



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

May 7, 2015

Mr. Adam C. Heflin, President and
Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

**SUBJECT: WOLF CREEK GENERATING STATION – NRC INTEGRATED INSPECTION
REPORT 05000482/2015001**

Dear Mr. Heflin:

On March 28, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Wolf Creek Generating Station. On April 1, 2015, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented three findings of very low safety significance (Green) in this report. All of these findings involved violations of NRC requirements. Further, inspectors documented one licensee-identified finding which was determined to be of very low safety significance (Green) in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

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

If you disagree with a cross-cutting aspect assignment with a regulatory requirement 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 the Wolf Creek Generating Station.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public

A. Heflin

- 2 -

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Sincerely,

/RA/

Andrew A Rosebrook, Acting Chief
Project Branch B
Division of Reactor Projects

Docket Nos. 50-482
License Nos. NPF-42

Enclosure: Inspection Report 05000482/2015001
w/ Attachment 1: Supplemental Information
Attachment 2: Request for Information for Occupational Radiation
Safety Inspection

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Letter to Adam C. Heflin from Andrew A. Rosebrook dated May 7, 2015

SUBJECT: WOLF CREEK GENERATING STATION – NRC INTEGRATED INSPECTION
REPORT 05000482/2015001

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000482
License: NPF-42
Report: 05000482/2015001
Licensee: Wolf Creek Nuclear Operating Corporation
Facility: Wolf Creek Generating Station
Location: 1550 Oxen Lane NE
Burlington, Kansas
Dates: January 1 through March 28, 2015
Inspectors: C. Henderson, Acting Senior Resident Inspector
D. Dodson, Acting Senior Resident Inspector
R. Stroble, Resident Inspector
L. Carson II, Senior Health Physicist
J. Drake, Senior Reactor Inspector
G. Guerra, CHP, Emergency Preparedness Inspector
J. O'Donnell, Health Physicist
F. Thomas, Project Engineer
Approved By: Andrew A. Rosebrook
Acting Chief, Project Branch B
Division of Reactor Projects

SUMMARY

IR 05000482/2015001; 01/01/2015 – 03/28/2015; WOLF CREEK GENERATING STATION; Integrated Resident and Regional Report; Maintenance Risk Assessments and Emergent Work Control, and Operability Determinations and Functionality Assessments.

The inspection activities described in this report were performed between January 1 and March 28, 2015, by the resident inspectors at Wolf Creek Generating Station and inspectors from the NRC's Region IV office and other NRC offices. Three findings of very low safety significance (Green) are documented in this report. All of these findings involved violations of NRC requirements. Additionally, NRC inspectors documented in this report one licensee-identified violation of very low safety significance. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas." Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of Technical Specification 5.4.1.a, associated with the failure to properly preplan maintenance such that it would not affect safety-related equipment in accordance with procedure AP 22C-008, "On-Line Qualitative Risk Management," Revision 3. Specifically, during planning of emergent work activities on January 29, 2015, the licensee failed to recognize that when electrical cabinet doors containing safety-related under voltage and under frequency relays were opened to accomplish troubleshooting activities, the cabinet was not in a seismically qualified configuration. Thus the maintenance had the potential to impact the reliable operation of emergency diesel generator B during a seismic event. The licensee initiated Standing Order 37, "Safety Related Cabinet Operability Requirements," Revision 0, to provide the requirements for assessing operability of opening safety-related electrical cabinet and panel doors out of their seismically qualified configuration during maintenance activities and entered this issue into their corrective action program for resolution as Condition Reports 91501 and 94605.

The licensee's failure to properly preplan maintenance such that it would not affect safety-related equipment during emergent work activities was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating event to prevent undesirable consequences (i.e., core damage). Specifically, the licensee's failure to properly preplan maintenance resulted in emergency diesel generator B being placed in a condition that did not meet its seismic design requirements. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Finding At-Power," dated June 19, 2012, inspectors determined that the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two

separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more nontechnical specification trains of equipment designated as high safety-significance in accordance with the licensee's maintenance rule program. The finding has a cross-cutting aspect in the area of human performance associated with work management. Specifically, the licensee did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority, including the identification and management of risk commensurate to the work [H.5]. (1R13)

- Green. The inspectors identified non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to complete an adequate operability evaluation in accordance with procedure AP-28001, "Operability Evaluations," Revision 24 following the failure to meet a surveillance test acceptance criteria. Specifically, the licensee did not have an accurate technical basis for declaring the train A control room air condition unit operable when the minimum air flow rate was not met. The licensee's operability evaluation, which declared the train A control room air condition unit operable, incorrectly applied instrument uncertainty and used a superseded minimum air flow value. When these inaccuracies were addressed, the licensee determined the train was inoperable. The licensee entered this issue into their corrective action program as Condition Report 92274.

The licensee's use of an inadequate technical basis for an operability evaluation of a non-conforming condition resulting in the train A control room air conditioning air condition unit being declared operable when it was actually inoperable was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associate cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating event to prevent undesirable consequences (i.e., core damage). Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Finding At-Power," dated June 19, 2012, inspectors determined that the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more nontechnical specification trains of equipment designated as high safety-significance in accordance with the licensee's maintenance rule program. The finding has a cross-cutting aspect in the area of human performance associated with conservative bias component because the licensee did not use a decision making-practice that emphasized prudent choices over those that are simply allowable. A proposed action was determined to be safe in order to proceed, rather than unsafe in order to stop [H.14]. (1R15.1)

Cornerstone: Barrier Integrity

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," associated with the licensee's failure to follow the requirements of Station Procedure AP 10-104, "Breach Authorization," Revision 32. Specifically, the licensee's failure initiate a breach permit and station a boundary watch when the auxiliary building emergency exhaust system boundary door 41015 was opened

multiple times for transporting scaffolding from the turbine building to the auxiliary building. Opening this door without compensatory measures rendered the auxiliary building emergency exhaust system inoperable. The license entered this issue into their corrective action program for resolution as Condition Reports 92315 and 92630.

The licensee's failure to initiate a breach permit and implement required compensatory measures for when the auxiliary building emergency exhaust system boundary door 41015 was open was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the system, structure, and component and barrier performance attribute of the Barrier Integrity Cornerstone, and affected the associated cornerstone objective to ensure the radiological barrier functionality of the auxiliary building emergency exhaust system. Specifically, without a dedicated individual in constant communication with the control room, as required by AP 10-104, opening this door required entry of Technical Specification 3.7.13 Limited Condition of Operation Condition B. The longest period door 41015 was open was approximately one hour without the required compensatory measure. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Finding At-Power," dated June 19, 2012, inspectors determined that the finding screened as having very low safety significance (Green) because the finding only involved a degradation of the radiological barrier function provided for the auxiliary building. The finding has a cross-cutting aspect in the area of human performance associated with work management. Specifically, the organization failed to implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority, including the identification and management of risk commensurate to the work [H.5]. (1R15.2)

Licensee-Identified Violations

A violation of very low safety significance (Green) was identified by the licensee and was reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and associated corrective action tracking numbers are listed in Section 4OA7 of this report.

PLANT STATUS

Wolf Creek began the inspection period at 100 percent power. On February 28, 2015, the unit was shut down for Refueling Outage 20. The unit remained shutdown for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On January 8, 2015, the inspectors completed an inspection of the station's readiness for impending adverse weather conditions. The inspectors reviewed plant design features, the licensee's procedures to respond to cold weather on the circulation water screen house cold weather compensatory measures, and the licensee's implementation of these procedures. The inspectors' evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant.

These activities constituted one sample of readiness for impending adverse weather conditions, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

Partial Walkdown

a. Inspection Scope

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

- January 6, 2015, turbine-driven auxiliary feedwater
- January 21, 2015, containment spray B
- January 26, 2015, essential service water A
- January 27, 2015, centrifugal charging pump A

The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the systems. They visually verified that critical portions of the systems were correctly aligned for the existing plant configuration.

These activities constituted four partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

The inspectors evaluated the licensee's fire protection program for operational status and material condition. The inspectors focused their inspection on four plant areas important to safety:

- February 20, 2015, service water
- February 28, 2015, reactor building fire area RB, containment
- March 10, 2015, essential service water fire area A, essential service water pump house, Room A
- March 10, 2015, fuel building fire area F-1, spent fuel pool

For each area, the inspectors evaluated the fire plan against defined hazards and defense-in-depth features in the licensee's fire protection program. The inspectors evaluated control of transient combustibles and ignition sources, fire detection and suppression systems, manual firefighting equipment and capability, passive fire protection features, and compensatory measures for degraded conditions.

These activities constituted four quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On March 11, 2015, the inspectors completed an inspection of the station's ability to mitigate flooding due to internal causes. After reviewing the licensee's flooding analysis, the inspectors chose plant areas containing risk-significant structures, systems, and components that were susceptible to flooding:

- Engineered safety features Class 1E switchgear NB01/NB02 rooms 3301 and 3302 and Operating Experience Smart Sample 2007-02, "Flooding Vulnerabilities Due to Inadequate Design and Conduit/Hydrostatic Seal Barrier Concerns"

The inspectors reviewed plant design features and licensee procedures for coping with internal flooding. The inspectors walked down the selected areas to inspect the design features, including the material condition of seals, drains, and flood barriers. The inspectors evaluated whether operator actions credited for flood mitigation could be successfully accomplished.

