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

November 10, 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 PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000482/2004006

Dear Mr. Muench:

On September 29, 2004, the NRC completed an inspection of problem identification and resolution at your Wolf Creek Generating Station. The enclosed report documents the inspection findings, which were discussed with you and other members of your staff on August 6, 2004, and on September 29, 2004.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations and with the conditions of your license. The team reviewed approximately 200 Performance Improvement Requests (PIRs) program documents, apparent and root cause analyses and plant procedures for the identification and resolution of problems. In addition, the team reviewed cross-cutting aspects of NRC and licensee-identified findings and interviewed personnel regarding the safety conscious work environment.

On the basis of the sample selected for review, the team concluded that in general, problems were properly identified, evaluated and corrected. Your processes to identify, prioritize, evaluate, and correct problems were generally effective; thresholds for identifying issues remained appropriately low and, in most cases, corrective actions were adequate to address conditions adverse to quality. The team concluded that a positive safety-conscious work environment exists at Wolf Creek.

This report documents two findings that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that violations were associated with these findings. The violations are being treated as noncited violations because they are of very low safety significance and because they have been entered into your corrective action program consistent with Section VI.A. of the Enforcement Policy. If you contest the violations or significance of these noncited violations, 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 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).

Sincerely,

//RA//

Linda Joy Smith, Chief
Plant Engineering Branch
Division of Reactor Safety

Docket: 50-482
License: NPF-42

Enclosure:
Site Vice President
Wolf Creek Nuclear Operating Corp.
P.O. Box 411
Burlington, KS 66839

Jay Silberg, Esq.
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW
Washington, DC 20037

Supervisor Licensing
Wolf Creek Nuclear Operating Corp.
P.O. Box 411
Burlington, KS 66839

Chief Engineer
Utilities Division
Kansas Corporation Commission
1500 SW Arrowhead Rd.
Topeka, KS 66604-4027

Office of the Governor
State of Kansas
Topeka, KS 66612

Attorney General
120 S.W. 10th Avenue, 2nd Floor
Topeka, KS 66612-1597

County Clerk
Coffey County Courthouse
110 South 6th Street
Burlington, KS 66839-1798

Chief, Radiation and Asbestos
Control Section
Kansas Department of Health
and Environment
Bureau of Air and Radiation
1000 SW Jackson, Suite 310
Topeka, KS 66612-1366

Frank Moussa, Technological
Hazards Administrator
Department of the Adjutant General
2800 SW Topeka Blvd.
Topeka, KS 66611-1287

Electronic distribution by RIV:
Regional Administrator **(BSM1)**
DRP Director **(ATH)**
DRS Director **(DDC)**
Senior Resident Inspector **(FLB2)**
Resident Inspector **(TBR2)**
SRI, Callaway **(MSP)**
Branch Chief, DRP/B **(DNG)**
Senior Project Engineer, DRP/B **(RAK1)**
Staff Chief, DRP/TSS **(KMK)**
RITS Coordinator **(KEG)**
DRS STA **(DAP)**
Matt Mitchell, OEDO RIV Coordinator **(MAM4)**
WC Site Secretary **(SLA2)**

ADAMS: / Yes ☐ No Initials: _____
/ Publicly Available ☐ Non-Publicly Available ☐ Sensitive / Non-Sensitive

DOCUMENT: R_WC\WC2004-06RP-RAK.wpd

RIV:DRS\C:PEB	DRP/B:SPE	DRP/A:SRI	DRP/E:PE	DRP/B:RI
LJSmith	RAKopriva	DBAllen	DStearn	TRhoades
/RA/	/RA/	/RA/ via T	/RA/ via E	/RA/ via E
11/4/04	10/29/04	11/ /04	11/8 /04	11/5/04

C:DRP/B	C:PEB			
DNGraves	LJSmith			
/RA/	/RA/			
11/10/04	11/10 /04			

OFFICIAL RECORD COPY T=Telephone E=E-mail F=Fax

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-482
License:	NPF- 42
Report:	05000482/2004006
Licensee:	Wolf Creek Nuclear Operating Corporation
Facility:	Wolf Creek Generating Station
Location:	1550 Oxen Lane NE Burlington, Kansas
Dates:	July 19 - September 29, 2004
Inspectors:	Ronald A. Kopriva, Senior Project Engineer Donald B. Allen, Senior Resident Inspector, Comanche Peak Donald L. Stearns, Project Engineer Travis B. Rhoades, Resident Inspector, Wolf Creek
Approved by:	L. J. Smith, Chief Plant Engineering Branch Division of Reactor Safety

SUMMARY OF ISSUES

IR 05000482/2004-006; 07/19 - 09/29, 2004; Wolf Creek Generating Station; biennial baseline inspection of the identification and resolution of problems. Violations were identified related to simulator fidelity and design control.

The inspection was conducted by a senior project engineer, a senior resident inspector, a resident inspector, and a project engineer. Two green findings of very low safety significance were identified during the inspection and were classified as noncited violations. The significance of most findings is indicated by their color (green, white, yellow, red) using IMC 0609, "Significance Determination Process." Findings for which the significant determination process does not apply may be "green" or assigned a severity level after NRC management review. 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.

Identification and Resolution of Problems

- The team reviewed approximately 200 Performance Improvement Requests program documents, apparent and root cause analyses and plant procedures for the identification and resolution of problems. Based on this review, the team found that the processes to identify, prioritize, evaluate, and correct problems were generally effective; thresholds for identifying issues remained appropriately low and, in most cases, corrective actions were adequate to address conditions adverse to quality.

