



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

**REGION IV  
1600 EAST LAMAR BOULEVARD  
ARLINGTON, TEXAS 76011-4511**

August 1, 2019

Mr. Brad Sawatzke  
Chief Executive Officer  
Energy Northwest  
MD 1023  
P.O. Box 968  
Richland, WA 99352

**SUBJECT: COLUMBIA GENERATING STATION – INTEGRATED INSPECTION REPORT  
05000397/2019002 AND 05000397/2019012**

Dear Mr. Sawatzke:

On June 30, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Columbia Generating Station. On July 11, 2019, the NRC inspectors discussed the results of this inspection with Mr. R. Schuetz, Vice President, Operations; Mr. A. Javorik, Vice President, Engineering; and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors documented one finding of very low safety significance (Green) in this report. The finding did not involve a violation of NRC requirements. Further, inspectors documented one violation which was determined to be Severity Level IV in this report. The NRC is treating this violation as a non-cited violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or significance or severity of the violation 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 Columbia Generating Station.

If you disagree with a cross-cutting aspect assignment or a finding not associated 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; and the NRC Resident Inspector at Columbia 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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

Jeffrey E. Josey, Chief  
Reactor Projects Branch A

Docket No.: 05000397

License No.: NPF-21

Enclosures:

1. Inspection Reports 05000397/2019002  
and 05000397/2019012 w/attachment:  
Documents Reviewed
2. Information Request dated 01/24/2019  
for Inservice Inspection Documents

cc: Electronic Distribution to Columbia Generating Station

COLUMBIA GENERATING STATION – INTEGRATED INSPECTION REPORT  
 05000397/2019002 AND 05000397/2019012 – DATED AUGUST 1, 2019

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

Docket Number: 05000397

License Number: NPF-21

Report Numbers: 05000397/2019002 and 05000397/2019012

Enterprise Identifiers: I-2019-002-0010 and I-2019-012-0025

Licensee: Energy Northwest

Facility: Columbia Generating Station

Location: Richland, WA

Inspection Dates: April 01, 2019 to June 30, 2019

Inspectors: G. Kolcum, Senior Resident Inspector  
L. Merker, Resident Inspector  
B. Baca, Health Physicist  
N. Greene, Senior Health Physicist  
P. Elkmann, Senior Emergency Preparedness Inspector  
N. Hernandez, Operations Engineer  
J. O'Donnell, Health Physicist  
W. Sifre, Senior Reactor Inspector  
J. Vera, Resident Inspector

Approved By: Jeffrey E. Josey, Chief  
Branch A  
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 Columbia 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

Packing Failure Results in Unit Downpower			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000397/2019002-01 Open/Closed	[H.11] - Challenge the Unknown	71111.19
The inspectors reviewed a self-revealed, Green finding for the licensee’s failure to follow station procedure, Plant Procedures Manual (PPM) 10.2.79, “Valve Packing and Live Loading,” Revision 17, Step 4.13, for maintaining proper clearances of Chesterton packing. Specifically, the station failed to maintain proper clearances of Chesterton packing on the condensate booster pump 2C discharge check valve. This resulted in a packing leak and subsequent packing failure, requiring a unit downpower to 65 percent to repair the valve.			

Failure to Request Exemption from DOT Packaging Requirements			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Not Applicable	NCV 05000397/2019012-01 Open/Closed	Not Applicable	71152
The inspectors identified a Severity Level IV, non-cited violation (NCV) of 10 CFR 71.5(b) when the licensee failed to request an exemption from the Department of Transportation (DOT) packaging requirements prior to transporting greater than Type A quantities of radioactive material in a Type A packaging.			

### Additional Tracking Items

None.

## **PLANT STATUS**

The reactor unit began the inspection period at rated thermal power. On May 11, 2019, the plant was shut down for a planned refueling outage. On June 17, 2019, the reactor was made critical following completion of the refueling outage. On June 21, 2019, operations personnel synchronized the main generator with the grid and began power ascension. On June 23, 2019, the plant reached 100 percent power, where it remained for the remainder of the inspection 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 performed plant status activities described in IMC 2515 Appendix D, "Plant Status" and conducted routine reviews using IP 71152, "Problem Identification and Resolution." 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.

## **REACTOR SAFETY**

### 71111.01 - Adverse Weather Protection

#### Summer Readiness Sample (IP Section 03.01) (1 Sample)

The inspectors evaluated summer readiness of offsite and alternate alternating current (ac) power systems.

### 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) diesel generator 1 standby lineup on April 9, 2019
- (2) diesel generator 2 standby lineup on April 10, 2019
- (3) diesel generator 3 standby lineup on April 11, 2019
- (4) emergency chiller 1A on April 17, 2019

### 71111.05A - Fire Protection (Annual)

#### Annual Inspection (IP Section 03.02) (1 Sample)

The inspectors evaluated fire brigade performance during an annual fire drill on April 18, 2019.

## 71111.05Q - Fire Protection

### Quarterly Inspection (IP Section 03.01) (6 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Fire Area RC-19/2, vital island corridor, on June 3, 2019
- (2) Fire Area ASD, adjustable speed drive building, on June 10, 2019
- (3) Fire Area DG-9/2, diesel generator 2 day tank room, on June 13, 2019
- (4) Fire Area DG-8/1, diesel generator 1 day tank room, on June 13, 2019
- (5) Fire Area DG-7/#, high pressure core spray diesel generator day tank room, on June 13, 2019
- (6) Fire Area DG-10/#, deluge valve equipment room, on June 18, 2019

## 71111.06 - Flood Protection Measures

### Inspection Activities - Underground Cables (IP Section 02.02c.) (1 Sample)

The inspectors evaluated cable submergence protection in the transformer yard, Manhole E-MH-E8, on January 23 and March 26, 2019; and the south area of the plant inside the fence on March 29, 2019.

## 71111.08G - Inservice Inspection Activities (BWR)

### BWR Inservice Inspection Activities Sample - Nondestructive Examination and Welding Activities (IP Section 03.01) (1 Sample)

The inspectors verified that the reactor coolant system boundary, 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 May 15 to 22, 2019:

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

The inspectors evaluated non-destructive examination activities by observing the following activities:

- (1) Ultrasonic Examinations
  - a) Weld Number 4RRC(4)A-9 (Data Sheet No. R-R24-012) on Reactor Recirculation System
  - b) Weld Number 6RCIC(1)-42 (Data Sheet No. R-R24-013) on Reactor Core Isolation Cooling

- c) Weld Number 6RCIC(1)-43 (Data Sheet No. R-R24-014) on Reactor Core Isolation Cooling
- d) Weld Number FW 13 (Data Sheet No. R-R24-011) on Reactor Core Isolation Cooling
- e) Weld Number 4RRC(4)A-11 (Data Sheet No. R-R24-013) on Reactor Recirculation System
- f) Jet Pump Hold Down Beam Number 2
- g) Jet Pump Hold Down Beam Number 18

(2) Visual Examinations (VT-3)

- a) Floor Penetrations (Report No. 4COV-006) on Containment Vent System
- b) Floor Penetrations (Report No. 4COV-007) on Containment Vent System
- c) Floor Penetrations (Report No. 4COV-12) on Containment Vent System
- d) Spring Hanger RRC-HA-2 (Report No. 4HV-084) on Reactor Recirculation System
- e) Spring Hanger RRC-HA-3 (Report No. 4HV-085) on Reactor Recirculation System
- f) Rigid Strut RRC-108 (Report No. 4HV-083) on Reactor Recirculation System
- g) Snubber RFW-146 (Report No. 4HV-087) on Refueling Water System
- h) Spring Hanger RFW-156 (Report No. 4HV-086) on Refueling Water System

The inspectors evaluated non-destructive examination activities by reviewing the following activities:

(1) Phased Array Ultrasonic Examinations

- a) Weld Number 10 LPCS(1)-4 (Report No. APR-R24-03) on Low Pressure Core Spray
- b) Weld Number 12 RFW(1)AC-12 (Report No. APR-R24-07) on Reactor Feedwater

