



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

January 30, 2012

Mr. D. W. Rencurrel  
Sr. Vice President, Technical  
Support and Oversight  
STP Nuclear Operating Company  
P.O. Box 289  
Wadsworth, TX 77483

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE SOUTH TEXAS PROJECT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION – AGING MANAGEMENT, SET 11 (TAC NOS. ME4936 AND ME4937)

Dear Mr. Rencurrel:

By letter dated October 25, 2010, STP Nuclear Operating Company (STPNOC or the applicant) submitted an application pursuant to Title 10 of the *Code of Federal Regulations*, Part 54, to renew operating licenses NPF-76 and NPF-80 for South Texas Project, Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

These requests for additional information were discussed with Arden Aldridge, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-3873 or by e-mail at [john.daily@nrc.gov](mailto:john.daily@nrc.gov).

Sincerely,

A handwritten signature in black ink that reads "John W. Daily".

John W. Daily, Senior Project Manager  
Projects Branch 1  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosure:  
As stated

cc w/encl: Listserv

SOUTH TEXAS PROJECT, UNITS 1 AND 2,  
REQUEST FOR ADDITIONAL INFORMATION  
AGING MANAGEMENT, SET 11  
(TAC NOS. ME4936 AND ME4937)

**Metal Fatigue - South Texas (060)**  
**RAI 4.3-1a (follow-up)**

Background

In response to RAI 4.3-1 dated November 21, 2011, the applicant clarified that the charging flow step decrease and return to normal transient assumes 24,000 occurrences for the design number of cycles. In addition, the Fatigue Monitoring Program does not specifically count this event because the number of assumed cycles (24,000) is far greater than the number expected over 60 years.

Issue

It is not clear to the staff what the expected number of cycles is over 60 years for the charging flow step decrease and return to normal transient.

If this transient was used as an input into a fatigue time-limited aging analysis (TLAA), it is not clear to the staff why this transient does not need to be monitored by the Metal Fatigue of Reactor Coolant Pressure Boundary Program to ensure the analysis remains valid.

Request

- Clarify the baseline number of events up to the end of 2008 and the 60-year projected cycles for the charging flow step decrease and return to normal transient. Based on the 40-year and 60-year cycles, justify how they support the statement in the response, "the assumed cycles (24,000) are far greater than the number expected over 60 years."
- In lieu of a justification, include the letdown flow 50 percent decrease and return transient as part of the Metal Fatigue of Reactor Coolant Pressure Boundary Program.

**RAI 4.3-2a (follow-up)**

Background

In response to RAI 4.3-2 dated November 21, 2011, the applicant stated the letdown flow 50 percent decrease and return transient was included in normal and alternate charging line fatigue analyses and is not a normal operating event with the plant at power. The applicant clarified that this transient was included for conservatism and assumed to occur approximately once a week for 40 years. The number experienced will not approach the limit given the conservatism of this assumption; therefore, this transient is not counted in the Metal Fatigue of Reactor Coolant Pressure Boundary Program.

The staff noted that, as part of the response, the applicant provided a table of the transients used in the fatigue analyses to determine the break locations, in which 1200 cycles of the letdown flow 50 percent decrease and return transient were included in the normal and alternate charging line fatigue analyses.

ENCLOSURE

Issue

It is not clear to the staff what the expected number of cycles is over 60 years for the letdown flow 50 percent decrease and return transient.

If this transient was used as an input into a fatigue TLAA, it is not clear to the staff why this transient does not need to be monitored by the Metal Fatigue of Reactor Coolant Pressure Boundary Program to ensure the analysis remains valid.

Request

- Clarify the baseline number of events up to the end of 2008 and the 60-year projected cycles for the letdown flow 50 percent decrease and return transient. Based on the 40-year and 60-year cycles, justify how it supports the statement in the response that, "the number experienced will not approach the limit given the conservatism of this assumption; therefore, this transient is not counted in the Metal Fatigue of Reactor Coolant Pressure Boundary Program."
- In lieu of a justification, include the letdown flow 50 percent decrease and return transient as part of the Metal Fatigue of Reactor Coolant Pressure Boundary Program.