In addition, on March 16, 2015, the inspectors completed an inspection of underground bunkers susceptible to flooding. The inspectors selected three vaults that contained risk-significant or multiple-train cables whose failure could disable risk-significant equipment:

- Essential service water A vault 2A
- Essential service water A vault 3A
- Essential service water A vault 4A

The inspectors observed the material condition of the cables and splices contained in the vaults and looked for evidence of cable degradation due to water intrusion. The inspectors verified that the cables and vaults met design requirements.

These activities constitute completion of one flood protection measures sample and one bunker/manhole sample, as defined in Inspection Procedure 71111.06.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

The activities described in subsections 1 through 5 below constitute completion of one inservice inspection sample, as defined in Inspection Procedure 71111.08.

.1 Non-destructive Examination (NDE) Activities and Welding Activities

a. Inspection Scope

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Coolant System	TBB03-10C-IR	Ultrasonic
Reactor Coolant System	TBB03-10C-W	Ultrasonic
Reactor Pressure Vessel Ligaments	RV-LIG-12	Ultrasonic
Chemical and Volume Control System	PW1A	Penetrant

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Chemical and Volume Control System	PW1A	Visual
Reactor Pressure Vessel	RBB01Flange Mating Surface	Visual
Reactor Pressure Vessel	RBB01Upper Support Plate Mating Surface	Visual
Reactor Pressure Vessel	Hot Leg Nozzle to Pipe	Visual

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Coolant System	TBB03-10C-IR	Ultrasonic
Reactor Coolant System	TBB03-10C-W	Ultrasonic
Reactor Pressure Vessel Ligaments	RV-LIG-12,37-54	Ultrasonic
Accumulator Safety Injection System	EP-01-S003-K	Ultrasonic
Accumulator Safety Injection System	EP-01-S003-L	Ultrasonic
Chemical and Volume Control System	BG-02-H007	Visual

During the review and observation of each examination, the inspectors observed whether activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspectors also reviewed the qualifications of all nondestructive examination technicians performing the inspections to determine whether they were current.

The inspectors directly observed a portion of the following welding activities:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>WELD TYPE</u>
Chemical and Volume Control System	PW-1A	Gas Tungsten Arc Welding

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>WELD TYPE</u>
Chemical and Volume Control System	SW-2A	Gas Tungsten Arc Welding
Essential Service Water	FW-500	Shielded Metal Arc Welding
High Pressure Coolant Injection System	FW-1	Gas Tungsten Arc Welding

The inspectors reviewed records for the following welding activities:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>WELD TYPE</u>
Fuel Pool Cooling & Clean-Up System	PW-1A	Gas Tungsten Arc Welding
Fuel Pool Cooling & Clean-Up System	PW-2	Gas Tungsten Arc Welding
Fuel Pool Cooling & Clean-Up System	PW-3	Gas Tungsten Arc Welding
Essential Service Water	W-3	Gas Tungsten Arc Welding
Essential Service Water	W-4	Gas Tungsten Arc Welding
Essential Service Water	W-6	Gas Tungsten Arc Welding
Essential Service Water	W-8A	Gas Tungsten Arc Welding
Essential Service Water	W-9A	Gas Tungsten Arc Welding

The inspectors reviewed whether the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code Section IX requirements. The inspectors also determined that essential variables were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications.

b. Findings

No findings were identified, but the following item is unresolved.

Introduction. The inspector identified an unresolved item pertaining to 10 CFR 50 Appendix B, Criterion IX, Control of Special Processes, associated with the licensee's method of performing ultrasonic examination of the reactor vessel flange stud hole threads in accordance with applicable American Society of Mechanical Engineers (ASME) Code requirements.

Description. The inspector identified several issues of concern while observing the licensee's ultrasonic examination of the reactor vessel flange stud hole threads. The inspector questioned whether the licensee would be able to detect any reportable indication within the ASME Code examination zone using the technique employed.

The inspector identified that in 2003 the licensee had modified the method used to perform the examination scanning, but never verified that the new methodology was capable of detecting relevant indications within the examination zone.

The new method placed the one inch diameter "zero" angle transducer on a radial arm at the end of an approximately 30 foot pole. The pole is aligned on the handle of the protective cap that covers the stud hole in the flange.

The inspector reviewed examination Procedure UT-11, "Ultrasonic Stud Hole Threads," Revision 13, and Examination of Reactor Vessel Flange made note of the following:

- The inner edge of the transducer is at a nominal distance of 3.875 inches from the center of the stud hole.
- The protective cap has a nominal diameter of 7.25 inches or a radius of 3.625 inches while the stud hole diameter is 6.822 +0, -.01 inches.
- This places the examination zone of inspection starting at a radius of approximately 3.411 inches and extending to a radius of 4.411 inches.

The configuration of the transducer on the pole and the alignment mechanism results in the inside edge of the transducer being placed approximately 0.465 inches from the edge of the stud hole, which is the start of the one inch examination area. Because the technique employs a "zero" angle transducer and the examination area is not directly beneath the transducer, there is a concern with instrument signal coverage.

The inspector also identified several procedural compliance issues while reviewing the licensee's implementation of UT-11. The inspector questioned the following statements in the procedure:

- Procedure UT-11, Section 11.1.1, states in part, "The examination volume is a one inch annular band around each stud hole, extending to one stud diameter into the flange."
- Procedure UT-11, Section 11.2.2, states in part that, "Straight beam examination of ligaments shall be performed."
- Procedure UT-11, Section 12.1.1, states in part, "All indications which are found that are orientated on a plane normal to the axis of the stud that are equal to or

exceed 0.2 in, as measured radially from the root of the thread, shall be reported to the LMT Site Supervisor and recorded on the Ultrasonic Examination report form.”

There is a concern that the technique currently being utilized by the licensee may not provide adequate coverage of the required examination area and may not be capable of detecting indications orientated on a plane normal to the axis of the stud that are equal to or exceed 0.2 inch, as measured radially from the root of the thread, as required by the licensee's procedure and Section XI of the ASME Code. Additional analysis and simulations need to be completed to determine if the licensee is meeting ASME Code requirements. This issue is being tracked as URI 05000482/2015001-01, Questions Related to Ultrasonic Examination of Reactor Vessel Flange Stud Hole Threads.

.2 Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

The inspectors reviewed the results of the licensee's bare metal visual inspection of the reactor vessel upper head penetrations to determine whether the licensee identified any evidence of boric acid challenging the structural integrity of the reactor head components and attachments. The inspectors also verified that the required inspection coverage was achieved and limitations were properly recorded.

During refueling outage RF19, ultrasonic examinations of all seventy-eight control rod drive mechanism (CRDM) penetration nozzles and the eddy current examination of the vent line in the reactor vessel head was completed. A number of thermal sleeves were found to have wear indications extending up to as much as 360 degrees around the thermal sleeve where the thermal sleeve exits the bottom end of the control rod drive mechanism head adapter tube. Wear was found in rodded and unrodded penetration locations. The wear is attributed to the thermal sleeve contacting the inside diameter of the CRDM head adapter tube due to a flow-induced impact/whirling motion of the thermal sleeve. The sleeve-to-adapter contact resulted in wear of material on the outside diameter of the thermal sleeves. A sample of the thermal sleeves were re-inspected this outage and no change in the wear indications were noted.

During refueling outage RF20, a visual examination (VT-2) of the reactor pressure vessel head was performed. The examination was in accordance with Code Case N 729-1 Table 1, Item B4.20. An indication of primary water stress corrosion cracking was identified on the canopy seal weld for CRDM penetration 20. The CRDMs were fabricated in sections with threaded joints providing the pressure-retaining capabilities. Since the threaded joint provides pressure retention, the canopy seal weld is not pressure retaining and is for leakage control. The licensee installed a mechanical clamp on the canopy seal weld to restore leakage control.

The inspectors reviewed the certification of the personnel performing the inspection to verify they were certified examiners to their respective nondestructive examination method.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control (BACC) Inspection Activities

a. Inspection Scope

The inspectors reviewed the licensee's implementation of its boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walk-down as specified in Procedures STN PE-040D and AI 16F-002. The inspectors also reviewed the visual records of the components and equipment. The inspectors verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components. The inspectors also verified that the engineering evaluations for those components where boric acid was identified gave assurance that the ASME Code wall thickness limits were properly maintained. The inspectors confirmed that the corrective actions performed for evidence of boric acid leaks were consistent with requirements of the ASME Code and 10 CFR 50, Appendix B requirements. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

The inspectors reviewed the licensee's in-situ pressure testing screening criteria for flawed steam generator tubes to verify that it was in accordance with the EPRI guidelines. The inspectors also reviewed the steam generator tube eddy current examination scope and expansion criteria to verify that these meet technical specification requirements. The inspector reviewed the licensee's inspection of the secondary side of the steam generators, and corrective actions taken in response to any observed degradation. The licensee did repairs on select tubes (e.g., installed plugs), and the inspectors observed a portion of these repairs. The inspector observed the licensee's vendor to determine if the equipment was qualified for detection and/or sizing of the expected types of tube degradation. The inspectors observed the licensee's vendor performing analysis of the steam generator tubes to determine if proper eddy current testing analysis techniques were applied.

