

February 2, 2007
GO2-07-024

10 CFR 50.90
10 CFR 50.91

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397
LICENSE AMENDMENT REQUEST PROPOSED CHANGES TO
COLUMBIA TECHNICAL SPECIFICATIONS: EXTENSION OF
SURVEILLANCE INTERVAL TO VERIFY CLOSURE OF VACUUM
BREAKER CVB-V-1JK**

Dear Sir or Madam:

Pursuant to 10 CFR 50.90 and 50.91, Energy Northwest hereby requests an exigent amendment to the Columbia Generating Station (Columbia) Operating License (NFP-21). The proposed changes would amend the Operating License to revise Technical Specification (TS) 3.6.1.7, "Suppression Chamber-to-Drywell Vacuum Breakers," to allow an extension to the current closure verification surveillance requirement for one of two redundant disks in one of nine vacuum breakers until reliable position indication can be restored in the main control room during the next refueling outage (R-18).

Attachment 1 provides a description of the proposed change and the regulatory basis for that change. Attachment 2 provides the affected TS pages marked up to show the proposed change. Attachment 3 provides the proposed TS Bases changes for information only. Upon approval of the requested amendment, these TS Bases changes will be implemented concurrently with the TS change in accordance with the Columbia TS Bases Control Program. Attachment 4 provides a listing of all regulatory commitments made as part of this amendment request.

Energy Northwest has determined there are no significant hazards considerations associated with the proposed change and the TS change qualifies for a categorical exclusion from environmental review pursuant to the provision of 10 CFR 51.22(c)(9).

Energy Northwest requests approval of these changes on an exigent basis by February 16, 2007. Approval by that date is requested to minimize the risk of a plant transient due to performance of the alternate verification methodology for one of two redundant disks where the normal position indication is not reliable. Once approved, the amendment will be implemented within 14 days.

ADD1

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In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Washington State Official.

Should you have any questions or require additional information regarding this matter, please contact Mr. GV Cullen, Licensing Supervisor, at (509) 377-6105.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the date of this letter.

Respectfully,

Thyrel for D. Atkinson

DK Atkinson
Vice President, Nuclear Generation
Mail Drop PE08

Attachments: 1. Evaluation of Proposed Changes
2. Proposed Technical Specification Changes (mark-up)
3. Proposed Technical Specification Bases Changes
4. List of Regulatory Commitments

cc: BS Mallett – NRC RIV
CF Lyon – NRC NRR
NRC Sr. Resident Inspector – 988C
RN Sherman – BPA/1399
WA Horin – Winston & Strawn
RR Crowley - WDOH

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Evaluation of Proposed Changes

1.0 Description

This letter contains an exigent request to amend Operating License NPF-21 for Columbia Generating Station (Columbia).

The proposed changes would amend the Operating License to revise Technical Specification (TS) 3.6.1.7, "Suppression Chamber-to-Drywell Vacuum Breakers," to allow an extension to the current closure verification surveillance requirement for one of two redundant disks in one of nine vacuum breakers until the end of the next refueling outage (R-18). Verification of closure of each vacuum breaker disk is currently required every 14 days by Surveillance Requirement (SR) 3.6.1.7.1.

During the January 6, 2007 functional test of vacuum breaker CVB-V-1JK, one of the redundant disks in the vacuum breaker assembly did not meet the procedurally defined acceptance criteria for open or close due to an issue with position indication limit switches. This problem has resulted in unreliable position indication for closure of the rear disk of the vacuum breaker and requires an alternate method of closure verification be employed (i.e. a differential pressure test). Consistent with SR 3.6.1.7.1, this test must be performed every 14 days. However, performance of the alternate test also creates an unnecessary increase in plant risk relative to other compensatory options.

Energy Northwest requests that this proposed amendment be approved and issued by February 16, 2007 to minimize the risk of continued performance of the alternate surveillance method at Columbia.

2.0 Proposed Change

The proposed change to TS 3.6.1.7 would revise SR 3.6.1.7.1 to provide an extension to the surveillance requirement for the rear disk of vacuum breaker CVB-V-1JK. This extension would remain in effect until the end of the next refueling outage (R-18) currently scheduled to begin on May 12, 2007. Specifically, a footnote will be added to SR 3.6.1.7.1 that includes the following statement:

"Not required to be met for the rear (drywell-side) disk of vacuum breaker CVB-V-1JK until startup from refueling outage R-18 provided there is no evidence that the front disk has opened or that the rear disk has experienced a differential pressure in the direction that could cause the disk to open. If such evidence exists then the surveillance requirement will be met within 72 hours or the rear disk declared not closed."

