



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

August 9, 2021

EA-21-037

Mr. Cleve Reasoner, Chief Executive Officer  
and Chief Nuclear Officer  
Wolf Creek Nuclear Operating Corp.  
P.O. Box 411  
Burlington, KS 66839

**SUBJECT: WOLF CREEK GENERATING STATION – INTEGRATED INSPECTION  
REPORT 05000482/2021002**

Dear Mr. Reasoner:

On June 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Wolf Creek Generating Station. On July 8, 2021, the NRC inspectors discussed the results of this inspection with Mr. J. McCoy, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. Additionally, one Severity Level IV violation without an associated finding is documented in this report (EA-21-037). We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, 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; and the NRC Resident Inspector at Wolf Creek Generating Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

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

Docket No. 05000482  
License No. NPF-42

Enclosure:  
As stated

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WOLF CREEK GENERATING STATION – INTEGRATED INSPECTION  
REPORT 05000482/2021002 DATED - August 9, 2021

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Number: 05000482

License Number: NPF-42

Report Number: 05000482/2021002

Enterprise Identifier: I-2021-002-0037

Licensee: Wolf Creek Nuclear Operating Corp.

Facility: Wolf Creek Generating Station

Location: Burlington, KS

Inspection Dates: April 1, 2021 to June 30, 2021

Inspectors: C. Henderson, Senior Resident Inspector  
J. Vera, Resident Inspector  
R. Alexander, Senior Emergency Preparedness Inspector  
D. Antonangeli, Health Physicist  
J. Drake, Senior Reactor Inspector  
N. Greene, Senior Health Physicist  
J. Melfi, Project Engineer  
D. Proulx, Senior Project Engineer

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

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting an integrated inspection at Wolf Creek Generating Station, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC’s program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

### List of Findings and Violations

Failure to Perform Required Inservice Testing of Residual Heat Removal Heat Exchanger Pneumatically (Air) Operated Outlet and Bypass Valves			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000482/2021002-01 Open/Closed	None (NPP)	71111.22
The inspectors identified a Green finding and associated non-cited violation of Technical Specification 5.5.8, “Inservice Testing Program,” for the failure to perform the required inservice testing in accordance with the American Society of Mechanical Engineers Operation and Maintenance of Nuclear Power Plants Code for trains A and B residual heat removal heat exchanger air operated outlet and bypass valves. Specifically, the licensee failed to perform required testing of the four valves due to incorrectly classifying them as passive valves.			
Failure to Maintain Quality Records Complete and Accurate in All Material Respects			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000482/2021002-02 Open/Closed EA-21-037	Not Applicable	71152
The inspectors identified a Severity Level IV non-cited violation of Title 10 of the <i>Code of Federal Regulations</i> , 50.9(a), for the licensee’s failure to ensure information required by the Commission’s regulations, orders, or license conditions was maintained complete and accurate in all material respects. Specifically, the licensee failed to maintain complete and accurate information when documenting the completion of Procedure SYS EJ-110A, “A Residual Heat Removal Train Fill and Vent,” Revision 3A.			

### Additional Tracking Items

None.

## PLANT STATUS

Wolf Creek Generating Station began the inspection period shutdown for Refueling Outage 24, which started on March 25, 2021. On May 12, 2021, the unit commenced reactor startup, the reactor was made critical, and an automatic reactor trip occurred due to low water level in steam generator C. This condition was caused by feedwater flow oscillations with the new steam generator water level control system in automatic. On May 14, 2021, the unit commenced reactor startup, and the reactor was made critical. The unit was returned to full power on May 19, 2021. On June 5, 2021, the unit was shut down to begin Forced Outage 25-01 to repair a main generator stator water cooling leak. On June 11, 2021, the unit commence reactor startup, and the reactor was made critical. The unit was returned to full power on June 13, 2021, where it remained for the rest of the reporting period

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), resident and regional inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week, increasing the amount of time on site as local COVID-19 conditions permitted. As part of their onsite activities, resident inspectors conducted plant status activities as described in IMC 2515, Appendix D; observed risk-significant activities; and completed onsite portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and onsite. The inspections documented below met the objectives and requirements for completion of the IP.

## REACTOR SAFETY

### 71111.01 - Adverse Weather Protection

#### External Flooding Sample (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated that flood protection barriers, mitigation plans, procedures, and equipment are consistent with the licensee's design requirements and risk analysis assumptions for coping with external flooding on June 9, 2021.
  - Essential service water pump house roof leak

#### 71111.04 - Equipment Alignment

##### Partial Walkdown Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Train B engineering safety feature switchgear (NB02) offsite power alignment during transformer XNB02 replacement on April 5, 2021
- (2) Alternate spent fuel pool cooling on April 13, 2021
- (3) Train A shutdown cooling on April 27, 2021
- (4) Condensate system valve lineup after water hammer on May 8, 2021

#### 71111.05 - Fire Protection

##### Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Trains A and B residual heat removal heat exchanger room, fire areas A-9, A-10, on May 28, 2021
- (2) Residual heat removal pump room A, fire area A-2, on May 28, 2021
- (3) Residual heat removal pump room B, fire area A-4, on June 2, 2021
- (4) South piping penetration room B, fire area A-25, on June 2, 2021

#### 71111.08P - Inservice Inspection Activities (PWR)

##### PWR Inservice Inspection Activities Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors verified that the reactor coolant system boundary, steam generator tubes, reactor vessel internals, risk-significant piping system boundaries, and containment boundary are appropriately monitored for degradation and that repairs and replacements were appropriately fabricated, examined and accepted by reviewing the following activities from March 22–May 4, 2021:

###### 03.01.a - Nondestructive Examination and Welding Activities.

1. Ultrasonic Examination
  - a. Auxiliary Turbines, FC-01-S021-C 4" Pipe To 4" Elbow
  - b. Main Steam, AB-01-S018-L 6" Outlet on MS Header to 6" flange
  - c. Main Steam, AB-01-S046-L 6" Outlet on MS Header to 6" flange
  - d. Main Steam, AB-01-S049-D / 10" Elbow to 10" x 8" reducer
  - e. Main Steam, AB-01-S020-B / 10" Pipe to 10" Elbow
  - f. Main Steam, AB-01-F028-A / 28" Pipe to Torsional Restraint
  - g. Main Steam, AB-01-F026 / 28" Main Steam Header to Flued Head (P-3)
2. Dye Penetrant Examination
  - a. Control Rod Drive Mechanism (CRDM) Nozzle 42 J Groove Weld

3. Visual Examination
  - a. Reactor Coolant System, BB-02-H001, Piping Support
  - b. Containment Cooling, M-620-003-10, Piping Support
  - c. Containment Cooling, M-620-003-10, Piping Integral Attachment
  - d. Containment Cooling, M-620-003-9, Piping Support
  - e. Main Steam, AE-04-C002, Piping Support

The weld package for the following welds was reviewed:

- Essential Service Water Welds FW-1, FW-2, FW-3, FW-4, FW-5

#### 03.01.b - Pressurized-Water Reactor Vessel Upper Head Penetration Examination Activities.

1. The inspector reviewed the reactor vessel head inspection report. The inspection covered 78 RVCH penetrations and the RVCH Vent line penetration.
  - a. Ultrasonic examination techniques were used for the 78 CRDM penetrations.
  - b. The Eddy Current examination method was used for the vent line penetration.
  - c. The bore and shell side of the vent line was examined using two Eddy Current testing techniques to satisfy the requirement of N-729-6 as modified by 10 CFR 50.55(a).
2. RVCH, CRDM Nozzle 42 J Groove Weld had a relevant indication that was determined to not be surface connected by dye penetrant examination. The inspectors reviewed the licensee's evaluation per ASME Code requirements which determined that the indication was acceptable for continued service.

