wolf Creek plant procedures. Administrative Procedure AP 05D 001, "Calculations," Revision 11, Step 6.11.3, states, in part, that design analysis calculations shall be reviewed and accepted by engineering prior to being used to support plant design or operability. This review shall compare calculations to design inputs, verify assumptions, verify analytical methods, verify accuracy and ensure compliance with design criteria. Contrary to the above, the licensee acceptance review of Revision 0 of the calculation failed to identify incorrect design inputs to the as built orifice size and Revisions 1 and 2 failed to identify the nonconservative temperature correction prior to being accepted.

This finding was more than minor because they were similar to non-minor Example 3.j from NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that, there was a reasonable doubt on the operability of the residual heat removal and containment spray pumps; and if left uncorrected, could result in a more significant safety concern. The finding is of very low safety significance because it was a qualification deficiency confirmed not to result in loss-of-operability in accordance with NRC Manual Chapter Part 9900, Technical Guidance, "Operability Determination Process for Operability and Functional Assessments." The finding had a problem identification and resolution area crosscutting aspects in the corrective action program component, because the site failed to perform a thorough evaluation of vendor calculations to ensure conditions adverse to quality are identified and resolved [P.1(c)].

Inspection Report# : [2008003](#) (*pdf*)



Significance: Apr 07, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement fire protection impairment control permit requirements and compensatory measures

The inspectors identified a noncited violation of Technical Specification 5.4.1.d for failure to implement fire protection impairment control permit requirements and compensatory measures when operators received a trouble alarm on a fire detector in the auxiliary building. On January 26, 2008, operators discovered that Detector KC-104-XCH-ID-006 did not have a fire protection impairment control permit. This detector was adjacent to Detector KC-104-XSH-ID-007 which was already inoperable in Impairment 2008-020. The licensee's administrative procedure required fire detection in the area to be declared inoperable if two adjacent detectors are inoperable. This condition existed for approximately 24 hours and would have required a compensatory continuous fire watch for the period that both detectors were inoperable. The residents identified that the control room turnover checklist contains a section for listing the KC008 alarms; however, the two turnover checklists for the two shifts following the initial alarm did not identify Detector KC 104 XCH ID 006 as a Detector KC 008 alarm.

The failure to implement fire protection impairment control permit requirements and establish compensatory measures for the auxiliary building 2026-foot level was considered a performance deficiency. The finding was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of protection against external factors and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this issue relates to the protection against fire example of protection against external factors attribute because the detectors were inoperable without ensuring compensatory measures were in

place. The finding was of very low safety significance because it involved compensatory measures for the fixed fire protection system and was assigned a low degradation rating since less than 10 percent of the fire detectors in the area were disabled. The finding has crosscutting aspects in the area of human performance associated with work practices because the licensee failed to apply appropriate human error techniques such as self and peer checking techniques to avoid committing errors [H.4(a)].

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Apr 07, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Performing prohibited elective maintenance on offsite power during EDG maintenance

- An NRC identified a noncited violation of Technical Specification 3.8.1.B.4 resulted from Wolf Creek removing equipment from service that was prohibited by the TS. Inspectors reviewed Technical Specification Bases 3.8.1.B.4 which prohibits elective maintenance within the switchyard that would challenge offsite power. Inspectors also reviewed the NRC Safety Evaluation Report for the 7 day emergency diesel generator allowed outage time (Technical Specification 3.8.1.B.4.2.2) and found that Section 4.6.c, states: “The offsite power supply and switchyard conditions are conducive to an extend[ed] DG [completion time], which includes ensuring that switchyard access is restricted and no elective maintenance within the switchyard is performed that would challenge the offsite power availability.” The inspectors determined that challenges to offsite power can originate with elective maintenance inside the protected area.