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This is a temporary change intended to extend the close surveillance testing frequency of the rear disk of vacuum breaker CVB-V-1JK until reliable position indication for the rear disk can be restored during R-18. The proposed change is indicated on the marked-up page provided in Attachment 2.

Upon approval of this proposed license amendment, Energy Northwest will implement a change to the applicable TS Bases to add the following information:

“This SR is not required to be met for the rear (drywell-side) disk of vacuum breaker CVB-V-1JK until startup from refueling outage R-18 provided there is no evidence that the front disk has opened or that the rear disk has experienced a differential pressure in the direction that could cause the disk to open. If such evidence exists, then the surveillance requirement will be met within 72 hours or the rear disk declared not closed.

Evidence that the front disk has opened includes observed changes in position indication from closed to open (even if it returns to closed) that are determined to be related to actual disk movement and not position indication problems where the disk is later determined to be actually closed.

Evidence that the rear disk has experienced a differential pressure in the direction that could cause the disk to open includes any identified pressure differential in that direction where the position of the front disk is not known for the entire duration of the pressure differential. If the front disk has been observed to remain closed during the entire pressure differential, the rear disk is considered to have not experienced the differential pressure.

This extension will ensure that the close safety function is maintained while minimizing risk to public health and safety. This extension expires upon startup from R-18.”

A marked-up copy of the proposed change to the TS Bases is provided in Attachment 3 for information only.

3.0 Background

Description of Vacuum Breakers and Testing and Indication Circuitry

The primary function of the suppression chamber-to-drywell vacuum breakers is to relieve vacuum conditions should they occur in the drywell. At Columbia, nine vacuum breakers are mounted to downcomers connecting the drywell and the suppression pool. The vacuum breakers allow the flow of steam and non-condensable gases from the suppression chamber to the drywell when the drywell is at a negative pressure with respect to the suppression chamber. Therefore, the suppression chamber-to-drywell

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vacuum breakers prevent an excessive negative differential pressure across the suppression chamber-to-drywell boundary that could adversely impact the structural stability of the drywell floor.

A negative differential pressure across the drywell floor can be caused by rapid depressurization of the drywell. Events that can cause this rapid depressurization are inadvertent drywell spray actuation and steam condensation from sprays or subcooled water reflood of a break in the event of a primary system rupture. Cooling cycles result in minor pressure transients in the drywell that occur slowly and are normally controlled by heating and ventilation equipment. Spray actuation or spill of subcooled water from a primary system break results in more significant pressure transients and dictate the sizing of these vacuum breakers.

In the event of a primary system rupture, an initial flow of steam to the suppression pool takes place via the downcomers. During this initial purging of the drywell into the suppression pool, the vacuum breakers are closed to prevent bypass of the suppression function (i.e., leakage of steam directly to the suppression chamber and not to the suppression pool). This initial purging also carries non-condensable gasses from the drywell, leaving a steam atmosphere in the drywell. Subsequent condensation of the steam can be caused in two possible ways: (1) Emergency Core Cooling System (ECCS) flow from a recirculation line break, or (2) drywell spray actuation following a loss of coolant accident (LOCA). These two scenarios determine the maximum depressurization rate of the drywell.

The waterleg in the Mark II Vent System downcomer is controlled by the drywell-to-suppression chamber differential pressure. If the drywell pressure is less than the suppression chamber pressure, there will be an increase in the vent waterleg. This will result in an increase in the water clearing inertia in the event of a postulated LOCA and would increase the peak drywell pressure. This in turn will result in an increase in pool swell dynamic loads. The internal vacuum breakers limit the height of the waterleg in the vent system during normal operation.

Analytical methods and assumptions involving the suppression chamber-to-drywell vacuum breakers are presented in Section 6.2.1.1.4 of the Columbia Final Safety Analysis Report (FSAR) as part of the accident response of the primary containment systems. Internal (suppression chamber-to-drywell) and external (reactor building-to-suppression chamber) vacuum breakers are provided as part of the primary containment to limit the negative differential pressure across the drywell and suppression chamber walls that form part of the primary containment boundary.

