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

April 15, 2015

Mr. Mark E. Reddemann
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION - ISSUANCE OF AMENDMENT RE: REVISION TO TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENT FOR THE ULTIMATE HEAT SINK (TAC NO. MF4682)

Dear Mr. Reddemann:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 233 to Renewed Facility Operating License No. NPF-21 for the Columbia Generating Station. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated August 22, 2014, as supplemented by letter dated December 23, 2014.

The amendment changes TS 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)," TS Surveillance Requirement 3.7.1.1 related to verifying that the average water level in the UHS spray ponds is the average of the level in both ponds.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

for

Balwant K. Singal, Senior Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:
1. Amendment No. 233 to NPF-21
2. Safety Evaluation

cc w/encls: Distribution via Listserv

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

ENERGY NORTHWEST

DOCKET NO. 50-397

COLUMBIA GENERATING STATION

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 233
License No. NPF-21

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Energy Northwest (licensee), dated August 22, 2014, as supplemented by letter dated December 23, 2014, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-21 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 233 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 10 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael T. Markley, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-21
and Technical Specifications

Date of Issuance: April 15, 2015

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

ATTACHMENT TO LICENSE AMENDMENT NO. 233

RENEWED FACILITY OPERATING LICENSE NO. NPF-21

DOCKET NO. 50-397

Replace the following pages of the Renewed Facility Operating License No. NPF-21 and Appendix A, Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Facility Operating License

REMOVE	INSERT
-4-	-4-

Technical Specification

REMOVE	INSERT
3.7.1-2	3.7.1-2

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 233 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

a. For Surveillance Requirements (SRs) not previously performed by existing SRs or other plant tests, the requirement will be considered met on the implementation date and the next required test will be at the interval specified in the Technical Specifications as revised in Amendment No. 149.

(3) Deleted.

(4) Deleted.

(5) Deleted.

(6) Deleted.

(7) Deleted.

(8) Deleted.

(9) Deleted.

(10) Deleted.

(11) Shield Wall Deferral (Section 12.3.2, SSER #4, License Amendment #7)

The licensee shall complete construction of the deferred shield walls and window as identified in Attachment 3, as amended by this license amendment.

(12) Deleted.

(13) Deleted.

*The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR Both SW subsystems inoperable. OR UHS inoperable for reasons other than Condition A.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify the average water level in the UHS spray ponds is ≥ 432 feet 9 inches mean sea level.	24 hours
SR 3.7.1.2	Verify the average water temperature of each UHS spray pond is ≤ 77°F.	24 hours
SR 3.7.1.3	----------NOTE---------- Isolation of flow to individual components does not render SW subsystem inoperable. ---------- Verify each SW subsystem manual, power operated, and automatic valve in the flow path servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 233 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-21

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

1.0 INTRODUCTION

By application dated August 22, 2014, as supplemented by letter dated December 23, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML14251A032 and ML15006A032, respectively), Energy Northwest (the licensee) requested changes to the Technical Specifications (TSs) (Appendix A to Renewed Facility Operating License No. NPF-21) for the Columbia Generating Station (CGS). The requested change would modify TS 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)," TS Surveillance Requirement 3.7.1.1 related to verifying that the average water level in the UHS spray ponds is the average of the water level in both ponds.

The supplemental letter dated December 23, 2014, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on September 5, 2014 (79 FR 53085).

2.0 REGULATORY EVALUATION

The NRC's regulatory requirements related to the content of the TSs are contained in Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, "Technical specifications." The regulations at 10 CFR 50.36(c) require that the TSs include items in the following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls. SRs 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 LCOs will be met.

In accordance with 10 CFR Section 50, Appendix A, "General Design Criteria [GDC] for Nuclear Power Plants," the following criteria are applicable to the SW system and UHS at the CGS:

GDC 2, "Design bases for protection against natural phenomena," states:

> Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these structures, systems, and components shall reflect: (1) Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena and (3) the importance of the safety functions to be performed.

GDC 4, "Environmental and dynamic effects design bases," states, in part:

> Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit.

GDC 44, "Cooling water," states:

> A system to transfer heat from structures, systems, and components important to safety, to an ultimate heat sink shall be provided. The system safety function shall be to transfer the combined heat load of these structures, systems, and components under normal operating and accident conditions.
>
> Suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure.

GDC 45, "Inspection of cooling water system," states:

> The cooling water system shall be designed to permit appropriate periodic inspection of important components, such as heat exchangers and piping, to assure the integrity and capability of the system.