The inspectors determined that the failure to implement requirements of the NRC Safety Evaluation Report and Technical Specification Bases for Technical Specification 3.8.1.B.4 was a performance deficiency. The finding was more than minor because it is associated with the equipment performance attribute for 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). The finding was determined to be of very low safety significance because the issue resulted in the Train B offsite power being inoperable, but capable of supplying the safety bus for greater than 24 hours. Additionally, the cause of the finding has a human performance crosscutting aspects in the area associated with work control. Specifically, Wolf Creek did not ensure STS IC-805B was appropriately coordinated within organizations to assure plant and human performance during the extended emergency diesel generator allowed outage time. [H.3(b)]

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Apr 07, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish reasonable expectation of operability

- An NRC identified NCV of Technical Specification 5.4.1 for failure to follow the operability process on discovery of the CCP A room cooler leak. Wolf Creek made no log entries at 2:20 p.m. stating its basis for immediate operability. At 3:50 p.m., Wolf Creek control room logs state that centrifugal charging Pump A had a room cooler leak and structural integrity cannot be verified. Subsequent entry into Technical Specification 3.7.8 for the essential service water Pump A caused emergency diesel Generator A to be inoperable. Technical Specification 3.8.1, Condition I states that with three alternating current sources inoperable (both emergency diesel generators and on offsite source), Technical Specification 3.0.3 shall be entered. Wolf Creek exited Technical Specification 3.0.3 at 4:13 p.m. when the inlet and outlet valves to centrifugal charging Pump A’s room cooler were closed. The inspectors could not locate any justification produced by Wolf Creek for the room cooler’s operability after 2:20 p.m.

The inspectors determined that the failure to follow the operability process is a performance deficiency. The inspectors determined that this finding was more than minor because if left uncorrected, it could become a more serious problem if the Technical Specification is not correctly applied. The finding screened to Phase 2 because the finding represents an actual loss of safety function of a single train of high head injection. A bounding risk of Green results from the Phase 2 presolved worksheets using an exposure time of less than 3 days for the centrifugal charging pump (CCP) A [Fails to Run].” The inspectors also determined that the finding had a human performance crosscutting

aspects in the area associated with decision making because the licensee failed to use conservative assumptions in its operability decision and apply a requirement to demonstrate that the room cooler is operable is in order to proceed rather than a requirement to demonstrate that it is inoperable [H.1(b)].

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Apr 07, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely corrective actions for CCP room cooler leads to NOED

The inspectors identified a noncited violation of 10 CFR Part 50 Appendix B Criterion XVI, "Corrective Action," because Wolf Creek failed to take timely corrective actions to prevent failure of the centrifugal charging pump A room cooler which resulted in a Notice of Enforcement Discretion (EA 08 052). The inspectors found that room Cooler SGL12A experienced leaks in October 1999, May 2003, October 2003, August 2004, October 2006, and again in February 2008. On March 14, 2007, Wolf Creek chose to delay SGL12A's replacement until Refueling Outage 16 due to the required length of time to replace the cooler. On February 13, 2008, a circumferential flaw on an H bend was discovered in SGL12A preventing it from performing its safety function. Inspectors reviewed corrective action Procedure AP 28A-100, "Condition Reports," Revision 3 and found that a loss of a train to perform its safety function was considered a significant deficiency requiring corrective action to prevent recurrence. The inspectors reviewed this issue under Performance Improvement Requests 2005-2507 and 2004-0688, and Condition Report 2008-0467 and found that Wolf Creek designated prior failures nonsignificant.

The failure to take timely corrective actions within 9 years 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, 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). The finding screened to Phase 2 because the finding represents an actual loss of safety function of a single train of high head injection for greater than its Technical Specification 3.8.1.B.2 allowed outage time of 4 hours. Using an exposure time of less than 3 days for the scenario "Centrifugal Charging Pump PBG05A [Fails to Run]," a bounding risk of Green results from the Phase 2 presolved worksheets. Additionally, the cause of the finding has a human performance crosscutting aspect in the area associated with resources. Specifically, Wolf Creek did not ensure adequate resources to maintain long-term plant safety by minimizing the room coolers' long-standing issues and preventive maintenance deferrals [H.2(a)].

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Apr 07, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to reestablish timely seal cooling for the reactor coolant pumps

- An NRC identified violation of Technical Specification 5.4.1.d resulted because Procedure OFN RP 017, "Control Room Evacuation," Revision 21, failed to account for the needed actions to reestablish reactor coolant pump seal cooling. Failure to reestablish seal cooling in a timely manner could have resulted in a small break loss of coolant accident.

