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March 24, 2014
GO2-14-043

10 CFR 50.90

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

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397
LICENSE AMENDMENT REQUEST FOR CHANGING TECHNICAL SPECIFICATION TABLE 3.3.1.1-1 FUNCTION 7, "SCRAM DISCHARGE VOLUME WATER LEVEL – HIGH"**

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Energy Northwest hereby requests a license amendment to revise the Columbia Generating Station Technical Specification Table 3.3.1.1-1 to make the following changes:

1. In Function 7.a, change the term "Transmitter/Trip Unit" to "Transmitter/Level Indicating Switch."
2. In Function 7.b, change the term "Float Switch" to "Transmitter/Level Switch."
3. In Function 7.a, add SR 3.3.1.1.1 to require performance of a Channel Check every 12 hours.
4. Pursuant to TSTF-493 Option A, add footnotes (d) and (e) to SR 3.3.1.1.10 for the new scram discharge instrumentation in TS Table 3.3.1.1-1 Function 7.b.

The respective rationale for the aforementioned changes is as follows:

1. The change more accurately describes the existing instrument's indication capability in the Control Room.
2. The change reflects the planned replacement of existing Magnetrol Level Float Switches with the comparably reliable and more accurate level transmitters and associated trip units.
3. The change corrects the inadvertent omission of the SR during the implementation of Improved Technical Specifications.
4. The change adds the Surveillance Notes to the channel calibration for this Function which will no longer meet the exclusion criteria.

The Enclosure contains an evaluation of the proposed changes. Attachments to the Enclosure include the following:

1. Proposed Columbia Technical Specification Changes (Mark-Up)
2. Proposed Columbia Technical Specification Bases Changes (Mark-Up)
3. Proposed Columbia Technical Specification Changes (Re-Typed)

A001
NRR

This letter and its enclosure contain no regulatory commitments.

Approval of the proposed amendment is requested within one year of the date of the submittal. The requested approval date will allow the instrument upgrades to be completed during Columbia's Spring 2015 refueling outage (R-22). Once approved, the amendment shall be implemented prior to restarting from R-22.

In accordance with 10 CFR 50.91, Energy Northwest is notifying the State of Washington of this amendment request by transmitting a copy of this letter and enclosure to the designated State Official.

If there are any questions or if additional information is needed, please contact Ms. L. L. Williams, Licensing Supervisor, at 509-377-8148.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 23rd day of March, 2014.

Respectfully,

A. L. Javorik
Vice President, Engineering

Enclosures: As stated

cc: NRC RIV Regional Administrator
NRC NRR Project Manager
NRC Senior Resident Inspector/988C
MA Jones - BPA/1399 (email)
JO Luce - ESFEC
RR Cowley – WDOH (email)

EVALUATION OF PROPOSED CHANGES

1. SUMMARY DESCRIPTION

In accordance with 10 CFR 50.90, Energy Northwest requests changes to the Technical Specifications (TS) for Columbia Generating Station (Columbia). Specifically, Energy Northwest proposes to revise the specified function description and Surveillance Requirements (SRs) in Table 3.3.1.1-1, "Reactor Protection System Instrumentation," Function 7, "Scram Discharge Volume Water Level – High." These proposed changes support a planned upgrade to the Columbia Reactor Protection System (RPS) Scram Discharge Volume (SDV) Water Level – High instrumentation. The instrument replacements are part of a larger plant modification that will reduce future crud accumulation and recurring radiation dose exposure to plant personnel. The instrumentation modification was reviewed under 10 CFR 50.59(c)(1) and determined to not meet any of the criteria in 10 CFR 50.59(c)(2). The instrumentation upgrade replaces the existing TS Table 3.3.1.1-1 Function 7.b SDV water level float switches with electronic analog transmitters and trip units to interface with the existing RPS logic. Consequently, the description of the Function 7.b instrumentation requires revision to reflect the upgraded instrumentation.

In addition, Energy Northwest proposes to add an additional SR to the existing SDV water level transmitters/trip units specified in Function 7.a of Table 3.3.1.1-1 to correct an inadvertent omission from TS. The existing instrumentation associated with Function 7.a provides level indication. However, the existing level indication allows performance of a channel check which was not included in the TS. Consequently, Energy Northwest proposes to add a SR to perform a channel check every 12 hours to verify Function 7.a. This SR is currently performed at Columbia for the subject equipment and should be specified in the TS. The description of the Function 7.a instrumentation will also be revised from "Transmitter/Trip Unit" to "Transmitter/Level Indicating Switch" to more accurately describe the instrumentation configuration.

