



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

November 3, 2021

Mr. Robert E. Scheutz
Chief Executive Officer
Energy Northwest
MD 1023
P.O. Box 968
Richland, WA 99352

**SUBJECT: COLUMBIA GENERATING STATION – DESIGN BASIS ASSURANCE
INSPECTION (PROGRAMS) INSPECTION REPORT 05000397/2021012**

Dear Mr. Scheutz:

On September 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Columbia Generating Station and discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are 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 the 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 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."

R. Scheutz

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Sincerely,

Vincent Gaddy Signed by Gaddy, Vincent
on 11/03/21

Vincent G. Gaddy, Chief
Engineering Branch 1
Division of Reactor Safety

Docket No. 05000397
License No. NPF-21

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

COLUMBIA GENERATING STATION – DESIGN BASIS ASSURANCE INSPECTION
 (PROGRAMS) INSPECTION REPORT 05000397/2021012 DATED - NOVEMBER 3, 2021

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

Docket Number: 05000397

License Number: NPF-21

Report Number: 05000397/2021012

Enterprise Identifier: I-2021-012-0002

Licensee: Energy Northwest

Facility: Columbia Generating Station

Location: Richland, WA

Inspection Dates: September 13, 2021 to September 30, 2021

Inspectors: W. Cullum, Reactor Inspector
D. Reinert, Senior Reactor Inspector
F. Thomas, Reactor Inspector

Approved By: Vincent G. Gaddy, Chief
Engineering Branch 1
Division of Reactor Safety

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a design basis assurance inspection (programs) 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

Failure to perform a cause evaluation after exceeding an administrative limit during local leak rate test of a containment isolation valve			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000397/2021012-01 Open	[P.2] - Evaluation	71111.21N. 02
The inspectors identified a Green finding and associated non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Procedures," when the licensee failed to follow procedures during local leak rate testing of a containment isolation valve.			

Additional Tracking Items

None.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards. Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), inspectors were directed to begin telework. In addition, regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.21N.02 - Design-Basis Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements

POV Review (IP Section 03) (12 Samples)

The inspectors:

a. Determined whether the sampled POVs are being tested and maintained in accordance with NRC regulations along with the licensee's commitments and/or licensing bases.

Specific Guidance

b. Determined whether the sampled POVs are capable of performing their design-basis functions.

c. Determined whether testing of the sampled POVs is adequate to demonstrate the capability of the POVs to perform their safety functions under design-basis conditions.

d. Evaluated maintenance activities including a walkdown of the sampled POVs (if accessible).

- (1) High Pressure Core Spray Discharge Isolation Valve, HPCS-V-4
- (2) Reactor Core Isolation Cooling Turbine Steam Supply Isolation Valve, RCIC-V-45
- (3) Reactor Core Isolation Cooling Discharge to Reactor Pressure Vessel Isolation Valve, RCIC-V-13
- (4) Residual Heat Removal Pump 2B Minimum Flow Control Valve, RHR-V-64B
- (5) Drywell Floor Drain Discharge Containment Isolation Valve, FDR-V-3
- (6) Residual Heat Removal Suppression Chamber Spray Header Isolation Valve, RHR-V-27B
- (7) Reactor Closed Cooling Supply to Drywell Cooling Loads Isolation Valve, RCC-V-5
- (8) Reactor Feedwater Loop A Supply to Reactor Pressure Vessel Isolation Valve, RFW-V-65A
- (9) Main Steam Isolation Valve 28C, MS-V-28C

- (10) Reactor Core Isolation Cooling Turbine Steam Supply Inboard Containment Isolation Valve, RCIC-V-63
- (11) Residual Heat Removal Shutdown Cooling Suction Isolation Valve, RHR-V-9
- (12) Main Steam Atmospheric Depressurization System Safety Relief Valve 5C, MS-RV-5C

