



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

January 22, 2020

Mr. Brad Sawatzke
Chief Executive Officer
Energy Northwest
MD 1023
P.O. Box 968
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION – INTEGRATED INSPECTION
REPORT 05000397/2019004

Dear Mr. Sawatzke:

On December 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Columbia Generating Station. On January 9, 2020, the NRC inspectors discussed the results of this inspection with Mr. R. Schuetz, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

Four findings of very low safety significance (Green) are documented in this report. Four of these findings involved violations of NRC requirements. 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 Columbia Generating Station.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the 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 Title 10 of the Code of Federal Regulations 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Jeffrey E. Josey, Chief
Reactor Projects Branch A
Division of Reactor Projects

Docket No. 05000397
License No. NPF-21

Enclosure:
As stated

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COLUMBIA GENERATING STATION – INTEGRATED INSPECTION
REPORT 05000397/2019004 – January 22, 2020

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 05000397

License Number: NPF-21

Report Number: 05000397/2019004

Enterprise Identifier: I-2019-004-0010

Licensee: Energy Northwest

Facility: Columbia Generating Station

Location: Richland, WA

Inspection Dates: October 1, 2019, to December 31, 2019

Inspectors: G. Kolcum, Senior Resident Inspector
L. Merker, Resident Inspector
B. Baca, Resident Inspector
L. Carson, Senior Health Physicist
K. Clayton, Senior Operations Engineer
N. Greene, Senior Health Physicist
M. Hayes, Operations Engineer
N. Hernandez, Operations Engineer
J. O'Donnell, Health Physicist

Approved By: Jeffrey E. Josey, Chief
Reactor Projects 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

Loss of Diesel Starting Air Results in High Pressure Core Spray Inoperability			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000397/2019004-01 Open/Closed	[P.5] - Operating Experience	71111.15
The inspectors reviewed a self-revealed, Green, non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to perform maintenance in accordance with written procedures appropriate to the circumstances. Specifically, Procedure SOP-DG-DSA, "Diesel Starting Air Operations," Revision 15, was not appropriate to the circumstances in that it did not provide proper isolation and depressurization guidance when removing air receiver 1C from service. As a result, the licensee opened the diesel starting air cross connect valve as part of work activities under Work Order (WO) 02141293 and rendered the high pressure core spray service water system, high pressure core spray system, and diesel generator 3 inoperable.			

Failure to Periodically Calibrate Radiation Monitors			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Occupational Radiation Safety	Green NCV 05000397/2019004-02 Open/Closed	[H.3] - Change Management	71124.05
The inspectors identified a Green, non-cited violation of 10 CFR 20.1501(c) for failure to periodically calibrate installed radiation monitoring equipment used to perform dose rate measurements. Specifically, beginning May 31, 2013, the licensee has failed to calibrate 22 installed radiation monitors within the frequency described in its licensing basis.			

Failure to Follow Radioactive Material Control Procedures			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Public Radiation Safety	Green NCV 05000397/2019004-03 Open/Closed	[H.12] - Avoid Complacency	71124.08
The inspectors documented a self-revealed, Green, non-cited violation of Technical Specification 5.4.1.a. for failure to follow radiologically controlled area material release Procedure GEN-RPP-04, "Entry Into, Conduct In, and Exit from Radiologically Controlled Areas," Revision 33. Specifically, on June 9, 2019, a supplemental worker alarmed a protected area exit portal monitor with two tool bags of equipment which were previously escorted by a supplemental radiation protection technician through the radiologically			

controlled area and were not surveyed in the tool and equipment monitor prior to being removed from the radiologically controlled area.

Failure of 10 CFR 61.56(b)(3) to Ensure the Void Space Within a Waste Package was Reduced to the Extent Practicable

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Public Radiation Safety	Green NCV 05000397/2019004-04 Open/Closed	[H.8] - Procedure Adherence	71124.08

The inspectors documented a self-revealed, Green, non-cited violation of 10 CFR 61.56(b)(3) for failure to ensure the void space within a waste package was reduced to the extent practicable. Specifically, on September 4, 2019, a shipment of resin sent to US Ecology did not have less than 15 percent void space contrary to the requirements in US Ecology's Radioactive Material License WN-I019-2, Amendment 41, License Condition No. 24.

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000397/2019-001-00	Loss of Diesel Starting Air During Maintenance Leads to Loss of High Pressure Core Spray System	71153	Closed

PLANT STATUS

The unit began the inspection period at rated thermal power. On November 1, 2019, plant power was reduced to 82 percent to perform control rod sequence exchanges and then returned to 100 percent. On December 14, 2019, the unit was down powered to 65 percent to perform control rod sequence exchanges, control rod scram time testing, turbine valve testing, main steam bypass valve testing, and planned repairs to reactor feed pump drive turbine 1A. The unit was returned to rated thermal power on December 15, 2019, where it remained at full power 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 period 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

71111.04Q - 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 3 starting air on October 1, 2019
- (2) Diesel generator 2 starting air on October 2, 2019
- (3) Standby liquid control system B on October 24, 2019
- (4) Emergency chilled water system B on December 19, 2019

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (4 Samples)

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

- (1) Fire Area R-3/#, high pressure core spray pump room, on November 14, 2019
- (2) Fire Area R-8/1, low pressure core spray pump room, on November 14, 2019
- (3) Fire Area R-5/1, residual heat removal pump 2A room, on November 14, 2019
- (4) Fire Area R-4/2, residual heat removal pump 2B room, on November 14, 2019

71111.11B - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Requalification Program (IP Section 03.04) (1 Sample)

(1) Biennial Requalification Written Examinations

The inspectors evaluated the quality of the licensed operator biennial requalification written examination administered on December 2, 2019.

Annual Requalification Operating Tests

The inspectors evaluated the adequacy of the facility licensee's annual requalification operating test.

Administration of an Annual Requalification Operating Test

The inspectors evaluated the effectiveness of the facility licensee in administering requalification operating tests required by Title 10 of the Code of Federal Regulations (10 CFR) 55.59(a)(2) and that the facility licensee is effectively evaluating their licensed operators for mastery of training objectives.

Requalification Examination Security

The inspectors evaluated the ability of the facility licensee to safeguard examination material, such that the examination is not compromised.

Remedial Training and Re-examinations

The inspectors evaluated the effectiveness of remedial training conducted by the licensee, and reviewed the adequacy of re-examinations for licensed operators who did not pass a required requalification examination.

Operator License Conditions

The inspectors evaluated the licensee's program for ensuring that licensed operators meet the conditions of their licenses.

Control Room Simulator

The inspectors evaluated the adequacy of the facility licensee's control room simulator in modeling the actual plant and for meeting the requirements contained in 10 CFR 55.46.

Problem Identification and Resolution

The inspectors evaluated the licensee's ability to identify and resolve problems associated with licensed operator performance.

71111.11Q - Licensed Operator Regualification 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 a reactor downpower to perform a control rod sequence exchange on November 1, 2019. The inspectors also observed and evaluated licensed operator performance in the control room during a planned downpower and control rod scram time testing on December 14, 2019.

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

- (1) The inspectors observed and evaluated a licensed operator regualification training drill (Crew D) on October 29, 2019.

71111.12 - Maintenance Effectiveness

Quality Control (IP Section 02.02) (1 Sample)

The inspectors evaluated maintenance and quality control activities associated with the following equipment performance activities:

- (1) standby liquid control system maintenance on October 22, 2019

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (2 Samples)

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

- (1) yellow risk for diesel generator 1 system maintenance on October 10, 2019
- (2) yellow risk for residual heat removal system B maintenance October 21-23, 2019

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 02.02) (2 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) standby liquid control system A relief valve setpoint and seat leakage test failures on November 7, 2019
- (2) diesel generator 3 loss of starting air pressure on December 13, 2019

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (2 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) diesel generator 1 on October 10, 2019
- (2) standby liquid control system B on October 31, 2019

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (1 Sample)

- (1) OSP-SLC/IST-Q701, standby liquid control system operability, on October 16, 2019

RCS Leakage Detection Testing (IP Section 03.01) (1 Sample)

- (1) SOP-FDR-OPS, floor drain system operation, on December 17, 2019

RADIATION SAFETY

71124.05 - Radiation Monitoring Instrumentation

Walk Downs and Observations (IP Section 02.01) (1 Sample)

The inspectors evaluated radiation monitoring instrumentation during plant walkdowns.

