

**From:** Dennis Galvin  
**Sent:** Thursday, September 21, 2023 12:42 PM  
**To:** Wendy Brost (webrost@stpegs.com)  
**Cc:** Tim Hammons (tjhammons@stpegs.com)  
**Subject:** South Texas Project – Request for Additional Information – License Amendment Request to Revise the Alternate Source Term Dose Calculation (L-2023-LLA-0047)  
**Attachments:** STP LAR to Revise Alternative Source Term Dose Calc - RAI Issued 2023-09-21.pdf

Dear Ms. Brost,

By letter dated March 30, 2023 (ADAMS Accession No. ML23089A204), the STP Nuclear Operating Company submitted a license amendment request for South Texas Project Units 1 and 2 to the U.S. Nuclear Regulatory Commission (NRC). The proposed amendments would authorize revision of the alternate source term dose calculation for the main steam line break (MSLB) and the locked rotor accident (LRA). The reanalysis uses the asymmetric natural circulation cooldown thermohydraulic analyses, various radiation transport assumptions, and the current licensing basis source term and meteorological data to evaluate the dose effects of an extended cooldown on the existing accident analyses.

The NRC staff has determined that additional information is needed to complete its review. The requests for additional information (RAIs) were transmitted to the licensee in draft form on September 12, 2023. A clarification call was held with your staff on September 20, 2023, and the licensee agreed to provide responses to the RAIs by October 23, 2023. The NRC staff agrees with this date.

Respectfully,

Dennis Galvin  
Project Manager  
U.S Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Division of Operating Reactor Licensing  
Licensing Project Branch 4  
301-415-6256

Docket Nos. 50-498, 50-499

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**Recipients:**  
"Tim Hammons (tjhammons@stpegs.com)" <tjhammons@stpegs.com>  
Tracking Status: None  
"Wendy Brost (webrost@stpegs.com)" <webrost@stpegs.com>  
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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST

STP NUCLEAR OPERATING COMPANY

SOUTH TEXAS PROJECT, UNITS 1 AND 2

DOCKET NOS. 50-498 AND 50-499

By letter dated March 30, 2023 (ADAMS Accession No. ML23089A204), the STP Nuclear Operating Company (STPNOC, the licensee) submitted a license amendment request (LAR) for South Texas Project (STP), Units 1 and 2 to the U.S. Nuclear Regulatory Commission (NRC). The proposed amendments would authorize revision of the alternate source term dose calculation for the main steam line break (MSLB) and the locked rotor accident (LRA). The reanalysis uses the asymmetric natural circulation cooldown thermohydraulic analyses, various radiation transport assumptions, and the current licensing basis source term and meteorological data to evaluate the dose effects of an extended cooldown on the existing accident analyses.

Based on a review of the proposed MSLB and LRA asymmetric natural circulation cooldown (ANCC) analysis in Sections 3.2.1 and 3.3.1 of the LAR enclosure, respectively, the NRC staff has identified the following requests for additional information (RAIs).

**SNSB-RAI 1**

Regulatory Basis

10 CFR 50, Appendix A, GDC 10, as it relates to the reactor coolant system (RCS) being designed with appropriate margin to ensure that the specified acceptable fuel design limits are not exceeded during normal operations including anticipated operational occurrences.

RAI

Section 2.3 of the LAR enclosure states:

The MSLB and LRA events are impacted by this change because these events and the assumptions imposed by the analysis require cooling down an intact RCS without all four steam generators during a coincident LOOP [loss-of-offsite power]. Other accidents such as LOCA [loss-of-coolant accident], Steam Generator Tube Rupture, and Rod Ejection all involve some type of break in the RCS, their cooldown timeline is not impacted and they are not re-analyzed.

- (a) The LAR indicates that if one or more steam generators were not available for RCS cooldown, an ANCC issue that resulted in a stagnant loop conditions would have an impact on both the thermal-hydraulic analysis and the dose analysis. Sections 3.2.1 and 3.3.1 present assumptions to be used in updated MSLB and LRA ANCC RETRAN analyses, respectively, but the LAR does not explain why these assumptions are suitably conservative or what controls will be put in place to implement these assumptions. For example, a cooldown rate of 15°F/hr is assumed to prevent stagnation. However, the LAR does not explain why a higher or lower cool down rate or permitting stagnation would not be more

conservative, or if controls are in place such that other assumptions do not need to be considered. Explain how the proposed assumptions are suitably conservative or are otherwise appropriate.

- (b) LAR Section 2.3 indicates that the non-LOCA events described in Updated Final Safety Analysis Report Sections 15.1 through 15.6, other than MSLB and LRA, are not impacted by the ANCC condition resulting from inactive steam generator(s) caused by the assumed limiting single failure in their analysis without providing a justification. Provide justifications that the other events are not impacted by the ANCC condition.

## **SNSB-RAI 2**

### Regulatory Basis:

10 CFR 50.67, Accident source term, as it relates to the implementation of an alternate source term in current operating nuclear power plants.

### RAI

Sections 3.2.1 and 3.3.1 of the LAR enclosure provide assumptions used in the proposed MSLB and LRA ANCC analyses, respectively. The assumptions are further discussed in LAR Attachment 4, "Dose Analysis Calculation and Code Output Files," dose analysis calculation files NC07123 R0, "Locked Rotor Accident Steam Release for Dose Analysis," and NC07143 R2, "MSLB Steam Release for Dose Analysis." The dose calculation files each indicate in Section 4.2, "Calculation Method," that previous analyses (i.e., the analyses of record) were performed by hand calculations while the proposed analyses are performed using RETRAN; however, the LAR does not provide a comparison of the assumptions between the proposed analyses and the corresponding analyses of record. Identify if there are any differences in assumptions and the analysis inputs between the proposed analyses and the corresponding analyses of record. For the differences (if any), provide justification in case the conservatism is reduced.