(2) Automated Ultrasonic Examinations

- a) Reactor Vessel Nozzle N2A Inner Radius (Report No. AVR-R24-01)
- b) Reactor Vessel Nozzle N2B Inner Radius (Report No. AVR-R24-01)
- c) Reactor Vessel Shell to Nozzle Weld N2A (Report No. AVR-R24-01)
- d) Reactor Vessel Shell to Nozzle Weld N2B (Report No. AVR-R24-01)
- e) Reactor Feedwater Nozzle N4C (Report No. AVR-R24-11)

(3) Magnetic Particle Examination

- a) Residual Heat Removal Heat Exchanger RHR-HX-1A Support Welds (Report No. 4RHM-003)
- b) Residual Heat Removal Heat Exchanger RHR-HX-1A Support Welds (Report No. 4RHM-004)

The inspectors evaluated welding activities by reviewing the following welding activities:



(1) Single Metal Arc Welding (SMAW)

a) Weld Record 2-1362 (Work Order No 02107553-01) on Residual Heat Removal System

b) Weld Record 2-13673 (Work order No. 02120340) on Reactor Water Cleanup System

c) Weld Record 2-13874 (Work Order No. 02120340) on Reactor Water Cleanup System

(2) Gas Tungsten Arc Weld (GTAW)

a) Weld Record 2-13617 (Work Order No 02076390) on Service Water System

b) Weld Record 2-13644 (Work Order No. 02089314) on Main Steam System

c) Weld Record 2-13645 (Work Order No. 02107548) on Reactor Core Isolation Cooling System

The inspectors reviewed a sample of eight condition reports associated with in-service inspection activities.

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)

The inspectors observed and evaluated licensed operator performance in the Control Room during the shutdown for refueling outage on May 11, 2019.

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

The inspectors observed and evaluated training on nuclear fuels and shutdown operation on April 23, 2019.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness Inspection (IP Section 02.01) (3 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) emergency control room chiller A maintenance on April 8, 2019
- (2) reactor protection system motor generator 2 overload relay on April 23, 2019
- (3) startup transformer switch maintenance on April 29, 2019

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

#### Risk Assessment and Management Sample (IP Section 03.01) (6 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) yellow risk for residual heat removal pump A flush and fill on April 1, 2019
- (2) yellow risk for turbine oil exhauster maintenance on April 4, 2019
- (3) yellow risk for fuel pool cooling valve inspections on April 8, 2019
- (4) yellow risk for fuel pool cooling system flushes on April 18, 2019
- (5) yellow risk for diesel generator 1 testing on May 8, 2019
- (6) yellow risk for containment de-inerting on May 9, 2019

### 71111.15 - Operability Determinations and Functionality Assessments

#### Operability Determination or Functionality Assessment (IP Section 02.02) (7 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) diesel generator 1, foreign material in cooling water sight glass, on April 4, 2019
- (2) diesel generators 1, 2, and 3, governor oil levels on April 11, 2019
- (3) standby service water system A, spray header drain valve, on April 22, 2019
- (4) main steam relief valve pressure tests on May 11, 2019
- (5) residual heat removal system B fill verification on May 11, 2019
- (6) residual heat removal differential pressure instruments out of tolerance on May 11, 2019
- (7) high-pressure core spray, diesel generator 3 mixed air fan, on May 11, 2019

### 71111.18 - Plant Modifications

#### Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (4 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) residual heat removal system A motor replacement on April 30, 2019
- (2) reactor water cleanup relief valve replacement on April 30, 2019
- (3) residual heat removal system A additional vent valves on May 1, 2019
- (4) reactor feedwater pump setpoint optimization on May 31, 2019

### 71111.19 - Post-Maintenance Testing

#### Post Maintenance Test Sample (IP Section 03.01) (11 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) residual heat removal pump A run on April 2, 2019
- (2) residual heat removal pump A failed post maintenance testing on April 8, 2019
- (3) emergency chiller 1A on April 17, 2019
- (4) source range monitor detector 1B on April 18, 2019
- (5) reactor water cleanup pump suction outboard isolation valve and outage rework on May 1, 2019
- (6) main steam relief valve 1B on May 19, 2019
- (7) main steam relief valve 2A, on May 13, 2019
- (8) reactor recirculation circuit breaker RP4B maintenance on May 19, 2019
- (9) inboard isolation valve steam inlet bypass on May 27, 2019
- (10) main transformer 3 maintenance on May 16, 2019
- (11) condensate booster pump 2C discharge check valve leak check on June 19, 2019

### 71111.20 - Refueling and Other Outage Activities

#### Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

The inspectors evaluated Refueling Outage R24 activities from May 11– June 21, 2019.

### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

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

Inspectors evaluated inboard and outboard main steam isolation valves on May 12, 2019.

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

Inspectors evaluated residual heat removal loop C operability on April 18, 2019.

#### Surveillance Tests (other) (IP Section 03.01) (4 Samples)

- (1) residual heat removal loop C operation test on April 19, 2019
- (2) high pressure core spray operation test on April 23, 2019

- (3) diesel generator 1 load testing on May 8, 2019
- (4) diesel generator 1 shutdown logic checks on May 8, 2019

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

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

The inspectors evaluated the following submitted Emergency Action Level and Emergency Plan changes:

- Procedure 13.1.1A, "Classifying the Emergency, Technical Basis," Revision 34-1, effective April 3, 2019.

This evaluation does not constitute NRC approval.

### **RADIATION SAFETY**

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

##### Contamination and Radioactive Material Control (IP Section 02.03) (1 Sample)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material. The inspectors verified the following sealed sources are accounted for and are intact:

- 08-132, Cs-137
- 08-133, Cs-137
- 13-230, Cs-137
- 2-79-033, Cs-137
- 2-81-020, Am-241
- 2-82-050, Am-241
- 2-84-015, Sr-90
- 2-84-058, Cs-137
- 2-85-024, Sr-90
- 2-87-046, Tc-99
- 2-88-002, Cs-137

##### High Radiation Area and Very High Radiation Area Controls (IP Section 02.05) (1 Sample)

The inspectors evaluated risk-significant high radiation area and very high radiation area controls.

##### Instructions to Workers (IP Section 02.02) (1 Sample)

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

Radiation work packages

- RWP 30004258, "R24 WW/Rx Dive Inspection (Divers) - LHRA - High-Risk," Revision 0
- RWP 30004304, "R24 Rx 522 RWCU Pump Rooms and Mezzanine - LHRA – High-Risk, STK," Revision 0
- RWP 30004311, "R24 Rx Building RWCU V-4 Actuator/Stem Replacement - LHRA MPacks," Revision 0
- RWP 30004451, "R24 Drywell NDE N2 Nozzles including All Support work - LHRA," Revision 0
- RWP 30004458, "R24 Rx 548' North Pipe Space - LHRA," Revision 0

#### Electronic alarming dosimeter alarms

- AR 00393341
- AR 00393455

#### Labeling of containers

- 4 Radioactive SCO outage equipment containers
- 5 Empty RAM MSR/V containers
- 1 LSA RAM container
- 3 UN2910 outage equipment boxes
- 8 CRDM containers stored in truck bay

#### Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 02.06) (1 Sample)

The inspectors evaluated radiation worker performance and radiation protection technician proficiency.