- (1) The inspectors reviewed the following:

Portable Survey Instruments

- 7-F197
- 7-F100
- 7-F104
- R0166
- R0265
- T099
- RV02

Source Check Demonstration

- R0166
- R0265
- T099

Area Radiation Monitors and Continuous Air Monitors

- ARM 27
- ARM 7
- ARM 1
- ARM 2

- TB-1 (AMS-4)
- RW-4 (AMS-3)

Personnel Contamination Monitors, Portal Monitors and Small Article Monitors

- HP-EQ-42822 (GEM-5)
- HP-EQ-42813 (SAM12)
- HP-EQ-42820 (ARGOS 5AB)

Calibration and Testing Program (IP Section 02.02) (1 Sample)

The inspectors evaluated the calibration and testing program implementation.

- (1) The inspectors reviewed the following:

Alarm Setpoint and Calibration Method Check of Personnel Contamination Monitors, Portal Monitors, and Small Article Monitors

- HP-EQ-42822 (GEM-5)
- HP-EQ-42813 (SAM12)

Failure to Meet Calibration or Source Check Acceptance Criteria

- T077
- R0168
- F070

71124.06 - Radioactive Gaseous and Liquid Effluent Treatment

Walk Downs and Observations (IP Section 02.01) (1 Sample)

The inspectors walked down the following gaseous and liquid radioactive effluent monitoring and filtered ventilation systems to assess the material condition and verify proper alignment according to plant design:

- (1)
- Low level radwaste radiation monitor, FDR-RIS-606
 - Turbine building, TEA-RIS-13 Low/high range noble gas monitor, channel 1
 - Plant service water, TSW-RIS-5
 - Radwaste building, WEA-RIS-14 low/high range monitor

Calibration and Testing Program (Process & Effluent Monitors) (IP Section 02.02) (1 Sample)

The inspectors reviewed the following gaseous and liquid effluent monitor instrument calibrations and tests:

- (1)
- ISP-REA/PRM-X302, CC/RC secondary containment isolation RX bldg. vent RIS-609-B, 03/05/2019
 - ISP-REA/PRM-X304, CC/RC secondary containment isolation RX Bldg. vent RIS-609-D, 04/08/2019
 - Low Level radwaste radiation monitor FDR-RIS-606 RAD CAL, 09/11/2019

Sampling and Analysis (IP Section 02.03) (1 Sample)

The inspectors reviewed the following:

(1) Radioactive Effluent Sampling and Analysis Activities

- Weekly Iodine, Particulate, Tritium Gas, 11/07/2019
- Weekly Iodine, Particulate, Tritium Gas, 11/07/2019

Effluent Discharges

- The licensee discharges gaseous radwaste effluents from the plant on a continuous basis. The inspectors reviewed gaseous radwaste operations during this onsite inspection and reviewed the gaseous radwaste effluent results in the licensee's 2017 and 2018 Annual Radioactive Effluent Release Reports, including associated records.
- The licensee has not discharged liquid effluents from plant systems into the Columbia River since 1998.
- However, in 2018, the licensee sent 5,500 gallons of liquid radwaste and 3,400 gallons of oily radwaste to an offsite waste processor for release.

Instrumentation and Equipment (IP Section 02.04) (1 Sample)

The inspectors reviewed the following radioactive effluent discharge system surveillance test results:

(1) The following Air Cleaning System Surveillances were reviewed by the inspectors:

- Standby Gas Treatment Unit-A HEPA, 11/15/2018
- Standby Gas Treatment Unit-A Filtration, 11/14/2018
- WEA-FU-1A-HEPA Filter Test (RW BLDG Filter Unit), 07/11/2018

There was no opportunity for inspectors to observe electronic and radiation calibration of the high-range effluent monitoring Instrumentation during this inspection period.

Dose Calculations (IP Section 02.05) (1 Sample)

The inspectors reviewed the following to assess public dose:

(1) Liquid and Gaseous Discharge Permits

- Columbia Generating Station does not use liquid discharge permit and gaseous discharge permits in general.
- Columbia Generating Station is a continuous release plant from a gaseous effluent perspective, and confirms compliance with dose limits via alarm set points and monthly surveillance procedures.
- The licensee has not discharged liquid effluents from plant systems into the Columbia River since 1998.

Annual Radiological Effluent Release Reports

- 2018 Columbia Generating Station Annual Radioactive Effluent Release Report, submitted April 2019

- 2017 Columbia Generating Station Annual Radioactive Effluent Release Report, submitted April 2018

Abnormal Gaseous or Liquid Tank Discharges

- There were no abnormal gaseous or liquid discharges available for review during this inspection period.

71124.07 - Radiological Environmental Monitoring Program

Site Inspection (IP Section 02.01) (1 Sample)

The inspectors evaluated the radiological environmental monitoring program implementation.

- (1) The inspectors reviewed the following:

Walkdowns, Calibrations, and/or Maintenance Record Review

Air Sampling Stations

- Station 5
- Station 8
- Station 9
- Station 21b
- Station 40
- Station 48
- Station 119B

TLD Locations

- TLD-5
- TLD-8
- TLD-40
- TLD-41
- TLD-42
- TLD-44

Environmental Sample Collections and Preparation Observation

- Bleazard Dairy Farms - Milk
- Station 01 - Soil Grab Sample
- Station 101B - Composite Storm Drain Water

Licensee Actions in Response to Missed Sample, Inoperable Sampler, Lost TLD or Anomalous Measurement

- In 2017, the licensee noted 12 REMP sample deviations, with the majority being issues with the air samplers. In all cases of the air sampler or water sampler being out of service, the issue involved power interruptions, in which the equipment issue was corrected and returned to service within a week period. One deviation involved a TLD missing from the Station 11 location, resulting in no 2017 second quarter data available for this location. However, all required REMP sampling stations achieved greater than 90 percent time in service over the annual period.

- In 2018, the licensee noted one ODCM required REMP sample deviation, the air sampler located at Station 48, which was deemed out-of-service for 7 days due to a defective fuse apparatus. The air sampler pump was replaced and the fuse holder was repaired. All required REMP sampling stations achieved greater than 90 percent time in service over the annual period.

Sampling Program for the Potential of Licensed Material Entering Groundwater

- Monitoring well #3
- Monitoring well #5
- Monitoring well #7
- Monitoring well #8
- Monitoring well #10
- Monitoring well #11
- Monitoring well #12

Groundwater Protection Initiative (GPI) Implementation (IP Section 02.02) (1 Sample)

- (1) The inspectors evaluated the licensee's voluntary groundwater protection initiative. A few observations made were as follows:
 - The general maintenance of the groundwater monitoring wells was adequate, with a couple of wells surrounded by areas unkempt.
 - Monitoring wells 1, 2, and 4 were deemed dry.
 - One monitoring well (monitoring well #3) was found unlocked, but the lock was quickly replaced.

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

Radioactive Material Storage (IP Section 02.01) (1 Sample)

The inspectors evaluated radioactive material storage.