GDC 46, "Testing of cooling water system," states:

> The cooling water system shall be designed to permit appropriate periodic pressure and functional testing to assure (1) the structural and leaktight integrity of its components, (2) the operability and the performance of the active components of the system, and (3) the operability of the system as a whole and, under conditions as close to design as practical, the performance of the full operational sequence that brings the system into operation for reactor shutdown and for loss-of-coolant accidents, including operation of applicable portions of the protection system and the transfer between normal and emergency sources.

Regulatory Positions C.1, C.3, and C.4 of Regulatory Guide (RG) 1.27, Revision 2, "Ultimate Heat Sink for Nuclear Power Plants," dated January 1976 (ADAMS Accession No. ML003739969), which are described below, are also applicable to the proposed change.

Regulatory Position C.1 states, in part:

> The ultimate heat sink should be capable of providing sufficient cooling for at least 30 days (a) to permit simultaneous safe shutdown and cooldown of all nuclear reactor units that it serves and to maintain them in a safe shutdown condition.... Procedures for ensuring a continued capability after 30 days should be available.

Regulatory Position C.3 states, in part:

> The ultimate heat sink should consist of at least two sources of water, including their retaining structures, each with the capability to perform the safety functions specified in regulatory position 1, unless it can be demonstrated that there is an extremely low probability of losing the capability of a single source.

Regulatory Position C.4 states:

> The technical specifications for the plant should include provisions for actions to be taken in the event that conditions threaten partial loss of the capability of the ultimate heat sink or the plant temporarily does not satisfy regulatory positions 1 and 3 during operation.

3.0 TECHNICAL EVALUATION

3.1 Proposed TS Changes

Current TS SR 3.7.1.1 states:

> Verify the water level of each UHS spray pond is $\geq$ 432 feet 9 inches mean sea level.

Revised TS SR 3.7.1.1 would state:

> Verify the average water level in the UHS spray ponds is ≥ 432 feet 9 inches mean sea level.

3.2 Reason for TS Change

In its LAR dated August 22, 2014, the licensee stated the following regarding historical information on the TS SRs for the water level of the UHS spray ponds:

> Prior to Amendment 149, the Columbia TS contained SR 4.7.1.3.a, to verify the water level of the UHS is within the limits of the Limiting Condition for Operation (LCO) 3.7.1.3. This LCO specified that the ultimate heat sink shall be operable with a minimum water level at elevation 432 feet 9 inches [432.75 feet] mean sea level. Amendment 149 approved the conversion to Improved Technical Specification (ITS) [Reference 2 of application dated August 22, 2014[1]]. Columbia SR 3.7.1.1 is based on NUREG-1434 [Reference 3 of application dated August 22, 2014[2]] SR 3.7.1.1 Rev. 1, which requires verification of the "water level of each (UHS) cooling tower basin..."

The NRC staff's Safety Evaluation (SE) for Amendment No. 149, dated March 4, 1997, can be located at ADAMS Accession No. ML031290340.

In the license amendment request (LAR) for the ITS conversion, dated December 8, 1995 (abstract available at ADAMS Legacy Library Accession No. 9512120401), the licensee erroneously proposed SR 3.7.1.1 to verify verification of the "water level of each UHS spray pond." The LAR dated December 8, 1995, should have proposed SR 3.7.1.1 to require verification of the "average water level in the UHS spray ponds," as the licensee's station procedures allowed for the average of both spray pond levels to be used to verify compliance with SR 3.7.1.1. The error was discovered on August 14, 2014, and actions were immediately taken by the licensee to ensure that the minimum spray pond level is maintained in each pond in the accordance with the requirements of current SR 3.7.1.1. This issue was entered into the Energy Northwest corrective actions program (CAP), and the licensee submitted Licensee Event Report (LER) 2014-004-00 (ADAMS Accession No. ML14296A383), due to the fact that since the licensee had been using an average of both spray pond levels to meet SR 3.7.1.1, there may have been instances where actual spray pond level in either of the ponds was below the current SR minimum level, and, therefore, should have been declared inoperable.

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[1] Colburn, T. G., U.S. Nuclear Regulatory Commission, letter to J. V. Parrish, Washington Public Power Supply System, "Issuance of Amendment for the Washington Public Power Supply System Nuclear Project No. 2," dated March 4, 1997 (ADAMS Accession No. ML031290340).

