UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

May 11, 2004

Rick A. Muench, President and
Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

SUBJECT: WOLF CREEK GENERATING STATION - NRC INTEGRATED INSPECTION REPORT 05000482/2004002

Dear Mr. Muench:

On April 7, 2004, the NRC completed an inspection at your Wolf Creek Generating Station. The enclosed integrated report documents the inspection findings which were discussed on April 8, 2004, with Mr. Kevin Scherich and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The report documents one NRC-identified and one self-revealing finding of very low safety significance (Green). One of these findings was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as noncited violation consistent with Section VI.A of the NRC Enforcement Policy. Additionally, one licensee-identified violation of very low safety significance is listed in this report. If you contest this noncited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Wolf Creek Generating Station facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

David N. Graves, Chief
Project Branch B
Division of Reactor Projects

Docket: 50-482
License: NPF-42

Enclosure:
NRC Inspection Report 05000482/2004002
w/attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	50-482
License:	NPF-42
Report:	05000482/2004002
Licensee:	Wolf Creek Nuclear Operating Corporation
	Wolf Creek Generating Station
Location:	1550 Oxen Lane NE Burlington, Kansas
Dates:	January 1 through April 7, 2004
Inspectors:	F. L. Brush, Senior Resident Inspector T. B. Rhoades, Resident Inspector J. M. Mateychick, Reactor Inspector W. M. McNeill, Reactor Inspector R. P. Mullikin, Senior Reactor Inspector L. T. Ricketson, PE, Senior Health Physicist
Approved By:	D. N. Graves, Chief, Project Branch B
ATTACHMENT:	Supplemental Information

SUMMARY OF FINDINGS

IR 05000482/2004002; 1/1/04 - 4/7/04; Wolf Creek Generating Station; Event Followup

The report covered the period of resident inspection and announced inspections by three Region IV inspectors. One Green finding and one Green noncited violation were identified. The significance of issues is indicated by their color (Green, White, Yellow, or Red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609. Findings for which the significance determine process does not apply are indicated by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors documented a self-revealing finding for inadequate work instructions and acceptance criteria for maintenance activities on the feedwater regulating valves which resulted in a reactor trip. This finding is greater than minor because it is associated with the reactor safety strategic performance area Initiating Events cornerstone. Specifically, the failure to provide adequate work instructions and acceptance criteria for feedwater regulating valve maintenance resulted in a plant trip. The finding is of very low safety significance because, although it resulted in a reactor trip, it did not: increase the likelihood of a primary or secondary system loss of coolant accident initiator, contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, or increase the likelihood of a fire or internal/external flood (Section 4OA3.2).

- Green. The inspectors identified a noncited violation of Technical Specification License Condition 2.C(5)(a) because 15 fire seals were inadequately installed to provide the required 3-hour rating for fire barriers between fire areas containing redundant safe shutdown equipment in accordance with 10 CFR Part 50, Appendix R, Section III.G.2, requirements. The licensee wrote Performance Improvement Request 2003-3704 to document these conditions. After identification, the licensee installed the required fire barrier material to restore the 3-hour rating of each barrier.

  This finding is greater than minor because it is similar to the example in Inspection Manual Chapter 0612, Appendix E, Section 2.e. In the as-found condition, the fire penetration seals at the seismic gaps were not rated to perform their function to prevent the spread of fire for 3 hours. This finding is of very low safety significance because, overall, the fire barriers would have provided protection needed for credible fire scenarios (Section 4OA5).

B. Licensee-Identified Violations

A violation of very low significance was identified by the licensee and has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violation and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The plant operated at essentially 100 percent power for the report period with the following exception. On February 13, 2004, the plant tripped from 100 percent power on lo-lo steam generator water level when the main feedwater regulation valve for Steam Generator D failed. The licensee repaired the valve and returned the plant to service on February 16 and 100 percent power on February 17, 2004. The plant operated at essentially 100 percent power for the remainder of the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness

1R01 Adverse Weather (71111.01)

a. Inspection Scope

On March 17, 2004, the inspectors performed a walkdown of various power block buildings and the main switchyard to verify that severe weather would not affect mitigating systems. The inspectors also discussed aspects of severe weather preparations with licensee personnel and reviewed the following documents:

- AI 14-006, “Severe Weather,” Revision 5
- OFN SG-003, “Natural Events,” Revision 12
- Radiological Emergency Response Plan, Revision 5, EAL-11, “Natural Phenomena”
- SEC 50-123, “Security Off Normal Requirements,” Revision 17
- SEC 50-112, “Fire, Explosion, or Other Catastrophe (Natural or Manmade),” Revision 10

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

Partial Walkdowns

a. Inspection Scope

The inspectors performed the following three partial walkdowns:

- Auxiliary feedwater Train B during an auxiliary feedwater Train A outage, January 15, 2004
- Component cooling water Train B during a component cooling water Train A pump outage, March 5, 2004
- Safety injection system Train B during a safety injection system Train A outage, February 4, 2004

The inspectors performed the walkdowns to verify equipment alignment and identify discrepancies that could impact redundant system operability.