- (1) The inspectors toured the following areas:
 - Cooling tower sludge area
 - Low specific activity storage pad
 - Radwaste building
 - Reactor building
 - Warehouse 167 C-Van storage area

The inspectors performed a container check (e.g., swelling, leakage and deformation) on the following containers:

- Dry active waste (19-047-OT liner and approximately 30 radioactive material trash bags)
- Oily water (13-091-D53)
- Resin liners (18-011-HP and 19-57-HP)
- Sump water barrels (13-065-D55 and 13-069-D55)
- Turbine oil (17-071-D55)
- Outage equipment C-Van containers (00020, 00171, 00211, 00215, 00246)

Radioactive Waste System Walkdown (IP Section 02.02) (1 Sample)

The inspectors evaluated the following radioactive waste processing systems [and processes] during plant walkdowns:

(1) Liquid or Solid Radioactive Waste Processing Systems

- Dry active waste
- Equipment drain processing system
- Floor drain processing system
- Reactor water cleanup system

Radioactive Waste Resin Discharges Processes

- Condensate
- Spent fuel pool
- Reactor water clean up

Waste Characterization and Classification (IP Section 02.03) (1 Sample)

The inspectors evaluated the radioactive waste characterization and classification for the following waste streams:

- (1)
- Condensate filter demineralizer powdered resin
 - Dry active waste
 - Reactor water cleanup filter demineralizer powdered resin

Shipment Preparation (IP Section 02.04) (1 Sample)

The inspectors evaluated and observed the following radioactive material shipment preparation process:

- (1) Shipment 02644 (19-101): Low Specific Activity (LSA-II); Dry Active Waste

Shipping Records (IP Section 02.05) (1 Sample)

The inspectors evaluated the following non-excepted package shipment records:

- (1)
- Shipment 17-24
 - Shipment 17-61
 - Shipment 18-40
 - Shipment 18-69
 - Shipment 19-88

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

BI01: Reactor Coolant System (RCS) Specific Activity Sample (IP Section 02.10) (1 Sample)

(1) (10/01/2018–09/30/2019)

BI02: RCS Leak Rate Sample (IP Section 02.11) (1 Sample)

(1) (10/01/2018–09/30/2019)

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 trends that might be indicative of a more significant safety issue. The inspectors performed an in-depth review of the licensee's evaluation and corrective actions in regard to the roles and responsibilities of the maintenance rule expert panel on December 30, 2019.

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

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event reports (LERs):

- (1) LER 05000397/2019-001-00, Loss of Diesel Starting Air During Maintenance Leads to Loss of High Pressure Core Spray System (ADAMS accession: ML19329E569) The inspectors reviewed the LER submittal. The inspectors determined that the cause of the condition described in the LER was reasonably within the licensee's ability to foresee and correct. A violation of NRC requirements was identified and documented in this report under Inspection Results.

INSPECTION RESULTS

Loss of Diesel Starting Air Results in High Pressure Core Spray Inoperability			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000397/2019004-01 Open/Closed	[P.5] - Operating Experience	71111.15
The inspectors reviewed a self-revealed, Green, non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to perform maintenance in accordance with written procedures appropriate to the circumstances. Specifically, Procedure SOP-DG-DSA, "Diesel Starting Air Operations," Revision 15, was not appropriate to the circumstances in that it did not provide proper isolation and depressurization guidance when removing air receiver 1C from service. As a result, the licensee opened the diesel starting air cross connect valve as part of work activities under Work Order (WO) 02141293 and rendered the high pressure core spray service water system, high pressure core spray system, and diesel generator 3 inoperable.			
<u>Description:</u> Diesel generator 3 provides emergency power to the high pressure core spray system. The diesel starting air system has two independent starting air subsystems. Each			

subsystem consists of one air receiver, one pressure control valve, and two air start motors. The pressure control valves are relieving type valves that use a balance of inlet and outlet pressures for positioning. The valves do not allow outlet pressure to be higher than inlet pressure and will vent the outlet pressure to atmosphere if the pilot regulator senses a differential pressure or if outlet pressure exceeds a setpoint. The system has a normally closed cross connect valve, DSA-V-84, that can be opened to provide redundancy so either starting air subsystem is capable of starting diesel generator 3 in the event of a major component failure.

Technical Specification (TS) 3.8.3 states, in part, that the starting air subsystem shall be within limits for each required diesel generator when each diesel is required to be operable. The surveillance requirement for diesel generator 3 is to verify the diesel air start receiver pressure is greater than or equal to 223 psi. If the starting air receiver pressure of diesel generator 3 is less than 223 psi and greater than or equal to 150 psi, Condition E of TS 3.8.3 states, in part, to restore required starting air receiver pressure within 48 hours. If pressure cannot be restored, then Condition F of TS 3.8.3 applies and states, in part, to immediately declare diesel generator 3 inoperable. If the starting air receiver pressure of diesel generator 3 is not within limits for a reason other than Condition E, then Condition F of TS 3.8.3 applies.

On September 24, 2019, the licensee implemented WO 02141293 to remove diesel starting air receiver 1C from service per Procedure SOP-DG-DSA, "Diesel Starting Air Operations," Revision 15. Step 5.1.17 of Procedure SOP-DG-DSA states, in part, to open the air start motor cross connect valve, DSA-V-84, if isolating and depressurizing air receiver 1C. When operations personnel depressurized air receiver 1C, an isolation valve leaked by and created a lower pressure upstream than downstream of diesel starting air pressure control valve 2C. This differential pressure caused pressure control valve 2C to relieve the downstream pressure to atmosphere in an attempt to balance the inlet and outlet pressures. With the cross connect valve open, this lowered the pressure of the other air receiver still in service, diesel starting air receiver 2C. Operations personnel noticed both air receiver pressures decreasing and immediately closed the drain valve on diesel starting air receiver 1C to stop the depressurization; however, pressure control valve 2C continued to relieve air to atmosphere and decrease pressure of air receiver 2C. Pressure control valve 2C stopped relieving air when system pressure dropped to approximately 80 psi. This system pressure was below the TS 3.8.3 operability limit of 150 psi and rendered diesel generator 3 inoperable and unavailable. With diesel generator 3 inoperable and unavailable, the high pressure core spray service water system and high pressure core spray system were rendered inoperable.

During the review, the inspectors noted a similar event occurred in July 2017 when operations personnel drained diesel starting air receiver 1C to support maintenance. During this event, the operator noticed the pressure of diesel starting air receiver 2C decreasing at the same rate as diesel starting air receiver 1C. However, this event occurred during a high pressure core spray system maintenance outage when diesel generator 3 was not required to be operable. The licensee stopped draining diesel starting air receiver 1C and changed the clearance to close the air start cross connect valve, DSA-V-84, to prevent losing pressure of diesel starting air receiver 2C. The licensee initiated Action Request 369318 to evaluate the appropriateness of Procedure SOP-DG-DSA, but the action request was not properly evaluated.

Corrective Actions: The licensee's corrective actions included immediately closing the diesel

starting air cross connect valve; recovering the air header pressure; restoring the high pressure core spray service water system, high pressure core spray system, and diesel generator 3 to operable status; and completing an event investigation.

Corrective Action References: Action Requests 399463 and 399557

Performance Assessment:

Performance Deficiency: The failure to perform maintenance in accordance with written procedures appropriate to the circumstances was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Configuration Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Procedure SOP-DG-DSA, "Diesel Starting Air Operations," Revision 15, was not appropriate to the circumstances in that it did not provide proper isolation and depressurization guidance when removing air receiver 1C from service. As a result, the licensee opened the diesel starting air cross connect valve as part of work activities under WO 02141293 and rendered the high pressure core spray service water system, high pressure core spray system, and diesel generator 3 inoperable.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors determined the finding was of very low safety significance (Green) because all of the screening questions were answered in the negative.

Cross-Cutting Aspect: P.5 - Operating Experience: The organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner. Specifically, the licensee initiated Action Request 369318 following a similar event in July 2017 to evaluate the appropriateness of Procedure SOP-DG-DSA, but the action request was not properly evaluated.

