



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 EAST LAMAR BLVD  
ARLINGTON, TEXAS 76011-4511

February 13, 2013

EA-09-110

Matthew W. Sunseri, President and  
Chief Executive Officer  
Wolf Creek Nuclear Operating Corporation  
Burlington, Kansas 66839

SUBJECT: WOLF CREEK GENERATING STATION – INTEGRATED INSPECTION  
REPORT 05000482/2012005

Dear Mr. Sunseri:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Wolf Creek Generating Plant. The enclosed inspection report documents the inspection results which were discussed on January 8, 2013, with Mr. Russell Smith, Site Vice President, and other members of your staff.

The inspectors examined activities conducted under your license as they related 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.

Three NRC identified and one self-revealing findings of very low safety significance (Green) were identified during this inspection. Three of these findings were determined to involve violations of NRC requirements. Further, two licensee-identified violations which were determined to be of very low safety significance are listed in this report. The NRC is treating these violations as non-cited violations consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Wolf Creek Generating Station.

If you disagree with a cross-cutting aspect assignment 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.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of

M. Sunseri

- 2 -

NRC's Agencywide Document Access and Management 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/***

Neil O'Keefe, Chief  
Project Branch B  
Division of Reactor Projects

Docket No.: 050000482  
License No: NPF-42

Enclosure: Inspection Report 05000482/2012005  
w/ Attachment: Supplemental Information

cc w/encl: Electronic Distribution

**DISTRIBUTION:**

- Regional Administrator (Elmo.Collins@nrc.gov)
- Acting Deputy Regional Administrator (Steven.Reynolds@nrc.gov)
- DRP Director (Kriss.Kennedy@nrc.gov)
- Acting DRP Deputy Director (Michael.Scott@nrc.gov)
- Acting DRS Director (Tom.Blount@nrc.gov)
- Acting DRS Deputy Director (Jeff.Clark@nrc.gov)
- Senior Resident Inspector - Vacant
- Resident Inspector (Charles.Peabody@nrc.gov)
- WC Administrative Assistant - Vacant
- Branch Chief, DRP/B (Neil.Keefe@nrc.gov)
- Senior Project Engineer, DRP/B (Leonard.Willoughby@nrc.gov)
- Project Engineer, DRP/B (David.You@nrc.gov)
- Public Affairs Officer (Victor.Dricks@nrc.gov)
- Public Affairs Officer (Lara.Uselding@nrc.gov)
- Project Manager (Fred.Lyon@nrc.gov)
- Branch Chief, DRS/TSB (Ray.Kellar@nrc.gov)
- RITS Coordinator (Marisa.Herrera@nrc.gov)
- Regional Counsel (Karla.Fuller@nrc.gov)
- Technical Support Assistant (Loretta.Williams@nrc.gov)
- Congressional Affairs Officer (Jenny.Weil@nrc.gov)
- OEMail Resource
- ROPreports
- RIV/ETA: OEDO (John.Cassidy@nrc.gov)
- DRS/TSB STA (Dale.Powers@nrc.gov)

R:\Reactors\WC\2012\2012005-rp-cap.docx

SUNSI Rev Compl.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ADAMS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewer Initials	NFO
Publicly Avail.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sensitive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sens. Type Initials	NFO
SRI:DRP/B	RI:DRP/B	C:DRS/TSB	C:DRS/EB1	C:DRS/EB2	C:DRS/OB
CLong	CPeabody	RKeller	TFarnholtz	GMiller	VGaddy
<b>Not Available</b>	<b>/RA via E/</b>	<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>
	2/7/13	2/11/13	2/7/13	2/8/13	2/11/13
C:DRS/PSB1	AC:DRS/PSB2	BC:DRP/B	<b>C:ACES</b>		
MHaire	JDrake	NO'Keefe	HGepford		
<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>	<b>/RSBrowder for/</b>		
2/11/13	2/7/13	2/13/13	2/12/13		

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000482

License: NPF-042

Report: 05000482/2012005

Licensee: Wolf Creek Nuclear Operating Corporation

Facility: Wolf Creek Generating Station

Location: 1550 Oxen Lane NE, Burlington, Kansas

Dates: September 29 through December 31, 2012

Inspectors: C. Long, Senior Resident Inspector  
C. Peabody, Resident Inspector  
T. Buchanan, Operations Engineer  
S. Hedger, Operations Engineer  
J. Laughlin, Emergency Preparedness Inspector, NSIR  
C. Osterholtz, Senior Operations Engineer

Approved By: Neil O'Keefe, Chief, Project Branch B  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000482/2012005; 09/29/2012 – 12/31/2012; Wolf Creek Generating Station, Integrated Resident and Regional Report; Licensed Operator Requalification and Surveillance Testing

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Four Green findings were identified, three of which were determined to be non-cited violations. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." 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. The inspectors identified a non-cited violation of Technical Specification 3.4.12, "Low Temperature Overpressure Protection System," for exceeding the maximum allowed number of centrifugal charging pumps capable of injecting to the reactor coolant system during low temperature operations. Inspectors found that Wolf Creek inappropriately made a technical specification bases change that allowed a second charging pump to be capable of injection, contrary to the wording of the associated technical specification. Wolf Creek submitted a request for a technical specification interpretation. In response, the NRC's Office of Nuclear Reactor Regulation stated that Technical Specification 3.4.12 allows one charging pump to be capable of injection during low temperature operations. This was entered into the Wolf Creek corrective action program as Condition Report 53012.

The failure to operate Wolf Creek in accordance with the technical specifications during low temperature conditions is a performance deficiency. The performance deficiency was more than minor because it impacted the Initiating Events Cornerstone objective of configuration control to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 2, the inspectors determined this finding to be of very low safety significance, because it did not cause the loss of mitigating capability of core heat removal, inventory control, power availability, containment control, or reactivity control. Inspectors did not identify a cross-cutting aspect because the Technical Specification 3.4.12 Bases change occurred in 1999 and is not indicative of current licensee performance. (Section 1R22.b.2)

## Cornerstone: Mitigating Systems

- Green. The inspectors reviewed a self-revealing finding associated with licensed operator performance during the biennial requalification exam. Specifically, 19 of 52 operators failed at least one portion of the biennial requalification examinations. As an immediate corrective action, the licensed operators who failed any portion of the examinations were remediated (i.e., the licensed operators were retrained and successfully retested) prior to returning to shift. The licensee entered this issue into their corrective action program as Condition Report 59491.

The inspectors determined that the high rate of licensed operator failures constituted a performance deficiency because licensed operators are expected to operate the plant within acceptable standards of knowledge and abilities demonstrated through periodic testing. The inspectors determined that the finding was more than minor in accordance with Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because the performance deficiency was associated with the Mitigating Systems Cornerstone attribute of human performance, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, 19 of 52 licensed operators failed to demonstrate a satisfactory understanding of the required knowledge and abilities required to safely operate the facility under normal, abnormal, and emergency conditions. The inspectors determined that the finding could be evaluated using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix I, "Licensed Operator Requalification Significance Determination Process." The finding was of very low safety significance (Green) because the finding was related to the requalification exam results, did not result in a failure rate of greater than 40 percent, and the majority of the failed licensed operators were remediated (i.e., the licensed operators were retrained and successfully retested) prior to returning to shift. Two licensed operators had not completed the remediation process and remained off shift at the end of the inspection period. The finding has a cross-cutting aspect in the area of human performance associated with resources, because the licensee failed to ensure that personnel were adequately trained to assure nuclear safety. Specifically, the licensee failed to use sufficiently challenging weekly written evaluations during the weekly training cycles to assess licensed operator knowledge [H.2(b)]. (Section 1R11.3.b.1)

- Green. The inspectors identified a non-cited violation of 10 CFR 55.53, "Conditions of License," for the failure of the licensee to ensure that licensed operators met all the conditions of their licenses in order to be considered an active watch stander. Specifically, the licensee failed to ensure that six licensed operator reactivations met the complete plant tour requirement specified in 10 CFR 55.53(f) prior to license reactivation and subsequent performance of licensed operator duties. The licensee entered this finding into their corrective action program as Condition Report 58233.