Complete Walkdown

a. Inspection Scope

The inspectors completed a walkdown of the Emergency Diesel Generator B system on February 18, 2004. The inspectors performed the walkdowns to verify equipment alignment and identify discrepancies that could impact redundant system operability. The inspectors used the Updated Safety Analysis Report, system drawings, and system lineup checklists to perform the walkdown. The inspectors also reviewed the outstanding work order list, corrective action program documents, and system health documents.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Quarterly Fire Area Walkdowns

a. Inspection Scope

The inspectors toured the following six areas to assess the licensee's control of combustibles, the material condition and lineup of fire detection and suppression systems, and the material condition of manual fire equipment and passive fire barriers. The licensee's fire preplans and fire hazards analysis report were used to identify

important plant equipment, fire loading, detection and suppression equipment locations, and planned actions to respond to a fire in each of the plant areas selected. Compensatory measures for degraded equipment were evaluated for effectiveness.

- Auxiliary feedwater system nitrogen tank rooms, February 3, 2004
- Auxiliary building transient combustible material loading, February 19, 2004
- Control building 2016 foot level, January 23, 2004
- Control building control room complex, February 28, 2004
- North and south vital switchgear rooms during a partial fire protection system outage, March 24, 2004
- North piping penetration room, January 12, 2004

Annual Fire Drill

a. Inspection Scope

On April 3, 2004, the inspectors observed a fire drill that involved the following groups or organizations:

- Onsite fire brigade
- Coffey County fire district

The fire drill was held in the warehouse. The scenario included a fire in the Class A combustible storage facility and injury to one of the onsite fire brigade hose teams. The offsite fire department provided replacement personnel for the injured hose team and rigged fire hoses from trucks to the fire scene. The inspectors attended the postdrill critique.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On January 29, 2004, the inspectors verified that the licensee's flood mitigation plans and equipment were consistent with the licensee's design requirements and the risk assumptions in the Updated Safety Analysis Report. The area inspected was the 1983 foot level of the turbine building.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

On February 25, 2004, the inspector observed control room operator simulator training to verify that the licensed operator requalification program ensures safe operation of the plant. The inspector observed crew performance to evaluate operator communications, procedure usage, operator actions, and the oversight and direction provided by the operating crew senior reactor operators. The inspector used Simulator Guide LR 50 010 07, "Main Steamline Break and High Containment Pressure," Revision 9.

The inspector also reviewed the scenario sequences and objectives, attended the crew critique, and discussed crew performance with licensee training personnel. The licensee stated that the area of emphasis was mitigating discipline. The licensee defined this as staying on course to protect the general public by ensuring the operators do not get distracted.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the licensee's maintenance effectiveness for the following two systems to assess the effectiveness of maintenance efforts in accordance with 10 CFR 50.65.

- Reactor protection system
- Emergency diesel generators

The inspectors reviewed work practices, scoping in accordance with 10 CFR 50.65(b), performance, 10 CFR 50.65(a)(1) or (a)(2) classification and reclassification goals, and identification of common cause failures. The inspectors reviewed various documentation and discussed maintenance rule items with licensee personnel.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

a. Inspection Scope

The inspectors reviewed four of the licensee's risk assessments for equipment outages as a result of planned and emergent maintenance in accordance with the requirements of 10 CFR 50.65(a)(4) and licensee Procedure AP 22C-003, "Operational Risk Assessment Program," Revision 9. The inspectors also discussed the planned and emergent work activities with operations, planning, and maintenance department personnel. The inspectors reviewed the following:

- Operational risk assessments for planned maintenance for the weeks of January 12, February 2 and 16, and March 1-8
- Actual, planned, and emergent work schedules for the same weeks

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Nonroutine Evolutions and Events (71111.14)

a. Inspection Scope

1. Reactor Trip

On February 13, 2004, the inspectors observed the control room operators' response to a plant trip. The plant tripped on lo-lo steam generator water level when the feedwater regulation valve for Steam Generator D failed. The inspectors also discussed the trip with various operations department personnel.

2. Loss of the Startup Transformer

On March 6, 2004, the switchyard west bus deenergized due to a ground fault on the startup transformer. The startup transformer was the normal power supply to vital Bus B. As a result of the loss of the transformer, Emergency Diesel Generator B started and powered up vital Bus B. The shutdown sequencer started the various safety-related pumps powered by the bus. The inspectors reviewed the operators' response to the loss of the transformer.

Additionally, Emergency Diesel Generator B developed a significant fuel oil leak while supplying power to vital Bus B. This rendered the diesel inoperable since there would not be enough fuel in the storage tank for 7 days of operation. The licensee installed a temporary modification to limit the leak and allow continued diesel operation. Following restoration of the startup transformer to service, the licensee repaired the diesel fuel oil

line. The inspectors discussed the event with various licensee personnel and reviewed the temporary modification package (Section 1R23 of this report).

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected six operability evaluations conducted by the licensee involving risk-significant systems or components to review. The inspectors evaluated the technical adequacy of the licensee's operability determinations, verified that appropriate compensatory measures were implemented, and verified that the licensee considered all other pre-existing conditions, as applicable. Additionally, the inspectors evaluated the adequacy of the licensee's problem identification and resolution program as it applied to operability evaluations. The specific operability evaluations reviewed are listed below.