  Cross-cutting aspects, associated with identification, prioritization and evaluation and correction of degraded conditions in the plant were identified. The team found that these cross-cutting aspects were the exception and not the rule and most issues were minor. However, in a few cases, licensee personnel did not initiate corrective action documents for known equipment degradations. In other cases, planned corrective actions were not managed to a satisfactory completion. Either the issue was not corrected by the planned actions, or the planned actions were cancelled.

  Based on the interviews, the team concluded that a positive safety-conscious work environment exists at Wolf Creek. The team determined that employees and contractors feel free to raise safety concerns to their supervision or bring concerns to the employees concern program.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green: A self-revealing, noncited violation of CFR 55.46 (1) was identified regarding simulator response to a transient condition. While completing immediate actions following a reactor trip that occurred on February 13, 2004, the Balance of Plant Operator (BOP) observed what he understood to be a malfunction of the steam dump valves. Subsequent investigation revealed that the plant systems operated properly but that the Balance of Plant Operator did not expect the Steam Generator Atmospheric

Relief Valves (ARV) to be open while the steam dumps were closed shortly following a plant trip. The licensee identified that the simulator had not accurately modeled steam generator atmospheric relief valves post-trip operation since initial licensing.

Based on the results of a Significance Determination Process (SDP) using Manual Chapter (MC) 0609, Appendix I, this finding was determined to have very low safety significance, since it involved a simulator fidelity issue which impacted operator actions. The failure to adequately model plant response in the simulator, discovered on February 19, 2004, is a violation of 10 CFR 55.46(c). This violation is being treated as a noncited violation 05000482/2004006-01 consistent with Section VI.A of the NRC Enforcement Policy (Section 4OA2e).

- Green. A self-revealing noncited violation of 10 CFR 50, Appendix B, Criterion III, for the failure to assure that design criteria had adequately been translated into specifications and procedures associated with the Emergency Diesel Generators. Specifically, in December 2002, and February 2003, the licensee failed to correctly adjust the overcurrent trip setpoints on the newly installed, different manufacture, Emergency Diesel Generator supply fan breakers. On March 12, 2003, Emergency Diesel Generator "A" supply fan Breaker NG03DBF6 was found tripped, but no problem was identified. On April 12 and April 15, 2003, additional failures of NG03DBF6 were identified. Evaluation determined that new breakers had been installed with overcurrent trips set too low to allow for the starting inrush current. The Emergency Diesel Generators were determined not to be affected because the outside temperature had not exceeded 79 degrees Fahrenheit (F), which is the temperature at which the fans are required to be operable.

  The finding is greater than minor because it affected that Mitigating Systems Cornerstone objective of equipment reliability, in that the failure of the Emergency Diesel Generator supply fans could have made the Emergency Diesel Generator inoperable if the outside temperatures had exceeded 79 degrees F. The finding is of very low safety significance because at the time of the breaker failures the outside air temperature had not exceeded 79 degrees F; therefore there was no loss of safety function. This violation is being treated as a noncited violation 05000482/2004006-02 consistent with Section VI.A of the NRC Enforcement Policy (Section 4OA2.e).

B. Licensee-Identified Violations

Violations of very low significance which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective actions are listed in Sections 4OA7.

REPORT DETAILS

4 OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors reviewed items selected across the seven cornerstones to determine if problems were being properly identified, characterized, and entered into the corrective action program for evaluation and resolution. Specifically, the team's review included a selection of approximately 200 Performance Improvement Requests. The majority were opened or closed since the last NRC Problem Identification and Resolution Inspection completed on May 17, 2002. The team also performed a historical review of Performance Improvement Requests written over the last five years for the essential service water system, component cooling water system, radiological controls, main power transformers, and the emergency diesel generators. The team reviewed a sample of licensee audits and self assessments, trending reports, system health reports, and various other reports and documents related to the problem identification and resolution program. The audit and self-assessment results were compared with the self-revealing and NRC-identified issues to determine the effectiveness of the audits and self assessments.

The team interviewed station personnel and evaluated corrective action documentation to determine the licensee's threshold for identifying problems and entering them into the corrective action program. The team attended morning meetings to evaluate the licensee's evaluation of plant issues against corrective action program criteria for Performance Improvement Request initiation. The team evaluated the licensee's efforts in establishing the scope of problems by reviewing control room operator logs, security and radiation protection logs and maintenance items.

In addition, the team reviewed the licensee's evaluation of selected industry experience information, including operator event reports, NRC Generic Bulletins and Information Notices, and generic vendor notifications, to assess if issues applicable to Wolf Creek were appropriately addressed.

A listing of specific documents reviewed during the inspection is included in the attachment to this report.

(2) Assessment

The team determined that, in general, problems were adequately identified and entered into the Performance Improvement Request program. The threshold for entering issues into the Performance Improvement Request program was appropriately low. Recent conditions adverse to quality identified in various logs or other programs were properly entered into the licensee's Performance Improvement Request program. However, the

team noted several cross-cutting aspects related to problem identification: The inspectors observed that longstanding adverse conditions related to simulator fidelity and tone alert radio distribution had only recently been identified by the licensee. In addition, the inspectors recently identified longstanding fire barrier seal degradations; and there were two examples where the licensee did not initiate a corrective action document for known equipment degradations.