INSPECTION RESULTS

Failure to perform a cause evaluation after exceeding an administrative limit during local leak rate test of a containment isolation valve			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green NCV 05000397/2021012-01 Open	[P.2] - Evaluation	71111.21N.0 2
The inspectors identified a Green finding and associated non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Procedures," when the licensee failed to follow procedures during local leak rate testing of a containment isolation valve.			
<p><u>Description:</u> The inspectors reviewed corrective action documents associated with the two most recent local leak rate tests (LLRTs) of valve RHR-V-27B, the Residual Heat Removal to suppression chamber spray header outboard containment isolation valve. Both tests initially demonstrated leakage rates that exceeded the valve's administrative leakage limit. Inspectors also reviewed three licensee procedures relevant to local leak rate testing of the valve: LLRT-01, "Primary Containment Leakage Rate Testing Program," TSP-CONT-R801, "Containment Isolation Valve and Penetration Leak Test Program," and TSP-RHR/X25B-C801, "LLRT of RHR-V-27B." Inspectors noted that LLRT-01 Section 3.4 and TSP-CONT-R801 Step 8.2.10.d both require a cause determination to be performed following a local leak rate test which results in leakage above the administrative limit. A cause determination was not performed for either of the two most recent LLRTs of RHR-V-27B. In both instances the licensee flushed the line and reperformed the LLRT which yielded leakage rates below the administrative limit. Additionally, procedure TSP-RHR/X25B-C801 Step 7.1.22 requires that if a LLRT leak rate is greater than the administrative limit, an evaluation of overall containment leakage is to be performed. This evaluation was not performed for either adverse test of RHR-V-27B.</p> <p><u>Corrective Actions:</u> The licensee documented the failure to perform a cause determination for leakage found above the administrative limit during local leak rate testing on RHR-V-27B in the corrective action program. The licensee intends to perform a cause evaluation to determine the reason for exceeding the administrative limit during the LLRT. Additionally, the licensee plans to evaluate the as found results for the LLRT and compare against the Technical Specification limit for overall containment leakage to determine past operability and reportability implications.</p> <p><u>Corrective Action References:</u> Action Requests 425456, 425605</p> <p><u>Performance Assessment:</u></p> <p><u>Performance Deficiency:</u> The failure to follow site procedures when performing local leak rate testing for containment isolation valves is a performance deficiency. Specifically, the licensee failed to follow procedure LLRT-01 Section 3.4 and procedure TSP-CONT-R801 Step 8.2.10.d which state that a cause determination shall be performed if a valve exceeds the</p>			

administrative limit during a local leak rate test. The administrative limit was exceeded during a LLRT performed on May 22, 2019 and again on June 4, 2021 for the RHR-V-27B Residual Heat Removal to suppression chamber spray header outboard containment isolation valve. A cause determination was not performed on either occasion.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Human Performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, multiple procedure adherence deficiencies led to a substantive and meaningful reduction in overall containment leakage margin. The overall containment leakage Technical Specification limit is 121,536 sccm. The LLRT performed on May 22, 2019 documented a leakage rate of 40,000 sccm, and the June 4, 2021 the LLRT performed on June 4, 2021 found a maximum leakage of 70,000 sccm. This most recent LLRT represented a 57% reduction in margin to the total containment leakage Technical Specification limit.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process for Findings At-Power." Using Exhibit 3 - Barrier Integrity Screening Questions, the inspectors determined the finding was of very low safety significance (Green) since leakage past RHR-V-27B did not represent an actual open pathway in the physical integrity of reactor containment. The suppression pool spray line represents a closed system which takes suction from the suppression pool and discharges back to the suppression pool.

Cross-Cutting Aspect: P.2 - Evaluation: The organization thoroughly evaluates issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. The most recent example of not performing a cause determination following an LLRT test with leakage above the administrative limit occurred on June 4, 2021. This falls within the nominal three-year period for present performance. The P.2 - Evaluation cross-cutting aspect was chosen because the licensee failed to evaluate the condition of the failed LLRT. The licensee went straight from identification of excessive valve leakage to implementing a resolution by flushing the valve and reperforming the LLRT. The failure to evaluate the condition and jumping straight to a resolution is the proximate cause of not following the LLRT procedures.