#### 03.01.c – Pressurized-Water Reactor Boric Acid Corrosion Control Activities.

The inspector reviewed the following boric acid evaluations and associated condition reports:

- 00138275, 00141260, 00141261, 00141262, 00141894, 00143090, 00143408, 10000076

#### 03.01.d – Pressurized-Water Reactor Steam Generator (SG) Tube Examination Activities.

The inspector reviewed the report for the primary side inspection which consisted of the following:

- Bobbin probe examination of 100 percent of the tubes in all four SGs
- Full length except for Rows 1 and 2, which were inspected with the bobbin from tube end to tube support plate (TSP) #7 on both Hot Leg and Cold Leg
- Sludge height mapping in all four SGs
- All prior indications with Percent Through Wall evaluations located at Anti Vibration Bars and baffle plates in each SG
- X-PROBE examination of 100 percent of the hot leg Top of Tube Sheet +3 inches/-15.21 inches of tubes in all four SGs



- 100 percent hot leg bulges/over-expansions within Top of Tube Sheet -15.21 inches (H\* region) in all four SGs
- Additional examinations with Rotating Pancake/+POINT Probes were completed as follows:
  - examinations of 50 percent of Row 1 and Row 2 U-bends
  - mid-range +POINT probe examination
  - +POINT probe examination of dents and dings in each SG
- Visual inspections of all plugs, including factory installed plugs, or their replacements from the primary side
- Visual inspection of primary channel head cladding, divider plate, stub runner and associated welds

Problem Identification and Resolution review of Inservice items

The inspector evaluated a sample of 31 condition reports associated with inservice inspection activities. No findings or violations of more than minor significance were identified.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during Cycle 25 reactor startup and low power physics testing, on May 12, 2021.

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (2 Samples)

- (1) The inspectors observed and evaluated just-in-time training for reactor startup from Refueling Outage 24 on May 3, 2021.
- (2) The inspectors observed and evaluated just-in-time training for reactor startup following the May 12, 2021 reactor trip on May 13, 2021.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) Containment isolation fire protection check valve repeat local leak rate testing failures on June 7, 2021
- (2) Residual heat removal system maintenance effectiveness review on June 30, 2021

### 71111.13 - Maintenance Risk Assessments and Emergent Work Control

#### Risk Assessment and Management Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Train B engineering safety features transformer (XNB02) planned replacement on April 5, 2021
- (2) Defueled window plant risk assessment with reactor core offloaded to spent fuel pool, on April 26, 2021
- (3) Train B containment spray room watertight door emergent work activities on June 9, 2021
- (4) Train A essential service water and emergency diesel generator planned maintenance activities, on June 23, 2021
- (5) Train B engineering safety transformer planned activity to shift load tap changer to automatic, on June 24, 2021

### 71111.15 - Operability Determinations and Functionality Assessments

#### Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Emergency diesel generator A valve cover housing locating hole/casting broken off past operability determination, on May 11, 2021
- (2) Non-safety service water supporting operability of residual heat removal and component cooling water in Mode 5 and 6 operability determination, on May 13, 2021
- (3) Emergency diesel generator when in parallel with offsite operability determination on June 15, 2021
- (4) Train A engineered safety switchgear room 1 missile door past operability determination on June 24, 2021
- (5) Containment aluminum limit exceeded operability determination on June 30, 2021

### 71111.18 - Plant Modifications

#### Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Train B engineering safety features transformer (XNB02) replacement on April 19, 2021
- (2) Pressurizer power operated relief valve block valve A wiring modification on May 17, 2021

### 71111.19 - Post-Maintenance Testing

#### Post-Maintenance Test Sample (IP Section 03.01) (9 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) Train A emergency diesel generator maintenance window, on April 20, 2021
- (2) Train A residual heat removal maintenance activities on April 21, 2021
- (3) As-left local leak rate test for reactor coolant pump seal water return containment isolation penetration 24 valve BGHV8112 following maintenance activities, on April 21, 2021
- (4) Essential service water orifice and pipe replacement, on April 28, 2021
- (5) Train B emergency diesel generator maintenance window, on May 3, 2021
- (6) Train B engineering safety feature transformer (XNB02) replacement, on May 4, 2021
- (7) Train B residual heat removal maintenance activities on May 8, 2021
- (8) 7300 ovation digital control upgrade, on May 15, 2021
- (9) Containment coating and liner repair post maintenance testing, on June 4, 2021

### 71111.20 - Refueling and Other Outage Activities

#### Refueling/Other Outage Sample (IP Section 03.01) (2 Samples)

- (1) The inspectors evaluated Refueling Outage 24 activities from March 25–May 15, 2021.
- (2) The inspectors evaluated Forced Outage 25-01 activities from June 5–12, 2021.

### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

#### Surveillance Tests (other) (IP Section 03.01) (3 Samples)

- (1) Train A essential service water post loss-of-coolant accident flow balance, on May 4, 2021
- (2) Train B integrated diesel generator and safeguards actuation test, on May 18, 2021
- (3) Train A and B Engineering safety feature 4160 volt bus undervoltage and degraded voltage surveillance testing, on June 10, 2021

#### Inservice Testing (IP Section 03.01) (1 Sample)

- (1) Trains A and B residual heat removal temperature control valves and heat exchanger bypass valves, on May 14, 2021

#### Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

- (1) Fire protection to containment check valve KCV0478, on May 18, 2021

#### 71114.04 - Emergency Action Level and Emergency Plan Changes

##### Inspection Review (IP Section 02.01-02.03) (1 Sample)

- (1) The inspectors evaluated the following Emergency Action Level and/or Emergency Plan changes, of which summaries of the changes were submitted to the NRC on April 8, 2021 (ADAMS Accession No. ML21098A054):
  - AP 06-002, Wolf Creek Radiological Emergency Response Plan, Revision 21A (effective 3/11/2021)
  - EPP 06-012, Dose Assessment, Revision 17A (effective 3/11/2021)

This evaluation does not constitute NRC approval.

#### 71114.06 - Drill Evaluation

##### Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

The inspectors evaluated:

- (1) Emergency preparedness drill involving a complete loss of core exit thermocouple indication, loss of control room indications, and loss-of-coolant accident on June 15, 2021

### **RADIATION SAFETY**

#### 71124.01 - Radiological Hazard Assessment and Exposure Controls

##### Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated how the licensee identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how the licensee assesses radiological hazards.

##### Instructions to Workers (IP Section 03.02) (1 Sample)

The inspectors evaluated instructions to workers including radiation work permits used to access high radiation areas.

- (1) The inspectors evaluated licensee radiological protection related instructions to plant workers.

##### Contamination and Radioactive Material Control (IP Section 03.03) (2 Samples)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material.

- (1) Observed licensee surveys of potentially contaminated material leaving the Radiologically Controlled Area (RCA).
- (2) Observed workers exiting the RCA during Refueling Outage 24.

### Radiological Hazards Control and Work Coverage (IP Section 03.04) (3 Samples)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities.

- (1) Electric Discharge Machining work under the reactor head on Radiation Work Permits (RWP) 213057. This work had Alpha Level II, High Contamination, and Locked High Radiation Area controls.
- (2) Peening work under the reactor head on RWP 213057. This work had Alpha Level II, High Contamination, and Locked High Radiation Area controls.
- (3) Fuel offload and movement under RWP 216060. This work involved the movement of highly irradiated fuel within the pools and work in contaminated areas.

### High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (3 Samples)

The inspectors evaluated licensee controls of the following High Radiation Areas and Very High Radiation Areas:

- (1) 2000' Containment Bio-Shield Incore Tunnel Access
- (2) 2000' Radwaste High Level Storage - Room 7235
- (3) 2000' Radwaste Low Level Storage - Room 7225

### Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

- (1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements.