The components or systems were:

- Auxiliary feedwater Pump B, February 25, 2004
- Centrifugal charging Pump B, January 5, 2004
- Essential service water system leakage, February 27, 2004
- Main control board Foxboro controllers, January 14, 2004
- Residual heat removal Pump A, January 15, 2004
- Residual heat removal Pump A to chemical and volume control system centrifugal charging pumps' isolation valve, March 17, 2004

The inspectors also reviewed applicable portions of the Updated Safety Analysis Report, Technical Specifications, and system drawings, and discussed the operability evaluations with licensee personnel.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

On February 13, 2004, the inspectors reviewed the cumulative effects of operator workarounds to determine the following:

- Effect of the workarounds on system reliability, availability, and potential for misoperation
- Whether the cumulative effects of the workarounds could affect multiple mitigating systems
- The cumulative effects of the workarounds on the operator's response to plant transients and accidents

The inspectors reviewed licensee Administrative Procedure AI 22A-001, "Operator Workarounds," Revision 2, and the licensee's operator workaround/burden list.

The inspectors discussed with licensee operations personnel long-term equipment problems that were not included in the workaround list. The inspectors reviewed two deficiencies that were not on the list and did not meet the licensee's definition of a workaround or operator burden. The inspectors reviewed the cumulative effects of the operators workarounds, burdens, and long-term equipment problems to determine whether they could affect mitigating system response during normal and emergency plant operations.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17B)

a. Inspection Scope

The inspection procedure (71111.17B) requires a minimum sample size of 5 to 10 plant modifications. The inspectors reviewed 14 permanent plant modification packages and associated documentation, such as implementation reviews and safety evaluation applicability determinations and screenings, to verify that they were performed in accordance with regulatory requirements and plant procedures. The inspectors reviewed procedures governing plant modifications to evaluate the effectiveness of the programs for implementing modifications to risk-significant systems, structures, and components, such that these changes do not adversely affect the design and licensing basis of the facility. Procedures and permanent plant modifications reviewed are listed

in the attachment to this report. The inspectors interviewed the cognizant design and system engineers for the identified modifications to gain their understanding of the modification packages.

The inspectors evaluated the effectiveness of the licensee's corrective action process to identify and correct problems concerning the performance of permanent plant modifications. In this effort, the inspectors reviewed 17 corrective action documents (performance improvement requests listed in the attachment to this report) and the subsequent corrective actions pertaining to licensee-identified problems and errors in the performance of permanent plant modifications.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed or observed six postmaintenance tests on the following equipment or systems to verify that procedures and test activities are adequate to verify system operability:

- Auxiliary feedwater Train A, January 15, 2004
- Class 1E electrical equipment air conditioning Unit A, March 11, 2004
- Component cooling water Pump B, March 24, 2004
- Component cooling water Pump C, March 5, 2004
- Emergence Diesel Generator B, February 19, 2004
- Safety injection Train A, February 4, 2004

In each case, the associated work orders and test procedures were reviewed to determine the scope of the maintenance activity and whether components affected by the maintenance were adequately tested. The Updated Safety Analysis Report, design basis documents, and selected calculations were also reviewed to determine the adequacy of the acceptance criteria listed in the test procedures.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

On February 13, 2004, the reactor tripped on lo-lo steam generator water level when a main feedwater regulating valve failed closed. The inspectors reviewed the posttrip review package and attended the plant safety review committee meeting. The inspectors also reviewed the status of various systems prior to plant startup. The inspectors performed a containment walkdown shortly after the trip to ascertain if there were any reactor coolant system leakage issues.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed or observed all or part of the five surveillance activities in accordance with inspection Attachment 71111.22 to verify that risk significant structures, systems, and components are capable of performing their intended safety functions and assessing their operational readiness:

- STS AB-201D, “Atmospheric Relief Valve Inservice Valve Test,” Revision 12, January 12, 2004
- STS BG-005A, “Boric Acid Transfer System Inservice Pump A Test,” Revision 16, February 11, 2004
- STS EF-100A, “ESW System Inservice Pump A & ESW A Discharge Check Valve Test,” Revision 25, March 11, 2004
- STS EJ-100A, “RHR System Inservice Pump A Test,” Revision 27, January 6, 2004
- STS KJ-015B, “Manual/Auto Fast Start, Sync and Loading of EDG NE02,” Revision 17, February 19, 2004

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the following two temporary modifications:

1. Centrifugal Charging Pump B

On January 8, 2004, the inspectors completed the review of Temporary Modification 03-008-BG, Revision 1. The modification rerouted a drain for centrifugal charging Pump B to prevent a water/oil mixture from entering the plant drain system. The inspector reviewed the associated applicability determination and 10 CFR 50.59 screening. The inspectors also reviewed Performance Improvement Request 2003-3764.