Finally, the TSTF-493 Option A Surveillance Notes that are required to be applied to the SDV instrumentation that are not mechanical components will be added to SR 3.3.1.1.10 for the new scram discharge instrumentation in TS Table 3.3.1.1-1 Function 7.b.

2. DETAILED DESCRIPTION

Energy Northwest is submitting the proposed TS change to update TS Table 3.3.1.1-1, Reactor Protection System Instrumentation, Function 7, "Scram Discharge Volume Water Level – High" to reflect the planned replacement of SDV instrumentation with currently available instruments with comparable reliability and greater accuracy and to correct an omission of a SR from the existing TS.

These proposed changes will ensure that the description of SDV Water Level – High instrumentation in TS matches the plant configuration and that the appropriate surveillances and footnotes are applied to this instrumentation. The following changes are proposed to be made to TS Table 3.3.1.1-1 Function 7, each of which is described in greater detail below:

1. In Function 7.a, change the term "Transmitter/Trip Unit" to "Transmitter/Level Indicating Switch."

2. In Function 7.b, change the term "Float Switch" to "Transmitter/Level Switch."

3. In Function 7.a, add SR 3.3.1.1.1 to require performance of a channel check every 12 hours.

4. Pursuant to TSTF-493 Option A, add footnotes (d) and (e) to SR 3.3.1.1.10 for the new scram discharge instrumentation in TS Table 3.3.1.1-1 Function 7.b.

The proposed TS changes are reflected on a marked-up copy of the affected TS pages in Attachment 1. Revised TS Bases pages affected by the proposed changes are also provided as information in Attachment 2. Following NRC approval of this request, Energy Northwest will revise the TS Bases, in accordance with the TS Bases Control Program of TS Section 5.5.10, "Technical Specifications (TS) Bases Control Program," to incorporate the changes identified in Attachment 2. Attachment 3 provides revised (clean) TS pages.

2.1 Background

The SDV instrument replacements are part of a larger plant modification that will completely replace the SDV Instrument Volumes and associated piping and instruments in order to reduce future crud accumulation and recurring radiation dose exposure to plant personnel caused by high radiation sources in the SDV Instrument Volumes and associated piping. The modification is also being driven by equipment obsolescence.

The existing Instrument Volumes are carbon steel which when cycled through wet and vented dry conditions causes internal scaling that becomes a porous surface capturing radioactive particulates. The Function 7.b instrument sensing lines and liquid level switch bodies are carbon steel and are major crud accumulation traps.
The existing SDV Instrument Volumes, level instruments and associated small bore, carbon steel socket welded piping and valves are inherent crud traps that have resulted in chronic, high general area radiation levels. Averaged historical dose exposure from work in the area has been significant, resulting in an accumulated dose of approximately 10% of the current station annual ALARA goals. As time progresses, the dose rates are expected to increase further as more crud collects in the system.

Flushes of the associated instrument piping have had limited success in reducing dose rates due to the inherent material properties of the piping. The current practice of providing local shielding has become less practical and contributes to area congestion and increased difficulty performing maintenance and surveillance activities. SDV Instrument Volume dose rates are presently as high as 6,000 mrem/hr on contact and 500 mrem/hr at 30 cm. The dose rates in the area result in an annual average collective personnel exposure of at least 2445 mrem, including outage work.

The high dose rate coupled with the congestion that exists due to the existing configuration of level instruments, piping, and supports on each SDV Instrument Volume continue to impede surveillance testing and maintenance activities and creates a personal safety challenge for plant personnel. Lastly, the Magnetrol float-type switches are no longer available for safety related applications from the original manufacturer. The new level transmitters and trip units utilize proven technology, are highly reliable, and are more accurate than the existing float switches.

2.2 Revision of Description of TS Table 3.3.1.1-1 Functions 7.a

The description of the function name in TS Table 3.3.1.1-1 for Function 7.a is being revised to more accurately describe the existing instrumentation. The Function 7.a instruments are better described as Transmitter/Level Indicating Switches versus the existing Transmitter/Trip Units.

2.3 Revision of Description of TS Table 3.3.1.1-1 Functions 7.b

Energy Northwest is upgrading the SDV Water Level - High instrumentation by replacing the existing Magnetrol float switches associated with TS Table 3.3.1.1-1 Function 7.b with level sensing equipment of a different design yet diverse from the existing Function 7.a instruments. Thus a change to the Function 7.b description is required to reflect the new instrumentation.

2.4 Added Surveillance for TS Table 3.3.1.1-1 Function 7.a

One SR is proposed to be added to the existing Function 7.a level indicating switches (also referred to as trip units). These units have indication capability in the control room. Currently a channel check is performed every 12 hours in accordance with station procedures. However, the TS do not contain this SR requirement in Table 3.3.1.1-1 for Function 7.a. The proposed change to add the SR 3.3.1.1.1 to TS Table 3.3.1.1-1 Function 7.a makes the TS more comprehensive and is thus appropriate.

