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

EA 07-286 November 16, 2007

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 05000482/2007004

Dear Mr. Muench:

On October 6, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Wolf Creek Generating Station. The enclosed integrated report documents the inspection findings which were discussed on October 17, 2007, with Mr. Matt Sunseri 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.

This report documents three NRC-identified and self-revealing findings that were evaluated under the risk significance determination process as having very low safety significance (Green). Two of these findings were determined to involve violations of NRC requirements. Additionally, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. Because of the very low safety significance and because the findings were entered into your corrective action program, the NRC is treating these violations as noncited violations consistent with Section VI.A of the NRC Enforcement Policy. If you contest the violations or significance of these NCVs, you should provide a response within 30 days 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 Region IV; 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.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be 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). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

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

Sincerely,

/RA/

Vincent G. Gaddy, Chief
Project Branch B

Docket: 50-482
License: NPF-42

Enclosure:
NRC Inspection Report 05000482/2007004
w/Attachments: Notice of Violation and Supplemental Information

cc w/Enclosure:
Vice President Operations/Plant Manager
Wolf Creek Nuclear Operating Corp.
P.O. Box 411
Burlington, KS 66839

Jay Silberg, Esq.
Shaw Pittman, LLP
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 Road
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

Vick L. Cooper, Chief, Air Operating
Permit and Compliance Section
Kansas Department of Health and
Environment
Bureau of Air and Radiation
1000 SW Jackson, Suite 310
Topeka, KS 66612-1366

Chief Technological Services Branch
National Preparedness Division
Department of Homeland Security
Emergency Preparedness & Response Directorate
FEMA Region VII
2323 Grand Boulevard, Suite 900
Kansas City, MO 64108-2670

Electronic distribution by RIV:
Regional Administrator **(EEC)**
DRP Director **(ATH)**
DRS Director **(DDC)**
DRS Deputy Director **(RJC1)**
Senior Resident Inspector **(SDC)**
Resident Inspector **(CXL1)**
SRI, Callaway **(DED)**
Branch Chief, DRP/B **(VGG)**
Senior Project Engineer, DRP/B **(RWD)**
Team Leader, DRP/TSS **(CJP)**
RITS Coordinator **(MSH3)**
DRS STA **(DAP)**
D. Cullison, OEDO RIV Coordinator **(DGC)**
WC Site Secretary **(SLA2)**
W. A. Maier, RSLO **(WAM)**
R. E. Kahler, NSIR **(REK)**
G. M. Vasquez, ACES **(GMV)**

SISP Review Completed: ___VGG___ ADAMS: √ Yes ☐ No Initials: _VGG____
√ Publicly Available ☐ Non-Publicly Available ☐ Sensitive √ Non-Sensitive

R:_REACTORS_WC\2007\WC2007-004RP-SDC.wpd

SRI:DRP/B	RI:DRP/B	C:DRS/EB1	C:DRS/EB2
SDCochrum:sa	CMLong	WBJones	LJSmith
VGG for	***VGG for***	***/RA/***	***/RA/***
10/25/07	10/25/07	11/06/07	11/07/07

C:DRS/OB	C:DRS/PSB	C:DRP/B	
ATGody	MPShannon	VGGaddy	
KDClayton for	***/RA/***	***/RA/***	
11/07/07	11/06/07	11/16/07	

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

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	50-482
License:	NPF-42
Report:	5000482/2007004
Licensee:	Wolf Creek Nuclear Operating Corporation
	Wolf Creek Generating Station
Location:	1550 Oxen Lane NE Burlington, Kansas
Dates:	July 8 through October 6, 2007
Inspectors:	S. D. Cochrum, Senior Resident Inspector C. M. Long, Resident Inspector P. A. Goldberg, Reactor Inspector B. Baca, Health Physics Inspector E. Coffman, General Engineer G. Ryan, Associate Engineer
Approved By:	V.G. Gaddy, Chief, Project Branch B

Enclosure

CONTENTS

SUMMARY OF FINDINGS

IR 05000482/2007004; 07/08/07 - 10/06/07; Wolf Creek Generating Station; Fire Protection, Event Followup, and Other Activities.

This report covered a 3-month period of inspection by resident inspectors, a regional inspector, and a headquarters inspector. The inspection identified three Green findings, two of which were noncited violations. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management's 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.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self-revealing finding was identified when a nonlicensed plant operator failed to utilize appropriate guidance and used excessive torque on service water Valves 1WS0002A and 1WS0004 resulting in damage to the valves and unavailability of service water Pump 1WS01PA and the low-flow service water Pump 1WS002P. Valve 1WS0002A was repaired as emergent work and returned to service after approximately 42 hours of being unavailable and Valve 1WS0004 was repaired as corrective maintenance and returned to service after approximately 65 days of unavailability. This issue is captured in the licensee's corrective action program.

  The finding was more than minor because it is associated with the equipment performance attribute for the mitigating systems cornerstone; and, it affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors also determined that this finding was more than minor because it is associated with the equipment performance attribute for the initiating events cornerstone, and it affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. A Phase 3 evaluation was necessary since the finding involved concurrent multiple equipment degradations from a common cause. The Phase 3 evaluation concluded that the finding was of very low safety significance (Green). The inspectors also determined that the finding had a human performance crosscutting aspect in the area of work practices because the licensee failed to effectively communicate expectations regarding valve operations in accordance with procedural requirements [H.4(b)] (Section 4OA5).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green noncited violation of Technical Specification 5.4.1.d for failing to control combustible materials in an area of the

plant that contained safety-related equipment. During a walkdown, inspectors noted that temporary scaffolding constructed of flame retardant treated wood installed in the emergency diesel generator rooms did not have a transient combustible materials permit. Following review of the procedure for control of combustibles, it was noted that the licensee inappropriately considered fire retardant treated wood as noncombustible material and exempted it from permit control. This could lead to the uncontrolled use of fire treated wood throughout the facility, even in excess of fire hazard analysis limits for fire loads.

The inspectors determined that the inadequate control of transient combustibles in the emergency diesel generator rooms was more than minor because, if left uncorrected, it would become a more significant safety concern and could potentially affect emergency diesel generator availability due to fire under the mitigating systems cornerstone. The finding was of very low safety significance because it involved the combustible controls program and was assigned a low degradation rating since the flame retardant treated wood is considered a high flashpoint material (Section 1R05).

- Green. A self-revealing noncited violation was identified regarding failure to follow a procedure used to reassemble the intercooler and jacketwater pumps to the Train A emergency diesel generator resulting in the Emergency Diesel Generator A being inoperable. During reassembly of the Emergency Diesel Generator A on June 6, 2007, the stationary seals for the intercooler and jacketwater pumps were not correctly installed in their housings. On July 5, 2007, the Emergency Diesel Generator A failed its surveillance test because the intercooler pump leaked at a rate of 23.4 ml/min with an acceptability limit of 9.1 ml/min. Even with the leakage, Emergency Diesel Generator A was later determined to be capable of running for greater than 24 hours.

  The failure to install the stationary seals in accordance with the approved work orders is a performance deficiency. The finding is more than minor because it is associated with the human performance attribute of the mitigating systems cornerstone; and, it affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding is of very low safety significance because the issue does not represent a qualification or design deficiency, it did not represent a loss of safety function for a train or system as defined in the plant specific risk-informed inspection notebook, and was not related to external events such as fires and floods. The inspectors also determined that the finding has a human performance crosscutting aspect in the area associated with resources because the licensee failed to ensure that mechanics had adequate emergency diesel generator training to assure correct reassembly of the diesel auxiliaries as stated in Wolf Creek's root cause evaluation [H.2(b)] (Section 4OA3).