2. Emergency Diesel Generator B

On March 11, 2004, the inspectors completed the review of Temporary Modification 04-003-KJ, Revisions 0 and 1. The modification added a strongback to minimize a leak on the fuel oil return line that drains the excess fuel oil supplied to the fuel racks. The diesel was in service due to the loss of the normal feed to the associated vital bus. Section 1R14 of this report discusses the loss of power to the bus. The licensee determined that the fuel oil return line leak affected diesel operability. Additionally, the licensee was unable to repair the leak online and the diesel could not be shut down since there was no other power supply available to the vital bus. The inspectors also walked down the temporary modification.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On April 1, 2004, the inspectors observed and reviewed emergency drill activities in the simulator control room, the technical support center, and the emergency offsite facility. The drill scenario involved a security event that lead to a faulted steam generator and subsequent radiological consequences. The inspectors attended emergency offsite facility and technical support center drill critiques, reviewed drill critique sheets and other associated documents and information, and discussed the drill activities with various licensee personnel.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY
Cornerstone: Occupational Radiation Safety [OS]

2OS2 As Low As Is Reasonably Achievable (ALARA) Planning and Controls (71121.02)

a. Inspection Scope

The inspector assessed licensee performance with respect to maintaining individual and collective radiation exposures ALARA. The inspector used the requirements in 10 CFR Part 20 and the licensee's procedures required by Technical Specifications as criteria for determining compliance. The inspector interviewed licensee personnel and reviewed:

Current 3-year rolling average collective exposure

- Site-specific trends in collective exposures, plant historical data, and source-term measurements
- Site-specific ALARA procedures
- Four work activities of highest exposure significance completed during the last outage
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Intended versus actual work activity doses and the reasons for any inconsistencies
- Assumptions and basis for the current annual collective exposure estimate, the methodology for estimating work activity exposures, the intended dose outcome, and the accuracy of dose rate and man-hour estimates
- Method for adjusting exposure estimates or replanning work, when unexpected changes in scope or emergent work were encountered
- Use of engineering controls to achieve dose reductions and dose reduction benefits afforded by shielding

The inspector completed 9 of the required 15 samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors performed a review of three performance indicators. The inspectors reviewed the licensee's data submittal using NEI (Nuclear Energy Institute) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2. The inspectors reviewed various licensee indicator input information to determine the accuracy and completeness of the performance indicator.

- Reactor coolant system specific activity, January through December 2003, completed in February 27, 2004
- Unplanned power changes per 7000 critical hours, January through December 2003, completed in March 17, 2004
- Scrams with loss of normal heat removal, January through December 2003, completed in February 27, 2004

The inspectors discussed system status with various licensee personnel. The inspectors also reviewed licensee information, including control room logs and the Technical Specifications.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

a. Inspection Scope

.1 Reactor Building Polar Crane Overload

On February 24, 2004, the inspectors completed the review of the licensee's response to an overload of the reactor building polar crane while attempting to lift the upper plenum/missile shield from the reactor vessel head. The licensee initiated Performance Improvement Request 2003-3513 to document the evaluation and corrective actions. The licensee also convened an incident investigation team to determine the root causes and corrective actions.

The licensee determined that the root causes were that the load director failed to adequately monitor the load cell display and the crane operator did not know how to read the display. Also contributing to the event were the following:

- The load cell unit failed to function as designed
- The work order contained inadequate instructions
- The licensee provided inadequate oversight of contractors
- The licensee was ineffective in using industry operating experience

The licensee identified a number of corrective actions, which included:

- Developing instructions for lifting the plenum assembly
- Repairing the load cell
- Revising Procedure FHP 02-007B, "Reactor Vessel Closure Head Installation," to perform a calibration check validation of the load cell unit's functions
- Revising other lifting procedures to ensure a calibration of the load cell unit's function

The inspectors also reviewed Configuration Change Package 011287, "Evaluate Polar Crane Overload," Revision 0.

b. Findings

No findings of significance were identified.

.2 ALARA Planning and Controls

a. Inspection Scope

Section 2OS2 evaluated the effectiveness of the licensee's problem identification and resolution processes regarding exposure tracking, higher than planned exposure levels, and radiation worker practices.

b. Findings

No findings of significance were identified.

4OA3 Event Followup (71153)

1. (Closed) Licensee Event Report (LER) 50-482/2003-004-00: Failure of Safety Injection Accumulator Vent Line

On November 17, 2003, during Refueling Outage 13, licensee personnel identified a small leak from a Class 2, 3/4-inch vent line upstream of safety injection system vent Valve EPV0109. The 3/4-inch vent line was on the combined safety injection/residual heat removal outlet piping to reactor coolant system accumulator Tank D. The leakage was a degradation of a principal safety barrier. The licensee repaired the leak. The inspectors reviewed this LER and did not identify any findings of significance. The licensee documented the leak in Performance Improvement Request 2003-3486. This LER is closed.

2. Reactor Trip

a. Inspection Scope

On February 13, 2004, the plant tripped on lo-lo steam generator water level when the main feedwater regulation valve for Steam Generator D failed closed. All systems responded as required. The inspectors reviewed the following:

- Performance Improvement Request 2004-0393
- Portions of Work Orders 00-221694-000 and -238059-035
- Portions of Work Packages 102072, 113219, and 118064
- Reactor posttrip report

b. Findings

Introduction. A Green self-revealing finding for inadequate work instructions and acceptance criteria for maintenance activities on the feedwater regulating valves.

Description. Following the plant trip, the licensee disassembled the failed feedwater regulating valve. The valve disk had fallen off of the stem. The licensee had performed maintenance on all four feedwater regulating valves during the fall 2003 refueling outage. Maintenance personnel remembered that, at that time, the valve disks on three valves were somewhat loose. The licensee reviewed the valves' work histories and determined that the valve maintenance procedure did not require a torque value when attaching the disk to the stem. Also, the maintenance procedure used for the valve work did not have appropriate acceptance criteria. The disk was not tight enough; therefore, the threads on the stem wore off, which allowed the disk to drop into the feedwater flow path. Additionally, the engineering staff did not provide accurate information concerning the acceptability of the valves' conditions with the loose stems. All four feedwater regulating valves were inspected and repaired prior to restarting the reactor.