Enforcement:

Violation: Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Paragraph 9.a of Appendix A of Regulatory Guide 1.33, Revision 2, requires, in part, that maintenance that can affect the performance of safety-related equipment should be performed in accordance with written procedures appropriate to the circumstances. The licensee established Procedure SOP-DG-DSA, "Diesel Starting Air Operations," Revision 15, for operation of the diesel starting air, safety-related systems, to meet the Regulatory Guide 1.33 requirement. Contrary to the above, on September 24, 2019, the licensee failed to maintain written procedures as recommended in Regulatory Guide 1.33, Revision 2. Specifically, Procedure SOP-DG-DSA, "Diesel Starting Air Operations," Revision 15, was not appropriate to the circumstances in that it did not provide proper isolation and depressurization guidance when removing air receiver 1C from service. As a result, the licensee opened the diesel starting air cross connect valve as part of work activities under WO 02141293 and rendered the high pressure core spray service water system, high pressure core spray system, and diesel generator 3 inoperable.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with

Section 2.3.2 of the Enforcement Policy.

Failure to Periodically Calibrate Radiation Monitors

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Occupational Radiation Safety	Green NCV 05000397/2019004-02 Open/Closed	[H.3] - Change Management	71124.05

The inspectors identified a Green, non-cited violation of 10 CFR 20.1501(c) for failure to periodically calibrate installed radiation monitoring equipment used to perform dose rate measurements. Specifically, beginning May 31, 2013, the licensee has failed to calibrate 22 installed radiation monitors within the frequency described in its licensing basis.

Description: The inspectors initially requested the licensee provide the last two calibration dates and work orders for a sampling of installed radiation monitors. Of the 10 radiation monitors selected, 2 were significantly past their calibration frequency and 4 were already three months past their due date. This prompted a more thorough review of the licensee's installed radiation monitor calibration program.

The Licensee Controlled Specifications (LCS) required area radiation monitors (ARM-2, ARM-3, and ARM-3A) to be calibrated every 18 months, but the requirement can be met if the action is completed within 1.25 times the frequency. Therefore, these 3 monitors are excluded from the discussion below because they were still operating within the 25 percent extension of their calibration periods.

The license's Final Safety Analysis Report (FSAR), Chapter 12, Section 12.3.4.3, "Specification for Area Radiation Monitors," described their calibration frequency as once every 18 months. Additionally, the licensee confirmed that completion of the calibrations within the 1.25 times the frequency did not apply to the area radiation monitors (ARMs).

During a more thorough review of the installed radiation monitors calibration program, the inspectors identified 22 of 34 ARMs exceeded the 18-month frequency for the current calibration cycle (beginning May 31, 2013).

The ARM furthest out of calibration was ARM-14, being most recently calibrated on May 31, 2013 (76 months ago) with the prior instrument calibration performed on June 1, 2009 (47 months prior).

The 22 ARMs that exceeded the current 18-month calibration cycle included:

ARM-#(s)	Months since calibrated
ARM-1, ARM-4 through ARM-10	42
ARM-14	76
ARM-21 through ARM-30	32
ARM-32, ARM-33	41
ARM-34	19

The 30 ARMs that exceeded 18 months for the prior calibration cycle included:

ARM-#(s)	Months since calibrated
ARM-1, ARM-4 through ARM-10	23

ARM ARM-11 through ARM-13	21
ARM-14	47
ARM-15 through ARM-20	21
ARM-21 through ARM-30	27
ARM-32, ARM-33	23

The licensee also changed the calibration frequency of the ARMs listed above and the installed radiation monitors listed below without documenting an adequate evaluation or technical justification. The radiation monitors in the table below have had their calibration frequency extended, some of them multiple times, from their original calibration frequency. The licensee provided the inspectors with the current calibration frequencies for the following installed radiation monitors.

Installed Radiation Monitor	Calibration Cycle (years)
ARMs (except 2, 3, 3A, and 14)	4
ARM-14	6
RCC-RIS-607	6
CBD-RIS-608	4
OG-RIS-611	4
CMS-RIS-27A/B	6

The licensee's procedure, Plant Procedure Manual 1.5.13, "Preventive Maintenance Optimization Living Program," Revision 42.2, provided the process and vehicle for changing the preventative maintenance (PM) task frequencies. This procedure allowed Maintenance, Instruments and Controls (I&C) personnel to change the calibration frequency for these radiation monitors without consulting Radiation Protection or Licensing prior to making the changes. Radiation Protection and Licensing were not consulted because the calibration tasks for these radiation monitors were not coded as essential. Essential tasks are those required to satisfy a commitment, such as those made to an external organization like the NRC. Since the tasks were not coded correctly, the appropriate organizations were not included in the change process and the licensing basis documents were not reviewed resulting in an inadequate evaluation and basis for changing the calibration frequencies.

By not including members from Radiation Protection or Licensing during the calibration frequency change process for these radiation monitors, the licensee personnel implementing the changes failed to fully understand the radiation monitor functions and requirements, as described in the FSAR, and how they related to 10 CFR Part 20 - Standards for Protection Against Radiation in Subpart F- Surveys and Monitoring.

Corrective Actions: The licensee entered the issue in the corrective action program and provided the inspectors with a recovery plan to calibrate the installed radiation monitors that are out of calibration (beyond 18 months), beginning with the monitors that are the furthest out of calibration in order to return the installed radiation monitor program to compliance.

The licensee plans included addressing the calibration task coding within the PM optimization program that contributed to this issue.

The recovery plan also included an evaluation of the calibration program and frequencies and where deemed appropriate to document an adequate technical basis for changing the calibration frequency of installed radiation monitors. Where licensing basis documents were involved, the licensee planned to evaluate potential changes to these documents.

Corrective Action References: Action Requests AR-401046, AR-401047, and AR-401137

Performance Assessment:

Performance Deficiency: The failure to periodically calibrate installed radiation monitoring instruments used to evaluate dose rate measurements as required by 10 CFR Part 20 within the frequency specified in the FSAR was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Facilities and Equipment attribute of the Occupational Radiation Safety Cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, the licensee failed to calibrate 22 radiation monitors within the 18-month frequency specified in the FSAR. As a result, the failure to calibrate these 22 radiation monitors impacts the licensee's ability to ensure accurate radiation measurements for the protection of worker health and safety.

Significance: The inspectors assessed the significance of the finding using Appendix C, "Occupational Radiation Safety SDP." The finding was: (1) not related to As Low As is Reasonably Achievable planning, (2) did not involve an overexposure, or (3) did not involve a substantial potential for overexposure, and (4) the ability to assess dose was not compromised. Therefore, the inspectors determined the finding to be of very low safety significance (Green).

Cross-Cutting Aspect: H.3 - Change Management: Leaders use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. The finding had a cross-cutting aspect in the area of human performance associated with change management because the licensee's change process did not identify that the instrument calibration requirements were specified in the licensing basis documents and the cognizant groups (Radiation Protection and Licensing) were not consulted. Specifically, the change process did not involve an adequate systematic process to include members of the radiation protection or licensing organizations to ensure compliance of 10 CFR Part 20 were maintained.

Enforcement:

Violation: Title 10 CFR 20.1501(c) requires, in part, the licensee ensure that instruments used for quantitative radiation measurements (e.g., dose rate and effluent monitoring) are calibrated periodically for the radiation measured. Contrary to the above, beginning on May 31, 2013, the licensee failed to ensure that instruments used for quantitative radiation measurements (e.g., dose rate and effluent monitoring) are calibrated periodically for the radiation measured. Specifically, the licensee failed to calibrate 22 radiation monitors within the frequency specified in its licensing basis document (FSAR). In addition, the licensee was changing the calibration frequency of radiation monitors without an adequate evaluation or technical basis to ensure the instruments were currently calibrated and may be adequately used for dose rate measurements of plant areas.