B. Licensee-Identified Violation

A violation of very low safety significance that was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have

been entered into the licensee's corrective action program. This violation and its corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The plant started the inspection period at 100 percent rated thermal power and remained at or near this power level for the entire report period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment (71111.04)

Partial System Walkdowns

a. Inspection Scope

The inspectors: (1) walked down portions of the two risk important systems listed below and reviewed plant procedures and documents to verify that critical portions of the selected systems were correctly aligned and (2) compared deficiencies identified during the walkdowns to the licensee's Updated Safety Analysis Report (USAR) and corrective action program to ensure problems were being identified and corrected.

- July 9, 2007, Emergency Diesel Generator (EDG) B while EDG A was out of service
- August 14, 2007, Essential Service Water (ESW) A while ESW B was out of service

The inspectors completed two samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Routine Inspection

a. Inspection Scope

The inspectors walked down the six plant areas listed below to assess the material condition of active and passive fire protection features, their operational lineup, and their operational effectiveness. The inspectors: (1) verified that transient combustibles and hot work activities were controlled in accordance with plant procedures; (2) observed the condition of fire detection devices to verify they remained functional; (3) observed fire suppression systems to verify they remained functional; (4) verified that fire

extinguishers and hose stations were provided at their designated locations and that they were in a satisfactory condition; (5) verified that passive fire protection features (electrical raceway barriers, fire doors, fire dampers, steel fire proofing, penetration seals, and oil collection systems) were in a satisfactory material condition; (6) verified that adequate compensatory measures were established for degraded or inoperable fire protection features; and (7) reviewed the corrective action program to determine if the licensee identified and corrected fire protection problems.

- August 23, 2007, EDG rooms 2000' elevation
- July 17, 2007, auxiliary building 1974' elevation
- July 27, 2007, fuel building, 2047' elevation
- August 13, 2007, spent fuel pool heat exchanger rooms, 1974' elevation
- August 13, 2007, Emergency Core Cooling Cubicle B, auxiliary building 1974' elevation
- September 5, 2007, control building, 1974' elevation

The inspectors completed six samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

Introduction. A Green noncited violation (NCV) of Technical Specification (TS) 5.4.1.d was identified for failing to control combustible materials in an area of the plant that contained safety-related equipment.

Description. During a walkdown on August 23, 2007, the inspectors noted that temporary scaffolding installed in the EDG rooms contained a large amount of wood. The inspectors identified that the scaffold did not have a transient combustible materials permit, but was constructed of flame retardant treated wood. The inspectors asked about the combustible permits and/or fire impairments associated with this area. Operators informed the inspectors that there were no active permits or impairments for this scaffold. The operators further stated that no such actions would be necessary because flame retardant treated wood was treated as a noncombustible and exempted from permit controls. The inspectors were concerned that a large amount of combustibles was located in a zone with safety-related equipment.

The inspectors reviewed Procedure AP 10-102, “Control of Combustible Materials,” Revision 12. Section 6.7.5 of this procedure stated that, “Flame retardant wood is exempt from the transient combustibles permit requirements.” Section 6.2.1 also states, in part, that a transient combustible materials permit is required if transient combustible loading exceeds 100 pounds of Class A combustibles. The inspectors also noted that this procedure had several references to codes and standards, including National Fire Protection Association 30 for flammable and combustible liquids, but did not include any

National Fire Protection Association codes or other standards for solid combustibles. Using industry standards, the inspectors estimated the wood to be approximately 500 pounds, by multiplying the apparent board-feet of wood by 4.0 pounds. By multiplying the estimated weight of the wood by 8,000 BTU per pound, the inspectors estimated the heat of combustion of the wood at 4.0 MBTU. Upon further review of the Wolf Creek fire hazard analysis, the inspectors noted that this area had an administrative limit of 300 pounds of Class A combustibles (wood) and a total analyzed fire load of approximately 8.7 MBTU.

The inspectors spoke with Wolf Creek fire protection and licensing personnel and expressed that there seemed to be an inadequacy in their fire protection program. These personnel stated that their exemption of fire retardant treated wood was a long-standing policy of the station and fire protection plan. The licensee stated they considered the material noncombustible from the standpoint of its flame spread index being less than 25. They disagreed that there was any problem with the fire protection program or that any violation of NRC requirements had occurred. The inspectors contacted NRC regional fire protection specialists. The specialists informed the inspectors that Wolf Creek's position was contrary to industry standards and practice. The specialists stated that industry standards also consider heat of combustion or fire load, and smoke release, not just flame spread in their consideration of a potential fire hazard and combustible characteristics of a material. The inspectors determined that the licensee's interpretation that fire retardant treated wood should be treated as a noncombustible and exempted was inappropriate. This methodology could lead to the uncontrolled use of fire retardant treated wood throughout the facility, even in excess of fire hazard analysis limits for fire loads.

Analysis. The inspectors determined that the inadequate control of transient combustibles in the diesel generator rooms was more than minor because, if left uncorrected, it would become a more significant safety concern and could potentially affect diesel generator availability due to fire under the mitigating systems cornerstone. Traditional enforcement does not apply since there were no actual safety consequences or potential for impacting the NRC's regulatory function, and the finding was not the result of any willful violation of NRC requirements or Wolf Creek procedures. The inspectors determined that the finding was of very low safety significance using Phase 1 of Inspection Manual Chapter (IMC) 0609, Appendix F, "Fire Protection Significance Determination Process," because it involved the combustible controls program and was assigned a low degradation rating since the flame retardant treated wood is considered a high flashpoint material.

Enforcement. TS 5.4.1.d requires that written procedures be established, implemented, and maintained covering activities related to fire protection program implementation. Administrative Procedure AP 10-102, "Control of Combustible Materials," Revision 12, states, in part, that a transient combustible material permit is required for transient combustibles if the transient fire area loading exceeds 100 pounds of Class A combustibles. Contrary to the above, on August 23, 2007, approximately 500 pounds of Class A combustibles wood were found in the emergency diesel rooms without implementing a transient combustible material permit or establishing appropriate compensatory measures. This issue and the corrective actions are being tracked by the licensee in Condition Report (CR) 2007-003925. Because the finding is of very low

safety significance and has been entered into the corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000482/2007004-01, "Failure to Implement Transient Combustible Material Control Permit Requirements."

1R12 Maintenance Effectiveness (71111.12)

.1 Triennial Periodic Evaluation

a. Inspection Scope

The inspectors reviewed the Wolf Creek Generating Station report documenting the last periodic evaluation in accordance with 10 CFR 50.65(a)(3). This was the licensee's Maintenance Rule Periodic Assessment for the period from May 20, 2005, through March 30, 2007. In addition, the inspectors reviewed CRs, generated from the periodic evaluation, to verify that the corrective actions were adequate.

The inspectors reviewed the monitoring of risk significant structures, systems, and components (SSC) with degraded performance to access the effectiveness of the licensee's evaluations and the resulting corrective actions. The performance monitoring of nonrisk-significant functions using plant level criteria was also reviewed.