Example 1 - Failure to Promptly Identify a Simulator Fidelity Concern

The team determined problem identification related to this self-revealing issue was not timely because of the length of time the issue existed, prior to identification. From initial plant operation until February 19, 2004, the licensee failed to identify that the simulator response to a normal reactor trip differed from actual plant response (Section 4OA2e).

Example 2 - Failure to Promptly Identify Concern with Distribution of Tone Alert Radios per Emergency Plan Design Commitments to FEMA

The team determined problem identification related to this licensee-identified issue was not timely based on a number of opportunities that the licensee had to identify a concern with the distribution of tone alert radios for emergency preparedness. Previous operating experience from Callaway and Arkansas indicated a concern with proper controls associated with the distribution of tone alert radios (Section 4OA7).

Example 3 - The Failure to Promptly Identify Long-standing Degraded 3-hour Fire Rated Fire Barrier Seals

The team reviewed the circumstances around NRC Inspection Report Noncited Violation 05000482/2004002-02 and found that the licensee had failed to identify problems with fifteen fire barrier seals for a number of years.

Example 4 - Failure to Enter a Degraded Condition Related to Feedwater Regulating Valves into the Corrective Action Program

The team reviewed the circumstances around NRC Inspection Report Finding 05000482/2004002-01 and found that maintenance and engineering personnel were aware of a degraded condition and failed to enter it into the corrective action program.

Example 5 - Failure to Enter a Degraded Condition Related to Emergency Diesel Generator Heat Exchanger Tubes into the Corrective Action Program

The team reviewed the circumstance around NRC Inspection Report Noncited Violation 05000482/2002004-01 and found that the licensee failed to enter known equipment degradations into their corrective action program. The eddy current testing technician identified five intercooler tubes with indications of less than 30 percent remaining wall and three tubes with absolute drift indications. This condition existed from December 13, 2001 to January 4, 2002, without being entered into the corrective action program.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The team reviewed Performance Improvement Requests, engineering operability evaluations and operations operability determinations to assess the licensee's ability to evaluate the importance of the conditions adverse to quality. The team reviewed the results of Performance Improvement Request review group meetings that assigned significance and priority to the Performance Improvement Requests. The team reviewed a sample of failure mode analyses, apparent cause analyses and root cause analyses, to ascertain whether the licensee identified and considered the full extent of conditions, generic implications, common causes, and previous occurrences. The team also observed management oversight of the significant conditions adverse to quality including one Corrective Action Review Board meeting.

In addition, the inspectors reviewed licensee evaluations of selected industry operating experience information, including operating event reports and NRC and generic vendor notices, to assess whether issues applicable to Wolf Creek Generating Station were appropriately addressed. The team performed a historical review of Performance Improvement Request reports covering the last five years regarding the high pressure safety injection system, the emergency feedwater system, safety-related battery chargers and the emergency diesel generators to determine if the licensee had appropriately addressed long-standing issues and those that might be age dependent.

A listing of specific documents reviewed during the inspection is included in the attachment to this report.

(2) Assessment

The team concluded that problems were generally prioritized and evaluated in accordance with the licensee's Performance Improvement Request program guidance and NRC requirements. The team found that for the sample of root cause analyses reviewed, that the licensee was generally self critical and exhaustive in its research into the history of significant conditions adverse to quality

However, the team noted some unrelated cross-cutting aspects related to problem evaluation and prioritization. Examples included the inadequate use of operating experience related to radiation postings, failure to establish an eddy current testing acceptance criteria, a failure to promptly find the cause of unexpected Emergency Diesel Generator supply fan breaker trips, and the failure to fully document equipment degradation which resulted in ineffective troubleshooting.

Example 1 - Failure to Post Correct Radiation Levels

During review of the circumstances surrounding noncited violation 05000482/3003006-03, the inspector noted that dose rates had increased in the normal charging pump room and the volume control tank valve galley of the auxiliary building. The health

physics staff responded and identified that both rooms had general radiation levels greater than 100 millirem per hour, requiring the areas to be posted as high radiation areas. During the investigation of the event, the licensee also identified that the seal water heat exchanger room radiation levels had increased, which required the area to be posted as a high radiation area. The cause for the elevated dose rates were from the chemical flush of the reactor coolant system. Once identified, the licensee took appropriate timely actions to properly control the areas.

There is sufficient OE and site experience to identify and evaluate the appropriate times when changing dose rates may take place. Operations and Radiation Protection department personnel concurred that, had they discussed the evolution, they would have been able to identify areas of concern and provide the appropriate postings.

Example 2 - Failure to Properly Evaluate Allowable Emergency Diesel Generator heat Exchanger Tube Wall Thinning

The team reviewed the circumstance around NRC Inspection Report Noncited Violation 05000482/2002004-01 and found that the licensee failed to provide definitive acceptance criterion for the eddy current testing on the Emergency Diesel Generator A heat exchangers. The failure to have definitive acceptance criterion in the work order as part of the planning process led to a significant delay in evaluating and recognizing the degraded condition of the Emergency Diesel Generator.

Example 3 - Failure to Properly Evaluate a Degraded Light Socket Contributed to a Small Fire

When the site watch noticed that the power available indication on the main transformer, phase C power supply/control cabinet was extinguished, he initiated a work request, but did not adequately describe the evidence of shorting on the bulb in the work request. As a result, the on-coming maintenance personnel did not adequately evaluate and correct the problem. Specifically, the Work Request initiator failed to preserve the physical evidence (light bulb which appeared to be shorted in its socket) and failed to produce an adequate written description of the condition as required by the work request procedure. This minor violation contributed to a small fire in the Main Transformer C Phase control panel.

