



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION IV  
612 EAST LAMAR BLVD, SUITE 400  
ARLINGTON, TEXAS 76011-4125

August 5, 2009

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 05000482/2009003

Dear Mr. Muench:

On June 30, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Wolf Creek Generating Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on June 26, 2009, with Mr. Matt Sunseri, Vice President of Operations and Plant Manager, 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one self-revealing and two NRC identified findings of very low safety significance (Green). Two of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the 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, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Wolf Creek Generating Station. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at Wolf Creek Generating Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

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).

Sincerely,

*/RA/*

Vincent G. Gaddy, Chief  
Project Branch B  
Division of Reactor Projects

Docket No. 50-482  
License No. NPF-42

Enclosure:  
Enclosure: Inspection Report 05000482/2009003  
w/Attachment: Supplemental Information

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

Jay Silberg, Esq.  
Pillsbury Winthrop Shaw Pittman LLP  
2300 N Street, NW  
Washington, DC 20037

Supervisor Licensing  
Wolf Creek Nuclear Operating  
Corporation  
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 66612-1590

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

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

Chief, Technological Hazards  
Branch  
FEMA, Region VII  
9221 Ward Parkway  
Suite 300  
Kansas City, MO 64114-3372

Electronic distribution by RIV:

Regional Administrator (Elmo.Collins@nrc.gov)  
 Deputy Regional Administrator (Chuck.Casto@nrc.gov)  
 DRP Director (Dwight.Chamberlain@nrc.gov)  
 DRP Deputy Director (Anton.Vegel@nrc.gov)  
 DRS Director (Roy.Caniano@nrc.gov)  
 DRS Deputy Director (Troy.Pruett@nrc.gov)  
 Senior Resident Inspector (Chris.Long@nrc.gov)  
 Resident Inspector (Charles.Peabody@nrc.gov)  
 Site Secretary (Shirley.Allen@nrc.gov)  
 Branch Chief, DRP/B (Vincent.Gaddy@nrc.gov)  
 Senior Project Engineer, DRP/B (Rick.Deese@nrc.gov)  
 Public Affairs Officer (Victor.Dricks@nrc.gov)  
 Team Leader, DRP/TSS (Chuck.Paulk@nrc.gov)  
 RITS Coordinator (Marisa.Herrera@nrc.gov)  
 Regional Counsel (Karla.Fuller@nrc.gov)  
 Congressional Affairs Officer (Jenny.Weil@nrc.gov)  
 OEmail Resource  
 Regional State Liaison Officer (Bill.Maier@nrc.gov)  
 NSIR/DRP/EP (Robert.Kahler@nrc.gov)

Only inspection reports to the following:

DRS STA (Dale.Powers@nrc.gov)  
 OEDO RIV Coordinator (Leigh.Trocine@nrc.gov)  
 ROPreports

R:\\_REACTORS\\_WC\2009\WC 2009003 RP-CML ADAMS.doc

ML092170764

SUNSI Rev Compl.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ADAMS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewer Initials	VGG
Publicly Avail	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sensitive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sens. Type Initials	VGG
SRI:DRP/B	C:DRS/BC	C:DRS/EB1	C:DRS/EB2	C:DRS/OB	
CMLong	GWerner	TFarnholtz	NOkeefe	RELantz	
<b>E-VGGaddy for</b>	<b>LCarson for</b>	<b>WSifre for</b>	<b>GPick for</b>	<b>/RA/</b>	
7/17/09	7/16/09	7/15/09	7/15/09	7/15/09	
C:DRS/PSB	C/DRP/B				
MPShannon	VGGaddy				
<b>/RA/</b>	<b>/RA/</b>				
7/16/09	8/5/09				

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

**U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV**

Docket: 50-482

License: NPF-42

Report: 05000482/2009003

Licensee: Wolf Creek Operating Corporation

Facility: Wolf Creek Generating Station

Location: 1550 Oxen Lane SE  
Burlington, Kansas

Dates: April 1 through June 30, 2009

Inspectors: C. M. Long, Senior Resident Inspector  
C. Peabody, Resident Inspector  
B. Tharakan, Resident Inspector, South Texas Project  
P. Jayroe, Project Engineer, Project Branch B, DRP  
G. L. Guerra, Emergency Preparedness Inspector, DRS  
J. F. Drake, Reactor Inspector  
B. Tindell, Resident Inspector, Comanche Peak

Approved By: V. G. Gaddy, Chief, Project Branch B, Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000482/2009003, 4/1/2009 – 6/30/2009; Wolf Creek Generating Station, Integrated Resident and Regional Report; Plant Modifications; Event Followup.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional based inspectors. Two Green noncited violations and one Green finding of significance were identified. 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 review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self-revealing finding was identified for an inadequate thermography maintenance procedure that resulted in a reactor trip due to a loss of power to a main feed regulating valve controller. On April 28, 2009, the main feedwater regulating valve controller power supply fuses blew, isolating flow to steam Generator B. The fuses blew due to overheating of the fuse holder. Wolf Creek's root cause found that vendor information was previously used in 1995 to detect a process cabinet main power fuse holder that was hot. However, this guidance was not incorporated into the preventive maintenance thermography procedure. This issue was entered into the corrective action program as Condition Report 00016455.

Failure to develop an adequate maintenance procedure for the 7300 process rack fuses was a performance deficiency. The inspectors determined that this finding was more than minor because it is associated with the procedure quality attribute of the Initiating Events cornerstone and it affected the cornerstone objective to limit the likelihood of those events that upset plant stability. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609.04, and determined the finding to be Green because it did not result in both a reactor trip and loss of accident mitigation equipment. Consequently, this finding was determined to be of very low safety significance (Green). The inspectors also determined that the cause of the finding had a crosscutting aspect in the problem identification and resolution area associated with operating experience because Wolf Creek failed to use vendor information to assure plant safety. Specifically Wolf Creek utilized but failed to subsequently institutionalize operating experience in 1995 and 2009 by updating the thermography maintenance procedure [P.2(b)] (Section 4OA3).

### Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation for an inadequate control of measuring and test equipment used to verify the design basis of a safety-related system. On June 2, 2009, Wolf Creek measured pipe gaps and angles of deflection associated with Smith-Blair couplings on the emergency diesel generator lube oil and jacket water systems. Wolf Creek used commercial grade tape measures and protractors to determine whether the piping met vendor and design requirements or if the piping had to be refitted. Some of the measurements indicated little or no margin from the maximum pipe gap tolerances. This issue was entered into the corrective action program as Condition Report 00017781.

Failure to use appropriately qualified measuring and test equipment when verifying the design specifications of a safety-related system was a performance deficiency. The inspectors determined that this finding was more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective to ensure the availability, reliability, and capability of mitigating systems. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609.04, and determined the finding to be Green because it did not result in the loss of operability or functionality and was not affected by external events such as earthquakes or floods. Consequently, this finding was determined to be of very low safety significance (Green). The inspectors also determined that the cause of the finding had a crosscutting aspect in the human performance area associated with work controls because Wolf Creek failed to place adequate instructions into the work order to assure that the use of the proper measuring and test equipment requirements were specified. Wolf Creek did not appropriately plan work activities by incorporating job-site conditions that may impact human performance [H.3(a)] (Section 1R18).