Analysis. The inspector determined that the licensee's failure to provide adequate work instructions and acceptance criteria was a performance deficiency.

This finding is greater than minor because it is associated with the reactor safety strategic performance area Initiating Events cornerstone. Specifically, the failure to provide adequate work instructions and acceptance criteria for feedwater regulating valve maintenance resulted in a plant trip.

The finding was evaluated using the significance determination process and was determined to be a finding of very low safety significance during the Phase 1 screening. The finding did not:

- Contribute to the likelihood of a primary or secondary system loss of accident coolant initiator
- Contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available
- Increase the likelihood of a fire or internal/external flood

The licensee documented this issue in Performance Improvement Request 2004-0393.

Enforcement. No violation of regulatory requirements occurred. The inspectors determined that the finding did not represent a noncompliance because it occurred on nonsafety-related secondary plant equipment (FIN 05000482/2004002-01).

4OA5 Other Activities

.1 (Closed) Unresolved Item (URI) 50-482/2003006-01: Fire Protection

Introduction

The inspectors identified a noncited violation of Technical Specification License Condition 2.C(5)(a) for 15 fire barrier fire seals that were inadequately installed at seismic gaps. In each case, the licensee failed to provide an adequate 3-hour rated fire barrier between fire areas containing redundant safe shutdown equipment in accordance with the licensee's commitment to 10 CFR Part 50, Appendix R, Section III.G.2. Overall, the fire barriers were only slightly degraded.

Description

The inspectors identified that approximately 20 inches of fire barrier material between the main steam enclosure and the auxiliary feedwater system flow control valve rooms was missing. The main steam enclosure was directly above the auxiliary feedwater system flow control valve rooms. At the floor of the main steam enclosure, fire barrier material was missing from the approximately 4-inch wide seismic gap between the

reactor and auxiliary buildings, leaving a small path for flame to migrate from one auxiliary feedwater system flow control valve room to the other. This path was small because the flame barrier on the auxiliary feedwater system control room elevation was properly installed. The licensee determined that the fire barrier had been degraded, since initial plant construction. The licensee immediately placed fire barrier material in the gap, and wrote Performance Improvement Request (PIR) 2003-3704 to document the condition.

Subsequently, the licensee performed an inspection of plant areas with multiple fire boundary seismic gap interfaces. The concern was at the junction where a wall and a floor interfaced at the seismic gap with the outside containment wall. The licensee's inspection resulted in 14 additional locations that did not provide a 3-hour fire rated barrier between fire areas and fire zones in accordance with 10 CFR Part 50, Appendix R, Section III.G.2, requirements. After identification, the licensee installed the required fire barrier material to restore the 3-hour rating of the barrier.

Additionally, the inspectors asked whether the caulking compound and polyethylene backing material used in the seismic gaps were included in the fire loading calculations for each fire area. The caulking material was used as a pressure and/or flooding boundary. The licensee stated that these materials were combustible and were consumed during the fire barrier qualification tests. The licensee also stated that only the caulking and backing material in a fire area would be affected by a fire in that area. The adjacent area's caulking compound material would not reach a high enough temperature to sustain combustion.

Analysis

The inspectors reviewed licensee's Engineering Disposition RER 2004-002, "Reportability Review for PIR 2004-0234," and inspected the fire areas affected by the 15 degraded fire seals to determine if any posed the potential to affect redundant safe shutdown equipment in adjoining fire areas.

Using Manual Chapter 0609, Appendix F, Attachment 2, "Additional Guidance for the Assessment of Findings Using Significance Determination Process Entry," the inspectors determined the following.

- There was no credible fire scenario that would affect more than one safe shutdown area. This was based on either a lack of combustible material, lack of ignition sources, location of the seal in regard to safe shutdown equipment, the presence of detection and suppression, the amount of seal degradation, or the distance from the seal to any combustible material. In addition, the inspectors determined that the fire barriers did not have a significant gap between fire areas and, in some cases, the fire seal material was butted up against each other at a right angle.

- These as-found conditions did not provide the required 3-hour fire rating, but would hamper the propagation of smoke and hot gases between fire areas for some untested amount of time. The inspectors concluded that the degraded fire barriers would provide a minimum of 20 minutes fire endurance protection, and the fixed and in situ fire ignition sources and combustible or flammable materials were positioned such that, even considering fire spreading to secondary combustibles, the degraded fire barriers would not be subject to direct flame impingement.

Based on the above, this finding was greater than minor because it was similar to the example in Inspection Manual Chapter 0612, Appendix E, Section 2.e. In the as-found condition, the 15 fire penetration seals at the seismic gaps would not have performed their function as a 3-hour rated fire barrier. This finding is of very low safety significance because, overall, the fire barriers would have provided protection needed for credible fire scenarios.

Enforcement

The failure to provide 3-hour fire rated barriers is a violation of Technical Specification License Condition 2.C(5)(a), in part, because it requires the licensee to implement and maintain in effect all provisions of the approved fire protection program. The Wolf Creek fire protection program commits to 10 CFR Part 50, Appendix R, Section III.G.2, which requires a 3-hour fire barrier between the redundant safe shutdown equipment. Contrary to the above, 15 fire seals were inadequately installed to provide the required 3-hour rating. Since this finding was determined to have very low safety significance and was entered into the licensee's corrective action program as Performance Improvement Request 2003-3704, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000482/2004002-02.