Example 4 - Inadequate Cause Determination for an Emergency Diesel Generator Supply Fan Breaker Trip Resulted in Repeat failures

A self-revealing violation of 10 CFR 50, Appendix B, Criterion III was identified for failure to assure that design criteria had adequately been translated into specifications and procedures associated with the Emergency Diesel Generator supply fan breakers. In December 2002 and February 2003, the Emergency Diesel Generator supply fan breakers were replaced due to parts obsolescence. On 03/12/03, the Emergency Diesel Generator supply fan breaker was found tripped, but an adequate cause evaluation was not performed and no problem was identified. On 04/12/03 and 04/15/03, additional failures were identified. Evaluation determined that new breakers had been installed

with overcurrent trips set too low to allow for the starting inrush current. The Emergency Diesel Generators were determined not to be affected because the outside air temperature had not exceeded 79 degrees F, which is the temperature at which the fans are required to be operable (Section 4OA2e).

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The team reviewed approximately 200 condition reports to verify that corrective actions related to the issues were identified and implemented in a timely manner commensurate with safety, including corrective actions to address common cause or generic concerns. The team reviewed corrective actions planned and implemented by the licensee and sampled specific technical issues to determine whether adequate decisions related to structure, system, and component operability were made.

In addition, the team reviewed a sample of those Performance Improvement Request reports written to address NRC inspection findings to ensure that the corrective actions adequately address the issues as described in the inspection report writeups. The team also reviewed a sample of corrective actions closed to other Performance Improvement Request reports and programs, such as work requests, to ensure that the condition described was adequately addressed and corrected.

A listing of specific documents reviewed during the inspection is included in the attachment to this report.

(2) Assessment

The processes to correct problems were generally effective; in most cases, corrective actions were adequate to address conditions adverse to quality. However, planned corrective actions were not always managed to a satisfactory completion. Six examples of cross-cutting aspects were identified associated with correction of degraded conditions in the plant. The team found corrective actions developed for self-assessments, operating experience and NRC noncited violations, which were not managed to satisfactory completion. Either the issue was not corrected by the planned actions, or the planned actions were cancelled.

Example 1 - Failure to Manage Corrective Action for 1995 Self Assessment

Performance Improvement Request 2004-0132 documented that a preventative maintenance activity to replace the Emergency Diesel Generator Main Air Start Distributor air filters was not created in 1996, because the Performance Improvement Request 95-2413 item # 5 was closed to Performance Improvement Request 96-0682, and that Performance Improvement Request failed to capture the action. As a result, a recommended PM from a 1995 self assessment to address the health risk assessment of the Emergency Diesel Generator to replace the air filter, had not been implemented

since Refueling Outage RF8. In the mean time the filter has not been changed in 7 ½ - 8 years. This licensee-identified issue is discussed in Section 4OA7.

Example 2 - Inadequate Corrective Action For Maintaining Residual Heat Removal Systems Operable During Refueling While the Vessel Internals Remain Installed.

The inspectors identified poor implementation of operating experience. While in Mode 6 with water level greater than or equal to 23 feet above the vessel flange, only one train of RHR is required by Technical Specification 3.9.5. However, even with 23 feet of water over the vessel flange, with the upper internals installed there may be insufficient transfer of heat to prevent boiling in the core if forced flow is lost. During this plant condition, both trains of RHR should remain available. To address this issue, the procedure was revised to incorporate a caution, but not in an appropriate location to ensure that the operater would recognize that both trains of RHR would be required, even with greater than or equal to 23 feet of water. This was a minor violation.

Example 3 - Ineffective Corrective Action Management for Failure to Normalize Reactor Vessel Level Indicating System (RVLIS), that Resulted in Both Trains being Inoperable for an Extended Period

Licensee Event Report 2003-002, and PIR 2003-0805 documented that both trains of reactor vessel level indicating system (RVLIS) had been inoperable for longer than allowed by Technical Specifications 3.3.3. Based on a review of the licensee's planned actions, the LER was closed in NRC Inspection Report 2003-006 as a minor violation.

The Root Cause Analysis Report for PIR 2003-0805 documented that PIR 97-1983 was written to address NRC Information Notice 97-25 dealing with a Diablo Canyon experience with RVLIS. In response to that Performance Improvement Request, Westinghouse reviewed data from RF9 and recommended the system be normalized due to hydraulic changes in the reactor coolant system. PIR 97-1983 was closed with work package 126425 to track the issue, but the work package was closed on July 23, 1999 with no field work complete.

Example 4 - Failure to Properly Evaluate a Significant Condition Adverse to Quality when Revising an Emergency Operating Procedure Due to RVLIS Failed High.

The team reviewed the circumstance around NRC Inspection Report Noncited Violation 05000482/2003004-01 and found that the licensee failed to appropriately evaluate the impact of the reactor vessel level indicating system (RVLIS) being inoperable when questioned by the resident inspector. They did not initially realize that Procedure EMG C-11, "Loss of Emergency Coolant Recirculation," Revision 14, could not have been satisfactorily completed with RVLIS inoperable. The procedure reviewer's flawed evaluation was based on incorrect procedure usage rules.