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

Failure to Follow Radioactive Material Control Procedures			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Public Radiation Safety	Green NCV 05000397/2019004-03 Open/Closed	[H.12] - Avoid Complacency	71124.08
<p>The inspectors documented a self-revealing Green non-cited violation of Technical Specification 5.4.1.a. for the failure to follow radiologically controlled area material release procedure GEN-RPP-04, "Entry Into, Conduct In, and Exit from Radiologically Controlled Areas," Revision 33. Specifically, on June 9, 2019, a supplemental worker alarmed a protected area exit portal monitor with two tool bags of equipment which were previously escorted by a supplemental radiation protection technician through the radiologically controlled area and were not surveyed in the tool and equipment monitor prior to being removed from the radiologically controlled area.</p>			
<p><u>Description:</u> On June 9, 2019, a supplemental worker exiting the protected area with two canvas tools bags of work equipment alarmed a portal monitor. The worker notified radiation protection personnel of the alarm. Moments later, a radiation protection technician took control of the material and returned to the radiologically controlled area (RCA) to survey the equipment. The radioactive material did not leave the protected area.</p> <p>Supplemental workers were performing work in the radiologically clean condenser water boxes. The work location was in a Turbine Building RCA. A radiologically clean area was established at the job site to support access to a non-radiological system. The workers and tools had to transition through the RCA to reach the job site. During the work activity, without radiation protection's knowledge or approval, a worker inappropriately obtained a radioactive power drill from the hot tool crib and introduced it into the clean area around the water boxes. At the completion of the work activity, the workers were removing tools from the radiologically clean area to a storage location outside the RCA and placed the purple painted tool inside the canvas bag for removal from the clean area and transportation outside the RCA. The licensee identifies items, such as hand tools, containing low levels of radioactive material by marking them conspicuously with purple paint. Since the clean area had been established and maintained throughout the outage, the supplemental radiation protection personnel providing oversight did not have the workers empty and survey the canvas bags of tools and equipment prior to escorting it out of the alternate RCA egress point. At the egress point of the protected area, the worker alarmed a portal monitor and contacted radiation protection personnel. The radiation protection staff survey results were: (1) one canvas tool bag and a drill with purple paint received a high-level contamination alarm on the tool and equipment monitor, (2) the second canvas tool bag had a normal level contamination alarm, and (3) the remaining tools and items did not alarm the tool and equipment monitor. Based on a conservative activity estimation of the items, the licensee provided data that informed the NRC that a member of the public would not have received greater than 0.005 rem of exposure from the radioactive material during the time period the items were outside the RCA to when the items were back under radiation protection control and returned to the RCA.</p> <p>Corrective Actions: The licensee entered the issue into the corrective action program which provided a discussion with technicians and supervisors, provided additional coaching to supplemental workers regarding the limits for using purple painted tools or radioactive tools outside the RCA, developed an outage condenser water box clean area plan that included information for radiation protection to brief workers on working in a clean area that is in the</p>			

RCA, and surveyed the areas in which the purple painted drill was used and transported.
Corrective Action References: Action Request 395167

Performance Assessment:

Performance Deficiency: The failure to follow radiologically controlled area material release procedures was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Program and Process attribute of the Public Radiation Safety Cornerstone and adversely affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, supplemental workers failed to follow radiologically controlled area procedures for releasing material from the radiologically controlled area. As a result, the failure to follow radiologically

controlled area material release procedures involved the failure to control licensed material, which could cause an actual or credible radiation dose to members of the public.

Significance: The inspectors assessed the significance of the finding using Appendix D, "Public Radiation Safety SDP." The finding was a radiological material control program issue that was (1) not related to transportation and (2) did not involve an exposure greater than 0.005 rem to a member of the public in the restricted area, controlled area or the unrestricted area. Therefore, the inspectors determined the finding to be of very low safety significance (Green).

Cross-Cutting Aspect: H.12 - Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. The finding had a cross-cutting aspect in the area of human performance associated with avoiding complacency because workers assumed their actions were appropriate, did not consider the potential undesired consequences for obtaining a tool from the Hot Tool Crib during their clean area work activity, and the radiation protection technician did not plan for the possibility of worker mistakes. In addition, the individuals did not use error-reduction tools (could anything be contaminated) and relied on past successes and assumed conditions.

Enforcement:

Violation: Technical Specification 5.4.1.a states, in part, written procedures shall be implemented in accordance with Regulatory Guide 1.33, "Quality Assurance Program requirements (Operation)," Revision 2, Appendix A. Appendix A, Section 7.e, "Radiation Protection Procedures," requires procedures for radiation surveys and contamination control. Plant Procedure GEN-RPP-04, "Entry Into, Conduct In, and Exit from Radiologically Controlled Areas," Revision 33, Step 4.5.1.a, states, in part, when exiting radiologically controlled areas, all tools and equipment to be removed from the radiologically controlled area are surveyed or evaluated by radiation protection in accordance with Plant Procedures Manual 11.2.15.7. Plant Procedures Manual 11.2.15.7, "Release of Material from Radiologically Controlled Areas," Revision 22, Step 6.1.2, states, in part, when surveying material for unrestricted release and the item will fit in a tool and equipment monitor, to use the tool and equipment monitor for direct monitoring.

Contrary to the above, on June 9, 2019, supplemental workers failed to ensure, when exiting

radiologically controlled areas, all tools and equipment to be removed from the radiologically controlled area were surveyed or evaluated by radiation protection in accordance with Plant Procedures Manual 11.2.15.7. Specifically, supplemental workers did not survey tools and equipment leaving the radiologically controlled area in the tool and equipment monitor, as specified in Plant Procedures Manual 11.2.15.7.

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

Failure of 10 CFR 61.56(b)(3) to Ensure the Void Space Within a Waste Package was Reduced to the Extent Practicable

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Public Radiation Safety	Green NCV 05000397/2019004-04 Open/Closed	[H.8] - Procedure Adherence	71124.08

The inspectors documented a self-revealed, Green, non-cited violation of 10 CFR 61.56(b)(3) for failure to ensure the void space within a waste package was reduced to the extent practicable. Specifically, on September 4, 2019, a shipment of resin sent to US Ecology did not have less than 15 percent void space contrary to the requirements in US Ecology's Radioactive Material License WN-I019-2, Amendment 41, License Condition No. 24.

Description: On September 4, 2019, the licensee sent a condensate waste shipment (Radioactive Waste Shipment 19-96) to US Ecology, Richland Radioactive Waste Disposal Facility. Upon receipt and review of the licensee's shipping manifest, on the same day, US Ecology determined the condensate waste container contained a greater than 15 percent void space and contacted the licensee. The State of Washington notified the licensee on September 5, 2019, regarding the noncompliance to US Ecology's license regarding the restriction of void spaces to be less than 15 percent. The container was calculated to have a 15.2 percent void space.

When the shipment was being processed for shipment, two licensee radwaste transportation specialists and a shipping supervisor concluded the shipment had a void space of 15 percent based off information in Plant Procedures Manual 11.2.23.2, "Computerized Radioactive Waste and Material Characterization," Revision 23, Attachment 7.1. The individuals determined the liner was 85 percent full. An independent review performed by a HP/Chemistry Analyst calculated the liner to be 84.8 percent full based on the measured volume of 117 cubic feet and the liner volume of 138 cubic feet. This meant the void space was calculated to be 15.2 percent. The shipping supervisor and radwaste transportation specialists discussed the discrepancy and concluded, without referring to the appropriate procedure, the shipment was satisfactory at a volume equal to or greater than 85 percent capacity which provided a void space equal to or less than 15 percent. However, Step 4.2.11 in Plant Procedures Manual 11.2.23.9, "Packaging, Transportation and Disposal of Radioactive Waste at the US Ecology, Richland Radioactive Waste Disposal Facility," states, in part, the radwaste transportation specialist is to ensure void spaces within each container are less than 15 percent by container volume. The conclusion that the shipment was within void space tolerance (*equal to* or less than 15 percent) was incorrect and needed to be less than 15 percent.

