



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 6, 2024

Robert Schuetz
Chief Executive Officer
Energy Northwest
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Richland, WA 99352

SUBJECT: COLUMBIA GENERATING STATION – REQUESTS 5IST-04 (RV01), 5IST-05 (RV02), 5IST-06 (RV03), AND 5IST-07 (RV04) – FIFTH INTERVAL INSERVICE TESTING PROGRAM (EPID L-2024-LLR-0008, EPID L-2024-LLR-0011, EPID L-2024-LLR-0012, AND EPID L-2024-LLR-0013)

Dear Robert Schuetz:

By letter dated January 29, 2024 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML24029A071), as supplemented by letter dated July 29, 2024 (ML24211A126), Energy Northwest (the licensee) submitted Requests 5IST-04 (RV01), 5IST-05 (RV02), 5IST-06 (RV03), and 5IST-07 (RV04) for valves to the U.S. Nuclear Regulatory Commission (NRC) proposing alternatives to specific requirements in the 2020 Edition of the American Society of Mechanical Engineers (ASME) *Operation and Maintenance of Nuclear Power Plants*, Division 1, OM Code: Section IST (OM Code) at the Columbia Generating Station (Columbia) associated with the fifth interval inservice testing (IST) program.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(f)(5)(iii), "IST program update: Notification of impractical IST Code requirements," the licensee requested that the NRC grant Request 5IST-04 on the basis that compliance with certain requirements in the ASME OM Code for specific valves would be impractical at Columbia.

Pursuant to 10 CFR 50.55a(z)(1), "Acceptable level of quality and safety," the licensee requested to implement Requests 5IST-05, 5IST-06, and 5IST-07 on the basis that the proposed alternatives would provide an acceptable level of quality and safety in lieu of certain requirements in the ASME OM Code as incorporated by reference in 10 CFR 50.55a for specific valves at Columbia.

At the time of the initial submittal, the Columbia fifth interval IST program was scheduled to begin December 13, 2024, and was scheduled to end on December 12, 2034. In a letter dated July 15, 2024 (ML24197A223), the licensee notified the NRC of its plan to extend the end date of Columbia fourth 10-year interval IST program end date of December 12, 2024, by 1 year as allowed by the ASME OM Code, subsection ISTA, "General Requirements," paragraph ISTA-3120, "Inservice Examination and Test Interval," which allows a change to the interval start and end dates not to exceed 1 year cumulatively. The licensee proposed that requests 5IST-04, 5IST-05, 5IST-06, and 5IST-07 be authorized for the fifth interval IST program.

With respect to request 5IST-04 (RV01) for the specified valves at Columbia, the NRC staff has determined that granting the request in accordance with 10 CFR 50.55a(f)(6)(i), "Impractical IST requirements: Granting of relief," is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(f)(5)(iii) and is in compliance with the requirements of 10 CFR 50.55a with the granting of this request. Therefore, the NRC staff grants relief, pursuant to 10 CFR 50.55a(f)(6)(i), to apply the proposed testing alternatives for the specified valves within the scope of Request 5IST-4 (RV01) during the Fifth Interval IST Program at Columbia.

With respect to Requests 5IST-05 (RV02), 5IST-06 (RV03), and 5IST-07 (RV04) for the specified valves at Columbia, the NRC staff has determined that the proposed alternatives to the applicable ASME OM Code requirements provide an acceptable level of quality and safety under 10 CFR 50.55a(z)(1) for the operational readiness of the valves to perform their safety functions. Therefore, the NRC staff authorizes 5IST-05 (RV02), 5IST-06 (RV03), and 5IST-07 (RV04) pursuant to 10 CFR 50.55a(z)(1) for the Fifth Interval IST Program at Columbia.

All other ASME OM Code requirements as incorporated by reference in 10 CFR 50.55a for which relief or an alternative was not specifically requested, and granted or authorized (as appropriate), in the subject requests remain applicable.

If you have any questions, please contact the Project Manager, Mahesh Chawla, at 301-415-8371 or by email at Mahesh.Chawla@nrc.gov.

Sincerely,

Tony Nakanishi, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosure:
Safety Evaluation

cc: Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
REQUESTS 5IST-04 (RV01), 5IST-05 (RV02), 5IST-06 (RV03), AND 5IST-07 (RV04)
FIFTH INTERVAL INSERVICE TESTING PROGRAM
ENERGY NORTHWEST
COLUMBIA GENERATING STATION
DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated January 29, 2024 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML24029A071), as supplemented by letter dated July 29, 2024 (ML24211A126), Energy Northwest (the licensee) submitted Requests 5IST-04 (RV01), 5IST-05 (RV02), 5IST-06 (RV03), and 5IST-07 (RV04) for valves to the U.S. Nuclear Regulatory Commission (NRC) proposing alternatives to specific requirements in the 2020 Edition of the American Society of Mechanical Engineers (ASME) *Operation and Maintenance of Nuclear Power Plants*, Division 1, OM Code: Section IST (OM Code) at the Columbia Generating Station (Columbia or CGS) associated with the fifth interval inservice testing (IST) program.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(f)(5)(iii), "IST program update: Notification of impractical IST Code requirements," the licensee requested that the NRC grant Request 5IST-04 on the basis that compliance with certain requirements in the ASME OM Code for specific valves would be impractical at Columbia.

Pursuant to 10 CFR 50.55a(z)(1), "Acceptable level of quality and safety," the licensee requested to implement Requests 5IST-05, 5IST-06, and 5IST-07 on the basis that the proposed alternative would provide an acceptable level of quality and safety in lieu of certain requirements in the ASME OM Code as incorporated by reference in 10 CFR 50.55a for specific valves at Columbia.

At the time of the initial submittal, the Columbia fifth interval IST program was scheduled to begin December 13, 2024, and was scheduled to end on December 12, 2034. In a letter dated July 15, 2024 (ML24197A223), the licensee notified the NRC of its plan to extend the end date of Columbia fourth 10-year interval IST program end date of December 12, 2024, by 1 year as allowed by the ASME OM Code, subsection ISTA, "General Requirements," paragraph ISTA-3120, "Inservice Examination and Test Interval," which allows a change to the interval start and end dates not to exceed one year cumulatively. The licensee proposed that Requests 5IST-04, 5IST-05, 5IST-06, and 5IST-07 be authorized for the fifth interval IST program.