During Energy Northwest's conversion to the Improved Technical Specifications (ITS) (Reference 1), the SR for performing channel checks was excluded because it was believed that the instrumentation did not provide an indicated value for the parameter

being measured by the instruments, and therefore did not support the performance of a channel check. While this was true for the Function 7.b instruments, it was not true for the Function 7.a instruments. When Energy Northwest discovered that the Function 7.a instruments did, in fact, provide indication and therefore should not have been excluded from the TS channel check requirement, plant procedures were changed and the channel check performed in accordance with Administrative Letter (AL) 98-10 (Reference 2). The proposed changes complete the actions required by AL 98-10 by including the channel check SR in the TS.

2.5 Addition of TSTF-493 footnotes to TS 3.3.1.1 Function 7.b

Energy Northwest proposes to add TSTF-493, Revision 4, Option A TS Surveillance Notes to Columbia instrumentation Function 7.b. Due to a previously submitted license amendment request, this submittal only adds Surveillance Notes for instrumentation Function 7.b. In letter GO2-13-138 dated October 2, 2013 (Reference 3), Energy Northwest proposed changes to the TS to incorporate TSTF-493-A, Revision 4, "Clarify Application of Setpoint Methodology for LSSS Functions," Option A (Reference 4). That amendment request, GO2-13-138, proposed changes to the TS to add requirements to assess channel performance during surveillance testing that verifies instrument channel setting values established by the plant-specific setpoint methodology. In GO2-13-138, instrumentation Functions not meeting the exclusion criteria of TSTF-493 were annotated with the two Surveillance Notes. The instrumentation associated with Function 7.a did not meet the exclusion criteria; thus, Surveillance Notes were proposed to be added to the channel calibration for this Function. However, the existing float switch instrumentation in Function 7.b met the exclusion criteria in TSTF-493 as being a mechanical device excluded from Surveillance Notes. As such, GO2-13-138 did not propose the addition of Surveillance Notes to the Function 7.b channel calibration. The new instrumentation that will replace the existing float switch does not meet the exclusion criteria; thus, it is appropriate to add the Surveillance Notes to the channel calibration for Function 7.b.

The Surveillance Notes proposed in this license amendment request are identical to the notes proposed in GO2-13-138 Attachment 1 section 4.2 and are consistent with TSTF-493 Option A:

Surveillance Note (d) states:

> If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

Surveillance Note (e) states:

> The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and as-left tolerances are specified in the Licensee Controlled Specifications.

3. TECHNICAL EVALUATION

3.1 System Description and Current Licensing Basis

The SDV system is described in Final Safety Analysis Report (FSAR) Sections 4.6.1.1.2.4.2.5, 4.6.2.2, and 7.2.1.1.7 (Reference 5). Water displaced by the Control Rod Drive (CRD) pistons during a scram goes to the SDV. If the SDV fills with water so that insufficient capacity remains for the water displaced during a scram, control rod movement would be hindered during a scram. To prevent this situation, the reactor is scrammed when the water level in the discharge volume is high enough to verify that the volume is filling up, yet low enough to ensure that the remaining capacity in the discharge volume can accommodate a scram. The SDV Water Level – High instrumentation inputs to the four RPS channels. A scram is automatically initiated when sufficient capacity still remains in the discharge volume to accommodate a scram.

The Applicable Safety Analyses section of TS Bases 3.3.1.1 for the SDV Water Level – High Function states that Functions 7.a and 7.b are an input to the RPS logic; however, no credit is taken for a scram initiated from these functions for any of the design basis accidents or transients analyzed in Chapter 15 of the FSAR. The SDV scram functions are retained in the TS to ensure that the RPS remains operable. The critical function of the SDV system is to ensure sufficient volume exists to absorb the CRD discharge inventory when a reactor scram occurs.

Water level in the SDV is measured by two diverse methods. The outputs of the level instruments are arranged so that there is a signal from both diverse methods (i.e. Function 7.a and 7.b instruments) to each RPS logic channel. The level instrumentation is designed consistent with the BWR Scram Discharge System Safety Evaluation transmitted via Generic Letter (GL) 80-107 (Reference 6) and GL 81-18 "BWR Scram Discharge System; Clarification of Diverse Instrumentation Requirements" (Reference 7). Four channels of each type of SDV Water Level - High Function, with two channels of each type in each trip system, are required to be operable to ensure that no single instrument failure will preclude a scram from these Functions on a valid signal.