The safety analyses assume that the internal vacuum breakers are closed initially and are fully open at a differential pressure of 0.5 psid. Additionally, 2 of the 9 internal vacuum breakers are assumed to fail in a closed position. The failure of a third internal vacuum breaker is also acceptable since the resulting pressure differential is bounded by the failure of an external vacuum breaker. The results of the analyses show that the design pressure is not exceeded even under the worst case accident scenario. The

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vacuum breaker opening differential pressure setpoint and the number of vacuum breakers required to be operable are a result of the requirement placed on the vacuum breakers to limit the vent system waterleg height.

Vacuum Breakers Design Description

Each suppression chamber-to drywell vacuum breaker assembly consists of two swinging disk check valves contained within a single valve body. The disk is maintained in the closed position during normal operation by means of a spring-actuated lever arm and magnets embedded in the periphery of the disk. The magnetic and spring forces are overcome, and the disk opens when the pressure differential across the valve is within the range of 0.10 to 0.35 psid. The disk is fully open when the pressure difference is 0.5 psid. Operation of these vacuum breakers is entirely passive and their design is discussed in Section 3.8.2.1 of the Columbia FSAR.

Pneumatic actuators are provided for remote operation of the disk for testing purposes. Compressed air is supplied by the plant control air system through the pneumatic operator accumulator and backup nitrogen supply. Each disk pneumatic operator consists of two air cylinders, one to open and one to close the disk. Each air cylinder is actuated by energizing a three-way solenoid pilot valve. The two solenoid pilot valves associated with each disk are operated by a remote manual switch in the control room. During normal operation the remote manual switches are in the neutral position and the solenoids are de-energized.

Position indication for each vacuum breaker consists of four separate states: (1) Closed, (2) Open, (3) Full Open and (4) Air-to-Close. On each disk there are a number of position switches which are actuated depending on the state of the disk. For the closed and open position switches, the disk face itself contacts a plunger on a small switch. There are two closed/open position switches per disk. Both switches must be actuated for a closed indication in the main control room. For the full open position switch, a striker which is attached to an arm swings in an arc and strikes a position switch plunger. There is one full open switch per disk. Finally, there is a striker attached to each close air operator which contacts a position switch plunger to indicate that the cylinder is applying a closing torque to the disk. There is one air-to-close switch per disk.

Vacuum Breakers Technical Specifications

The limiting condition of operation (LCO) for TS 3.6.1.7 stipulates that 7 of the 9 vacuum breakers be operable to perform an open safety function and all of the 9 vacuum breakers be closed. If either of these conditions are not met, an action statement must be entered.

As each vacuum breaker assembly contains redundant disks that are independent from one another, TS 3.6.1.7 considers the operability of each disk when assigning required actions. For example, for a single vacuum breaker, if one of the redundant disks is not

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closed, the associated action would require the closure of this disk within 72 hours as this state represents a potential communication path between the suppression chamber and the drywell (i.e., loss of single failure margin). If both disks are not closed, the associated action would require the closure of one of the open disks within 2 hours as this does represent a communication path between the suppression chamber and drywell.

In order to assure that the vacuum breakers are operable to perform their safety function, three surveillances requirements are necessary to be performed:

SR 3.6.1.7.1 requires that each vacuum breaker be verified closed every 14 days. This verification ensures that a potential large bypass leakage path is not present. The surveillance is performed by observing the vacuum breaker position indication in the main control room. Should position indication be lost, the surveillance can alternately be completed by verifying a differential pressure is maintained between the drywell and suppression chamber. When the alternate method is used, one vacuum breaker disk in the line being tested must be opened to permit the position verification of the other disk in the series.

SR 3.6.1.7.2 requires performance of a functional test (cycling open and closed) of each vacuum breaker every 31 days and within 12 hours of a discharge of steam to the suppression chamber from the safety/relief valves (SRVs). The surveillance demonstrates that each vacuum breaker opens adequately to perform its design function and returns to the fully closed position. The surveillance frequency was chosen to be 31 days to be conservative relative to normal inservice testing (IST) requirements for testing of check valves quarterly because the vacuum breakers are located in a harsh environment (the suppression chamber airspace). The vacuum breakers are cycled during power operation remotely from the control room using their pneumatic operators. The control room position indication is normally used to verify vacuum breaker position; however, as previously noted, an alternate method for verifying that the vacuum breaker is closed after exercising is available by verifying a differential pressure is maintained between the drywell and suppression chamber.