Example 5 - Inadequate Corrective Actions for NRC-identified Violation 05000482/2002008-01 Related to Control Room Evacuation Critical Timeline

The team reviewed the circumstance around NRC Inspection Report Noncited Violation 05000482/2003004-02 and found that the licensee failed to correct a finding identified in NRC Inspection Report 05000482/2002008-01. A review of Off-Normal Procedure OFN RP-17, "Control Room Evacuation" after the licensee revised the procedure in response to a 2002 finding, revealed that the 2003 procedure revision had not corrected the problem, but had made the problem worse, by actually lengthening the allowed time to verify that a volume control tank outlet valve was closed, when it should have reduced the time allowed. If the valve was not closed in time, the centrifugal charging pumps could become gas bound and not pump water. On March 28, 2003, the licensee implemented a change to Procedure OFN RP-17 to ensure the valve was closed within the required time.

Example 6 - Multiple Failures to Correct Emergency Diesel Generator Heat Exchanger Tube Degradation

The team reviewed the circumstance around NRC Inspection Report Noncited Violation 05000482/2002004-01 which closed URI 2002006-01: Failure to implement effective corrective actions for a significant condition adverse to quality for failing to perform eddy current testing of the Emergency Diesel Generator heat exchanger tubes until several tubes exhibited severe degradation. Specifically, on April 20, 1990, the licensee identified severe wall thinning of the Emergency Diesel Generator heat exchanger tubes requiring replacement, but did not implement corrective actions that recommended periodic eddy current evaluation of the Emergency Diesel Generator heat exchanger tubes to ensure continued structural integrity of the tubes. The licensee missed opportunities in 1993 and in 1997 to initiate periodic eddy current testing as well. As a result, as of December 13, 2001, the licensee had not performed eddy current examination of the Emergency Diesel Generator heat exchanger tubes until several tubes exhibited severe degradation.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

The team interviewed more than 12 individuals from the licensee's staff, representing a cross-section of functional organizations and supervisory and non-supervisory personnel. These interviews assessed whether conditions existed that would challenge the establishment of a safety-conscious work environment. The team also interviewed the site Employee's Concern Program coordinator.

(2) Assessment

Of the individuals interviewed, one employee stated he was not aware of the licensee's Employee Concern Program. A few of the others interviewed knew the program

existed, but were not aware of who the program coordinator was or where his office was located. The inspection team observed a number of site bulletin boards and noted that none of the bulletin boards included information about the Employee Concerns Program. The Human Resources office stated that new employees were given information about the program and that "refrigerator magnets" containing information about the program had been issued to the employees in the past.

The team concluded that a positive safety-conscious work environment exists at Wolf Creek. The team determined that employees and contractors feel free to raise safety concerns to their supervision or bring concerns to the employees concern program. The team determined that licensee management is receptive to employee concerns and is willing to address issues raised by the latest safety culture survey.

e. Specific Issues Identified During This Inspection

(1) Inspection Scope

During this assessment the team performed the inspections scoped in Sections 4OA2 a.(1), 4OA2 b.(1), 4OA2 c.(1), and 4OA2 d.(1) above.

(2) Findings and Observations

Noncited Violation 05000482/2004006-01: Simulator Fidelity

Introduction. A Green, self-revealing, noncited violation (NCV) was identified regarding simulator response to a transient condition. While completing immediate actions following a reactor trip which occurred on February 13, 2004, the Balance of Plant Operator observed what he understood to be a malfunction of the steam dump valves. Subsequent investigation revealed that the plant systems operated properly but that the Balance of Plant Operator did not expect the steam generator atmospheric relief valves to be open while the steam dumps were closed shortly following a plant trip. The licensee identified that the simulator had not accurately modeled atmospheric relief valves post-trip operation since initial licensing.

Description. Work Order 04-260586-000 was initiated to troubleshoot an apparent malfunction of the steam dump control system after a reactor trip on February 13, 2004. The evaluation performed within the work order explained that the steam dumps operated properly and that the confusion was caused by the operation of the steam generator atmospheric relief valves. The Balance of Plant Operator did not expect the steam generator atmospheric relief valves to be open when the steam dump valves were closed. According to the Balance of Plant Operator's understanding of steam generator atmospheric relief valves operation, the valves would not open until steam line pressure exceeded the steam generator atmospheric relief valves setpoint, which is approximately 1125 psi. However, due to the operation of the proportional-integral controller, the steam generator atmospheric relief valves may open below their setpoint and may stay open for a few minutes below the setpoint, well after steam dump valves have opened and reclosed.

The licensee identified that the confusion was caused by a failure to accurately model plant response in the simulator. According to the simulator model, the steam generator atmospheric relief valves would not open after most reactor trips. This simulator modeling error had been in place since initial licensing. A Simulator Change Request was issued on February 19, 2004.

Analysis. This finding involved a licensed operator training deficiency regarding plant response to high power reactor trips. Therefore, this finding affected the Mitigating Systems Cornerstone since it impacted the operators' response to mitigate the consequences of this transient and was considered more than minor since deficiencies in the operator training program could become a more significant safety concern if left uncorrected. Based on the results of a Significance Determination Process (SDP) using Manual Chapter (MC) 0609, Appendix I, this finding was determined to have very low safety significance, since it involved a simulator fidelity issue which impacted operator actions.

Enforcement. Title 10 of the Code of Federal Regulations (CFR), Part 55.46(c), requires that plant referenced simulators used for operating tests or to meet experience requirements must demonstrate expected plant response to transient conditions to which the simulator was designed to respond. The Wolf Creek Nuclear Station simulator was designed to respond to reactor trips; however, the simulator response differed from actual plant response in that a normal reactor trip would cause the steam generator atmospheric relief valves to open, but not in the simulator. The failure to adequately model plant response in the simulator, discovered on February 19, 2004, is a violation of 10 CFR 55.46(c). This violation is being treated as a noncited violation 05000482/2004006-01 consistent with Section VI.A of the NRC Enforcement Policy.