Section 7.2.2.5 of NUREG-0892 (Reference 8) documents NRC review of the Scram Discharge Level Monitoring System as part of plant licensing for operation. The instrumentation associated with the Scram Discharge Volume Water Level – High Function was accepted on the following basis:

- Diverse means of level sensing were provided,
- Each of the diverse methods provides alarms in the control room as well as the appropriate signals to the RPS for scram, and,
- Each diverse sensing system independently satisfies the single-failure criterion.

Based on these attributes of the system, the NRC concluded the applicable criteria of Table 7.1 of the Standard Review Plan (SRP) (Reference 9a) were met.

3.2 Safety Analysis of the Proposed Changes 1 & 2 (changes to Function 7.a & 7.b names)

The change to the description of Function 7.a and 7.b instrumentation are required to properly reflect the existing and new SDV instrumentation, respectively. These changes to accurately describe the functions are administrative in nature and do not impact the design or operation of the SDV system.

Diversity and redundancy between the instruments supporting the 7.a and 7.b functions is required and ensures that no single event can prevent a scram caused by SDV high water level. The diversity and redundancy requirement currently is met by use of different instrument sets measuring level and differential pressure. Following the modification, diversity and redundancy will be ensured by utilizing two different instrument sets which measure differential pressure using different sensing methods.

The Function 7.a instrument set employs a strain gage sensor that converts a mechanical force (pressure) to an electrical signal. The sensing mechanism is isolated from the process fluid by an isolating diaphragm and silicone fill fluid.

The Function 7.b instrument set will utilize direct electronic sensing with a completely sealed coplanar capacitance sensing element. The design uses an oil-filled cavity with a capacitance plate as the pressure-sensing element. Process pressure is transmitted through an isolating diaphragm and silicone oil fill fluid to a sensing diaphragm in the center of the sensor cell. Process or reference pressure is transmitted in a like manner to the other side of the center sensing diaphragm. The capacitor plates on both sides of the sensing diaphragm detect the position of the sensing diaphragm. Differential pressure changes result in a corresponding differential capacitance change in the sensing element (sensor). This signal is then decoded, amplified, and linearized by an analog circuit, converting the pressure change into a proportional 4-20 mA electrical current output signal. These capacitance type pressure transmitters have demonstrated high performance levels for accuracy, stability, and reliability in both industrial and

nuclear applications. The new Function 7.b instruments conform to the existing licensing and design basis as described in Section 3.1 above.

The setpoint calculations, which incorporate the TSTF-493 Rev. 4 requirement for calculating As-Found Tolerance (AFT) and As-Left Tolerance (ALT) into the setting tolerance, did not result in any changes to the TS Allowable Values for Table 3.3.1.1-1 Functions 7.a and 7.b.

The new instrument design preserves diversity and redundancy by use of level sensors provided by different manufacturers that utilize different operating principles for level measurement as stated above. The associated level switches are also from different manufacturers. As such, the requirements for diversity and redundancy of the SDV system and the associated level instrumentation continue to be met and plant safety is not impacted by these proposed changes.

3.3 Safety Analysis of the Proposed Change 3 (add SR to Function 7.a)

The added SR to perform a channel check for the Function 7.a instrumentation every 12 hours does not impact plant safety. The actual performance of the channel check at a 12 hour frequency does not have adverse impacts on the overall system design or operation. Channel checks on the existing instrumentation are currently being performed. The addition of the channel check to station procedures represented an increase in plant safety by increasing the likelihood of detecting precursors to a more serious plant event. In accordance with AL 98-10, the proposed changes seek to formally establish the checks as a required TS SR.

In general, a channel check provides opportunity to detect significant deviations between instrument channels which may be indicative of larger equipment problems. Since the channel calibration on these instruments is at an 18 month frequency, twice daily channel checks, which are already performed, result in enhanced monitoring of these instruments.

3.4 Safety Analysis of the Proposed Change 4 (add TSTF-493 footnotes to Function 7.b)

Setpoint calculations establish an LTSP based on the analytical limit (AL) of the safety analysis to ensure that trips or protective actions will occur prior to exceeding the process parameter value assumed by the safety analysis calculations. These setpoint calculations also calculate an allowed limit of expected change (i.e., the AFT) between performances of the surveillance test for assessing the value of the setpoint setting. The least conservative as-found instrument setting value that a channel can have during calibration without requiring performing a TS remedial action is the setpoint allowable value (AV). Discovering an instrument setting to be less conservative than the AV

indicates that there may not be sufficient margin between the setting and the AL. TS channel calibrations are performed to verify channels are operating within the assumptions of the setpoint methodology calculated LTSP and that channel settings have not exceeded the specified AVs. When the measured as-found setpoint is non-conservative with respect to the AV, the channel is inoperable and the actions identified in the TS must be taken.