Corrective Actions: The licensee entered the issue into their corrective action program and

issued a Stop Work Order regarding shipments until applicable corrective actions were taken. The Stop Work Order included a human performance investigation to document the event and the extent of cause and condition; a review of prior events for impacts which could have prevented this event; and revisions to shipping procedures to prevent violations of US Ecology's license and reduce the possibility of human error.

Corrective Action References: Action Request 398820

Performance Assessment:

Performance Deficiency: The failure to ensure the void space within the waste package was reduced to the extent practicable, as required by 10 CFR 61.56(b)(3) was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Program and Process attribute of the Public Radiation Safety Cornerstone and adversely affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the licensee failed to ensure the void spaces were adequately reduced in the condensate waste container shipped to US Ecology which subjected the disposal facility to the possibility of improper disposal of a waste package that was susceptible to stability issues.

Significance: The inspectors assessed the significance of the finding using Appendix D, "Public Radiation Safety SDP." The finding was associated with a radioactive material control and transportation/Part 61 finding that: (1) did not involve a radiation limit being exceeded, (2) was not a breach of package during transit, and (3) was not a certificate of compliance issue. The finding was a low-level burial ground nonconformance, but did not involve a Part 61.55 waste under classification. Therefore, the inspectors determined the finding to be of very low safety significance (Green).

Cross-Cutting Aspect: H.8 - Procedure Adherence: Individuals follow processes, procedures, and work instructions. Specifically, individuals associated with the condensate waste shipment did not adhere to the procedure requirements of ensuring the container had less than 15 percent void space.

Enforcement:

Violation: Title 10 CFR 61.56(b)(3) requires, in part, void spaces within the waste and between the waste and its package must be reduced to the extent practicable. US Ecology, Richland Radioactive Waste Disposal Facility's Radioactive Material License WN-I019-2, Amendment 41, License Condition No. 24, states, in part, void spaces within the radioactive waste and between the waste and its package shall be reduced to less than 15 percent of the total volume of the disposal package.

Contrary to the above, on September 4, 2019, the licensee failed to ensure void space within the waste and between the waste and its package was reduced to the extent practicable. Specifically, the licensee sent a condensate waste shipment to US Ecology that did not have a void space of less than 15 percent as specified in their license, and as specified in the licensee's procedures.

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 January 9, 2020, the inspectors presented the integrated inspection results to Mr. R. Schuetz, Site Vice President, and other members of the licensee staff.
- On November 7, 2019, the inspectors presented the Public Radiation Safety inspection results to Mr. R. Schuetz, Site Vice President, and other members of the licensee staff.
- On December 5, 2019, the inspectors presented the biennial requalification inspection results to Mr. R. Schuetz, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04Q	Corrective Action Documents	Action Requests (ARs)	391893, 392143, 400213	
	Drawings	M522	Standby Liquid Control System Flow Diagram	040
		M775	Flow Diagram: Emergency Chilled Water Piping System Control Room	029
	Procedures	SOP-DG2-STBY	Emergency Diesel Generator (DIV 2) Standby Lineup	023
		SOP-DG3-STBY	High Pressure Core Spray Diesel Generator Standby Lineup	019
		SOP-HVAC/CR-LU	Control, Cable, and Critical Switchgear Rooms HVAC Lineup	001
		SOP-SLC-LU	SLC System Valve and Breaker Lineup	000
		SOP-SLC-STBY	Placing SLC in Standby Status	002
71111.05Q	Procedures	PFP-RB-422	Reactor 422	006
71111.11B	Corrective Action Documents	Action Requests (ARs)	387428, 388948, 390380, 390515	
	Corrective Action Documents Resulting from Inspection	Action Requests (ARs)	401959	
	Miscellaneous	None	Week 5 NRC written Exams	12/02/2019
		None	Week 5 NRC Operating Tests	12/02/2019
		None	Week 4 NRC Operating Tests	11/25/2019
		None	Simulator Differences Report	11/02/2019
		None	Simulator Post Event testing for SRV opening at power on 09/28/2018	10/10/2018
		None	Simulator Cycle 25 Core Testing Report	11/02/2019
		SR 3029 PEST	Post Event Simulator Tests for July 7, 2019 Plant vent	8/20/2019
	Procedures	1.8.10	Administration of Medical Qualifications	Revision 12
		9.3.6	Estimated Critical Position Calculation	Revision 6
		CT01	Simulator Reactor Core Performance Testing	10/22/2019
		CT02	Core Plant Comparisons	10/22/2019
		PPM 1.3.1	Operating Policies, Programs, and Practices	127