### 71124.02 - Occupational ALARA Planning and Controls

#### Implementation of ALARA and Radiological Work Controls (IP Section 03.03) (4 Samples)

The inspectors reviewed as low as reasonably achievable practices and radiological work controls. The inspectors reviewed the following activities:

- (1) RWP 211000, "RP Rover Coverage RF24," Orange Risk, radiological protection outage activities inside the RCA, when the plant is de-fueled
- (2) RWP 213057, "Under Rx Head Entries," Red Risk, under reactor head entries for electrical discharge machining (EDM) and peening activities
- (3) RWP 216000, "Lower Refueling Cavity Pre & Post Flooding Maintenance Activities," Orange Risk, general maintenance activities in the containment building and lower/upper levels of the reactor cavity
- (4) RWP 216060, "Refueling Team Activities," Yellow Risk, fuel movement and related support activities

Radiation Worker Performance (IP Section 03.04) (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance during:

- (1)
  - Reactor vessel under-head work to decontaminate equipment and conduct EDM activities within a High Contamination Area, using multipack dosimetry and respirators
  - Fuel movement using the crane and bridge to move fuel assemblies
  - Shipment activities for an LSA-II, dry active waste, radioactive material shipment, 21R10, being prepared for transport to Energy Solutions
  - General worker activity within containment on multiple tasks in both Radiation Area and High Radiation Area zones

71124.08 - Radioactive Solid Waste Processing & Radioactive Material Handling, Storage, & Transportation

Shipment Preparation (IP Section 03.04) (1 Sample)

- (1) The inspectors observed that a shipment containing radioactive material was prepared according to requirements.
  - Shipment 21R10, a dry active waste shipment being prepared for transport to Energy Solutions, April 6, 2021

Shipping Records (IP Section 03.05) (1 Sample)

The inspectors evaluated the following non-excepted radioactive material shipments through a record review:

- (1) Shipment 21R10, UN3321, Radioactive Material, Low Specific Activity (LSA-II), 7 - Two metal boxes of dry active waste, April 6, 2021

**OTHER ACTIVITIES – BASELINE**

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS07: High Pressure Injection Systems (IP Section 03.06) (1 Sample)

- (1) April 1, 2020, through March 31, 2021

MS10: Cooling Water Support Systems (IP Section 03.09) (1 Sample)

- (1) April 1, 2020, through March 31, 2021

BI01: Reactor Coolant System (RCS) Specific Activity Sample (IP Section 03.10) (1 Sample)

- (1) April 1, 2020, through March 31, 2021

BI02: RCS Leak Rate Sample (IP Section 03.11) (1 Sample)

- (1) April 1, 2020, through March 31, 2021

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 03.15) (1 Sample)

- (1) December 31, 2019, through March 31, 2021

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual  
Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample  
(IP Section 03.16) (1 Sample)

- (1) December 31, 2019, through March 31, 2021

71152 - Problem Identification and Resolution

Semiannual Trend Review (IP Section 02.02) (1 Sample)

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends in operator and nuclear professional fundamentals that might be indicative of a more significant safety issue on June 23, 2021.

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) Residual heat removal drain line valve misposition corrective actions and extent of condition review on June 24, 2021

71153 – Follow-up of Events and Notices of Enforcement Discretion

Event Follow-up (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated a reactor trip due to steam generator oscillation in automatic control and the licensee's response on May 12, 2021.

**INSPECTION RESULTS**

Failure to Perform Required Inservice Testing of Residual Heat Removal Heat Exchanger Pneumatically (Air) Operated Outlet and Bypass Valves			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000482/2021002-01 Open/Closed	None (NPP)	71111.22
The inspectors identified a Green finding and associated non-cited violation of Technical Specification 5.5.8, "Inservice Testing Program," for the failure to perform the required inservice testing in accordance with the American Society of Mechanical Engineers Operation and Maintenance of Nuclear Power Plants (ASME OM) Code for trains A and B residual heat			

removal (RHR) heat exchanger air operated outlet and bypass valves. Specifically, the licensee failed to perform required inservice surveillance testing of the four pneumatically (air) operated valves due to incorrectly classifying them as passive valves.

Description: As part of a surveillance testing sample, the inspectors questioned why several RHR system valves were being excluded from certain inservice testing. The inspectors reviewed the licensee's licensing and design basis, Procedure GEN 00-006, "Hot Standby to Cold Shutdown," Revision 104; Basis Document WCRE-34, "Fourth 10-Year Interval Inservice Testing Basis Document," Revision 11; and the ASME OM Code to determine the inservice testing requirements for the trains A and B RHR heat exchanger air operated outlet (EJHCV0606 and EJHCV0607) and bypass (EJHCV0606 and EJHCV0607) valves. From this review the inspectors identified the following:

- Technical Specification (TS) and Bases 3.5.3, "Emergency Core Cooling Systems (ECCS) – Shutdown," requires one train of ECCS shall be operable in Mode 4. This includes a note stating a RHR subsystem may be considered operable during alignment and operation for decay heat removal if the system is capable of being manually realigned to the ECCS mode of operation. This allowance for manual realignment is to respond to a limited design basis loss-of-coolant accident (LOCA).
- ASME OM Code requirements and definitions:
  - Active valves: Valves that are required to change position to accomplish a specific function in shutting down a reactor to the safe shutdown condition, maintaining the safe shutdown condition, or mitigating the consequences of an accident.
  - Passive valves: Valves that maintain position and are not required to change position to accomplish the required function(s) in shutting down a reactor to the safe shutdown condition, maintaining the safe shutdown condition, or mitigating the consequences of an accident.
  - Section ISTC-5132 required, in part, that active pneumatically operated active valves shall have strokes times measured when exercised on a quarterly basis in accordance with Section ISTC-3500.
- WCRE-34 states that valves EJHCV0606, EJHCV0607, EJFCV0618, and EJFCV0619 are ASME Code Class 2 components that were classified by the licensee as passive valves because the valves are not required to change position to perform their safety function in the event of a LOCA. Specifically, EJHCV0606 and EJHCV0607 are required to be open during a LOCA and are normally open, and EJFCV0618 and EJFCV0619 are required to be closed during LOCA and are normally closed. Additionally, the valves are required during normal RHR operation to control reactor coolant system (RCS) cool down rate and this function was not required for safe shutdown or accident mitigation. Therefore, the licensee concluded the only ASME OM Code inservice testing that was required was position indication test.
- During a normal plant cool down, Procedure GEN 00-006 places the first train of RHR into shutdown cooling mode of operation when RCS temperature is less than 350 degrees Fahrenheit and places the second train of RHR into shutdown cooling mode of operation when RCS temperature is less than 225 degrees Fahrenheit.



- This repositions valves EJHCV0606, EJHCV0607, EJFCV0618, and EJFCV0619 out of their accident positions.

The inspectors noted that because the four valves in question would have to be repositioned manually to their accident positions in the event of a LOCA in MODE 4, the valves should have been classified as active valves in accordance with ASME OM Code, contrary to the WCRE-34 classification.

Based on the information above, the inspectors determined the licensee failed to correctly classify trains A and B RHR heat exchanger air operated outlet and bypass valves as active valves and perform required inservice surveillance testing in accordance with the ASME OM Code. The inspectors questioned the classification and testing requirements of RHR heat exchange air operated outlet and bypass in accordance with WCRE-34. In response, the licensee initiated Condition Report 10004589 and concluded they failed to classify trains A and B RHR heat exchanger air operated outlet and bypass valves as active valves and perform required inservice surveillance testing in accordance with the ASME OM Code.

Corrective Actions: The licensee reclassified the trains A and B RHR heat exchanger air operated outlet and bypass valves as active valves and placed trains A and B RHR heat exchanger and bypass air operated valves into the inservice testing program in accordance with the ASME OM Code.

Corrective Action References: Condition Report 10004589

Performance Assessment:

Performance Deficiency: The licensee's failure to perform required inservice surveillance testing for trains A and B RHR heat exchanger air operated outlet and bypass valves in accordance with the ASME OM Code was a performance deficiency. The failure to test the valves in accordance with the ASME OM Code was due to the licensee failing to classify them as active valves.