Enclosure

2.0 REGULATORY EVALUATION

The NRC regulations in 10 CFR 50.55a(f)(4), "Inservice testing standards requirement for operating plants," state, in part, that,

Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, pumps and valves that are within the scope of the ASME OM Code must meet the inservice test requirements (except design and access provisions) set forth in the ASME OM Code and addenda that become effective subsequent to editions and addenda specified in [10 CFR 50.55a(f)(2) and (3)] and that are incorporated by reference in [10 CFR 50.55a(a)(1)(iv)], to the extent practical within the limitations of design, geometry, and materials of construction of the components.

The NRC regulations in 10 CFR 50.55a(f)(5)(iii) require, in part, that,

If the licensee has determined that conformance with certain Code requirements is impractical for its facility, the licensee must notify the Commission and submit ... information to support the determination.

The NRC regulations in 10 CFR 50.55a(f)(6)(i), "Impractical IST requirements: Granting of relief," state, in part, that,

The Commission will evaluate determinations, under [10 CFR 50.55a(f)(5)] that code requirements are impractical. The Commission may grant relief and may impose such alternative requirements as it determines are authorized by law, will not endanger life or property or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

The NRC regulations in 10 CFR 50.55a(z), "Alternatives to codes and standards requirements," state:

Alternatives to the requirements of [10 CFR 50.55a(b) through (h)] or portions thereof may be used when authorized by the Director, Office of Nuclear Reactor Regulation. A proposed alternative must be submitted and authorized prior to implementation. The applicant or licensee must demonstrate that:

- (1) "Acceptable level of quality and safety." The proposed alternative would provide an acceptable level of quality and safety; or
- (2) "Hardship without a compensating increase in quality and safety." Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Request 5IST-04 (RV01)

The licensee submitted Request 5IST-04 (RV01) related to valve testing requirements in the ASME OM Code, subsection ISTC, in accordance with 10 CFR 50.55a(f)(5)(iii), on the basis that meeting the ASME OM Code requirement is impractical.

Applicable OM Code Edition

The applicable Code of record for the fifth interval IST program at Columbia is the 2020 Edition of ASME OM Code as incorporated by reference in 10 CFR 50.55a.

ASME OM Code Components

Table 4 below lists the check valves at Columbia within the scope of Request 5IST-04.

Table 4

Affected Valve	Class	Cat. (Note 1)	Function	System
CVB-V-1AB	2	AC	To break vacuum on the drywell to suppression chamber downcomers and to limit steam leakage from the downcomer to the wetwell gas space.	Primary Containment Cooling and Purging
CVB-V-1CD	2	AC		
CVB-V-1EF	2	AC		
CVB-V-1GH	2	AC		
CVB-V-1JK	2	AC		
CVB-V-1LM	2	AC		
CVB-V-1NP	2	AC		
CVB-V-1QR	2	AC		
CVB-V-1ST	2	AC		

Note 1:

Category A: valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required function(s) (Reference: ASME OM Code, subsection ISTC, "Inservice Testing of Valves in Water-Cooled Reactor Nuclear Power Plants," paragraph ISTC-1300, "Valves Categories," subparagraph (a)).

Category C: valves that are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of the required function(s) (Reference: ASME OM Code, subsection ISTC, subparagraph ISTC-1300(c)).

Applicable OM Code Requirements

The IST requirements in the ASME OM Code, 2020 Edition, as incorporated by reference in 10 CFR 50.55a, related to this request are as follows:

- ASME OM Code, subsection ISTC, "Inservice Testing of Valves in Water-Cooled Reactor Nuclear Power Plants," paragraph ISTC-3500, "Valve Testing Requirements,"

ISTC-3520, "Exercising Requirements," paragraph ISTC-3522, "Category C Check Valves," subparagraph (a), states, in part:

During operation at power, each check valve shall be exercised or examined in a manner that verifies obturator travel by using the methods in ISTC-5221.

Each check valve exercise test shall include open and close tests.

- ASME OM Code, subsection ISTC, ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valves," states:

Category A valves with a leakage requirement not based on an Owner's 10 CFR [Part] 50, Appendix J program, shall be tested to verify their seat leakages [are] within acceptable limits. Valve closure before seat leakage testing shall be by using the valve operator with no additional closing force applied.

- ASME OM Code, subsection ISTC, ISTC-3630, subparagraph (a), "Frequency," states, "Tests shall be conducted at least once every 2 yr [years]."

Licensee's Proposed Relief

In accordance with 10 CFR 50.55a(f)(5)(iii), the licensee proposed that the valves identified in table 4, above, will be leak tested in accordance with Columbia Technical Specification (TS) Surveillance Requirement (SR) 3.6.1.1.2, SR 3.6.1.1.3, and SR 3.6.1.1.4 during refueling outages as the specified ASME OM Code testing requirements for these valves are impractical.

In its letter dated January 29, 2024, the licensee stated, in part:

SR 3.6.1.1.2 drywell-to-suppression chamber bypass leakage test monitors the combined leakage of three types of pathways: (1) the drywell floor and downcomers, (2) piping externally connected to both the drywell and suppression chamber air space, and (3) the suppression chamber-to-drywell vacuum breakers. The test frequency is 120 months and 48 months following one test failure and 24 months if two consecutive tests fail until two consecutive tests are less than or equal to the bypass leakage limit.

TS SR 3.6.1.1.3 establishes a leak rate test frequency of 24 months for each suppression chamber-to-drywell vacuum breaker pathway, except when the leakage test of SR 3.6.1.1.2 has been performed (Note to SR 3.6.1.1.3). Thus, each suppression chamber-to-drywell vacuum breaker pathway will have a leak test frequency of 24 months by either SR 3.6.1.1.2 or SR 3.6.1.1.3.

TS SR 3.6.1.1.4 establishes a leakage test frequency of 24 months to determine the suppression chamber-to-drywell vacuum breaker total bypass leakage, except when the bypass leakage test of SR 3.6.1.1.2 has been performed (Note to SR 3.6.1.1.4). Thus, the determination of suppression chamber-to-drywell vacuum breaker total leakage will have a leak test frequency of 24 months by either SR 3.6.1.1.2 or SR 3.6.1.1.4.

These valves are also verified-closed by position indicators (per TS SR 3.6.1.7.1, ISTC-3700, and I-3370(a)), exercised (per TS SR 3.6.1.7.2, ISTC-3520, and I-3370(a)), and tested in the open direction per TS SR 3.6.1.7.3, ISTC-5221(b), and I-3370(a). In accordance with station procedures, the valves are visually inspected each refueling outage.