The first Surveillance Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its AFT but conservative with respect to the AV. Evaluation of channel performance will verify that the channel will continue to perform in accordance with safety analysis assumptions and the channel performance assumptions in the setpoint methodology. The purpose of the assessment is to ensure confidence in the channel performance prior to returning the channel to service.

Verifying that a trip setting is conservative with respect to the AV when a surveillance test is performed does not by itself verify the instrument channel will operate properly in the future. Although the channel was operable during the previous surveillance interval, if it is discovered that channel performance is outside the performance predicted by the plant setpoint calculations for the test interval, then the design basis for the channel may not be met, and proper operation of the channel for a future demand cannot be assured. Surveillance Note (d) formalizes the establishment of the appropriate AFT for each channel. This AFT is applied about the LTSP or about any other more conservative setpoint. The AFT ensures that channel operation is consistent with the assumptions or design inputs used in the setpoint calculations and establishes a high confidence of acceptable channel performance in the future. Because the AFT allows for both conservative and non-conservative deviation from the LTSP, changes in channel performance that are conservative with respect to the LTSP will also be detected and evaluated for possible effects on expected performance.

To implement Surveillance Note (e), the ALT for some instrumentation channels is established to ensure that realistic values are used that do not mask instrument performance. Setpoint calculations assume that the instrument setpoint is left at the LTSP within a specific ALT (e.g., 25 psig ± 2 psig). A tolerance band is necessary because it is not possible to read and adjust a setting to an absolute value due to the readability and/or accuracy of the test instruments or the ability to adjust potentiometers. The ALT is normally as small as possible considering the tools and the objective to meet an as low as reasonably achievable calibration setting of the instruments. The ALT is considered in the setpoint calculation. Failure to set the actual plant trip setpoint to the LTSP (or more conservative than the LTSP), and within the ALT, would invalidate the assumptions in the setpoint calculation because any subsequent instrument drift would not start from the expected as-left setpoint.

3.5 Summary Conclusion

Plant safety is not impacted by the proposed changes. The changes do not impact the design or operation of the SDV system and hence is consistent with existing safety analyses. The diversity and redundancy of the SDV instrumentation is preserved. The addition of a Channel Check SR to TS Table 3.3.1.1-1 Function 7.a and the addition of TSTF-493 notes (d) and (e) to SR 3.3.1.1.10 for the new scram discharge instrumentation in TS Table 3.3.1.1-1 Function 7.b are conservative changes that align the SRs for proper determination of operability with that of similar instrumentation.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The licensing bases for the scram discharge system are provided in the Columbia Operating License Safety Evaluation Report (SER), NUREG-0892 Section 4.6 and 7.2.

The SDV Water Level-High instruments are part of the RPS instrumentation described in Section 7.2 of Columbia's FSAR. The RPS is required to meet 10 CFR 50.55a(h) and 10 CFR 50, Appendix A General Design Criteria.

Requirements for Protection Systems in 10 CFR 50.55a(h)(2) stipulate that RPS must meet the requirements of IEEE Std. 279, "Criteria for Protection Systems for Nuclear Power Generating Stations," (Reference 10) or IEEE 603-1991, "Criteria for Safety Systems for Nuclear Power Generating Stations" (Reference 11). Columbia's RPS is designed in accordance with IEEE 279-1971. None of the TS changes impact the overall design or operation of the RPS system.

General Design Criteria (GDC) 21 is most relevant to the proposed changes. The changes to the instrumentation associated with the SDV do not adversely change the system design aspects that establish GDC 21 compliance. Namely, reliability, testability, and operability of the RPS and SDV system instrumentation are preserved.

In addition to the requirements derived from the RPS, the scram discharge system is addressed in NUREG-0800, Section 4.6 (Reference 9b). Item III.6 of NUREG-0800, Section 4.6 states that the design of the SDV and its associated systems should be reviewed for conformance with the guidance and criteria in the NRC's BWR Scram Discharge System Safety Evaluation dated December 1, 1980. Columbia's existing scram discharge system was accepted in NUREG-0892 as noted in section 3.1 above.

Energy Northwest's plant design control process for the overall SDV modification ensures that the applicable criteria of the BWR Scram Discharge System Safety Evaluation will continue to be met. Specifically, the critical function of the system is to

provide sufficient volume to absorb CRD discharge inventory when a credited RPS trip occurs. The proposed changes do not impede draining the volume or the control logic for venting or draining the SDV, and conform with the existing design and licensing basis of the SDV instrumentation.