Failure to ensure that all authorized individuals who operate the controls of the facility met the conditions of their licenses as defined in 10 CFR 55.53 was a performance deficiency. This finding was more than minor because it was associated with the human performance attribute of the Mitigating System Cornerstone and affected the cornerstone's objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, licensed operators that do not properly complete the requirements of 10 CFR 55.53(f) prior to resuming control room watchstanding duties may commit operator errors that could cause mitigating systems to fail to respond properly. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheets, the team was directed to use Appendix I, "Licensed Operator Requalification Significance Determination Process," to process the violation. However, the team determined that NRC Inspection Manual Chapter 0609, Appendix I, could not be used to process this finding due to a recent revision to the appendix. Based on direction from headquarters and regional management to use NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," the finding was determined to have very low safety significance because a prior similar violation's significance bounded this finding's significance. The prior similar violation occurred at Comanche Peak (NCV 05000445/2011004-02), and was determined to have very low safety significance per the last revision of NRC Manual Chapter 0609, Appendix I, because more than 20 percent of the license reactivation records reviewed contained these deficiencies. This finding was determined to have a cross-cutting aspect in the area of human performance, associated with resources, because the licensee failed to ensure complete, accurate, and up-to-date procedures were available and adequate to assure nuclear safety. Specifically, the licensee failed to specify in a procedure what plant areas must be included to meet the requirements of a complete plant tour [H.2(c)]. (Section 1R11.3.b.2)

#### Cornerstone: Barrier Integrity

- Green. The inspectors identified a non-cited violation for failure to perform surveillance testing specified in Technical Specification 3.7.11, "Control Room Air Conditioning System." The activities the licensee was crediting to meet the requirement to verify heat removal capability were not adequate to meet the intent of the requirement. Specifically Wolf Creek was crediting their Generic Letter 89-13 heat exchanger reliability program actions to visually clean and inspect the condenser tubes to meet a heat exchanger performance test requirement which required measuring heat removal capability. Wolf Creek entered Surveillance Requirement 3.0.3 for the missed surveillance. Based on analyses by operations, engineering, and risk assessment personnel it was determined that reasonable expectation existed that air conditioning units SGK04A and SGK04B were still fully capable of meeting their specified safety function. Therefore, the air conditioning units were "Operable but Non-Conforming," and it was appropriate to consider the limiting condition for operation met for a delay time not to exceed the surveillance period of

18 months. The licensee entered this issue into their corrective action program as Condition Report 54906.

The inspectors determined that the failure to perform sufficient testing to satisfy a technical specifications surveillance requirement is a performance deficiency. The performance deficiency was more than minor because it impacted the structures, systems, and components and barrier performance attribute for the control room and auxiliary building and the Barrier Integrity Cornerstone objective to provide reasonable assurance that the radiological barrier remains functional. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 3, "Barrier Integrity Screening Questions," the finding was determined to be of very low safety significance (Green) because it did not represent an actual degradation of the barrier function of the control room to protect the operators inside from smoke or a toxic atmosphere. The issue has no cross-cutting aspect associated with it because it is not indicative of current licensee performance. (Section 1R22.b.1)

**B. Licensee-Identified Violations**

Violations of very low safety significance or severity level IV that were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and associated corrective action tracking numbers are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Wolf Creek Generating Station began the period at 100 percent reactor power. Wolf Creek reduced power to 71 percent on November 26, 2012, due to an automatic turbine load reduction when instrumentation and controls testing was commenced due to a turbine control circuit card failure. Wolf Creek returned to full power after circuit card replacement on November 28, 2012. On December 7, 2012, Wolf Creek reduced power to 94 percent for thermal efficiency testing of the secondary plant. Wolf Creek returned to full power on December 8, 2012, and remained there for the remainder of the inspection period.

### 1. REACTOR SAFETY

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

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

##### Readiness for Seasonal Extreme Weather Conditions

##### a. Inspection Scope

The inspectors performed a review of the adverse weather procedures for seasonal extremes (e.g., extreme low temperatures). 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 procedures used by plant personnel 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 plant personnel were 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' reviews focused specifically on the following plant systems:

- October 26, 2012, winterization of refueling water storage tank and reactor makeup water tank

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

b. Findings

No findings were identified.

**1R04 Equipment Alignment (71111.04)**

Partial Walkdown

a. Inspection Scope

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

- October 23, 2012, penetration room cooler train B during planned maintenance on train A
- October 30, 2012, control room ventilation train B during planned maintenance on train A

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstone 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 inspected 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 Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

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

### 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:

- October 1, 2012, essential service water pump house, Train A, fire area ESW-1
- October 1, 2012, essential service water pump house, Train B, fire area ESW-2
- November 12, 2012, vital DC switchgear and batteries, 2016' elevation control building, fire area C-35
- December 20, 2012, 1974' elevation auxiliary building, fire area A-1
- December 21, 2012, active fire impairment 2012-291, rod drive motor generator set room, 2026' elevation control building, fire area A-27

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 five quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

#### b. Findings

No findings were identified.

## **1R06 Flood Protection Measures (71111.06)**

### a. Inspection Scope

The inspectors reviewed the Updated Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also inspected the areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- October 1, 2012, 1974' elevation auxiliary building

These activities constitute completion of one flood protection measures inspection sample as defined in Inspection Procedure 71111.06-05.

### b. Findings

No findings were identified.

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

The licensed operator requalification program involves two training cycles that are conducted over a 2-year period. In the first cycle, the annual cycle, the operators are administered an operating test consisting of job performance measures and simulator scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a comprehensive written examination.

### .1 Quarterly Review of Licensed Operator Requalification Program

#### a. Inspection Scope

On October 9, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during requalification testing. The inspectors assessed the following areas:

- Licensed operator performance
- The ability of the licensee to administer the evaluations
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques
- Follow-up actions taken by the licensee for identified discrepancies

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 Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.2 Quarterly Observation of Licensed Operator Performance

a. Inspection Scope

On November 26, 2012, the inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity due to an unplanned turbine runback. The inspectors observed the operators' performance of the following activities:

- Power stabilization: borating the reactor coolant system to clear rod insertion limits and manually withdrawing the control rods
- Adjusting the turbine load limit controller with the reduced power level
- Discussions between operations, engineering, and instrumentation and controls technicians whose work was suspected to have caused the runback

In addition, the inspectors assessed the operators' adherence to plant procedures, including AP 21-001, "Conduct of Operations," and other operations department policies which are listed in the attachment.

These activities constitute completion of one quarterly licensed-operator performance sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.3 Biennial Inspection

a. Inspection Scope

To assess the performance effectiveness of the licensed operator requalification program, the inspectors conducted personnel interviews, reviewed both the operating tests and written examinations, and observed ongoing operating test activities.

The inspectors interviewed six licensee personnel, all licensed operators, to determine their understanding of the policies and practices for administering requalification examinations. The inspectors also reviewed operator performance on the written exams and operating tests. These reviews included observations of portions of the operating tests by the inspectors. The operating tests observed included two in-plant job performance measures administered with two different evaluators and three scenarios that were used in the current biennial requalification cycle. These observations allowed

the inspectors to assess the licensee's effectiveness in conducting the operating test to ensure operator mastery of the training program content. The inspectors also reviewed medical records of six licensed operators for conformance to license conditions and the licensee's system for tracking qualifications and records of license reactivation for six operator reactivations.

The results of these examinations were reviewed to determine the effectiveness of the licensee's appraisal of operator performance and to determine if feedback of performance analyses into the requalification training program was being accomplished. The inspectors reviewed minutes of Training Review Group meetings to assess the responsiveness of the licensed operator requalification program to incorporate the lessons learned from both plant and industry events. Examination results were also assessed to determine if they were consistent with the guidance contained in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process."

In addition to the above, the inspectors reviewed examination security measures, simulator fidelity, and existing logs of simulator deficiencies.

On December 10, 2012, the licensee informed the lead inspector of the results of the written examinations, and operating tests for the licensed operator requalification program. The inspectors compared these results to the Appendix I, "Licensed Operator Requalification Significance Determination Process," values and determined that there was a finding based on these results. All of the individuals that failed the applicable portions of their exams and/or operating tests were remediated, retested, and passed their retake exams prior to returning to shift.

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

The inspectors completed one inspection sample of the biennial licensed operator requalification program.

b. Findings

1. Failure Rates Exceed Twenty Percent for Biennial Requalification Exam

Introduction. The inspectors reviewed a self-revealing finding associated with licensed operator performance on the biennial requalification exam. Specifically, 19 of 52 operators failed at least one portion of the biennial requalification examinations. Based on the licensee's successful remediation and subsequent retesting of individuals who failed a portion of the biennial requalification examination prior to returning to shift, no violation of regulatory requirements occurred.

Description. During the facility-administered biennial requalification examination of licensed operators, the licensee training staff evaluated crew performance during dynamic simulator scenarios and individual operator performance during job performance measures and on the biennial written examination. Facility results of the

biennial requalification examination showed that 19 of 52 licensed operators (36.5 percent) failed at least one portion of the biennial requalification examination, exceeding the threshold failure rate of 20 percent. Seventeen of 52 licensed operators failed the biennial written examination. During the licensee's root cause investigation, the licensee determined that the high failure rate on the written examination was because the written examination quality had been improved for this cycle, specifically by the reduction of the number of psychometrically flawed questions and the reduction of question overlap to zero. However, the weekly quizzes that were administered to the licensed operators as part of their biennial requalification training still contained questions that were determined to be psychometrically flawed, and therefore, did not fully assess the licensed operators' knowledge of the trained material. These lower quality quizzes also apparently contributed to some complacency on the part of the licensed operators, which in turn, increased the written examination failure rate. The licensee entered this into their corrective action program as Condition Report 59491.