Enforcement:

Violation: Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion V, "Procedures," requires, in part, that "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

Columbia Generating Station Procedure LLRT-01, "Primary Containment Leakage Rate Testing Program", Revision 8, Section 3.4, "Corrective Action," states, "In the event of failure to meet specified acceptance criteria or to perform tests at intervals required under this plan, a CR shall be initiated. A cause determination should be performed, and corrective actions identified that focus on activities that eliminate the cause of the failure and prevent recurrence."

Columbia Generating Station Procedure TSP-CONT-R801, "Containment Isolation Valve and Penetration Leak Test Program," Revision 17, Step 8.2.10.d states, "If leakage is confirmed

above the Administrative Leakage Limit, the Test Coordinator shall initiate a CR to evaluate valve leakage and to perform/document a cause determination.

Contrary to the above, on May 22, 2019 and on June 4, 2021 the licensee did not accomplish activities affecting quality in accordance with procedures of a type appropriate to the circumstances. Specifically, the licensee did not perform a cause determination after RHR-V-27B exceeded the administrative limit during local leak rate testing as required by procedure LLRT-01 Section 3.4, Revision 8 and procedure TSP-CONT-R801 Step 8.2.10.d, Revision 17.

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 September 30, 2021, the inspectors presented the design basis assurance inspection (programs) inspection results to Robert E. Scheutz and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.02	Calculations	216-92-003	Calculation for Weak Link Analysis for HPCS Valve 4	3
		216-92-011	Weak Link Analysis for Valve No. LPCS-FCV-11, RHR-FCV-64A,B,C (Fisher 3" Globe Valve)	1
		C106-92-03.02	HPCS System MOV Design Basis Review	3
		C106-92-03.03	Calculation for RHR Motor Operated Valve Design Basis Review	5
		C106-92-03.04	Service Water System MOV Design Basis Review	2
		C106-92-03.05	WNP-2 RCIC System MOV Design Basis Review	3
		C106-92-03.06	WNP-2 RCC System MOV Design Basis Review	1
		CE-02-92-51	Analysis and Testing of Limitorque Torque Switches Model SMB-0 thru 5	0
		EI-02-91-04	Motor Thermal Overload (TOL) and Branch Circuit Fuse Sizing Calculation	0
		EI-02-93-04	Overcurrent Protection of Primary Containment Electrical Penetrations	6
		MA 21233	Equipment Qualification Report Duragear Model AVI-1 or Bettis NCB415-SR80 Operator	03/23/2005
		MA 21329	Operator Sizing Calculation for Enertech 3 Inch ANSI Class 300 Permaseat Valve	04/15/2005
		ME-02-00-13	EDR and DFR System Air Operated Valve Functional and MEDP Calculation	1
		ME-02-02-25	AC Gate Valves - MOV Thrust and Setpoint Calculation	6
		ME-02-02-26	DC Gate and Globe Valves - MOV Thrust and Set-point Calculation	5
		ME-02-02-27	AC Rising Stem Valves - MOV Thrust and Set-point Calculation	5
		ME-02-95-34	Design Basis Thrust Calculation and Evaluation for RHR-V-8 and RHR-V-9	0
		ME-02-96-20	Temperature Effects of Valves Due to Nearby Heat Sources	0
		ME-02-96-21	MOV Pressure Locking Calculation	0
	Corrective Action	Action Request	279896, 309945, 366179, 366705, 410264, 419863,	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents	(AR)	393944, 421357, 424059, 289329, 366537, 367036, 367502, 367504, 367530, 367865, 378102, 380303, 393351, 393368, 394383, 395337, 395811, 419594, 421674, 422430, 422457, 422728, 424019, 420455, 419150, 419153, 419222, 419703, 419760, 419849, 419743, 415632, 415637, 416151, 289329, 366537, 367036, 367502, 367504, 367530, 367865, 378102, 380303, 393351, 393368, 394383, 395337, 395811, 415594, 421674, 422430, 422457, 422728, 424019, 422728, 408029, 415202, 419849, 419350, 420455, 423243, 355027, 384974, 367718, 366755, 418147, 311280, 385706, 404477, 414806, 415059, 422219, 360516, 360585, 363807, 372892, 391846, 394794	
	Corrective Action Documents Resulting from Inspection	Action Request (AR)	425215, 425216, 425219, 425229, 425230, 425246, 425248, 425298, 425302, 425303, 425304, 425307, 425456, 425605	
	Drawings	6E051	Reactor Core Isolation Cooling System Annunciators Sheet 1	16
		807E173TC	Elementary Diagram RCIC [Reactor Core Isolation Cooling] System	41
		E528-36	MCC [Motor Control Center] Equip. [Equipment] Overload Summary	32
		EWD-6E-055	Electrical Wiring Diagram Reactor Core Isolation Cooling System MOV RCIC-V-63 (E51-F063)	19
		EWD-6E-055A	Electrical Wiring Diagram Reactor Core Isolation Cooling System MOV RCIC-V-63 (E51-F063)	4
		EWD-9E-011	Electrical Wiring Diagram Residual Heat Removal System MOV RHR-V-9 (E12-F009)	18
	Engineering Changes	EC 12162	Design Evaluation - Table 9 Overload Selection	
		EC 12163	Design Evaluation - Table 10 Overload Heater Selection	
		EC 15991	RHR-V-64B Failure to Open on Flow Reduction (MSPI Functions Impact)	0
		EC 17506	Main Steam Relief Valve Hydranuts	01