Screening: The inspectors determined the performance deficiency was more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern because degraded valve performance could go undetected without periodic testing and trending in accordance with the ASME OM Code. This finding was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone

Significance: The inspectors assessed the significance of the finding using Appendix G, "Shutdown Safety SDP" because the valves were only out of their accident positions when the plant was shut down and meeting the entry conditions for RHR to be in operation. The finding: (1) was not a design or qualification deficiency, (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, (4) did not represent loss of one or more non-TS trains of equipment during shutdown designated as risk-significant for greater than 4 hours, (5) did not degrade RCS level indication and/or core exit thermal couples, (6) did not involve an open cold leg penetration, and (7) did not involve a seismic, flooding, internal fire, or severe weather initiating event. Specifically, the valves in question had never been incapable of being manually repositioned during shutdown conditions. As a result, the Appendix G revision dated 03/01/2020, directed the inspectors to go to IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria."

A senior reactor analyst was requested to review the characterization of this finding. In consultation with the Office of Nuclear Reactor Regulation lead for Appendix G, and utilizing previous revisions of Appendix G, the analyst determined that an administrative error had been incorporated into the 03/01/2020 revision. Inspectors should have been directed to screen out this finding and only been directed to Appendix M if the finding was related to external event initiators. Therefore, the analyst determined that this finding was of very low safety significance (Green), because the subject valves were always capable of performing their risk-significant function.

Cross-Cutting Aspect: Not Present Performance. No cross-cutting aspect was assigned to the finding because the inspectors determined the finding did not reflect present licensee performance because the mis-classification had occurred in 2004.

Enforcement:

Violation: Technical Specification 5.5.8, "Inservice Testing Program," requires inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include testing frequencies applicable to the ASME OM Code and applicable Addenda. The Wolf Creek testing basis document was developed to meet the requirements of ASME OM Code 2004 edition with Addenda through OMB-2006, for all valve inservice testing. Section ISTC-5132 required, in part, active pneumatically operated active valves shall have strokes times measured when exercised in accordance with Section ISTC-3500.

Contrary to the above, since 2004, the licensee failed to test four active pneumatically operated ASME OM Code Class 2 valves in accordance with the ASME OM Code Section ISTC-5132. Specifically, the licensee failed to measure strokes times for trains A and B RHR heat exchanger outlet and bypass valves in accordance with Section ISTC-5132.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

**Failure to Maintain Quality Records Complete and Accurate in All Material Respects**

Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000482/2021002-02 Open/Closed EA-21-037	Not Applicable	71152

The inspectors identified a Severity Level IV non-cited violation of Title 10 of the *Code of Federal Regulations*, 50.9(a) (10 CFR 50.9(a)), for the licensee's failure to maintain information required by the Commission's regulations, orders, or license conditions complete and accurate in all material respects. Specifically, the licensee failed to maintain complete and accurate information when documenting the completion of Procedure SYS EJ-110A, "A Residual Heat Removal (RHR) Train Fill and Vent," Revision 3A.

Description: On November 8, 2019, inspectors performed a system alignment walkdown of train A RHR and identified that valve EJV-0244, RHR A to accumulator injection vent isolation valve, was not in the required position of closed in accordance with Procedure CKL EJ-120, "RHR System Lineup," Revision 46. The inspectors informed control room operators of the mispositioned valve.

Upon further investigation, the licensee determined that operators failed to restore valve EJV-0244 to its required closed position when performing Procedure SYS EJ-110A on October 15, 2019. However, the non-licensed operators assigned as initial positioner and independent verifier each initialed in the official copy of the procedure to indicate that they had performed their specified actions, documenting that valve EJV-0244 was in the closed position in Procedure SYS EJ-110A. When completed, this became a quality record in accordance with Procedure AP 15A-003, step 4.12.1, because the procedure furnished documentary evidence of an activity affecting quality as described in 10 CFR Part 50, Appendix B.

The inspectors interviewed both operators and were told that since their part of the procedure was performed in a contaminated high radiation area, the normal requirement to perform a peer check on each component was waived by the control room and that they had decided to alternate who acted as positioner and who acted as independent verifier. However, the inspectors noted that the documented completed procedure only showed the initials of one performer and one independent verifier performing their assigned functions, and that all valves had been verified in the correct as-left position.

Based on these discrepancies, the NRC entered its process to determine if there was willfulness associated with the mispositioning of EJV-0244 and the documentation of it in the closed position. On June 24, 2021, the NRC completed its review of the mispositioning of valve EJV-0244 and decided that the mispositioning of the valve was not the result of willful actions because the licensee had not established and enforced clear standards for performing valve lineups in contaminated high radiation areas and both operators believed the way they performed the procedure was an acceptable practice. However, the NRC concluded that both operators caused the licensee to be in violation of 10 CFR 50.9(a) because their initials in Procedure SYS EJ-110A had caused this quality record to be incomplete and inaccurate in material respects in that the record did not reflect the actions each person took and the record showed the operators had closed a valve when they had failed to close it.

**Corrective Actions:** The licensee immediately closed the valve when informed by the inspectors, issued a required reading in the control room, and issued a "Human Performance Flash" for the entire station to discuss this issue. The licensee also performed a valve position verification on the rest of the system to determine the extent of condition.

**Corrective Action References:** Condition Report 138420

**Performance Assessment:** The inspectors determined this violation was associated with a minor performance deficiency. Specifically, the operators failed to follow procedure SYS EJ-110A which resulted in a valve being out of position. The safety significance of having one of two vent valves in the same vent line in the incorrect (open) position was minor.

**Enforcement:** The ROP's significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC's ability to regulate using traditional enforcement to adequately deter non-compliance.

**Violation:** Title 10 CFR 50.9(a) requires, in part, that information required by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects.

Title 10 CFR Part 50, Appendix B, Criterion XVII, "Quality Assurance Records," requires, in

part, that sufficient records shall be maintained to furnish evidence of activities affecting quality.

Procedure AP 15A-003, "Records," Revision 15, a quality related procedure, Step 4.12.1 defined, in part, that quality records include those which furnish documentary evidence of activities affecting quality. A document shall be considered a quality record when it has been completed, authenticated, and has had the review required by the procedure governing that document.

Contrary to the above, on October 15, 2019, the licensee failed to maintain information required by the Commission's regulations to be complete and accurate in all material respects. Specifically, the licensee failed to maintain complete and accurate information concerning the position of valve EJ-0244 and the actions of each non-licensed operator when documenting the completion of Procedure SYS EJ-110A, "A RHR Train Fill and Vent," Revision 3A, which is a quality record in accordance with the licensee's Procedure AP 15A-003, "Records," Revision 15.

Severity: The inspectors determined the significance of this violation was a Severity Level IV violation using Section 6.9 of the NRC's Enforcement Policy. The determination involved considerations of the potential for willfulness, the impact to the NRC's ability to perform its regulatory oversight functions, and the potential for safety consequences as a result of the valve being out of position, as well as an examination of the applicable corrective actions which were being implemented at the time as a result of a Confirmatory Order related to a previous violation which involved inaccurate information. Section 6.9.c.1 of the Enforcement Policy states that a Severity Level III violation involves inaccurate or incomplete information being provided or maintained and which, if accurately provided or maintained, would likely have caused the NRC to reconsider a regulatory position or undertake a substantial further inquiry. The violation did not reach this level of impact, resulting in a determination of Severity Level IV.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Observation: Semi-Annual Trend Review

71152

The inspectors reviewed the licensee's corrective action program, performance indicators, system health reports, and other documentation available to help identify performance trends that might indicate the existence of a more significant safety issue. The inspectors verified that the licensee was taking corrective actions to address the identified adverse trends. The inspectors did not review any cross-cutting themes because none existed at the site.