### Cornerstone: Barrier Integrity

- Green. On April 28, 2009, the inspectors identified a noncited violation of Technical Specification, Table 3.3.1-1, Function 18.a, when Wolf Creek tripped from 100 percent reactor power. During the trip, intermediate range neutron Detector NI-36 did not decrease below 10 E -10 amps and energize source range Detector NI-32. The inspectors determined that postmaintenance testing of the new detector during the previous refueling outage was insufficient and caused the detector to be undercompensated. A postmaintenance testing deficiency was not evaluated. After the reactor trip, this issue was entered into the corrective action program but was closed to pending recalibration of the detector. The deficiency for Function 18.a was entered into the corrective action program after the inspector's questioning.

The inspectors determined that the failure to ensure that the P-6 interlock was operable per the technical specification as defined in the bases was a performance deficiency. The finding was more than minor because it was associated with the configuration control attribute of the Barrier Integrity cornerstone, and it affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system,

and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, it affected the reactivity control area (reactor control systems) of the cornerstone's attribute. The inspectors evaluated the significance of this finding under the Mitigating Systems cornerstone using Phase 1 of Inspection Manual Chapter 0609.04, and determined that the finding screened to Green because the P-6 interlock only affected the fuel barrier. This issue has been entered into the corrective action program as Condition Report 00017814. The cause of this finding was determined to have a crosscutting aspect in the problem identification and resolution area associated with the corrective action program because postmaintenance testing of Procedure STN IC-236 identified deficiencies as well as the posttrip review; however, this did not result in initiation of condition reports and subsequent evaluation [P.1.a] (Section 4OA3).

**B. Licensee-Identified Violations**

None

## REPORT DETAILS

### Summary of Plant Status

The plant started the inspection period at 100 percent rated thermal power. On April 28, 2009, Wolf Creek automatically tripped on Lo-Lo steam generator level. On May 1, 2009, Wolf Creek entered Mode 2. On May 2, 2009, Wolf Creek held reactor power at 63 percent pending repairs to the Main Feedwater Pump B. On May 4, 2009, Wolf Creek achieved 100 percent reactor power. On May 15, 2009, reactor power was reduced to 90 percent due to a steam leak on a feedwater heater valve body. The plant returned to 100 percent power when the leak was repaired on May 16, 2009. The plant remained at essentially 100 percent power for the remainder of the period.

### 1. REACTOR SAFETY

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

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Readiness for Seasonal Extreme Weather Conditions

##### a. Inspection Scope

The inspectors performed a review of the licensee's adverse weather procedures for seasonal extremes (e.g., extreme high temperatures, extreme low temperatures, or hurricane season preparations). The inspectors: verified that weather-related equipment deficiencies identified during the previous year were corrected prior to the onset of seasonal extremes and evaluated the implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of, and during, the adverse weather conditions.

During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' review focused specifically on the following plant system:

- March 15, 2009, Cold weather preps for the 'EM' safety injection system and the 'AE' system including the condensate storage tank

These activities constitute completion of one readiness for seasonal adverse weather sample as defined in IP 71111.01-05.

##### b. Findings

No findings of significance were identified.

## **1R04 Equipment Alignments (71111.04)**

### **.1 Partial Walkdown**

#### **a. Inspection Scope**

The inspectors performed partial walkdown of the following risk-significant systems:

- June 23, 2009, Train A safety injection system while the safety injection Train B was out of service for planned maintenance
- June 24, 2009, Train A containment spray while the containment spray System B was out of service for planned maintenance

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two partial system walkdown samples as defined in IP 71111.04-05.

#### **b. Findings**

No findings of significance were identified.

## **1R05 Fire Protection (71111.05)**

### **.1 Quarterly Fire Inspection Tours**

#### **a. Inspection Scope**

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- June 09, 2009, 1974 foot and 1988 foot elevations of auxiliary building
- June 09, 2009, 2000 foot elevation of auxiliary building
- June 10, 2009, 2026 foot elevation of auxiliary building

- June 10, 2009, 2047 foot elevation of auxiliary building

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four quarterly fire protection inspection samples as defined by IP 71111.05-05.

b. Findings

No findings of significance were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On June 22, 2009, the inspectors observed a fire brigade activation for a fire at an engineered safety features NB transformer. The observation evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of pre-planned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives.

These activities constitute completion of one annual fire protection inspection sample as defined by IP 71111.05-05.

b. Findings

No findings of significance were identified.

## **1R11 Licensed Operator Requalification Program (71111.11)**

### a. Inspection Scope

On June 23, 2009, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one quarterly licensed-operator requalification program sample as defined in IP 71111.11.

### b. Findings

No findings of significance were identified.

## **1R12 Maintenance Effectiveness (71111.12)**

### a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- Chemical and Volume Control System Valve 8153B stroke-time failure

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices

- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or (a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one quarterly maintenance effectiveness sample as defined in IP 71111.12-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- May 11, 2009, Emergent work of through wall leak repair of condensate Valve AD HV-54
- May 27, 2009, Emergent work of emergency diesel generator Smith-Blair compression fittings for lubrication oil and jacket water

The inspectors selected these activities based on potential risk-significance relative to the Reactor Safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly

assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk-analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two maintenance risk assessments and emergent work control inspection samples as defined by IP 71111.13-05.

b. Findings

No findings of significance were identified.

**1R15 Operability Evaluations (71111.15)**

a. Inspection Scope

The inspectors reviewed the following issues:

- April 14, 2009, Turbine-driven auxiliary feedwater trip and throttle valve bypass flow
- April 22, 2009, Air-operated steam generator relief Valve B seat leakage
- April 27, 2009, Impact of diesel fuel oil additives on control room envelope
- April 30, 2009, Masonelian notification of main and pilot plug tolerance deficiency for air-operated steam generator atmospheric relief valves

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Updated Safety Analysis Report to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four operability evaluations inspection samples as defined in 71111.15-05

b. Findings

No findings of significance were identified.

**1R18 Plant Modifications (71111.18)**

a. Inspection Scope

The inspectors reviewed the following permanent modifications to verify that the safety functions of important safety systems were not degraded:

- June 5, 2009, Emergency Diesel Generator A repair of lube oil piping to meet compression fitting vendor alignment criteria
- April 22, 2009, Steam generator air-operated relief valve helper spring replacement with spacer collar

The inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the modification listed below. The inspectors verified that: modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, systems, structures and components' performance characteristics still meet the design basis, the appropriateness of modification design assumptions, and the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two samples for permanent plant modifications as defined in IP 71111.18-05.

b. Findings

Introduction. On June 8, 2009, inspectors identified a Green noncited violation of Appendix B, Criterion XII, "Control of Measuring and Test Equipment," for failure to use appropriate testing equipment when repairing emergency diesel generator piping.