Analysis. The inspectors determined that the high rate of licensed operator examination failures constituted a performance deficiency because licensed operators are expected to operate the plant within acceptable standards of knowledge and abilities demonstrated through periodic testing as required by 10 CFR 55.59(a)(2). The inspectors determined that the finding was more than minor in accordance with Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because the performance deficiency was associated with the Mitigating Systems Cornerstone attribute of human performance, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, 19 of 52 licensed operators failed to demonstrate a satisfactory understanding of the required knowledge and abilities required to safely operate the facility under normal, abnormal, and emergency conditions.

The inspectors determined that this finding could be evaluated using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix I, "Licensed Operator Requalification Significance Determination Process." This finding was of very low safety significance (Green) because the finding was related to the requalification exam results, did not result in a failure rate of greater than 40 percent, and the majority of failed licensed operators were remediated (i.e., the licensed operators were retrained and successfully retested) prior to returning to shift. Two licensed operators had not completed the remediation process and remained off shift at the end of the inspection period.

This finding has a cross-cutting aspect in the area of human performance associated with resources, because the licensee failed to ensure that personnel were adequately trained to assure nuclear safety. Specifically, the licensee failed to use sufficiently challenging weekly written evaluations during the weekly training cycles to assess licensed operator knowledge [H.2(b)].

Enforcement. This finding does not involve enforcement action because no violation of regulatory requirements was identified. Because this finding does not involve a violation

and has very low safety significance (Green), it is identified as a finding: FIN 05000482/2012005-01, "Failure Rates Exceed Twenty Percent for Biennial Requalification Exam." The licensee initiated Condition Report 59491 to address the high rate of failures on the biennial requalification examinations, conducted crew and individual operator remediations, and begun conducting a root cause evaluation to develop long-term corrective actions.

2. Failure to Ensure that All License Conditions are Met for Licensed Operators

Introduction. The inspectors identified a Green noncited violation of 10 CFR 55.53, "Conditions of License," for the failure to ensure that licensed operators met all the conditions of their licenses in order to be considered an active watch stander. Specifically, the licensee failed to ensure that five licensed operators met the complete plant tour requirement specified in 10 CFR 55.53(f) prior to license reactivation and subsequent performance of licensed operator duties.

Description. During the period of October 2010 through October 2012, five licensed operators entered the process to reactivate their licenses. One licensed senior reactor operator reactivated his license twice during that time period for a total of six license reactivations. All of these individuals, based on review of key card access logs and radiological controlled area access logs on the site, performed incomplete plant tours. Licensed operators are required to perform a complete plant tour per 10 CFR 55.53(f) prior to reactivation of the license. Procedure AP 30B-001, "Licensed Operator Requalification Training Program," Step 6.7.4, requires that licensed operators complete a plant tour as part of the process to reactivate an inactive license. However, the inspectors determined that this procedure did not specify what plant areas were required to be included as part of the complete plant tour. Following identification of this issue, the inspectors asked the facility licensee to determine what plant areas they considered necessary to meet the complete plant tour requirement. The facility operations management stated that the expectation for the plant tour would include: auxiliary feedwater corridor, safety related switchgear rooms, diesel generator rooms, all areas of the control building, emergency exhaust fan rooms in the fuel building, general area of the turbine building, and safety-related equipment rooms in the auxiliary building. For the six reactivations, the plant tours did not meet the complete plant tour expectations as follows:

- One reactivation plant tour did not include the auxiliary building or the fuel building
- One reactivation plant tour did not include the fuel building
- Two reactivation plant tours did not include the auxiliary feedwater corridor, the safety-related switchgear rooms, or the fuel building
- Two reactivation plant tours did not include the auxiliary feedwater corridor and the safety-related switchgear rooms

The licensee initiated Condition Report 58233 in response to this issue to clarify expectations for the plant tour in Procedure AP 30B-001, and to specify areas to be included as part of the required complete tour. In addition, the licensee issued essential reading 2012-0095 to ensure that the expectations for what constitutes a complete plant tour were provided to the licensed operators while Procedure AP 30B-001 was being reviewed and modified.

Analysis. Failure of the licensee to ensure that all individuals authorized to operate the controls of the facility met the conditions of their licenses as defined in 10 CFR 55.53 was a performance deficiency. This finding was more than minor because it was associated with the human performance attribute of the Mitigating System Cornerstone and affected the cornerstone's objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, licensed operators that do not properly complete the requirements of 10 CFR 55.53(f) prior to resuming control room watchstanding duties may commit operator errors that could cause mitigating systems to fail to respond properly. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheets, the team was directed to use Appendix I, "Licensed Operator Requalification Significance Determination Process," to process the violation. However, the team determined that NRC Inspection Manual Chapter 0609, Appendix I, could not be used to process this finding due to a recent revision to the appendix. Based on direction from headquarters and regional management to use NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," the finding was determined to have very low safety significance because a prior similar violation's significance bounded this finding's significance. The prior similar violation occurred at Comanche Peak (NCV 05000445/2011004-02), and was determined to have very low safety significance per the last revision of NRC Manual Chapter 0609, Appendix I, because more than 20 percent of the license reactivation records reviewed contained these deficiencies.

This finding was determined to have a cross-cutting aspect in the area of human performance, associated with resources, because the licensee failed to ensure complete, accurate, and up-to-date procedures were available and adequate to assure nuclear safety. Specifically, the licensee failed to specify in a procedure what plant areas must be included to meet the requirements of a complete plant tour [H.2(c)].

Enforcement. Title 10 of the CFR, Part 55.53, "Conditions of License," states, in part, that if a licensed operator has not been actively performing the functions of an operator or senior operator, the licensed operator may not resume activities authorized by a license issued under this part except as permitted by 10 CFR, Part 55.53(f). Title 10 of the CFR 55.53(f) states, in part, that the required 40 hours of under instruction watches with an active license holder must have included a complete tour of the plant. Contrary to the above, from October 2010 to October 2012, six inactive license reactivations failed to perform the complete plant tour specified in 10 CFR 55.53(f) prior to reactivation of their licenses. Specifically, the licensee failed to ensure that the inactive licensed operators performed a complete plant tour in accordance with regulations and industry standards. Because this was of very low safety significance and was entered into the

licensee's corrective action program as Condition Report 58233, this violation is being treated as a noncited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000482/2012005-02, "Failure to Ensure that All License Conditions are Met for Licensed Operators."

3. Remediation and Reexamination Unresolved Item

Introduction. The inspectors reviewed remediation training and reevaluation for licensed operator examination failures from October 2010 through October 2012.

Description. The inspectors noted that two individuals had not completed remediation training and evaluation by the end of the inspection period. One individual was still receiving intense remediation training specific to the identified performance deficiencies that would continue until at least January 2013. The other individual was experiencing adverse medical issues and would not be available to return to duty and thus be unavailable for remediation and reexamination until at least March 2013. Pending resolution and NRC review of the remediation and reexamination of these individual performance deficiencies, this item remains unresolved: URI 05000482/2012005-03, "Remediation Training and Reevaluation of Two Individual Performance Deficiencies."

**1R12 Maintenance Effectiveness (71111.12)**

a. Inspection Scope

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

- October 3, 2012, OF-01, offsite power (super system)
- November 16, 2012, component cooling water system

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 two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings 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:

- August 3, 2012, risk assessment for SGK05B missed surveillance of fan flow rate
- September 19, 2012, containment level instrument sump troubleshoot and calibration
- November 1, 2012, OF-01, risk assessment for missed Technical Specification Surveillances STS MT-072/073
- November 18-23, 2012, work week 409, containment isolation valve and component cooling water temperature control valve risk management actions
- November 26, 2012, turbine runback during reactor coolant system loop 4 delta temperature instrumentation troubleshooting

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 five maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

**1R15 Operability Evaluations and Functionality Assessments (71111.15)**

a. Inspection Scope

The inspectors reviewed the following assessments:

- February 22, 2011, emergency diesel generator A declared inoperable due to inadequate installation of a fuel-rack control pin
- March 12, 2012, emergency diesel generator A jacket water tubing leak
- September 19, 2012, emergency diesel generator B foundation stud thread engagement

The inspectors selected these operability and functionality assessments based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure technical specification operability was properly justified and to verify 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. Additionally, the inspectors 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 three operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings were identified.

**1R18 Plant Modifications (71111.18)**

Permanent Modifications

a. Inspection Scope

The inspectors reviewed key affected parameters associated with the permanent modifications listed below.

- August 30, 2012, security upgrade – essential service water pump house protected area fence

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; post-modification 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 modification design assumptions were appropriate; 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 one sample for permanent plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings were identified.