[2] NUREG-1434, Volume 1, Revision 1, "Standard Technical Specifications General Electric Plants, BWR/6," April 1995 (ADAMS Accession No. ML13196A489).

3.3 Description of the Standby Service Water and Ultimate Heat Sink Systems

3.3.1 Standby Service Water System

Energy Northwest stated in its LAR dated August 22, 2014, in part, that the SW system is described in the CGS Final Safety Analysis Report (FSAR), Section 9.2.7, "Standby Service Water System." The SW system includes vertical SW system pumps located adjacent to the two spray ponds in two separate pump houses. The SW system pumps consist of two independent 100 percent capacity pumps (Divisions 1 and 2), each supplying normal and emergency shutdown cooling equipment. A third 100 percent capacity High Pressure Core Spray (HPCS) (Division 3) SW pump (housed in pump house A) supplies the HPCS system cooling equipment. The three pumps discharge to independent piping systems which serve Emergency Core Cooling System (ECCS) equipment, auxiliary plant equipment, and reactor shutdown cooling equipment.

For Divisions 1 and 2, during normal and emergency shutdown modes of operation, water is circulated from the spray ponds to the equipment requiring cooling and returned to the ponds. The SW system dissipates heat through the use of an oriented spray ring header system at the ponds. A spray ring bypass is provided that allows water to be returned directly to the pond through use of manually operated isolation valves to allow control of pond temperature during cold weather operations. For Division 3, the HPCS SW returns directly to pond A with no sprays.

The system is designed such that on receipt of an ECCS start signal, all three SW system pumps are started automatically.

3.3.2 Ultimate Heat Sink

As stated, in part, by the licensee in its LAR dated August 22, 2014:

> The UHS is described in Section 9.2.5 of Columbia's FSAR and consists of two concrete spray ponds. The design basis function of the UHS is to provide a source of water for the SW system for 30 days and to absorb the heat transferred to it from the plant via the SW system during that time period without exceeding its design temperature.
>
> The spray ponds provide suction and discharge points for the redundant pumping and spray facilities of the SW system. The pond and pump house arrangements are shown in FSAR Figure 9.2-7. Standby service water system loop A draws water from pond A, cools the Division 1 equipment, and discharges through the spray ring into pond B for heat dissipation. Similarly, SW loop B draws water from pond B, cools Division 2 equipment, and discharges through a spray ring into pond A. The water then returns to the initial pond through 30 inch diameter siphon pipe. Figure 1 [of letter dated August 22, 2014] contains a simplified sketch of the UHS and SW system.

> The ponds were licensed such that the combined water volume of the spray ponds is adequate to provide cooling water for 30 days of operations, assuming maximum evaporation and drift losses.
>
> Each UHS pond is 250 feet long by 250 feet wide by 15 feet deep. The floor of each pond is located at an elevation of 420 feet mean sea level. The design of the spray ponds includes a non-isolable 30 inch diameter siphon line connecting both spray ponds to automatically transfer water from one pond to the other. A majority of the siphon line is buried; however, sections of the line are not buried and are submerged in the spray ponds after penetrating the spray pond walls. In each spray pond, the submerged siphon line includes a ninety degree elbow which then directs the siphon line downward termination 18 inches [1.5 feet] above the floor of the spray ponds. The siphon line between the two ponds is designed to transfer 10,500 gpm [gallons per minute] without overflowing one of the spray ponds. The siphon line assures that the entire inventory of water in the ponds is available to either loop and that makeup water added to one pond is available to the other. The siphon line allows transfer of colder water from the bottom of the spray pond in which the sprays are operating to the pond from which the operating pump is taking suction. This arrangement provides an effective dispersion of the heat being absorbed by the water inventory. The siphon allows a single train of SW access to the full 30 day supply provided by the two SW ponds.

Section 9.2.5.2 of the CGS FSAR contains additional information regarding the integration of HPCS into the UHS. It states that the HPCS SW system draws water from pond A, cools Division 3 equipment, and discharges without spray into pond A. The HPCS SW system flow is treated as a straight heat dump in the thermal analyses.

The licensee stated in its LAR dated August 22, 2014, in part:

> FSAR Table 9.2-1 provides the minimum pond capacity (two ponds at elevation 432 feet 9 inches [432.75 feet]) as 11,920,000 gallons. FSAR Table 9.2-6 documents the spray pond water losses 30 days after the design basis loss of coolant accident [ ] as 9,387,000 gallons. The inventory of water remaining in the spray ponds after 30 days must be greater than or equal to 2,260,000 gallons. The results show that the amount of water available over the minimum requirement is 273,000 gallons demonstrating that sufficient inventory is available for 30 days.