As stated in its letter dated July 29, 2024, the licensee provided additional justification for Request 5IST-04 as follows:

The valves listed in Alternative Request 5IST-04 (RV01) shall be leak tested in accordance with the authorized Alternative Request 5IST-04 (RV01).

Test frequencies for valves may be adjusted as part of the Surveillance Frequency Control Program (SFCP) process, however, the controls built into the change process ensure that IST requirements are met when establishing acceptable frequencies. As such, valve test frequencies will meet or exceed applicable ASME OM Code requirements.

The valves listed in Alternative Request 5IST-04 (RV01) will satisfy the test frequency proposed.

No adjustments will be needed to the current Technical Specification (TS) Surveillance Requirements (SR) or Technical Position TV03 in the Fifth 10-Year Interval IST Program. A frequency change from 14 days to 31 days was processed in 2020 for SR 3.6.1.7.1 using Columbia's surveillance frequency change process. Implementation of this change included revising the Fourth 10-Year Interval IST Program Plan, including a change to TV03, which updated the version cited in Item 1 above, to reflect the new frequency of 31 days.

The leakage criteria and required actions specified in Columbia TS SR 3.6.1.1.2, SR 3.6.1.1.3, and SR 3.6.1.1.4, combined with visual examination of valve seats every refueling outage provides adequate assurance of the relief valve assembly's ability to remain leak-tight and to prevent a suppression pool bypass. Thus, the proposed alternative provides adequate assurance of material quality and public safety.

Licensee's Reason for Request

In its letter dated January 29, 2024, the licensee stated, in part:

Impracticality of compliance; these check valves cannot be tested individually and assigning a limiting leakage rate for each valve or valve combination is not practical.

Paragraph ISTC-3630 requires Category A valves, other than containment isolation valves, to be leak tested at least once every two years. Each vacuum relief valve assembly consists of two independent testable check valves in series with no instrument located between them to allow testing of each of the two check valves. Therefore, leak testing in accordance with the Code is impractical. Modifications to allow individual testing of these valves would require a major system redesign and be burdensome.

The leakage criteria and required actions specified in Columbia TS SR 3.6.1.1.2, SR 3.6.1.1.3, and SR 3.6.1.1.4, combined with visual examination of valve seats every refueling outage provides adequate assurance of the relief valve assembly's ability to remain leaktight and to prevent a suppression pool bypass. Thus, the proposed alternative provides adequate assurance of material quality and public safety.

NRC Staff Evaluation

ASME OM Code, subsection ISTC, paragraph ISTC-3630 requires that "Category A valves with a leakage requirement not based on an Owner's 10 CFR [Part] 50, Appendix J program shall be tested to verify their seat leakages within acceptable limits." Paragraph ISTC-3630, subparagraph (a) requires that the "tests shall be conducted at least once every 2 years." The licensee submitted Request 5IST-04 under 10 CFR 50.55a(f)(5)(iii) on the basis that these ASME OM Code requirements are impractical for the specified valves at Columbia.

The nine components at Columbia listed in table 4 of this safety evaluation (SE), for Request 5IST-04 are vacuum breaker relief valves that have a requirement to be leaktight during a design-basis accident. Each vacuum breaker relief valve unit consists of two independent testable check valves in series with no instrumentation located between them to allow individual leak testing. Based on the information provided by the licensee, the NRC staff has determined that leak testing of the individual valves in accordance with the ASME OM Code is impractical because modifications to allow such individual valve testing would require a major system modification at Columbia.

In Request 5IST-04, the licensee has proposed to leak test each vacuum breaker relief valve unit in accordance with TS SRs 3.6.1.1.2, 3.6.1.1.3, and 3.6.1.1.4. These SRs were developed to maintain and verify the pressure suppression function of primary containment.

TS SR 3.6.1.1.2 requires verification that drywell-to-suppression chamber bypass leakage is 10 percent of the acceptable design value of 0.050 square feet (ft²) at an initial differential pressure of 1.5 pounds per square inch differential (psid) every 120 months, and 48 months following a test with bypass leakage greater than the bypass leakage limit, and 24 months following two consecutive tests with bypass leakage greater than the bypass leakage limit until two consecutive tests are less than or equal to the bypass leakage limit. TS SR 3.6.1.1.2 monitors the combined leakage of three types of pathways: (1) the drywell floor and downcomers, (2) piping externally connected between the drywell and suppression chamber airspace, and (3) the suppression chamber-to-drywell vacuum breakers.

TS SR 3.6.1.1.3 requires verification that each individual vacuum breaker relief valve unit leakage is 1.2 percent of the acceptable design value of 0.050 ft² at an initial differential pressure of 1.5 psid every 24 months. The SR is modified by a note stating that performance of SR 3.6.1.1.2 satisfies this surveillance requirement. The drywell-to-suppression chamber vacuum breaker relief valve leakage is included in the measurement of the drywell-to-suppression chamber bypass leakage required in SR 3.6.1.1.2.

TS SR 3.6.1.1.4 requires verification that the total leakage of all nine vacuum breaker relief valves is 3.0 percent of the acceptable design value of 0.050 ft² at an initial differential pressure of 1.5 psid every 24 months. The SR is modified by a note stating that performance of SR 3.6.1.1.2 satisfies this SR. The drywell-to-suppression chamber vacuum breaker relief valve

leakage is included in the measurement of the drywell-to-suppression chamber bypass leakage required in SR 3.6.1.1.2.

In its letter dated July 29, 2024, the licensee stated, in part, that,

Test frequencies for valves may be adjusted as part of the Surveillance Frequency Control Program (SFCP) process; however, the controls built into the change process ensure that IST requirements are met when establishing acceptable frequencies. As such, valve test frequencies will meet or exceed applicable ASME OM Code requirements.

Further, in its July 29, 2024, letter, the licensee stated that the valves listed in Request 5IST-04 will satisfy the test frequency proposed, and no adjustments will be needed to the current TS SRs or Technical Position TV03 in the fifth interval IST program. A frequency change from 14 days to 31 days was processed in 2020 for SR 3.6.1.7.1 using Columbia's surveillance frequency change process. Implementation of this change included revising the fourth 10-year interval IST program plan, including a change to TV03, which was updated to reflect the new frequency of 31 days.