**RAI 4.3-5a (follow-up)**

Background

In response to RAI 4.3-5 dated November 21, 2011, the applicant stated for the Unit 1 Class 3 Feedwater Control Valves, the cycle limiting value remains at 10,300, as described in LRA Section 4.3.1.12.

The staff noted that LRA Section 4.3.2.12 states the following (emphasis added):

To obtain acceptable fatigue limits the number of loadings and unloadings between 15 and 100 percent power had to be reduced from 13,200 to 10,300, of loading or unloading for Unit 2. **This limit does not apply to design of the Unit 1 feedwater control valves.**

Issue

It appears that the applicant incorrectly referenced LRA Section 4.3.1.12 in its response, as Section 4.3.1.12 does not exist in the LRA. In addition, the applicant's statements in response to RAI 4.3-5 are not consistent with the information provided in LRA Section 4.3.2.12

Request

- Clarify the reference to LRA Section 4.3.1.12 that was cited in response to RAI 4.3-5.
- Clarify the discrepancy between the response to RAI 4.3-5 and the information provided in LRA Section 4.3.2.12 for the limit of the number of loadings and unloadings between 15 and 100 percent power for Unit 1. Confirm that the 10,300 cycle limit for loadings and unloadings between 15 and 100 percent power is applicable to the Unit 1 feedwater control valves. Provide the necessary revisions to the response to RAI 4.3-5 and the LRA.

### **RAI 4.3-8a (follow-up)**

#### Background

In response to RAI 4.3-5 dated November 21, 2011, the applicant stated that “the stress pairing that contributes the most to fatigue was analyzed with 13,177 events when only 10 events were required.” In addition, the response states that “the Metal Fatigue of Reactor Coolant Pressure Boundary Program will maintain this margin for the original analysis during the period of extended operation by ensuring that the specified 10 events are not exceeded.”

#### Issue

It is not clear to the staff what “event” was analyzed for 13,177 cycles and what document (e.g. design specification, Code or Standard) required only 10 of these events to be analyzed. It is also not clear which transient is being monitored by the Metal Fatigue of Reactor Coolant Pressure Boundary Program for the “specified 10 events.”

The staff reviewed LRA Table 4.3-2 and it is not clear which transient is being monitored in the Metal Fatigue of Reactor Coolant Pressure Boundary Program during the period of extended operation to ensure “that the specified 10 events are not exceeded.”

#### Request

- Clarify the “event” that is being referenced in the response to RAI 4.3-8 that was analyzed for 13,177 cycles.
- Clarify the requirement that specified that only 10 of these “events” had to be analyzed. Reference any applicable design specification, Code or Standard that provides this “requirement.”
- Clarify the transient that is being managed by the Metal Fatigue of Reactor Coolant Pressure Boundary Program. Confirm that the “program limiting value” for this transient is 10 cycles and is incorporated into the implementing procedures for this program.

### **RAI for elastomers exposed to lube oil** **STP RAI 3.3.2.3.28-1 (079)**

#### Background

In LRA Table 3.3.2-28, the applicant stated that for elastomer flexible hoses exposed to a lubricating oil internal environment there is no aging effect and no AMP is proposed. The AMR line items cite generic note G. The GALL Report does not address elastomeric materials exposed to lubricating oil.

#### Issue

Given that certain elastomers such as natural rubbers and ethylene-propylene-diene are not resistant to lubricating oil, the staff needs to know the material of construction of the flexible hoses to determine if there are no aging effects.

Request

State the materials of construction of the flexible hoses exposed to lubricating oil as listed in LRA Table 3.3.2-28. If the flexible hoses are constructed of a material that is not resistant to lubricating oil, propose an aging management program or state the basis for why no aging management program is necessary.

January 30, 2012

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Sincerely,

/RA/

John W. Daily, Senior Project Manager  
Projects Branch 1  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosure:  
As stated

cc w/encl: Listserv

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**ADAMS Accession No.:** ML12030A164

\*concurrence via e-mail

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<b>DATE</b>	01/26/12	01/30/12	01/30/12	01/30/12

**OFFICIAL RECORD COPY**

Letter to D. W. Rencurrel from John W. Daily dated January 30, 2012

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