**1R19 Post-Maintenance Testing (71111.19)**

a. Inspection Scope

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

- August 3, 2012, permanent fire diesel pump replacement testing
- October 16, 2012, essential service water pump B control room handswitch replacement

- November 13, 2012, electrical penetration room cooler return to service testing following cleaning, inspection, and maintenance
- December 4, 2012, containment spray A door seal replacement grease test

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 post-maintenance 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 post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings 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.

- March 23, 2012, boron injection flow path verification
- April 11, 2012, control room air conditioning condenser heat exchanger B tube inspection
- April 30, 2012, control room air conditioning condenser heat exchanger A tube inspection
- October 29, 2012, containment cooler C breaker test

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

These activities constitute completion of four surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

## Control Room Air Conditioning Testing

### b. Findings

1. Introduction. The inspectors identified a Green non-cited violation for failure to perform surveillance testing specified in Technical Specification 3.7.11, "Control Room Air Conditioning System." The activities the licensee was crediting to meet the requirement to verify heat removal capability were not adequate.

Description. While reviewing operating experience, the inspectors were following up on an issue in which Generic Letter 89-13 heat exchanger testing was being substituted for technical specification surveillance requirements. The inspectors reviewed Wolf Creek's technical specifications. Surveillance Requirement 3.7.11.1 requires, "Verify each control room air conditioning system train has the capability to remove the assumed heat load," once every 18 months.

The inspectors noted that the licensee's technical specification surveillance testing database included three test procedures that were credited to meet Surveillance Requirement 3.7.11.1. Procedure, STS GK-001A/B, is an operability test which runs each train of the air conditioning and ventilation system for 4 consecutive hours. Procedure STS PE-016A/B, measures the air flow across the evaporator. Procedure, STS MT-072/073, requires cleaning and inspection of the air conditioning condenser tubes. This third procedure also was also credited to satisfy the Generic Letter 89-13 heat exchanger reliability program requirements for the control room air conditioning units, and was specifically credited as heat removal verification by the licensee's surveillance testing database. Upon review of these procedures, the inspectors identified that none of the procedures measured the capability to remove the assumed heat load as specified in the wording of Surveillance Requirement 3.7.11.1.

The inspectors brought this concern to the attention of the surveillance coordinator. The surveillance coordinator immediately notified operations management and instructed the shift manager to enter Surveillance Requirement 3.0.3. The licensee determined that there was a reasonable expectation that air conditioning units SGK04A and SGK04B were still fully capable of meeting their specified safety function. Therefore, the air conditioning units were declared operable but non-conforming. The inspectors reviewed the prompt operability determination and risk assessment and determined that such a judgment was appropriate to the circumstances.

The inspectors reviewed the design and licensing basis history for the control room air conditioning units SGK04A and SGK04B. Wolf Creek's original custom technical specifications in use from 1985-1999, did not include any limiting conditions for operation or surveillance requirements for the control room air conditioning units. The control room air conditioners were added to the technical specifications upon Wolf Creek's conversion to improved standard technical specifications in 1999. The standard Westinghouse improved technical specification wording was adopted. In the technical specification bases, the licensee did acknowledge that they may not subject the control room air conditioning units to heat exchanger performance testing, but were instead performing regular cleaning and inspection in accordance with their Generic Letter 89-13

heat exchanger reliability program. The inspectors acknowledge that verifying the absence of heat exchanger fouling does provide added assurance that it is functioning properly, and the justification in the prompt operability determination reflects that. However, since this is only one of several variables affecting heat removal capabilities, the inspectors concluded that although it was specified in the basis, this action alone would not satisfy the surveillance requirement because it did not measure heat removal capability.

Analysis. The failure to perform sufficient testing to satisfy a surveillance requirement required by technical specifications is a performance deficiency. Specifically, the licensee did not measure heat removal capability of the control room air conditioning units within the required periodicity since the surveillance requirement was added to technical specifications in 2000. The performance deficiency was more than minor because it impacted the structures, systems, and components and barrier performance attribute of the control room and auxiliary building, and the Barrier Integrity Cornerstone objective to provide reasonable assurance the radiological barrier remains functional. Specifically, surveillance instructions did not meet licensing basis requirement to verify heat removal capability. Using Inspection Manual Chapter 0609 Appendix A, Exhibit 3, "Barrier Integrity Screening Questions," the inspectors determined that the finding screened as Green because it did not represent an actual degradation of the barrier function of the control room to protect the operators inside from smoke or a toxic atmosphere. The inspectors did not assign a cross-cutting aspect because the performance deficiency occurred in 1999 and is not indicative of current licensee performance.

Enforcement. Wolf Creek Technical Specification Surveillance Requirement 3.7.11.1 requires the licensee verify each control room air conditioning system train has the capability to remove the assumed heat load once every 18 months. Contrary to the above, from December 18, 1999, to the present, a period exceeding 18 months, Wolf Creek did not conduct testing sufficient to verify each control room air conditioning system train has the capability to remove the assumed heat load. Because this finding was of very low safety significance, and the licensee entered this issue into the corrective action program as Condition Report 59406, this finding is being treated as a non-cited violation per Section 2.3.2 of the NRC Enforcement Policy: NCV 05000482/2012005-04, "Failure to Perform Sufficient Control Room Air Conditioning Testing to Satisfy Technical Specification Surveillance Requirements."

### **Low Temperature Overpressure Protection**

2. Introduction. On March 28, 2012, inspectors identified a Green non-cited violation of Technical Specification 3.4.12, "Low Temperature Overpressure Protection System," for exceeding the maximum allowed number of centrifugal charging pumps capable of injecting to the reactor coolant system during low temperature operations.

Description. On March 23, 2012, inspectors performed an emergency boration flow path surveillance inspection. During a control room walkdown, inspectors identified that a safety related and a non-safety related centrifugal charging pump were both capable of

injecting into the reactor coolant system. The remaining safety related centrifugal charging pump was in pull-to-lock on the control board and was caution tagged. Inspectors noted that Technical Specification Limiting Condition for Operation 3.4.12 states, "A Low Temperature Overpressure Protection System shall be OPERABLE with a maximum of zero safety injection pumps and one centrifugal charging pump capable of injecting into the Reactor Coolant System." Inspectors reviewed technical specification bases and found that they allowed two centrifugal charging pumps to be capable of injection. Inspectors discussed the charging pump low temperature overpressure protection requirements with the control room and operators pointed out the allowance in the technical specification bases document.

The inspectors continued to review the issue by reading the license amendment history. On December 29, 1998, Wolf Creek submitted a license amendment Request Number 130, requesting changes to its reactor coolant system pressure and temperature limit curves, relocation of the pressure and temperature limits report to a separate document, and the use of ASME Code Case N-514. The custom technical specification bases and improved standard technical specification bases changes were included in the amendment request and described two centrifugal charging pumps capable of injection during the low temperature modes. Inspectors found that no change to Improved Standard Technical Specification Limiting Condition for Operation 3.4.12 was proposed or requested. Wolf Creek subsequently adopted improved standard technical specifications in License Amendment 123 on December 18, 1999. The NRC does not review or approve technical specification bases. Inspectors reviewed the supporting safety analyses for avoiding an overpressure condition during low temperature operations dating back to 1993 and noted that all analyses used two charging pumps for the mass addition to calculate the low temperature overpressure protection setpoints.

Inspectors then reviewed the NRC approval of License Amendment 130 in a safety evaluation report dated December 7, 1999. The NRC described the pressure and temperature limit curves, the metallurgy associated with those changes, and previous approval of use of Code Case N-514. The NRC's Safety Evaluation Report, section 3.1.3, described the NRC's approval of the Technical Specification Figure 3.4-4 but did not discuss Technical Specification 3.4.12. Section 3.2 of the NRC Safety Evaluation Report, "Improved Technical Specification Changes," did not describe a change to Technical Specification 3.4.12's limitations on charging pumps.

Subsequently, on December 15, 1999, Wolf Creek approved Revision 1 to the Improved Technical Specification Bases 3.4.12, stating that the NRC approved the change in License Amendment 130. Technical Specification 3.4.12 Bases, Revision 1, stated in several places that there are no limitations on the use of the normal charging pump and a safety related charging pump during low temperature operations. Inspectors determined that this effectively redefined Technical Specification 3.4.12's use of the term charging pump to only apply to the safety related charging pumps and not the normal, non-safety related charging pump. Inspectors concluded that this conflicted with Limiting Condition for Operation 3.4.12. Inspectors found that Wolf Creek's safety analysis provided a technical basis that supported the change, but that a license amendment was not sought or received for the change.