The primary side inspection scope performed in all four steam generators for the current outage, RF20, included the following:

- 25 percent Bobbin examination of tubes in all four steam generators
- 25 percent hot leg rotating pancake coil (RPC) Tube Sheet (TS) +3"/-15.21"

- Cold Leg Peripheral Tubes, Tube Sheet Cold (TSC) \pm 3" 100 percent of peripheral tubes
- +Point examination of all "1-code" indications not resolved after history review
- +Point inspection to bound the tubes with possible loose part signals
- +Point inspection of possible loose part signals from the previous inspection as specified in Section 3.5
- 25 percent Row 1 and Row 2 U-bends, mid-range +Point examination
- Dents (structures) >5 volts: Inspect 50 percent in steam generator Band C, and 25 percent in steam generators A and D of all previously identified and all new dents >5 volts in the hot leg (including the U-bends) with the mid-range +Point probe in all four SGs
- Dings (free span) >5 volts: Inspect 25 percent of all previously identified and all new dings >5 volts in the hot leg (including the U-bends) with the mid-range +Point probe in all four Steam Generators. A "new" ding is defined as one for which there is no prior historical record
- 100 percent Bobbin inspection of all prior indications except dents and dings
- +Point examination of a 5 percent sample of bobbin indications that have not changed since the prior inspection ("H" and "S" codes)
- +Point inspection of the sample of tubes to support the scale profiling effort
- 100 percent bobbin inspection of tubes identified as potentially having high residual stress
- 100 percent bobbin inspection of active tubes surrounding previously plugged tubes
- Visual inspections of all plugs, including factory installed plugs, or their replacements
- Inspection of potentially deleterious foreign objects

During the initial eddy current examinations in steam generator A, a single circumferential indication was identified in the hot leg tube sheet of tube (R20, C102) approximately 4 inches down from the top of the tube sheet. This indication is not located within a specified examination subset of the hot leg tube sheet (bulge or overexpansion). This primary water stress corrosion cracking (PWSCC) indication is associated with a low level (4.0 volt) bulge anomaly that is below the threshold of the bulge signal reporting criteria (18 volts) that had not previously been identified as a degradation mechanism. The tube was plugged and because the indication is 4 inches inside the tube sheet, there are no concerns with lateral movement resulting in tube severance if the indication grows. Because the tube is unpressurized, there is no pull-

out force to cause vertical motion. Therefore, there was no need to stabilize the tube. The current EPRI Steam Generator Examination Guidelines for this damage mechanism require that a 100 percent inspection of affected steam generator (steam generator A) and a 20 percent inspection in the unaffected steam generators (steam generators B, C, and D) be completed. Wolf Creek expanded the hot leg top of tube sheet eddy current examinations to 100 percent in steam generator A and a minimum of 50 percent in steam generators B, C, and D. No additional indications were identified in the expanded scope inspection.

The inspectors reviewed the licensee's known tube degradation mechanisms.

The inspectors observed portions of the eddy current testing being performed to determine whether: (1) the appropriate probes were used for identifying the expected types of degradation, (2) calibration requirements were adhered, and (3) probe travel speed was in accordance with procedural requirements. The inspectors performed a review of the site-specific qualifications for the techniques being used and reviewed whether eddy current test data analyses were adequately performed per EPRI and site specific guidelines. The inspectors selected a number of degraded tubes and compared them to the previous outage operational assessment to assess the licensee's prediction capabilities. As a result of the eddy current inspection, thirty-one tubes were plugged during RF20.

Finally, the inspectors reviewed selected eddy current test data to verify that the analytical techniques used were adequate.

The inspectors reviewed the licensee's actions in response to six metallic objects identified in the steam generators. The licensee was able to retrieve three of the objects and the remaining objects were evaluated as satisfactory to remain in place

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed of a sample of problems associated with inservice inspections documented by the licensee in the corrective action program for appropriateness of the corrective actions. 15 condition reports were selected which dealt with inservice inspection activities and found the corrective actions were appropriate. The specific condition reports reviewed are listed in the documents reviewed section. From this review, the inspectors concluded that the licensee has an appropriate threshold for entering issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective program for applying industry operating experience. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On January 26, 2015, the inspectors observed an evaluated simulator scenario performed by an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed the modeling and performance of the simulator during the evaluated scenario.

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 Review of Licensed Operator Performance

a. Inspection Scope

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. The inspectors observed the operators' performance of the following activities:

- January 22, 2015, control rod adjustments, response to instrument tunnel sump running, including the pre-job brief
- February 28, 2015, reactor plant shutdown for Refueling Outage 20

In addition, the inspectors assessed the operators' adherence to plant procedures, including conduct of operations procedure and other operations department policies.

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed one instance of degraded performance or condition of safety-related structures, systems, and components (SSCs):

- March 11, 2015, degraded floor drains and watertight doors affecting the internal flooding analysis for the auxiliary building

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

These activities constituted completion of one maintenance effectiveness sample, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed five risk assessments performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk:

- January 14, 2015, planned maintenance on the motor-driven and diesel-driven fire pumps with circulating water pump C out-of-service
- February 3, 2015, station blackout diesel generator A, emergency diesel generator B, and essential service water B out-of-service
- February 24, 2015, high energy line break door 41015 breached for scaffolding installation
- March 4, 2015, orange risk window for reactor coolant system lowered inventory
- March 11, 2015, spent fuel pool cooling risk management plan for train B unavailable and associated yellow risk window.

The inspectors verified that these risk assessments were performed timely and in accordance with the requirements of 10 CFR 50.65 (the Maintenance Rule) and plant procedures. The inspectors reviewed the accuracy and completeness of the licensee's risk assessments and verified that the licensee implemented appropriate risk management actions based on the result of the assessments.

Additionally, on January 29, 2015, the inspectors also observed a portion of an emergent work activity for emergency diesel generator B exciter potential transformer fuse alarms that had the potential to affect the functional capability of mitigating systems.

The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected structures, systems, and components.

These activities constitute completion of six maintenance risk assessments and emergent work control inspection samples, as defined in Inspection Procedure 71111.13.

b. Findings

Failure to Assess the Operability of Emergency Diesel Generator B during Emergent Work Activities.

Introduction. The inspectors identified a non-cited violation of Technical Specification 5.4.1.a, associated with the licensee's failure to properly preplan maintenance such that it would not adversely affect safety-related equipment in accordance with procedure AP 22C-008, "On-Line Qualitative Risk Management," Revision 3. Specifically, during emergent work activities, the licensee failed to recognize that when electrical cabinet doors containing safety-related under voltage and under frequency relays were opened to accomplish maintenance, the cabinet was no longer in a seismically qualified configuration.

Description. On January 29, 2015, while troubleshooting an intermittent power potential transformer fuse blown alarm for the emergency diesel generator B, maintenance personnel opened the doors to panel NE 106 to gain access to the relay NE 106160 per Work Order 15-397359-000. During the maintenance, inspectors noted that the doors were not restrained and there was not a dedicated person attending the door. The door associated with panel NE 106 contained safety-related under voltage and under frequency relays.

The inspectors asked the licensee if the safety-related relays were seismically qualified with the door open. The licensee informed the inspectors that the safety-related relays were not seismically qualified with the panel door open. The inspectors were concerned that in the event of a seismic event, the doors could suddenly shut and cause the relays to change state, impacting the reliability of emergency diesel generator B at a time when it was required to perform its safety function. Thus, the inspectors concluded that the licensee should have declared the emergency diesel generator inoperable and entered the appropriate technical specification limiting condition for operation prior to the commencement of the maintenance. The emergency diesel generator was not in a non-conforming configuration for greater than the technical specification allowed outage time.

The inspector reviewed Station Procedure AP 22C-008, "On-Line Qualitative Risk Management," Revision 3, and determined the licensee failed to identify the worst case consequences (i.e., seismic event) and have appropriate mitigating actions for the emergent work activity in accordance with step 6.2.3 of the procedure when planning the emergent work activities for emergency diesel generator B. The licensee initiated Condition Reports 91501 and 94605 to document this issue in the corrective action program. Condition Report 91501 was initiated on February 3, 2015, for an industry concern regarding the opening of doors of operable safety related electrical cabinets and panels and Condition Report 94605 was initiated for the inspectors issue identified on January 29, 2015.

In response to Condition Report 91501 the licensee initiated Standing Order 37, "Safety Related Cabinet Operability Requirements," Revision 0. The standing order outlined expectations for opening safety related electrical cabinets. Specifically the standing order required; (1) control room permission prior to opening any safety related cabinets; (2) the doors shall be attended at all times; (3) the doors shall be restrained, and the doors to be shut immediately if a seismic event were to occur.