SR 3.6.1.7.3 requires the opening setpoint of each vacuum breaker to be verified every 24 months.

On January 6, 2007, during a functional test of vacuum breaker CVB-V-1JK, the rear disk of the vacuum breaker did not meet the procedurally defined acceptance criteria for open or close due to an issue with position indication limit switches. When CVB-V-1JK was cycled from the control room, the close position indication did not extinguish and prevented the open position indication from illuminating. The separate full open indication did illuminate, indicating that the rear disk opened as expected; however, the closure of the disk could not be confirmed using normal position indication.

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With unreliable position indication in the main control room for the rear disk of vacuum breaker CVB-1JK, the alternate method of closure verification using the differential pressure test is required. This test, as described in the TS Bases, involves establishing a differential pressure between the drywell and suppression chamber equal to, or in excess of, 0.5 psid to verify that the disk being tested can maintain that differential for 60 minutes. Current test procedures specify that a differential pressure of 0.7 to 0.75 psid be established between the drywell and suppression chamber. This value provides margin to accommodate minor internal drywell temperature changes during the testing. Maintaining a differential pressure between the drywell and suppression chamber is a positive indication that the vacuum breaker disk being tested is closed. This test was performed on the rear disk of vacuum breaker CVB-V-1JK on January 8, 2007 and again on January 22, 2007 and confirmed that the disk was seated. The degraded limit switches and associated circuitry are located in the inerted wetwell and cannot be accessed to restore normal position indication in the control room for the rear disk of vacuum breaker CVB-V-1JK while at power. Therefore, continued compliance with SR 3.6.1.7.1 would require that this pressure test be performed every 14 days.

As previously discussed, when performing the vacuum breaker closure differential pressure test, drywell pressure is increased from near atmospheric conditions to approximately 45% of the Drywell Pressure - High scram setpoint of 1.68 psig. Frequent differential pressure testing places the plant in a condition with degraded margin for a reactor scram. This increases the risk of an inadvertent reactor scram from a minor drywell pressure transient which may have been managed by the operator if it occurred at a normal drywell pressure and can unduly challenge plant safety systems and personnel. Furthermore, when performing the differential pressure test to verify continued closure of the rear disk of vacuum breaker CVB-V-1JK, the front disk is required to be open for at least 60 minutes while the test is being performed which degrades the capability of the vacuum breaker assembly to prevent bypass leakage when required. As previously discussed, TS 3.6.1.7 recognizes this increase in plant risk by drawing a distinction between an actual communication path and a potential communication path in the derivation of entry conditions and required actions.

Energy Northwest has concluded a more appropriate method to maintain public health and safety is to ensure that both disks of vacuum breaker CVB-V-1JK continue to maintain their current closed position without a change of state. Operating in this configuration, both the front and rear disks of vacuum breaker CVB-V-1JK would conservatively not be credited to perform the open safety function and would be declared inoperable for opening. Both disks are currently closed and have been verified as such using the normal position indication in the control room for the front disk and by the differential pressure test for the rear disk. This configuration is allowed by the current LCO for TS 3.6.1.7 as only seven of nine vacuum breakers are required to be operable for opening while in Modes 1, 2, and 3. In addition, with vacuum breaker CVB-V-1JK declared inoperable for the open function, SR 3.6.1.7.2 would not be required to be performed and the breaker disks would not need to be cycled.

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Continued operation in this manner until the end of R-18 would ensure that plant risk is minimized but also requires an extension from the current 14 day interval of SR 3.6.1.7.1. The proposed change is necessary because continued performance of SR 3.6.1.7.1 for the rear disk of CVB-V-1JK results in putting the plant in a condition that unduly increases the risk of an inadvertent reactor scram challenging both plant systems and personnel. Failure to perform the differential pressure test required by SR 3.6.1.7.1 would result in a failed verification of the current closed state of these vacuum breakers. TS 3.6.1.7 would then require placing the reactor in Mode 3 within the next 84 hours and Mode 4 in the following 24 hours and would also challenge plant system and personnel.