Noncited Violation 05000482/2004006-02. Inadequate Design Control for Overcurrent Settings for Emergency Diesel Generator Supply Fan Breakers:

Introduction. The team identified a 10 CFR 50, Appendix B, Criterion III noncited violation for failure to assure that design criteria had adequately been translated into specifications and procedures associated with the Emergency Diesel Generator supply fan breakers. In December 2002 and February, 2003, the Emergency Diesel Generator supply fan breakers had been replaced due to parts obsolescence. On March 12, 2003, Emergency Diesel Generator "A" supply fan Breaker NG03DBF6 was found tripped, but no problem was identified. On April 12 and April 15, 2003, additional failures of NG03DBF6 were identified. Evaluation determined that new breakers had been installed with overcurrent trips set too low to allow for the starting inrush current.

Description. Emergency Diesel Generator "A" supply fan Breaker NG03DBF6 was replaced in December 2002 and Emergency Diesel Generator "B" supply fan Breaker NG04DBF6 was replaced in February, 2003. The previous breakers were ITE-Gould breakers and were replaced with Westinghouse/Cutler-Hammer breakers due to parts obsolescence. The replacement breakers tested satisfactorily and the modification was completed. The ITE-Gould breakers had been set at a trip setting of 2300 amps. The replacement breakers were set to a value of 2625 amps, the difference was to ensure

that the replacement breaker did not trip spuriously due to the new style breaker's wider tolerance.

On March 12, 2003, Breaker NG03DBF6 tripped open, and PIR 2003-0675 was written. No specific problems were identified and the breaker was returned to service. On April 12, 2003, Breaker NG03DBF6 tripped again, and PIR 2003-1023 was initiated. A hardware problem was identified with a specific phase of the breaker causing the breaker to trip at a lower overcurrent value and the breaker was replaced.

On April 15, 2003, Breaker NG03DBF6 tripped opened again, and PIR 2003-1041 was initiated. This Performance Improvement Request identified that the fan motor inrush currents were well above the breaker's instantaneous setting. During troubleshooting under Work Order 03-252082-000, the inrush currents seen during motor starts were well above the previously set instantaneous setting. The fan motor did not trip during the starts under the work order, even though the actual inrush currents were well above the instantaneous setting. The high inrush currents being well above the instantaneous setting of the breaker for ½ cycle or greater contributed to the spurious breaker trips.

The deficiency associated with this finding was the failure to adequately review the design requirements of the supply fans and incorporate these requirements into procedures and specifications . Specifically, on multiple occasions the licensee failed to identify and correct a concern with high inrush currents seen during the starting of the Emergency Diesel Generator supply fans. This failure potentially could affect the ability of the Emergency Diesel Generators to perform their design function during hot weather conditions. The supply fans are required to be operational when outside air temperatures are equal to or greater than 79 degrees F. During the time the new breakers were in service until the licensee identified and corrected the concern with the inrush current setting, the outside air temperatures had never exceeded 79 degrees F.

Analysis. This finding is more than minor because it affected the mitigating systems cornerstone attribute of equipment performance and the cornerstone objective to ensure the availability of systems that respond to initiating events. This finding was evaluated using Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet under the mitigating systems cornerstone, and was determined to be of very low safety significance because there was no actual loss of function, and the Emergency Diesel Generator's were always operational.

Enforcement. 10 CFR 50, Appendix B, Criterion III, "Design Controls," states, in part, that measures be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures and instructions. The failure to identify the required specifications for the inrush current for the new breakers and place this information in drawing, procedures or instructions, is a violation of 10 CFR 50, Appendix B, Criterion III. The failures of the Emergency Diesel Generator air supply fans occurred when the outside temperatures were less that 79 degrees F, and the supply fans were not required. As a result there was not actual loss of function because this violation is of very low safety significance and has been entered into the corrective action program as PIR 2003-1041, this violation is being treated as a

noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: (NCV 05000482/2004006-02).

4OA6 Exit Meeting

The team discussed the findings with you and other members of the licensee's staff on August 6, 2004 and again via telephone on September 29, 2004. Licensee management did not identify any materials examined during the inspection as proprietary.

4OA7 Licensee Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositionsed a NCVs.

- Licensee Identified Noncited Violation: From 1984 through July 28, 2004, the licensee failed to follow its emergency plan designed to meet planning standard (5) in 10 CFR 50.47(b). On July 28, 2004 the licensee identified a violation of very low safety significance (Green), of 10 CFR 50.54(q) for failure to follow requirements of 10 CFR 50 Appendix E related to maintaining the offsite alert and notification system. Specifically, the licensee failed to provide tone alert radios to approximately 72 residences in areas of the Emergency Planning Zone (EPZ) where emergency siren sound levels were between 60 dB and 70 dB as committed to in the Federal Emergency Management Agency-approved Alert and Notification system. The licensee had committed in their alert and notification design report to distribute tone alert radios as the primary means of emergency notification to all occupied locations where siren sound levels were less than 70 db. For areas of low population density, such as the Wolf Creek emergency planning zone, FEMA REP-10 requires alternative means of notification, such as tone alert radios, in areas where the siren sound level is less than 60 db. Because the failure to ensure the distribution of tone alert radios in accordance with a licensee commitment to FEMA, and not a FEMA requirement, is of very low safety significance and has been entered into the licensee's corrective action program (Performance Improvement Request 2004-1922), this violation is being treated as a Licensee Identified Non-Cited Violation, consistent with Section VI.A of the NRC Enforcement Policy.