Analysis. The failure to properly preplan maintenance such that it would not affect safety-related equipment was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associate cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating event to prevent undesirable consequences (i.e., core damage). Specifically, the licensee's failure to preplan maintenance resulted in emergency diesel generator B being placed into a condition that did not meet its seismic design requirements. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Finding At-Power," dated June 19, 2012, inspectors determined that the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more nontechnical specification trains of equipment designated as high safety-significance in accordance with the licensee's maintenance rule program. The finding has a cross-cutting aspect in the area of human performance associated with work management. Specifically, the organization did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority, including the identification and management of risk commensurate to the work [H.5].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures be established, implemented, and maintained covering the applicable procedures recommended in Appendix A to Regulatory Guide 1.33, "Quality Assurance Program Requirements," Revision 2, February 1978. Section 9.a of Regulatory Guide 1.33 requires maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Work Order 15-397359-000 provided work instructions for troubleshooting inside an electrical cabinet associated with emergency diesel generator B. Contrary to the above, on January 29, 2015, the licensee performed maintenance that affected safety-related equipment was not performed in accordance with documented instructions that were appropriate to the circumstances. Specifically, troubleshooting activities performed under Work Order 15-397359-000 caused the safety related emergency diesel B to be rendered non-conforming to its seismic requirements. Because the finding was of very low safety significance (Green) and was entered into the licensee's corrective action program as Condition Report 94605, it is being treated as a non-cited violation in accordance with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000482/2015001-02, "Failure to Assess the Operability of Emergency Diesel Generator B during Emergent Work Activities."

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed four operability determinations that the licensee performed for degraded or nonconforming structures, systems, or components (SSCs):

- February 13, 2015, Condition Reports 88665 and 91799, operability determination of emergency diesel generator B static exciter voltage regulator power rectifier bank diode stacking faults
- February 23, 2015, Condition Report 92100, operability determination of essential service water through-wall leak.
- February 26, 2015, Condition Report 92109, operability determination of the train A control room air conditioning unit
- March 4, 2015, Condition Report 92315, operability determination of auxiliary building emergency exhaust system with door 41015 open greater than three-quarters of an inch.

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded SSC to be operable, the inspectors verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability. The inspectors verified that the licensee had considered the effect of other degraded conditions on the operability of the degraded SSC.

These activities constitute completion of four operability and functionality review samples as defined in Inspection Procedure 71111.15.

b. Findings

1. Failure to Complete an Adequate Operability Evaluation for Declaring the Train A Control Room Air Conditioning Unit Operable

Introduction. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to complete an adequate operability evaluation in accordance with procedure AP-28001, "Operability Evaluations," Revision 24, following the failure to meet a surveillance test acceptance criteria. Specifically, the licensee did not have an accurate technical basis for declaring the train A control room air condition unit operable when the minimum air flow rate was not met. The licensee's operability evaluation, which declared the train A control room air condition unit operable, incorrectly applied instrument uncertainty and used a superseded minimum air flow value. When these inaccuracies were addressed, the licensee determined the train was inoperable.

Description. The inspectors reviewed Condition Report 92109 based on its risk significance for maintaining of the control room's habitability during a design basis accident. This condition report documented that the train A control room air condition

unit did not meet the minimum air flow acceptance criteria in accordance with Station Procedure STS PE-010A, "Control Room A/C System Flow Rate Verification A Train," Revision 3A, and included an operability determination which the licensee completed on February 19, 2015.

The inspectors reviewed the operability determination, Station Procedure STS PE-010A, and Design Calculation GK-M-001, "Cooling and Heating Load Calculation for Control Room HVAC System Capabilities during Normal Plant Operation and Accident Conditions –(SGK04A/B)," Revision 3.

During a surveillance test on February 25, 2015, the air flow rate measured was 20,760 cfm, which was less than the minimum air flow rate acceptance criterion of 21,012 cfm stated in the surveillance procedure. Step 4.2 of STS PE-010A required technicians to notify operations if the control room air conditioner flow rate is less than 21,012 cfm, and to refer to Limited Condition of Operation 3.7.11 for applicable action.

The inspectors determined that, rather than declaring the train inoperable and taking the actions required by technical specifications, the licensee had performed an operability evaluation that incorrectly applied instrument uncertainty and used a minimum flow rate value that had been superseded. Specifically, the inspectors determined that the surveillance acceptance criteria already accounted for instrument uncertainty, so the operability determination incorrectly applied the instrument uncertainty factor twice. Additionally the operability evaluation used a minimum air flow value of the air condition units that was taken from Revision 2 of Calculation GK-M-001. Revision 2 was no longer the current version of the calculation and the minimum air flow value had been revised to a higher value in Revision 3 of Calculation GK-M-001.

When the inspectors brought this to the attention of the licensee, Condition Report 92274 was written to document this issue in the licensee's corrective action program. The licensee subsequently concluded that control room air condition system train A was inoperable on February 25, 2015. The flow rate was corrected by adjusting flow dampers and re-performing the test, and returned to operable status on March 6, 2015.

Analysis. The licensee's use of an inadequate technical basis for an operability evaluation of a non-conforming condition resulting in the train A control room air conditioning air condition unit being declared operable when it was actually inoperable was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associate cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating event to prevent undesirable consequences (i.e., core damage). Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Finding At-Power," dated June 19, 2012, inspectors determined that the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more nontechnical specification trains of equipment designated as high safety-significance in accordance

with the licensee's maintenance rule program. The finding has a cross-cutting aspect in the area of human performance associated with conservative bias component because the licensee did not use a decision making practice that emphasized prudent choices over those that are simply allowable in that they did not determined the proposed action to be safe in order to proceed [H.14].

Enforcement. 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, and drawings. Station Procedure AP-28001,"Opeability Evaluations," Revision 24 required non-conforming conditions to be evaluated for operability. Station Procedure STS PE-010A, "Control Room A/C System Flow Rate Verification A Train," Revision 3A, Step 4.2, states, "notify operations that if it is determined that the control room air conditioner flow rate is less than 21,012 cfm then refer to Limited Condition of Operation 3.7.11 for applicable action for the limiting condition of operation. Specifically, the licensee completed an inadequate operability evaluation due to using incorrect data and assumptions which resulted in an inoperable system being declared operable. Because the finding was of very low safety significance (Green) and was entered into the licensee's corrective action program as Condition Report 92274, it is being treated as a non-cited violation in accordance with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000482/2015001-03, "Failure to Complete an Adequate Operability Evaluation for Declaring the Train A Control Room Air Conditioning Unit Operable."

2. Failure to Station Boundary Watch for Opening Auxiliary Building Emergency Exhaust System Boundary Door

Introduction. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," associated with the licensee's failure follow the requirements of Station Procedure AP 10-104, "Breach Authorization," Revision 32. Specifically, the licensee's failure initiate a breach permit and station a boundary watch when the auxiliary building emergency exhaust system boundary door 41015 was open greater than three-quarters of an inch for other than entry and exit through the door for transporting scaffolding from the turbine building to the auxiliary building.

Description. On February 24, 2015, the inspectors identified door 41015 was opened multiple times during plant status walk down of the auxiliary building and turbine building while scaffolding material was moved from the turbine building to the auxiliary building.

The inspector reviewed the requirements of Station Procedure AP 10-104, "Breach Authorization," Revision 32, and identified that door 41015 was a fire boundary and pressure boundary for the auxiliary building emergency exhaust system. This procedure required that if a single door opening in the auxiliary building emergency exhaust system barrier envelope was planned to be open more than ¾-inch, it would require obtaining a breach permit. Where auxiliary building emergency exhaust system barrier envelope integrity was affected, compensatory measures were required, including stationing a dedicated individual to act as a Boundary Watch to maintain barrier operability/functionality. The plant was operating in Mode 1 at the time, so the auxiliary building emergency exhaust system was required to be operable. Thus, with the door open and no compensatory measure taken, an entry into the technical specification

limiting condition for operation should have been made. The door was not breached for greater than the technical specification allowed outage time.

The inspectors informed the licensee of the issue with door 41015 and asked if a breach authorization permit was issued on February 24, 2015. The licensee determined that a breach authorization permit was not issued and initiated Condition Report 92315 into their corrective action program.

The inspectors reviewed the events leading up to the door being opened, and found that maintenance and security personnel had requested a breach permit, but operations and fire protection personnel had incorrectly concluded that a breach permit was not needed. The inspectors determined that the licensee had not addressed all the boundary functions of door 41015 (specifically the pressure boundary function for auxiliary building emergency exhaust system), and had incorrectly applied the requirements of procedure AP 10-104, Section 6.7.1. The licensee entered this issue into their corrective action program for resolution as Condition Report CR 92630.

The inspectors determined that the performance deficiency did not impair the high energy line break or fire protection functions.

Analysis. The failure to initiate a breach permit and take required compensatory measures prior to opening auxiliary building emergency exhaust system boundary door 41015 was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the system, structure, and component and barrier performance attribute of the Barrier Integrity Cornerstone, and affected the associated cornerstone objective to ensure the radiological barrier function of the auxiliary building emergency exhaust system. Specifically, without a dedicated individual in constant communication with the control room, as required by AP 10-104, opening this door rendered the emergency exhaust system inoperable. The longest period door 41015 was open was approximately one hour without the required compensatory measure. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Finding At-Power," dated June 19, 2012, inspectors determined that the finding screened as having very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the auxiliary building. The finding has a cross-cutting aspect in the area of human performance associated with work management. The organization implements a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. The work process includes the identification and management of risk commensurate to the work and the need for coordination with different groups or job activities [H.5].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, and drawings. Station Procedure AP 10-104, "Breach Authorization," Revision 32, section 6.3.3.2.c, "Where Auxiliary Building Emergency Exhaust System barrier envelope integrity is affected, one of the following compensatory measures shall be applied: (1) Utilize a Boundary Watch to maintain barrier operability/functionality in accordance with Section 6.11 of AP 26C-004, "Operability Determination and Functionality Assessment," Revision 30." Contrary to above, on February 24, 2015, the

licensee failed to follow Station Procedure AP 10-104 while breaching the auxiliary building emergency exhaust system boundary, and activity affecting quality. Specifically, the licensee did not station a boundary watch in continuous contact with the control room to be able to rapidly close the door when the auxiliary building emergency exhaust system boundary door 41015 was open. Because the violation was of very low safety significance (Green) and was entered into the licensee's corrective action program as Condition Reports 92315 and 92630, it is being treated as a non-cited violation, in accordance with Section 2.3.2.a of the NRC's Enforcement Policy: NCV 05000482/2015001-04, "Failure to Station Boundary Watch for Opening Auxiliary Building Emergency Exhaust System Boundary Door."