The inspectors evaluated whether the report contained adequate assessment of the performance of the maintenance rule program as well as conformance with applicable programmatic and regulatory requirements. To accomplish this, the inspectors verified that the licensee appropriately and correctly addressed the following attributes in the assessment report:

- Program treatment of nonrisk-significant SSC functions monitored against plant level performance criteria
- Triennial periodic evaluation
- Program adjustments made in response to unbalanced reliability and availability
- Application of industry operating experience
- Performance review of Category (a)(1) systems
- Evaluation of the bases for system category status change (e.g., (a)(1) to (a)(2) or (a)(2) to (a)(1))
- Effectiveness of performance and condition monitoring at component, train, system, and plant levels

Review and adjustment of definitions of functional failures.

Inspection Procedure 71111.12, “Triennial Maintenance Effectiveness,” requires a minimum sample of four SSCs. The inspectors reviewed four high risk components and one component important to safety. The inspection sample consisted of the following:

- Room coolers for the emergency core cooling system pump rooms
- EDG system
- Diesel-driven fire pump
- Excess let-down isolation valves
- Containment isolation valves

The inspectors reviewed the: (1) evaluations of the balance of reliability and unavailability for maintenance rule functions, (2) consideration of industry operating experience, (3) assessment and management of risk-related maintenance activities, and (4) use of insights from the probabilistic risk assessment to support the maintenance rule program. Corrective actions for the five components were reviewed to verify that the components were in the correct maintenance rule category.

The inspectors completed five samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings:

No findings of significant were identified.

.2 Quarterly Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the maintenance activities listed below to: (1) verify the appropriate handling of SSC performance or condition problems; (2) verify the appropriate handling of degraded SSC functional performance; (3) evaluate the role of work practices and common cause problems; and (4) evaluate the handling of SSC issues reviewed under the requirements of the maintenance rule, 10 CFR Part 50, Appendix B, and TSs.

- August 5, 2006, Annunciator Alarm Card 44C failure

The inspectors completed one sample.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

Risk Assessment and Management of Risk

The inspectors reviewed the assessment activities listed below to verify: (1) performance of risk assessments when required by 10 CFR 50.65 (a)(4) and licensee procedures prior to changes in plant configuration for maintenance activities and plant operations; (2) the accuracy, adequacy, and completeness of the information considered in the risk assessment; (3) that the licensee recognizes, and/or enters as applicable, the appropriate licensee-established risk category according to the risk assessment results and licensee procedures; and (4) that the licensee identified and corrected problems related to maintenance risk assessments.

- September 20 and October 4, 2007, EDG surveillance testing
- September 2, 2007, ESW A, Valve EF HV-91 for traveling screen wash

The inspectors completed two samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plants status documents such as operator shift logs, emergent work documentation, deferred modifications, and standing orders to determine if an operability evaluation was warranted for degraded components; (2) referred to the USAR and design basis documents to review the technical adequacy of licensee operability evaluations; (3) evaluated compensatory measures associated with operability evaluations; (4) determined degraded component impact on any TSs; (5) used the significance determination process to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that the licensee has identified and implemented appropriate corrective actions associated with degraded components.

- August 20, 2007, increasing trend of the refueling water storage tank temperature
- August 21, 2007, ESW piping thickness of line Nos. EF020HBC & EF003HBC
- August 16, 2007, EDG B intercooler moisture separator vane degradation and repair

- August 29, 2007, control room air conditioning unit Valve GK765 valve stem broke

- September 13, 2007, turbine-driven auxiliary feedwater pump steam drain line moisture trap and bypass valve

The inspectors completed five samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Annual Review

The inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flowpaths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the one modification listed below. The inspectors verified that: (1) modification preparation, staging, and implementation does not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; (2) postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, SSC performance characteristics still meet the design basis, the appropriateness of modification design assumptions, and the modification test acceptance criteria has been met; and (3) the licensee has identified and implemented appropriate corrective actions associated with permanent plant modifications.

- September 10, 2007, nuclear plant information system (plant computer) replacement

The inspectors completed one sample.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the below listed postmaintenance test activities of risk significant systems or components. For each item, the inspectors: (1) reviewed the applicable licensing basis and/or design-basis documents to determine the safety

functions; (2) evaluated the safety functions that may have been affected by the maintenance activity; and (3) reviewed the test procedure to ensure it adequately tested the safety function that may have been affected. The inspectors either witnessed or reviewed test data to verify that acceptance criteria were met, plant impacts were evaluated, test equipment was calibrated, procedures were followed, jumpers were properly controlled, the test data results were complete and accurate, the test equipment was removed, the system was properly realigned, and deficiencies during testing were documented. The inspectors also reviewed the USAR and corrective action program to determine if the licensee identified and corrected problems related to postmaintenance testing.

- July 9, 2007, EDG A run after intercooler and jacketwater pump seal and bearing replacements

- July 19, 2007, WO 07-292304-000 N61 power supply replacement

- September 13, 2007, turbine-driven auxiliary feedwater pump run after governor preventive maintenance and discharge valve packing replacement

The inspectors completed three samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the USAR, procedure requirements, and TSs to ensure that the listed below surveillance activities demonstrated that the SSCs tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumper/lifted lead controls; (7) test data; (8) testing frequency and method demonstrated TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of American Society of Mechanical Engineers code requirements; (12) updating of performance indicator data; (13) engineering evaluations, root causes, and bases for returning tested SSCs not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarms setpoints. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing:

- August 15, 2007, ESW B pump motor meggar
- July 31, 2007, reactor vessel flange leakoff temperature sensor
- September 26, 2007, containment spray pump surveillance test

The inspectors completed three samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The drill listed below contributed to drill/exercise performance and emergency response organization performance indicators. The inspectors: (1) observed the training evolution to identify any weaknesses and deficiencies in classification, notification, and protective action requirements development activities; (2) compared the identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee is properly identifying failures; and (3) determined whether licensee performance is in accordance with the guidance of the Nuclear Energy Institute 99-02 document acceptance criteria.

- August 23, 2007, simulator scenario of nitrogen gas leak with subsequent loss of coolant accident and containment personnel hatch breach

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control To Radiologically Significant Areas (71121.01)

a. Inspection Scope

This area was inspected to assess the licensee's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas, and worker adherence to these controls. The inspectors used the requirements in 10 CFR Part 20, the TSs, and the licensee's procedures required by TSs as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation packages reported by the licensee in the occupational radiation safety cornerstone
- Controls (surveys, posting, and barricades) of radiation, high radiation, or airborne radioactivity areas in the auxiliary, radwaste, and spent fuel buildings
- Radiation work permits, procedures, engineering controls, and air sampler locations
- Conformity of electronic personal dosimeter alarm set points with survey indications and plant policy; workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Barrier integrity and performance of engineering controls in airborne radioactivity areas and potential airborne radioactivity areas
- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 millirem committed effective dose equivalent
- Corrective action documents related to access controls
- Licensee actions in cases of repetitive deficiencies or significant individual deficiencies
- Radiation work permit briefings and worker instructions
- Adequacy of radiological controls such as, required surveys, radiation protection job coverage, and contamination controls during job performance
- Dosimetry placement in high radiation work areas with significant dose rate gradients
- Changes in licensee procedural controls of high dose rate - high radiation areas and very high radiation areas
- Controls for special areas that have the potential to become very high radiation areas during certain plant operations
- Posting and locking of entrances to accessible high dose rate - high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