Description. When performing work on the Smith-Blair compression fittings for emergency diesel lube oil and jacket water piping as part of Work Order 09-317669-000, the pipe gaps and angles of deflection were made using nonqualified equipment. The vendor recommends that the pipe gap be between 0.25 inch and 0.50 inch and allows a maximum gap of 2.00 inch if there is no lateral pipe movement. Wolf Creek used 'engineering judgment' and past operational history to establish design acceptance criteria that are 1.5 inches with tolerances of +.50 inch or -.60 inch per Design Change Package 013060, Revision 1. The inspectors could not locate a written basis for the use of engineering judgment. Some of the pipe clearances exceeded or matched the maximum acceptance criteria of 2.00 inch. To meet this specification, measuring instruments would need to be accurate to one-hundredth on an inch, however Wolf

Creek used a commercial grade tape measure which is graduated to one-sixteenth of an inch. Using such tools, Wolf Creek could not have established that the measurements meet the vendor acceptance criteria to one-hundredth of an inch. Wolf Creek contacted the vendor to expand the 2.00 inch requirement, however the vendor declined.

Similarly, Wolf Creek also used piping alignment acceptance criteria of four degrees or less for angle of deflection per the vendor. Wolf Creek used an uncalibrated commercial magnetic protractor. Neither the work order, nor the design change package specified the type of measurement and testing equipment to be used.

The inspectors found that the Wolf Creek Quality Program Manual, Section 12.2.2, states: "Inspection, test, maintenance, repair, and other procedures include provisions to assure that [measurement and test equipment] employed in activities affecting quality are of the proper range, type, and accuracy to verify conformance to requirements and test parameters." Quality assurance certified calipers, protractors, or other qualified tools should have been used instead of uncalibrated commercial grade tools because of the accuracy required by the acceptance criteria. Wolf Creek failed to consider the accuracy of commercial grade tools and their greater opportunity to be misread due to worker positioning (parallax) or other human error. Wolf Creek did not take this into account when making the measurements in question. The piping is nuclear safety related and the information was used as part of the decision to return the Emergency Diesel Generator A to operable status. Wolf Creek was unable to demonstrate that the piping met the design criteria; however, the piping passed its postmaintenance testing by not leaking lube oil and was considered operable.

Analysis. The use of measurement and testing equipment that was not appropriately qualified per 10 CFR Part 50, Appendix B, Criterion XII, and instead using equipment that was less accurate than the acceptance criteria was considered a performance deficiency. Traditional enforcement does not apply since there were no actual safety consequences, potential impediments to the NRC's regulatory function, or willful aspects to the violation of NRC requirements or Wolf Creek procedures. The inspectors determined that this finding was more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective to ensure the availability, reliability, and capability of mitigating systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," and determined the finding to be Green because it did not result in the loss of operability or functionality and was not affected by external events such as earthquakes or floods. Consequently, this finding was determined to be of very low safety significance (Green).

The inspectors also determined that the cause of the finding has a crosscutting aspect in the human performance area associated with work controls because Wolf Creek failed to place adequate instructions into the work order to assure that the use of the proper measuring and test equipment requirements of 10 CFR Part 50, Appendix B, and the Wolf Creek quality program manual were specified. Wolf Creek did not appropriately plan work activities by incorporating jobsite conditions that may impact human performance [H.3(a)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XII, "Control of Measuring and Test Equipment," requires in part, that measures shall be established to assure that

tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled to maintain accuracy within the necessary limits. The Wolf Creek quality program manual implements this requirement and states in Section 12.2.2 that: "Inspection, test, maintenance, repair, and other procedures include provisions to assure that material and test equipment employed in activities affecting quality are of the proper range, type, and accuracy to verify conformance to requirements and test parameters." Contrary to the above, on June 2, 2009, Wolf Creek used commercial tools of insufficient accuracy to verify piping gap and deflection per the acceptance criteria. This piping was part of the emergency diesel Generator A lubricating oil system. Because this violation was determined to be of very low safety significance and was placed in the corrective action program as Condition Report 00017781, this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy: NCV 05000482/2009003-01, "Inadequate Testing Equipment Used for Alignment Verification of Emergency Diesel Lube Oil Piping."

## **1R19 Postmaintenance Testing (71111.19)**

### **a. Inspection Scope**

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- April 13, 2009, Electric fire pump full flow testing after motor replacement
- May 12, 2009, Diesel-driven fire pump testing after cylinder inspection
- May 26, 2009, Emergency diesel Generator A run after compression fitting rework
- June 4, 2009, Emergency diesel Generator A run after heat exchanger cleaning, injector pump replacement, and compression fitting gasket replacement

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following:

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Updated Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate

with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four postmaintenance testing inspection samples as defined in IP 71111.19-05.

b. Findings

No findings of significance were identified.

**1R20 Refueling and Other Outage Activities (71111.20)**

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Wolf Creek forced outage, conducted between April 28 and May 2, 2009, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During the forced outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing
- Monitoring of decay heat removal processes, systems, and components
- Controls over activities that could affect reactivity
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the primary containment to verify that debris had not been left which could block emergency core cooling system suction strainers
- Licensee identification and resolution of problems related to refueling outage activities

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one other outage inspection sample as defined in IP 71111.20-05.

b. Findings

No findings of significance were identified.

## 1R22 Surveillance Testing (71111.22)

### a. Inspection Scope

The inspectors reviewed the Updated Safety Analysis Report, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated Technical Specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- April 22, 2009, Component cooling water and containment spray vacuum relief valve failures
- May 7, 2009, Control room emergency ventilation filtration and charcoal leak rate testing
- May 4, 2009, Safety injection Pump A inservice testing

- June 4, 2009, Refueling pool Valve BN HCV-8800A inservice testing
- June 10, 2009, Reactor coolant pump undervoltage relay timer failure

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five surveillance testing inspection samples as defined in IP 71111.22-05.

b. Findings

No findings of significance were identified.

**1EP1 Exercise Evaluation (71114.01)**

a. Inspection Scope

The inspectors reviewed the objectives and scenario for the 2009 biennial emergency plan exercise to determine if the exercise would acceptably test major elements of the emergency plan. The scenario simulated a main steam line break in containment, fission product barrier failures, steam generator tube rupture, and a radiological release to the environment via failed containment purge isolation valves to demonstrate the licensee personnel's capability to implement their emergency plan.

The inspectors evaluated exercise performance by focusing on the risk-significant activities of event classification, offsite notification, recognition of offsite dose consequences, and development of protective action recommendations, in the Control Room Simulator and the following dedicated emergency response facilities:

- Technical Support Center
- Operations Support Center
- Emergency Operations Facility

The inspectors also assessed recognition of, and response to, abnormal and emergency plant conditions, the transfer of decision making authority and emergency function responsibilities between facilities, onsite and offsite communications, protection of emergency workers, emergency repair evaluation and capability, and the overall implementation of the emergency plan to protect public health and safety and the environment. The inspectors reviewed the current revision of the facility emergency plan, emergency plan implementing procedures associated with operation of the licensee's emergency response facilities, procedures for the performance of associated emergency functions, and other documents as listed in the attachment to this report.