Safety Criterion 3 in Section 4.2.2.3 of the BWR Scram Discharge System Safety Evaluation is most directly applicable to the proposed TS changes as it deals with instrument diversity and redundancy. Specific requirements under Safety Criterion 3 include designing the system to meet single failure criterion and addressing common cause failures. Included as part of addressing common cause failures is a requirement that the design includes diverse and redundant level sensing instruments using different operating principles. Additional NRC guidance on this topic was provided in GL 81-18, which is also specifically referenced in NUREG-0800, Section 4.6.

The current SDV instruments and the replacement instruments are designed as single failure proof. As stated above, the Function 7.a and Function 7.b instrumentation employ diverse operating principles, namely a strain gage sensor and capacitance sensing element, respectively. Common mode failures resulting from environmental effects, design and manufacturing issues, and human error have been addressed with the new instrumentation in a manner comparable to the existing design. Energy Northwest has determined that the applicable criteria of the BWR Scram Discharge System Safety Evaluation and the guidance in GL 81-18 continue to be met.

4.2 Precedent

The proposed changes are similar to TS changes approved for Dresden Nuclear Power Station, Units 2 and 3 via Amendments 198 and 191, respectively on April 3, 2003 (Reference 12). Dresden proposed changes to the TS SDV Water Level - High instrumentation function descriptions resulting from replacing the SDV Water Level – High float switches with analog trip units, the associated change to, and addition of a TS SR which was being performed but not required by TS (Reference 13). Dresden's proposed changes were in support of RPS SDV Water Level – High instrumentation upgrades.

The changes accepted for Dresden Units 2 and 3 differ from the proposed changes in that they also included the addition of plant specific footnotes and the modification of allowable values. The plant specific notes are not appropriate for Columbia since they are related to the multiple unit configuration at Dresden. Energy Northwest reviewed the allowable values using the established plant setpoint methodology and concluded that no changes are required to the TS Allowable Values for Table 3.3.1.1-1 Functions 7.a and 7.b. As such, neither of the differences from the Dresden precedent are germane to the acceptability of Energy Northwest's proposed changes.

4.3 No Significant Hazards Consideration Determination

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.

   The proposed changes to change Function 7 names are administrative in nature and ensure that the description of SDV Water Level – High instrumentation in TS matches the plant configuration. The addition of a missing channel check SR and TSTF-493 footnotes for the new Function 7.b instruments makes the TS more comprehensive by ensuring the appropriate surveillances and footnotes are applied to this instrumentation.

   The replacement instruments for Function 7.b meet the high functional reliability standard of GDC 21 and all pertinent requirements of 10 CFR 50.55a(h)(2). The instrumentation modification was reviewed under 10 CFR 50.59(c)(1) and determined to not meet any of the criteria in 10 CFR 50.59(c)(2).

   The addition of a channel check to Function 7.a and addition of TSTF-493 notes (d) and (e) to SR 3.3.1.1.10 for the Function 7.b instrumentation do not change accident frequency or consequences. TS requirements that govern operability or routine testing of plant instruments are not assumed to be initiators of any analyzed event because these instruments are intended to prevent, detect, or mitigate accidents. Additionally, these proposed changes will not increase the consequences of an accident previously evaluated because the proposed changes do not adversely impact structures, systems, or components. The proposed TS changes establish requirements that ensure components are operable when necessary for the prevention or mitigation of accidents or transients. Furthermore, there will be no change in the types or significant increase in the amounts of any effluents released offsite.

   In summary, 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 proposed changes to administratively revise instrument descriptions, incorporate a new SR, and add footnotes to an existing SR do not change the parameters within which Columbia is operated.

   The proposed changes do not adversely impact the manner in which the SDV Water Level – High RPS instrumentation will operate under normal and abnormal operating conditions. The instrumentation design changes were reviewed under 10 CFR 50.59(c)(1) and determined to not meet any of the criteria of 10 CFR 50.59(c)(2). The proposed changes will not alter the functional demands on credited equipment. No alteration in the procedures which ensure that Columbia remains within analyzed limits are proposed and no change is being made to procedures relied upon to respond to an off-normal event. Therefore, these proposed changes provide an equivalent level of safety and will 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 proposed changes to the function descriptions in TS Table 3.3.1.1-1 Functions 7.a and 7.b are considered administrative in nature, and do not impact plant safety.

   Margins of safety are established in the design of components, the configuration of components to meet certain performance parameters, and in the establishment of setpoints to initiate alarms and actions. The proposed changes support a planned upgrade of the SDV instrumentation that preserves the reliability of RPS system. The proposed changes do not adversely affect the probability of failure or availability of the affected instrumentation. The instrumentation design changes were evaluated under 10 CFR 50.59(c)(1) and determined to not meet any of the criteria of 10 CFR 50.59(c)(2).