The inspectors completed 19 of the required 21 samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- Current 3-year rolling average collective exposure
- Ten work activities from previous work history data which resulted in the highest personnel collective exposures.
- Site-specific trends in collective exposures, plant historical data, and source-term measurements
- Site specific ALARA procedures
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Intended versus actual work activity doses and the reasons for any inconsistencies
- Interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling, and engineering groups
- Integration of ALARA requirements into work procedure and radiation work permit documents
- Person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements
- Dose rate reduction activities in work planning
- Postjob (work activity) reviews
- 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
- Exposure tracking system

- Use of engineering controls to achieve dose reductions and dose reduction benefits afforded by shielding
- First-line job supervisors' contribution to ensuring work activities are conducted in a dose efficient manner
- Exposures of individuals from selected work groups
- Records detailing the historical trends and current status of tracked plant-source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Source-term control strategy or justifications for not pursuing such exposure reduction initiatives
- Specific sources identified by the licensee for exposure reduction actions, priorities established for these actions, and results achieved since the last refueling cycle
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas
- Self-assessments, audits, and special reports related to the ALARA program since the last inspection
- Resolution through the corrective action process of problems identified through postjob reviews and postoutage ALARA report critiques
- Corrective action documents related to the ALARA program and follow-up activities such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

Either because the conditions did not exist or an event had not occurred, no opportunities were available to review the following items:

- Declared pregnant workers during the current assessment period, monitoring controls, and the exposure results

The inspectors completed 15 of the required 15 samples and 12 of the optional samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors sampled licensee submittals for the performance indicators below for the period from July 2006 through June 2007. The inspectors verified: (1) the accuracy of the performance indicator data reported during that period and (2) used the performance indicator definitions and guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Indicator Guidelines," Revision 2, to verify the basis in reporting for each data element.

Mitigating Systems Cornerstone

- Mitigating system performance index residual heat removal system
- Mitigating system performance index heat removal system

The inspectors reviewed operator log entries, daily shift manager reports, plant computer data, corrective action documents, maintenance action item paperwork, maintenance rule data, and performance indicator data sheets to determine whether the licensee adequately verified the performance indicators listed above. This number was compared to the number reported for the performance indicator during the past 3 quarters. Also, the inspectors interviewed licensee personnel responsible for compiling the information.

Then inspectors completed two samples in this cornerstone.

Occupational Radiation Safety Cornerstone

- Occupational exposure control effectiveness

The inspectors reviewed licensee documents from January 1 to July 31, 2007. The review included corrective action documentation that identified occurrences in locked high radiation areas (as defined in the licensee's TS), very high radiation areas (as defined in 10 CFR 20.1003), and unplanned personnel exposures (as defined in Nuclear Energy Institute 99-02). Additional records reviewed included ALARA records and whole body counts of selected individual exposures. The inspectors interviewed licensee personnel that were accountable for collecting and evaluating the performance indicator data. In addition, the inspectors toured plant areas to verify that high radiation, locked high radiation, and very high radiation areas were properly controlled. Performance indicator definitions and guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Indicator Guideline," Revision 4, were used to verify the basis in reporting for each data element.

The inspectors completed one sample.

Public Radiation Safety Cornerstone

- Radiological effluent TS/offsite dose calculation manual radiological effluent occurrences

The inspectors reviewed licensee documents from January 1 to July 31, 2007. Licensee records reviewed included corrective action documentation that identified occurrences for liquid or gaseous effluent releases that exceeded performance indicator thresholds and those reported to the NRC. The inspectors interviewed licensee personnel that were accountable for collecting and evaluating the performance indicator data. Performance indicator definitions and guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Indicator Guideline," Revision 4, were used to verify the basis in reporting for each data element.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Health Physics Routine Review of Identification and Resolutions of Problems

a. Inspection Scope

The inspectors evaluated the effectiveness of the licensee's problem identification and resolution process with respect to the following inspection areas:

- Access control to radiologically significant areas
- ALARA planning and controls

b. Findings

No findings of significance were identified.

4OA3 Event Followup and Notices of Enforcement Discretion (71153)

.1 July 25, 2007, Overflow of the Chemical and Volume Control System Chiller Surge Tank

a. Inspection Scope

The inspectors reviewed: (1) operator logs, plant computer data, and/or strip charts for the above listed event to evaluate operator performance in coping with nonroutine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; and (3) verified that the licensee has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the event.

b. Findings

No findings of significance were identified.

.2 Notice of Enforcement Discretion (NOED) 07-4-001: NOED for Wolf Creek Nuclear Operating Corporation Regarding the Wolf Creek Generating Station EDG A Failed Surveillance Test Due to Intercooler Pump Leakage on July 5, 2007

a. Inspection Scope

The inspectors reviewed the compensatory actions described in the NOED. The inspectors observed the fire watch briefing held with the fire brigade which reviewed the prefire plans for the Train B EDG in detail, and described the prestaging of additional fire fighting equipment near the EDG building. The inspectors also observed the just-in-time training for the reactor operators which consisted of the key operator actions that required a higher degree of assurance for success to mitigate the NOED risk. The reactor operators discussed those actions, the procedures that contained them, and the shift technical advisor's assignment to continuously review that list of key operator actions should Wolf Creek need to enter any of those procedures.

b. Findings

The inspectors also reviewed the draft procedure associated with aligning the Sharpe diesel generator station with one of Wolf Creek's safety-related 4160 V buses. The inspectors compared the draft procedure to the electrical system distribution drawings and noted that the drawing did not include Sharpe station. After examining the drawing, the inspectors questioned other possible connections associated with the 69 kV lines which connect Sharpe station, Wolf Creek, and the grid. Subsequently, Wolf Creek engineering identified that air-operated disconnects would need to be opened to separate the Sharpe station from the Conoco-Phillips pumping station and residential loads in Coffey and Lyon Counties. This action was necessary to assure adequate power to Wolf Creek should the Sharpe station be needed.

Because this deficiency with the compensatory actions was resolved at approximately the same time (within minutes) of the expiration of the 72-hour allowed outage time, and before the TS requirement to be in Mode 3 within the subsequent 6 hours, the inspectors judged the deficiency to be minor.

.3 July 5, 2007, EDG A Failed Surveillance Test Due to Intercooler Pump Leakage

a. Inspection Scope

The inspectors reviewed: (1) operator logs, plant computer data, and/or strip charts for the above listed event to evaluate operator performance in coping with nonroutine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; and (3) verified that the licensee has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the event.

b. Findings

Introduction. A Green self-revealing NCV was identified regarding failure to follow a procedure used to reassemble the intercooler and jacketwater pumps to the Train A EDG resulting in the EDG A being inoperable.

Description. On June 6, 2007, Wolf Creek commenced a scheduled replacement of lock washers with copper gaskets for the cap screws that secure the bearing housing for the intercooler and jacketwater idler shaft. This idler shaft drives a common shaft that turns the jacketwater and intercooler pump impellers on either end. Both the jacketwater pump and intercooler pump had to be disassembled to install these copper gaskets. During the intercooler pump reassembly on June 7, the stationary seals for the intercooler and jacketwater pumps were not fully seated in their discharge housings. The EDG A passed its postmaintenance test on June 7, 2007. On July 5, 2007, Wolf Creek ran the monthly EDG A surveillance test required by TS Surveillance Requirement 3.8.1.2. During the surveillance run on July 5, a leak of 23.4 ml/min from the intercooler pump was observed. The operability limit for total allowable leakage was 9.1 ml/min. During disassembly on July 5, wear was discovered on the intercooler pump casing from the 10 o'clock to the 4 o'clock position and on the inner and outer wear rings. This wear was not identified during the maintenance in June 2007. On July 5, Wolf Creek discovered that because the intercooler discharge piping was rigidly held in place by a pipe clamp, pulling the pump casing and discharge piping flanges together would put a strain on the pump casing and pull the casing off center. A spacer was subsequently fabricated to ensure the pump casing and discharge pipe fit properly. Reassembly and testing on July 7, 2007, revealed a leak of 62 ml/minute on the jacketwater side of the pump and overheating of the common gearbox that drives the pumps. The jacketwater pump seals that were replaced in June were also found to be not fully seated during disassembly on July 7.