In response to the inspectors assertions, on May 31, 2012, Wolf Creek submitted a request for interpretation of Technical Specification 3.4.12. On January 3, 2013, the Office of Nuclear Reactor Regulation completed its review (ADAMS Accession No. ML 12341A083). In that letter, the Office of Nuclear Reactor Regulation acknowledged that the use of two charging pumps was discussed in the changes to the pressure and temperature limits report of License Amendment 130. However, the Office of Nuclear Reactor Regulation found that no changes to Technical Specification 3.4.12 were requested in License Amendment 130 and determined that only one charging pump is allowed to be capable of injection under the current technical specifications.

As corrective action, on November 7, 2012, Wolf Creek changed the technical specification bases to allow only one centrifugal charging pump to be capable of injecting into the reactor coolant system. On November 21, 2012, Wolf Creek submitted a request for a technical specification amendment to allow the use of two centrifugal charging pumps. Wolf Creek also made procedure changes to allow only one centrifugal charging pump to be capable of injection. Wolf Creek also initiated Condition Report 53012.

Analysis. Failure to limit the number of charging pumps capable of injecting during low temperature conditions as required by technical specifications is a performance deficiency. The performance deficiency was more than minor because it impacted the Initiating Events Cornerstone objective of configuration control to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, operation of the second non-safety charging pump could potentially upset plant stability requiring additional operator actions. The significance of the finding was determined using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 2, and determined to be of very low safety significance, because it did not cause the loss of mitigating capability of core heat removal, inventory control, power availability, containment control, or reactivity control. Inspectors did not identify a cross-cutting aspect because the Technical Specification 3.4.12 bases change occurred in 1999 and is not indicative of current licensee performance.

Enforcement. Technical Specification Limiting Condition for Operation 3.4.12, "Low Temperature Overpressure Protection System," requires, in part, that a maximum of one centrifugal charging pump be capable of injecting into the reactor coolant system while any cold leg is below 368 degrees Fahrenheit with the reactor vessel head installed. Action B.1 requires that if two centrifugal charging pumps are capable of injection, that immediate action be taken to verify a maximum of one centrifugal charging pump is capable of injecting into the reactor coolant system. Contrary to the above, from March 23 to 25, 2012, two centrifugal charging pumps were capable of injection and immediate action was not taken to make one centrifugal charging pump incapable of injection. Because the finding is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report 53012, this violation is being treated as a noncited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000482/2012005-05, "Inadequate Bases Change Causes Violation of Low Temperature Overpressure Protection Technical Specification."

## **Cornerstone: Emergency Preparedness**

### **1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)**

#### a. Inspection Scope

The Office of Nuclear Security an Incident Response headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan located under ADAMS accession number ML 12278A101 as listed in the attachment.

The licensee determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the plan, and that the revised plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four samples as defined in Inspection Procedure 71114.04-05.

#### b. Findings

No findings were identified.

### **1EP6 Drill Evaluation (71114.06)**

#### Emergency Preparedness Drill Observation

#### a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on November 13, 2012, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator and technical support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

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

**40A1 Performance Indicator Verification (71151)**

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the third quarter 2012 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 were identified.

.2 Safety System Functional Failures (MS05)

a. Inspection Scope

The inspectors sampled licensee submittals for the safety system functional failures performance indicator for the period from the fourth quarter 2011 through the third quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports, and NRC integrated inspection reports for the period of October 2011 through September 2012 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 safety system functional failures sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Heat Removal System (MS08)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - heat removal system performance indicator for the period from the fourth quarter 2011 through the third quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of October 2011 through September 2012 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 mitigating systems performance index - heat removal system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - residual heat removal system performance indicator for the period from the fourth quarter 2011 through the third quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of October 2011 through September 2012 to validate the accuracy of the submittals. The inspectors

reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 mitigating systems performance index - residual heat removal system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

**40A2 Problem Identification and Resolution (71152)**

.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 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 follow-up, 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 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 July 2012 through December 2012 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 semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

.4 In-depth Review of Operator Workarounds

a. Inspection Scope

At the time of this inspection, Wolf Creek did not have any open operator workarounds affecting emergency operation of safety-related equipment. The inspectors audited the operator burdens which detail workaround delays in normal day to day plant operations to verify that no current plant equipment issues were impacting emergency operation of safety related equipment and to verify that licensee's quantification of aggregate operator burden was accurate and to verify that the total operator burden was not impacting safe operations of the facility. Furthermore, the inspectors chose the most risk significant and time intensive operator burden and inspected it in more detail. Wolf Creek was experiencing reactor coolant system leakage past the check valves into the low pressure emergency core cooling system. If no action were taken, this pressure will build up beyond the residual heat removal relief valve setpoint. Consequently every 3 to 4 hours, control room operators must manually align seven valves to vent the residual heat removal discharge header through the safety injection test line to the radio holdup tank, and then return the valves to their normal position. The venting occurs relatively quickly and the entire process takes less than 5 minutes. The local pressure indication is displayed at all times via a camera monitor in the back of the control room. If the camera becomes non-functional, pressure would be reported via local plant operator radio (auxiliary building watchstander) to the control room supervisor once per hour. The inspectors observed the completion of the burden actions.

b. Findings

No findings were identified.

**40A3 Followup of Events and Notices of Enforcement Discretion (71153)**

.1 (Closed) Licensee Event Report 2011-002-00: Diesel Generator Declared Inoperable Due to Inadequate Installation of a Fuel Rack Control Pin

On February 22, 2011, a station operator performing regular tours of the emergency diesel generator A noticed that a fuel rack control pin was loose and not properly secured with a washer and cotter pin. The cotter pin and washer were replaced and the engine was returned to service on February 23, 2011. The subsequent licensee evaluation determined that the cotter pin and washer had been missing since the engine was returned to service from a planned maintenance outage on December 10, 2010. The event was reported for past inoperability for a period greater than allowed by technical specifications, and a safety system functional failure for four instances during the affected time period when diesel generator B was taken out of service for maintenance or fuel chemistry concerns. The inspectors inspected this issue for past operability in Section 1R15 of this report. A licensee-identified violation of technical specifications is documented in Section 40A7 of this report. This licensee event report is closed.

These activities constitute completion of one event follow-up sample as defined in Inspection Procedure 71153.05.

.2 (Closed) Licensee Event Report 2012-004-00, Two Charging Pumps Capable of Injecting into the RCS Due to Inadequate Definition of Centrifugal Charging Pump in LCO 3.4.12

On March 23, 2012, inspectors identified that the normal centrifugal charging pump and a safety related charging pump were both capable of injecting into the reactor coolant system during low temperature conditions. Inspectors asked Wolf Creek why there was an apparent difference between Technical Specification 3.4.12 and the as-found condition on March 23, 2012. Subsequently, Wolf Creek submitted a technical specification interpretation request to the NRC's Office of Nuclear Reactor Regulation (ADAMS Accession No. ML 12341A083). On January 3, 2013, the Office of Nuclear Reactor Regulation determined that Technical Specification 3.4.12 allows only one centrifugal charging pump to be capable of injection to the reactor coolant system during low temperature operations. See Section 1R22.b.2 of this report for further details and enforcement action. This licensee event report is closed.

These activities constitute completion of two event follow-up samples as defined in Inspection Procedure 71153.05.

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

.1 (Closed) Violation (VIO) 05000482/2009002-07, Failure to Correct Component Cooling Water Valve Closures, (EA-09-110)

NRC Integrated Inspection Report 05000482/2009002, documented the NRC identified cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Conditions Adverse to Quality," involving Wolf Creek's failure to correct the cause of the reactor coolant pump thermal barrier component cooling water heat exchanger outlet valves stroking closed during high flow conditions. Specifically, between 2001 and 2009, Wolf Creek experienced repeated cases of the reactor coolant pump thermal barrier component cooling water heat exchanger outlet valves stroking closed during component cooling water pump swaps and during isolations of the radioactive waste evaporators. Wolf Creek reinitiated evaluation of the issue after the inspector's questions but did not review the impact on the operators' ability to open the valves given the valves' circuit breakers opening. Repeated throttle valve adjustments had not been successful in stopping the valve closures.

The inspectors reviewed corrective actions from Violation 2009002-07 in August 2009. A component cooling water modification was made to the reactor coolant pump thermal barrier heat exchanger flow rates and valve closure setpoints. A flow rate above the previous design value was justified by an internal memo of a vendor opinion from a telephone conversation in 1992. The inspectors found this to be contrary to Procedure AP 05-005, for obtaining data from vendors. This resulted in Non-cited

Violation 05000482/2009005-10, "Failure to Obtain Vendor Data Necessary for Plant Modification." The notice of violation remained open.

In response to Non-cited Violation 05000482/2009005-10, Wolf Creek obtained data from Westinghouse to support raising the flow rate through the thermal barrier heat exchangers and raise the associated valve closure setpoints. Wolf Creek revised its previous modification with the Westinghouse information. The increased flow rate was not permitted to be sustained, but short increases in flow were allowed for less than 2 minutes to avoid erosion of the heat exchanger. Short increases in flow were previously experienced during isolation of the radioactive waste cooling loop on both component cooling water pumps running in one train.