#### Radiological Hazard Assessment (IP Section 02.01) (1 Sample)

The inspectors evaluated radiological hazards assessments and controls. The inspectors reviewed the following:

#### Radiological surveys

- VSDS\_Prod-M-20170606-22, RB 606' Tri-Nuke Filter Dose Profile, 06/06/2017
- VSDS\_Prod-M-20190502-09, RB 522' Monthly Survey, 05/02/2019
- VSDS\_Prod-M-20190511-15, RB 501' Floor Survey, 05/11/2019
- VSDS\_Prod-M-20190513-07, Drywell 512', 05/13/2019
- VSDS\_Prod-M-20190514-63, RB 606' Monthly Survey Map, 05/14/2019
- VSDS\_Prod-M-20190516-02, RB 441' and 422' North Floor Survey, 05/16/2019
- VSDS\_Prod-M-20190516-54, RB 548' Monthly Survey, 05/16/2019
- VSDS\_Prod-M-20190519-04, Drywell 548', 05/19/2019
- VSDS\_Prod-M-20290520-01, Drywell 535', 05/20/2019

- VSDS\_Prod-M-20190522-25, Drywell 501', 05/22/2019

Risk significant radiological work activities

- RWP 30004258, "R24 WW/Rx Dive Inspection (Divers) - LHRA - High-Risk," Revision 0
- RWP 30004304, "R24 Rx 522 RWCU Pump Rooms and Mezzanine - LHRA – High-Risk, STK," Revision 1
- RWP 30004311, "R24 Rx Building RWCU V-4 Actuator/Stem Replacement - LHRA MPacks," Revision 0
- RWP 30004451, "R24 Drywell NDE N2 Nozzles including All Support work - LHRA," Revision 0
- RWP 30004458, "R24 Rx 548' North Pipe Space - LHRA," Revision 0

Air sample survey records

- 922818, Radwaste Building, 01/16/2019
- 932241, Reactor Building, 04/08/2019
- 932309, Reactor Building, 04/09/2019
- 932310, Reactor Building, 04/09/2019

Radiological Hazards Control and Work Coverage (IP Section 02.04) (1 Sample)

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

Radiological work package for areas with airborne radioactivity

- RWP 30004257, "R24 RF Rx Cavity Disassembly Work - High-Risk," Revision 1
- RWP 30004469, "2019 Dryer Separator/Equipment Pit Entry - LHRA HCA," Revision 3

71124.02 - Occupational ALARA Planning and Controls

Implementation of ALARA and Radiological Work Controls (IP Section 02.03) (1 Sample)

The inspectors reviewed ALARA practices and radiological work controls by reviewing the following activities in radiation work permits (RWPs):

- RWP 30004257, "R24 Refueling Reactor Cavity Disassembly Work - High Risk" - Reactor Disassembly and Support Personnel on the Reactor Building 606'
- RWP 30004258, "R24 Wet Well/Reactor Dive Inspection (Divers) - Locked High Radiation Area (LHRA)/High Risk"

- RWP 30004304, "R24 Reactor 522' Reactor Water Clean Up Pump Room and Mezzanine - LHRA/High Risk"
- RWP 30004311, "R24 Reactor Building Reactor Water Clean Up Valve-4 (RWCU-V-4) Actuator/Stem Replacement - LHRA-Multipacks"

Radiation Worker Performance (IP Section 02.04) (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance during fuel movement, wet well diving to install covers over RHR-ST-4A/B/C suction strainers, reactor water cleanup valve drain line shielding (LHRA) prior to valve RWCU-V-4 maintenance, dry well nondestructive testing for nozzles N2A, N2B, dry well motor-operated valve (MOV) maintenance work, and residual heat removal (RHR) valve maintenance (RHR-V-4C).

**OTHER ACTIVITIES – BASELINE**

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (1 Sample)

June 1, 2018 -- May 31, 2019

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

July 1, 2018 - March 31, 2019

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (IP Section 02.16) (1 Sample)

July 1, 2018 - March 31, 2019

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

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

- (1) FLEX equipment deficiencies on April 26, 2019
- (2) transport of radioactive waste shipments 13-07 and 14-07 to disposal facility on May 10, 2019

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

The inspectors reviewed the licensee’s corrective action program for potential adverse trends in foreign material exclusion practices that might be indicative of a more significant safety issue and documented one observation on June 23, 2019.

**INSPECTION RESULTS**

Observation: Foreign Material Exclusion Practices	71152
<p>The inspectors performed an in-depth review of the licensee's evaluation and corrective actions related to a potential negative trend in foreign material exclusion practices. From January 1, 2019, to the beginning of Refueling Outage R24 on May 11, 2019, the licensee initiated seven Action Requests (ARs) related to the foreign material exclusion program: one documenting a foreign material evaluation, one initiating a self assessment of the foreign material exclusion program, one initiating an evaluation of several training programs including the foreign material exclusion program, and four documenting foreign material identified in the plant. Conversely, during Refueling Outage R24, from May 11, 2019, through June 22, 2019, the licensee initiated 36 ARs related to the foreign material exclusion program: 2 documenting a foreign material evaluation, 1 documenting a potential foreign material concern, and 33 documenting foreign material identified in the plant. The inspectors noted that approximately half of the 33 outage ARs documenting foreign material in the plant were a result of ongoing work.</p> <p>The inspectors assessed the licensee's problem identification threshold, evaluations, and corrective actions related to these ARs. The inspectors identified that the licensee had not initiated an AR to document the trend or the increase in foreign material ARs. The inspectors also noted that the licensee's use of foreign material trend codes was inconsistently applied to ARs documenting foreign material found in the plant. Of the 37 ARs reviewed that documented foreign material in the plant, 12 ARs did not have a foreign material trend code assigned. The licensee initiated AR 396578 to document the concern. The inspectors determined that for each AR that documented foreign material in the plant the licensee either retrieved the foreign material before the end of the outage or adequately evaluated leaving the foreign material in the plant for later retrieval.</p>	

Packing Failure Results in Unit Downpower			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000397/2019002-01 Open/Closed	[H.11] - Challenge the Unknown	71111.19
<p>The inspectors reviewed a self-revealed, Green finding for the licensee’s failure to follow station procedure, Plant Procedures Manual (PPM) 10.2.79, “Valve Packing and Live Loading,” Revision 17, step 4.13, for maintaining proper clearances of Chesterton packing. Specifically, the station failed to maintain proper clearances of Chesterton packing on the condensate booster pump 2C discharge check valve. This resulted in a packing leak and subsequent packing failure, requiring a unit downpower to 65 percent to repair the valve.</p>			
<p><u>Description:</u> On January 21, 2019, the condensate booster pump 2C discharge check valve experienced a packing failure. The failure resulted in hot water spraying several feet across</p>			



the personnel walkway and onto the adjacent, running condensate booster pumps. The licensee determined the leakage spraying from the valve posed a hazard to licensee personnel and the adjacent operating condensate booster pumps, and reduced reactor power to 65 percent power to replace the valve packing.

The condensate booster pump 2C discharge check valve is a 20-inch Walworth check valve that utilizes Chesterton packing. Step 4.13 of PPM 10.2.79, "Valve Packing and Live Loading," provides guidance for maintaining proper clearances and finishes of Chesterton packing. The required clearance between the stuffing box inner diameter and the packing outer diameter is -0.003 to +0.015 inches. If the condition of material does not meet the guidance, the step also directs licensee personnel to initiate and resolve an Action Request (AR) prior to repacking the valve.

The licensee last repacked the valve per Work Order 02072877 on May 26, 2017, during Refueling Outage R23. The valve packing data sheet associated with the work package stated that the stuffing box inner diameter was 1.875 inches and listed packing appropriately sized for that diameter. During the repack, licensee personnel identified and wrote in the work package that the stuffing box inner diameter was actually 1.906 inches; however, contrary to step 4.13 of PPM 10.2.79, no AR was written to solve the discrepancy. Therefore, the installed packing had a clearance between the stuffing box inner diameter and the packing outer diameter of +0.031 inches which did not meet the requirements of step 4.13 of PPM 10.2.79.

The valve packing leakage was originally identified on November 6, 2017 and documented as approximately 45 drops per minute in AR 373494. The licensee installed a catch underneath the valve to collect the leakage and closed the AR. The inspectors noted the licensee had a missed opportunity to repair the packing leak during Forced Outage FO-18-01 in May 2018; however, no work was performed due to the low leakage collected by the installed catch at the time. This allowed the packing to further degrade and subsequently fail on January 21, 2019.

**Corrective Actions:** The licensee repaired the condensate booster pump 2C discharge check valve, performed an extent of condition investigation, repaired the condensate booster pump 2A and 2B discharge check valves packing, and briefed all mechanics on the importance of following procedures.