The root cause evaluation determined, in part, that the intercooler pump and the jacketwater pump had stationary seals that were not properly seated in their pumps' discharge housings. The inspectors found that the controlling work orders and the vendor manual stated to install the seals "ensuring that it seats firmly and squarely."

Analysis. The failure to follow procedures to install the stationary seals "ensuring it seats firmly and squarely" was a performance deficiency. Traditional enforcement does not apply since there were no actual safety consequences or potential for impacting the NRC's regulatory function, and the finding was not the result of any willful violation of NRC requirements or Wolf Creek procedures. The inspectors determined that this finding was more than minor because it is associated with the human performance attribute for the mitigating systems cornerstone; and, it affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, this issue relates to the human error example of the human performance attribute because the utilized maintenance procedure was not followed to ensure proper reassembly of the jacketwater and intercooler pumps and this led to the failure.

The inspectors evaluated the significance of this finding using Phase 1 of IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and determined that the finding was of very low safety significance because

the issue resulted in the EDG A being inoperable, but capable of running for greater than 24 hours. As such, under Phase 1 screening, the deficiency is not related to a qualification or design deficiency, it did not represent a loss of safety function for a train or system as defined in the plant specific risk-informed inspection notebook, and was not related to external events such as fires and floods. Using these inputs, the performance deficiency screened to Green. The inspectors also determined that the finding had a human performance crosscutting aspect in the area associated with resources because the licensee failed to ensure that mechanics had adequate EDG training to assure correct reassembly of the diesel auxiliaries as stated in Wolf Creek's root cause evaluation [H.2(b)].

Enforcement. TS 5.4.1.a requires, in part, that procedures shall be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 9, "Procedures for Performing Maintenance," requires, in part, that maintenance activities that can affect the performance of safety-related equipment be performed in accordance with written procedures appropriate to the circumstances. On June 6, 2007, the licensee utilized Work Order 05-275959-000 to reassemble both the intercooler and jacketwater pumps of the EDG A. On July 7, 2007, the licensee utilized Work Order 07-297720-000 to reassemble the intercooler and jacketwater pumps on EDG A. Both of these work orders directed maintenance personnel to install the seals "ensuring that it seats firmly and squarely."

Contrary to the above, on June 6 and July 7, 2007, the licensee failed to follow written procedures for reassembling the intercooler and jacketwater pump stationary seals. Specifically, the procedure was not followed because it directs that the stationary seal to be pressed in "ensuring that it seats firmly and squarely" and Wolf Creek later determined that the stationary seals were not properly seated in their respective housings for the jacketwater and intercooler pumps.

Because the finding is of very low safety significance and has been entered into the corrective action program as CR 2007-002662, this violation is being treated as an NCV, consistent with Section VI.a of the NRC Enforcement Policy: 050000482/2007004-02, "Failure to Follow EDG Assembly Procedures Resulting in Notice of Enforcement Discretion 07-4-001."

.4 (Closed) Licensee Event Report (LER) 05000482/2007-001-00, EDG out of service longer than TS allowed outage time

The inspectors reviewed LER 05000482/2007-001-00 to verify that the cause of the Train A EDG exceeding its allowed outage time was identified and that corrective actions were appropriate. The licensee completed repairs and declared the diesel generator operable on July 9, 2007. See Section 4OA3.3 for additional information on the event and enforcement actions taken. See also "Notice of Enforcement Discretion for Wolf Creek Nuclear Operating Corporation Regarding Wolf Creek Generating Station [TAC NO. MD5985, NOED NO. 07-4-001]," under ADAMS Accession No. ML071930520 for more information regarding the NOED. This LER is closed.

4OA5 Other Activities

(Closed) Unresolved Item (URI) 05000482/2007002-02, Emergent work on normal service water Valve 1WS0002A

a. Inspection Scope

During an attempt to open service water pump discharge Valve 1WS0002A on February 8, 2007, a plant operator initially attempted to open the valve with the pump secured but was unsuccessful because the valve's manual handwheel was too difficult to turn against the system back pressure. The valve was repaired as emergent work and returned to service after approximately 50 hours of being inoperable. The inspectors questioned whether the plant operator used appropriate guidance which resulted in applying excessive torque with a wrench on the valve's handwheel. Additional followup was needed to determine the significance which resulted in the following finding. This URI is closed.

b. Findings

Introduction. A self-revealing Green finding was identified when a plant operator failed to utilize appropriate guidance and used a wrench on service water Valve 1WS0002A hand wheel resulting in valve damage and applied excessive force on service water Valve 1WS0004 hand wheel resulting in valve damage.

Description. During an attempt to open service water pump discharge Valve 1WS0002A on February 8, 2007, a plant operator initially attempted to open the valve with the pump secured but was unsuccessful because the valve's manual handwheel was too difficult to turn against the system back pressure. However, Procedure SYS EA-120, "Service Water System Startup," Revision 40A, states that service water Pump 1WS01PA be started prior to opening the discharge valve to equalize system back pressure. A second attempt to open the valve was made with the service water pump running to decrease differential pressure across the valve. The second attempt was also unsuccessful as the valve's handwheel was still too difficult to operate. During the second attempt, the operator placed a wrench across the valve's handwheel to increase leverage and open the valve. The second attempt was not successful in opening the valve and resulted in damage to the handwheel and valve actuator internals due to the excessive torsion caused by using a wrench.

Also on February 8, 2007, a nonlicensed operator attempted to open the low-flow service water pump discharge valve which resulted in damage to the valve actuator internals due to the operator applying excessive torsion to the handwheel. However, Procedure SYS EA-120, "Service Water System Startup," Revision 40A, states that service water Pump 1WS002P be started prior to opening the discharge valve to equalize system back pressure. Handwheel effort increased until a "pop" was heard. Subsequently, a crack in the actuator's gearbox was observed. The valve was tagged closed on February 8, 2007, and was returned to service on April 14, 2007, after replacement of the valve actuator.

Wolf Creek Standing Order 1, "Valve Setup and Operation," Revision 37, prohibits the use of a wrench and use of excessive force on the handwheel. The normal service water

Pump A discharge valve was repaired as emergent work and returned to service after approximately 42 hours of being unavailable. The low-flow service water pump was repaired as corrective maintenance after approximately 65 days of being unavailable.