The inspectors compared the observed exercise performance with the requirements in the facility emergency plan, 10 CFR 50.47(b), 10 CFR Part 50, Appendix E, and with the guidance in the emergency plan implementing procedures and other federal guidance.

The inspectors attended the postexercise critiques in each emergency response facility to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended a subsequent formal presentation of critique items to plant management. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.01-05.

b. Findings

No findings of significance were identified.

**1EP6 Drill Evaluation (71114.06)**

.1 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on April 9, 2009, and June 18, 2009, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evaluation critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

These activities constitute completion of two samples as defined in IP 71114.06-05.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

**4OA1 Performance Indicator Verification (71151)**

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the first quarter 2009 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

## .2 Unplanned Scrams with Complications

### a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams with complications performance indicator for the period from the first quarter 2008 through the first quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 1, 2008, through March 31, 2009, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one unplanned scrams with complications sample as defined by IP 71151-05.

### b. Findings

No findings of significance were identified.

## .3 Reactor Coolant System Specific Activity

### a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity performance indicator from the first quarter 2008 through the first quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's reactor coolant system chemistry samples, technical specification requirements, issue reports, event reports and NRC integrated inspection reports for the period of January 1, 2008, through March 31, 2009, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one reactor coolant system specific activity sample as defined by IP 71151-05.

### b. Findings

No findings of significance were identified.

.4 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system leakage performance indicator for the period from the first quarter 2008 through the first quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator logs, reactor coolant system leakage tracking data, issue reports, event reports, and NRC integrated inspection reports for period of January 1, 2008, through March 31, 2009, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one reactor coolant system leakage sample as defined by IP 71151-05.

b. Findings

No findings of significance were identified.

.5 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise Performance, performance indicator for the period from the fourth quarter 2008 through the first quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator; assessments of performance indicator opportunities during predesignated control room simulator training sessions, performance during the 2007 biennial exercise, and performance during other drills. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the drill/exercise performance sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.6 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors sampled licensee submittals for the Emergency Response Organization Drill Participation performance indicator for the period from the fourth quarter 2008 through the first quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, rosters of personnel assigned to key emergency response organization positions, and exercise participation records. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the emergency response organization drill participation sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.7 Alert and Notification System (EP03)

a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System performance indicator for the period from the fourth quarter 2008 through the first quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator and the results of periodic alert notification system operability tests. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the alert and notification system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

## 40A2 Identification and Resolution of Problems (71152)

### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

#### .1 Routine Review of Identification and Resolution of Problems

##### a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included: the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

##### b. Findings

No findings of significance were identified.

#### .2 Daily Corrective Action Program Reviews

##### a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for followup, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

##### b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant-safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of December 2008 through June 2009, although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and maintenance rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one single semi-annual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

.4 Selected Issue Followup Inspection

a. Inspection Scope

Per Inspection Manual Chapter 0305, Section 13.05.f, the inspectors conducted an in-depth annual sample using Inspection Procedure 71152, "Identification and Resolution of Problems," to evaluate the licensee's progress in addressing the substantive crosscutting issues. The NRC's assessment letter dated March 4, 2009, identified substantive crosscutting issues in human performance and problem identification and resolution. The inspectors reviewed Wolf Creek's May 26, 2009, response to the NRC's March 4, 2009, annual assessment letter. The inspectors compared the May 26 letter with Wolf Creek's efforts in its problem identification and resolution and human performance initiatives. The inspectors observed corrective action program training, reviewed revised procedures, reviewed condition reports, and interviewed several personnel.

Problem Identification and Resolution

The NRC's March 4, 2009, assessment letter identified three themes within the corrective action program. The inspectors conducted their own trend reviews. The Wolf Creek's May 26 letter shows that the condition report initiation rate is increasing due to a lowered threshold for condition report initiation. During the same 2008 period, there were a large number of Green noncited violations and findings. Forty-four total findings,

with 18 findings with problem identification and resolution aspects and 17 findings with human performance aspects in 2008. The majority were NRC identified. This tracks with Wolf Creek's increased condition report initiation rate. The inspectors reviewed the critical equipment failures that Wolf Creek cited in its improvement. The inspectors found several examples of important equipment deficiencies not counted in the metric such as component cooling water thermal barrier valve breakers opening, a containment isolation valve failure, heat exchanger leaks, and residual heat removal system inoperability in Licensee Event Report 2008-008-00.

The re-writing of the corrective action program in April 2009 with expert contractor assistance has been the most positive step in lowering the threshold on condition report initiation, improving the quality of evaluations, and tracking corrective actions. The contractor's assessment of the previous problem identification and resolution initiative and root cause evaluations was not positive. Prior to the April 2009 corrective action program changes, Wolf Creek often cited operability evaluations inherent in the work request system by virtue of the 'operable' checkbox in the software. Subsequently, Wolf Creek has made improvement initiating condition reports for work requests that describe equipment problems. Wolf Creek has identified discrepancies between the work control and corrective action procedures for parallelism between the two. This endeavor still requires improvement as described in the nuclear instrument finding in this report. The previous NRC problem identification and resolution inspection team identified that Wolf Creek did not have the ability to trend issues in its corrective action program. Trending capabilities have now been incorporated in the corrective action software.

Wolf Creek quality assurance audits have improved. Particularly, Audit Eng 09-02, which involved outside assistance in reviewing the station blackout analysis, identified several deficiencies.

### Human Performance

Wolf Creek ended the previous Human Performance Initiative, Revision 5, dated August 5, 2008, with a human performance long-term strategic plan. Revision 1 of the initiative began in 2007 with a substantive crosscutting issue in H.4.b, procedure use and adherence, which has since been closed. The initiative is being used by Wolf Creek to correct the human performance procedure quality, H.2.c, substantive crosscutting issue. Wolf Creek's initiative includes use of many error prevention tools, trends, communications, and training classes. The inspectors found that the best corrective actions for the procedure and work instruction quality issue were items 12a, 13a, and 14a in the initiative status reports. These include the efforts of the maintenance department's work process improvement initiative. Specifically, Wolf Creek has rewritten work instructions to increase the level of scrutiny needed to use 'N/A's', reduced confusing logical connectors in work instructions, and re-written instructions to the least qualified craftsman. Troubleshooting procedures have also been revised to increase control room scrutiny and reduce the ability of workers to perform 'minor maintenance' where there is a possibility of a reactivity change. Other procedure change activities have focused on high-level procedures such as the corrective action procedures, clearance orders, and work control. Problems with procedures (not work instructions) that were contributors to NRC findings (i.e. spent fuel pool draining and containment sump gaps) or other specific problems are being addressed on a case by case basis. Wolf Creek now has condition report codes to trend problem types; however, the human

performance trends rely on the memory “cognitive trending” of the responsible personnel.