**Corrective Action References:** ARs 373494, 389079, and 3894892

Performance Assessment:

**Performance Deficiency:** The failure to follow station procedures was a performance deficiency.

**Screening:** The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone. The failure to follow station procedures adversely affected the cornerstone objective to limit the frequency of those events and operations that upset plant stability and challenge critical safety functions, during shutdown as well as power operations. Specifically, the station failed to maintain proper clearances of Chesterton packing on the condensate booster pump 2C discharge check valve. This resulted in a packing leak and subsequent packing failure, requiring a unit downpower to 65 percent to repair the valve.

**Significance:** The inspectors assessed the significance of the finding using Appendix A, "Significance Determination of Reactor Inspection Findings for At - Power Situations." Using the questions in Exhibit 1, "Initiating Events Screening Questions," the inspectors determined the finding was of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

**Cross-Cutting Aspect:** H.11 - Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Specifically, when working on the valve packing, the licensee documented valve packing dimensional discrepancies in the work package but did not stop work to resolve the discrepancies. This caused packing to be installed that was outside of allowed tolerances and resulted in the packing leak and subsequent packing failure.

**Enforcement:** Inspectors did not identify a violation of regulatory requirements associated with this finding.

**Failure to Request Exemption from DOT Packaging Requirements**

Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000397/2019012-01 Open/Closed	Not Applicable	71152

The inspectors identified a Severity Level IV, non-cited violation (NCV) of 10 CFR 71.5(b) when the licensee failed to request an exemption from the Department of Transportation (DOT) packaging requirements prior to transporting greater than Type A quantities of radioactive material in a Type A packaging.

**Description:** On March 26, 2013, and April 22, 2014, the licensee shipped packages of radioactive material from Columbia Generating Station to US Ecology in Richland, WA. In each of the shipments, Numbers (Nos.) 13-07 and 14-07, the quantity (activity) of radioactive material exceeded the allowed activity for the type of shipping cask used. Specifically, both shipments of reactor water cleanup resins contained greater than the A2 quantity of normal form radioactive material in a Type A package. However, 49 CFR 173.431 specifies that a Type A package may not contain a quantity greater than A2.

The licensee used an Energy Solutions Model 10-142A cask for these shipments. This cask had previously been certified as Type B (Certification of Compliance No. 9208), but the certification expired October 1, 2008. The inspectors reviewed Certificate of Compliance No. 9208 for the cask and the Safety Evaluation Report. The Safety Evaluation Report stated, "The Model No. 10-142 package was fabricated prior to the 1983 edition of 10 CFR Part 71 and is designation [sic] with B() to identify the timeframe when the application was approved. Regulations in 10 CFR Part 71 will expire packages with the B() designation on October 1, 2008..."

The inspectors also reviewed Information Notice 84-14, "Highlights of Recent Transport Regulatory Revisions by DOT and NRC." It was determined that the 1983 changes related to Type B packages in 10 CFR 71 were somewhat administrative in nature, in that the previous

rules made no distinction in Type B standards as related to multilateral versus unilateral approval for purposes of international shipments. However, there were also changes to design specification and accident test requirements to which the cask had not been subject.

The licensee recognized that the cask was no longer certified as Type B and had modified their procedures accordingly prior to use of the cask for the 2013 and 2014 shipments. The inspectors noted that PPM 11.2.23.43, "Use of the Model 10-142 Transportation Cask," (Revision 000, dated 2/11/13 and Revision 001 dated 4/14/14), stated in Section 2.0, Discussion, "The 10-142 shielded transportation cask...was formerly licensed to transport Type B quantities of radioactive material but is no longer licensed to transport this type of material. A road closure is required to transport Type B quantities of radioactive materials in the 10-142 transportation cask."

The inspectors also noted that the licensee provided the following information in Box 11 of the waste manifest (proper shipping name and UN ID number) for shipments Nos. 13-07 and 14-07:

Radioactive Material – Not Subject to DOT Regulations, Not Entering Public Roadway, RQ – RWCU Resins, 1 High Integrity Container. FOR INFORMATION USE ONLY: UN2916, RQ, Radioactive Material, Type B(U) Fissile Excepted.

The licensee considered the Hanford reservation to be a contiguous facility boundary, since both Columbia and US Ecology lease the land they are sited on from the Department of Energy (DOE); consequently, the licensee assumed 49 CFR 171.1(d)(4) applied. Specifically, 49 CFR 171.1(d)(4) states, in part, that motor vehicle movements of a hazardous material exclusively within a contiguous facility boundary where public access is restricted is not subject to the requirements of the Hazardous Material Regulations.

The inspectors noted that DOT provided Hanford DOE with an interpretation of public access with respect to 49 CFR 171.1 (d)(4) dated April 22, 2014. Specifically, the DOT considered the roads south of the Wye Security Checkpoint on the Hanford reservation as "in commerce" and accessible to the public. Roads north of the checkpoint are "out of commerce" and not accessible to the public. The burial site is located north of the Wye security checkpoint, while Columbia station is located south of the Wye Security Checkpoint.

Regardless, the NRC requirement in 10 CFR 71.5(b) renders the determination of whether the Hanford reservation is considered a contiguous facility moot for shipments of licensed radioactive material. Specifically, 10 CFR 71.5(b) states, in part,

If DOT regulations are not applicable to a shipment of licensed material, the licensee shall conform to the standards and requirements of the DOT specified in paragraph (a) of this section to the same extent as if the shipment or transportation were subject to DOT regulations. A request for modification, waiver, or exemption from those requirements must be made to the director, Office of Nuclear Material Safety and Safeguards (NMSS).

The inspectors noted that the robust design of the cask resulted in external dose rates on the packages that were low, relative to the activity contained within, posing less risk to the public than other Type A packages. Specifically, the maximum contact dose rate on each shielded cask was 25 mrem/hr (No. 13-07) and 50 mrem/hr (No. 14-07). Additionally, during these shipments, public access to the road between Columbia and US Ecology was controlled by

DOE security. The licensee had discussions with the State of Washington and Hanford DOE to coordinate the details of the shipments, further ensuring the public would be adequately protected.

The inspectors discussed the information related to these shipments with staff from NRC NMSS, the organization responsible for approving modifications, waivers, and exemptions to DOT requirements per 10 CFR 71.5(b). After review of the shipping paperwork, NMSS staff concluded that had the licensee submitted a request for an exemption the exemption could have been granted, provided that the licensee demonstrated that the shipment using a Type A packaging posed no more risk than if the material were shipped using a Type B packaging. This determination was supported by the degree of control of public access during the time of shipment and the fact that the packaging used during the shipment was previously certified as a Type B packaging and thus was more robust than a typical Type A packaging. Specifically, during these shipments public access to the road between Columbia and US Ecology was controlled by DOE security. Additionally, the licensee had discussions with the State of Washington and DOE (Hanford) to coordinate the details of the shipments, further ensuring the public would be adequately protected.

**Corrective Actions:** The licensee reviewed procedures and determined that the current procedures neither allowed nor provided direction for shipping radioactive material over public roadways that had been closed. Further, the licensee also determined that no radioactive shipments have been made over “closed” public roadways since the 2014 shipment. Lastly, they determined that procedure SWP-RMP-04, “Radioactive Waste Management Program,” effective August 15, 2018, explicitly calls out the requirement in 10 CFR 71.5(b), i.e., if DOT regulations are not applicable to a shipment of licensed material, they must conform with the standards and requirements of DOT to the same extent as if the shipment were subject to DOT regulations.

**Corrective Action References:** AR 00391202

**Performance Assessment:** The inspectors determined this deviation was associated with a minor performance deficiency.

**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.

**Severity:** The inspectors determined that, based on the relatively low safety significance of these two shipments, as supported by the facts the roads were closed, the shipment was made in accordance with all other DOT regulations, and NMSS would have approved the shipments with reasonable restrictions, the failure to request an exemption was primarily administrative in nature and properly characterized as a Severity Level IV violation. This is similar to the examples of Severity Level IV violations in Sections 6.1.d and 6.8.d of the Enforcement Policy.