Analysis. The inspectors determined the failure to follow Standing Order 1 which resulted in applying excessive torque on the valves' handwheels is a performance deficiency. Traditional enforcement does not apply since there were no actual safety consequences or potential for impacting the NRC's regulatory function, and the finding was not the result of any willful violation of NRC requirements or Wolf Creek procedures. The inspectors determined that this finding was more than minor because it is associated with the equipment performance attribute for the mitigating systems cornerstone; and, it affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this issue relates to the availability example of equipment performance because the plant operator damaged the valves which prevented the associated service water pumps from running. The inspectors also determined that this finding was more than minor because it is associated with the equipment performance attribute for the initiating events cornerstone; and, it affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. For the initiating events cornerstone as well, this issue relates to the availability example of the equipment performance because the nonlicensed operator damaged the valve which prevented the associated service water pump from running.

The inspectors evaluated the significance of this finding using IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The inspectors determined that the finding involved concurrent multiple equipment degradations from a common cause and, therefore, a Phase 3 analysis was required. The inspectors contacted a senior reactor analyst to perform the Phase 3 analysis.

The SRA performed the Phase 3 analysis using the Wolf Creek standardized plant analysis risk model that included an external events evaluation. The senior reactor analyst performed a bounding analysis and determined the increase in core damage frequency for the finding was in the mid E-7 range (Green). The bounding analysis assumed the low-flow service water Pump 1WS002P was unavailable from October 20, 2006, through April 14, 2007, for a total period of 176 days, the entire period between successful operations of the pump. In addition, the analysis included 3 days of concurrent unavailability of service water Pump 1WS01PA from February 7-9, 2007. The most dominant core damage sequence involved a transient with a loss of main and auxiliary feedwater, the failure to recover secondary side cooling, and a failure of high pressure recirculation. The inspectors determined that the finding had a human performance crosscutting aspect in the area of work practices because the licensee failed to effectively communicate expectations regarding valve operations in accordance with procedural requirements [H.4(b)].

Enforcement. No violation of regulatory requirements occurred because this finding is related to the nonsafety normal service water system which provides cooling to nonsafety and safety-related risk significant loads. This finding is captured in the licensee's corrective action program under CR 2007-000543. Because the finding is of very low safety significance and has been entered into the corrective action program, this issue is

being treated as a finding: FIN 05000482/2007004-03, “Failure to Use Appropriate Guidance for Valve Operation.”

4OA6 Meetings, Including Exit

On July 27, 2007, the reactor inspector presented the results of the triennial maintenance effectiveness inspection to Mr. S. E. Hedges, Vice President Operations and Plant Manager, who acknowledged the results. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On August 17, 2007, the health physics inspector presented the occupational radiation safety inspection results to Mr. M. Sunseri, Vice President, Oversight, and other members of his staff who acknowledged the findings. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On October 17, 2007, the resident inspectors presented the inspection results of the resident inspections to Mr. M. Sunseri, Vice President Operations and Plant Manager, and other members of the licensee's management staff. The licensee acknowledged the findings presented. The inspectors noted that while proprietary information was reviewed and returned, none would be included in this report.

4OA7 Licensee-Identified Violation

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements, which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being disposition as an NCV.

- 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Actions,” requires that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, and deficiencies are promptly identified and corrected.

An NCV, identified by the licensee, concerning Valve KCHV0253 which failed its local leak rate test, was identified as a repetitive maintenance rule functional failure and a 10 CFR Part 50, Appendix B, Criteria XVI, corrective action failure. MOV KCHV0253 is a fire protection system header, outer containment isolation valve, which failed its local leak rate test during its periodic leak rate testing. The leakage measured during the testing was greater than the allowable leakage. The licensee reviewed previous CRs and determined that this valve had failed its test prior to the current failure. The licensee determined that this failure was a repetitive maintenance preventable functional failure. This event was documented in the licensee’s corrective action program as CR 2007-000483. This finding is one of very low safety significance because Wolf Creek’s design basis does not postulate a containment fire occurring at the same time as a design basis accident.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

P. Bedgood, Superintendent, Chemistry/Radiation Protection
T. East, Manager, Emergency Planning
K. A. Harris, Director, Performance Improvement and Learning
S. E. Hedges, Vice President Oversight
R. A. Muench, President and Chief Executive Officer
K. Scherich, Director Engineering
M. Sunseri, Vice President Operations and Plant Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

050000482/2007004-01	NCV	Failure to implement transient combustible material control permit requirements (Section 1R05)
050000482/2007004-02	NCV	Failure to follow EDG assembly procedures resulting in NOED 07-4-001 (Section 4OA3)
050000482/2007004-03	FIN	Failure to use appropriate guidance for valve operation (Section 4OA5)

Closed

05000482/2007-001-00	LER	EDG out of service longer than TS allowed outage time (Section 4OA3)
05000482/2007002-02	URI	Failure to use appropriate guidance for valve operation (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

In addition to the documents referred to in the inspection report, the following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Section 1R04: Equipment Alignment

Work Orders

04-250251-000
04-266250-000
07-292304-000

Procedures

CKL JE-120, “Emergency Fuel Oil System Lineup,” Revision 18
CKL KJ-121, “Diesel Generator NE01 and NE02 Valve Checklist,” Revision 27A
CKL EF-120, “Essential Service Water Valve, Breaker and Switch Lineup,” Revision 41

Drawings

M-12EF01(Q), “Piping and Instrumentation Diagram Essential Service Water System,” Revision 8

Section 1R05: Fire Protection

Procedures

AP 10-102, “Control of Combustible Materials,” Revision 12
AP 10-106, “Fire Preplans,” Attachment B, “Auxiliary Building Fire Preplans,” Revision 6
AP 10-106, “Fire Preplans,” Attachment C, “Fuel Building Fire Preplans,” Revision 6
E-1F9905, “Fire Hazard Analysis,” Attachment B, “Fire Area A-1,” Revision 0
E-1F9905, “Fire Hazard Analysis,” Attachment B, “Fire Area A-9,” Revision 0
E-1F9905, “Fire Hazard Analysis,” Attachment B, “Fire Area D-1,” Revision 0
E-1F9905, “Fire Hazard Analysis,” Attachment B, “Fire Area D-2,” Revision 0
E-1F9905, “Fire Hazard Analysis,” Attachment B, “Fire Area F-7,” Revision 0
E-1F9905, “Fire Hazard Analysis,” Attachment B, “Fire Area F-6,” Revision 0
E-1F9905, “Fire Hazard Analysis,” Attachment B, “Fire Area F-2,” Revision 0
E-1F9905, “Fire Hazard Analysis,” Attachment B, “Fire Area F-3,” Revision 0

Drawings

M-12LF08, “Piping and Instrumentation Diagram Control and Fuel Bldgs. Floor and Equipment Drain System,” Revision 4

Miscellaneous

Wolf Creek USAR, 9.5B.5, “Combustible Loadings and Flame Spread,” Revision 15

Section 1R12: Maintenance Effectiveness

Quarterly Maintenance Rule Effectiveness

Performance Improvement Request 2005-3250

CR

2007-000362

Work Orders

03-251145-000	05-272553-000	06-289448-000
03-257351-002	06-289093-000	07-296370-000

Work Request

07-296370

Procedures

AI 22A-001, “Operator Work Arounds/Burdens/Control Room Work,” Revision 3
EDI 23M-050, “Monitoring Performance to Criteria and Goals,” Revision 3
EDI 23M-050 Attachment B, “Functional Failure Determination Checklist”

Miscellaneous

Specification 10466-J-108, “Technical Specification for the Plant Annunciator

System for the Standard Nuclear Unit Power Plant System (SNUPPS),” Revision 7

Wolf Creek USAR 7.3.2, “Containment Purge Isolation System,” Revision 13

Wolf Creek USAR 7.1.2.2, “Independence of Redundant Safety Related Systems,” Revision 6