3.3.3 UHS Makeup System

CGS FSAR Section 9.2.5.2 states that a gravity makeup line is provided from the circulating water pump house to the spray ponds; however, the required pond level will normally be maintained by makeup directly from the Tower Makeup System (TMU) water pumps or directly from the potable water system. The TMU is the makeup source credited in the event of UHS water loss due to a tornado.

CGS FSAR Section 9.2.5.3 states that it is possible for a tornado to pass over the spray pond and remove a significant amount of water. For this reason, the makeup water pump house is designed to be tornado proof, with all piping and electrical power supply between the plant and the pump house underground with adequate soil cover to provide protection from tornado generated missiles. Since it is not credible to assume an earthquake coincident with a tornado, this system need not be Seismic Category I. Two 12,500-gpm TMU water pumps are provided, one powered from each emergency diesel generator (EDG). Should pond water be lost due to a tornado, one of these pumps will be started to provide makeup. If the spray headers are damaged by a tornado-generated missile, cooling is provided by a feed-and-bleed mode of operation. In the feed-and-bleed mode, cooling water is supplied to the spray ponds from the makeup water pump house. The SW system takes suction from the spray ponds to provide cooling to safe shutdown equipment. The cooling water is then routed to tornado-protected underground circulating water piping and discharged to the circulating water basin.

CGS FSAR Section 9.2.5.5 states that in the event that the spray pond level falls below the minimum level required for 30 days of cooling, an alarm is sounded and makeup to the spray ponds is provided using the TMU.

In addition, FSAR Table 9.2-7 states that UHS spray pond makeup water is available from the three water sources, which include:

- Plant makeup water pumps (tornado and LOCA conditions),
- Cooling tower basin via gravity (maximum flood, river blockage or drought, tornado, and LOCA conditions), and
- Tank truck or rail (design basis accident (DBA) earthquake, maximum flood, river blockage or drought, tornado, and LOCA conditions).

3.3.4 UHS Siphon Line and Inspections

In its LAR dated August 22, 2014, the licensee stated, in part, that:

> The [30-inch diameter] siphon line is ASME [American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section III], Code Class 3 piping. The buried portion of the siphon line is included in Columbia's Inservice Inspection (ISI) Program and is examined in accordance with ASME Section XI. The applicable edition and addenda for Columbia is the 2001 Edition through the 2003 Addenda. This line is classified in Code Category D-B, Item D2.10, Pressure retaining components.... The quarterly SW system operability testing demonstrates that adequate flow is being produced and that the line in not impaired during operation.

Also in its LAR, the licensee stated that in September 2007, it performed a long range guided wave examination and it also performed B-Scan ultrasonic testing (UT) to measure the pipe wall thickness of the siphon line. The licensee found minor corrosion in the pipe. In September 2008, the licensee also performed UT to measure wall thickness of an elbow in the buried

portion of the pipe. The licensee stated that the minimum pipe wall thickness of the elbow is greater than the nominal wall thickness. Regarding the siphon line, the licensee also stated that based on the fact that the siphon line is included in the CGS ISI program and the recently performed inspections have revealed no issues with the integrity of the piping, no additional testing of the siphon line is proposed.

3.4 NRC Staff Evaluation

3.4.1 UHS Water Level Considerations

In its letter dated August 22, 2014, the licensee stated, in part:

> The existing language in TS SR 3.7.1.1 requires verification that the level in each spray pond is greater than or equal to 432 feet 9 inches (432.75 feet) mean sea level. Due to the design of the spray ponds and SW system, it is difficult to meet this requirement in each pond when only one SW pump is in operation.
>
> Normal level in the spray ponds is maintained less than 433.5 feet. The high level alarm is at 434.25 feet. The pond overflow level alarm is at 434.5 feet....
>
> With one SW system pump in operation, the level in the associated pond [pump suction] drops approximately 9-11 inches (0.75 – 0.92 feet) while the level in the other pond [water return] rises by an equivalent amount for a total differential level of 18-22 inches (1.50-1.83 feet). In order to meet the minimum [TS] level of 432.75 feet when one SW system pump is in operation, the normal level in the ponds would need to be maintained slightly above 433.5 feet. Once the SW [system] pump starts, the level in the pond providing the pump suction will drop to approximately 432.75 feet. However, the level in the other pond will rise by an equivalent amount - potentially exceeding the overflow resulting in a loss of inventory out of the ponds. A loss of inventory may affect the ability of the UHS to meet the design and licensing requirement to provide 30 days of cooling.

