



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

October 3, 2012

Mr. D. W. Rencurrel  
Chief Nuclear Officer  
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 – RWST CRACKING, SET 24 (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 by December 1, 2012. If you have any questions, please contact me by telephone 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, Sr.".

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

Docket Nos. 50-498 and 50-499

Enclosure:  
Requests for additional information

cc w/encl: Listserv

SOUTH TEXAS PROJECT, UNITS 1 AND 2  
REQUEST FOR ADDITIONAL INFORMATION  
RWST CRACKING, SET 24  
(TAC NOS. ME4936 AND ME4937)

**RAI Set 24, RWST Cracking (076)**

**RAI B2.1.16-3**

Background:

License renewal application (LRA) Table 3.2.2-4, Safety Injection System, contains an aging management review (AMR) item for the stainless steel refueling water storage tanks (RWSTs), which are exposed internally to treated borated water and are managed for loss of material with the Water Chemistry and One-Time Inspection programs.

The response to request for additional information (RAI) 4.7.2-1, dated May 12, 2011, states that the Unit 1 RWST had an indication of a small active leak at the top of the shell to base plate weld. In documentation associated with the relief request for this leak (South Texas Project (STP) letters dated November 29, 1999; December 16, 1999; and later supplements), the leak was attributed to a crack in the tank base plate. Altran Technical Report No. 00115-TR-001, "Evaluation of the Refueling Water Storage Tank Bottom Plate Crack," concluded that the apparent cracking mechanism was stress corrosion cracking, based on evidence of transgranular crack propagation and branching.

The leak in the Unit 1 RWST has not been repaired. On August 23, 2001, an inspection of the interior of the tank was conducted using a video camera in the submerged environment; however, the identification of the defect was not successful. STP letter dated October 25, 2001, states that there are no plans to conduct further analysis, inspection, or repair activities with respect to detection of the defect during the service life of the Unit 1 RWST, including service life extension, except those inspections required by American Society of Mechanical Engineers (ASME) Code Section XI, or approved alternative, and those required by the STP RWST Monitoring Program. This program consists of exterior visual inspections and monitoring of tank levels in the control room.

The U.S. Nuclear Regulatory Commission (NRC or the staff) granted relief from the requirements of ASME Code Section XI by letter dated December 14, 2001. The staff concluded, "[t]he NRC staff further determined that it is not necessary for the licensee to renew the relief request that was granted on June 22, 2000, regarding the RWST leakage because the licensee has upgraded its inservice inspection program to the 1989 Edition of the Code."

Issue:

It is unclear to the staff why the RWSTs and similar tanks will not be managed for cracking, given the occurrence of this aging effect. While the staff acknowledges that the original crack detected in the Unit 1 RWST in 1999 appears to be in a low-stress area in the tank base plate, and thus may be unlikely to grow, the staff notes that there is no basis to conclude that other cracking will not occur in higher-stress areas in tank sidewalls. As a result, in the absence of inspections on the interiors of tanks capable of detecting stress corrosion cracking, the staff cannot conclude that the structural integrity of the tanks will not be challenged during the period of extended operation.

ENCLOSURE

Request:

1. Describe the inspections that will be performed on the interior surfaces of the Unit 1 and Unit 2 RWSTs during the period of extended operation to detect cracking and to specifically characterize the existing defect to ensure it has not grown into the tank sidewall. In the response, include information on the inspection technique, sampling methodology, timing, and frequency. Alternatively, state the basis for how internal cracking will be effectively managed in the absence of such inspections.
2. Given the presence of cracking in the Unit 1 RWST, describe how cracking will be managed for similar stainless steel tanks, such as the auxiliary feedwater storage tank (i.e., large-volume, near atmospheric pressure, safety-related tanks that rest on concrete and contain water), or state the basis why managing the aging effect of cracking is not necessary.

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

Docket Nos. 50-498 and 50-499

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\*concurrence via email

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OFFICIAL RECORD COPY

Letter to D. W. Rencurrel from John W. Daily dated October 3, 2012

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