To verify the licensee was taking corrective actions to address identified adverse trends that might indicate the existence of a more significant safety issue, the inspectors noted an apparent negative trend in nuclear fundamentals that resulted in human performance errors and reviewed the corrective action program documentation from January to June 2021. Selected examples of these events that illustrate the performance included:

- Condition Report (CR) 10001954: During an emergency plan drill, the full extent of the scenario was not communicated during emergency response organization turnover which resulted in complications later in the drill.

- This was evaluated as a minor issue because it was identified by the licensee during emergency plan drill critiques.
- CR 10001955: During an emergency plan drill, the protective action recommendation performed by the emergency offsite facility was not communicated to the technical support center radiation coordinator. This was evaluated as a minor issue because it was identified by the licensee during emergency plan drill critiques.
- CR 10001964: During an emergency plan drill, the licensed operators in the simulator misdiagnosed a steam line break in containment as a loss-of-coolant accident. This resulted in declaring the incorrect emergency action level during the drill. Specifically, ineffective teamwork regarding sharing of plant information and failure to validate plant condition resulted in the misclassification. This was evaluated as a minor issue because it was identified by the licensee during emergency plan drill critiques.
- CR 10002936: Supplemental personnel failed to follow licensee procedures for adjusting the open torque switch of the train A excess letdown motor operated valve. Specifically, supplemental personnel failed to properly secure the closed torque switch adjustment which allowed it to slide to maximum torque setting. The licensee's procedural guidance does not require adjustment of the closed torque switch when adjusting the open torque switch. This resulted in an overthrust condition occurring during motor operated valve post-maintenance testing. This was evaluated as a minor issue because it was identified and corrected during maintenance-in-progress.
- CR 10003119: Operations personnel operated a breaker under local control tag prior to maintenance activities being completed by maintenance personnel, creating the potential of an industrial safety incident. This was evaluated as a minor issue because it was identified and corrected during maintenance-in-progress.
- CR 10004909: During Refueling Outage 24, the licensee identified a negative trend in human performance behaviors in the area of radiation safety. Specifically, individuals and leadership failed to validate qualifications in the area of response checking instrumentation prior to performing/assigning work activities; licensee personnel entered a posted contaminated area without the proper protective clothing.
- CR 10005580: Operations personnel did not fully open condensate pump C recirculation valve during clearance order restoration. This was evaluated as a minor issue because it did not result in a plant transient.

The inspectors noted that the licensee identified several other trends associated with nuclear fundamentals behaviors, including:

- CR 10004622: A negative trend in maintenance human performance behaviors during Refueling Outage 24. This condition report was closed to CR 10001895.
- CR 10001895: The maintenance department has had seven human performance issues since the beginning of calendar year 2021. In response, the licensee performed a common cause evaluation and developed a corrective action plan to address human performance issues in the maintenance department.

- CR 10006689: The licensee initiated a trend condition report for the potential adverse trend in human performance in the operations department during Operations Cycle 24 and Refueling Outage 24.

The inspectors performed an independent assessment of the continued human performance issues at the station. As part of the independent assessment, the inspectors reviewed the above condition reports, observed licensee activities and drills, and reviewed the requirements of station procedures: AP 21-001, "Conduct of Operations," Revision 85, APF 21-001-23, "Crew Operator Fundamentals – Think," Revision 0, and APF 21-001-24, "Your Role in Operator Fundamentals – Think," Revision 0. From this independent assessment, the inspectors identified the key attributes that have contributed to the potential adverse trend in nuclear fundamentals. The inspectors identified these key attributes also contributed to the potential adverse trend in nuclear professional fundamentals. These key attributes include:

- Field Presence: Leaders are commonly seen in working areas of the plant observing, coaching, and reinforcing standards and expectations. Deviations from standards and expectations are corrected promptly. Examples include:
  - Senior managers ensure supervisory and management oversight of work activities, including contractors and supplemental personnel, such that nuclear safety is supported.
  - Leaders from all levels in the organization are involved in oversight of work activities.
  - Managers and supervisors' practice visible leadership in the field and during safety significant evolutions by placing "eyes on the problem," coaching, mentoring, reinforcing standards and reinforcing positive decision-making practices and behaviors.
  - Managers encourage informal leaders to model safe behaviors and high standards of accountability.
  - Managers and supervisors discuss their observations in detail with the group they observe and provide useful feedback about how to improve individual performance.
- Role: Licensee personnel fulfill their assigned role and do not assume another team role without a proper turnover, and individuals maintain their assigned role as a supervisor or oversight role for assigned activities. Specifically, the inspectors observed a shift manager not maintaining their supervisor oversight role prior to train B integrated diesel generator and safeguards actuation test. The inspectors questioned if the shift manager was maintaining their oversight role and prior to performing the test another licensed operator was assigned the task to be performed by the shift manager. Therefore, restoring the shift manager to their supervisor oversight role.

- Turnover: Licensee personnel provide thorough and accurate turnovers when relieved during or at the completion of a duty shift.
- Communications: Licensee personnel provide thorough and accurate communications and do not assume another team member received the message when communicating relevant information.
- Work/Risk Management: Licensee personnel manage scheduled activities and emergent work to avoid simultaneous evolutions that have the potential to overload control room personnel and hamper plant monitoring.
- Validation: Licensee personnel validate expected system response to equipment operation, status changes, verifying component alignment and status in the field are as discussed during pre-job briefs.

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On April 8, 2021, the inspectors presented the occupational radiation safety inspection results to Mr. J. McCoy, Site Vice President, and other members of the licensee staff.
- On May 4, 2021, the inspectors presented the inservice inspection results to Mr. J. McCoy, Site Vice President, and other members of the licensee staff.
- On May 21, 2021, the inspectors presented the emergency plan changes inspection results to Mr. M. Dekat, Manager, Emergency Preparedness, and other members of the licensee staff.
- On July 8, 2021, the inspectors presented the integrated inspection results to Mr. J. McCoy, Site Vice President, and other members of the licensee staff.

**DOCUMENTS REVIEWED**

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Calculations	EC-M-004		
		EC-M-006		
	Corrective Action Documents	Condition Reports	10003231, 10003435, 10003941, 10004330, 10005362, 10005368, 10005370, 10005371, 10005378, 10005400, 10005401, 10005402, 10005403, 10005445, 10005498, 10005580	
	Corrective Action Documents Resulting from Inspection	Condition Reports	10004053, 10005016	
	Drawings	KD-7496	One Line Diagram	70
		M-12EC01	Piping and Instrumentation Diagram Fuel Pool Cooling and Clean-up System	23
		M-12EC02	Piping and Instrumentation Diagram Fuel Pool Cooling and Clean-up System	7
	Engineering Changes	DCP 15241		
	Procedures	CKL AD-120	Condensate System Valve and Breaker Lineup	32
		CKL EA-120	Service Water System Normal Lineup	56
		OFN EC-046	Fuel Pool Cooling and Cleanup Malfunctions	8
		SYS EC-202	Staging Alternate Spent Fuel Pool Cooling	3
		SYS NB-202	Transferring NB02 Power Sources	58
	Work Orders	WO	19-455381-008	
71111.05	Corrective Action Documents	Condition Report	10004914	
	Corrective Action Documents Resulting from Inspection	Condition Report	10005721	
	Miscellaneous	E-1F9905	Fire Hazard Analysis	10
		FPIP-21-0114	Fire protection Impairment Permit, FPIP-21-0114	
	Procedures	ALR KC-888	Fire Protection Panel KC-008 Alarm Response	32



