NRR-PMDAPEm Resource

From: George, Andrea
Sent: Tuesday, November 25, 2014 11:50 AM
To: 'Williams, Lisa L.'
Subject: Request for Additional Information - Columbia License Amendment Request to Revise UHS Level TS (MF4682)
Attachments: MF4682 RAIs.pdf

Ms. Williams,

By letter dated August 22, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14251A032), Energy Northwest, the licensee, requested a change to the Technical Specifications (TSs) for Columbia Generating Station. The amendment proposes to change TS 3.7.1, "Standby Service Water (SSW) and Ultimate Heat Sink (UHS)," specifically as it relates to Surveillance Requirement (SR) 3.7.1.1, regarding UHS spray pond water level.

The staff is reviewing the subject license amendment request and has determined that further information is required in order to complete the staff's evaluation. The requests for additional information are attached to this email. These RAIs were sent in draft form to you on November 13, 2014, and a clarification call was held on November 24, 2014. During the call, it was decided that a response to these RAIs would be provided by December 26, 2014.

Thank you,

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Hearing Identifier: NRR_PMDA
Email Number: 1721

Mail Envelope Properties (Andrea.George@nrc.gov20141125115000)

Subject: Request for Additional Information - Columbia License Amendment Request to Revise UHS Level TS (MF4682)
Sent Date: 11/25/2014 11:50:14 AM
Received Date: 11/25/2014 11:50:00 AM
From: George, Andrea

Created By: Andrea.George@nrc.gov

Recipients:
"'Williams, Lisa L.'" <llwilliams@energy-northwest.com>
Tracking Status: None

Post Office:

Files	**Size**	**Date & Time**
MESSAGE	1161	11/25/2014 11:50:00 AM
MF4682 RAIs.pdf	85070	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

REQUESTS FOR ADDITIONAL INFORMATION

REVISION TO ULTIMATE HEAT SINK LEVEL SURVEILLANCE REQUIREMENT

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

By application dated August 22, 2014, to the U.S. Nuclear Regulatory Commission (NRC) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14237A729), Energy Northwest, the licensee, submitted a license amendment request to revise Columbia Generating Station Technical Specification (TS) Surveillance Requirement (SRs) 3.7.1.1 for the ultimate heat sink (UHS) to clarify that spray pond level is the average of the level in both ponds.

Based on its review, the NRC staff requests the following additional information to complete its safety evaluation of the application.

Background:

Energy Northwest stated in the amendment that the UHS is described in Final Safety Analysis Report (FSAR) Section 9.2.5, "Ultimate Heat Sink," and consists of two concrete spray ponds. The design basis function of the UHS is to provide a source of water for the Service Water (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.

BOP-RAI-1-1

Describe the high pressure core spray (HPCS) SW pump and any interactions with the UHS TS minimum water level or basin overflow when the HPCS SW pump is operating during testing.

BOP-RAI-1-2

Describe, given an automatic start of all three SW divisional pumps (and assuming a single failure), any interactions with the UHS TS minimum water level or basin overflow.

BOP-RAI-1-3

During operational testing of the HPCS SW pump, are there are conditions that would cause an overflow condition with the possibility of substantial loss of UHS water volume? If so, please describe.

Background:

In its LAR, Energy Northwest listed applicable NRC regulatory requirements related to the SW and UHS, including the 10 CFR 50 Appendix A, General Design Criteria (GDC), as follows: GDC 44, GDC 45, GDC 46.

BOP-RAI-2-1

Discuss why GDC 2 and 4 are not addressed in the application, or, provide information to address the regulatory requirements in GDC 2 and 4.

BOP-RAI-2-2

GDC 44 states that 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.

Please address the loss of the 30" diameter siphon line as it relates to GDC 44 and single failure with the potential loss of UHS water level.

Background:

The licensee states in its LAR that 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 inched MSL. Additionally, the licensee states that 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 at less than 433.5 feet. The high level alarm is at 434.25 feet. The pond overflow is at 434.5 feet.

With one SW pump in operation, the level in the associated pond drops approximately 9-11 inches while the level in the other pond rises by an equivalent amount for a total differential level of 18-22 inches. In order to meet the minimum TS level of 432.75 feet when one SW pumps is in operation, the normal level in the ponds would need to be maintained slightly above 433.5 feet.

Based on the staff's calculation, at the beginning of any SW pump testing, SW automatic start, or EDG testing which involves one Division 1 or Division 2 pump, in order to prevent UHS overflow and loss of UHS water inventory, the initial water level cannot be any higher than 433 feet 6 inches MSL. At 433 feet 7 inches MSL, it appears the opposite basin will rise to a level of +11 inches and start to overflow at 434 feet 6 inches MSL.

BOP-RAI-3-1

During testing as stated above, what water volume (in gallons) can be lost in the overflow? Provide any strip-chart data that may be available.

BOP-RAI-3-2

During automatic SW pump starts, what water volume (in gallons) can be lost in the overflow? Provide any strip-chart data that may be available.

BOP-RAI-3-3

Based on the response to questions 1 and 2, describe any TS Limiting Condition for Operations (LCOs) that are to be entered during any UHS basin overflow condition and describe any past Licensee Event Reports (LERs) that addresses degraded UHS basin level during pump starts.

BOP-RAI-3-4

Describe the controls that are 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 feet 6 inches and normal UHS water level is at 433 feet 6 inches.

BACKGROUND

The licensee states in the LAR that the siphon line is American Society of Mechanical Engineers (ASME) Section III, Code Class 3 piping. The licensee stated that the buried portion of the siphon line is included in Columbia's Inservice Inspection (ISI) Program, is examined in accordance with ASME Section XI, and is classified in Code Category D-B, Item D2.10, pressure retaining components. The licensee stated that quarterly SW operability testing demonstrates that adequate flow is being produced and that the line in not impaired during operation.

In September 2007, the licensee stated that it performed a long range guided wave examination and it also performed B-Scan Ultrasonic Test (UT) to measure the pipe wall thickness of the siphon line. The licensee found minor corrosion in the pipe. In September 2008, the licensee performed UT to measure wall thickness of an elbow in the buried portion of the pipe. The minimum pipe wall thickness of the elbow is greater than the nominal wall thickness.

The Columbia FSAR, Figure 9.2-7, ”Composite Piping Plan, Section and Details, Spray Ponds,” shows (in Section 3-3) a watertight boot attached to the siphon line which is part of the UHS basin.

BOP-RAI-4-1

Describe the purpose of the siphon line water tight boot and the consequences of its failure.

BOP-RAI-4-2

Describe if the siphon line watertight boot needs to be periodically inspected as part of the inspection plan related to a possible UHS water inventor loss.

BOP-RAI-4-3

Depending on the response to RAIs 1 and 2 of this section, describe the last inspections performed on the siphon line watertight boots.

BOP-RAI-4-4

Describe if there are other water tight boots within the UHS pond which are located below the UHS water line and if so, the consequences of the boot failure(s).