

April 5, 2001

Mr. J. V. Parrish
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION - RELIEF REQUEST RV06 FOR THE
EXCESS FLOW CHECK VALVES (TAC NO. MB0422)

Dear Mr. Parrish:

By letter dated October 30, 2000, Energy Northwest requested relief from the inservice testing requirements of Section XI of the American Society of Mechanical Engineers (ASME) Code for excess flow check valves (EFCVs) (Relief Request RV06) for the Columbia Generating Station. Specifically, you requested relief from the Code requirement to test the EFCVs every refueling outage and from the two-year requirement to verify that the EFCV position is accurately indicated.

Based on its review, the staff concluded that the proposed alternative in conjunction with the proposed EFCV corrective action program provides an acceptable level of valve reliability and operability for the affected EFCVs. Pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative described in Relief Request RV-06 is authorized based on the alternative providing an acceptable level of quality and safety.

Sincerely,

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosure: Safety Evaluation

cc w/encl: See next page

April 5, 2001

Mr. J. V. Parrish
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION - RELIEF REQUEST RV06 FOR THE
EXCESS FLOW CHECK VALVES (TAC NO. MB0422)

Dear Mr. Parrish:

By letter dated October 30, 2000, Energy Northwest requested relief from the inservice testing requirements of Section XI of the American Society of Mechanical Engineers (ASME) Code for excess flow check valves (EFCVs) (Relief Request RV06) for the Columbia Generating Station. Specifically, you requested relief from the Code requirement to test the EFCVs every refueling outage and from the two-year requirement to verify that the EFCV position is accurately indicated.

Based on its review, the staff concluded that the proposed alternative in conjunction with the proposed EFCV corrective action program provides an acceptable level of valve reliability and operability for the affected EFCVs. Pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative described in Relief Request RV-06 is authorized based on the alternative providing an acceptable level of quality and safety.

Sincerely,
/RA/
Stephen Dembek, Chief, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION:
PUBLIC
PDIV-2 Reading
RidsNrrDlpmPdiv (SRichards)
RidsNrrPMJCushing
RidsNrrLAEPeyton
RidsOGCRp
BJones (RidsAcrsAcnwMailCenter)
RidsAcrsAcnwMailCenter
SMorris, EDO
GHill (2)
EMEB SE dated February 28, 2001

ADAMS Accession No.: **ML010990168**

| OFFICE | PDIV-2/PM | PDIV-2/LA | EMEB | OGC | PDIV-2/SC |
|--------|-------------|-----------|-----------|----------------|---------------------|
| NAME | JCushing:sp | EPeyton | TSullivan | NLO NSTAmav | LRAG for SDembek |
| DATE | 3/13/01 | 3/13/01 | 2/28/01 | 3/30/2001 | 4/5/01 |

OFFICIAL RECORD COPY

Columbia Generating Station

cc:

Mr. Greg O. Smith (Mail Drop 927M)
Vice President, Generation
Energy Northwest
P. O. Box 968
Richland, WA 99352-0968

Mr. Albert E. Mouncer (Mail Drop 1396)
Chief Counsel
Energy Northwest
P.O. Box 968
Richland, WA 99352-0968

Ms. Deborah J. Ross, Chairman
Energy Facility Site Evaluation Council
P. O. Box 43172
Olympia, WA 98504-3172

Mr. D. W. Coleman (Mail Drop PE20)
Manager, Regulatory Affairs
Energy Northwest
P.O. Box 968
Richland, WA 99352-0968

Mr. Paul Inserra (Mail Drop PE20)
Manager, Licensing
Energy Northwest
P.O. Box 968
Richland, WA 99352-0968

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Harris Tower & Pavilion
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Chairman
Benton County Board of Commissioners
P.O. Box 69
Prosser, WA 99350-0190

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 69
Richland, WA 99352-0069

Mr. Rodney L. Webring (Mail Drop PE08)
Vice President, Operations Support/PIO
Energy Northwest
P. O. Box 968
Richland, WA 99352-0968

Thomas C. Poindexter, Esq.
Winston & Strawn
1400 L Street, N.W.
Washington, DC 20005-3502

Mr. Bob Nichols
Executive Policy Division
Office of the Governor
P.O. Box 43113
Olympia, WA 98504-3113

Ms. Lynn Albin
Washington State Department of Health
P.O. Box 7827
Olympia, WA 98504-7827

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO INSERVICE TESTING PROGRAM RELIEF REQUEST

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

1.0 INTRODUCTION

The *Code of Federal Regulations*, 10 CFR 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 pumps and valves are performed in accordance with Section XI of the ASME *Boiler and Pressure Vessel Code* (the Code) and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to Sections (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. In proposing alternatives or requesting relief, the licensee must demonstrate that: (1) the proposed alternatives provide an acceptable level of quality and safety; (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety; or (3) conformance is impractical for its facility. Section 50.55a authorizes the Commission to approve alternatives and to grant relief from ASME Code requirements upon making the necessary findings. Guidance related to the development and implementation of IST programs is given in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," issued April 3, 1989, and its Supplement 1 issued April 4, 1995. Also see NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," and NUREG/CR-6396, "Examples, Clarifications, and Guidance on Preparing Requests for Relief from Pump and Valve Inservice Testing Requirements."

The 1989 Edition of the ASME Code is the applicable Code of record for the second 10-year interval IST program at Columbia Generating Station. Subsection IWV of the 1989 Edition, specifies the requirements for IST of valves and references Part 10 of the American National Standards Institute/ASME *Operations and Maintenance Standards* (OM-10) as the rules for IST of valves. OM-10 replaces specific requirements in previous editions of Section XI, Subsection IWV, of the ASME Code. Subsection IWP of the 1989 Edition, specifies the requirements for IST of pumps and references Part 6 of the American National Standards Institute/ASME *Operations and Maintenance Standards* (OM-6) as the rules for IST of pumps. OM-6 replaces specific requirements in previous editions of Section XI, Subsection IWP, of the ASME Code.