**Violation:** 10 CFR 71.5(a) requires, in part, each licensee who transports licensed material outside the site of usage, as specified in the NRC license, shall comply with the applicable requirements of the DOT regulations in 49 CFR parts 107, 171 through 180, and 390 through 397.

49 CFR 171.1(d), "Functions not subject to the requirements of the [Hazardous Materials Regulations]," paragraph (4) states, in part, motor vehicle movements of a hazardous material exclusively within a contiguous facility boundary where public access is restricted, except to the extent that the movement is on or crosses a public road, unless access to the public road is restricted by signals, lights, gates, or similar controls. 10 CFR 71.5(b) requires, in part, if DOT regulations are not applicable to a shipment of licensed material, the licensee shall conform to the standards and requirements of the DOT specified in paragraph (a) of this section to the same extent as if the shipment or transportation were subject to DOT regulations.

49 CFR 173.431(a) requires, in part, that a Type A package may not contain a quantity of radioactive materials greater than A2 for normal form radioactive material.

10 CFR 71.5(b) requires, in part, a request for modification, waiver, or exemption from those requirements be made to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Contrary to the above, on March 16, 2013, and April 22, 2014, the licensee failed to request a modification, waiver, or exemption from those requirements be made to the director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC. Specifically, on those dates the licensee transported greater than an A2 quantity of normal form material in a Type A cask instead of the required Type B cask without requesting an exemption from 49 CFR 173.431(a) because they believed that because both Columbia and US Ecology were exclusively within the contiguous facility boundary of DOE's Hanford Reservation and access to the public road was restricted, that they were not subject to DOT requirements.

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

## **EXIT MEETINGS AND DEBRIEFS**

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

- On May 10, 2019, the inspectors presented the Emergency Plan changes inspection results to Mr. S. Clizbe, Manager, Emergency Preparedness and other members of the licensee staff.
- On May 23, 2019, the inspectors presented the radiation safety inspection results to Mr. R. Schuetz, Vice President, Operations and other members of the licensee staff.
- On June 13, 2019, the inspectors presented the in-service inspection results to Mr. R. Schuetz, Vice President, Operations and other members of the licensee staff.
- On July 11, 2019, the inspectors presented the integrated inspection results to Mr. R. Schuetz, Vice President, Operations; Mr. A. Javorik, Vice President, Engineering; and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Procedures	OI-53	Offsite Power	014
71111.01	Procedures	SOP-HOTWEATHER-OPS	Hot Weather Operations	006
71111.04	Procedures	SOP-CCH-START-QC	Emergency Chill Water Start Quick Card (CCH-CR-1A(B))	000
71111.04	Procedures	SOP-DG1-STBY	Emergency Diesel Generator (DIV 1) Standby Lineup	021
71111.04	Procedures	SOP-DG2-STBY	Emergency Diesel Generator (DIV 2) Standby Lineup	022
71111.04	Procedures	SOP-DG3-STBY	High Pressure Core Spray Diesel Generator Standby Lineup	018
71111.05Q	Corrective Action Documents	Action Requests (ARs)	393353, 383691, 385643, 391432, 392401, 388274, 391035, 380720	
71111.05Q	Miscellaneous	BIP 17-0588	Battery Performance Testing with Cables Running Through Doors	05/18/2019
71111.05Q	Miscellaneous	BIP 17-0628	Door Propped Open for Temp Power to E-MC-8A per SOP-ELEC-DIV2-TEMP	05/27/2019
71111.05Q	Miscellaneous	BIP 18-0236	WMA-FN-53A OOS for Starter Replacement	05/17/2019
71111.05Q	Miscellaneous	BIP 18-0237	WMA-FN-53A OOS for Starter Replacement	05/17/2019
71111.05Q	Miscellaneous	BIP 18-0447	Not Meet Criteria PPM 15.3.17 Gap Exceeds ¼"	02/13/2019
71111.05Q	Miscellaneous	BIP 19-0114	D-Door-D103 Day Tank Room Barrier Impairment Permit	03/14/2019
71111.05Q	Miscellaneous	FPSI 17-0325	Component Impaired: E-BU-W467/17 Reason Impaired: E-PP-7A OOS	05/18/2019
71111.05Q	Miscellaneous	FPSI 18-0182	P82 Isolation Valve Broke Open Fire Protection System Impairment	03/27/2019
71111.05Q	Miscellaneous	ISP 18-0127	Adjustable Speed Drive Building Ignition Source Permit	05/20/2019
71111.05Q	Miscellaneous	TCP 17-0139	Transient Combustible Permit for Vital Island Near Battery Room #1	05/17/2019
71111.05Q	Miscellaneous	TCP 17-0161	Transient Combustible Permit for Vital Island	05/08/2019
71111.05Q	Miscellaneous	TCP 18-0110	Adjustable Speed Drive Building Transient Combustible Permit	05/20/2019
71111.05Q	Procedures	1.3.10A	Control of Ignition Sources	017
71111.05Q	Procedures	1.3.10C	Control of Combustibles	021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.05Q	Procedures	15.3.17	Fire Door Operability – Semiannual, Annual, Biennial	010
71111.05Q	Procedures	PFP-DG-BUILDING	Diesel Generator Building	004
71111.05Q	Procedures	PFP-MN-XFMR-YD-MISC	MN XFMR YD Misc Bldgs	006
71111.05Q	Procedures	PFP-RW-467	Radwaste 467	005
71111.05Q	Work Orders		02137594, 02112550, 02118745, 02115209, 02142058, 02134249, 02138133, 02128140, 02137884	
71111.06	Work Orders		02108117, 02131920	
71111.08G	Corrective Action Documents	Action Requests (ARs)	365087, 366302, 366316, 366440, 366535, 383147, 387552, 387641	
71111.08G	Miscellaneous	G02-1 6-012	Columbia Generating Station, Docket No. 50-397; Inservice Inspection (151) Program Relief Request 4151-05	02/17/2016
71111.08G	Miscellaneous	GO2-16-008	Columbia Generating Station, Docket No. 50-397; Fourth Ten-Year Interval Inservice Inspection (Isi) Program Relief Request 4isi-04	02/04/2016
71111.08G	Procedures	10.2.18	Maintenance Welding Program	019
71111.08G	Procedures	MWP-1	Maintenance Welding Operating Procedure	020
71111.08G	Procedures	MWP-6	ASME General Welding Standard Specification (MWP-6)	017
71111.08G	Procedures	SPS-3-3	Liquid Penetrant Examination - Columbia Generating Station – ISI	002
71111.08G	Procedures	SPS-4-3	Magnetic Particle Examination Columbia Generating Station – IS	002
71111.08G	Procedures	SPS-7-1	Visual Examination	004
71111.08G	Procedures	SPS-7-3	Visual Examination - Component Supports	002
71111.08G	Procedures	SPS-7-4	Visual Examination of Containment	002
71111.08G	Procedures	SPS-7-5	Invessel Visual Inspection of the RPV Internals (IVVI)	008
71111.08G	Self-Assessments	AR-SA 372901	ISI Self-Assessment Report	01/18/2019
71111.12	Corrective Action Documents	Action Requests (ARs)	391893, 392498	
71111.12	Procedures	10.25.7	Testing and Setting Time Delay Relays Other Than	019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			AGASTAT 7000 Series and AGASTAT ETR Series Time Delay Relays	
71111.12	Procedures	SOP-RPS-OPS	Reactor Protector System Operation	016
71111.12	Procedures	SOP-RPS-SHUTDOWN	Reactor Protection System Shutdown	004
71111.12	Work Orders		29148240, 29148215,	
71111.13	Corrective Action Documents	Action Requests (ARs)	387735	
71111.13	Procedures	SOP-CN-CONT-VENT	Containment Vent, Deinert, Purge, and Ventilating	027
71111.13	Procedures	SOP-ELEC-4160V-OPS	4160 Volt AC Electrical Power Distribution System Operation	016
71111.13	Procedures	TSP-DG1-B502	Standby Diesel Generator DG1 Load Testing	021
71111.13	Work Orders		02138577, 02107355, 02112796, 02108394, 02115591	
71111.15	Corrective Action Documents	Action Requests (ARs)	391804, 392102, 392405, 393160, 393183, 393116, 393268, 393270, 360595, 393238	
71111.15	Procedures	SOP-DG-GOV-OIL	Diesel Generator Governor Oil Level Control	003
71111.15	Work Orders		0211353	
71111.18	Calculations		ME-02-08-15, ME-02-90-46	
71111.18	Corrective Action Documents	Action Requests (ARs)	392718, 387700, 387697, 387823, 387740, 387735, 387508, 387517, 387494, 387452, 387795	
71111.18	Engineering Changes		EC 17205, EC 17067, EC 16381, EC 14635, EC 17511	
71111.18	Work Orders		02129443, 02131994, 02117218, 02033672, 02117218, 29146030, 02137240, 02135123, 02033672	
71111.19	Corrective Action Documents	Action Requests (ARs)	391894, 391890, 391986, 380307, 385044, 386214, 393327, 394352, 394350, 393747, 392023, 389079, 395079, 393554	
71111.19	Drawings	43-00,84,1	Cast Steel Swing Check Valve ASME Class 600	001
71111.19	Drawings	43-00,84,2	Cast Steel Swing Check Valve ASME Class 600	002
71111.19	Engineering Changes	EC 17767	Authorize the Use of AP 6000/6300J, AP 7300/7300NHD, AP 5010 and AP 6200N	000
71111.19	Miscellaneous		Valve Packing Datasheet: COND-V-119C (North Side)	000
71111.19	Miscellaneous		Valve Packing Datasheet: COND-V-119C (North Side)	001
71111.19	Miscellaneous		Valve Packing Datasheet: COND-V-119C (North Side)	002