The inspectors reviewed the site clock and selected division clock reset metrics. These metrics are cited in the Wolf Creek May 26 letter and the Human Performance Long Term Strategic Plan. The threshold of the site clock resets included white NRC findings, fuel handling accidents, and emergency plan activation. For both types of human performance clock resets, the inspectors noted that a metric was missed. Condenser venting on December 1, 2008, resulted in spraying water on condensate valve electrical conduit and a condensate pump discharge pressure transient that impacted main feed water and steam generator levels. This was captured in Wolf Creek’s operations division clock reset metric as a venting problem and not as an impact on equipment. NRC findings that do not cross the site clock threshold were troubleshooting that resulted in the reactor overpower, loss of spent fuel pool foreign material exclusion control, and unapproved changes the equipment out-of-service log procedure. The above findings were counted against the various departments’ reset metrics. The metric have shown an overall decreasing trend since the last refueling outage.

Overall, Wolf Creek is taking appropriate actions to address procedure and work instruction quality, problem identification, problem evaluation, and corrective action appropriateness, but Wolf Creek’s internal metrics depict trends that are positive but some are opposite from those of the NRC. Increased Wolf Creek management attention to these efforts has driven many improvements and changes since January 2009, and the inspectors have not observed a decrease in their attention.

These activities constitute completion of one in-depth annual problem identification and resolution sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

#### 4OA3 Event Follow-up (71153)

a. Inspection Scope

(Closed) Licensee Event Report (LER) 2009-001-00 Automatic Reactor Trip Due to Loss of Steam Generator Level

On April 28, 2009, while operating at 100 percent, Wolf Creek automatically tripped due to loss of steam Generator B level. The primary and backup fuses to the main feedwater regulating Valve B controller blew. One fuse was blown at the ferrule and the other fuse was heated to the point of the solder melting between the cap and ferrule. Other nonsafety-related annunciators illuminated and plant indication failed as a result of the blown fuses. The fuses also supplied power to several nonsafety-related Westinghouse 7300 process cards. During previous maintenance, the hot fuse holders were not properly examined with infrared thermography resulting in overheated fuse holders which caused blown fuses and melted fuse solder.

The inspectors responded to the control room on April 28, 2009, and 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. The inspectors observed the reactor shutdown and cooldown.

The inspectors reviewed Licensee Event Report 05000482/2009-001-00 to verify that the cause was identified and that corrective actions were appropriate. See Section 4OA3.a.1 for enforcement actions taken. This Licensee Event Report is closed.

b. Findings

- .1 Introduction. A self-revealing finding was identified for an inadequate thermography maintenance procedure that resulted in a reactor trip due to a loss of power to a main feed regulating valve controller.

Description. On April 28, 2009, Wolf Creek main feedwater regulating valve controller power supply fuses were blown. The failure of the power supply caused the controller output signal to go to zero and main feedwater regulating Valve AEFCV0520 failed closed per design. This caused loss of steam Generator B feedwater and an automatic plant trip on steam Generator B Lo-Lo level. An automatic actuation of auxiliary feedwater occurred due to steam generator water Lo-Lo level as expected. No other engineered safety features actuations occurred.

Following the trip, control room operators observed that the plant had experienced a loss of both main and bypass feedwater flow controllers for steam Generator B. Also following the trip, control room operators observed annunciators and plant indications that did not align with plant conditions. These other indicators were due to the blown fuses. These fuses provided power to a frame of nonsafety Westinghouse 7300 process control cards.

The licensee determined the valve controller failed because both primary and secondary fuses had blown. One fuse was blown in the middle of the ferrule and the other fuse had become hot enough to unsolder the ferrule from the end cap. Additional investigation into the fuse failures discovered that Westinghouse had provided guidance on allowable fuse holder temperatures and replacement fuse holders with an improved design. Westinghouse stated that thermography should be performed to determine fuse holder temperature. This was contained in Westinghouse Infograms IG-95004 (July 1995) and IG-09-001 (February 4, 2009). The original Littlefuse Model 342038A fuse holder developed high resistance and temperatures at the riveted connection and spade termination. The improved Bussman fuse holders do not suffer from these degradation mechanisms that cause high temperatures. Infrared thermography was supposed to detect hot fuse holders prior to failure. However, Wolf Creek thermography only compared components inside each cabinet (an exception scan) and not the same components across all cabinets, including fuse holders. As a result of IG-95004, Wolf Creek replaced one main power supply fuse holder but evaluated similar industry experience and determined that fuse holder overheating was not a problem at Wolf Creek. Wolf Creek found that Procedure I-ENG-005, "Infrared Thermography," did not provide acceptance criteria for fuse holder temperatures, did not require temperature trending, and saved scan data only if a problem was identified.

The inspectors interviewed root cause team members and found that during thermography subsequent to 1995, the 7300 process racks' card frame fuses were not specifically examined. Team members indicated that the wide angle thermography combined with only comparing component temperatures in the same rack resulted in missed opportunities to identify hot fuse holders. Essentially, if there was more than one hot fuse holders in a cabinet, this could have been viewed as normal because two or more fuse holders were the same temperature. The fuse holders were not specifically focused on by the thermographic camera. From interviews, the inspectors also found that the temperature acceptance criteria were used once in 1995 (and resulted in replacement of one main power supply fuse holder) but not carried forward from 1995 to future thermography by changing the procedure. The inspectors also found that no condition report was initiated based on the February 2009 vendor information. The inspectors found this to be a missed opportunity to re-evaluate the vendor information and thermography procedure.

Analysis. Failure to develop an adequate maintenance procedure for the 7300 process rack fuses 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 this 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 procedure quality attribute of the Initiating Events cornerstone and it affected the cornerstone objective to limit the likelihood of those events that upset plant stability. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," and determined the finding to be Green because it did not result in both a reactor trip and loss of accident mitigation equipment. Consequently, this finding was determined to be of very low safety significance (Green). The inspectors also determined that the cause of the finding had a crosscutting aspect in the problem identification and resolution area associated with operating experience because Wolf Creek failed to use vendor information to assure plant safety. Specifically

Wolf Creek utilized but failed to subsequently institutionalize operating experience in 1995 and 2009 by updating the thermography maintenance procedure [P.2(b)].

Enforcement. No violation occurred because the thermography of nontechnical specification or nonquality-related equipment is not an NRC requirement. Wolf Creek entered this issue into their corrective action program as Condition Report 00016455: FIN 05000482/2009003-02, "Inadequate Fuse Thermography Procedure Resulted in Blown Fuses and Unplanned Reactor Trip."

- .2 Introduction. On April 28, 2009, the inspectors identified a Green noncited violation of Technical Specification Table 3.3.1-1, Function 18.a, when Wolf Creek tripped from 100 percent reactor power.