This performance deficiency resulted from an inadequate postfire safe shutdown procedure. The inspectors determined the finding is greater than minor in that it affected the ability to achieve and maintain hot shutdown following a control room fire. This finding is associated with the Mitigating Systems Cornerstone attribute of protection against external factors (e.g., fire). This finding affected 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. In addition to the control room fire requiring operators to evacuate the control room, the fire would have had to affect components located in two physically separated panels. The licensee has IEEE 383 qualified cables and conductors throughout the plant. The Phase 3 risk evaluation performed by the NRC senior reactor analyst determined this deficiency had very low risk significance.

Inspection Report# : [2008002](#) (*pdf*)

G**Significance:** Apr 07, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to analyze motor operated valve circuits

- The inspectors identified a noncited violation of License Condition 2.c(5) because the licensee failed to evaluate the impact of a motor operated valve failure mechanism on their ability to implement postfire safe shutdown following a control room evacuation. The licensee determined that the failure mechanism affected 38 motor operated valves and upon valve failure could affect their ability to implement their postfire safe shutdown procedure. A short circuit that bypassed the torque and/or limit switches could damage the valves and prevent repositioning of the valve in the postfire safe shutdown position.

The inspectors determined this was a performance deficiency because the licensee failed to ensure that components necessary to safely shutdown the reactor would remain operable following a fire. This deficiency was more than minor, in that, it had the potential to impact 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. In addition to the control room fire requiring operators to evacuate the control room, the fire would have had to affect components located in five different control panels. The Phase 3 risk evaluation performed by the NRC senior reactor analyst determined this deficiency had very low risk significance.

Inspection Report# : [2008002](#) (*pdf*)**Significance:** TBD Dec 29, 2005

Identified By: NRC

Item Type: AV Apparent Violation

Failure to Maintain Reactor Coolant System Subcooling During the Alternative Shutdown

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*)

Significance:  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:  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:  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*)

Significance:  Jun 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Troubleshooting activities bypass design control for the fuel transfer system

The inspectors identified a violation of TS 5.4.1.a in which Wolf Creek raised the winch load setpoint for its fuel transfer system to avoid trips without knowing the cause. During core reload, Wolf Creek experienced repeated trips of the fuel handling system winch. It was not until after NRC involvement that it was identified that the winch load setpoints were inappropriately altered. The inspectors found that on April 17, 2008, under Work Order 08 305599-000, the load setpoints and slow speed zones were inappropriately changed from 250 pounds for 1 second and 590 inches, to 300 pounds for 2 seconds and 585 inches, respectively. The inspectors found that under M 716 00787, Section G, "Software Change Log," no changes to the winch load limits or slow speed zones were referenced. The fuel transfer system is also explicitly controlled under Procedure AP 05-005, "Design, Implementation, & Configuration Control of Modifications." It was subsequently discovered that the setpoints were controlled by a vendor technical document that Wolf Creek accepted as the fuel transfer cart design. Inspectors were unable to locate, and Wolf Creek was unable to produce, modification documentation that justified these software changes. After the discovery that the setpoints were inappropriately changed, the 250 pounds for 1 second and 590 inches were loaded into the EEPROM (nonvolatile memory for the PLC). Power to the fuel transfer system was cycled and the speed change for the cart was observed at 590 inches. On this basis, Wolf Creek believed that the settings had been correctly re established, and fuel moves continued. Wolf Creek has had difficulty determining with certainty that the original setpoints were correctly re-established.

The finding was more than minor because it is associated with the human performance attribute for the barrier integrity cornerstone; and, it affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding) protect the public from radio nuclide releases caused by accidents or events. Specifically, this issue relates to the procedure adherence example of the human performance attribute because the design process was bypassed to mask fuel cart problems. The finding was of very low safety significance because the issue did not result in fuel handling errors that caused damage to fuel clad integrity or a dropped fuel assembly. The cause of the finding has human performance crosscutting aspects in the area associated with decision making. Specifically, Wolf Creek did not ensure safety by making safety or risk significant decisions by using any procedural or systematic process when faced with the unexpected and repeated fuel transfer cart winch trips.