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		AP 10-103	Fire Protection Impairment Control	36
71111.08P	Corrective Action Documents	Condition Reports	138495, 138509, 138583, 138662, 138927, 138950, 139291, 139411, 139771, 140114, 140115, 140266, 140447, 140731, 141259, 141260, 141261, 141262, 141756, 141172, 142175, 143771, 141894, 143983, 143090, 143091, 143408, 146719, 10001194, 10001282, 10001337	
	Corrective Action Documents Resulting from Inspection	Condition Reports	10004298, 10003526, 10003031, 10003217, 10003935, 10004298, 10004299, 10004300, 10004301, 10004411, 10004430, 10004447, 10004484, 10004832	
	Miscellaneous	51-9323938-000 Scan Plan	Wolf Creek Unit 1, RVCH Penetration Inspection Plan and Coverage Assessment for Spring Outage (RF24)	08/12/2020
		MRP-227	RV Nozzle DM Weld and RVCH Nozzle Examination Tools	0
	Procedures	54-ISI-413-004	Multi Frequency Eddy Current Two Row Pancake Coil Array Probe Examination of the Inside Diameter Surfaces of Weld Nozzles and Weld Regions	4
		54-ISI-460-007	Multi-Frequency Eddy Current Orthogonal Coil Array Probe Examination of Nozzle Welds and Regions	7
		54-ISI-494-003	Multi-Frequency Eddy Current Array Probe Examination of Vent Line and RVLIS Nozzle Bores	3
		54-ISI-603-011	Automated Ultrasonic Examination of RPV Closure Head Penetrations Containing Thermal Sleeves	11
		54-ISI-604-016	Automated Ultrasonic Examination of Open Tube RPV Closure Head Penetrations	16
		54-ISI-874-000	Automated Phased Array Ultrasonic Examination of Large Diameter Austenitic and Dissimilar Metal Piping Welds from the Inside Surface for Detection and Length Sizing	0
54-ISI-875-001		Automated Phased Array Ultrasonic Examination of Large Diameter Austenitic and Dissimilar Metal Piping Welds from the Inside Surface for Depth Sizing	1	
54-ISI-878-000	Inside Surface Profiling of Piping Welds with Immersion Phased Array	0		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		54-PT-200-023	Color Contrast Solvent Removable Liquid Penetrant Examination of Components	23
		AI 16F-001	Evaluation of Boric Acid Leakage	11
		AI 16F-002	Boric Acid Leakage Management	11
		AIF 16F-001-01	Boric Acid Evaluation Form	9
		AP 16A-003	ASME Section XI Repair/Replacement Program	20A
		AP 16F-001	Boric Acid Corrosion Control Program	10A
		CWD-1	Control of Welding Documentation	14
		GWS-ASME	ASME General Welding Standard	7
		LMT-08-PDI-UT-1	Ultrasonic Examination of Ferritic Piping Welds	0
		LMT-08-PDI-UT-2	Ultrasonic Examination of Austenitic Piping Welds	0
		LMT-08-PDI-UT-8	Ultrasonic Examination of Weld Overlaid Austenitic Piping Welds	0
		LMT-08-UT-004	Ultrasonic Examination of Vessel Welds and Adjacent Base Metal > 2.0" in Thickness	1
		LMT-08-UT-005	Examination of Vessel Welds and Adjacent Base Metal Less Than or Equal to 2in. in Thickness	0
		QCP 20-501	Visible Dye Penetrant Examination	10A
		QCP-20-520	Pressure Test Examination	11A
		QCP-20-540	VT-1 Visual Examination	1
		QCP-20-541	VT-3 Visual Examination	3
		STN PE-040G	Transient Event Walkdown	6
		STS PE-040E	RPV Head Visual Inspection	7
		WCRE-30	Inservice Inspection Program Plan Wolf Creek Generating Station Interval	4
		WCRE-31	Risk Informed Inservice Inspection (RI-ISI) Interval 4 Basis Document	4
		WDI-PJF-1318261-FSR-001	Reactor Vessel Head Inspection Final Examination Report Fall 2016	0
		WPS1-0101C01	GTAW/SMAW of P1 Materials, As-welded and PWHT Below the Lower Transformation Temperature	8
		WPS1-0101S01	SMAW of P1 Materials, As-Welded and PWHT Below the Lower Transformation Temperature	8

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		WPS1-0101T01	GTAW of P1 Materials, As-Welded and PWHT Below the Lower Transformation Temperature	8
	Work Orders	WO	19-132489, 19-132498, 19-132499, 19-132500, 19-132501, 20-133335, 20-134532, 20-458110, 20-458111, 20-458117, 20-458120, 20-458123	
71111.11Q	Procedures	GEN 00-003	Hot Standby to Minimum Load	105
71111.12	Corrective Action Documents	Condition Reports	68937, 82058, 93525, 109252, 136305, 136751, 143140, 146615, 144423, 10002827, 10002847, 10003062, 10003064, 10003065, 10003067, 10003068, 10003377, 10003381, 10003385, 10003430, 10003431, 10003513, 10003781, 10004093, 10004142, 10004368, 10004626, 10004871, 10004997, 10005111, 10005506, 10005555, 10005649, 10005691, 10005986	
	Corrective Action Documents Resulting from Inspection	Condition Report	10006945	
	Drawings	M-12GT01	Piping & Instrumentation Diagram Containment Purge Systems HVAC	33
		M-12SJ04	Piping and Instrumentation Diagram Nuclear Sampling System	16
	Procedures	AP 29E-001	Program Plan for Containment Leakage Measurement	17
		STS PE-015	Containment Purge Valve Leakage Testing	23
		STS PE-043A	RHR Train A Normal Operation Pressure Test	11
		STS PE-055W	Pressure Test of Nuclear Sample Piping through P-64, P-69, P-93	6
		STS PE-193	LLRT Valve Lineup for Penetration 93	6
		STS PE-260	LLRT Valve Lineup for Penetration 160	5
Work Orders	WO	18-440459-027, 20-461977-000, 20-462001-018-001, 20-462061-015, 20-462202-000, 20-462469-000, 20-462470-000, 20-467078-000, 21-470660-000, 21-470660-001		
71111.13	Calculations	FL-01	Flooding of the Auxiliary Building, 1974' Elevation	3, CN001