Based on its review, the NRC staff has determined that leak testing of the individual valves within the scope of Request 5IST-04 in accordance with the ASME OM Code is impractical at Columbia. Further, the staff has determined that the proposed alternative in Request 5IST-04 comprised of performance of the TS SRs 3.6.1.1.2, 3.6.1.1.3, and 3.6.1.1.4, combined with the position indication test and visual examination performed each refueling outage, provides reasonable assurance that the components listed in table 4 of this SE will be operationally ready to perform their safety functions. As a result, the NRC staff finds that the requested relief from the specified ASME OM Code requirements for the applicable valves at Columbia is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Therefore, the NRC staff finds that Request 5IST-04 (RV01) may be granted pursuant to 10 CFR 50.55a(f)(6)(i) for the fifth interval IST program at Columbia.

3.2 Licensee's Request 5IST-05 (RV02)

Applicable OM Code Edition

The applicable Code of record for the fifth interval IST program at Columbia is the 2020 Edition of the ASME OM Code as incorporated by reference in 10 CFR 50.55a.

ASME OM Code Components

Table 5 below lists the containment isolation valves at Columbia within the scope of Request 5IST-05.

Table 5

Affected Valve	Class	ASME OM Code Category (Note 1)	Function	System
PSR-V-X73/1	2	A	Containment isolation	Post- Accident Sampling (PSR)
PSR-V-X80/1	2	A		
PSR-V-X83/1	2	A		
PSR-V-X77A/1	1	A		
PSR-V-X82/1	2	A		
PSR-V-X84/1	2	A		
PSR-V-X77A/3	1	A		
PSR-V-X82/7	2	A		
PSR-V-X88/1	2	A		

Note 1:

Category A: valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required function(s) (Reference: ASME OM Code, subsection ISTC, subparagraph ISTC-1300 (a)).

Applicable OM Code Requirements

The IST requirements in the ASME OM Code, 2020 Edition, as incorporated by reference in 10 CFR 50.55a, related to this request are as follows:

- ASME OM Code, subsection ISTC, paragraph ISTC-5150, "Solenoid-Operated Valves," paragraph ISTC-5151, "Valve Stroke Testing," subparagraph (c) states "Stroke time shall be measured to at least the nearest second."
- ASME OM Code, subparagraph ISTC-5151(d) states "Any abnormality or erratic action shall be recorded (see ISTC-9120), and an evaluation shall be made regarding need for corrective action."
- ASME OM Code, paragraph ISTC-5153, "Stroke Test Corrective Action," specifies requirements if a valve fails to exhibit the required change of obturator position or exceeds the limiting values of full-stroke time.

Licensee's Proposed Alternative

In accordance with 10 CFR 50.55a(z)(1), the licensee provided the following proposed alternative in Request 5IST-05 as stated in its letter dated January 29, 2024:

All of these solenoid valves stroke in less than two seconds and are considered fast-acting valves. Their safety function is to close to provide containment isolation. The stroke time of the slowest valve will be measured by terminating the stroke time measurement when the last of the nine indicating lights becomes illuminated. If the stroke time of the slowest valve is in the acceptance range (less than or equal to two seconds), then the stroke times of all valves will be

considered acceptable. However, if the stroke time of the slowest valve exceeds the acceptance criteria (two seconds), all nine valves will be declared inoperable and corrective actions in accordance with paragraph ISTC-5153 taken. After corrective actions, the required reference values shall be established in accordance with ISTC-3300. Also, any abnormality or erratic action shall be recorded, and an evaluation shall be made regarding the need for corrective action as required by ISTC-5151(d).

In its letter dated July 29, 2024, the licensee provided additional justification for Request 5IST-05 as follows:

The proposed alternate testing will verify that the valves respond in a timely manner and provide information for monitoring signs of material degradation. This provides adequate assurance of material quality and public safety.

ASME OM Code, Paragraph ISTC-3700, *Position Verification Testing*, as supplemented by [10 CFR 50.55a(b)(3)(xi)], *OM condition: Valve Position Indication*, is not included within the scope of this alternative request. The scope of this request is limited to valve stroke testing as described in Subsection ISTC-5151(c).

Licensee's Reason for Request

In its letter dated January 29, 2024, the licensee provided the following reason for its request:

Subparagraph ISTC-5151(c) requires the stroke time of solenoid-operated valves to be measured to at least the nearest second. These nine post-accident sampling solenoid valves are the inboard Containment isolation valves and are operated from a single keylock control switch. It is impractical to measure the individual valve stroke times. To do so would require repetitive cycling of the control switch, or nine Operators and nine stopwatches, which would cause unnecessary wear on the valves and control switches and an excessive burden to Operations personnel with little compensating benefit.

NRC Staff Evaluation

ASME OM Code, subsection ISTC, subparagraph ISTC-5151(c), requires the stroke time of all solenoid-operated valves to be measured to at least the nearest second. The licensee stated that nine solenoid valves, listed in table 5 of this SE, are all operated from a single key switch. To reduce wear of the valves, the licensee proposed an alternative test method in Request 5IST-05 in accordance with 10 CFR 50.55a(z)(1).

The licensee's test plan is to operate all nine solenoid valves from the single key switch and obtain the stroke time measurement from only the slowest valve in the group. If the stroke time is within the acceptance criteria of paragraph ISTC-5152, "Stroke Test Acceptance Criteria," then the stroke times of the other eight solenoid valves would be acceptable. However, if the stroke time of the slowest valve exceeds the acceptance criteria, all nine valves will be declared inoperable and corrective actions will be taken in accordance with ISTC-5153. The licensee also stated that it shall record any abnormality or erratic action and will perform an evaluation regarding the need for corrective action as required by ISTC-5151(d).

Based on its review, the NRC staff has determined that the proposed alternative in Request 5IST-05 for the specified valves to measure the slowest solenoid stroke time and apply its results to the group provides an acceptable level of quality and safety for the operational readiness of the specific valves to perform their safety functions at Columbia in lieu of the applicable ASME OM Code requirements. Therefore, the NRC staff finds that Request 5IST-05 (RV02) may be authorized under 10 CFR 50.55a(z)(1) for the Fifth Interval IST Program at Columbia.

3.3 Licensee's Request 5IST-06 (RV03)

Applicable OM Code Edition

The applicable Code of record for the fifth interval IST program at Columbia is the 2020 Edition of ASME OM Code as incorporated by reference in 10 CFR 50.55a.

ASME OM Code Components

Table 6 below lists main steam relief valves (MSRVs) at Columbia within the scope of Request 5IST-06.