Based on the NRC staff's calculation, at the beginning of any SW system pump testing, SW system automatic start, or EDG testing, involving one Division 1 or Division 2 pump, in order to prevent UHS overflow and loss of UHS water inventory, the initial water level in a pond cannot be any higher than 433 feet 6 inches (433.5 feet) mean sea level. At 433 feet 7 inches (433.58 feet) mean sea level, the opposite basin will rise to a level of +11 inches (0.92 feet) and is likely to start to overflow at 434.5 feet mean sea level.

The NRC staff issued request for additional information (RAI) by letter date November 25, 2014 (ADAMS Accession No. ML14329B271) requesting the licensee to describe the amount of water volume (in gallons) that can be lost in the overflow during testing or automatic SW system pump starts. In addition, the NRC staff requested that the licensee describe the controls in place (for example, operating procedures or alarms) to maintain the UHS TS water level requirements (in standby) knowing that an overflow condition is likely if the initial UHS water level is above 433.5 feet.

In its December 23, 2014, RAI response, the licensee stated that the spray ponds are equipped with redundant level sensors which are alarmed and indicated in the control room. The licensee also stated, in part:

> If all three SW system pumps are running, a single failure of either a Division 1 or 2 SW [system] pump results in a differential level of 18 to 22 inches [1.5 – 1.83 feet] between the two spray ponds due to the characteristics of the siphon line. System operating procedures limit average spray pond level to a range of 433.0 to 433.5 feet. Thus, minimum average pond level is 433.0 feet, which is above the TS minimum pond level (432.75 feet). As long as the average level is greater than the TS minimum value, the ponds have adequate water inventory to meet thermal performance and cooling inventory requirements for 30 days. Maximum average pond level is maintained less than 433.5 feet. Even at a starting level of 433.5 feet, the level in the pond with the non-operating pump will remain less than 434.5 feet and no water will overflow the pond. Again, since the average level in the two ponds is greater than 432.75 feet, there is adequate water inventory. Water levels greater than 432.75 feet provide additional margin not credited in the analysis.

The NRC staff reviewed the licensee's response to the RAIs and determined that no water volume would be lost to the opposite UHS pond overflow during testing or single failure events of automatic SW pump starts as long as the UHS levels are initially controlled within the range of 433.0 to 433.5 feet. System operating procedures limit average spray pond level to a range of 433.0 to 433.5 feet. As such, there would be no impact on the ability to meet the 30-day cooling requirement due to pond overflow.

3.4.2 Piping Code Requirements and Piping Attachments

During the NRC staff's review of FSAR Figure 9.2-7, a detailed drawing of the spray ponds, the NRC staff noted that Section 3-3 of Figure 9.2-7 shows a water-tight boot attached to the siphon line which is part of the UHS basin. The NRC staff noted that the UHS boot could be a potential leak path for the UHS volume. In its letter dated November 25, 2014, the NRC staff requested that the licensee to describe the purpose of the water-tight boot, the consequences of its failure, and the results of recent inspections performed on the water-tight boots (BOP-RAI-4-1, BOP-RAI-4-2, and BOP-RAI-4-3).

In its RAI response dated December 23, 2014, the licensee stated that the purpose of a water-tight boot is to provide a water-tight seal for the UHS siphon line. The licensee also stated that the siphon line sleeve has two water-tight boots in series for each of the two wall penetrations, one water-tight boot on the inside of the wall and the other on the outside of the wall, and therefore, single failure of any one water-tight boot does not defeat the barrier function.

The licensee further stated that a direct inspection of the water-tight boots is not required, since, in order to prevent the spray ponds from meeting their 30-day mission time, the leakage rate from the water-tight boots would be such that the leakage would be detectable by other means. Specifically, the flow rate would cause a sink hole and flooded area downstream of the boot. Even a small leak would cause the fines in the surrounding soil to be carried away from the

larger particles (stones/rocks, etc.) which would result in voids in that area of the backfill and then 'settling' of the backfill to compensate for these voids. The licensee stated that sink holes/soil displacement is a parameter monitored as part of Energy Northwest's Water Control Structures Inspection Program, which is performed as part of the Maintenance Rule Structural Inspection.