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Corrective Action Documents	Condition Reports	10006484, 10006524, 10006963, 10006980, 10006979	
	Corrective Action Documents Resulting from Inspection	Condition Report	10003948	
	Drawings	M-12EM01	Piping and Instrumentation Diagram Injection System	46
	Miscellaneous Procedures	WCRE-35	Boundary Matrix	8
		AFP 22B-001-09	Shutdown Risk Assessment No Mode – Defueled	13
		AI 22C-013	Protected Equipment Program	23A
		ALR 00-022D	XNB02 XFMR Trouble	11
		ALR 832	ESF XFMR XNB02	6
		AP 10-104	Breach Authorization	39
		AP 21D-006	Safety Function Determination Program	8
		AP 21F-001	Equipment Out-of-Service Control	27
		AP 22B-001	Outage Risk Management	20
		FL-02	Flooding of Auxiliary Building Rooms 1107-1114	2
		OFN AF-025	Unit Limitations	57
		OFN EC-046	Fuel Cooling and Cleanup Malfunctions	8
		OFN EF-033	Loss of Essential Service Water	23
		OFN NB-030	Loss of AC Emergency Bus NB01 (NB02)	39
		OFN NB-034	Loss of All AC Power – Shutdown Conditions	33
		OFN NB-035	Loss of Off-Site Power Restoration	13
		OFN SG-003	Natural Events	37
	SYS NB-204	XNB02 Load Tap Changer Operation	1	
	Work Orders	WO	21-471095-000, 21-471095-001, 21-471095-002, 21-471065-003	
71111.15	Calculations	JE-321	Emergency Diesel Fuel Oil Storage Tank and Day Tank Volumes and Level Limits	2 CN002
	Corrective Action Documents	Condition Reports	10002336, 10002516, 2007-000368, 2007-01786, 10002936, 10003075, 10003078, 10003080, 10003081, 10003082, 10003083, 10003084, 10003086, 10003087, 10003088, 10002716, 10002997, 10002951, 10003004,	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
			10004347, 10004738, 10002863		
	Corrective Action Documents Resulting from Inspection	Condition Report	10004540		
	Drawings	KD-7496	One Line Diagram	70	
	Miscellaneous	APF 26A-003	OFN NB-042	0	
		OE 23563	Diesel Generator Response While Connected to Electrical Grid (River Bend)	11/06/2006	
	Procedures	ALR 00-013A	13-48 BKR Trip	9	
		ALR 00-013C	#1 SWGR BKR Trip	19	
		ALR 00-018B	NB01 Bus UV	16	
		ALR 00-020B	DG NE01 UV or UF	8A	
		ALR 00-023B	DG NE02 UV or UF	9A	
		AP 26A-003	10 CFR 50.59 Reviews	15	
		AP 26C-004	Operability Determination and Functionality Assessment	43	
		GS-M-004	Hydrogen Generation Analysis	0	
		GS-M-005	Aluminum in Containment	5	
		MPM M018Q-01	Standby Diesel Generator Inspection	27	
		OFN EF-033	Loss of Essential Service Water	23	
		OFN NB-042	Loss of Offsite Power to NB01 (NB02) with EDG Paralleled	15	
		STS KJ-005A	Manual/Auto Start, SYNC and Loading of EDG NE01	70	
		STS KJ-011A	ENG NE01 24 Hour Run	37, 38	
	SYS NB-200	Transferring XNB01 Supply Between SL7 and #7 Transformer	21		
	Work Orders	WO	20-458833-000, 20-459341-000, 20-461998-000		
	71111.18	Calculations	H-08	System NB Protective Relays	5 CN013
			XX-E-006	AC System Analysis	8 CN012
Corrective Action Documents		Condition Reports	145078, 115454, 141849, 10003596, 10003607, 10003884, 10003838, 10004039, 10004040, 10004098, 10004104, 10003002, 10003106, 10003334, 10003523, 10003525, 10003731, 10004244, 10004269, 10004689,		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			10004707, 10004795, 10004743, 10004943, 10004944, 10005046, 10005054, 10005063	
	Drawings	E-11NB02	Lower Medium Voltage SYS Class 1E 4.16 kV Single Line Meter and Relay Diagram	10
	Engineering Changes	DCP 012513	ESF XNB02 Transformer Replacement	0
		DECP 020191	BBHV8000A PFSSD Modification to Address IN 92-18	0
	Miscellaneous	E-074	Technical Specification for Station Service and ESF Transformers for the SNUPPS	5
	Procedures	STS KJ-001B	Integrated D/G and Safeguards Actuation Test – Train B	66
	Work Orders	WO	17-431679-045, 17-432820-003, 17-434046-147, 17-431679-107, 19-448431-000, 21-21-470398-000, 21-470398-002, 21-470398-005, 21-470398-016, 21-470398-019, 21-470398-004, 21-470398-023	
71111.19	Corrective Action Documents	Condition Reports	138052, 1142175, 10002884, 10002951, 10002976, 10003004, 10003008, 10003020, 10003075, 10003078, 10003080, 10003081, 10003082, 10003083, 10003084, 10003086, 10003087, 10003088, 10003700, 10004273, 10004289, 10004335, 10004339, 10004345, 10004347, 10004348, 10004349, 10004367, 10004374, 10004414, 10004418, 10004426, 10004448, 10004460, 10004461, 10004471, 10004482, 10004538, 10004579, 10004595, 10004637, 10004656, 10004665, 10004745, 10004771, 10004839, 10004847, 10004852, 10005001, 10005157, 10005162, 10005118, 10005308, 10005445	
	Corrective Action Documents Resulting from Inspection	Condition Reports	10004859	
	Drawings	E-025-00007 Sheet 138	RCP Seal Water Return Cont ISO, Valve BGHV8112	W13
	Miscellaneous	Pictures	Pictures of Containment Sump Incore Liner, IMG-0814 thru IMG-0828	5/18/2021
	Procedures	AP 16E-002	Post Maintenance Testing Development	20A
		CKL ZL-005B	B EDG Operating Log	6A

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		MPM M018Q-01	Standby Diesel Generator Inspection	27
		QCP-20-519	IWE/IWL Visual Examination	11
		STN BG-205	CVCS Valve Test	6
		STS KJ-005A	Manual/Auto Start, SYNC and Loading of EDG NE01	70
		STS KJ-011B	DG NE02 24 Hour Run	39
		STS PE-124	LLRT Valve Lineup for Penetration 24	11A
		STS VT-001	Verification of OMN-1, MOV Exercise Requirements	6
	SYS KJ-123	Post Maintenance Run of Emergency Diesel Generator A	69	
71111.20	Work Orders	WO	17-423318-011, 17-423318-006, 19-456002-000, 19-456002-001, 20-462176-009, 20-462176-020, 20-462176-021, 20-458883-000, 20-459341-000, 20-460185-000, 20-460185-004, 20-460185-006, 20-460185-007, 20-462203-000, 20-464855-001, 20-464275-000, 21-470332-000, 21-470643-000	
	Calculations	0720517.01-C-001	Wolf Creek Generating Station (WCGS) Simplified Head Assembly (SHA) Drop Analysis	1
		EC-M-006	Time to Boil the Spent Fuel Pool	0
	Corrective Action Documents	Condition Reports	10002449, 10002793, 10003008, 10003957, 10004289, 10003700, 10004448, 10004836, 10004708, 10003414, 10002900, 10002896, 10005017, 10005074, 10005768, 10006327, 10006418, 10006499	
	Corrective Action Documents Resulting from Inspection	Condition Reports	10003952, 10004150, 10005412, 10005451, 10005454, 10005468, 10005471, 10005472	
	Procedures	AI 15C-006	Management Oversight Requirements for Infrequently Performed and Potentially Degrading Evolutions	23
		ALR 00-068A	Loop 3 Delta T Hi Dev	7
		FHP 02-007A	Reactor Vessel Closure Head Removal	15
FHP 02-016		Reactor Vessel Lower Internals Removal and Installation	14	
Work Orders	WO	20-459918-000, 21-470575-000		
71111.22	Corrective Action Documents	Condition Reports	139748, 142288, 142515, 145234, 10000718, 10002827, 10004376, 10004428, 10004429, 10004626	
	Corrective Action	Condition Report	10004589, 10004974, 10005083, 10005092	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents Resulting from Inspection			
	Drawings	M-12EC01	Piping and Instrumentation Diagram Fuel Pool Cooling and Clean-up System	23
		M-12EF01	Piping Instrumentation Diagram Essential Service Water	30
		M-12EF02	Piping Instrumentation Diagram Essential Service Water	43
		M-12EG01	Piping and Instrumentation Diagram Component Cooling Water	26
		M-12KC02	Piping and Instrumentation Diagram Fire Protection System	25
	Engineering Changes	CCP 011047	KCHV253 to KCV0427 Wet/Dry Boundary	0
	Miscellaneous Procedures	WCRE-34	Fourth 10-Year Interval Inservice Testing Basis Document	11
		AP 15C-002	Procedure Use and Adherence	46D
		AP 21G-001	Control of Locked Component Status	78A
		AP 29B-003	Surveillance Testing	17
		AP 29E-001	Program Plan for Containment Leakage Measurement	17
		CKL KC-101	Fill and Vent Aux BLDG Fire Protection System Lineup	14
		GEN 00-006	Hot Standby to Cold Shutdown	104
		I-ENG-026	Local Leak Rate Test	9
		STN EF-022A	ESW Train A Post-LOCA Flow Balance	9
		STN PE-037A	ESW Train A Heat Exchanger Flow and DP Trending	20A
		STN PE-056	ESW Emergency Make-Up Piping Flow Test	10
		STS EJ-209A	Train A RHR System Inservice Valve Testing	5
		STS EJ-209B	Train B RHR System Inservice Valve Test	5
		STS IC-802A	4KV Loss of Voltage and Loss of Offsite Channel Calibration Train A	9
		STS IC-802B	4KV Loss of Voltage and Loss of Offsite Channel Calibration Train B	11
		STS IC-803A	4KV Undervoltage – Grid Degraded Voltage Channel Calibration of NB01 Bus	8
		STS IC-803B	4KV Undervoltage – Grid Degraded Voltage Channel	8