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		PPM 1.8.11	Medical Examination Program	011
		TDI-06	Simulator Management	020
		TDI-23	LORQ Annual Exam Development/Administration	014
		TDI-24	Exam Security	012
		TDI-8	Licensed Operator Requalification Program	017
71111.11Q	Corrective Action Documents	Action Requests (ARs)	402255, 402256	
	Miscellaneous		Reactivity Control Plan 11/1/19 Troubleshooting 30-47 and Control Rod Adjustment	001
			Control Rod Withdrawal Deviation Sheet	11/01/2019
	Procedures	1.3.84	Reactivity Management Control	005
		13.1.1	Classifying the Emergency	049
		13.1.1.A	Classifying the Emergency - Technical Bases	034
		3.2.6	Power Maneuvering	013
		5.1.2	RPV Control	026
		5.5.1	Overriding ECCS Valve Logic to Allow Throttling RPV Injection	006
		5.5.11	Alternate Control Rod Insertions	009
		ABN-CRD-MAXFLOW	Maximizing CRD Flow to RPV	004
		ABN-ELEC-DG4-CROSSTIE/MC-8A	DG4 Crosstie to MC-8A	007
		OI-09	Operations, Standards and Expectation	076
		SOP-RRC-FLOW-QC	Reactor Power Change with Flow Controllers -- Quick Card	005
		TSP-CRD-C101	CRD Scram Timing with Auto Scram Timer System	028
	Work Orders		02152037, 02146061, 02146561	
71111.12	Corrective Action Documents	Action Requests (ARs)	385575, 388227, 388557, 388831, 397951, 391973, 397977	
	Procedures	OSP-SLC/IST-Q701	Standby Liquid Control Pumps Operability Test	028
	Work Orders		02119596, 02116965, 02120783, 02114148, 02117437, 02117438, 02117439, 02117440, 02118416, 02118418,	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			29150590, 29151185	
71111.13	Calculations	2.05.01	Battery Sizing, Voltage Drop, and Charger Studies for Div. 1 & 2 Systems	014
	Corrective Action Documents	Action Requests (ARs)	399937, 399858	
	Miscellaneous	GI2-06-069	Columbia Generating Station – Issuance of Amendment RE: Extension of Diesel Generator Completion Time (TAC No. MC3203)	04/14/2006
		GO2-05-147	Columbia Generating Station, Docket No. 50-397 Response to Request for Additional Information Regarding License Amendment Request for Extension of Diesel Generator Completion Time	09/01/2005
	Procedures	1.3.76	Integrated Risk Management	056, 057
		1.3.83	Protected Equipment Program	030
		SWP-LIC-01	Regulatory Commitment Management	007
	Work Orders		02107761	
71111.15	Calculations	ME-02-94-44	Diesel Starting Air System Capabilities to Meet the Number of Starts Requirement	002
	Corrective Action Documents	Action Requests (ARs)	207219, 353864, 356066, 400213, 369316, 369318, 399463, 399533, 399557, 399849, 401149	
	Drawings	M512-1	Flow Diagram: Diesel Oil and Miscellaneous Systems	047
		M522	Standby Liquid Control System Flow Diagram	040
	Procedures	SOP-DG-DSA	Diesel Starting Air Operations	015
	Work Orders		02129674, 02141293	
71111.19	Corrective Action Documents	Action Requests (ARs)	400213	
	Procedures	10.2.10	Fastener Torque and Tensioning	028
		ECP-DG1/INSP-B101	Diesel Generator DG1 Electrical Inspection	020
		OSP-ELEC-S701	Diesel Generator 1 Semi-annual Operability Test	060
		OSP-SLC/IST-Q701	Standby Liquid Control Pumps Operability Test	028
		SOP-DG1-START	Emergency Diesel Generator (DIV 1) Start	033
	Work Orders		02119144, 02114580, 02129673, 02119827, 02131201,	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			02119596	
71111.22	Procedures	OSP-SLC/IST-Q701	Standby Liquid Control Pumps Operability Test	028
		SOP-FDR-OPS	Floor Drain System Operation	003
	Work Orders		02119596, 02116965, 02120783, 02114148, 02143215, 02143216, 02147317	
71124.05	Calibration Records	1000ml Marinelli	ORTEC HPGE #4 - Shelf 0	01/28/2019
		15cc Glass Vial	ORTEC HPGE #4 - Shelf 1	05/02/2018
		2-84-058	Shepherd 28 Gamma Irradiator Calibration	10/08/2019
		2079-033	Shepherd 142-10 Gamma Irradiator Calibration	10/28/2019
		250ml Bottle	ORTEC HPGE #4 - Shelf 1	01/30/2019
		3085836	Canberra iSolo Alpha Counting System	04/15/2019
		426974	Tri-Carb 3110TR Quench Curve (H3)	05/30/2019
		47mm Filter	ORTEC HPGE #4 - Shelf 1	04/25/2018
		8411-1	Canberra iSolo Alpha Counting System	04/15/2019
		Charcoal Cartridge	ORTEC HPGE #4 - Shelf 1	05/09/2018
		F100	Instrument Calibration Data Sheet – Ludlum Model 2 / 177 with G-M Probe	10/02/2019
		F104	Instrument Calibration Data Sheet – Ludlum Model 2 / 177 with G-M Probe	10/02/2019
		F197	Instrument Calibration Data Sheet – Ludlum Model 2 / 177 with G-M Probe	10/02/2019
		HP-EQ-42725	BM-285 Calibration Data Sheet	06/17/2019
		HP-EQ-42733	Instrument Calibration Data Sheet – Canberra GEM-5	04/22/2019
		HP-EQ-42806	Calibration Data Sheet – Eberline/Thermo Scientific AMS-4	12/31/2018
		HP-EQ-42807	Calibration Data Sheet – Eberline/Thermo Scientific AMS-4	12/20/2018
		HP-EQ-42813	Instrument Calibration Data Sheet – SAM12 Small Article Monitor	08/13/2019
		HP-EQ-42822	Instrument Calibration Data Sheet – Canberra GEM-5	07/03/2019
		R0166	Instrument Calibration Data Sheet – Eberline RO-2 Ion Chamber Survey Meter	08/28/2019
		R0265	Instrument Calibration Data Sheet – Ludlum Model 5/14C G-M	07/09/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Survey Meter	
		RV02	Instrument Calibration Data Sheet – Fluke/Victoreen 451B Ion Chamber Survey Meter	08/27/2019
		T099	Instrument Calibration Data Sheet – Mirion TelePole II	09/18/2019
		W/O 02074096	Radiation Calibration of ARM-RIS-9 (ARM-E/S-603A)	10/05/2016
		W/O 02093285	ARM-RE-3 Radiation Calibration Using Source #13-230	02/07/2018
		W/O 02093285	ARM-RE-3A Radiation Calibration Using Source #13-230	02/15/2018
		W/O 02106829	MSL High Radiation Channel B – CC Note: Completed, but not reviewed	10/31/2019
		W/O 02111598	Accident Monitor Primary Containment Gross Radiation Monitor CMS-RIS-27E	06/01/2019
	Corrective Action Documents	Action Requests (ARs)	00371328; 00371329; 00371641; 00374115; 00374117; 00374266; 00375641; 00375786; 00377222; 00380025; 00384578; 00386853; 00386853; 00389985; 00390148; 00394841; 00397956; 00398240; 00398793	
	Corrective Action Documents Resulting from Inspection	Action Requests (ARs)	00401046; 00401047; 00401137	
	Miscellaneous		Daily Meter Source Check Log	11/06/2019
			Health Physics Routine ARM Check Log Readings	11/06/2019
			Daily Frisker Source Check Log	11/04/2019
	Procedures	CI-13.10	Canberra iSolo Alpha/Beta Counting System	005
		CI-13.9	Tri-Carb Liquid Scintillation Counting System	003
		HPI-0.16	Radiation Protection Portable Instrumentation Use and Calibration Guidelines	8.1
		HPI-12.100	Calibration of the SAM12 Small Article Monitor	006
		HPI-12.81	Operation and Calibration of Shepherd Model Mini-89 Irradiator	006
		HPI-7.23	Mirion TelePole II Telescopic Survey Meter Calibration	0.3
		PPM 1.5.13	Preventive Maintenance Optimization Living Program	42.2
		PPM 10.24.18	Area Radiation Monitor Maintenance	014
		PPM 10.24.214	Post Accident Sampling Radiation Monitoring Instrumentation	004

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Calibration	
		PPM 10.24.243	Eberline/Thermo Scientific AMS-4 Calibration	2.1
		PPM 11.2.10.19	High Range Area Radiation Monitor Calibration Checks	2.1
		PPM 11.2.10.5	Area Radiation Monitor Calibration Checks	015
		PPM 12.1.1	Laboratory Quality Assurance	21.2
		PPM ISP-CMS/PRM-B303	Accident Monitor Primary Containment Gross Radiation Monitor CMS-RIS-27E	005
	Self-Assessments	AR SA 387310	Radiation Protection Self-Assessment for NRC Inspection Procedure 71124.05	07/11/2019
		AU-RP/RW-17	Quality Services Audit of Radiation Protection and Process Control Programs	12/19/2017
71124.06	Calibration Records	PPM 13.14.11	ISP-REA/PRM-X304, CC/RC Secondary Containment Isolation RX Bldg. Vent RIS-609-D	04/08/2019
		PPM 13.14.11	ISP-REA/PRM-X302, CC/RC Secondary Containment Isolation RX Bldg. Vent RIS-609-B	03/05/2019
		PPM 16.1.11	Reactor Bldg. Elevated Discharge Radiation Activity Monitor CC/RC	07/22/2019
		PPM 16.2.1	TEA Low Range Noble Gas Monitor Channel 1	08/20/2019
		PPM 16.7.1	LRW Radwaste Effluent Radiation Monitor	09/10/2019
		PPM 16.7.2	LRW Radwaste Radiation Monitor FDR-RIS-606 RAD CAL	09/11/2019
		PPM 16.7.4	LRW Radwaste Flow Instrument-CC	12/21/2018
		PPM 16.9.1	Plant Blowdown Discharge Line Flow Rate - CC	06/24/2019
	Corrective Action Documents	Action Requests (ARs)	00371307; 00376039; 00377360; 00379915; 00381956; 00386750; 00388088; 00389688; 00392316; 00392685; 00395790; 00399399	
	Procedures	PPM 16.11.3	The Primary Containment Purge Sampling and Analysis	017
		PPM 16.11.6	Weekly Iodine, Particulate, and Tritium Analysis Results	023
		PPM 16.12.2	The Monthly Gaseous Release Dose Assessment	014
		RTBD-04-07	Guidance for the Release of Used Oil at Columbia Generating Station	
	Shipping Records	SN 2018-021	Standby Liquid Control Liquid Radwaste	04/09/2018
		SN 2018-056	Liquid Oily Waste	09/06/2018
	Work Orders	WO 02088068	Standby Gas Treatment Unit-A HEPA	11/15/2017