Wolf Creek USAR 7.3.2, “Containment Purge Isolation System,” Revision 13

Wolf Creek USAR 7.2.2.2.3, “Evaluation of Compliance to Applicable Codes and Standards,” Revision 6

Final Scope Evaluation Annunciator System Function RK-01

Final Scope Evaluation Annunciator System Function RK-01

Bechtel System Description, “System Description Plant Annunciator System,” Revision 00

Triennial Maintenance Rule Inspection

Maintenance Rule paragraph (a)(3) Periodic Assessment Report Quick Hit #656, dated June 14, 2007

Performance Improvement Requests

2004-0200	2005-1270	2005-3184
2005-3250	2005-1604	2005-3288
2005-1038	2005-2851	2006-0438
2005-1270	2005-3075	2006-0635

Work Orders

05-27981-001	06-288194	WR-5050861
06-059372	KCHV-0253 (History 1984	WR7062529
06-284242	to 1991)	WR-5048541
06-284957-000	WR-5048541	

Procedures

I-ENG-014, “Electrolytic Capacitor PM Program,” Revision 1
AI 23M-007, “Structures Monitoring Program,” Revision 3
AI 23N-001, “Air Operated Valve Categorization,” Revision 3
AP 23M-001, “WCGS Maintenance Rule Program,” Revision 6
AI 23M-003, “Maintenance Rule Expert panel Duties and Responsibilities,” Revision 5

CRs

2005-003250
2005-003288
2006-002222
2007-001559
2007-000483
2007-001556
2007-001730
2007-002589
2007-000483
2007-000483
2007-000483
2007-001097
2007-001163
2007-001554
2007-001556
2007-001557
2007-001558
2007-001560
2007-001615
2007-001728
2007-001733
2007-001735
2007-001735
2007-001736

Preventive Maintenance

SA075A15PS2

Training Records

Course ES1310304, A maintenance rule Database (a)(1) and Maintenance Rule (a)(1) Monitoring, dated September 9, 2005

Course ES1333201, A maintenance rule and PSA, A dated March 5, 1998

Course SN1236001, A system engineer maintenance rule training, dated January 18, 1994

Course ES1335402, A maintenance rule implementation and compliance, dated October 23, 1998

Course ES9280460, A maintenance rule responsible engineer, dated December 4, 1998

Course ES1310305, A maintenance rule overview, dated September 13, 2005

Course ES1310302, A intro to maintenance rule database and scoping overview, dated May 9, 2006

Course ES1310303, A maintenance rule performance monitoring, dated May 9, 2006

Training records for current function owners in the maintenance rule database

Miscellaneous

Operability evaluation log

EDI 23M-050, A functional failure determination checklist, Revision 3
Fault tree analysis for KCHV0253
Penetration P-67 fire protection
Record supplemental/correction Sheet K01-033
Action plan detail Report CA03

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

APF 22C-003-001, "Operational Risk Assessment," Revision 0, September 2-4, 2007
APF 21-001-02, "Control Room Turnover Checklist," Revision 23, September 2-4, 2007
APF 21-001-06, "Site Operator Relief Checklist," Revision 5, September 2-4, 2007
AP 22C-003, "Operational Risk Assessment Program," Revision 9
AIF 22C-006-01, "Checklist for Emergent Work," Revision 4, September 2, 2007

Miscellaneous

Operational Risk Assessment Week 7310
Operational Risk Assessment Week 7313
Operational Risk Assessment Week 7403
PSA-05-0020, "WCGS PRA Basic Event Data Files," Appendix E, Revision 0

Section 1R15: Operability Evaluations

Performance Improvement Requests

1998-1585
2007-003218
2007-003260

Work Orders

05-271314-001
05-297333-000
06-290168-001
07-298869-000
07-290168-001
07-298655-000
07-298655-001
07-298795-000

Procedures

WCRE-13, "Lake Water Systems Structural Integrity Program," Revision 2

STN IC-210, "Calibration of Refueling Water Storage Tank (RWST) Temp Loops," Revision 29

SYS EC-121, "Recirc of the RWST through the Fuel Pool Cleanup System," Revision 11

AP 28-001, "Operability Evaluations," Revision 13

STS CR-001, "Shift Log for Modes 1, 2, & 3," Revision 64

SYS EF-001, "ESW/Service Water Macrofoul Treatment," Revision 19

STN PE-037A, “ESW Train A Heat Exchanger Flow and DP Trending,” Revision 12A

Drawings

SK-M-13EF01, “Piping Isometric Essential Service Water System Control BLDG. A and B Train,” Revision 8

M-018-01134 W02, “Young Intercoolers Isometric Charge Air Cooler Care & Maintenance”

J-110-00319 W07, “Instrument Loop Diagram Borated Refueling Water Storage System. RWST Temperature,” Revision 1W

J-110-00320 W07, “Instrument Loop Diagram Borated Refueling Water Storage System. RWST Temperature,” Revision 1W

WIP-M-109-00003-08-A R/0, “Refueling Water Storage Tank, SNUPPS, For: Bechtel Power Corporation,” Revision 1W

10466-M-109-0004-06, “Details - Refueling Water Storage Tank - SNUPPS For: Bechtel Power Corporation,” Revision 5

M-12GK01, “Piping & Instrumentation Diagram Control Building H.V.A.C.,” Revision 13

M-622.1A-00194, “21/2" 2 way Refrigerant Pressure Actuated Condenser Water Regulating Valve w/ Manual Opening/Locking Device,” Revision W01

M-12KA05, “Piping and Instrumentation Diagram Compressed Air System,” Revision 7

M-12AL01, “Piping and Instrumentation Diagram Auxiliary Feedwater System,” Revision 10

M-234C-00012, “½ - 1 inch, 1500lb. Gate S.W.C.S.,” Revision W12

Miscellaneous

Engineering Evaluation of Pipe-Wall Thickness UT Inspections, No. UWT#3452

WCNOC Ultrasonic Thickness Report EF-V0104

Engineering Disposition, “KKJ01B Moisture Trap (Separator) for the Turbocharger,” Revision 01

APF 26A-003-02, 50.59 Screen, “KKJ01B Moisture Trap (Separator) for the Turbocharger,” Revision 01

Total Plant Setpoint Document, pages 400 to 401, RWST temperature indication

Bechtel Specification No. 10466-J-558 (Q), “Technical Specification for Resistance Temperature Detectors for the Standardized Nuclear Unit Power Plant System (SNUPPS),” Revision 12

Engineering Disposition, “Replace SGK04A/B Air Conditioning Units,” Revision 0

M-622.1A-00089, “Metrex Valves Direct Acting Series”

M-021-00086, “Instruction Manual for Terry Turbine Corp.,” Revision W35

Wolf Creek USAR, 10.4.9.2.2, “Auxiliary Feedwater System] Component Description,” Revision 11

Section 1R17: Permanent Plant Modifications

CRs

2007-002483 2007-002500

Work Orders

02-243089-150 07-297285-001

Procedures

STS IC-417E, “Calibration of Feedwater Flow Transmitters,” Revision 0

STN IC-417A, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator A,” Revision 10

STN IC-417B, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator B,” Revision 9

STN IC-417C, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator C,” Revision 10

STN IC-417A, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator A,” Revision 12

STN IC-417B, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator B,” Revision 11