- The licensee identified that they had failed to incorporate a preventative maintenance activity into a procedure due to closing a Performance Improvement Request corrective action to another Performance Improvement Request without ensuring the action was actually completed. Technical Specification 5.4.1 requires, in part, that written procedures be established, implemented, and maintained covering procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, section 9 includes "preventative maintenance schedules be developed to specify replacement of such items as filters." The failure to

implement a PM program that included inspection and/or replacement of the Emergency Diesel Generator main air start distributor air filters is a violation of Technical Specification 5.4.1. Because this is a violation of very low safety significance and it has been entered into the corrective action program as PIR 2004-0132, this violation is being treated as a Licensee Identified Noncited Violation, consistent with Section VI.A of the NRC Enforcement Policy.

ATTACHMENT 1

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Anselmi - Manager, Design Engineering
P. Bedgood - Superintendent, Chemistry/Radiation Protection
R. Calia - Manager, PI and L
B. Dale - Acting Superintendent, Maintenance Support
T. East - Superintendent, Emergency Planning
D. Fehr - Manager, IS
A. Harris - Director, PI and L
P. Hawkins - Superintendent, Operations Support Work Control
S. Hedges - Manager, Integrated Plant Scheduling
D. Hooper - Supervisor, Licenseing
S. Hopkins - Maintenance Support
D. Jacobs - VP Operations and Plant Manager
T. Jensen - Superintendent, Chemistry/Radiation Protection
R. Kerving - Supervisor, Corrective Action Program
M. Makar - Manager, Systems Engineering
K. Moles - Manager, Regulatory Affairs
K. Scherich - Director, Engineering
C. Sibley - Regulatory Affairs
M. Sunseri - VP Oversight
M. Westman - Manager, Training
J. Yunk - Manager, Organizational Performance

ITEMS OPENED AND CLOSED

Opened and Closed

05000482/2004006-01	NCV	Simulator Fidelity
05000482/2204006-02	NCV	Inadequate design control for overcurrent settings for Emergency Diesel Generator supply fan breakers

DOCUMENTS REVIEWED

PLANT PROCEDURES

Procedure	Title
AP 28A-001	Performance Improvement Request
AI 28A-011	Performance Improvement Request Initiation
AI 28A-012	Performance Improvement Request Screening
AI 28A-013	Performance Improvement Request Evaluation and Action Plans
AI 28A-015	Performance Improvement Request Effectiveness Follow-up
AI 28E-006	Common Cause Analysis
AI 28E-007	Performance Improvement Request Trending and Analysis
AP 28B-001	Root Cause Analysis

Desktop

Guidelines and Techniques for Meeting Management Expectations Regarding Significant Performance Improvement Requests

Licensee Event Reports

PIR Number	Title	LER Number
2002-0048	Voluntary report of emergency diesel generator heat exchanger tube degradation	2002-001-00
2002-1086	Mode Change with RCS Unidentified Leakage Greater than Technical Specification 3.4.13	2002-002-00
2002-1180	Unit trip due to a feedwater regulating valve control card failure	2002-003-00
2002-1898	Postulated fire event could lead to the loss of redundant trains of postfire safe shutdown equipment	2002-004-02
2002-2250	Engineering safety features actuation including emergency diesel generator start due to a hardware failure in a relay driver card	2002-005-00
2003-0010	Manipulation of component outside of procedural guidance causes reactor trip	2003-001-00
2003-0805	Reactor vessel level indication system inoperable for period longer than allowed by Technical Specifications	2003-002-00
2003-2449	Reactor protection system actuation and reactor trip due to feedwater isolation valve closure	2003-003-00
2003-3486	Failure of Safety Injection Accumulator Vent Line	2003-004-00
2004-0094	Inadequate Verification of Valve Position Following Testing Results in Technical Specification Violation	2004-001
2004-0393	Reactor Protection System Actuation and Reactor Trip due to Main Feedwater Regulating Valve Failing Closed	2004-002-00
2004-0586	Automatic Start of “B” Emergency Diesel Generator due to Start-Up Transformer Cable Ground Fault	2004-003-00

NONCITED VIOLATIONS REVIEWED

PIR Number	Title	NCV Number
2002-0627	Transient Combustables	2001-006-01
2002-1247	Failed to follow procedure while drawing a vacuum on the RCS	2002-002-01
2002-0048	Failure to implement appropriate corrective actions for degraded emergency diesel generator heat exchanger tubes	2002-004-01
2002-2393	Inadequate alternative shutdown procedure	2002-008-01
2003-0010	Manipulation of component outside of procedural guidance causes reactor trip	2003-003-01
2003-0805,1713	Failure to ensure that emergency operating procedures could have been successfully performed	2003-004-01
2003-0333,0338	Failure to ensure that changes to an off-normal procedure were appropriate	2003-004-02
2003-1553	Failure to critique an exercise performance deficiency relating to protecting nonessential workers	2003-004-03
2003-3220	Access control to radiologically significant areas	2003-006-02
2003-3069, 3135	ALARA planning and controls	2003-006-03
2003-1868	Failure to correctly translate a design basis into the internal flooding calculations for engineered safety feature Switchgear Room 3302; thus the assumptions used in Calculation FL-08 did not agree with the as-built condition of the plant	2003-007-01
2003-3704	Inadequate Fire Barriers at Seismic Gaps	2004-002-02