1R18 Plant Modifications (71111.18)

Permanent Modifications

a. Inspection Scope

On March 18, 2015, the inspectors reviewed a permanent modification to allow the ability to isolate the refueling water storage tank from the fuel pool cleanup system.

The inspectors reviewed the design and implementation of the modification. The inspectors verified that work activities involved in implementing the modification did not adversely impact operator actions that may be required in response to an emergency or other unplanned event. The inspectors verified that post-modification testing was adequate to establish the operability of the SSC as modified.

These activities constitute completion of one sample of permanent modifications, as defined in Inspection Procedure 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed five post-maintenance testing activities that affected risk-significant structures, systems, or components (SSCs):

- January 6, 2015, motor-driven auxiliary feedwater pump following planned maintenance
- January 27, 2015, centrifugal charging pump A following planned maintenance
- January 28, 2015, valve EMHV-8821A safety injection pump discharge valve following planned maintenance
- March 24, 2015, emergency diesel generator A over speed testing following governor shaft replacement and preventative maintenance

- March 27, 2015, essential service water B valves EFHV0039 and EFHV0041 service water isolation valves leak test following valve maintenance

The inspectors reviewed licensing- and design-basis documents for the SSCs and the maintenance and post-maintenance test procedures. The inspectors observed the performance of the post-maintenance tests to verify that the licensee performed the tests in accordance with approved procedures, satisfied the established acceptance criteria, and restored the operability of the affected SSCs.

These activities constitute completion of five post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During the station's refueling outage that commenced on February 28, 2015, the inspectors evaluated the licensee's outage activities. The inspectors verified that the licensee considered risk in developing and implementing the outage plan, appropriately managed personnel fatigue, and developed mitigation strategies for losses of key safety functions. This verification included the following:

- Review of the licensee's outage plan prior to the outage
- Monitoring of shut-down and cool-down activities
- Verification that the licensee maintained defense-in-depth during outage activities
- Observation and review of reduced-inventory activities and mid-loop activities
- Observation and review of fuel handling activities

These activities constitute completion of one refueling outage sample, as defined in Inspection Procedure 71111.20.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed six risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the structures, systems, and components (SSCs) were capable of performing their safety functions:

In-service tests:

- March 5, 2015, emergency core cooling system check valve testing

Containment isolation valve surveillance tests:

- February 6, 2015, residual heat removal B to safety injection pump test line isolation valve stroke time testing, train B residual heat removal system inservice valve test
- February 6, 2015, safety injection test line system inside containment isolation valve, boron injection upstream test line isolation, and accumulator tank fill line isolation valve stroke-time testing, safety injection system train B inservice valve test

Reactor coolant system leak detection tests:

- February 13, 2015, reactor coolant system unidentified leakage calculation

Other surveillance tests:

- February 23, 2015, emergency diesel generator A monthly operability run
- March 17, 2015, control room air conditioning system A flow rate verification test

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of the test satisfied appropriate acceptance criteria. The inspectors verified that the licensee restored the operability of the affected SSCs following testing.

These activities constitute completion of six surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified. A finding associated with the train A control room air conditioning system flow rate verification test is documented in Section 1R15.1.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The inspector performed an in-office review of Wolf Creek Generating Station Emergency Plan Procedure EPP 06-007 "Emergency Notifications," Revision 22. The change added instructions to make notifications to the NRC from the Technical Support Center in the event the Control Room is not habitable or has been evacuated, included guidance for obtaining meteorological data from alternate sources, and instructions on how security sensitive information should be provided to the NRC.

This revision was compared to its previous revision, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q)(3) and 50.54(q)(4). The inspector verified that the revision did not decrease the effectiveness of the emergency plan. This 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.

These activities constitute completion of one emergency action level and emergency plan changes sample as defined in Inspection Procedure 71114.04.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

Training Evolution Observation

a. Inspection Scope

On January 26, 2015, the inspectors observed simulator-based licensed operator requalification training that included implementation of the licensee's emergency plan. The inspectors verified that the licensee's emergency classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the evaluators and entered into the corrective action program for resolution.

These activities constitute completion of one training observation sample, as defined in Inspection Procedure 71114.06.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

The inspectors assessed the licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities. The inspectors assessed the licensee's implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures. The inspectors walked down various portions of the plant and performed independent radiation dose rate measurements. The inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors reviewed licensee performance in the following areas:

- The hazard assessment program, including a review of the licensee's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels
- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions

- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability
- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage and contamination controls, the use of electronic dosimeters in high noise areas, dosimetry placement, airborne radioactivity monitoring, controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools, and posting and physical controls for high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements
- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

These activities constitute completion of one sample of radiological hazard assessment and exposure controls as defined in Inspection Procedure 71124.01.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

The inspectors evaluated whether the licensee controlled in-plant airborne radioactivity concentrations consistent with as low as reasonably achievable (ALARA) principles and that the use of respiratory protection devices did not pose an undue risk to the wearer. During the inspection, the inspectors interviewed licensee personnel, walked down various portions of the plant, and reviewed licensee performance in the following areas:

- The licensee's use, when applicable, of ventilation systems as part of its engineering controls
- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of NIOSH certified equipment, qualification and training of personnel, and user performance
- The licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions, status of SCBA staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Audits, self-assessments, and corrective action documents related to in-plant airborne radioactivity control and mitigation since the last inspection

These activities constitute completion of one sample of in-plant airborne radioactivity control and mitigation as defined in Inspection Procedure 71124.03.

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 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors reviewed licensee event reports (LERs) for the period of January 2014 through December 2014 to determine the number of scrams that occurred. The inspectors compared the number of scrams reported in these LERs to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned scrams per 7000 critical hours performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Unplanned Power Changes per 7000 Critical Hours (IE03)

a. Inspection Scope

The inspectors reviewed operating logs, corrective action program records, and monthly operating reports for the period of January 2014 through December 2014 to determine the number of unplanned power changes that occurred. The inspectors compared the number of unplanned power changes documented to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned power changes per 7000 critical hours performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Unplanned Scrams with Complications (IE04)

a. Inspection Scope

The inspectors reviewed the licensee's basis for including or excluding in this performance indicator each scram that occurred between January 2014 and December 2014. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned scrams with complications performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed corrective action program records documenting unplanned exposures or losses of radiological control over locked high radiation areas and very high radiation areas during the period of January through December, 2014. The inspectors reviewed a sample of radiologically controlled area exit transactions showing exposures greater than 100 mrem. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the occupational exposure control effectiveness performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.5 Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed corrective action program records for liquid or gaseous effluent releases that occurred January through December, 2014, and were reported to the NRC to verify the performance indicator data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the radiological effluent technical specifications RETS/offsite dose calculation manual (ODCM) radiological effluent occurrences performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review

a. Inspection Scope

Throughout the inspection period, the inspectors performed daily reviews of items entered into the licensee's corrective action program and periodically attended the licensee's condition report screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the significance of the problems identified. The inspectors also reviewed the licensee's problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

.2 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected one issue for an in-depth follow-up:

- On March 18, 2015, Condition Reports 29393 and 49529, refueling water storage tank aligned to non-safety related spent fuel pool cleanup system during Modes 1, 2, 3, and 4. The inspectors used Operating Experience Smart Sample 2012-02, "Technical Specification Interpretation and Operability Determination," Revision 1 for assessing where a licensee credited compensatory measures, which substitute manual operator action for automatic action to perform a specified safety function, to consider/declare equipment operable.

The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to address the non-seismic spent fuel pool cleanup system aligned to the refueling water storage tank.

These activities constitute completion of one annual follow-up sample as defined in Inspection Procedure 71152.

b. Findings

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 Temporary Diesel Generator Fire

a. Inspection Scope

On March 11, 2015, the inspectors were informed by the control room that a temporary diesel generator inside the protected area had an approximately two foot flame emitted from the exhaust stack. The inspectors responded to the site and monitored the licensee's actions for the temporary diesel generator fire, reviewed station logs, and reviewed NUREG-1022, "Event Reporting Guidelines," Revision 3, to ensure licensee compliance.

b. Findings

No findings were identified.

.2 Event Notification 50744 Retraction

a. Inspection Scope

On March 18, 2015, the licensee retracted Event Notification 50744 reported on January 19, 2015, that missile door 33012 protecting Class 1E engineered safety features, buses NB01/NB02 switchgear rooms was discovered misaligned on its hinge and stuck partially open. This was reported in accordance with 10 CFR 50.72(b)(3)(v)(D). The inspectors reviewed the basis for the retraction and reviewed NUREG-1022, "Event Reporting Guidelines," Revision 3, to ensure licensee compliance.

