



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

November 4, 2011  
NOC-AE-11002752  
10 CFR 54  
STI: 33021026  
File: G25

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2746

South Texas Project  
Units 1 and 2  
Docket Nos. STN 50-498, STN 50-499  
Response to Requests for Additional Information for the  
South Texas Project License Renewal Application (TAC Nos. ME4936 and ME4937)

- References:
1. Letter from G. T. Powell, STP Nuclear Operating Company, to NRC Document Control Desk, "License Renewal Application," dated October 25, 2010 (NOC-AE-10002607) (ML103010257)
  2. Letter from NRC to G. T. Powell, STP Nuclear Operating Company, "Requests for Additional Information for the Review of the South Texas Project, Units 1 and 2, License Renewal Application – Aging Management Review, Set 4 (TAC Nos. ME4936 and ME4937)," dated October 11, 2011 (ML11273A008)

By Reference 1, STP Nuclear Operating Company (STPNOC) submitted a License Renewal Application (LRA) for South Texas Project (STP) Units 1 and 2. By Reference 2, the NRC staff requests additional information for review of the STP LRA. STPNOC's response to the request for additional information is provided in Enclosure 1 to this letter.

There are no regulatory commitments in this letter.

Should you have any questions regarding this letter, please contact either Arden Aldridge, STP License Renewal Project Lead, at (361) 972-8243 or Ken Taplett, STP License Renewal Project regulatory point-of-contact, at (361) 972-8416.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 11/4/2011  
Date

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Enclosure: STPNOC Response to Requests for Additional Information

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## **STPNOC Response to Requests for Additional Information**

### **SOUTH TEXAS PROJECT, UNITS 1 AND 2 REQUESTS FOR ADDITIONAL INFORMATION- AGING MANAGEMENT REVIEW SET 4 (TAC NOS. ME4936 AND ME4937)**

#### **Flow-Accelerated Corrosion (018)**

##### **RAI 3.3.2.19-1**

##### **Background:**

The standard review plan for review of license renewal (SRP-LR) states that the "Evaluation Findings" subsections present conclusions which include a determination as to whether the applicant has adequately identified the aging effects and the aging management program (AMP) credited with managing the aging effects. The Generic Aging Lessons Learned (GALL) Report states the conditions and operating experience at the plant must be bound by the conditions and operating experience for which the GALL Report program was evaluated. Otherwise, it is incumbent on the applicant to augment the GALL program as appropriate to address the additional aging effects.

The Flow-Accelerated Corrosion (FAC) Program is credited for managing aging due to wall thinning of various carbon steel components in license renewal application (LRA) Tables 3.3.2-19, "Chemical and Volume Control," Table 3.3.2-22, "Liquid Waste Processing," and Table 3.4.2-2, "Auxiliary Steam System and Boilers," as well as several other tables.

##### **Issue:**

The implementing procedure for the FAC Program and the FAC Program Manual provides a list of systems that are susceptible to FAC; however, the list in these documents does not include the three systems cited above. It is not clear whether the current FAC program, as implemented at the site, includes the components cited in the LRA.

In addition, the implementing procedure for the FAC Program, states that an erosion/corrosion program has been developed, which includes wall thinning of piping systems that are not included in the FAC Program, and addresses damage caused by cavitation, flashing, and impingement. It is not clear whether there are components within the scope of license renewal, that are being managed for wall thinning by an erosion/corrosion program, which are not included in the FAC Program.

##### **Request:**

- 1) Provide information demonstrating that the current flow-accelerated corrosion program includes the associated components specified in LRA Tables 3.3.2-19, 3.3.2-22, and 3.4.2-2, or clarify which aging management program addresses wall thinning for these components.

- 2) If there are components within the scope of license renewal that are being managed for wall thinning by a separate erosion/corrosion program, provide details about this plant-specific program and clarify which components listed in the LRA are managed by this program.

**STPNOC Response:**

- 1) The implementing procedure for the FAC program and the FAC Program Manual contain a list of systems highly susceptible to FAC based on industry experience. This is not STP's list of systems managed by the FAC program. An analysis of plant systems and operating conditions was performed to initially determine the components to be included in the FAC program. Additional components have been added based on plant operating experience. The components in the program are tracked in a database maintained by the FAC engineer. The database includes components listed in LRA Tables 3.3.2-19, Chemical and Volume Control, 3.3.2-22, Liquid Waste Processing, and 3.4.2-2, Auxiliary Steam System and Boilers. Therefore, these components are managed by the FAC program.
- 2) The FAC program includes five systems which are being monitored for wall thinning due to erosion-corrosion. These systems are the Chilled Water HVAC system, the Condensate Polisher system, which was evaluated with the Condensate system, the Makeup Water Demineralizer system, the Spent Fuel Pool Cooling and Cleanup system, and the Open Loop Auxiliary Cooling system. These systems are not identified in the LRA as subject to wall thinning or being managed by the Flow-Accelerated Corrosion program. As discussed in STPNOC's response to RAI 3.4.2.6-1, the LRA was revised for these systems to include the aging effect of wall thinning to be managed by the FAC program.