Description. During the trip, intermediate range neutron Detector NI-36 did not decrease below 10 E -10 amps and energize source range Detector NI-32. Following NI-36's failure to decrease below the setpoint, reactor operators correctly transitioned to Procedure EMG FR-S2, "Response to Loss of Core Shutdown," to manually energize source range Detector NI-32. Wolf Creek wrote a condition report after the trip but it was closed to pending calibration of the detector after the trip. Detector NI-36 was under-compensated based on replacement of the detector during Refueling Outage 16, the previous outage. Wolf Creek did not identify the issue as a technical specification violation. Wolf Creek maintenance indicated that the April 28 response of Detector NI-36 was expected because the detector was new. The inspectors reviewed operating experience and found Westinghouse Infogram 1990, No. 8 recommended compensation voltage between -30V and -45V for unirradiated plants (and new detectors). Westinghouse also recommends calibrating the detectors within 60 minutes of shutdown so that there is sufficient radiation to adjust the detector. However, during Refueling Outage 16, on May 10, 2008, Wolf Creek used Procedure STN IC-236, "Intermediate Range N36 Compensation Voltage Adjustment," to set the compensation voltage for the new detector at -14V, approximately 45 days after shutdown. On May 10, 2008, the new detector's as-found compensating voltage was too negative (from the previous detector) and resulted in detector amps being too low. This was noted as a test deficiency. However, the procedure specified no new compensating voltage range and only an as-left detector amperage range which resulted in under compensation. Senior reactor operator review of the test deficiency was dispositioned as "calibrated under this procedure" because compensating voltage was "not an allowable value [that was] exceeded." The inspectors concluded this was the cause for unirradiated Detector NI-36 being under-compensated. Procedure STN IC-236 was not an appropriate postmaintenance test to calibrate the new detector. Based on the vendor information and the testing deficiency, the inspectors found that it was within Wolf Creek's ability to foresee that the new NI-36 detector would be calibrated in an insufficient radiation flux. No evaluation of an appropriate range of compensating voltage was made in the absence of a sufficient radiation flux. The inspectors concluded that the P-6 interlock would not have energized the source-range detectors for nearly all of the current operating cycle.

The inspectors reviewed Wolf Creek Technical Specification 3.3.1, Function 18.a, "Intermediate Range Flux, P-6 [interlock]," and its bases statement. The bases state that Function 18.a ensures that, on decreasing power, the P-6 interlock automatically energizes nuclear instrumentation source-range detectors and enables the source-range neutron flux reactor trip. The inspectors found that Wolf Creek's bases are consistent

with the NUREG-1431, "Standard Technical Specifications Westinghouse Plants," Revision 3.0.

Analysis. The inspectors determined that the failure to ensure that the P-6 interlock was operable per the technical specification as defined in the bases was a performance deficiency. The finding was more than minor because it was associated with the configuration control attribute of the Barrier Integrity cornerstone, and it affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, it affected the reactivity control area (reactor control systems) of the cornerstone's attribute. The inspectors evaluated the significance of this finding under the mitigating systems cornerstone using Phase 1 of Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding screened to Green because the P-6 interlock only affected the fuel barrier. The cause of this finding was determined to have a crosscutting aspect in the problem identification and resolution area associated with the corrective action program because post maintenance testing of Procedure STN IC-236 identified deficiencies as well as the post trip review; however, this did not result in initiation of condition reports and subsequent evaluation [P.1.a].

Enforcement. Wolf Creek Technical Specification Table 3.3.1-1, Function 18.a, requires, in part, that when intermediate range instrument measured neutron flux decreases below the allowable value of greater than or equal to 6 E-11 amps that the source range instruments be energized. Contrary to the above, on April 28, 2009, intermediate-range Detector NI-36 output did not decrease below the setpoint when the reactor tripped and failed to energize source-range Instrument NI-32. Because this violation was determined to be of very low safety significance and was placed in the corrective action program as Condition Report 00017814, this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy: NCV 05000482/2009003-03, "Inadequate Testing Results in P-6 Interlock Failure to Energize Source Range on Reactor Trip."

#### **40A5 Other Activities**

##### **.1 Quarterly Resident Inspector Observations of Security Personnel and Activities**

###### **a. Inspection Scope**

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with Wolf Creek's security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

###### **b. Findings**

No findings of significance were identified.

.2 (Closed) Unresolved Item (URI) 05000482/2009002-05, Seismic Operability of Emergency Diesel Generator A Due to Overspeed Limit Switch Degradation

a. Inspection Scope

An unresolved item was identified when Wolf Creek entered Technical Specification 3.8.1 on January 4, 2009, when an operator identified one missing screw and nut in the emergency diesel Generator A overspeed limit switch. The inspectors found that the last time that maintenance was performed on this limit switch was 2002. A reportability determination dated February 19, 2009, determined that the condition was not reportable, because the diesel was seismically qualified and operable because it passed previous surveillance tests. The inspectors found that past surveillances were not sufficient to demonstrate seismic qualification. Wolf Creek did not document the as-found condition of the remaining screw and nut on Work Order 09-313251-000. This work order replaced both screws and nuts and included missing lock washers.

The inspectors found it was reasonable to question the tightness of the remaining screw. To determine the as-found condition, inspectors questioned the mechanic on the tightness of the remaining screw and nut. The mechanic indicated that it could not be loosened by hand and required a driver and a box-end wrench to loosen. Although this was not documented, the inspectors used this first hand account to reason that the one-pound limit switch could be sufficiently held in place for the relatively low seismic (less than 1 g) acceleration for Wolf Creek. After inspector review, Wolf Creek performed an evaluation for the seismic operability of the as-found overspeed limit switch with one missing screw and nut. The inspectors reviewed the evaluation and found that it proved that the switch would not have moved in a seismic event and would not have prevented the diesel from operating. Wolf Creek's analysis differed from the qualification testing per IEEE 375-1975, "Guide for Seismic Qualification of Class I Electric Equipment for Nuclear Power Generating Stations." However, it still demonstrated operability. This unresolved item is closed. Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

**40A6 Meetings**

Exit Meeting Summary

On June 5, 2009, the inspectors presented the onsite emergency preparedness inspection results to Mr. R. Muench, President and CEO, and other members of the licensee's staff. Additionally, on June 12, 2009, the inspectors conducted a follow-up telephonic exit meeting with Mr. T. East, Superintendent, Emergency Preparedness. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On June 26, 2009, the resident inspectors presented the inspection results of the resident inspections to Mr. Matt Sunseri, Vice President of 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, none would be included in this report.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

P. Bedgood, Superintendent, Chemistry/Radiation Protection  
T. East, Manager, Emergency Planning  
R. Flannigan, Manager, Regulatory Affairs  
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

### **LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### **Opened and Closed**

05000482-2009003-01	NCV	Inadequate Testing Equipment Used for Alignment Verification of Emergency Diesel Lube Oil Piping (Section 1R18)
05000482-2009003-02	FIN	Inadequate Fuse Thermography Procedure Resulted in Blown Fuses and Unplanned Reactor Trip (Section 4OA3)
05000482-2009003-03	NCV	Inadequate Testing Results in P-6 Interlock Failure to Energize Source Range on Reactor Trip (Section 4OA3)
05000482/2009-001-00	LER	Automatic Reactor Trip Due to Loss of Steam Generator Level (Section 4OA3)