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.19	Miscellaneous		Valve Packing Datasheet: COND-V-119C (South Side)	002
71111.19	Miscellaneous		Valve Packing Datasheet: COND-V-119A (North Side)	001
71111.19	Miscellaneous		Valve Packing Datasheet: COND-V-119A (South Side)	001
71111.19	Miscellaneous		Valve Packing Datasheet: COND-V-119B (North Side)	001
71111.19	Miscellaneous		Valve Packing Datasheet: COND-V-119B (South Side)	001
71111.19	Procedures	10.2.101	Informational Visual Examinations	005
71111.19	Procedures	10.2.79	Valve Packing and Live Loading	017
71111.19	Procedures	10.2.79	Valve Packing and Live Loading	018
71111.19	Procedures	10.25.74	Testing Motor Operated Valve Motors and Controls	031
71111.19	Procedures	ISP-SRM-X302	Source Range Monitor Channel B Calibration	013
71111.19	Procedures	OSP-CCH/IST-M701	Control Room Emergency Chiller System A Operability	044
71111.19	Procedures	OSP-INST-M201	Accident Monitoring Instrumentation Channel Checks	014
71111.19	Procedures	OSP-RHR-M101	RHR A Fill Verification	021
71111.19	Procedures	OSP-RHR/IST-Q702	RHR Loop A Operability Test	052
71111.19	Work Orders		02138577, 02137236, 02133303, 02109358, 02110811, 02111439, 02120341, 02072877, 02042797	
71111.20	Corrective Action Documents	Action Requests (ARs)	395061, 395063, 395065, 395097, 395175, 395183, 395187, 395849, 395862, 395863	
71111.20	Miscellaneous		R24 Outage Shutdown Safety Plan	000
71111.20	Miscellaneous		CGS Pull Sheet	06/13/2019
71111.20	Miscellaneous		Reactivity Control Plan June 2019 Cycle 25 BOC Startup	06/09/2019
71111.20	Miscellaneous		Restart Committee Decision Interoffice Memo	06/13/2019
71111.20	Miscellaneous	DIC 1814.2	Startup ECP Work Sheet	06/13/2019
71111.20	Procedures	3.1.1	Master Startup Checklist	063
71111.20	Procedures	3.1.2	Reactor Plant Startup	087
71111.20	Procedures	6.3.5	Full Core Verification	012
71111.20	Procedures	9.3.12	Plant Power Maneuvering	035
71111.20	Procedures	9.3.12	Plant Power Maneuvering	036
71111.20	Procedures	9.3.6	Estimated Critical Position Calculation	006
71111.20	Procedures	SOP-ENTRY-STMTNL	Personnel Entry Into Steam Tunnel	009
71111.20	Procedures	SWP-OPS-05	Restart Evaluation Process	006
71111.20	Work Orders		02109605	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.22	Procedures	OSP-HPCS/IST-Q701	HPCS System Operability Test	057
71111.22	Procedures	OSP-HPCS/IST-Q701	HPCS System Operability Test	058
71111.22	Procedures	OSP-RHR/IST-Q704	RHR Loop C Operability Test	040
71111.22	Procedures	TSP-DG1-B502	Standby Diesel Generator DG1 Load Testing	021
71111.22	Procedures	TSP-DG1-X501	DG1 Shutdown Logic Checks	003
71111.22	Work Orders		02110255, 02136226, 02108394, 02108414	
71124.01	Corrective Action Documents	Action Request (ARs)	00375624, 00384862, 00385428, 00385523, 00385716, 00386154, 00386439, 00387308, 00387309, 00388642, 00390586, 00391275, 00391600, 00392140, 00392514, 00392528, 00393389, 00393341, 00393455, 00393541, 00393618, 00393651, 00394062, 00394080	
71124.01	Miscellaneous	DAC-0446	Scaling Factor Determination at Columbia Generating Station - 2017	02/28/2018
71124.01	Miscellaneous	DIC 1554.5	Columbia Generating Station Scaling Factors	03/12/2018
71124.01	Miscellaneous	NSTS Form 748	2019 Annual Inventory Reconciliation Confirmation	01/31/2019
71124.01	Miscellaneous	Prod-M-20181004-4	Semi-Annual Sealed Source Leak Testing Survey	10/04/2018
71124.01	Miscellaneous	Prod-M-20190328-4	Semi-Annual Sealed Source Leak Testing Survey	03/28/2019
71124.01	Miscellaneous	SDG 435055	Energy Northwest Part 61 Analysis	10/20/2017
71124.01	Miscellaneous	SDG 443536	Energy Northwest Part 61 Analysis	02/19/2018
71124.01	Procedures	1.11.15	Control of Radioactive Material	013
71124.01	Procedures	11.2.13.1	Radiation and Contamination Surveys	040
71124.01	Procedures	11.2.13.8	Airborne Radioactivity Surveys	019
71124.01	Procedures	11.2.14.4	Procurement, Receipt, Control and Leak Testing of Radioactive Sealed Sources and Devices	025
71124.01	Procedures	11.2.14.9	Control and Labeling of Radioactive Material	021
71124.01	Procedures	11.2.2.14	Radiological Planning and Reviews	004
71124.01	Procedures	11.2.7.1	Area Posting	044
71124.01	Procedures	11.2.7.3	High Radiation Area, Locked High Radiation Area, and Very High Radiation Area Controls	042
71124.01	Procedures	11.2.8.2	Radiation Work Permit Preparation and Use	001
71124.01	Procedures	6.1.1	Spent Fuel Pool Inventory	010
71124.01	Procedures	GEN-RPP-04	Entry Into, Conduct In, And Exit From Radiologically	032, 033