Consequently, Energy Northwest is requesting an extension to the closure verification requirement of SR 3.6.1.7.1 for the rear disk of vacuum breaker CVB-V-1JK until reliable position indication can be restored in the main control room during R-18. Energy Northwest will continue to verify that the front disk of CVB-V-1JK and both disks of the other 8 vacuum breakers are closed every 14 days as required by SR 3.6.1.7.1. If reasonable evidence is discovered to conclude that the rear disk of vacuum breaker CVB-V-1JK may no longer be in a closed position, Energy Northwest will take compensatory measures to verify that this disk is closed within 72 hours or declare the disk not closed and enter the appropriate action statement. In the proposed note, evidence that the rear disk may no longer be in a closed position is defined as evidence that the front disk has opened or that the rear disk has experienced a differential pressure in the direction that could cause the disk to open.

Evidence that the front disk has opened is considered to include observed changes in position indication from closed to open (even if it returns to indicating closed) that are determined to be related to actual disk movement and not position indication related problems where the disk is determined to actually be closed. This definition is intended to address failures in the position indication instrumentation and circuitry that can occur but are able to be detected and resolved such that position indication can be recovered and the cause of the failure can be traced to an event where high confidence exists that the disk did not actually move from the closed position. One example of this is a failure of a relay in the circuit coincident with a grid transient that causes minor perturbations in the voltage on the electrical bus feeding the circuitry.

Evidence that the rear disk has experienced a differential pressure in the direction that could cause the disk to open is considered to include any identified pressure differential in the open direction where the position of the front disk is not known to have remained closed for the entire duration of the pressure differential. If the front disk has been observed to remain closed during the entire pressure differential, the rear disk is considered to have not experienced the differential pressure. This definition is intended to address evolutions where a differential pressure is anticipated to be possible and actions can be taken to observe position indication during the evolution to ensure that the front disk did not open and, therefore, that the rear disk did not experience the differential pressure.

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In a letter dated May 10, 1989 (Reference 1), the Nuclear Regulatory Commission (NRC) approved an exigent amendment request as Amendment No. 32 for Fermi Nuclear Station, Unit 2 associated with drywell-to-suppression chamber vacuum breakers. As part of the supporting basis for approval of this amendment, the NRC cited that the differential pressure test to verify the vacuum breaker closure increases the risk of a reactor scram and challenges to operators. The reduction in the risk of a reactor scram was cited as a safety enhancement of the proposed change.

In a letter dated September 7, 2001 (Reference 2), the NRC approved an exigent amendment request as Amendment No. 98 for Nine Mile Point Nuclear Station (NMPNS) associated with drywell-to-suppression chamber vacuum breakers. Due to degraded position indication, NMPNS was granted a one-time exemption to the functional testing requirements of SR 3.6.1.7.2 due to concerns that future performance of this test could cause a failure of normal position indication for one of their eight vacuum breakers to fail. Furthermore, the permissive logic input from this vacuum breaker was not operating correctly, and therefore, the potential existed that the redundant vacuum breaker in series with the degraded vacuum breaker could not be exercised to perform of SR 3.6.1.7.2. Loss of the capability to exercise this vacuum breaker would prohibit the use of the alternate pressure testing method available to verify that the degraded vacuum breaker was closed.

The experience at NMPNS differs from that at Columbia due to both design considerations as well as the actual conditions of the degradation. While both Columbia and NMPNS have a Mark II containment design, at NMPNS each vacuum breaker consists of a single disk and two vacuum breakers are in series with one another in each of 4 separate downcomers connecting the drywell and the suppression pool. The Columbia design includes a vacuum breaker design that incorporates two separate disks in series into a single assembly and connected in each of 9 separate downcomers connecting the drywell and the suppression pool. Due to the NMPNS containment design, all 4 pairs of vacuum breakers are required to be operable. Furthermore, since the position indication was only degraded for the NMPNS vacuum breaker, the desire to minimize the impact on safety was to maintain the disk closed to prevent position indication from ultimately failing to the point of preventing closure verification from the control room but the vacuum breaker was still considered to be operable for opening and closing. As closure verification using normal means in the control room at Columbia is already considered to be unreliable, the degraded vacuum breaker would be considered inoperable for opening, and therefore, functional testing per SR 3.6.1.7.2 would not be applicable and normal closure verification per SR 3.6.1.7.1 in the control room unavailable.