Inspection Report# : [2008003](#) (*pdf*)

Occupational Radiation Safety

Significance:  Apr 07, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to control area as a locked high radiation area

The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.7.2.a for failure to evaluate changing radiological conditions and control an area as a locked high radiation area. Specifically, on October 17, 2007, dose rates in Room 7604 increased to levels requiring posting as a “Locked High Radiation Area,” as a result of a vent and drain evolution. Dose rates reached a level of 1500 mRem/hour prior to the area being properly posted and controlled. This issue was entered into the licensee’s corrective action program as Condition Report 2007-003934.

Immediate corrective actions included posting and controlling the area as a locked high radiation area. Other

corrective actions included changing the vent and drain process to change the vent path.

This finding is greater than minor because it is associated with the occupational radiation safety program and process attribute and affected the cornerstone objective, in that, the failure to properly post and control access to a locked high radiation area has the potential to increase personnel dose. This occurrence involves the potential for unplanned, unintended dose. Utilizing Inspection Manual Chapter 0609, Appendix C, “Occupational Radiation Safety Significance Determination Process,” the inspectors determined that the finding was of very low safety significance because it did not involve; (1) as low as is reasonably achievable planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. This finding has a crosscutting aspect in the area of human performance associated with the work control component because licensee failed to appropriately plan work activities by incorporating job site conditions that may impact radiological safety.

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Apr 07, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to follow procedure

The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1 for failure to follow a licensee procedure. Specifically, on March 29, 2008, one of two radiographers conducting radiography operations in the quality control vault received a dose rate alarm on their electronic dosimeter. The two radiographers evaluated the dose received and decided to continue with radiography without notifying health physics personnel to evaluate the conditions. This issue was entered into the licensee’s corrective action program as Condition Report 2008-001181.

Immediate corrective actions included restriction of the radiographers to log onto the radiation work permit and discussions with the radiographers and the contractor’s radiation safety officer. Long term corrective action is still being evaluated.

This finding is greater than minor because it is associated with the occupational radiation safety program and process attribute and affected the cornerstone objective, in that, the failure to stop work and notify health physics personnel for assistance had the potential to increase personnel dose. This occurrence involves the potential for unplanned, unintended dose. Utilizing Inspection Manual Chapter 0609, Appendix C, “Occupational Radiation Safety Significance Determination Process,” the inspector determined that the finding was of very low safety significance because it did not involve: (1) as low as is reasonably achievable planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. This finding has a crosscutting aspect in the area of human performance associated with the decision making component because the radiographer and assistant failed to contact health physics personnel to discuss the circumstances surrounding the unexpected dose rate alarm.

Inspection Report# : [2008002](#) (*pdf*)

Public Radiation Safety

Significance:  Sep 12, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Provide an Accurate 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

Significance: TBD Apr 22, 2008

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution Team Inspection Results

The team reviewed approximately 224 documents, which included condition reports, work orders, apparent and root cause analyses, and other related documents, to assess the effectiveness of the licensee's problem identification and resolution processes and systems over a 2-year assessment period. The team concluded that problems were consistently identified and entered into the corrective action program and evaluated, but challenges to the corrective action program were identified.

The team identified four findings and noted four additional examples of findings that occurred during the assessment period that resulted from failure to implement appropriate or timely corrective actions.

Four examples were noted where ineffective use of operating experience contributed to NRC-identified findings during the assessment period. The licensee was not employing a formal electronic tracking system (as required by procedure) for the review of operating experience.

The licensee performed effective and critical self-assessments and audits, with the exception that no formal trending of equipment issues was performed for items tracked by work orders. The procedure for equipment trending was only applicable to condition reports.

The team concluded that the licensee established a safety-conscious work environment. All the interviewees believed that potential safety issues were being addressed and there were no instances identified where individuals had experienced adverse actions for bringing safety issues to licensee management or the NRC. However, 15 of 28 interviewees were not aware of the employee concerns program's ability to take nuclear safety issues.

Inspection Report# : [2008006](#) (*pdf*)

Last modified : June 05, 2009