Table 6

Affected Valve	Class	ASME OM Category (Note 1)	Function	System
MS-RV-1A, -1B, -1C, -1D	1	C	Overpressure protection	Main Steam
MS-RV-2A, -2B, -2C, -2D	1	C		
MS-RV-3A, -3B, -3C	1	C		
MS-RV-3D	1	C	Overpressure protection and auto-depressurization of the system to lower reactor pressure sufficient to allow initiation of Low-Pressure Coolant Injection (LPCI) (Residual Heat Removal (RHR) system utilizing the LPCI mode)	
MS-RV-4A, -4B, -4C, -4D	1	C		
MS-RV-5B, -5C	1	C		

Note 1:

Category C: valves that are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of the required function(s) (Reference: ASME OM Code, subsection ISTC, subparagraph ISTC-1300 (c)).

Applicable OM Code Requirements

The IST requirements in the ASME OM Code, 2020 Edition, as incorporated by reference in 10 CFR 50.55a, related to this request are as follows:

ASME OM Code, mandatory appendix I, "Inservice Testing of Pressure Relief Devices in Water-Cooled Reactor Nuclear Power Plants," paragraph I-3310, "Main Steam Pressure Relief Valves with Auxiliary Actuating Devices," states:

Tests before maintenance or set-pressure adjustment, or both, shall be performed for (a), (b), and (c) in sequence. The remaining shall be performed after maintenance or set-pressure adjustment.

- (a) visual examination
- (b) seat tightness determination, if practicable
- (c) set-pressure determination
- (d) determination of electrical characteristics and pressure integrity of solenoid valve(s)
- (e) determination of pressure integrity and stroke capability of air actuator
- (f) determination of operation and electrical characteristics of position indicators
- (g) determination of operation and electrical characteristics of bellows alarm switch
- (h) determination of actuating pressure of auxiliary actuating device sensing element, where applicable, and electrical continuity
- (i) determination of compliance with the Owner's seat tightness criteria

Licensee's Proposed Alternative

In accordance with 10 CFR 50.55a(z)(1), the licensee provided the following proposed alternative in Request 5IST-06 as stated, in part, in its letter dated January 29, 2024:

Valves and accessories (actuators, solenoids, etc.) shall be tested separately from MS[R]V set-pressure and meet paragraph I-1320 test frequency requirements. Since the valve and actuator test and maintenance cycles are different, the plant positions of the actuators selected, or due, for periodic testing may not match the plant positions of the MSRVs selected, or due, for as-found set-pressure testing.

MSRV periodic set-pressure testing will normally be performed at power during shutdown for a refueling outage. As-found visual examination will be performed after set-pressure testing which is out of the specified Mandatory Appendix I required sequence.

If MSRV periodic set-pressure testing could not be performed at power during shutdown for a refueling outage due to a reactor scram it will be required to be performed during power ascension from the refueling outage or by removing the valves and sending them to the vendor for as-found set- pressure testing. This will require paragraphs I-3310(a), (d) and (e) tests to be performed during the outage prior to paragraphs I-3310(b), (c) and (i) tests.

The actuators and solenoids will be tested at the end of the outage after other maintenance is complete, and the tests will be credited as satisfying the OM Code periodic test requirements provided that no actuator or solenoid maintenance (other than actuator assembly re-installation on a replaced valve) is performed that would affect their as-found status prior to testing or that could affect the valve's future set-pressure determination

All MSRV position indicators will continue to be tested in accordance with existing surveillance procedures for monthly channel checks, and for channel calibration and channel functional testing, will meet or exceed Code frequency during shutdowns. These tests will be credited for satisfying the requirements of paragraph I-3310(f).

All auxiliary actuating device sensing elements (pressure switches) will continue to be tested and calibrated on a 24-month frequency. These tests will be credited for satisfying the requirements of paragraph I-3310(h).

As stated In its letter dated July 29, 2024, the licensee provided additional justification for Request 5IST-06 as follows:

Due to different maintenance and test cycles of valves and accessories, and due to methods used for testing and maintenance, it is impractical to meet the ASME OM Code testing requirements without subjecting the valves to unnecessary challenges and increased risk of seat degradation. The requirement for testing actuators and accessories in a specific sequence does not enhance system or component operability, or in any way improve nuclear safety. The proposed alternative testing adequately evaluates the operational readiness of these valves commensurate with their safety function. This will help reduce the number of challenges and failures of safety relief valves and still provide timely information regarding operability and degradation, while continuing to provide adequate assurance of material quality and public safety.

Licensee's Reason for Request

As stated in its letter dated January 29, 2024, the licensee provided the following reason for its request:

An alternative is proposed to the requirements for the sequence of periodic testing of Class 1 Main Steam pressure relief valves with auxiliary actuating devices as stipulated by Mandatory Appendix I, Paragraph I-3310.

Remote set-pressure verification devices (SPVD) have been permanently installed on all 18 Main Steam Relief Valves (MSRV) to allow set-pressure testing at low power operation, typically during shutdown for refueling outage and on startup if necessary. These SPVDs incorporate a nitrogen powered, metal bellows assembly that adds a quantified lifting force on the valve stem until the MSRV's popping pressure is reached. Removal and replacement of the MSRVs is normally performed only for valve maintenance and not for the purpose of as-found set-pressure determination. The valves which are required to be as-found set-pressure tested, as part of the OM Code Mandatory Appendix I required

periodic testing, do not necessarily correspond to those required to be replaced for maintenance. Actuators and solenoids are separated from the valve and remain in place when MSRVs are removed and replaced for maintenance.

As found visual examinations cannot be performed per the Mandatory Appendix I required sequence while the drywell is inerted. Visual examinations are performed after reactor shutdown but prior to maintenance or set-pressure adjustments.

If due to a reactor scram, MSRV periodic set-pressure testing could not be performed at power during shutdown for a refueling outage, it will be required to be performed during power ascension from the refueling outage or by removing the valves and sending them to the vendor for as-found set-pressure testing. This would require paragraphs I-3310(a), (d), (e), (f), and (h) tests to be performed during the outage prior to paragraphs I-3310(b), (c) and (i) tests. Paragraph I-3310(g) is not applicable to these valve designs.