The inspectors reviewed corrective actions for both violations. The inspectors reviewed 2 years of plant computer data on thermal barrier valve position and found that the additional unintended closures were captured by Wolf Creek. These closures were recognized as unintended and were found to be caused by inadequate venting of a flow transmitter for the common containment outlet valve for all four thermal barrier heat exchangers. The closures were counted as Maintenance Rule functional failures, and venting practices were improved. Wolf Creek also planned to change the slope of instrument lines to reduce the likelihood of entrapped air causing problems with the flow transmitter.

This violation is closed.

.2 (Closed) Temporary Instruction 2515/187, Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns

The inspectors verified that the following walkdown packages contained the elements as specified in NEI 12-07, walkdown guidance document:

- Work Order 12-356795-005, Auxiliary Building 1967' and 1974' Containment Spray Train A and Emergency Core Cooling
- Work Order 12-356795-009, 1974' Auxiliary Building Sump Areas
- Work Orders 12-356795-021 and 12-356795-022 for 2000' Essential Service Water Building

The inspectors accompanied the licensee on their walkdown of Work Order 12-356795-005, Auxiliary Building 1967' and 1974' Containment Spray Train A and Emergency Core Cooling, and Work Order 12-356795-009, 1974' Auxiliary Building Sump Areas, and verified that the licensee confirmed the following flood protection features:

- Critical system structure or component dimensions were measured
- Building external and internal surfaces were examined for cracks, water staining, and spalling

- Available physical margin, where applicable, was determined
- Sump pump and motor name plate data was compared to design documents
- Labeled wall penetrations were compared with architectural drawings by the licensee walkdown teams
- Passive ground water stops for pipes, conduit, cables, and building seismic gaps, were inspected for leakage

The inspectors independently performed their walkdown and verified that the following flood protection features were in place for Work Order 12-356795-009, 1974' Auxiliary Building Sump areas.

- Passive ground water stops for pipes, conduit, cables, and building seismic gaps, were inspected for leakage
- Sump pump and motor name plate data was compared to design documents

In addition, issues identified in response to Item 2.g that could challenge risk significant equipment and the licensee's ability to mitigate the consequences will be subject to additional NRC evaluation.

#### **40A6 Meetings, Including Exit**

##### Exit Meeting Summary

The inspectors debriefed Mr. M. Sunseri, President and Chief Executive Officer, and other members of the licensee's staff of the results of the licensed operator requalification program inspection on October 4, 2012, and telephonically exited with Mr. D. Russell, Operations Training Superintendent, and other staff members on December 10, 2012. The licensee representatives acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 8, 2013, the resident inspectors presented the inspection results to Mr. R. Smith, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On February 6, 2013, the resident inspectors presented the revised inspection results from Regional management review to Rich Clemens, Vice President-Strategic Projects, and other members of the licensee staff. The licensee acknowledged the issues presented.

#### 40A7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as non-cited violations.

- .1 Wolf Creek identified a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for an improperly installed Swagelok fitting that resulted in emergency diesel generator A being unable to complete its mission time due to excessive jacket water leakage. The fitting caused fretting over time until a leak occurred on March 12, 2012, about 12 hours into a 24-hour surveillance run on emergency diesel generator A. A hardware failure analysis concluded that the resulting crack will grow quickly to the point of unacceptable jacket water leakage within 10-15 hours, thereafter. In this condition, so the engine was unable to meet its mission time of 7 days. The affected tubing was replaced the following day, and training was conducted for maintenance personnel. The violation is more than minor because it affects the equipment performance attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 609, Appendix A, Exhibit 2, Mitigating Systems Cornerstone screening questions, Section A, the finding was determined to be of very low safety significance (Green) because the finding did not result in the emergency diesel generator being out of service for greater than its allowed outage time, and did not result in an actual loss of function of one or more trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for more than 24 hours. Since the finding is of very low safety significance, was identified by Wolf Creek, and has been entered into the licensee's corrective action program as Condition Report 50360, this violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy.
- .2 Wolf Creek identified a violation of Technical Specification Limiting Condition for Operation 3.8.1 because diesel generator A was unable to perform its safety function for its full mission time under certain conditions. The retaining pin for the fuel rack control shaft between cylinders 6 and 7 had not been installed during maintenance on December 3, 2010, and the pin had backed about half way out on February 23, 2011. If the pin came out, the fuel injector for number 7 cylinder would no longer respond to governor controls and could fail to full-fuel position. The violation is more than minor because if left uncorrected it had the potential to lead to a more significant safety concern. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, the inspectors performed a significance determination screening and determined that a more detailed risk evaluation was required because the finding potentially represented an actual loss of safety function for a single train for greater than the Technical Specification allowed outage time. The senior reactor analyst utilized the Wolf Creek plant-specific standardized plant analysis risk model, Revision 8.20, to assess the risk of this performance deficiency. Based on testing and analysis performed by the licensee, the analyst agreed that emergency diesel generator A would likely start and load given the conditions identified on February 23, 2011. Therefore, the primary risk would be from

the failure of the diesel upon a consequential loss of offsite power resulting from a different accident initiator. The analyst determined that the change in core damage frequency for consequential loss of offsite power events with an associated failure of emergency diesel generator A was  $4.0 \times 10^{-8}$  over a 1-year period. This resulted in a change in core damage frequency of  $8.9 \times 10^{-9}$  for an 81-day exposure, or very low safety significance (Green). Since the finding is of very low safety significance, was identified by Wolf Creek, and has been entered into the licensee's corrective action program as Condition Report s 33909 and 50360, this violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

P. Bedgood, Manager, Radiation Protection  
J. Broschak, Vice President, Engineering  
R. Clemons, Vice President, Strategic Projects  
J. Cuffe, Supervisor, Radiation Protection  
D. Dees, Superintendant, Operations  
T. East, Superintendent, Emergency Planning  
R. Evenson, Requalification Program Supervisor  
R. Flannigan, Manager, Nuclear Engineering  
K. Fredrickson, Engineer, Licensing  
R. Hammond, Supervisor, Regulatory Support  
J. Harris, System Engineer  
S. Henry, Operations Manager  
R. Hobby, Licensing Engineer  
S. Hossain, Engineer, System Engineering  
J. Keim, Support Engineering Supervisor  
R. Lane, Superintendent, Operations  
M. Legresley, System Engineer  
M. McMullen, Technician, Engineering  
C. Medinciy, Supervisor, Radiation Protection  
W. Mulenburg, Licensing Engineer  
M. McMullen, Design Engineer, Engineering  
K. Miller, Technician Level III, Instruments and Controls  
R. Murray, Simulator Supervisor  
E. Ray, Manager, Training  
L. Ratzlaff, Manager, Maintenance  
L. Rockers, Licensing Engineer  
R. Ruman, Manager, Quality  
D. Russell, Operations Training Superintendent  
G. Sen, Regulatory Affairs  
D. Scrogum, Systems Engineer, Engineering  
M. Skiles, Supervisor, Radiation Protection  
R. Smith, Site Vice President  
L. Solorio, Senior Engineer  
R. Stumbaugh, Health Physicist III, Radiation Protection  
M. Sunseri, President and Chief Executive Officer  
J. Truelove, Supervisor, Chemistry  
M. Westman, Assistant to Site Vice President  
J. Yunk, Manager, Corrective Actions

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000482/2012005-03	URI	Remediation Training and Reevaluation of Two Individual Performance Deficiencies (Section 1R11.3.b.1)
---------------------	-----	---

### Opened and Closed

05000482/2012005-01	FIN	Failure Rates Exceed Twenty Percent for Biennial Requalification Exam (Section 1R11.3.b.1)
05000482/2012005-02	NCV	Failure to Ensure that All License Conditions are Met for Licensed Operators (Section 1R11.3.b.1)
05000482/2012005-04	NCV	Failure to Perform Sufficient Control Room Air Conditioning Testing to Satisfy Technical Specification Surveillance Requirements (Section 1R22.b.1)
05000482/2012005-05	NCV	Inadequate Bases Change Causes Violation of Low Temperature Overpressure Protection Technical Specification (Section 1R22.b.2)

### Closed

05000482/2011-002-00	LER	Diesel Generator Declared Inoperable Due to Inadequate Installation of a Fuel Rack Control Pin (Section 4AO3.1)
05000483/2012-004-00	LER	Two Charging Pumps Capable of Injecting into the RCS Due to Inadequate Definition of Centrifugal Charging Pump in LCO 3.4.12 (Section 4OA3.2)
05000482/2009002-07	VIO	Failure to Correct Component Cooling Water Valve Closures (Section 4OA5.1)
Temporary Instruction 2515/187		Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5.2)

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STN GP-001	Plant Winterization	45