The position indication limit switch for the rear disk of CVB-V-1JK will be repaired or replaced during R-18 and the proposed note to SR 3.6.1.7.1 would no longer be considered applicable upon plant startup.

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4.0 Technical Analysis

The proposed change does not physically modify the vacuum breakers. As previously described, the close safety function of the vacuum breakers is to close to limit drywell-to-suppression chamber bypass leakage and to re-close following a suppression pool swell event. Both disks of vacuum breaker CVB-V-1JK are currently closed and have been verified as such using the normal position indication in the control room for the front disk and by the differential pressure test for the rear disk. Therefore, all nine vacuum breakers are known to be in a closed position. The open safety function is to open to relieve vacuum in the drywell. Only seven of nine vacuum breakers are required to be operable for the open function to satisfy TS LCO 3.6.1.7 on the basis that only six are actually required (consideration of single failure) to mitigate the effects of a design basis accident (DBA). Therefore, both disks of vacuum breaker CVB-V-1JK will conservatively be assumed to be inoperable for opening without a tangible degradation in the overall ability to mitigate the effects of a DBA.

Both disks of vacuum breaker CVB-V-1JK are expected to maintain their current closed configuration unless acted upon by either functional testing or a pressure transient within the suppression chamber. With both disks of vacuum breaker CVB-V-1JK declared inoperable for opening, the requirements of SR 3.6.1.7.2 to cycle either of the disks from their current closed position are not applicable per SR 3.0.1 and will not be performed to help ensure that CVB-V-1JK remains closed.

A review has been performed to identify operational and maintenance activities that could affect the position of the vacuum breakers during the interval prior to R-18. Based on this review, it was concluded that the required quarterly residual heat removal (RHR) system operability test could cause the vacuum breakers to leave their closed position. This operability test requires the actuation of spraying in the suppression chamber. This actuation can create an initial pressurization of the suppression chamber and a pressure differential between the drywell and suppression chamber that has in the past caused the vacuum breaker disks to lift off their seats. Other operating experience with vacuum breakers at Columbia indicates that the rear disk of vacuum breaker CVB-V-1JK has on occasion failed to close without assistance from a pneumatic operator. Evidence suggests that the rear disk fails to close only when intentionally cycled by the control room.

However, the disk has been verified closed by the recently performed functional test and, as discussed above, will not be cycled. Furthermore, the disk will be subsequently verified closed if evidence exists that the disk has opened or has been exposed to a differential pressure that could cause the disk to open. Based on these considerations, declaring vacuum breaker CVB-V-1JK inoperable for opening and maintaining both disks closed until the end of the cycle is appropriate to minimize the potential for an unidentified bypass path between the drywell and suppression chamber.

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It is important to note that since the RHR operability test will be performed, appropriate precautions are taken to ensure that the impacts on other affected structures, systems, and components (including the vacuum breakers) that could affect their safety functions are minimized. Nonetheless, to minimize the potential for the rear disk to open during the RHR operability test, Energy Northwest will commit to verifying that the closed position of the rear disk of vacuum breaker CVB-V-1JK has not changed by staging an observer to verify that the front disk does not change position during the evolution or by performing the differential pressure test following the RHR operability test.

5.0 Regulatory Safety Analysis

5.1 No Significant Hazards Consideration

Energy Northwest has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

Proper functioning of the suppression chamber-to-drywell vacuum breakers is required for accident mitigation. Failure of the vacuum breakers is not assumed as an accident initiator for any accident previously evaluated. Therefore, any potential failure of a vacuum breaker to perform when necessary will not affect the probability of an accident previously evaluated.