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Calibration of NB02 Bus	
		STS IC-805A	Channel Calibration of NB01 Grid Degraded Voltage, Time Delay Trip	15
		STS IC-805B	Channel Calibration of NB02 Grid Degraded Voltage Time Delay Trip	17
		STS IC-806A	4KV Undervoltage-Loss of Voltage- Channel Calibration of 1 Second Time Delay Circuit NB01	6
		STS IC-806B	4kV Undervoltage – Loss of Voltage – Channel Calibration of 1 Second Time Delay Circuit NB02	6
		STS KJ-001B	Integrated D/G and Safeguards Actuation Test – Train B	66A
	STS PE-167	LLRT Valve Lineup for Penetration 67	16A	
	Work Orders	WO	17-423318-006, 20-459444-000, 20-462076-000, 20-462475-000, 20-465658-000, 20-465658-02	
71114.04	Miscellaneous		E-Plan Screening - AP 06-002, Radiological Emergency Response Plan (RERP), Rev. 21A	03/10/2021
			Applicability Determination - EPP 06-012, Dose Assessment, Rev. 17A	03/09/2021
			E-Plan Screening - EPP 06-012, Dose Assessment, Rev. 17A	03/09/2021
			Applicability Determination - AP 06-002, Radiological Emergency Response Plan (RERP), Rev. 21A	03/10/2021
		DRR 21-0215	Administrative Correction - EPP 06-012, Dose Assessment, Rev. 17A	03/10/2021
		DRR 21-0217	Administrative Correction - AP 06-002, Radiological Emergency Response Plan (RERP), Rev. 21A	03/10/2021
	Procedures	AI 26A-003	Regulatory Evaluations (Other than 10 CFR 50.59)	16
71124.01	Corrective Action Documents	Condition Reports	141288, 142229, 142589, 143807, 10003370	
	Miscellaneous		RWP Entries where entries had self-reading dosimeters alarms	04/08/2021
			Air samples with associated radiation work permits	03/08/2021
	Procedures	AP 25A-001	Radiation Protection Manual	18A
AP 25A-200		Access to Locked High Radiation or Vey High Radiation Areas	29	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		AP 25B-100	Radiation Worker Guidelines	54
		RPF 03-406-12	Radiation Survey Methods	49B
		RPP 01-105	Radiation Protection Organization, Responsibilities and Code of Conduct	22
		RPP 02-105	RWP	50
		RPP 02-205	Radiological Survey Frequency Requirements	14
		RPP 02-215	Posting of Radiological Controlled Areas	34B
		RPP 02-405	RCA Access Control	21
		RPP 02-605	Control & Inventory of Radioactive Sources	19
		RPP 03-205	DAC-Hour Tracking	17A
	RPP 03-310	Respiratory Protection Equipment	21	
	Radiation Work Permits (RWPs)	RWP 194420	Scaffolding Work for Refueling Outage 23	0
		RWP 213057	Under Reactor Head Entries	4
		RWP 213220	Primary Side Steam Generator Eddy Current Testing	0
		RWP 216060	Fuel Movement and Related Support Activities	0
Self-Assessments	Audit Report # 20-01-RP/PC	Quality Assurance Audit Report - QA Radiological Protection & Process Control Programs Audit	03/02/2020	
71124.02	ALARA Plans	RWP 191000	Radiation Protection Rover Coverage RWP for Pre-Outage and Outage Activities	1
		RWP 194420	Scaffolding Erection / Removal Activities for RF23	0
		RWP 194482	Remove/Install Canopy Seal Weld Clamps from the Top of the Seismic Platform at CRDM Nozzles	3
		RWP 211000	RP Rover Coverage RF24	0
	Corrective Action Documents	Condition Reports	131535, 136492, 136645, 136936, 137332, 140626, 140629, 140639, 140656, 140657, 140661, 00140676, 140679, 141232, 144502	
	Corrective Action Documents Resulting from Inspection	Condition Reports	10003581, 10003582, 10003584, 10003627, 10003659, 10003660	
	Miscellaneous		2020 NRC Year End Dosimetry Report	03/11/2021
			WOLF CREEK DOSE EXCELLENCE PLAN 2017 - 2021	03/26/2018
			RF (Refueling Outage) 24 OCC Shift Update	04/08/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Refuel Outage 23 Report	01/27/2020
		493285001	Radwaste Resin Nuclide Distribution Report	11/18/2019
		503910001	Dry Active Waste Nuclide Distribution Report	01/30/2020
		503910003	Spent Fuel Pool (SFP) Filters Nuclide Distribution Report	01/29/2020
		503910004	Reactor Coolant System (RCS) Filters	01/29/2020
		RPF 02-305-04	Personnel Contamination Log	04/08/2021
	Procedures	AP 25A-001	Radiation Protection Manual	18A
		AP 25A-401	ALARA Program	27
		AP 25A-410	ALARA Committee	24
		AP 25B-300	RWP Program	25
		RPP 02-105	RWP	50
	Radiation Surveys	21-0167	Airborne Radioactivity Record: Post Under Reactor Head	04/06/2021
		21-0172	Airborne Radioactivity Record: Containment 2047' Elevation	04/07/2021
		21-0180	Airborne Radioactivity Record: Containment 2047' Head	04/07/2021
		M-20210405-5	Reactor Vessel Head on Head Stand	04/05/2021
		M-20210408-3	Reactor Vessel on Head Stand	04/08/2021
	Radiation Work Permits (RWPs)	RWP 213057	Under Rx Head Entries	4
		RWP 216000	Lower Refueling Cavity Pre & Post Flooding Maintenance Activities	1
		RWP 216060	Refueling Team Activities	0
	Self-Assessments	20-01-RP/PC	Quality Assurance Audit Report: QA Radiological Protection & Process Control Programs Audit	03/02/2020
	71124.08	Miscellaneous	RPF 07-123-16	Radioactive Shipment Checklist - UN 3321: Shipment 21R10
Shipping Records		21R10	UN3321, Radioactive Material, Low Specific Activity (LSA-II), 7 - Dry Active Waste	04/06/2021
71151	Miscellaneous	AP 26A-007	NRC Performance Indicators	11
		WCNOC-163	Mitigating System Performance Index Basis Document	13
71152	Corrective Action Documents	Condition Reports	139748, 142288, 142515, 145234, 10000597, 10000718, 10000932, 10001087, 10003119, 10004489, 10004490, 10004535, 10004652, 10005580	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Corrective Action Documents Resulting from Inspection	Condition Report	10005098	
	Miscellaneous	APF 21-001-23	Crew Operator Fundamentals – Think	0
		APF 21-001-24	Your Role in Operator Fundamentals – Think	0
	Procedures	AP 21-001	Conduct of Operations	85
		MGE LT-008	Routine Electrical Limitorque Operator Maintenance	8B
		MPM LT-001	Limitorque Operator Minor Maintenance, Lubrication, and Inspection	15
	Work Orders	WO	18-442246-000	
71153	Corrective Action Documents	Condition Reports	10005735, 10005736, 10005737, 10005767, 10005953, 10005987, 10005991, 10005992, 10005994, 10006419	
	Drawings	M-744-00032	SNUPPS, Projects Functional Diagram Auxiliary Feedwater Pumps Startup	W06
	Procedures	AP 20-002	Post-Trip Review	18
		EMG E-0	Reactor Trip or Safety Injection	44
		EMG ES-02	Reactor Trip Response	41
		GEN 00-003	Hot Standby to Minimum Load	105
		GEN 00-005	Minimum Load to Hot Standby	95
SYS AL-120	Motor Driven or Turbine AFW Pump Operations	55A		