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Controlled Areas	
71124.01	Procedures	HPI-0.19	Radiation Protection Standards and Expectations	019
71124.01	Procedures	HPI-12.74	Radiological Control of Upper Containment Areas	005
71124.01	Procedures	SWP-RPP-01	Radiation Protection Program	016
71124.01	Radiation Surveys	VSDS_Prod-M-20170606-22	RB 606' Tri-Nuke Filter Dose Profile	06/06/2017
71124.01	Radiation Surveys	VSDS_Prod-M-20190502-9	RB 522' Monthly Survey	05/12/2019
71124.01	Radiation Surveys	VSDS_Prod-M-20190511-15	RB 501' Floor Survey	05/11/2019
71124.01	Radiation Surveys	VSDS_Prod-M-20190513-7	Drywell 512'	05/13/2019
71124.01	Radiation Surveys	VSDS_Prod-M-20190514-63	RB 606' Monthly Survey Map	05/14/2019
71124.01	Radiation Surveys	VSDS_Prod-M-20190516-2	RB 441' and 422' North Floor Survey	05/16/2019
71124.01	Radiation Surveys	VSDS_Prod-M-20190516-54	RB 548' Monthly Survey	05/16/2019
71124.01	Radiation Surveys	VSDS_Prod-M-20190519-4	Drywell 548'	05/19/2019
71124.01	Radiation Surveys	VSDS_Prod-M-20190520-1	Drywell 535'	05/20/2019
71124.01	Radiation Surveys	VSDS_Prod-M-20190522-25	Drywell 501'	05/22/2019
71124.01	Radiation Work Permits (RWPs)	RWP 30004257	R24 RF Rx Cavity Disassembly Work - High-Risk	001
71124.01	Radiation Work Permits (RWPs)	RWP 30004258	R24 WW/Rx Dive Inspection (Divers) - LHRA - High-Risk	000
71124.01	Radiation Work Permits (RWPs)	RWP 30004304	R24 Rx 522 RWCU Pump Rooms and Mezzanine - LHRA - High-Risk - STK	001
71124.01	Radiation Work Permits (RWPs)	RWP 30004311	R24 Rx Building RWCU V-4 Actuator/Stem Replacement LHRA - MPacks	000
71124.01	Radiation Work Permits (RWPs)	RWP 30004451	R24 Drywell NDE N2 Nozzles Including All Support Work - LHRA	000

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71124.01	Radiation Work Permits (RWPs)	RWP 30004458	R24 Rx 548' North Pipe Space - LHRA	000
71124.01	Radiation Work Permits (RWPs)	RWP 30004469	2019 Dryer/Separator Equipment Pit Entry - LHRA, HCA	003
71124.01	Self-Assessments		Self-Assessment: 71124.01-02 Inspection Requirements	03/13/2019
71124.01	Self-Assessments	AR-SA 00387308	Snapshot Self-Assessment Report: Occupational Exposure Control Effectiveness	04/09/2019
71124.01	Self-Assessments	AR-SA 00387309-01	Snapshot Self-Assessment Report: Assessment of the Columbia Generating Station (CGS) Radiological Protection (RP) Program against the criteria in NRC Inspection Procedure (IP) 71124 Attachment 01, "Radiological Hazard Assessment and Exposure Controls"	02/21/2019
71124.02	Corrective Action Documents	Action Request (ARs)	375728, 375773, 376843, 377233, 377233, 377691, 378833, 378938, 379010, 379010, 379078, 380038, 381728, 382527, 383044, 383048, 384812, 384863, 386439, 387461, 388325, 389329, 390585, 391026, 392305, 393112	
71124.02	Corrective Action Documents Resulting from Inspection	Action Request (AR)	393996	
71124.02	Miscellaneous	RWP 30004258	ALARA In-Progress Review: Wet well diving task to install temporary covers on the RHR Pump C suction strainers RHR-ST-4A and 4B to support internal repairs of RHR-V-4C	05/22/2019
71124.02	Miscellaneous	RWP 30004318	ALARA in-Progress Review: Exchange 20 CRDM's Under Vessel 501' [ALARA Task 02111975-43-01]	05/19/2019
71124.02	Miscellaneous	RWP 30004318	ALARA In-Progress Review: R24 CRDM Under Vessel Remove and Replace - LHRA/High Risk [ALARA Task 02111975 43 01]	05/20/2019
71124.02	Miscellaneous	RWP 30004350	ALARA In-Progress Review: 40% and 80% Estimate for MS-V-28B/C Miscellaneous support work in Steam	05/22/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Tunnel (ALARA Task 02079278-01-01)	
71124.02	Miscellaneous	RWP 30004350	ALARA In-Progress Review: 40% of Estimate for MS-V-28B/C Miscellaneous support work in Steam Tunnel (ALARA Task 02079278-01-02); Stuck poppet on MS-V-28B	05/22/2019
71124.02	Procedures	11.2.2.11	Exposure Evaluations for Maintaining TEDE ALARA	008
71124.02	Procedures	11.2.2.12	Radiological Risk Assessment and Management	008
71124.02	Procedures	11.2.2.13	Flushing and Shielding Evaluations	002
71124.02	Procedures	11.2.2.14	Radiological Planning and Reviews	004
71124.02	Procedures	11.2.2.7	ALARA Procedure Analysis	012
71124.02	Procedures	11.2.2.8	ALARA Engineering Analysis	007
71124.02	Procedures	11.2.8.2	Radiation Work Permit Preparation and Use	001
71124.02	Procedures	GEN-RPP	Senior Site ALARA Committee	013
71124.02	Procedures	GEN-RPP-01	ALARA Program Description	009
71124.02	Procedures	GEN-RPP-02	Radiological Planning and Control Process	034
71124.02	Radiation Surveys	Air Samples	922818, 932241, 932309, 932310	
71124.02	Radiation Surveys	Prod-M-20190513-07	Drywell 512'	05/13/2019
71124.02	Radiation Surveys	Prod-M-20190519-04	Drywell 548'	05/19/2019
71124.02	Radiation Surveys	Prod-M-20190520-01	Drywell 535'	05/20/2019
71124.02	Radiation Surveys	Prod-M-20190520-39	Reactor Building 522' RWCU Pump Room "A"	05/20/2019
71124.02	Radiation Surveys	Prod-M-20190522-25	Drywell 501'	05/22/2019
71124.02	Radiation Surveys	Prod-M-20190523-15	Reactor Building 522' RWCU P/R Mezz (RWCU-4) Insulation Removal	05/23/2019
71124.02	Radiation Work Permits (RWPs)	RWP 30004253	R24 Refuel Fuel Shuffle, IVVI, and CRB Exchange Work [RWP Package]	000
71124.02	Radiation Work Permits (RWPs)	RWP 30004257	R24 Refuel Reactor Cavity Disassembly Work - HR [RWP Package]	001
71124.02	Radiation Work	RWP 30004258	R24 Wet Well/Reactor Dive Inspection (Divers) -	000

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Permits (RWPs)		LHAR/High Risk [RWP Package]	
71124.02	Radiation Work Permits (RWPs)	RWP 30004304	R24 RX 522' RWCU Pump Rooms and Mezzanine - LHRA/High Risk [RWP Package]	001
71124.02	Radiation Work Permits (RWPs)	RWP 30004311	R24 RX Bldg RWCU-V-4 Actuator/ Stem Replacement - LHRA-MPacks [RWP Package]	000
71124.02	Radiation Work Permits (RWPs)	RWP 30004347	R24 DW MSRV Maintenance - LHRA [RWP Package]	000
71124.02	Radiation Work Permits (RWPs)	RWP 30004375	R24 DW/Under Vessel Subpile Floor Tasks - LHRA/High Risk [RWP Package]	000
71124.02	Radiation Work Permits (RWPs)	RWP 30004450	R24 DW Non-Destructive Examination of Reactor Pressure Vessel Nozzles N4B, N4C, & N5 - LHRA [RWP Package]	000
71124.02	Radiation Work Permits (RWPs)	RWP 30004451	R24 DW Non-Destructive Examination of N2 Nozzles Including All Support Work - LHRA [RWP Package]	000
71124.02	Radiation Work Permits (RWPs)	RWP 30004469	Dryer Separator/ Equipment Pit Entry, LHRA, HCA ALARA Plan [RWP Package]	003
71124.02	Radiation Work Permits (RWPs)	RWP 30004469	2019 Dryer Separator/Equipment Pit Entry - LHRA, HCA [RWP Package]	003
71124.02	Self-Assessments	AR-SA-387307	Occupational ALARA Planning and Controls	02/19/2019
71151	Corrective Action Documents	Action Request (AR)	389652	
71151	Miscellaneous		Operations Logs June 1, 2018 – May 31, 2019	06/19/2019
71151	Procedures	HPI-0.14	Assessing and Reporting NRC Occupational Exposure Control Effectiveness Performance Indicator Data	005
71151	Procedures	SWP-OPS-02	Safety Function Determination Program	008
71152	Corrective Action Documents	Action Requests (ARs)	391347, 391337, 391352, 392605, 392596, 392587, 392497, 392495, 392471, 391797, 392100, 391754, 388645, 389825, 391314, 391484, 391557, 392273, 392400, 393271, 393285, 393427, 393492, 393448, 393450, 393709, 393526, 393678, 393690, 393853, 393870, 393918, 393945, 394021, 394131, 394155, 394206, 394208, 394253, 394266, 394271, 394355, 394407, 394418, 394446, 394452, 394626, 394627,	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			394630, 394733, 394746, 395035, 395075, 395109, 395175, 360236, 391202, 360236	
71152	Procedures	SWP-CAP-01	Corrective Action Program	040
		SWP-RMP-04	Radioactive Waste Management Program	000
71152	Procedures	TM-01	Trending Manual	003
	Shipping Records	13-07	Shipment of EL-142 HIC in the 10-142A-005 Transportation Cask	3/26/2013
		14-07	Shipment of 14-015-HP in a 10-142A Transportation Cask	4/22/2014
71152	Work Orders		02108276, 02111924, 02108276, 02116077	
71153	Work Orders		02119476	