During a LOCA, the vacuum breakers are assumed to initially be closed to limit drywell-to-suppression chamber bypass leakage and must be capable of re-closing following a suppression pool swell event. The vacuum breakers open to prevent an excessive vacuum in the drywell. The proposed change will not affect the capability of the required vacuum breakers to perform their open and close safety functions since the change only affects position verification and high confidence is assured that the disk remains closed. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The suppression chamber-to-drywell vacuum breakers are used to mitigate the potential consequences of an accident. The proposed change does not affect the capability of required vacuum breakers to perform their open and closed safety

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functions. Thus, the initial conditions assumed in the accident analysis are not affected. The proposed amendment does not involve a change to plant design and does not involve any new modes of operation or testing methods. Accordingly, the required vacuum breakers will continue to perform their accident mitigation safety functions as previously evaluated. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The extension of the closure verification surveillance interval for one of the two disks in a vacuum breaker for approximately 4 months is not risk significant as all required safety functions will continue to be performed. The vacuum breakers are not modified by the proposed amendment. The accident analysis assumptions for the closed safety functions of the vacuum breakers are satisfied when at least one of the disks in each of the nine vacuum breaker lines are fully closed and capable of re-closing following a suppression pool swell. The additional disk in each line satisfies the single failure criterion. The open safety function of the vacuum breakers is satisfied when 6 of the 9 vacuum breaker assemblies open during a DBA. The other vacuum breakers satisfy the single failure criterion and provide additional defense-in-depth. Since all of the vacuum breakers are considered to perform their close safety function and 8 of 9 would be available to perform their open safety function, the proposed change will not involve a significant reduction in a margin of safety.

Based on the above, Energy Northwest concludes that the proposed amendment presents no significant hazards considerations under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

The applicable general design criteria (GDC) are found in GDC 16 and 50:

Criterion 16--Containment design. Reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

Criterion 50--Containment design basis. The reactor containment structure, including access openings, penetrations, and the containment heat removal system shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident. This margin shall reflect consideration of (1) the effects of

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potential energy sources which have not been included in the determination of the peak conditions, such as energy in steam generators and as required by § 50.44 energy from metal-water and other chemical reactions that may result from degradation but not total failure of emergency core cooling functioning, (2) the limited experience and experimental data available for defining accident phenomena and containment responses, and (3) the conservatism of the calculational model and input parameters.

As described in the Bases for TS LCO 3.6.1.7, the results of the safety analyses, which credits opening of only 6 of the 9 suppression chamber-to-drywell vacuum breakers, show that the design pressure of the primary containment is not exceeded even under worst case accident scenarios. In addition, the requirement for all suppression chamber-to-drywell vacuum breakers to be closed (except when performing their intended design function) ensures that there is no excessive bypass leakage should a LOCA occur. Therefore, the requirements of GDC 16 and 50 will continue to be met with the implementation of this proposed change.

In addition, 10 CFR 50.36(c)(3), describes the requirements for surveillance testing:

Surveillance requirements. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

The short duration of this request and the satisfactory completion of recently performed testing to verify the affected vacuum breaker is closed provides a measure of confidence that the necessary quality of the vacuum breaker (i.e., closure) will be maintained until repairs are performed in R18. However, as stated previously, if reasonable evidence is discovered to conclude that the rear disk of vacuum breaker CVB-V-1JK may no longer be in a closed position, Energy Northwest will take compensatory measures to ensure that this disk is verified to be closed within 72 hours or declare the disk not closed and enter the appropriate action statement.

Based on the considerations discussed above and per the requirements of 10 CFR 50.90, 50.91 and 50.92, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be adverse to the common defense and security or to the health and safety of the public.

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6.0 Environmental Considerations

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 References

1. Letter dated May 10, 1989, JF Stang (NRC) to BR Sylvia (Detroit Edison), "Amendment No. 32 to Facility Operating License No. NPF-43: (TAC No. 72998)."
2. Letter dated September 7, 2001, D Skay (NRC) to JH Mueller (NMPNS), "Nine Mile Point Nuclear Station, Unit No. 2- Amendment Re: Exigent Change to Technical Specification Surveillance Requirement 3.6.1.7.2, Suppression Chamber-To-Drywell Vacuum Breakers (TAC No. MB2567)."