NRC Information Notices:

IN	TITLE	PIRequest #
NRC INFORMATION NOTICE 2000-011	Licensee Responsibility for Quality Assurance Oversight of Contractor Activities regarding fabrication and use of Spent Fuel Storage Cask Systems	2000-3328
NRC INFORMATION NOTICE 2000-015	Recent Events Resulting in Whole Body Exposures Excessive of Regulatory Limits	2000-3480
NRC INFORMATION NOTICE 2002-001	Metalclad Switchgear Failures and ConsequentLosses of Offsite Power	2002-1123
NRC INFORMATION NOTICE 2002-002	Recent Experience with Plugged Steam Generator Tubes	2002-0316
NRC INFORMATION NOTICE 2002-003	Highly Radioactive Particle Control Problems During Spent Fuel Pool Cleanout	2002-0211
NRC INFORMATION NOTICE 2002-005	Foreign Material in Standby Liquid Control Storage Tanks	2002-0564
NRC INFORMATION NOTICE 2002-013	Possible Indicators of Ongoing Reactor Pressure Vessel Degradation	2002-0823
NRC INFORMATION NOTICE 2003-005	Failure to Detect Freespan Cracks in PWR Steam Generator Tubes	2002-3030
NRC INFORMATION NOTICE 2003-011	Leakage Found on Bottom-Mounted Instrumentation Nozzles	2003-1450
NRC INFORMATION NOTICE 2003-013	Steam Generator Tube Degradation at Diablo Canyon	2003-1775
NRC INFORMATION NOTICE 2004-001	Auxiliary Feedwater Pump Recirculation Line Orifice Fouling - Potential Common Cause Failure	2004-1224

PERFORMANCE IMPROVEMENT REQUESTS :

2000-1526	2002-0944	2003-2853	2003-1018	2004-1515	2004-0976
2000-3178	2002-0182	2003-2754	2003-0923	2004-1531	2004-0957
2001-0522	2002-2507	2003-2708	2003-0805	2004-1513	2004-0880
2001-1227	2002-3008	2003-3486	2003-0675	2004-1510	2004-0724

2001-1654	2002-0007	2003-3566	2003-0429	2004-1285	2004-0663
2001-1916	2002-0120	2003-2348	2003-0374	2004-1496	2004-0573
2001-1972	2002-0594	2003-1870	2003-0338	2004-1337	2004-0563
2001-1976	2002-1841	2003-1868	2003-0333	2004-1335	2004-0555
2001-1977	2002-1903	2003-1805	2003-0317	2004-1589	2004-0502
2001-1524	2002-2471	2003-1784	2003-0270	2004-1628	2004-0468
2002-2356	2002-2774	2003-1731	2003-0180	2004-1156	2004-0234
2002-2357	2003-3456	2003-1456	2003-0010	2004-1154	2004-0132
2002-2279	2003-3457	2003-1432	2003-0732	2004-1116	2004-0124
2002-1247	2003-3445	2003-1319	2003-1587	2004-1024	2004-0123
2002-0048	2003-3014	2003-1041	2003-1605	2004-0999	2004-0089
2002-1011	2003-2689	2003-1023	2003-1784	2004-0989	2004-0592
2002-1086	2003-3425	20021898	2003-3512	2004-1206	
2002-1180	2002-1670	2002-2430	2003-3538		

Level I and Level II PERFORMANCE IMPROVEMENT REQUESTS

2002-1394	2003-0010	2003-0688	2003-1683	2003-2883	2003-3792
2002-1401	2003-0078	2003-0805	2003-1952	2003-3069	2004-0094
2002-1434	2003-0140	2003-0874	2003-1976	2003-3072	2004-0149
2002-1472	2003-0145	2003-0890	2003-2372	2003-3085	2004-0393
2002-1575	2003-0207	2003-0903	2003-2438	2003-3136	2004-0496
2002-1582	2003-0218	2003-1199	2003-2449	2003-3201	2004-0586
2002-1704	2003-0439	2003-1255	2003-2468	2003-3220	2004-0909
2002-1834	2003-0440	2003-1259	2003-2502	2003-3473	2004-1101
2002-1845	2003-0529	2003-1431	2003-2600	2003-3486	2004-1505
2002-2087	2003-0569	2003-1595	2003-2698	2003-3513	
2002-2250	2003-0587	2003-1647	2003-2741	2003-3768	

OTHER

Corrective Action Review Board Charter	
Root Cause Manual	
Trending Code Manual	
Level I and II Performance Improvement Requests Generated June 2002 - June 2004	
Level I and II Performance Improvement Requests Closed June 2002 - June 2004	
Temporary Modification Order (TMO) 04-003-KJ: Temporary Clamp to Prevent Fuel Supply Header Return Line from Pulling out of Tubing Connection	03/08/2004
Operability Evaluation (OE) KJ-04-002: B Emergency Diesel Generator Failed to Achieve the 12 Second Start Time Requirement	Revision 0
Root Cause Analysis Report, PIR 2003-0805, “Inoperability of Forced Flow Reactor Vessel Level Indication”	4/30/03
Root Cause Analysis Report, PIR 2003-3486, “Socket Weld Failure of EPV 0109 Vent Line”	03/28/04
Cause Determination, PIR 2003-0010, for reactor trip on 1/3/03 cause by loss of both control rod drive motor generator output	9/12/03
Cause Determination, PIR 2002-0048, for potential common mode failure resulting from degraded tubes in the Emergency Diesel Generators heat exchangers	6/24/03