STN IC-417C, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator C,” Revision 12

STN IC-417D, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator D,” Revision 11

STN IC-417B, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator B,” Revision 10

STN IC-417A, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator A,” Revision 13

STN IC-417B, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator B,” Revision 12

STN IC-417C, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator C,” Revision 13

STN IC-417D, “Channel Calibration of Feedwater, Steamflow, and Related Steam Generator D,” Revision 12

STS IC-011, “Precision Calorimetric Loop Instrumentation Calibration Check,” Revision 3

Drawings

8809D50, “Steam Gen Level Control-Loop #1 Control 1 Cabinet 05 Card Frame 06"

Miscellaneous

Hardware computer point test/verification
CCP 9500, Revision 2

Section 1R19: Postmaintenance Testing

Work Orders

06-296211-000	07-297746-001	07-297755-000
06-296212-000	07-297754-000	
07-297753-003		

Drawings

M-12AL01, “Piping and Instrumentation Diagram Auxiliary Feedwater System,” Revision 10

Procedures

STS AL-103, “TDAFW Pump Inservice Test,” Revision 42

SYS KJ-123, “Post Maintenance Run of Emergency Diesel Generator A,” Revision 36A

CKL ZL-005A, “A EDG Operating Log,” Revision 1A

STS KJ-005A, “Manual/Auto Start, Synchronization & Loading of Emergency D/G NE01,” Revision 48

Miscellaneous

M-021-00086, “Instruction Manual for Terry Turbine Corp.,” Revision W35

Wolf Creek USAR, 10.4.9.2.2, “[Auxiliary Feedwater System] Component Description,” Revision 11

Section 1R22: Surveillance Testing

Work Order

07-295532-000

Procedures

MGE EOOP-05, “Insulation Resistance Testing,” Revision 15

STS EN-100B, “Containment Spray Pump B Inservice Test,” Revision 19

MGEF EOOP-05-04, “Large Motor Meggar Testing Procedure Sign-Off Sheet,” Revision 2, August 14, 2007

STN IC-201, “Reactor Vessel Flange Leakoff Temperature Sensor TE-401,” Revision 4

Drawings

M-12EN01, “Piping and Instrumentation Diagram Containment Spray System,” Revision 3

M-12BN01, “Piping and Instrumentation Diagram Borated Water Storage System,” Revision 8

Miscellaneous

Required Reading # OP070000106
Total plant setpoint document
10466-M-088-01, “Characteristic Curve Pump No. 097634"

Section 1EP6: Drill Evaluation

CRs

2007-003322	2007-003329	2007-003477
2007-003337	2007-003339	2007-003478
2007-003320	2007-003341	2007-003478
2007-003321	2007-003343	
2007-003325	2007-003352	

Procedures

EPP 06-007, “Emergency Notifications,” Revision 12
EPP 06-011, “Emergency Team Formation and Control,” Revision 5
EPP 06-005, “Emergency Classification,” Revision 3

Miscellaneous

Wolf Creek Generating Station Emergency Plan Drill 07-SA-02

Section 2OS1: Access Controls to Radiologically Significant Areas

ALARA Review Packages 060036, 061036, 063220, and 070059

Performance Improvement Request 2007-000425

Procedures

AP 25A-001, “Radiation Protection Manual,” Revision 12A

RPP 02-205, “Radiological Survey Frequency Requirements,” Revision 10

RPP 02-210, “Radiation Survey Methods,” Revision 26

RPP 02-215, “Posting of Radiological Controlled Areas,” Revision 22A

RPP 02-405, “RCA Access Control,” Revision 13

RPP 03-405, “Exposure History Files,” Revision 15

SYS HC-207, “Sluice CVCS BTR Demins Using Primary Spent Resin Sluice Pump,” Revision 12

Radiation Work Permits

060036	067011	070059
061036	070029	
063220		

Miscellaneous

Four individuals’ internal dose assessments
One personal whole body counting results record
Prejob briefing form for RWP070029
SAC4 daily operational checks for June, July, and August 2007

Section 2OS2: ALARA Planning and Controls

ALARA Review Packages

061001	063220	064461
061005	064000	064462
061036	064070	066060
061102	064071	070059
062200	064200	070067
062210	064460	

Performance Improvement Requests

2006-1348	2006-2567	2006-2953
2006-1815	2006-2902	2006-3257
2006-1818	2006-2950	
2006-2174	2006-2952	

Procedures

AP 25A-401, “ALARA Program,” Revision 13
RPP 02-105, “Radiation Work Permits,” Revision 26
RPP 03-405, “Exposure History Files,” Revision 15

Radiation Work Permits

061001	063220	064461
061005	064000	064462
061036	064070	066060
061102	064071	070059
062200	064200	070067
062210	064460	

Miscellaneous

2007-2011 Wolf Creek ALARA Long Range Exposure/Source Term Reduction Plan
Dose records for selected individuals
EPRI Survey Data Refuel 15
Pre-Job Briefing Form for RWP070029
Refueling Outage 15 ALARA Outage Report
Selected ALARA Committee Meeting Minutes

Section 4OA1: Performance Indicator Verification

Procedures

AP 26A-007, “NRC Performance Indicators,” Revision 5
NEI 99-02, “Regulatory Assessment Indicator Guideline,” Revision 4

Section 4OA3: Event Followup and Notices of Enforcement Discretion

CRs

2005-0432	2007-002738	2007-003293
2007-002662	2007-002744	

Work Request

06-59181

Work Orders

02-238726-000	05-275958-001	07-297720-001
04-044280	05-275959-000	07-297720-002
04-264356-010	05-275959-002	07-297720-000
05-275959-001	06-290507	
05-275958-000	06-290674	

Procedures

AP 22C-003, “Operational Risk Assessment Program,” Revision 11
ALR 501, “Standby Diesel Engine System Control Panel KJ-121,” Revision 13
AI 28A-001, “Root Cause Analysis,” Revision 5
SYS KJ-123, “Post Maintenance Run of Emergency Diesel Generator A,” Revision 36A
SYS SY-120, “Sharpe Diesel Operation and Alignment to Site,” Revision DRAFT

Miscellaneous

Operational Risk Assessment Week 7104

Operational Risk Assessment Week 7106

Operational Risk Assessment Week 7302

Operational Risk Assessment Week 7302, Revision 1

SWA-01-2007

XX-M-052, “Wolf Creek Tank Document Verifications,” TKJ01A/B

Engineering Disposition, “PKJ05A Discharge Flange Spacer,” Revision 00

M-018-01525, “Product Service Instruction, PC Attached Water Pumps, Water Pump Repair,” Revision W01

Colt-Pielstick PC2.5V Engine Instructions

Compensatory Operator Action Just-In-Time Training Based on Higher Order PSA Cutsets

Required Reading, “Notice of Enforcement Discretion (NOED) from Technical Specification 3.8.1

Compensatory Actions for 48 hr Extension (Valid through 7-10-07) 1406 hrs.”

LIST OF ACRONYMS

ALARA	as low as is reasonably achievable
CFR	*Code of Federal Regulations*
CR	condition report
EDG	emergency diesel generator
ESW	essential service water
IMC	inspection manual chapter
LER	licensee event report
NCV	noncited violation
NOED	Notice of Enforcement Discretion
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
SSC	structure, system, and component

TS	Technical Specifications
URI	unresolved item
USAR	Updated Safety Analysis Report