   The addition of a Channel Check SR to TS Table 3.3.1.1-1 Function 7.a and the addition of TSTF-493 notes (d) and (e) to SR 3.3.1.1.10 for the new scram discharge instrumentation in TS Table 3.3.1.1-1 Function 7.b are conservative

changes that align the SRs for proper determination of operability with that of similar instrumentation.

On this basis, is concluded that the proposed changes do not result in a reduction in the margin of safety.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (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 inimical to the common defense and security or to the health and safety of the public.

5. ENVIRONMENTAL CONSIDERATION

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.

6. REFERENCES

1. Letter GO2-95-265, J.V. Parrish (Washington Public Power Supply System) to NRC, *WNP-2 Operating License NPF-21 Request For Amendment to Technical Specifications*, dated December 8, 1995
2. NRC Administrative Letter 98-10, *Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety*, US NRC, December 29, 1998
3. Letter GO2-13-138, A.L. Javorik (Energy Northwest) to NRC, *Columbia Generating Station, Docket No. 50-397 License Amendment Request For Adoption of TSTF 493, Revision 4, Option A*, dated October 2, 2013
4. Owners Group Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler TSTF-493-A, Revision 4 *Clarify Application of Setpoint Methodology for LSSS Functions*
5. "Columbia Generating Station, Final Safety Analysis Report," Amendment 62, April 2013
6. Generic Letter 80-107, *BWR Scram Discharge System,* December 9, 1980
7. Generic Letter 81-18, *BWR Scram Discharge System; Clarification of Diverse Instrumentation Requirement,* March 31, 1981

8. NUREG-0892, *Safety evaluation report related to the operation of WPPSS nuclear project no. 2, docket no. 50-397: Washington Public Power Supply System,* December 1980
9. NUREG-0800, *Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition,*
    a. Section 7.1-T, *Table 7-1 Regulatory Requirements, Acceptance Criteria, and Guidelines for Instrumentation and Control Systems Important to Safety*, Second Revision 5, March 2007
    b. Section 4.6, *Functional Design of Control Rod Drive System*, Revision 2, March 2007
10. IEEE 279-1971, *Criteria for Protection Systems for Nuclear Power Generating Stations*
11. IEEE 603-1991, *Criteria for Safety Systems for Nuclear Power Generating Stations*
12. Letter, LW Rossbach (NRC) to JL Skolds (Exelon Nuclear Generation Company, LLC), *Dresden Nuclear Power Station, Units 2 and 3 – Issuance of Amendments for Scram Discharge Volume Water Level Instruments*, dated April 3, 2003 [ML030730739]
13. Letter, PR Simpson (Exelon Nuclear Generation Company, LLC) NRC, *Request for Technical Specifications Changes Related to Reactor Protection System Instrumentation (Scram Discharge Volume Water Level – High) Dresden Nuclear Power Station, Units 2 and 3 – Issuance of Amendments for Scram Discharge Volume Water Level Instruments*, dated August 16, 2002 [ML022400240]

LICENSE AMENDMENT REQUEST CHANGING TECHNICAL SPECIFICATION TABLE 3.3.1.1-1 FUNCTION 7, "SCRAM DISCHARGE VOLUME WATER LEVEL – HIGH"
Enclosure

Attachment 1

Proposed Columbia Technical Specification Changes (Mark-Up)

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3.	Reactor Vessel Steam Dome Pressure - High	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 1079 psig
4.	Reactor Vessel Water Level - Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 9.5 inches
5.	Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 12.5% closed
6.	Primary Containment Pressure - High	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 1.88 psig
7.	Scram Discharge Volume Water Level - High					
	a. Transmitter/~~Trip Unit~~Level Indicating Switch	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
		5[a]	2	H	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
	b. ~~Float Switch~~Transmitter/Level Switch	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10[d][e] SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
		5[a]	2	H	SR 3.3.1.1.8 SR 3.3.1.1.10[d][e] SR 3.3.1.1.14	≤ 529 ft 9 inches elevation

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

(d) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and the as-left tolerances are specified in the Licensee Controlled Specifications.

Table 3.3.1.1-1 (page 3 of 4)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3.	Reactor Vessel Steam Dome Pressure - High	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 1079 psig
4.	Reactor Vessel Water Level - Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 9.5 inches
5.	Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 12.5% closed
6.	Primary Containment Pressure - High	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 1.88 psig
7.	Scram Discharge Volume Water Level - High					
	a. Transmitter/Trip Unit Level Indicating Switch	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
		5[a]	2	H	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
	b. Float Switch Transmitter/Level Switch	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10[d][e] SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
		5[a]	2	H	SR 3.3.1.1.8 SR 3.3.1.1.10[d][e] SR 3.3.1.1.14	≤ 529 ft 9 inches elevation

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

(d) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and the as-left tolerances are specified in the Licensee Controlled Specifications.