.2 The inspector reviewed the World Association of Nuclear Operators Peer Review report for the site visit March 17-28, 2003. The inspector did not identify any findings that warranted additional tracking.

4OA6 Meetings

.1 Exit Meeting Summary

On April 8, 2004, the inspectors presented the resident inspection results to Mr. K. L. Scherich, Director of Engineering, and other members of licensee management after the conclusion of the inspection.

On February 27, 2004, the inspectors presented the permanent plant modifications inspection results to Mr. R. A. Muench, President and Chief Executive Officer, and other members of his staff.

On March 19, 2004, the inspector presented the ALARA planning and controls inspection results to Mr. S. R. Koenig, Manager, Chemistry and Radiation Protection, and other members of his staff.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. The licensee furnished proprietary information to the NRC and the information was returned to the licensee.

4OA7 Licensee-Identified Violations

The following violation of very slow safety significance (Green) was identified by the licensee and is a violation of NRC requirements, which met the criteria of Section IV of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as noncited violations.

Technical Specification 5.4.1.a requires written procedures be established, implemented, and maintained covering the applicable procedures in Regulatory Guide 1.33, Revision 2, Appendix A, February, 1978. Contrary to this, on December 31, 2003, licensee personnel did not close the containment spray Pump B test return line valve to the refueling water storage tank after the pump run in accordance with Surveillance Procedure STS EN-100B, "Containment Spray Pump B Inservice Pump Test," Revision 16. This rendered Containment Spray Train B inoperable. The licensee discovered the valve open on January 15, 2004. However, both containment spray test return lines join to a common return line to the refueling water storage tank. The common return line also has an isolation valve which was closed after the test in accordance with the procedure. Even though containment spray Train B was inoperable, the train would have performed it design function since the common return line valve was closed. This finding is of very low safety significance and was documented in the licensee's corrective action program as Performance Improvement Request 2004-0094.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

K. A. Harris, Director Performance Improvement and Learning
R. A. Muench, President and Chief Executive Officer
B. T. McKinney, Vice President Oversight
D. Jacobs, Vice President Operations and Plant Manager
K. L. Scherich, Director of Engineering

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

50-482/2004002-01	FIN	Inadequate Work Instructions and Acceptance Criteria for Maintenance Activities on the Feedwater Regulating Valves (Section 4OA3.2)
50-482/2004002-02	NCV	Inadequate Fire Barriers at Seismic Gaps (Section 4OA5)

Closed

50-482/2003-004-00	LER	Failure of Safety Injection Accumulator Vent Line (Section 4OA3.1)
50-482/2003006-01	URI	Fire Protection (Section 4OA5)
50-482/2004002-01	FIN	Inadequate Work Instructions and Acceptance Criteria for Maintenance Activities on the Feedwater Regulating Valves (Section 4OA3.2)
50-482/2004002-02	NCV	Inadequate Fire Barriers at Seismic Gaps (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

ALARA Planning and Controls

Work Activities Packages

- 03-3220 Eddy current testing of Steam Generators A through D
- 03-4051 Reactor head modification/Westinghouse portion

- 03-4200 Secondary side steam generator activities
- 03-4420 Scaffolding

Procedures

- AP 22D-001 "Refueling Outage Planning and Implementation," Revision 6
- AP 25A-100 "Containment Entry," Revision 10
- AP 25A-401 "ALARA Program," Revision 9
- RPP 02-105 "RWP," Revision 20

Corrective Action Documents

- Performance Improvement Requests 2003-0401, -2558, -3116, -3293, -3321, -3399, -3517, and 2004-0399

Site ALARA Committee Minutes

- September 30 and October 13, 2003, February 27 and March 4, 2004

Miscellaneous Documents

- Wolf Creek ALARA Long Range Exposure/Source Term Reduction Plan 2002 - 2006

<u>Emergency Preparedness</u>

- APF 06-002-01, "Emergency Action Level 4, Main Steam Line Break," Revision 3
- April 1, 2004, 04-SA-01 Drill, "Emergency Planning Drill"
- Facility Evaluation Log Sheets associated with the Emergency Planning Drill of April 1, 2004
- Multiple EPF 06-007-01, "Emergency Notification," Revision 7, associated with the Emergency Planning Drill of April 1, 2004
- Multiple EPF 06-009-01, "Emergency Response Log," Revision 0, associated with the Emergency Planning Drill of April 1, 2004

<u>Equipment Alignment</u>

- CKL EG-120, "Component Cooling Water System Valve, Switch and Breaker Lineup," Revision 35
- CKL EM-120, "Safety Injection System Lineup Checklist," Revision 21
- CKL KJ-121, "Diesel Generator NE01 and NE02 Valve Checklist," Revision 25
- Drawing M-12EM01, "Piping and Instrumentation Diagram High Pressure Coolant Injection System," Revision 26