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report (LER) 05000482/2014-003-00: Failure of Safety Injection Accumulator Vent Line Due to Low Stress – High Cycle Fatigue Results in Degraded Reactor Coolant Boundary

a. Inspection Scope

On April 20, 2014, at 10:30 a.m. during the station's Mid-Cycle Outage 20, a health physics technician observed water leaking approximately 2.5 gallons per hour from the ¾-inch line upstream of safety injection system valve EPV0109. The leak was determined to be coming from a through-wall crack in the vent line for the combined safety injection and residual heat removal outlet piping to safety injection accumulator tank D.

The cause of the through-wall cracking was determined to be to low stress – high cycle fatigue. The same weld had experienced a previous failure. The evaluation of the November 2003 failure at this location had failed to include margin for vibrational impacts and variance in operational parameters resulting in inadequate corrective action to reduce vibration on the EPV0109 vent line.

The immediate corrective actions called for the flawed socket weld and vent valve assembly to be replaced on April 25, 2014. Dye penetrant examinations were performed in Mid-Cycle Outage 20 on similar unsupported socket weld vent/drain assemblies connected to ASME Code Class 1 piping with no indications identified.

The long term corrective action was to install a support on the EPV109 vent line during Refueling Outage 20 to reduce vibration.

On October 10, 2014, NRC Problem Identification and Resolution Inspection Report 05000482/2014007 (ML14283A612), documented NCV 05000482/2014-007-02, "Failure to Preclude Repetition of a Significant Condition Adverse to Quality to Prevent Reactor Coolant System Leak" related to this item.

This licensee event report was closed.

b. Findings

No findings were identified.

.4 (Closed) Licensee Event Report (LER) 05000482/2015-001-00: Personnel Error Causes Two Inoperable Residual Heat Removal Trains

a. Inspection Scope

On January 28, 2015, the nightshift operations crew implemented a clearance order to support planned maintenance on residual heat removal valves EJHV8716A and EJHV8809A. At 5:34 a.m. on January 28, 2015, the oncoming crew identified that closing these valves rendered both trains of the emergency core cooling system to be inoperable. Operators entered Limiting Condition for Operation 3.0.3 and action was taken to restore valves EJHV8716A and EJH8809A to the open position.

The cause of the event was that licensed operators involved with the preparation and implementation of the clearance order did not recognize that current plant conditions could not support the proposed maintenance activity.

The licensee implemented the following corrective actions: (1) Individuals involved with this event had their qualifications removed until remediation occurred; (2) On January 29, 2015, the licensee issued Standing Order 36, "Tagging Authority Duties," Revision 0, to provide specific guidance that affect equipment operability; (2) On February 10, 2015, the electronic clearance order database was modified to identify the valves in Station Procedure AP 26C-004, "Operability Determination and Functionality Assessment," Section A.16, that can cause entry into Limiting Condition for Operation 3.0.3; (3) On February 19, 2015, Station Procedure AP 21D-003, "Control of Tagging Information," was revised to identify the use of red switch boxes for the valves in AP26C-004 entry into Limiting Condition of Operation 3.0.3. The red switch boxes were placed on the

control room boards in the control room to provide awareness to the operator of the significance of the valve.

b. Findings.

One licensee identified finding was identified and documented in Section 4OA7 of this report.

These activities constitute completion of four event follow-up samples, as defined in Inspection Procedure 71153.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On March 13, 2015, the inspectors presented the radiation safety inspection results to Mr. C. Reasoner, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On March 19, 2015, the inspector conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee's emergency plan to Mr. S. Koenig, Manager, Regulatory Affairs, and other members of the licensee staff. The licensee acknowledged the issues presented.

On March 26, 2015, the inspectors presented the In-Service Inspection team results to Mr. J. McCoy, Vice President, Engineering, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspector had been returned or destroyed.

On April 1, 2015, the inspectors presented the inspection results to Mr. A. Heflin, President and Chief Executive Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a non-cited violation.

Technical Specification Section 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A to Regulatory Guide 1.33, "Quality Assurance Program Requirements," Revision 2, February 1978. Section 1.c of Regulatory Guide 1.33 requires procedures for equipment control (e.g. locking and tagging). Station Procedure AP 21E-001, "Clearance Orders," Revision 37, requires that the shift manager, ensure that plant conditions can support establishing the clearance order boundaries, including activities such as removing equipment from service. Contrary to the above, on January 28, 2015, the licensee failed to ensure that plant conditions could support the clearance order boundaries during preparation and implementation of clearance orders. Specifically, the preparation

and implementation of clearance order EJ-A-005 unintentionally rendered both trains of the residual heat removal system inoperable and necessitated an unplanned entry into Technical Specification 3.0.3 for 2 hours. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating event to prevent undesirable consequences (i.e. core damage). Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Finding At-Power," dated June 19, 2012, inspectors determined a detail risk evaluation was required because this finding represented a loss of system and/or function. Therefore, a senior reactor analyst performed a bounding detailed risk evaluation. The analyst noted that the isolation of valve EJ HV8716A would only affect the reliability of hot leg injection for train B. Hot leg injection is a necessary function to ensure that there will not be unacceptably high concentrations of boric acid in the core region (resulting in precipitation of a solid phase) during the long-term cooling phase following a postulated large-break loss of coolant accident. Consequently, valve alignments affecting hot leg injection are only of concern during large-break loss of coolant accidents. Using the simplified plant analysis risk model, the analyst noted that the frequency of a large-break loss of coolant accident (λ_{LLOCA}) was 2.5×10^{-6} /year. As stated above, the exposure period was two hours or 2.28×10^{-4} years. The analyst then calculated the upper bound risk impact of the performance deficiency to be 5.7×10^{-10} . Therefore, this finding is of very low safety significance (Green).

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

T. Baban, Manager, Systems Engineering
L. Bell, Engineer
P. Black, Human Resources
T. Branam, Design Engineer Electrical
L. Brinkley, Supervisor, Maintenance
A. Broyles, Manager, Information Services
T. Damashek, Simulator Fidelity Coordinator
P. Deblonk, Superintendent, Instrumentation and Control
B. Dorathy, Supervisor, Engineering Program
T. East, Supervisor, Emergency Planning
J. Edwards, Manager, Operations
D. Erbe, Manager, Security
M. Ferrel, Supervisor, Engineer
D. Ferrara, Supervisor, Quality
R. Fincher, Manager, Quality
R. Flannigan, Manager, Nuclear Engineering
J. Fritton, Owner's Representative
L. Fure, Master Technician, Radiation Protection
A. Gilliam, ALARA Technician, Radiation Protection
D. Giefer, Engineer
A. Heflin, President and Chief Executive Officer
R. Hobby, Licensing
R. Jung, Instructor, Fire Protection
J. Knapp, Superintendent, Operations Training
S. Koenig, Manager, Regulatory Affairs
M. Legresley, System Engineer
D. Mand, Manager, Design Engineering
J. McCoy, Vice President Engineering
D. McDougal, Supervisor, Maintenance
C. Medenci, Radiation Protection Supervisor
N. Mingle, System Engineer
W. Muilenburg, Supervisor, Licensing
J. Petty, System Engineer
E. Prather, Principal Engineer
E. Ray, Manager, Training
C. Reasoner, Site Vice President
B. Ryan, Licensed Operator Supervising Instructor
M. Skyles, Manager, Health Physics
S. Smith, Plant Manager
J. Steinert, Work Week Manager
A. Stull, Vice President and Chief Administrative Officer
K. Stuber, Supervisor, Maintenance
D. Sullivan, Manager, Supply Chain Services
J. Suter, Supervising Engineer, Fire Protection
B. Vickery, Manager, Financial Services

D. Vu, PRA Engineer
 S. Wideman, Licensing
 J. Yunk, Manager, Corrective Actions
 A. Yurko, Health Physics Technician

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000482/2015001-01	URI	Question Related to Ultrasonic Examination of Reactor Vessel Flange Stud Hole Threads (1R08)
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Opened and Closed

05000482/2015001-02	NCV	Failure to Assess the Operability of Emergency Diesel Generator B during Emergent Work Activities (1R13)
05000482/2015001-03	NCV	Failure to Complete an Adequate Operability Evaluation for Declaring the Train A Control Room Air Conditioning Unit Operable (1R15.1)
05000482/2015001-04	NCV	Failure to Station Boundary Watch for Opening Auxiliary Building Emergency Exhaust System Boundary Door (1R15.2)

Closed

05000482/2014-003-00	LER	Failure of Safety Injection Accumulator Vent Line Due to Low Stress – High Cycle Fatigue Results in Degraded Reactor Coolant Boundary (4OA3.3)
05000482/2015-001-00	LER	Personnel Error Causes Two Inoperable Residual Heat Removal Trains (4OA3.4)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STS CR-001	Shift Log for Modes 1, 2, & 3	93

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CKL EF-120	Essential Service Water Valve, Breaker, and Switch Lineup	49C
CKL AL-120	Auxiliary Feedwater Normal Lineup	40B
CKL EN-120	Containment Spray System Lineup	15A
CKL BB-121	Reactor Coolant Pump Lineup	17