LICENSE AMENDMENT REQUEST CHANGING TECHNICAL SPECIFICATION TABLE 3.3.1.1-1 FUNCTION 7, "SCRAM DISCHARGE VOLUME WATER LEVEL – HIGH"
Enclosure

Attachment 2

Proposed Columbia Technical Specification Bases Changes (Mark-Up)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

SDV water level is measured by two diverse methods. The level in each of the two SDV instrument volumes is measured by two float type transmitters and associated level switches and two transmitters and trip units associated level indicating switches for a total of eight level signals. Different manufacturers and sensing methods are utilized to maintain diversity. The outputs of these devices are arranged so that there is a signal from a transmitter/level switch and a transmitter/level indicating switch and trip unit to each RPS logic channel for each SDV instrument volume. The level measurement instrumentation satisfies the recommendations of Reference 10.

The Allowable Value is chosen low enough to ensure that there is sufficient volume in the SDV to accommodate the water from a full scram.

Four channels of each type of Scram Discharge Volume Water Level - High Function, with two channels of each type in each trip system, are required to be OPERABLE to ensure that no single instrument failure will preclude a scram from these Functions on a valid signal. These Functions are required in MODES 1 and 2, and in MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies, since these are the MODES and other specified conditions when control rods are withdrawn. At all other times, this Function may be bypassed.

8. Turbine Throttle Valve - Closure

Closure of the TTVs results in the loss of a heat sink that produces reactor pressure, neutron flux, and heat flux transients that must be limited. Therefore, a reactor scram is initiated at the start of TTV closure in anticipation of the transients that would result from the closure of these valves. The Turbine Throttle Valve - Closure Function is the primary scram signal for the turbine trip event analyzed in Reference 5. For this event, the reactor scram reduces the amount of energy required to be absorbed and, along with the actions of the End of Cycle Recirculation Pump Trip (EOC-RPT) System, ensures that the MCPR SL is not exceeded.

Turbine Throttle Valve - Closure signals are initiated by valve stem position switches at each throttle valve. Two switches are associated with each throttle valve. One of the two provides input to RPS trip system A; the other, to RPS trip system B. Thus, each RPS trip system receives an input from four Turbine Throttle Valve - Closure channels, each consisting of one valve stem position switch. The logic for the Turbine Throttle Valve - Closure Function is such that three or more TTVs

LICENSE AMENDMENT REQUEST CHANGING TECHNICAL SPECIFICATION TABLE 3.3.1.1-1 FUNCTION 7, "SCRAM DISCHARGE VOLUME WATER LEVEL – HIGH"
Enclosure

Attachment 3

Proposed Columbia Technical Specification Changes (Re-Typed)

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Reactor Vessel Steam Dome Pressure - High	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 1079 psig
4. Reactor Vessel Water Level - Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 9.5 inches
5. Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 12.5% closed
6. Primary Containment Pressure - High	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 1.88 psig
7. Scram Discharge Volume Water Level - High					
a. Transmitter/Level Indicating Switch	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
	5[a]	2	H	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
b. Transmitter/Level Switch	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10[d][e] SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
	5[a]	2	H	SR 3.3.1.1.8 SR 3.3.1.1.10[d][e] SR 3.3.1.1.14	≤ 529 ft 9 inches elevation

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

(d) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.

(e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Limiting Trip Setpoint (LTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the LTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the surveillance procedures (Nominal Trip Setpoint) to confirm channel performance. The LTSP and the methodologies used to determine the as-found and the as-left tolerances are specified in the Licensee Controlled Specifications.

Table 3.3.1.1-1 (page 3 of 4)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
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4. Reactor Vessel Water Level - Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≥ 9.5 inches
5. Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14 SR 3.3.1.1.15	≤ 12.5% closed
6. Primary Containment Pressure - High	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 1.88 psig
7. Scram Discharge Volume Water Level - High					
a. Transmitter/Level Indicating Switch	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
	5[a]	2	H	SR 3.3.1.1.1 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
b. Transmitter/Level Switch	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.10[d][e] SR 3.3.1.1.14	≤ 529 ft 9 inches elevation
	5[a]	2	H	SR 3.3.1.1.8 SR 3.3.1.1.10[d][e] SR 3.3.1.1.14	≤ 529 ft 9 inches elevation

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