#### **Closed**

05000482/2009002-05	URI	Seismic Operability of Emergency Diesel Generator A Due to Overspeed Limit Switch Degradation (Section 4OA5)
---------------------	-----	--

## LIST OF DOCUMENTS REVIEWED

### Section 1RO1: Adverse Weather Protection

#### DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
USAR Section 6.3	Refueling Water Storage Tank	22
STS CR-001	Shift Log for Modes 1, 2, & 3	69
CKL ZL-001	Auxiliary Building Log Sheet	72
USAR Section 9.5.9	Auxiliary Steam System	19
SYS BG-217	Boration to Refueling Concentration	1
2009-0516	Boric Acid Temperature	

### Section 1RO4: Equipment Alignment

#### DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CKL EN-120	Containment Spray System Lineup	15A
M-12EN01	Piping and Instrumentation Diagram Containment Spray System	12
CKL EM-120	Safety Injection System Lineup Checklists	24A
M-12EM01	Piping and Instrumentation Diagram Safety Injection System	34

**Section 1RO5: Fire Protection**

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AP 10-106	Fire Preplans	7
FPPM-001	Auxiliary Bldg Elevation 1974'	7
FPPM-003	Auxiliary Bldg Elevation 2000'	7
FPPM-005	Auxiliary Bldg Elevation 2026'	7
FPPM 006	Auxiliary Bldg Elevation 2047'	7
FPPM-035	Large Power Transformers	7
090622/2000/U/B	Fire Drill Scenario	

**Section 1R11: Licensed Operator Requalification Program**

Scenario information remains controlled at the end of this reporting period.

**Section 1R12: Maintenance Effectiveness**

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EDI 23M-050	Monitoring Performance to Criteria and Goals	3
EDI 23M-050, Attachment B	Functional Failure Determination Checklist	3
	Maintenance Rule Expert Panel Meeting Minutes	February 5, 2008
	Maintenance Rule Expert Panel Meeting Minutes,	June 9, 2008
	Maintenance Rule Expert Panel Meeting Minutes,	July 7, 2008
	Maintenance Rule Scoping Evaluation for System BG – Chemical Volume and Control System	

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
STS BG-203B	Train B CVCS Excess Letdown Valve Inservice Valve Test	2
AI 28A-023	Evaluation of Maintenance Rule Functional Failure PIRS	1
AP 23M-001	WCGS Maintenance Rule Program,"	7
AP 28A-100	Condition Reports	8
EDI 23M-050	Engineering Desktop Instruction Monitoring Performance to Criteria and Goals	3

Performance Improvement Requests

2000-3530	2004-0081	2004-0083	2005-1604
2005-2459	2005-3408		

Action Request  
00006721

Work Request  
08-070978

Work Orders  
08-312476                      08-312746-001

Condition Reports  
2005-3145                      2008-5533                      2008-6012                      2008-3145

**Section 1R13: Maintenance Risk Assessment and Emergent Work Controls**

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CCP 10354	AD HV-54 Encapsulation Repair  Installation Instructions 400 Series Couplings	1

**Section 1R13: Maintenance Risk Assessment and Emergent Work Controls**

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OE KJ-09-005	Control Room Essential Required Reading 09-0051	2
CCP 13060	Incorporate Smith Blair Coupling Installation Instructions in M-018-00309	0

Condition Reports

00016995	00017454	00017505	00017470
----------	----------	----------	----------

Work Orders / Requests

09-074003	09-317633-006	09-073858	09-073864
09-073833	09-073829	09-073821	

**Section 1R15: Operability Evaluations**

<u>DOCUMENTS NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
	Control Room Turnover Checklist – Day Shift	April 9, 2009
	Control Room Turnover Checklist – Day and Night Shift	April 10, 2009
	Control Room Turnover Checklist – Day Shift	April 11, 2009
09-316450-000	Basic Engineering Evaluation of the Potential Hazards Associated with GE Betz Product SPEC-AID 8Q5368ULS	00
	NRC Regulatory Issue Summary 2005-20 with attachment, “Revision to NRC Inspection Manual Part 9900 Technical Guidance, “Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety	1
AP 26C-004	Technical Specification Operability	19
AP 22A-001	Screening, Prioritization, and Pre-Approval	12
AP 28-001	Operability Evaluations	16

**Section 1R15: Operability Evaluations**

<u>DOCUMENTS NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
AP 28-011	Resolving Deficiencies Impacting SSCs	1A
3.7(B).2.7.1	Updated Safety Analysis Report	10
M-018-0318-02	Colt Industries Micro Overspeed Switch Test  Calculation 10-19-F  Colt Industries/Fairbanks Morse Engine Division, Drawing 10466-M-018-0316-02	August 13, 1981  0
5.5	Technical Specification for Seismic Qualifications for Class 1E control and instrumentation devices for the SNUPPS - test acceleration level	1
M-900	Technical Specification for Qualification of Seismic Category I Mechanical systems and equipment  Technical Specification 10466-E-091.0	3  4
E-13KJ02	Schematic Diagram Diesel Generator KKJ01A Enunciator and Miscellaneous Circuits	7
E-13KJ01B	Schemataic Diagram Diesel Generator KKJ01A Engine Control (O/G Trip B)	2
E-13KJ01A	Schematic Diagram Diesel Gen KJ01A Engine Control (Start/Stop Circuit)	13
E13KJ03B	Schematic Diagram Diesel Generator KKJ01B Engine Control (D/G Trips)	3
3.8.1	Technical Specifications	Amendment 155
6.3.2	Specification No. 10466-M-018	6
Table 3-10(B)-1	Regulatory Guide 1.29, Seismic design Classification	20
ALR 502	Standby Diesel Engine System Control Panel KJ-122	15
3.5	Wolf Creek Generating Electric Station IPEEE Seismic Margin Assessment Screening and Walk down	

**Section 1R15: Operability Evaluations**

<u>DOCUMENTS NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
M-12FC01	Piping And Instrumentation Diagram Auxiliary Turbines Turbine Driven Feedwater Pump	21

Work Requests

08-68125	09-72638	09-72778	09-72779
09-72868	09-78269		

Work Orders

09-315252-000	09-315407-000	09-313251-000
97-000018	09-072778	

Condition Reports

2008-002606	2009-00015712	2009-00016524	2009-00016388
2009-00015728	2009-00025	2009-00000014	2009-00029
2009-00015611	2009-001453	2009-00016100	2009-00015406
2009-00015431	2009-00016162	2009-00016184	2009-00016217
2009-00015728	2009-00015712	2009-00016108	

Reportability Evaluation Requests

2009-018	2009-143
----------	----------

Performance Improvement Request

98-1169

**Section 1R18: Plant Modifications**

<u>DOCUMENTS NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
Configuration Change Package 012136	"Helper Spring Removal on S/G Atmospheric AOVs	0 and 1
50.59 Screen, CCP 012136	Helper Spring Removal on S/G Atmospheric AOVs	0 and 1
WCQPM	Wolf Creek Quality Program Manual	1