Regarding spray pond inspection activities, the licensee stated in its December 23, 2014, RAI response that the last inspection of the spray ponds under the Water Control Structures Inspection Program was conducted in October 2013 and that no settling in the backfill adjacent to the spray ponds was observed.

The NRC staff reviewed the licensee's responses to the RAIs and concludes that adequate water-tight boot design exists which includes postulated single failure of a boot. In addition, the NRC staff concludes that there are adequate inspections in place for detection of a potential loss of UHS inventory through a failure water-tight boot.

3.5 Evaluation of TS Changes

The NRC staff compared the proposed changes to the existing SRs, as well as the regulatory requirements of 10 CFR 50.36. The proposed change would allow the licensee to declare the SR met in some instances when the level of one UHS spray pond is below the current level requirement, as long as the average of the levels of both ponds is above the current requirement. The NRC staff determined the proposed change is a less restrictive change compared to current requirements. The licensee provided justification for the change in its LAR, as supplemented, and that information can be found in Section 3.2 of this SE. The NRC staff determined that the proposed SR meets the regulatory requirements of 10 CFR 50.36 and 10 CFR 50, Appendix A, because it continues to provide assurance that the necessary quality of systems and components will be maintained and that the LCOs will be met. Therefore, the NRC staff concludes that the proposed change to TS SR 3.7.1.1 is acceptable.

3.6 Summary

Based on the above evaluations, the NRC staff concludes that no water volume would be lost to the opposite UHS pond overflow during testing or single failure events of automatic SW pump starts as long as the UHS levels are initially controlled within the range of 433.0 to 433.5 feet. In addition, system operating procedures limit average spray pond level to a range of 433.0 to 433.5 feet. As such, there would be no impact on the ability to meet the 30-day cooling requirement due to pond overflow.

The NRC staff also concludes that adequate water-tight boot design exists, which includes postulated single failure of a boot. In addition, the NRC staff concludes that adequate inspections are in place to determine a potential loss of UHS inventory through failure water of a water-tight boot.

The NRC staff concludes that since the revised SR continues to meet the requirements of 10 CFR 50.36 and 10 CFR 50, Appendix A, the revised TS SR 3.7.1.1 is acceptable.

3.7 TS Bases Changes

The regulations at 10 CFR 50.36(a)(1) state, in part, that "a summary statement of the bases or reasons for such specifications ... shall also be included in the application, but shall not become part of the technical specifications." The licensee may make changes to the TS Bases without prior NRC staff review and approval in accordance with the TS Bases Control Program (CGS TS 5.5.10). Accordingly, along with the proposed TS change, the licensee also submitted corresponding TS Bases changes. The proposed TS Bases are provided for information only and are not reviewed by the NRC staff. The NRC staff determined that the licensee's submittal is consistent with the Commission's Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors dated July 22, 1993 (58 FR 39132).

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Washington State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding published in the *Federal Register* on September 5, 2014 (79 FR 53085). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that 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.

Principal Contributors: L. Wheeler, NRR/DSS/SBPB
M. Hamm, NRR/DSS/STSB

Date: April 15, 2015

April 15, 2015

Mr. Mark E. Reddemann
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION - ISSUANCE OF AMENDMENT RE: REVISION TO TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENT FOR THE ULTIMATE HEAT SINK (TAC NO. MF4682)

Dear Mr. Reddemann:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 233 to Renewed Facility Operating License No. NPF-21 for the Columbia Generating Station. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated August 22, 2014, as supplemented by letter dated December 23, 2014.

The amendment changes TS 3.7.1, "Standby Service Water (SW) System and Ultimate Heal Sink (UHS)," specifically TS Surveillance Requirement 3.7.1.1 related to the UHS spray pond water level. The proposed change clarifies that the spray pond water level is the average of the water level in both ponds.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,
/Andrea George for RA/

Balwant K. Singal, Senior Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:
1. Amendment No. 233 to NPF-21
2. Safety Evaluation

cc w/encls: Distribution via Listserv

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OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DSS/STSB/BC
NAME	AGeorge	BSingal	JBurkhardt**	RElliott (MChernoff for)
DATE	4/2/15	4/2/15	4/2/15	4/3/15
OFFICE	NRR/DSS/SBPB/BC	OGC - NLO	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM
NAME	GCasto*	AGhosh	MMarkley	BSingal (AGeorge for)
DATE	1/23/15	4/8/15	4/15/15	4/15/15

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