- Drawing M-12EM02, “Piping and Instrumentation Diagram High Pressure Coolant Injection System,” Revision 15
- Drawing M-12AL 01, “Piping and Instrumentation Diagram Auxiliary Feedwater System,” Revision 9
- Drawing M-12EG01, “Piping and Instrumentation Diagram Component Cooling Water System,” Revision 9
- Drawing M-12EG02, “Piping and Instrumentation Diagram Component Cooling Water System,” Revision 4
- Drawing M-12KJ 04, “Piping and Instrumentation Diagram Standby Diesel Generator B Cooling Water System,” Revision 6
- Drawing M-12KJ 05, “Piping and Instrumentation Diagram Standby Diesel Generator B Intake Exhaust, F.O. and Start Air System,” Revision 8
- Drawing M-12KJ 06, “Piping and Instrumentation Diagram Standby Diesel Generator B Lube Oil System,” Revision 6
- Emergency diesel generators system health report, updated February 10, 2004
- Performance Improvement Requests 2003-2468, -2853, -3272, and 2004-0132
- Work Order 03-253306-000

Fire Protection

- Drill number 20040403/0830/A, “Class A storage Rack”
- Updated Safety Analysis Report
- Fire Drill Scenario And Critique Report, Drill 20040403/0830/A

Maintenance Effectiveness

- Final scope evaluation for SB, reactor protection system
- Functional failure evaluations for SB, reactor protection system
- Functional failure evaluations for KJ-01, standby diesel engine system
- Maintenance rule bases information for KJ-01, standby diesel engine system
- Maintenance rule expert panel meeting minutes for SB, reactor protection system
- Maintenance rule expert panel meeting minutes for KJ-01, standby diesel engine system
- Maintenance rule performance evaluation for SB, reactor protection system

- Maintenance rule performance evaluation for KJ-01, standby diesel engine
- Performance Improvement Requests 2002-2008, 2003-0923, -1456, -2754, -2853, -3566, and 2004-0634
- System health report for SB, reactor protection system
- System health report for KJ, standby diesel engine
- Work Orders 01-229447-000 and 02-240455-001

Operability Evaluations

- Change Package 010261, Revision 6
- Control room operator logs for February 19, 2004
- Engineering disposition, “RHR Pump Motor A SWO 03-257715-001"
- Operability Evaluation OE BG-03-013, Revision 0; OE RL-03-08
- Operability Evaluation OE EJ-04-001, Revision 0
- Performance Improvement Requests 1998-2786, 2003-1967, -3583, and 2004-0048
- Ultimate heat sink leakage margin report, October 18, 2003
- Updated Safety Analysis Report
- Work Orders 99-208640-000, 02-245409-008, and 03-258424-001
- Work Package 107850, Task 1

Performance Indicator Verification

- Licensee performance indicator worksheets
- Performance indicator summary reports
- Selected NRC inspection reports
- Selected control room operator logs

Postmaintenance Testing

- STN AL-201, “Auxiliary Feedwater System Valve Test,” Revision 0
- STN BN-201, “Borated Refueling Water Storage System Valve Test,” Revision 0
- STS EG-100A, “Component Cooling Water Pumps A/C Inservice Pump Test,” Revision 19

- STS EG-100B, “Component Cooling Water Pumps B/D Inservice Pump Test,” Revision 16
- STN EM-201, “Safety Injection System Valve Test,” Revision 0
- SYS AL-101, “MDAFW Pump A Inservice Pump Test,” Revision 31
- STS AL-210A, “MDAFW Pump A Inservice Check Valve Test,” Revision 4
- STS EM-100A, “Safety Injection Pump A Inservice Pump Test,” Revision 22
- STS KJ-124, “Post Maintenance Run of Emergency Diesel Generator B,” Revision 21
- SYS KJ-200, “Inoperable Emergency Diesel,” Revision 11
- SYS KJ-121, “Diesel Generator NE01 and NE02 Lineup for Automatic Operation,” Revision 29
- Work Orders 02-237814-001, 03-254303-003, -257108-001, -257109-001, -253032-002, -253032-005, and -253032-007

Temporary Plant Modifications

Licensee Procedure AP 21I-001, “Temporary Modification,” Revision 7

Permanent Plant Modifications

Calculations

AN-00-026, “Uncertainty for Pressurizer Pressure High & Low Pressure Trips and Low Pressure Safety Injection,” Revision 1

M-JE-321, “Emergency Diesel Storage Tank & Day Tank Volumes and Level Limits,” Revision 2

XX-J-033, “Instrument Accuracy: Pressure Transmitters, Rosemount Model 1154, Series H,” Revision 1

Change Packages

011093, “Approval of an Acceptable Alternate Replacement Termination Kit for Kerite DS-7446 Splice Kit for Essential Service Water Pump Motors,” Revision 1

05076, “Replace Instrument Air Compressor CKA01C,” Revision 3

05804, “Containment Sump Level Indication Modification,” Revision 2

09238, “Replace Tobar Make Pressurizer Pressure Transmitters,” Revision 2
09589, “Maximum Allowable Stem Thrust (close) Increase for EGH58/59/60/127/130/131,” Revision 0

09596, “Replacement of Valcor Solenoid Valves,” Revision 2

09674, “Alternate Replacements for EGHV0015/16/53/54,” Revision 2

09756, “EFV0241, EFV0242 Internals Removal,” Revision 0

10073, “Encapsulation of Drain and Vent Lines for EEG01A/B,” Revision 0

10074, “Replacement of Fiberglass Floating Cover with Stainless Steel Floating Cover of the Condensate Storage Tank (CST),” Revision 2