Drawing

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-12EF01	Piping & Instrument Diagram Essential Service Water	29
M-12EF02	Piping & Instrument Diagram Essential Service Water	36
M-12AL01	P&ID Auxiliary Feedwater	27
M-12EN01	Piping & Instrument Diagram Containment Spray System	13
M-12BB01	Piping & Instrument Diagram Reactor Coolant System	31
M-12BB02	Piping & Instrument Diagram Reactor Coolant System	22

Section 1R06: Flood Protection Measures

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FL-08	Control Building Flooding	2
FL-15	Summary of Flood Levels in All Control Building Rooms Due to Pipe Break or Crack	0
AP 10-104	Breach Authorization	32
OFN SG-003	Natural Events	28

Condition Reports

90484

Section 1R08: Inservice Inspection Activities

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 28A-100	Cause Analysis	8
AP-29A-003	Steam Generator Management	16
I-ENG-023	Steam Generator Data Analysis Guidelines	14
MRS-2.2.4 GEN-35	Eddy Current Inspection of Preservice and Inservice Heat Exchanger Tubing	15
	RF20 Steam Generator Data Analysis Desktop Instruction	A
UT-03	Ultrasonic Examination of Nozzle Inner Radius Areas	25
UT-110	Ultrasonic Examination of Vessel Welds and Adjacent Base Metal > 2.0" in Thickness	3
UT-11	Ultrasonic Examination of Reactor Vessel Flange Stud Hole Threads	13
UT-95	Ultrasonic Examination of Austenitic Piping Welds	8
QCP 20-501	Visible Dye Penetrant Examination	9A
QCP 20-541	VT-3 Visual Examination	2B
QCP 20-540	VT-1 Visual Examination	0C
QCP 20-600	Visual Examination	10
GWS-ASME	ASME General Welding Standard	6
CWD-1	Control Of Welding Documentation	12
AP 12-002	System Cleanliness	10
AP 12-003	Foreign Material Exclusion	15
AP 24E-001	Control Of Material	15
AP 16F-001	Boric Acid Control	7
AP 16G-002	Installation Of Piping	4
AP 29A-003	Steam Generator Management	16
FMC-1	Control Of Weld Filler Material	9

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
WPS-0808T01	GTAW of P-8 Materials	4
WPS-0808C01	GTAW/SMAW Of P-8 Materials	4
WPS 1-0101C01	GTAW/SMAW Of P1 Material and PWHT below the Lower Transformation Temperature	7
WPS 1-0101T01	GTAW Of P1 Material and PWHT below the Lower Transformation Temperature	7
WPS 1-0101S01	SMAW Of P1 Material and PWHT below the Lower Transformation Temperature	7

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
Technical Report No. 11-2039-TR-001	Failure Analysis of Socket Weld on a Vent Valve Assembly from the CVCS	0
Licensee Event Report 2014-003-00	Failure of Safety Injection Accumulator Vent Line due to Low Stress- High Cycle Fatigue Results in Degraded Reactor Coolant Boundary"	
SG-SGMMP-15-01	Wolf Creek RF20 Steam Generator Degradation Assessment	0
WCAP-17886-P	Wolf Creek Model F Steam Generator Channel Head Flaw Evaluation	November 2014
I-ENG-023	Steam Generator Data Analysis Guidelines	14
MRS 2.4.2 GEN-35	Eddy Current Inspection of Preservice and Inservice Heat Exchanger Tubing	15
	RF20 Steam Generator Data Analysis Desktop Instruction	A

Condition Reports (CR)

CR 31763	CR 31766	CR 32254	CR 33055	CR 34723
CR 36401	CR 54544	CR 59067	CR 62946	CR 68393
CR 66669	CR 83072	CR 83074	CR 83131	CR 84159
CR 93570	CR 93563	CR 93586	CR 93622	CR 93628
CR 93664	CR 93697	CR 93762	CR 93798	CR 93935
CR 93980	CR 93994	CR 94139	CR94141	CR 94065
CR 94072	CR 94180			

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
LR4415201	Evaluated CPE	0
STS SF-001	Control and Shutdown Rod Operability Verification	27
STN SF-001	Control Rod Parking	18
GEN 00-005	Minimum Load to Hot Standby	82

Section 1R12: Maintenance Effectiveness

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FL-08	Control Building Flooding	2
FL-15	Summary of Flood Levels in All Control Building Rooms Due to Pipe Break or Crack	0
AP 10-104	Breach Authorization	32
ZZ-94	Watertight Doors	
LF-02	Provides Indication or Alarms of a Potential Flooding Condition in the Containment, RHR Pump Rooms, Control Building, Fuel Building, and Auxiliary Building	

Condition Reports

90151	90153	90154	90879	51622
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Work Orders

12-357855	15-397860	11-349020
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Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 10-103	Fire Protection Impairment Control	29
AP 22C-003	On-Line Nuclear Safety and Generation Risk Assessment	21

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 10-104	Breach Authorization	32
AP 28-001	Operability Evaluations	24
AP 26C-004	Operability Determination and Functionality Assessment	26C
	Engineering Disposition, "AP 10-104 EQ Boundaries"	1
AP 22B-001	Outage Risk Management	18
GEN 00-008	RCS Level Less Than Reactor Vessel Flange Operations	25
GP-006	Containment Closure Verification	

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
CO: D-CW-C003	Circulating Water Screenhouse	January 13, 2015
	Fire Protection Impairment Control Permit	
APF 22C-007-06	On-Line Risk Management Worksheet	Week 105
APF 21-001-02	Night Shift Operations Turnover Form	February 3, 2015
STN FP-209	Fire Pump Performance and Sequential Start Test	26
WK20150106	Activity Schedule	0

Condition Reports

92315 84848

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STS PE-010A	Control Room A/C System Flow Rate Verification A Train	3A
OE GK-12-07	SGK04A/B Control Room Air Conditioning System (CRACS)	0
GK-M-001	Cooling and Heating Load Calculation for Control Room HVAC System Capabilities During Normal Plant Operations and Accident Conditions – (SGK04A/B)	3
GK-M-001	Cooling and Heating Load Calculation for Control Room HVAC System Capabilities During Normal Plant Operation and Accident Conditions – (SGK04A/B)	3 CN001
AP 28-001	Operability Evaluations	24

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 26C-004	Operability Determination and Functionality Assessment	26C
AP 10-104	Breach Authorization	32

Condition Reports

92109 92274 92315 92360

Section 1R18: Plant Modifications

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ALR 00-047E	RWST Level HILO	12
ALR 00-077E	SR HI Volt Fail	12
SYS EC-121	Recirc of the RWST through the Fuel Pool Cleanup System	16A
M-10BN	Borated Refueling Water Storage	1
M-12BN01	Piping and Instrumentation Diagram Borated Refueling Water Storage System	17

Condition Reports

29393 49529

Section 1R19: Post-Maintenance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STN AL-201	Auxiliary Feedwater System Valve Test	4A
STN NB-001B	B Train Breaker Operability and ECCS Pump Recirc	7

Section 1R20: Refueling and Other Outage Activities

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 16F-002	Outage Risk Management	18
AI 22D-005	Outage Implementation	4
AP 14A-003	Scaffold Construction and Use	22

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 22B-001	Outage Risk Management	18
GEN 00-002	Cold Shutdown to Hot Standby	93
GEN 00-003	Hot Standby to Minimum Load	95
GEN 00-004	Power Operation	84
GEN 00-005	Minimum Load to Hot Standby	82
GEN 00-006	Hot Standby to Cold Shutdown	92
GEN 00-008	RCS Level Less Than Reactor Vessel Flange Operations	25
GEN 99-009	Refueling	33

Section 1R22: Surveillance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 29G-001	RCS Unidentified Leak Rate Monitoring Program	5
STS BB-006	RCS Water Inventory Balance Using the NPSI Computer	14
STS BB-201B	Cycle Test of PORV Block Valve BB HV-8000B	3A
STS CR-001	Shift Log for Modes 1, 2, & 3	93
STS EJ-201	Train B RHR System Inservice Valve Test	5
STS EM-201B	Safety Injection System Train B Inservice Valve Test	6
STS KJ-015A	Manual/Auto Fast Start, Sync & Loading of EDG NE01	37

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-12BB01	Piping & Instrumentation Diagram Reactor Coolant System	29
M-12BB02	Piping & Instrumentation Diagram Reactor Coolant System	20
M-12EJ01	Piping and Instrumentation Diagram Residual Heat Removal System	49
M-12EM01	Piping & Instrumentation Diagram High Pressure Coolant Injection System	41

Condition Reports

91647 91648 91831

Work Orders

14-389012

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
	RCS Leakage Summary Report, Wolf Creek Nuclear Generating Plant – NPIS-A	February 13, 2015

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EPP 06-007	Emergency Notifications	22

Section 1EP6: Drill Evaluation

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
LR4415201	Evaluated CPE	000

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 25A-001	Radiation Protection Manual	16
AP 19D-100	Radioactive Source Program	5
AP 25B-200	Radiography Guidelines	14
AP 25B-100	Radiation Work Guidelines	47
AP 25A-200	Access to Locked High or Very High Radiation Areas	27
RPP 02-105	RWP [Radiation Work Permit]	43A
RPP 02-215	Posting of Radiological Controlled Areas	31
RPP 02-605	Control & Inventory of Radiation Sources	17
RPP 02-610	Receipt of Radioactive Material	10