Valves and “accessories” (actuators, solenoids, etc.) have different maintenance and test cycles due to the methods used for maintenance and testing at [Columbia] as previously discussed [above] and should be considered separately for the purposes of meeting the required test frequency and testing requirements. Valve testing (i.e., visual examination, seat tightness, set-pressure determination and compliance with Owner’s seat tightness criteria, in accordance with paragraphs I-3310(a), (b), (c) and (i)) are independent of and can be separate from testing of accessories (i.e., solenoids, actuator, position indicators and pressure sensing element, in accordance with paragraphs I-3310(d), (e), (f), and (h)). Paragraph I-3310 states that tests before maintenance or set-pressure adjustment, or both, shall be performed for I-3310(a), (b), and (c) in sequence. The remaining shall be performed after maintenance or set-pressure adjustments. Valve maintenance or set-pressure adjustment does not affect accessories testing; likewise, maintenance on accessories does not affect valve set-pressure or seat leakage. Therefore, the MSRVs and the accessories may be tracked separately for the purpose of satisfying the paragraph I-1320 test frequency requirements.

Paragraph I-3310(f) requires the determination of operation and electrical characteristics of position indicators, and paragraph I-3310(h) requires the determination of actuating pressure of auxiliary actuating device sensing element and electrical continuity. These tests are required to be performed at the same frequency as the valve set-pressure and auxiliary actuating device testing.

The position indicators are all calibrated and functional tested during refueling outages; the sensing elements (pressure switches) are all checked and calibrated at least once per 24 months. Although the existing tests do not have a one-to-one correlation to the valve or actuator tests, these calibrations and functional tests meet all testing requirements of Mandatory Appendix I and meet or exceed the required test frequency.

NRC Staff Evaluation

ASME OM Code, mandatory appendix I, paragraph I-3310 requires that tests before maintenance or set-pressure adjustment, or both, for Class 1 main steam pressure relief valves with auxiliary actuating devices shall be performed for (a) visual examination, (b) seat tightness determination, if practicable, and (c) set-pressure determination. Paragraph I-3310 requires that these steps be performed in sequence, with the exception noted in paragraph I-3300 which states, in part, that when on-line testing is performed, visual examination may be performed out of sequence. Other requirements in I-3300 in subparagraphs (d), (e), (f), (g), (h) and (i) to verify the auxiliary actuating devices and compliance with the Owner's seat tightness criteria are performed after maintenance or set-pressure adjustments. In this instance, subparagraph I-3310(g) for determination of operation and electrical characteristics of a bellows alarm switch does not apply.

In accordance with 10 CFR 50.55a(z)(1), the licensee proposed in Request 5IST-06 an alternative to the sequential requirements in ASME OM Code, mandatory appendix I, paragraph I-3310, for the specified MSRVs at Columbia. In this alternative, the licensee will meet the requirements of paragraph I-3310 by set-pressure testing the MSRVs in the proper sequential order during a plant shutdown for a refueling outage. Auxiliary actuating device electrical and operating properties will be tested and verified via existing monthly surveillance procedures and channel calibrations. Channel functional testing, sensing element calibrations, and electrical verifications will be performed on a nominal 24-month frequency during unit shutdowns. However, if MSRV testing cannot be performed at power during a plant shutdown due to a reactor scram, the licensee proposed that set-pressure testing will be performed during power ascension. This would cause the testing to be out of sequence. Because of this, the licensee proposed to implement the valve testing requirements in I-3310(a), (b), (c), and (i) separately from the accessory testing requirements in I-3310 (d), (e), (f), and (h). Valve set-pressure adjustment or maintenance does not affect the testing of accessories. Likewise, maintenance on accessories does not affect valve set- pressure or seat leakage. Therefore, the MSRVs and the accessories may be tracked separately for the purpose of satisfying the requirements of paragraph I-1320, "Test Frequencies, Class 1 Pressure Relief Valves." As a result, the requirements of ASME OM Code, Appendix I, paragraph I-3310 would be satisfied during normal shutdown conditions or scram shutdown conditions, and the operability and electrical characteristics of the MSRVs would be sufficiently determined.

Based on its review, the NRC staff has determined that the proposed alternative in Request 5IST-06 for the specified MSRVs to implement ASME OM Code, Appendix I, paragraph I-3310, with a different sequence, as needed, will provide an acceptable level of quality and safety for the operational readiness of the specific MSRVs to perform their safety functions at Columbia. Therefore, the NRC staff finds that Request 5IST-06 (RV03) may be authorized under 10 CFR 50.55a(z)(1) for the Fifth Interval IST Program at Columbia.

3.4 Licensee's Request 5IST-07 (RV04)

Applicable OM Code Edition

The applicable Code of record for the fifth interval IST program at Columbia is the 2020 Edition of ASME OM Code as incorporated by reference in 10 CFR 50.55a.

ASME OM Code Components

Table 7 below lists excess flow check valves (EFCVs) at Columbia within the scope of Request 5IST-07.

Table7

Affected Valve	Class	Cat. (Note 1)	System/Function
PI-EFC-X37E, -X37F	1	C	<p>System: Process Instrumentation for various systems connect to the Reactor Pressure Vessel</p> <p>Function: Excess flow check valves (EFCVs) are provided in each instrument process line that is part of the reactor coolant pressure boundary. Design and installation of the EFCVs at Columbia conform to RG 1.11.</p> <p>The reactor instrument line EFCVs close to limit the flow in the respective instrument lines in the event of an instrument line break downstream of the EFCVs outside containment.</p>
PI-EFC-X38A, -X38B, -X38C, -X38D, -X38E, -X38F	1	C	
PI-EFC-X39A, -X39B, -X39D, -X39E	1	C	
PI-EFC-X40C, -X40D	1	C	
PI-EFC-X40E, -X40F	2	C	
PI-EFC-X41C, -X41D	1	C	
PI-EFC-X41E, -X41F	2	C	
PI-EFC-X42A, -X42B	1	C	
PI-EFC-X44AA, -X44AB, -X44AC, -X44AD, -X44AE, -X44AF, -X44AG, -X44AH, -X44AJ, -X44AK, -X44AL, -X44AM	1	C	
PI-EFC-X44BA, -X44BB, -X44BC, -X44BD, -X44BE, -X44BF, -X44BG, -X44BH, -X44BJ, -X44BK, -X44BL, -X44BM	1	C	
PI-EFC-X61A, -X61B	1	C	
PI-EFC-X62C, -X62D	1	C	
PI-EFC-X69A, -X69B, -X69E	1	C	
PI-EFC-X70A, -X70B, -X70C, -X70D, -X70E, -X70F	1	C	
PI-EFC-X71A, -X71B, -X71C, -X71D, -X71E, -X71F	1	C	
PI-EFC-X72A	1	C	
PI-EFC-X73A	1	C	
PI-EFC-X74A, -X74B, -X74E, -X74F	1	C	

Affected Valve	Class	Cat. (Note 1)	System/Function
PI-EFC-X75A, -X75B, -X75C, -X75D, -X75E, -X75F	1	C	
PI-EFC-X78B, -X78C, -X78F	1	C	
PI-EFC-X78B, -X79B	1	C	
PI-EFC-X106	1	C	
PI-EFC-X107	1	C	
PI-EFC-X108	1	C	
PI-EFC-X109	1	C	
PI-EFC-X110	1	C	
PI-EFC-X111	1	C	
PI-EFC-X112	1	C	
PI-EFC-X113	1	C	
PI-EFC-X114	1	C	
PI-EFC-X115	1	C	

Note 1:

Category C: valves that are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of the required function(s) (Reference: ASME OM Code, subsection ISTC, paragraph ISTC-1300(c)).

