From:	Kim, James
Sent:	Thursday, January 6, 2022 3:07 PM
To:	Thomas, Brian J.
Cc:	Wiwel, Michael; Danna, James
Subject:	Final RAI for Hope Creek LAR to Revise TS Limits for Ultimate Heat Sink (EPID L-2021-LLA-0083)
Attachments:	Hope Creek UHS RAI for EDG Immediate Cooling_.docx

SUBJECT: Hope Creek – Final RAI Re: Revise TS Limits for Ultimate Heat Sink (EPID L-2021-

LLA-0083)

Mr. Thomas,

By application dated May 7, 2021 (Agencywide Documents Access and Management System Accession No. ML21127A085), PSEG Nuclear LLC, the licensee, submitted a license request to revise Hope Creek Generating Station (HCGS) Technical Specification (TS) 3/4.7.1.3, Ultimate Heat Sink (UHS), to modify the Limiting Condition for Operation (LCO) river temperature, increase the temperature in the action statement for opening the emergency discharge valves, add a new 72 hour allowed outage time for one Station Service Water System (SSWS) pump or one Safety Auxiliary Cooling System (SACS) pump or one Emergency Diesel Generator (EDG) inoperable with UHS temperature above 88°F, and revise the UHS average temperature limit and maximum temperature.

The NRC staff reviewed the proposed change and determined that additional information is required to complete the review and PSEG agreed to respond to this request within 30 days. A publicly available version of this final RAI (attached) will be placed in the NRC's ADAMS.

James Kim
Project Manager –Hope Creek
NRR/DORL/LPL1
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Hearing Identifier: NRR_DRMA
Email Number: 1475

Mail Envelope Properties (DM6PR09MB4711654668DBEC12AA9B3743E44C9)

Subject: Final RAI for Hope Creek LAR to Revise TS Limits for Ultimate Heat Sink (EPID L-2021-LLA-0083)
Sent Date: 1/6/2022 3:06:43 PM
Received Date: 1/6/2022 3:06:00 PM
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Post Office: DM6PR09MB4711.namprd09.prod.outlook.com

Files	**Size**	**Date & Time**	
MESSAGE	1214	1/6/2022 3:06:00 PM	
Hope Creek UHS RAI for EDG Immediate Cooling_.docx			22270

Options
Priority: Normal
Return Notification: No
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Sensitivity: Normal
Expiration Date:

Regulatory Requirement

10 CFR 50.36(c)(2) states that limiting conditions for operation (LCOs) are the lowest functional capability or performance levels of equipment required for safe operation of the facility, and when an LCO is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TS until the LCO can be met.

Background

The licensee already adopted the UHS temperature averaging methodology outlined in TSTF-330 Rev. 3 as documented in the Safety Evaluation dated August 1, 2006 (ADAMS Accession No. ML062130012). That amendment request approved the UHS temperature averaged over the previous 24-hour period to be less than or equal to 89°F and the maximum UHS temperature of 91.4°F.

The current amendment request proposed new temperature limits of UHS temperature averaged over the previous 24-hour period to be less than or equal to 91.0°F and the maximum UHS temperature of 93.0°F.

TSTF-330 lists 4 Conditions that a licensee must satisfy in the amendment request. Condition (a) states that licensees wishing to adopt the change must either confirm that the following condition is satisfied (or provide justification for any exceptions):

> The UHS is not relied upon for immediate heat removal (such as to prevent containment overpressurization) but is relied upon for longer-term cooling such that the temperature averaging approach continues to satisfy the accident analysis assumptions for heat removal over time.

The licensee's response to Condition (a) states in part:

> The EDGs rely on the UHS (via SACS) to immediately remove heat from the engine cylinder jackets, turbocharger, combustion air, generator outboard bearings, speed governor oil, and the lubricating oil. As discussed above, the SACS heat exchanger outlet temperature of 100ºF is maintained for continuous UHS temperatures up to 91.3ºF.

The licensee's response does not discuss the continuous immediate cooling of the various EDG components by SACS up to the proposed UHS temperature of 93.0°. A justification is required by TSTF-330 Rev. 3 to address the effects of a 91.4ºF to 93.0ºF UHS temperature increase upon the steady state operating temperatures of the jacket water, lube oil, and intercooler respectively to ensure that the elevated temperature conditions remain within design basis limits.

Request

The NRC staff requests that the licensee provide adequate justification regarding the immediate cooling requirements of the EDGs in order to ensure the requirements of 10 CFR 50.36(c)(2) are met.