10109, “Letdown Heat Exchanger Weld Repair,” Revision 2

10264, “Emergency Diesel Generator Fuel Oil Storage Tank Level Instruments,” Revision 1

10422, “Emergency Diesel Generator ICWHX High Temperature Alarm Setpoint,” Revision 0

10310, “EFLT0075, EFLT0076 Removed from Service,” Revision 1

Drawings

M-K2EF01, “Piping and Instrument Diagram Essential Service Water,” Revision 45

Performance Improvements Requests

2002-0611	2002-1896	2003-0317	2003-1261
2002-1072	2002-2209	2003-0878	2003-1600
2002-1179	2002-2801	2003-1063	2003-2866
2002-1300	2002-2914	2003-1095	2004-0514
2002-1607	2002-2977		

Probabilistic Risk Analysis System Notebooks

AN-98-036, “Wolf Creek Generating Station Probabilistic Safety Analysis Auxiliary Feedwater System Notebook - 98 Update,” Revision 0

AN-98-037, “Wolf Creek Generating Station Probabilistic Safety Analysis Main Feedwater/Condensate System Notebook - 98 Update,” Revision 0

AN-98-048, “Wolf Creek Generating Station Probabilistic Safety Analysis Essential Service Water System Notebook - 98 Update,” Revision 0 with Change Notice 1

AN-98-049, “Wolf Creek Generating Station Probabilistic Safety Analysis Component Cooling Water System Notebook - 98 Update,” Revision 0

AN-98-038, “Wolf Creek Generating Station Probabilistic Safety Analysis Emergency Core Cooling System Notebook - 98 Update,” Revision 0

AN-98-046, “Wolf Creek Generating Station Probabilistic Safety Analysis Electrical Power Systems Notebook - 98 Update,” Revision 0 with Change Notice 1

AN-98-053, “Wolf Creek Generating Station Probabilistic Safety Analysis Instrument Air System Notebook - 98 Update,” Revision 0

Procedures

AI 05-014, “Work Order Generation Instructions During Change Package Development,” Revision 2

ALR-00-090B, “Diesel Generator Fuel Tank B Level LO,” Revision 10

AP 05-001, “Change Package Planning and Implementation,” Revision 5

AP 05-002, “Dispositions and Change Packages,” Revision 5

AP 05-005, “Design, Implementation and Configuration Control of Modifications,” Revision 8

AP 16E-002, “Post Maintenance Testing Development,” Revision 3

STN IC-256A, “Calibration of Emergency Fuel Oil Storage Tank A Level Loop,” Revision 11

TMP 95-ENG-183, “Air Compressor Prep for Pre-OP Test,” Revision 0

TMP 95-ENG-184, “Air Compressor Pre-OP Test,” Revision 0

Training Manuals

SY 15 056 00, “Main Condensate System,” Revision 8
SY 15 038 00, “Steam Generator Blowdown System,” Revision 9
SY 14 089 00, “Essential Service Water System,” Revision 13
SY 14 008 00, “Component Cooling Water,” Revision 16
SY 14 005 00, “Residual Heat Removal (RHR) System,” Revision 11
SY 14 064 00, “Emergency Diesel Generator (Mechanical),” Revision 12
SY 14 078 00, “Instrument and Service Air System,” Revision 12

System Descriptions

M-10AD, “Condensate System,” Revision 0

M-10AP(Q), “Condensate Storage and Transfer System,” Revision 1 with Change Notice 7251

M-10BM(Q), “Steam Generator Blowdown System,” Revision 0 with Change Notices 9965, 7445, and 9304

M-10EF(Q), “Essential Service Water System,” Revision 5 with Change Notices 7140, 9379, 04478, and 08036

M-10EG(Q), “Component Cooling Water System,” Revision 3 with Change Notices 4590, 6244, and 7849

M-10EJ(Q), “Residual Heat Removal,” Revision 04 with Change Notices 7659, 8037, 9088, 9088 (Revision 1) and 7849

M-10JE(Q), “Emergency Fuel Oil System,” Revision 01 with Change Notices 7948, 7984, and 4253

M-10KA(Q), “Compressed Air System,” Revision 4 with Change Notice 9094

Work Orders

00-222647-008	01-226977-001	02-233501-000
00-222647-009	01-226978-001	02-233502-000
00-222647-010	01-229321-003	02-233503-000
00-222648-007	02-232846-013	02-233505-000
00-222648-008	02-232846-014	02-233511-000
00-222648-009	02-233475-004	02-246018-000
00-222648-010	02-233475-006	03-248688-000
01-224483-000	02-233475-007	

Miscellaneous

WCRE-09, “Wolf Creek Nuclear Generating Station Inservice Testing Design Basis Document,” Revision 0 with Changes 1-188

CCN EG-M-022-001-CN001, “Calculation Change Notice,” Revision 0

JE-02-024, “Setpoint Change Request,” Revision 1

J-350-00123, “Liquid Level Transmitter Model M-Series Analog Output Operation and Installation Manual,” Revision W02

WCNOC Letter ET 01-0012, “Docket No. 50-482: Revision to Technical Specification 3.3.1, ‘Reactor Trip System Instrumentation’, and Technical Specification 3.3.2, ‘Engineering Safety Feature Actuation System Instrumentation,’” dated March 22, 2001