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
USAR	Wolf Creek Updated Safety Analysis Report	25

**Section 1R04: Equipment Alignment**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CKL GK-121	Control Building HVAC Valve Checklist	18
CKL GK-131	Control Building HVAC Electrical Checklist	27
CKL GL-131	Auxiliary Building HVAC Electrical Lineup	16
SYS GK-122	Manual CRVIS Line-Up	19

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-12EF01	Piping and Instrumentation Diagram Essential Service Water System	21
M-12EF02	Piping and Instrumentation Diagram Essential Service Water	25
M-12GK01	Piping and Instrumentation Diagram Control Building H.V.A.C	13
M-12GK01	Piping and Instrumentation Diagram Control Building H.V.A.C	21

**Section 1R05: Fire Protection**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AP 10-106	Fire Preplans	12
AP 10-104	Breach Authorization	26
STN FP-450	Fire Damper Testing	14

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E-1F9905	Fire Hazard Analysis, Fire Area A-1 (Reference A-1802)	4

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E-106-000060	As-Built Raceway Fire Barrier Detail C, Junction Box No 1UJ001 & Conduit No. 1U1F2A, 1U1F2B & 1U1F2C, Room 1101, Fire Area A-1	0
M-663-00017A	Fire Protection Evaluations for Unique or Unbounded Fire Barrier Configurations	3

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
011038	Install Fire Wrap on Raceway in Fire Areas A-1 and A-18	4
E-1F9910	Post Fire Safe Shutdown Area Analysis	9
2012-291	Fire Protection Impairment Control Permit: Detector Trouble Alarm AB 2026 MG Set Rm N Wall	November 15, 2012
XAPF 10-103-04	Hourly Fire Watch Permit Log Night Shift 12/20-21/2012	December 21, 2012

CONDITION REPORTS

57393                      59904

**Section 1R06: Flood Protection Measures**

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Updated Safety Analysis Report	25
FL-01	Calculation: Flooding of the Auxiliary Building	1

WORK ORDERS

12-356795-009    12-356795-021    12-356795-005    12-358523-000

CONDITION REPORTS

22567                      53866                      58003

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

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AI 26C-002	Conditions for Maintaining Individual Licenses at Wolf Creek	6A
AI 30B-005	Conduct of Simulator Activities for Licensed Operator Training	20
AI 13G-003	Medical Examinations for Licensed Personnel	13
AI 30C-007	Simulator Core Testing	3
AI 30C-001	Continued Assurance of Simulator Fidelity	14
AI 30C-004	Simulator Real Time Capacity Testing	5B
AI 30C-005	Simulator Steady State Testing	9A
AI 30C-006	Simulator Transient Testing	11
AI 30C-008	Scenario Based Testing	2A
AI 21-016	Operator Time Critical Actions Validation	7
AP 21-001	Conduct of Operations	59
AP 30B-001	Licensed Operator Requalification Training Program	20
EMG E-0	Reactor Trip or Safety Injection	28A
EMG ES-03	SI Termination	19
EMG E-1	Loss of Reactor or Secondary Coolant	20
OFN SB-	Instrument Malfunctions	28

**MISCELLANEOUS**

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
Written Exams	2012 Exam-Week 2 Biennial Exam (RO and SRO)	September 2012
JPM's	2012 Exam -Weeks 1, 3, 4	September 2012
Scenarios	2012 Exam – Weeks 1-4	September 2012
QH-2012-0228	NRC 71111.11 Pre-Audit	August 15, 2012
QH-2012-0193	Simulator Peer Visit – NRC IP71111.11 Simulator Review	July 5, 2012

Simulator Test	Simulator Core Testing BOL	February 21, 2012
Simulator Test	Simulator Core Testing EOL	February 1, 2012
Simulator Test	Simulator Core Testing MOL	February 7, 2012
Simulator Test	Transient 9: Maximum Size Main Steam Line Break	
Simulator Test	Transient 10: Slow Primary System Depressurization	
Simulator Test	Transient 11: Maximum Design Load Rejection	
LR4106201	H.B. Robinson Lab	April 4, 2011
LR1004001	Refueling Concerns	July 3, 2012
LR1432705	Tech Spec Issues	April 13, 2011
TNA 2012-1144	Training Needs Analysis	March 30, 2012
SMP A11-041	Simulator Modification Package – Unexpected Orange FR-S1	March 7, 2011
SMP A11-091	Simulator Modification Package – ARV Controller Demand Versus Setpoint is Off at Low Pressures	May 25, 2011
SMP A12-018	Simulator Modification Package – Emergency Pumps Response Different from Plant	January 30, 2012
SMP A12-063	Simulator Modification Package – Simulator Transient Test #11 – Max Load Rejection	August 21, 2012
SMP A11-147	Simulator Modification Package – Diesel Tripped on ESW Pump Start	December 13, 2011
SMP A06-109	Simulator Modification Package – Charging Pressure Too Low	October 11, 2006
SMP A08-204	Simulator Modification Package – Add Breaks to Tanks modeled in KeyMaster	August 9, 2011
SMP A04-068	Simulator Modification Package – MFP Recirc and “B” ARV Controllers Do Not Match	August 12, 2004
TNA 2012-1496	License Condition Seminar	October 4, 2012

CONDITION REPORTS

00025896	00027606	00033730	00034995
00039494	00040322	00041997	00048466

00050708	00051971	00051983	00052869
00052870	00053978	00054011	00057207
00057317	00058190	00058223	00058225
00058230	00058233		

**Section 1R12: Maintenance Effectiveness**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AP 05-002	Dispositions and Change Packages	20
AP 23M-001	WCGS Maintenance Rule Program	9
AI 23M-003	Maintenance Rule Expert Panel Duties and Responsibilities	10
AI 28A-023	Evaluation of Maintenance Rule Functional Failure CRs	3

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-13EG07	Piping Isometric Component Cooling Water System Auxiliary Building Common Header	3

CONDITION REPORTS

18221	22824	23135	47653	58173
-------	-------	-------	-------	-------

WORK ORDERS

11-342592-000	11-341914-000
---------------	---------------

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
OF-01	Maintenance Rule Final Scope Evaluation: Offsite Power (Super System)	
PIR 47653	Maintenance Rule Functional Failure Determination: 345-60 Generator Output Breaker 1/13/2012	February 19, 2012
PIR 49093	Maintenance Rule Functional Failure Determination: Startup Transformer Differential Relay found dropped on 2/13/2012	March 30, 2012

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PIR 58713	Maintenance Rule Functional Failure Determination: Startup Transformer 1/13/2012	November 7, 2012
LTR-PMO-10-27	Engineering Evaluation of Elevated CCW Flow Transient to RCP Thermal Barrier	March 4, 2012
013096	Instrument Setpoints for RCP Thermal Barrier Isolation and EGHV0062 Valves  Annual Dynamic Exam LR940241	2

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

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PSA 12-007	PRA Assessment for Missed Technical Specification Surveillances STS MT-072/073	0
AP 22C-003	On-line Nuclear Safety and Generation Risk Assessment Program	17
AP 22C-007	Risk Management and Contingency Planning	6
STS GS-201B	Containment H2 System Train B Inservice Valve Test	6
INC S-0020	Air Operated Valve (AOV) Testing with VOTES Infinity Diagnostic System/Crane Viper 20 Diagnostic System	3
APF 21D-002-01	Testing Evaluation Sheet	October 22, 2012
ALR 00-074C	RCP THRM BAR CCW FLOW	15
STS IC-500G	Channel Calibration DT/TAVG Instrumentation Loop 4	22A
AP 22D-002	Forced Outage Process	10
SY1301200	Reactor Protection System Lesson Plan	2
APF 22C-003	On-Line Nuclear Safety and Generation Risk Assessment Week (2012) 306 (as revised)	July 24, 2012
APF 22C-003	On-Line Nuclear Safety and Generation Risk Assessment Week (2012) 313 (as revised)	September 12, 2012
J-106D-00111	Combined Software Requirements Specification (SRS) & Software Design Description (SDD) for Leak Detection	W02

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
ODMI 2010-03	N/A Work Week Manager's Log for Week 313	0 September 21, 2012
SYS LF-126	Filling the Containment Instrument Tunnel Sump	0
AP 22C-003	On-Line Nuclear Safety and Generation Risk Assessment	17

CONDITION REPORTS

60104                      60210

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
5.2-2	Primary Coolant Leak Detection Response Time	16
USAR Figure 6.2.4-1	Containment Penetrations Page 42	13
USAR Figure 6.2.4-1	Containment Penetrations Page 69	13
USAR Figure 6.2.4-1	Containment Penetrations Page 70	13
M-12GS01	Piping & Instrumentation Diagram Containment Hydrogen Control System	8
M-12EG02	Piping & Instrumentation Diagram Component Cooling Water System	21
E-13EG16	Schematic Diagram CCW Heat Exchanger Outlet Temperature Control Valves	0
M-761-02208- W04	Interconnecting Wiring Diagram Cabinet 07 SNUPPS Nuclear Power Plant Controls	
M-761-00075- W08	SNUPPS Process Control Block Diag.	