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		WO 02088069	Standby Gas Treatment Unit-A Filtration	11/14/2017
		WO 02100584	Standby Gas Treatment Unit-B HEPA	09/26/2018
		WO 02100585	Standby Gas Treatment Unit-B Filtration	10/24/2018
		WO 02100686	TEA Low Range Noble Gas Monitor CC/RC	08/20/2018
		WO 02103847	ISP-REA/PRM-X302 CC/RC-Secondary Containment Isolation Reactor Bldg. Vent Rad CH B	03/05/2019
		WO 02105300	LRW Flow Instruments	12/21/2018
		WO 02106828	ISP-REA/PRM-X304 CC/RC-Secondary Containment Isolation Reactor Bldg. Vent Rad CH D	03/20/2019
		WO 02109805	WEA-FU-1A-HEPA Filter Test (RW BLDG Filter Unit)	07/11/2018
		WO 02114881	Plant Blowdown Discharge Line Flow Rate - CC	06/24/2019
		WO 02128885	Replace TEA-RE-13A High Range Detector at TEA-SR	12/20/2018
		WO 02130071	Reactor Bldg. Elev. Discharge Rad Activity Monitor CC/RC	07/22/2019
		WO 02130716	Monthly Composite Particulate Sample Analysis	02/20/2019
		WO 2118146	LRW Effluent Radiation Monitor	09/10/2019
		WO 2126077	FDR-RIS-606 Rad Cal	09/11/2019
		WO 2141654	Weekly Iodine, Particulate, Tritium	11/07/2019
71124.07	Calibration Records	0060951	Air Sampler Pump Calibration (Station 21b)	09/17/2019
		0065285	Air Sampler Pump Calibration (Station 9)	05/20/2019
		0067904	Air Sampler Pump Calibration (Station 5)	08/13/2019
		0067905	Air Sampler Pump Calibration (Station 8)	08/13/2019
		21188	Composite Drinking Water Sampler (Station 29)	02/05/2019
		2289-001	HPGe GAMMA-3 Detector Calibration	01/15/2019
		2292-001	HPGe GAMMA-1 Detector Calibration	01/22/2019
		2293-001	HPGe GAMMA-2 Detector Calibration	03/26/2019
		WO 02104721-01	Wind Speed/Direction Channel Calibration 33 FT and 245 FT	04/02/2019
	Corrective Action Documents	Action Requests (ARs)	00371763; 00371861; 00375618; 00375679; 00377534; 00378191; 00378935; 00379915; 00381039; 00381736; 00384358; 00388031; 00388316; 00389688; 00389997; 00392049; 00392685; 00396630; 00397087; 00399484	
	Corrective Action Documents Resulting from	Action Requests (ARs)	00401144; 00401155	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Inspection			
	Miscellaneous		Columbia Generating Station Annual Radioactive Effluent Release Report	04/30/2018
			Columbia Generating Station Annual Radioactive Effluent Release Report	04/30/2019
			REMP Program Log	11/05/2019
			Columbia Generating Station Final Safety Analysis Report	064
			CGS Joint Frequency Distribution 2014-2018 5 Year Meteorological Data - 33' Elevation	01/01/2019
		GO2-18-069	2017 Annual Radiological Environmental Operating Report for the Columbia Generating Station	05/10/2018
		GO2-19-074	2018 Annual Radiological Environmental Operating Report for the Columbia Generating Station	05/09/2019
	Procedures		Columbia Generating Station Offsite Dose Calculation Manual	060
		16.13.1	Annual 5-Mile Land Use Census	003
		CI-6.0	Groundwater Protection Program - Risk Assessment	001
		ICP-MET-S301	Wind Speed/Direction Channel Calibration 33' and 245'	020
		SOP 11.01	Milk Sampling	008
		SOP 11.09	REMP Air Sample Collection	007
		SWP-CHE-01	Groundwater Protection Program	004
	Self-Assessments	AR 00387313	Energy Northwest Snapshot Self-Assessment Report: NRC IP 71124.07 - Radiological Environmental Monitoring Program (REMP)	01/15/2019
		AU-CH-18	Quality Services Audit Report: Chemistry and Environmental Monitoring Program	10/18/2018
		Audit No 18-A-02	Energy Northwest Audit of MSA Radiological Site Services, NUPIC Supplier No. 6118	03/26/2018
	Work Orders	WO 02112022-01	Mechanical Inspection of Meteorological Tower Anchor, Cables and Bolts	04/15/2019
71124.08	Corrective Action Documents	Action Requests (ARs)	00361881; 00373022; 00375883; 00376963; 00379078; 00379371; 00379636; 00387932; 00389706; 00394463; 00394873; 00394873; 00395020; 00395167; 00397624; 00397721; 00398298; 00398820; 00399359	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Miscellaneous		Energy Northwest Columbia Generating Station Offsite Dose Calculation Manual	04/04/2019
			Columbia Generating Station Scaling Factors	03/14/2018
		DAC-0446	Scaling Factor Determination at Columbia Generating Station - 2017	02/28/2018
		GO2-18-063	Columbia Generating Station Annual Radioactive Effluent Release Report - January through December 2017	04/30/2018
		GO2-19-023	Columbia Generating Station Annual Radioactive Effluent Release Report - January through December 2018	04/25/2019
		RW000169	Dept of Transportation Function Specific Training Presentation: Packaging Radioactive Material for Shipment	
		Shipment Packages	17-24, 17-38, 17-61, 17-63, 18-28, 18-31, 18-40, 18-69, 19-85, 19-88, 19-90	
	Procedures	GEN-RPP-04	Entry Into, Conduct In, and Exit From Radiologically Controlled Areas	033
		PPM 11.2.15.7	Release of Material From Radiologically Controlled Areas	022
		PPM 11.2.23.1	Shipping Radioactive Materials and Waste	021
		PPM 11.2.23.14	Sampling of Radioactive Waste Streams	013
		PPM 11.2.23.2	Computerized Radioactive Waste and Material Characterization	023
		PPM 11.2.23.4	Packaging Radioactive Material and Waste	026
		PPM 11.2.23.44	Operation of the Self Engaging Rapid Dewatering System (SERDS)	005
		PPM 11.2.23.45	Management of Spent Fuel Pool Filters, Irradiated, and Non-Irradiated Items to Support Packaging, Transportation, and Disposal as Low-Level Radwaste	000
		PPM 11.2.23.9	Packaging, Transportation and Disposal of Radioactive Waste at the US Ecology, Richland Radioactive Waste Disposal Facility	003
		PPM 11.2.7.1	Area Posting	045
		SWP-RMP-02	Radioactive Waste Process Control Program	007
	Self-Assessments	AR-SA 372159	Focused Self-Assessment Report: 71124.08 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage and Transportation	01/21/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		AU-RP/RW-17	QUALITY SERVICES AUDIT REPORT: Radiation Protection and Process Control Programs	12/21/2019
		SR-18-14	QSI-2 "Quality Oversight Activities for Continuous Monitoring": RW Shipping Effectiveness Review	05/17/2018
71151	Corrective Action Documents	Action Requests (ARs)	385829, 397449	
	Miscellaneous		Operations Logs	10/01/2018 - 09/30/2019
	Procedures	CI-10.17	Iodine	012
		CSP-I131-W101	Reactor Coolant isotopic Analysis for I-131 Dose Equivalent	009
		OSP-INST-H101	Shift and Daily Instrument Checks (Modes 1, 2, 3)	093
	Work Orders		02129518, 02133951, 02142472	
71152	Corrective Action Documents	Action Requests (ARs)	009870, 393723, 394052, 394458, 394573, 402394, 402459, 280168, 402340	
	Procedures	1.5.13	Preventive Maintenance Optimization Living Program	042
		SYS-4-22	Maintenance Rule Program	014
71153	Corrective Action Documents	Action Requests (ARs)	399463, 399557	
	Procedures	1.10.1	Notifications and Reportable Events	041
		RPI-3.0	Checklists for Routine and Periodic Submittals	020
		SOP-DG-DSA	Diesel Starting Air Operations	015