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Proposed Technical Specification Changes (mark-up)

REVISED TECHNICAL SPECIFICATIONS PAGES

3.6.1.7-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.7.1 -----NOTE----- Not required to be met for vacuum breakers that are open during Surveillances. ----- Verify each vacuum breaker is closed. ¹	14 days
SR 3.6.1.7.2 Perform a functional test of each required vacuum breaker.	31 days <u>AND</u> Within 12 hours after any discharge of steam to the suppression chamber from the safety/relief valves
SR 3.6.1.7.3 Verify the full open setpoint of each required vacuum breaker is ≤ 0.5 psid.	24 months

¹Not required to be met for the rear (drywell-side) disk of vacuum breaker CVB-V-1JK until startup from refueling outage R-18 provided there is no evidence that the front disk has opened or that the rear disk has experienced a differential pressure in the direction that could cause the disk to open. If such evidence exists, then the surveillance requirement will be met within 72 hours or the rear disk declared not closed.

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Proposed Technical Specification Bases Changes (mark-up)

REVISED TECHNICAL SPECIFICATIONS BASES PAGES

B 3.6.1.7-5

BASES

ACTIONS

C.1 (continued)

reliable, an alternate method of verifying that the vacuum breaker disks are closed is to verify that a differential pressure of ≥ 0.5 psid between the suppression chamber and drywell is maintained for 1 hour without makeup. The required 2 hour Completion Time is considered adequate to perform this test.

D.1 and D.2


If any Required Action and associated Completion Time cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

SR 3.6.1.7.1

Each vacuum breaker is verified closed (except when the vacuum breaker is performing its intended design function) to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that a differential pressure of ≥ 0.5 psid between the suppression chamber and drywell is maintained for 1 hour without makeup. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

A Note is added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

Insert
A 

(continued)

Insert A

This SR is not required to be met for the rear (drywell-side) disk of vacuum breaker CVB-V-1JK until startup from refueling outage R-18 provided there is no evidence that the front disk has opened or that the rear disk has experienced a differential pressure in the direction that could cause the disk to open. If such evidence exists, then the surveillance requirement will be met within 72 hours or the rear disk declared not closed.

Evidence that the front disk has opened includes observed changes in position indication from closed to open (even if it returns to closed) that are determined to be related to actual disk movement and not position indication problems where the disk is later determined to be actually closed.

Evidence that the rear disk has experienced a differential pressure in the direction that could cause the disk to open includes any identified pressure differential in that direction where the position of the front disk is not known for the entire duration of the pressure differential. If the front disk has been observed to remain closed during the entire pressure differential, the rear disk is considered to have not experienced the differential pressure.

This extension will ensure that the close safety function is maintained while minimizing risk to public health and safety. This extension expires upon startup from R-18.

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List of Regulatory Commitments

Energy Northwest commits to the following activities:

1. Upon approval of this proposed license amendment, Energy Northwest will implement a change to the applicable TS Bases to add the following information:

“This SR is not required to be met for the rear (drywell-side) disk of vacuum breaker CVB-V-1JK until startup from refueling outage R-18 provided there is no evidence that the front disk has opened or that the rear disk has experienced a differential pressure in the direction that could cause the disk to open. If such evidence exists then the surveillance requirement will be met within 72 hours or the rear disk declared not closed.

Evidence that the front disk has opened includes observed changes in position indication from closed to open (even if it returns to closed) that are determined to be related to actual disk movement and not position indication problems where the disk is later determined to be actually closed.

Evidence that the rear disk has experienced a differential pressure in the direction that could cause the disk to open includes any identified pressure differential in that direction where the position of the front disk is not known for the entire duration of the pressure differential. If the front disk has been observed to remain closed during the entire pressure differential, the rear disk is considered to have not experienced the differential pressure.

This extension will ensure that the close safety function is maintained while minimizing risk to public health and safety. This extension expires upon startup from R-18.”

2. Both the front and rear disks of vacuum breaker CVB-V-1JK would conservatively not be credited to perform the open safety function and would be declared inoperable for opening.
3. Energy Northwest will continue to verify that the front disk of CVB-V-1JK and both disks of the other 8 vacuum breakers are closed every 14 days as required by SR 3.6.1.7.1.
4. If reasonable evidence is discovered to conclude that the rear disk of vacuum breaker CVB-V-1JK may no longer be in a closed position (i.e., opening of the front disk in the vacuum breaker assembly or exposure of both disks to a differential pressure in the direction that could cause the disks to open), Energy Northwest will take compensatory measures to ensure that this disk is verified to be closed (i.e., perform the differential pressure closed verification) within 72 hours.