Condition Reports

00083583	00083640	00084857	00090025	00092902
00090156	00090395	00092875	00092884	00092229

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
14-01-RP/PC	QA Audit Report: RP/SRW Process Control Program	April 7, 2014
2015-0736	QA Surveillance: RP Refueling Outage	January 20, 2015
2015-0738	QA Surveillance: RP Department Rebuilding Plans	January 20, 2015 December 26, 2014
2015-0740	QA Surveillance: 4 th Quarter RP	
2014-0816	Quick Hit Assessment: PWR Power Entries	June 17, 2014
2014-0890	Quick Hit Assessment: HP 5-Year Plan	September 26, 2014
2014-0894	Quick Hit Assessment: Protection of Category 1&2 RAM	October 2, 2014

Radiation Work Permits

<u>Number</u>	<u>Title</u>
150048	Radiography Owner-Controlled Area
150120	Radwaste Processing Locked High Radiation Area
152601	Routine Outage Access
153021	Radiography Outage Piping
153220	Primary Side Steam Generator Eddy Current Testing
154200	Secondary Side SG Lance
154420	Scaffolding

Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
WCNOC 1312-0301	HIC Transfer Radwaste Storage Area	December 18, 2013
WCNOC 1408-0058	Low & High Level Radwaste Storage	August 8, 2014
WCNOC 1501-0405	Radwaste & CVCS Flush	January 26, 2015

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
2004-0494	PIR: Radiography Contamination	February 24, 2004
WCEM-07-001	State of Kansas Radioactive Materials License	July 30, 2014

Section 2RS3: In-plant Airborne Radioactivity Control and Mitigation

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 10-001	Fire Brigade Equipment Inventory, Maintenance and Cleaning	11
AI 10-004	Air Fill Station	3B
AP 25B-600	Respiratory Protection Program	8A
RPP 03-205	DAC-Hour Tracking	17
RPP 03-310	Respiratory Protection Equipment	19A
RPP 05-925	HEPA Portable Ventilation Unit Maintenance and Use	7
STN PE-003	HEPA Filter In-Place Leak Test Non-Safety Related Units	10A
STN PE-004	Charcoal Adsorber In-Place Leak Test Non-Safety Related Units	10
STN PE-055	DOP Testing of Portable Ventilation and Vacuum Units	5A
STS PE-005	HEPA Filter In-Place Leak Test Safety Related Units	12
STS PE-006	Charcoal Adsorber In-Place Leak Test Safety Related Units	14

Condition Reports

00041230	00062913	0006928	00069959	00070466
00072535	00078488	00079558	00082317	00092229
00092269	00093075			

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
14-01-RP/PC	QA Audit Report: RP/SRW Process Control Programs	April 7, 2014
ASTMT 2013-0287	Health Physics Benchmark for Survey Frequency of Air Powered Face Shields	September 11, 2013
QS-2013-0579	QA Review of the Radiation Protection Alpha Monitoring Program	September 11, 2013

Portable Ventilation and In-Place Filter Testing

<u>Number</u>	<u>Title</u>	<u>Date</u>
0038616	Radioiodine Penetration / Efficiency Test Report	March 9, 2015
STN PE-003 (TSC FF-1)	HEPA Filter In-Place Leak Test Non-Safety Related Units	February 11, 2015

Portable Ventilation and In-Place Filter Testing

<u>Number</u>	<u>Title</u>	<u>Date</u>
STN PE-004 (TSC FF-1)	Charcoal Adsorber In-Place Leak Test Non-Safety Related Units	February 11, 2015
STN PE-055	DOP Testing of Portable Ventilation and Vacuum Units – Attachment A: Data Sheets	June 3, 2014
STS PE-005 (FGK02B)	HEPA Filter In-Place Leak Test Safety Related Units	February 12, 2015
STS PE-006 (FGK02B)	Charcoal Adsorber In-Place Leak Test Safety Related Units	February 12, 2015

TEDE / ALARA Reviews

<u>RWP Number</u>	<u>Title</u>	<u>Date</u>
140070	TEDE Evaluation Worksheet	November 19, 2013
146061	TEDE Evaluation Worksheet	March 14, 2014
153230	TEDE Evaluation Worksheet	October 31, 2014
154060	ALARA Review Package	September 23, 2014
154213	ALARA Review Package	August 27, 2014

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Air/Gas Quality Report & Certificate CGA E, NFPA 1500 (G-7.1, '13)	February 24, 2015
	SCBA Inspections (Monthly)	December 19, 2013 October 29, 2014 December 3, 2014
GT1245302	Fire Protection Training Lesson Plan for Self Contained Breathing Apparatus (Rev. 013)	February 23, 2013
GT1245302	Training Records for Self Contained Breathing Apparatus (Rev. 013)	February 16, 2015
RPF 02-210-3	Air Sample Log – DAC value >.2 Report run for 01/01/2014 – 03/12/2015	March 12, 2015

Section 40A2: Problem Identification and Resolution

Condition Reports

29393	49529
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Section 40A3: Follow-up of Events and Notices of Enforcement Discretion

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>	<u>Date</u>
AP 26C-004	Operability Determination and Functionality Assessment	30	

Condition Reports

91331	91341	83072	83074	87667
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**The following items are requested for the
Occupational Radiation Safety Inspection
at Wolf Creek
March 9 thru 13, 2015
Integrated Report 2015001**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before February 19, 2015.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc.

If information is placed on *ims.certrec.com*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedure is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact John O'Donnell at (817) 200-1441 or john.odonnell@nrc.gov.

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

Radiological Hazard Assessment and Exposure Controls (71124.01) and Performance Indicator Verification (71151)

Date of Last Inspection: **March 17, 2014**

- A. List of contacts and telephone numbers for the Radiation Protection Organization Staff and Technicians
 - B. Applicable organization charts
 - C. Audits, self-assessments, and LERs written since date of last inspection, related to this inspection area
 - D. Procedure indexes for the radiation protection procedures
 - E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
 - 1. Radiation Protection Program Description
 - 2. Radiation Protection Conduct of Operations
 - 3. Personnel Dosimetry Program
 - 4. Posting of Radiological Areas
 - 5. High Radiation Area Controls
 - 6. RCA Access Controls and Radworker Instructions
 - 7. Conduct of Radiological Surveys
 - 8. Radioactive Source Inventory and Control
 - 9. Declared Pregnant Worker Program
 - F. List of corrective action documents (including corporate and sub-tiered systems) since date of last inspection
 - a. Initiated by the radiation protection organization
 - b. Assigned to the radiation protection organization
- NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are “searchable” so that the inspector can perform word searches.
- If not covered above, a summary of corrective action documents since date of last inspection involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with IP 71151)
- G. List of radiologically significant work activities scheduled to be conducted during the inspection period (If the inspection is scheduled during an outage, please also include a list of work activities greater than 1 rem, scheduled during the outage with the dose estimate for the work activity.)
 - H. List of active radiation work permits
 - I. Radioactive source inventory list
 - a. All radioactive sources that are required to be leak tested
 - b. All radioactive sources that meet the 10 CFR Part 20, Appendix E, Category 2 and above threshold. Please indicate the radioisotope, initial and current activity (w/assay date), and storage location for each applicable source.

- J. The last two leak test results for the radioactive sources inventoried and required to be leak tested. If applicable, specifically provide a list of all radioactive source(s) that have failed its leak test within the last two years
- K. A current listing of any non-fuel items stored within your pools, and if available, their appropriate dose rates (Contact / @ 30cm)
- L. Computer printout of radiological controlled area entries greater than 100 millirems since the previous inspection to the current inspection entrance date. The printout should include the date of entry, some form of worker identification, the radiation work permit used by the worker, dose accrued by the worker, and the electronic dosimeter dose alarm setpoint used during the entry (for Occupational Radiation Safety Performance Indicator verification in accordance with IP 71151).

3. In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

Date of Last Inspection: **February 4, 2013**

- A. List of contacts and telephone numbers for the following areas:
 - 1. Respiratory Protection Program
 - 2. Self-contained breathing apparatus
- B. Applicable organization charts
- C. Copies of audits, self-assessments, vendor or NUPIC audits for contractor support (SCBA), and LERs, written since date of last inspection related to:
 - 1. Installed air filtration systems
 - 2. Self-contained breathing apparatuses
- D. Procedure index for:
 - 1. Use and operation of continuous air monitors
 - 2. Use and operation of temporary air filtration units
 - 3. Respiratory protection
- E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
 - 1. Respiratory protection program
 - 2. Use of self-contained breathing apparatuses
 - 3. Air quality testing for SCBAs
 - 4. Use of installed plant systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation
- F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, related to the Airborne Monitoring program including:
 - 1. Continuous air monitors
 - 2. Self-contained breathing apparatuses
 - 3. Respiratory protection program

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspector can perform word searches.
- G. List of SCBA qualified personnel - reactor operators and emergency response personnel
- H. Inspection records for self-contained breathing apparatuses (SCBAs) staged in the plant for use since date of last inspection.
- I. SCBA training and qualification records for control room operators, shift supervisors, STAs, and OSC personnel for the last year.

A selection of personnel may be asked to demonstrate proficiency in donning, doffing, and performance of functionality check for respiratory devices
- J. List of respirators (available for use) by type (APR, SCBA, PAPR, etc.), manufacturer, and model.