By letter dated October 30, 2000, Energy Northwest submitted a relief request (RV-06) for the Columbia Generating Station (previously known as WNP-2). Energy Northwest requests relief for the excess flow check valves (EFCV) from the ASME Code-required tests every refueling outage, and from the two-year requirements for verifying that the valve position is accurately indicated. The staff has reviewed the relief request and its evaluation follows.

2.0 VALVE RELIEF REQUEST RV-06

RV-06 requests relief from Paragraph 4.3.2.2 of OM-10 which requires that check valves be exercised to the positions in which they perform their safety functions or examined at least once every reactor refueling outage. The licensee proposes to test the following EFCVs on a sampling basis every 24 months, such that each EFCV will be tested at least once every 10 years.

| | |
|---|---------------------------------|
| PI-EFC-X18A,B,C,D | PI-EFC-X37E,F |
| PI-EFC-X38A,B,C,D,E,F | PI-EFC-X39A,B,D,E |
| PI-EFC-X40C,D,E,F | PI-EFC-X41C,D,E,F |
| PI-EFC-X42A,B | PI-EFC-X44A, Series (Typ of 12) |
| PI-EFC-X44B, Series (Typ of 12) | PI-EFC-X61A,B |
| PI-EFC-X62C,D | PI-EFC-X69A,B,E |
| PI-EFC-X70A,B,C,D,E,F | PI-EFC-X71A,B,C,D,E,F |
| PI-EFC-X72A | PI-EFC-X73A |
| PI-EFC-X74A,B,E,F | PI-EFC-X75A,B,C,D,E,F |
| PI-EFC-X78B,C,F | PI-EFC-X79A,B |
| PI-EFC-X106,107,108,109,110,111,112,113,114,115 | |

Additionally, relief is requested from Paragraph 4.1 of OM-10 which requires verification of valve position indication at least once every two years. Because the close position indication can only be performed in conjunction with valve exercise tests, valve position indication verification of the representative sample will be performed during valve testing.

2.1 Licensee's Basis for Relief Request

The licensee states:

ASME Code Part 10 requires testing of active or passive valves that are required to perform a specific function in shutting down a reactor to the cold shutdown condition, in maintaining the cold 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 cold 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 FSAR [Final Safety Analysis Report], Subsection 15.6.2. The reactor instrument lines at Columbia Generating Station 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 Columbia Generating Station 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 Owner's discretion and are tested in accordance with the Technical Specification SR 3.6.1.3.8.

The GE Licensing Topical Report, NEDO-32977-A (Reference 2) [letter dated June 14, 2000, from the BWR Owners Group, "Transmittal of Approved GE Licensing Topical Report NEDO-32977-A, Excess Flow Check Valve Testing Relaxation"], and associated NRC safety evaluation, dated March 14, 2000, provides the basis for the relief. The report provides justification for relaxation of the testing frequency as described in the proposed Technical Specification amendment for 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. Based on 15 years of testing with only one (1) failure, the Columbia Generating Station revised Best Estimate Failure Rate is $7.9\text{E-}8$ per hour, less than the industry average of $1.01\text{E-}7$ per hour.

Failure of an EFCV, though not expected as a result of the proposed Technical Specification amendment, is bounded by the Columbia Generating Station 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.

2.2 Licensee's Alternative Testing

The licensee states:

Energy Northwest requests relief pursuant to 10 CFR 50.55a(a)(3)(i) to test reactor instrument line excess flow check valves in accordance with the proposed Technical Specification amendment for 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 Generating Station Corrective Action Program.

2.3 Evaluation

EFCVs are provided in each instrument process line that is part of the reactor coolant pressure boundary. The EFCVs are designed:

- not to close accidentally during normal operation,
- to close if a rupture of the instrument line is indicated downstream of the valve,
- to reopen when appropriate, and
- to indicate status in the control room.

Because of the unique design, testing of these EFCVs and verifying their closure indication require a simulated instrument line break. With a larger number of EFCVs at the Columbia Generating Station, the test could result in burdens as well as significant costs for the licensee.

Therefore, the licensee proposes to perform the exercise tests and valve position verification tests on a sampling basis, i.e., approximately an equal number of EFCVs are tested every 2 years and each EFCV is tested at least once every 10 years.

The proposed alternative described in the relief request is identical to the TS amendment request for Surveillance Requirement 3.6.1.3.8, which was submitted by Energy Northwest in a separate letter dated October 30, 2000. The staff reviewed the TS changes in a safety evaluation (SE) dated February 20, 2001, and concluded that the increase in risk associated with the licensee's request for relaxation of EFCV testing is sufficiently low and acceptable. The staff also concluded in the February 20, 2001, SE that the EFCV corrective action program and performance evaluation criterion are in conformance with staff approved guidance, GE Licensing Topical Report NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation," which would ensure a high degree of valve reliability and operability.

Based on the above, the staff finds that the proposed relaxation of EFCV test frequency which would allow a representative sample of EFCVs to be tested every 24 months with all EFCVs being tested at least every 10 years to be acceptable.

3.0 CONCLUSION

The staff concludes that the proposed alternative in conjunction with the proposed EFCV corrective action program provides an acceptable level of valve reliability and operability for the affected EFCVs. Pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative described in Relief Request RV-06 is authorized based on the alternative providing an acceptable level of quality and safety.

Principle Contributor: Y.S. Huang

Date: April 5, 2001