Applicable OM Code Requirements

The IST requirements in the ASME OM Code, 2020 Edition, as incorporated by reference in 10 CFR 50.55a, related to this request are as follows:

- ASME OM Code, subsection ISTC, ISTC-3522, "Category C Check Valves," subparagraph (c), states, "If exercising is not practicable during operation at power and cold shutdowns, it shall be performed during refueling outages."
- ASME OM Code, paragraph ISTC-3700, Position Verification Testing, states, in part, that "Valves with remote position indicators shall be observed locally at least once every 2 yr to verify that valve operation is accurately indicated."
- Paragraph 50.55a(b)(3)(xi) of 10 CFR, "OM condition: Valve Position Indication," states, in part,

When implementing paragraph ISTC-3700, "Position Verification Testing," in the ASME OM Code, 2012 Edition through the latest edition of the ASME OM Code incorporated by reference in paragraph (a)(1)(iv) of this section, licensees must verify that valve operation is accurately indicated by supplementing valve position indicating lights with other indications, such as flow meters or other suitable instrumentation to provide assurance of proper obturator position for valves with remote position indication within the scope of Subsection ISTC including its mandatory appendices and their verification methods and frequencies.

Licensee's Proposed Alternative

In accordance with 10 CFR 50.55a(z)(1), the licensee proposed in Request 5IST-07 an alternative to the applicable ASME OM Code requirements to test reactor instrument line EFCVs in accordance with TS SR 3.6.1.3.8. This SR requires verification every 24 months that a representative sample of reactor instrument line EFCVs actuate to the isolation position on an actual or simulated instrument line break signal. The representative sample consists of an approximately equal number of EFCVs such that each EFCV is tested at least once every 10 years (nominal). Valve position indication verification of the representative sample will also be performed during valve testing. Any EFCV failure will be evaluated per the Columbia Corrective Action Program.

As stated in its letter dated July 29, 2024, the licensee provided additional justification for Request 5IST-07 as follows:

In the Safety Evaluation for amended TS SR 3.6.1.3.8 via a letter dated February 20, 2001 (ADAMS Accession Number ML010590279), the NRC staff concluded that the increase in risk associated with the relaxation of excess flow check valve (EFCV) testing is sufficiently low and acceptable. The staff also concluded that the performance evaluation criteria are in conformance with the NRC staff-approved guidance in General Electric Licensing Topical Report, NEDO-32977-A, *Excess Flow Check Valve Testing Relaxation*, dated November 1998 (Letter BWROG-00069) which would ensure a high degree of valve reliability and operability. Therefore, the proposed alternative to the required exercise frequency and valve indication verification frequency for EFCVs provide an acceptable level of quality and safety.

The 24-month frequency of SR 3.6.1.3.8 matches the stated frequency in Alternative Request 5IST-07 (RV04). SR 3.6.1.3.8 requires verification every 24 months that a representative sample of reactor instrument line EFCVs actuate to the isolation position on an actual or simulated instrument line break signal. The representative sample consists of an approximately equal number of EFCVs such that each EFCV is tested at least once every 10 years.

The 24-month frequency in Columbia's SFCP for the valves matches the stated frequency in Alternative Request 5IST-07 (RV04). The SFCP change process requires the IST Program Owner approval for any testing frequency changes that impact an IST component.

The SFCP was developed using guidance from NEI-04-10, *Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies*, Revision 1. Neither the SFCP nor the NEI [Nuclear Energy Institute] guidance will affect the provisions in this Alternative Request. The SRs within this request are aligned with those documented in Columbia's SFCP and any proposed SR frequency changes require an IST Program Owner approval prior to implementation. Similarly, changes to information in Columbia's Final Safety Analysis Report regarding EFCVs also requires an IST Program Owner approval prior to SR frequency changes.

Alternative Request RV04 for the Fourth 10-Year IST Program states "Based on 15 years of testing (up to the year 2000), with only one (1) failure," meaning one

failure prior to the year 2000, and no failures between the year 2000 and the submittal of Fourth 10-Year Interval IST Program Plan in 2014. There were no failures from the year 2000 until May 2023. Therefore, the difference between the Fourth 10-Year submittal and the Fifth 10-Year submittal are the two failures outlined below, which equates to a total of three failures when including the single failure prior to the year 2000.

Prior to year 2000: one failure as discussed in RV04 of the Fourth 10-Year Interval IST Program submittal. Details on this historical information regarding the valve failure are not obtainable.

May 17, 2023: PI-EFC-X61C failed to check during testing (documented in Energy Northwest's Corrective Action Program Condition Report 445329).

May 17, 2023: PI-EFC-X62B failed to check during testing (documented in Energy Northwest's Corrective Action Program Condition Report 445329).

Note: the above failures from 2023 are for passive valves and are not part of the population of the EFCVs in this Alternative Request, or the Fourth 10-Year Interval IST Program submittal.

Licensee's Basis for Use

In Request 5IST-07, the licensee stated, in part, in its letter dated January 29, 2024 that,

The General Electric (GE) Licensing Topical Report, NEDO-32977-A, and the associated safety evaluation from the NRC (ADAMS Accession Number ML003691722) provides the basis for this [request]. The report provides justification for relaxation of the testing frequency as described in TS SR 3.6.1.3.8. The report demonstrates the high degree of EFCV reliability and the low consequences of an EFCV failure. Excess flow check valves have been extremely reliable throughout the industry. There have only been three EFCV failures within the CGS EFCV population since 1985, which results in an estimated failure rate of $8.12\text{E-}8$ per hour; less than the industry average of $1.01\text{E-}7$ per hour. Approval of the license amendment request for SR 3.6.1.3.8 was documented in NRC letter to CGS, "Columbia Generating Station – Issuance of Amendment Re: Technical Specifications Surveillance Requirement 3.6.1.3.8 (TAC NO. MB0421)," dated February 20, 2001 (ADAMS Accession Number ML010590279).