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		EC 18425	MSRV Nozzle Ring Set Screw OEM Re-Design	00
		EC 18452	SW-M-V/12A Motor/Actuator Replacement	0
		EC 18783	RHR-MO-9 Gear Change for RHR-V-9	000
		EC 8804	CMR To Revise Motor Operator Weight On RHR-V-9 For Calculation 8.14.107, Rev. 10	000
	Miscellaneous	AR 374139	Pre-NRC Power Operated Valve (POV) Inspection Focused Self-Assessment Report	03/08/2021
		EES-5	General Fuse Selection Criteria and the Electrical Protection of 460 VAC and 125-250 VDC Motors	012
		IST Program Plan	Inservice Testing Program Plan Fourth Ten-Year Inspection Interval	5.001
		PSA-AOV-IR-0001	Risk Ranking of Air Operated Valves	1
		PSA-MOV-IR-0001	Motor Operated Valve Importance Ranking in Support of the MOV Periodic Verification Program	4
		QID 361020	Seismic and Hydrodynamic Qualification of Anchor Darling Globe Valve	12/18/1985
		TM-2019	Summary of Equipment Qualification Environmental Profiles	14
		TM-2096	Design Valve Factor Criteria used in GL-89-10 Motor Operated Valve Calculations	1
	Procedures	10.24.235	Air Operated Valve Testing and Calibration	11
		10.25.132	Thrust Adjustment and Diagnostic Analysis of Motor Operated Valves	34
		10.25.4	Lubrication and Inspection of Limitorque MOVs	29
		10.25.74	Testing Motor Operated Valve Motors and Controls	33
		8.4.73	MOV Design Basis Testing Evaluation	11/03/2004
		LLRT-01	Primary Containment Leakage Rate Testing Program	8
		MES-10	Motor Operated Valve Sizing and Switch Setting	10
		MOVPP-01	MOV Periodic Verification Program Plan	9
OSP-RCIC/IST-Q701		RCIC Operability Test	66	
TSP-CONT-R801		Containment Isolation Valve and Penetration Leak Test Program	17	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		TSP-RHR/X25B-C801	LLRT of RHR-V-27B	3
	Work Orders	Work Order (WO)	01112272, 01195276, 02008781, 02042108, 02082275, 02107548, 02160241, 02144982, 02151067, 02160242, 02040351, 02150081, 0216869301, 0216869401, 0216869501, 01021307, 01194404, 02048827, 0216491001, 01143406, 01177117, 0204280601, 0215106801, 0216316801, 0216316901, 01081211, 01188057, 02115790, 0211257501, 021125701, 0214452001, 0214809601, 01142628, 02045314, 02082280, 0211082701, 01171199, 02079580, 02145029, 211201501, 01171199, 02048825, 0215464501, 02134383, 02153283, 2145451, 02142995, 02148076	