**Section 1R18: Plant Modifications**

<u>DOCUMENTS NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
Change Package # 013060	Incorporate Smith Blair Coupling Installation Instructions in M-018-00309	0 and 1
AP 16H-001	Calibration and Control of Measuring and Test Equipment (M&TE) and Calibration Laboratory Standards	11

Action Request

00012649

Work Orders

07-300134-000	08-312011-000	08-312011-001	08-312011-002
08-312011-003	09-317669-000	09-317790-001	

Condition Report

2009-1164

**Section 1R19: Postmaintenance Testing**

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
100011	Akron Brass Company Style 30 Pitot Gauge Operating Instructions	
STN FP-211	Diesel Fire Pump Monthly Operation and Fuel Level Check	17
STN FP-209	Fire Pump Performance Test and Sequential Start Test	14
STS KJ-015A	Manual/Auto Fast Start, Sync & Loading of EDG NE01	26A

Condition Reports

00016708                      97-00485                      97-04705

Work Orders

08-309544-000              08-309544-002              09-313647-000              09-317269-001

**Section 1R20: Refueling and Other Outage Activities**

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
STN PE-040G	Transient Event Walkdown	0
	Estimated Critical Rod Position	May 2, 2009

**Section 1R22: Surveillance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STS MT 070,	ASME Code Testing of Safety/Relief Valves	16
STS IC-211B	Actuation Logic Test Train B Solid State Protection System	34
STS IC-800	RCP Undervoltage and Underfrequency Channel Calibration	3
WCOP-02	IST Program Plan	14

Action Requests

00015491                      00016214

Work Request

09-072660                      09-072661                      09-072662                      09-072663

Work Orders

09-315346-000              09-315348-000              09-315349-000              09-315350-000

Condition Reports

2007-1467                      2007-1933                      2007-2473

<u>Drawing</u>	<u>Title</u>	<u>Revision</u>
E-13BB27	Schematic Diagram Reactor Coolant Pump Monitors Undervoltage and Underfrequency Monitors	6

**Section 1EP1: Exercise Evaluation**

<u>DOCUMENT</u> <u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Industry Technical Information Program 01420	
	Licensing Evaluation Reportability Evaluation Request 2009-019/AR 00016458	April 29, 2009
	Root Cause Evaluation for Condition Report 00016455	
	Post-Trip Review Data Package	April 28, 2009
7.2-4	Updated Safety Analysis report	1
AI 26A-004	Emergency Planning Performance Indicators	4
AP 06-002	Radiological Emergency Response Plan	8
AP 06-002-01	Emergency Action Levels	12
AR 20-02	Post-Trip Review	7
Change Package 13048	7300 Fuseholder Pigtail	0
EMG C-31	Steam Generator Tube Rupture with Loss of Reactor Coolant – Subcooled Recovery Desired	19
EMG E-0	Reactor Trip or Safety Injection	21
EMG E-2	Faulted Steam Generator	13
EMG E-3	Steam Generator Tube Rupture	21
EMG ES-03	SI Termination	17A
EMG F-0	Critical Safety Function Status Trees	16
EMG FR-S2	Response to Loss of Core Shutdown	9

<u>DOCUMENT</u> <u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN #45027	Reactor Plant Event Notification Worksheet	April 28, 2009
EP-01-2.1-1	Emergency Action Levels	0
EPP 06-001	Control Room Operations	10
EPP 06-002	Technical Support Center Operations	22A
EPP 06-005	Emergency Classification	3
EPP 06-006	Protective Action Recommendations	4
EPP 06-007	Emergency Notification	12
EPP 06-008	Re-Entry, Recovery, and Termination Operations	0
EPP 06-009	Drill and Exercise Requirements	4
EPP 06-010	Personnel Accountability and Evacuation	5
EPP 06-011	Emergency Team Formation and Control	5
EPP 06-012	Dose Assessment	9
EPP 06-013	Exposure Control and Personnel Protection	3
EPP 06-015	Emergency Response Organization Callout	10
EPP 06-016	Accident Assessment and Mitigation	4
EPP 06-017	Core Damage Assessment Methodology	3
EPP 06-018	Maintenance of Emergency Facilities and Communication Checks	5
EPP 06-019	Alert and Notification Systems Sirens	3
EPP 06-021	Training Programs	5
EPP 06-022	Tone Alert Radio Maintenance/Compensating Measures	4
GEN 00-005	Minimum Load to Hot Standby	60
I-ENG-005	Infrared Thermography	1
OFN 00-036	Bomb Threat, Sabotage, Medical Emergency/Rescue, and Spills	13

<u>DOCUMENT</u> <u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OFN BB-006	High Reactor Coolant Activity	5
OFN BB-007	RCS Leakage High	13
OFN BB-07A	Steam Generator Tube Leakage	7
SAP-09-10	Westinghouse Update on 7300 Process System Card Frame Fuse Holders	February 5, 2009

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
TRM USAR	Technical Requirements Manual Updated Safety Analysis Report Wolf Creek Letter 94-0075 dated 20 June 1994 Wolf Creek Letter NA 93-0236 dated 15 Dec 1993	37

CORRECTIVE ACTION DOCUMENTS

00006093	00011781	00011883	00012173	00012323
00012873	00013299	00013813	00013857	00013905
00013927	00013954	00013982	00014277	00014333
00014410	00014671	00014683	00014788	00014797
00015296	00015719	00015751	00016080	00017134
00017361				

**Section 1EP6: Drill Evaluation**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
09-SA-02 Drill	Wolf Creek Generating Station Emergency Planning Drill	0

Condition Report

00018122

**Section 4OA1: Performance Indicator Verification**

<u>PROCEDURES</u> <u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u> <u>/ DATE</u>
------------------------------------	--------------	----------------------------------

<u>PROCEDURES NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Emergency Response Organization Drill Participation Records	Fourth Quarter 2008
	Emergency Response Organization Drill Participation Records	First Quarter 2009
	Various Drill Logs	2008-2009
	Various Drill Scenarios	
	Drill Controller Notes	
	Various Performance Evaluation Summaries	
09-SA-01	Drill/Exercise Report	February 12, 2009 and April 9, 2009
08-SA-01	Drill/Exercise Report	January 31, 2009 and February 29, 2009
08-SA-02	Drill/Exercise Report	September 18, 2008 and October 2, 2008
70-15	Requal Simulator Exam Scenario	
70-43	Requal Simulator Exam Scenario	
70-67	Requal Simulator Exam Scenario	
	Team 'A' Table Top	December 3, 2008
	Team 'B' Table Top	December 5, 2008
	Staff Crew 1 Table Top	December 1, 2008
	Teams 'C/D' Drill	October 2, 2008

**Section 40A3: Event Follow-up**

<u>PROCEDURES</u> <u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
STN-IC-236	Intermediate Range N36 Compensation Voltage Adjustment	5A
Figure 2-5	Intermediate Range Circuit, Block Diagram	
NC TR 90-35	Imaging and Sensing Technology Corporation Technical Manual NY-10042 Source and Intermediate Range Housing Assembly	August 1990