The licensee further stated in its letter dated January 29, 2024 that,

Failure of an EFCV, though not expected as a result of the amended TS change, is bounded by the [Columbia] safety analysis. Based on the GE Topical report and the analysis contained in the FSAR, the proposed alternative to the required exercise frequency and valve indication verification frequency for EFCVs provide an acceptable level of quality and safety. In the safety evaluation for the [applicable] license amendment request, the NRC staff concluded that the increase in risk associated with the relaxation of EFCV testing is sufficiently low and acceptable. Additionally, the staff also concluded that the EFCV Corrective Action Program and performance evaluation criterion are in conformance with the

NRC staff-approved guidance, GE Licensing Topical Report NEDO-32977-A, which would ensure a high degree of valve reliability and operability.

Licensee's Reason for Request

In Request 5IST-07, the licensee stated in its letter dated January 29, 2024, that,

ASME OM Code, Subsection ISTC, requires testing of active or passive valves that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident. The EFCVs are not required to perform a specific function for shutting down or maintaining the reactor in a safe shutdown condition. Additionally, the reactor instrument lines are assumed to maintain integrity for all accidents except for the Instrument Line Break Accident (ILBA) as described in Final Safety Analysis Report (FSAR), Subsection 15.6.2. The reactor instrument lines at CGS have a flow-restricting orifice upstream of the EFCV to limit reactor coolant leakage in the event of an instrument line rupture. Isolation of the instrument line by the EFCV is not credited for mitigating the ILBA. Thus, a failure of an EFCV is bounded by the CGS safety analysis. These EFCVs close to limit the flow of reactor coolant to the secondary containment in the event of an instrument line break and as such are included in the IST program at the Owner's discretion and are tested in accordance with TS SR 3.6.1.3.8.

NRC Staff Evaluation

At Columbia, EFCVs are installed on instrument lines to limit the release of fluid in the event of an instrument line break. Examples of EFCV installations include: reactor pressure vessel level and pressure instrumentation, main steam line flow instrumentation, recirculation pump suction pressure, and reactor core isolation cooling steam line flow instrumentation. EFCVs are not required to close in response to a containment isolation signal and are not required to operate under post loss-of coolant accident conditions.

ASME OM Code, subsection ISTC, paragraph ISTC-3510 requires the EFCVs to be exercised nominally every 3 months. The ASME OM Code recognizes that some valves cannot be tested at this frequency. Deferral of this requirement is allowed by ISTC-3522(c), which states that if exercising is not practicable during operation at power and cold shutdown outages, it shall be performed during refueling outages. The EFCVs listed in table 7 in this SE cannot be exercised during normal operation because closing these valves would isolate instrumentation required for power operation.

In Request 5IST-07, the licensee proposed an alternative to the test interval required by the ASME OM Code. The proposed alternative would revise the test frequency by allowing a representative sample of EFCVs to be tested every refueling outage. The representative sample will be based on an approximately equal number of EFCVs being tested each refueling outage such that each valve will be tested at least once every 10 years.

The licensee's justification for Request 5IST-07 is based on GE Topical Report NEDO-32977-A, as accepted by the NRC staff in an SE dated March 14, 2000. In the SE, the NRC staff found that the test interval could be extended up to a maximum of 10 years. In conjunction with this finding, the NRC staff noted that each licensee that adopts the relaxed

test interval program for EFCVs must have a failure feedback mechanism and corrective action program (CAP) to ensure EFCV performance continues to be bounded by the topical report results. Also, each licensee is required to perform a plant specific radiological dose assessment, EFCV failure analysis, and release frequency analysis to confirm that they are bounded by the generic analyses of the topical report.

In Request 5IST-07, the licensee states that there was one EFCV failure prior to the year 2000, and no failures between the year 2000 and May 2023. Also, there were only two failures in May 2023, which are documented in Energy Northwest's CAP Condition Report 445329. As described in Request 5IST-07, the NRC staff has determined that the licensee's plans for the EFCV CAP and performance evaluation criteria are in conformance with the NRC-approved guidance and GE Topical Report NEDO-32977-A.

Based on its review, the NRC staff has determined that the proposed alternative in Request 5IST-07 for the specified EFCVs will provide an acceptable level of quality and safety for the operational readiness of the EFCVs to perform their safety functions at Columbia in lieu of the applicable ASME OM Code requirements. Therefore, the NRC staff finds that Request 5IST-07 (RV04) may be authorized under 10 CFR 50.55a(z)(1) for the fifth interval IST program at Columbia.

4.0 CONCLUSION

With respect to Request 5IST-04 (RV01) for the specified valves at Columbia, the NRC staff has determined that granting the request in accordance with 10 CFR 50.55a(f)(6)(i) is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(f)(5)(iii) and is in compliance with the requirements of 10 CFR 50.55a with the granting of this request. Therefore, the NRC staff grants relief, pursuant to 10 CFR 50.55a(f)(6)(i), to apply the proposed testing alternatives for the specified valves within the scope of Request 5IST-4 (RV01) during the fifth interval IST program at Columbia.

With respect to Requests 5IST-05 (RV02), 5IST-06 (RV03), and 5IST-07 (RV04) for the specified valves at Columbia, the NRC staff has determined that the proposed alternatives to the applicable ASME OM Code requirements provide an acceptable level of quality and safety under 10 CFR 50.55a(z)(1) for the operational readiness of the valves to perform their safety functions. Therefore, the NRC staff authorizes 5IST-05 (RV02), 5IST-06 (RV03), and 5IST-07 (RV04) pursuant to 10 CFR 50.55a(z)(1) for the fifth interval IST program at Columbia.

All other ASME OM Code requirements as incorporated by reference in 10 CFR 50.55a for which relief or an alternative was not specifically requested, and granted or authorized (as appropriate), in the subject requests remain applicable.

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Date: November 6, 2024

SUBJECT: COLUMBIA GENERATING STATION – REQUESTS 5IST-04 (RV01), 5IST-05 (RV02), 5IST-06 (RV03), AND 5IST-07 (RV04) – FIFTH INTERVAL INSERVICE TESTING PROGRAM (EPID L-2024-LLR-0008, EPID L-2024-LLR-0011, EPID L-2024-LLR-0012, AND EPID L-2024-LLR-0013) DATED NOVEMBER 6, 2024

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