WORK ORDERS

11-344923-000

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
00078.00.0004	Wolf Creek Nuclear Station AOV Categorization Report	0
WCOP-02	Wolf Creek Nuclear Operating Corporation Inservice Valve Testing Program	14
PSA-05-0020	WCGS PRA Basic Event Data Files	0
Work Week 409	Safety Monitor Profile Core Damage Frequency Versus Time	0
	Wolf Creek Nuclear Generating Plant – NPIS-A	November 26, 2012
S5A, 1	Class 1E AC Unit SGK05A	November 23, 2004
PSA 12-004	PRA Assessment for Missed Technical Requirements Manual Surveillances STS PE-016A/B	0
PSA 12-004	PRA Assessment for Missed Technical Requirements Manual Surveillances STS PE-016A/B	2

**Section 1R15: Operability Evaluations**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STS IC-203A	Channel Operational test of Tavgr, dT and Pressurizer Pressure Protection Set One	17C

CONDITION REPORTS

58416	50360	39674	45197	43691
33896	57391			

WORK ORDERS

09-314853-001	11-342081-000	11-342645-001	11-342645-005	09-316986-000
---------------	---------------	---------------	---------------	---------------

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-761-00072	SNUPPS PROCESS CONTROL BLOCK DIAG.	W07

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Wolf Creek Main Control Room Operator Logs	
WCRE-01	Wolf Creek Total Plant Setpoint Document	22
12-1278-TR-001	Technical Report: Emergency Diesel Generator Jacket Water Tubing Leak Rate Projection	0
LER 2011-002-00	Licensee Event Report	April 25, 2011
LER 2011-002-00	Engineering Disposition: A-EDG Fuel Rack Missing Cotter Pin and Washer	0
OE-KJ-12-015	B EDG Foundation Stud Thread Engagement	0
PSA-12-005	Risk Significance of "A" Emergency Diesel Generator Missing Cotter Pin	0
R-5.67-6822	Fairbanks Morse Engine Engineering Report: Wolf Creek (700001) Impact Evaluation Removing the A-Bank P411118 Pin	August 15, 2011
MPR DRN LTR-0405-0008-01	MPR Associates Incorporated Letter to Wolf Creek EDG System Engineer, Re: Wolf Creek EDG Fuel Injection Pump Linkage Pin Evaluation	July 8, 2011
MPR DRN LTR-0405-0008-02	MPR Associates Incorporated Letter to Wolf Creek EDG System Engineer, Re: Assessment of Wolf Creek EDG Fuel Injection Pump Linkage Pin After Disengagement	August 5, 2011
MPR DRN LTR-0405-0008-03	MPR Associates Incorporated Letter to Wolf Creek EDG System Engineer, Re: Wolf Creek EDG Over-Fuel Condition Operability Determination	November 4, 2011
R-5.67-6822	Fairbanks Morse Engine Engineering Report: Comments to MPR / Ricardo Reports Provided to Wolf Creek	January 23, 2012

**Section 1R18: Plant Modifications**

CHANGE PACKAGE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
013894	Security Upgrade – ESW Pumphouse Protected Area Fence	6

WORK ORDER

11-347169-003

CONDITION REPORTS

48027

**Section 1R19: Post-Maintenance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
STN FP-211	Diesel Fire Pump 1FP01PB Monthly Operation and Fuel Level Check	27
VTM A-3824-06 TMP 12-017	Fairbanks Morse Pentair Water Diesel Fire Pump Installation Test	May 15, 2012 August 3, 2012
STN FP-209	Fire Pump Performance Test	August 3, 2012
STN FP-440	Fire Door Visual Inspection	9

WORK ORDERS

12-353043-000    12-353043-002    12-353030-000    12-353043-005    12-353043-006  
12-353043-008    12-353528-000

**Section 1R22: Surveillance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
MGE E00P-11	Molded Case Circuit Breaker and Ground Fault Sensor Testing	28
STS MT-024A	Functional Test of 480 and 120 Volt Molded Case Circuit Breaker	12
GEN 00-006	Hot Standby to Cold Shutdown	82
GEN 00-006	Hot Standby to Cold Shutdown	81
GEN 00-006	Hot Standby to Cold Shutdown	83
STS BG-001	Boron Injection Flow Path Verification	18
STS GK-002A	Control Room A/C Unit Operability Test	2

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
STS GK-002B	Control Room A/C Unit Operability Test	2
STS MT-072	SGK04A Condenser Heat Exchanger Tube Inspection	2
STS MT-073	SGK04B Condenser Heat Exchanger Tube Inspection	2

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
AN-93-031	Revision of the COMS PORV Setpoints and Setpoint Limit Curve Based on Test Results of Surveillance Capsule Y	1
ET 94-0012	Updated Response to Generic Letter 89-13	February 18, 1994
OE GK-12-017	SGK04A/B Control Room Air Conditioning System	0

CONDITION REPORTS

53012                      59406                      59519

WORK ORDERS

11-343330-034      11-347283-005      11-347099-005

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
99-0007	Regulatory Screening No. 59	1
F-OP-S-002	Gen 6 Over Pressure Clearance (LTOP) Step 6.33.5	February 22, 2012

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPP 06-001	Control Room Operations	16
EPP 06-002	Technical Support Center Operations	33

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPP 06-003	Emergency Operations Facility Operations	20
EPP 06-005	Emergency Classification	5A

**Section 1EP6: Drill Evaluation**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AP 06-002	Radiological Emergency Response Plan	12
EPP 06-002	Technical Support Center Operations	32
EPP 06-003	Emergency Operations Facility Operations	19
EPP 06-005	Emergency Classification	5
EPF 06-007-01	Wolf Creek Generating Station Emergency Notification	11
EPP 06-018	Maintenance of Emergency Facilities and Communication Checks	10

CONDITION REPORTS

59811	59812	59813	59814	59815
-------	-------	-------	-------	-------

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
12-SA-02	Emergency Planning Drill	October 10, 2012

**Section 4OA1: Performance Indicator Verification**

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Control Room Operators Equipment Out of Service Logs	2009-2012
Wolf Creek 1	MSPI Indicator Marging Remaining in Green	September 30, 2012
WCNOC-163	Mitigating Systems Performance Indicator Basis Document	8
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	6

CONDITION REPORTS

34472                    52024                    52202                    57510

WORK ORDERS

10-330576-000    12-350081-008

**Section 40A2: Identification and Resolution of Problems**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
AI-22A-001	Operator Work Arounds / Operator Burdens / Control Room Deficiencies	10B
SYS EJ-323	RHR System Depressurization	14A
MPM OS-001	Preventative Maintenance Lubricant Sampling and Replacement	20

MISCELLANEOUS

Wolf Creek Operational Issues Database

WORK ORDERS

10-331641            10-331640            10-331666            09-319083            11-338713

CONDITION REPORTS

60408                    60406                    60389                    60370                    60371

**Section 40A5: Other Activities**

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
ADAMS ML11245A158	SECY-11-0124, "Recommended Actions to be taken without Delay from the Near-Term Task Force Report," Agencywide Documents Access and Management System	September 9, 2011
ADAMS ML11245A158	SECY-11-0124, "Recommended Actions to be taken without Delay from the Near-Term Task Force Report," Agencywide Documents Access and Management System	September 9, 2011

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
ADAMS ML111861807	Recommendations for Enhancing Reactor Safety in the 21 <sup>st</sup> Century: The Near-term Task Force Review of Insights from the Fukushima Dai-ichi Accident  10 CFR 50.54 – Conditions of Licenses  10 CFR 50.72, Immediate Notification Requirements for Operating Nuclear Power Reactors  Appendix A to 10 CFR Part 50, General Design Criteria for Nuclear Power Plants  Appendix A to 10 CFR Part 100, Seismic and Geologic Siting Criteria for Nuclear Power Plants	July 12, 2011
ADAMS ML113220407	Temporary Instruction 2515/183, "Follow-up to the Fukushima Dai-ichi Fuel Damage Event  Energy and Water Development and Related Agencies Appropriations Act	November 2011  2012
Section 2.4	NUREG-0800, SRP	
ADAMS ML063550238	NUREG-1407, Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities, Final Report, ADAMS Accession  ASME/ANS RA-Sa-2009, American Society of Mechanical Engineers/American Nuclear Society standard, RA-Sa-2009, Standard for Level 1/ Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications  INPO Version, SER 1–01, WANO Significant Event Report (SER) 2000-3, 'Severe Storm Results in Scram of Three Units and Loss of Safety System Functions Due to Partial Plant Flooding, (Proprietary)	June 1991      2009  February 2001