All components susceptible to wall thinning except those in the Essential Cooling Water and ECW Screen Wash system are managed by the FAC program. The Essential Cooling Water and ECW Screen Wash system components susceptible to wall thinning due to erosion-corrosion are managed by Open-Cycle Cooling Water System program.

**Buried Piping and Tanks (035)**

**Background:**

In its response to request for additional information (RAI) B2.1.18-1, dated September 15, 2011, the applicant stated that there are no piping or valves, within systems included only for the criterion in Title 10 of the *Code of Federal Regulations* (10 CFR) 54.4(a)(2), that are managed by the Buried Piping and Tanks Inspection program, therefore the piping in LRA Table 3.3.2-27 that credited the Buried Piping and Tanks Inspection program for aging management was removed from the scope of license renewal.

**Issue:**

The staff reviewed the license renewal drawings associated with the low pressure nitrogen system and determined that, with the exception of one drawing, all buried piping in the low pressure nitrogen system, which is shown to be within the scope of license renewal per the criterion in 10 CFR 54.4(a)(2), is not directly connected to any other components that are within the scope of license renewal per the criteria in 10 CFR 54.4(a)(1). Therefore, the staff would not expect the buried nitrogen system piping to be within the scope of license renewal. The one

exception is shown on license renewal drawing LR-STP-NL-6T180F00078, Revision 0A at locations C7 and G8. These lines continue onto license renewal drawings LR-STP-CT-5S199F00020#1 and LR-STP-CT-5S199F00020#2, and connect to the auxiliary feedwater storage tank via the condensate transfer system. There are no (a)(2) termination notes shown on these two drawings for the condensate transfer system to indicate that a seismic anchor or equivalent exists.

NEI 95-10, Revision 6, in Appendix F, states that an alternative to specifically identifying a seismic anchor or series of equivalent anchors that support the safety-related/nonsafety-related piping interface is to include enough-of the nonsafety-related piping run to ensure these anchors are included and thereby ensure the piping and anchor intended functions are maintained. This may include a point where buried piping exits the ground. The buried portion of the piping should be included in the scope of license renewal. LR-STP-NL-6T180F00078, Revision 0A includes a note F.4.e, which is listed under the heading "(a)(2) Termination Symbols," and is defined as "Point where buried piping exits the ground -buried portion of pipe in-scope."

Because a specific reason for the removal of the buried nitrogen system piping from the scope of license renewal was not provided and there are no indications on the drawings (LR-STP-CT-5S199F00020#1 and LR-STP-CT-5S199F00020#2) that seismic anchors exist, the staff cannot determine if the buried nitrogen system piping identified on license renewal drawing LR-STP-NL-6T180F00078, Revision 0A at locations C7 and G8 should be within the scope of license renewal.

Request:

For the buried nitrogen system piping identified on license renewal drawing LR-STP-NL-6T180F00078, Revision 0A at locations C7 and G8, provide a reason why the piping is not within the scope of license renewal.

**STPNOC Response:**

The auxiliary feedwater storage tank (AFST) shown on boundary drawings LR-STP-CT-5S199F00020#1 and LR-STP-CT-5S199F00020#2 was reviewed to re-evaluate the termination points of the structural integrity attached piping. The review found that a seismic anchor exists on the attached safety-related (SR) demineralized water (DW) piping such that some of the attached non-safety related (NSR) DW piping could be removed from scope. The review also found that the construction of the AFST precludes the need for equivalent anchors on the remaining attached NSR piping. The AFST nozzles have welded piping extensions securely braced within the concrete surrounding the stainless steel tank. These pipe extensions have been analyzed as seismic equivalent anchors. The tank wall and roof are approximately 24 inches thick. Based on this review, the attached NSR piping, including the previously in-scope nitrogen (NL) piping is not included in the scope of license renewal for structural integrity attached. Boundary drawings LR-STP-CT-5S199F00020#1 and LR-STP-CT-5S199F00020#2 will be revised (Revision 1) to remove the attached NSR piping from scope. The following LR Note 1 will be added to boundary drawings LR-STP-CT-5S199F00020#1 Revision 1 and LR-STP-CT-5S199F00020#2 Revision 1 to explain why no seismic anchors are shown for attached NSR piping.

LR Note 1: The tank penetrations are above the tank minimum required water level to support the tank's license renewal intended function, and the tank penetrations are not associated with tank venting. In addition, the tank nozzles have piping extensions securely braced within the concrete that surrounds the stainless steel AFST. The attached NSR piping, including the previously in-scope nitrogen (NL) piping, is not included in-scope for structural integrity attached, based on the tank penetrations being above the tank minimum required water level and based on the nozzle pipe extensions being analyzed as seismic equivalent anchors. Since the attached NSR piping does not have a structural integrity attached function, and also since it does not have spatial interactions with safety-related components, the piping is not within the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

In addition to revising boundary drawings LR-STP-CT-5S199F00020#1 and LR-STP-CT-5S199F00020#2 as discussed above, the following four boundary drawings will be deleted since the previously in-scope NL piping is no longer in-scope for structural integrity attached:

LR-STP-NL-6T180F00078  
LR-STP-NL-6Q210F00069  
LR-STP-NL-6S180F10003  
LR-STP-NL-6S190F00009