## **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 31500011. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

**Information Request  
January 24, 2019  
Notification of Inspection and Request for Information  
Columbia Generating Station  
NRC Inspection Report 05000397/2019002**

### **INSERVICE INSPECTION DOCUMENT REQUEST**

Inspection Dates: May 14 – 23, 2019

Inspector: Wayne C. Sifre

#### **A. Information Requested for the In-Office Preparation Week**

The following information should be sent to the Region IV office in hard copy or electronic format or via a secure document management service, in care of Wayne Sifre, by April 29, 2019, to facilitate the selection of specific items that will be reviewed during the onsite inspection week. The inspector will select specific items from the information requested below and then request from your staff additional documents needed during the onsite inspection week. We ask that the specific items selected from the lists be available and ready for review on the first day of inspection. Please provide requested documentation electronically if possible. If requested documents are large and only hard copy formats are available, please inform the inspector, and provide subject documentation during the first day of the onsite inspection.

If you have any questions regarding this information request, please call the inspector as soon as possible.

On May 14, 2019, a reactor inspector from the Region IV office will perform the baseline inservice inspection at Columbia Generating Station, using NRC Inspection Procedure 71111.08, "Inservice Inspection Activities." Experience has shown that this inspection is a resource intensive inspection both for the NRC inspector and your staff. The date of this inspection may change dependent on the outage schedule you provide. In order to minimize the impact to your onsite resources and to ensure a productive inspection, we have enclosed a request for documents needed for this inspection. The information identified on this request (Section A) is to be provided prior to the inspection to ensure that



the inspector is adequately prepared. The section identified as “Documents Upon Request” is intended to provide guidance to the type of information an inspector will be requesting to complete the inspection. It is important that all of these documents are up to date and complete in order to minimize the number of additional documents requested during the preparation and/or the onsite portions of the inspection (i.e., condition reports with attachments).

We have discussed the schedule for these inspection activities with your staff and understand that our regulatory contact for this inspection will be Sandra Christianson of your licensing organization. The tentative inspection schedule is as follows:

Preparation week: May 6 – 10, 2019

Onsite weeks: May 14 – 23, 2019

Our inspection dates are subject to change based on your updated schedule of outage activities. If there are any questions about this inspection or the material requested, please contact Wayne Sifre at (817) 200-1193. (email: [Wayne.Sifre@nrc.gov](mailto:Wayne.Sifre@nrc.gov))

#### A.1 ISI/Welding Programs and Schedule Information

1. A detailed schedule (including preliminary dates) of:
  - 1.1. Nondestructive examinations planned for ASME Code Class Components performed as part of your ASME Section XI, risk informed (if applicable), and augmented inservice inspection programs during the upcoming outage.
  - 1.2. Examinations planned for Alloy 82/182/600 components that are not included in the Section XI scope (If applicable)
  - 1.3. Welding activities that are scheduled to be completed during the upcoming outage (ASME Class 1, 2, or 3 structures, systems, or components)
2. A copy of ASME Section XI Code Relief Requests and associated NRC safety evaluations applicable to the examinations identified above.
  - 2.1. A list of ASME Code Cases currently being used to include the system and/or component the Code Case is being applied to.
3. A list of nondestructive examination reports which have identified recordable or rejectable indications on any ASME Code Class components since the beginning of the last refueling outage. This should include the previous Section XI pressure test(s) conducted during start up and any evaluations associated with the results of the pressure tests.
4. A list including a brief description (e.g., system, code class, weld category, nondestructive examination performed) associated with the repair/replacement activities of any ASME Code Class component since the beginning of the last outage and/or planned this refueling outage.
5. If reactor vessel weld examinations required by the ASME Code are scheduled to occur during the upcoming outage, provide a detailed description of the welds to be

examined and the extent of the planned examination. Please also provide reference numbers for applicable procedures that will be used to conduct these examinations.

6. Copy of any 10 CFR Part 21 reports applicable to structures, systems, or components within the scope of Section XI of the ASME Code that have been identified since the beginning of the last refueling outage.
7. A list of any temporary non-code repairs in service (e.g., pinhole leaks).
8. Please provide copies of the most recent self-assessments for the inservice inspection, welding, and Alloy 600 programs.
9. A copy of (or ready access to) most current revision of the inservice inspection program manual and plan for the current interval.
10. Copy of NDE procedures for NDE that will be used during the outage.
11. Copy of overarching site procedure for welding.

#### A.2 Additional Information Related to all Inservice Inspection Activities

1. A list with a brief description of inservice inspection entered into your corrective action program since the beginning of the last refueling outage. For example, a list based upon data base searches using key words related to piping such as: inservice inspection, ASME Code, Section XI, NDE, cracks, wear, thinning, leakage, rust, corrosion, or errors in piping examinations.
2. Provide training (e.g. Scaffolding, Fall Protection, FME, Confined Space) if they are required for the activities described in A. 1.
3. Please provide names and phone numbers for the following program leads:

Inservice inspection (examination, planning)  
Containment exams  
Reactor pressure vessel head exams  
Snubbers and supports  
Repair and replacement program  
Licensing  
Site welding engineer

#### DOCUMENTS UPON REQUEST

##### Inservice Inspection / Welding Programs and Schedule Information

1. Updated schedules for inservice inspection/nondestructive examination activities, including planned welding activities, and schedule showing contingency repair plans, if available.
2. For ASME Code Class welds selected by the inspector please provide copies of the following documentation (as applicable) for each subject weld:

- Weld data sheet (traveler).
  - Weld configuration and system location.
  - Applicable welding procedures used to fabricate the welds.
  - Copies of procedure qualification records (PQRs).
  - Welder's performance qualification records (WPQ).
  - Nonconformance reports for the selected welds (If applicable).
  - Radiographs of the selected welds and access to equipment to allow viewing radiographs (if radiographic testing was performed).
  - Preservice and inservice examination records for the selected welds.
  - Readily accessible copies of nondestructive examination personnel qualifications records for reviewing.
3. For ultrasonic examination procedures qualified in accordance with ASME Code, Section XI, Appendix VIII, provide documentation supporting the procedure qualification (e.g. the EPRI performance demonstration qualification summary sheets). Also, include qualification documentation of the specific equipment to be used (e.g., ultrasonic unit, cables, and transducers including serial numbers) and nondestructive examination personnel qualification records.

#### Codes and Standards

1. Ready access to (i.e., copies provided to the inspector(s) for use during the inspection at the onsite inspection location, or room number and location where available):
  - Applicable Editions of the ASME Code (Sections V, IX, and XI) for the inservice inspection program and the repair/replacement program.
2. Copy of the performance demonstration initiative (PDI) generic procedures with the latest applicable revisions that support site qualified ultrasonic examinations of piping welds and components (e.g., PDI-UT-1, PDI-UT-2, PDI-UT-3, PDI-UT-10, etc.).