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

September 23, 2008
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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

South Texas Project
Unit 1
Docket No. STN 50-498
1RE14 Inspection Summary Report for Steam Generator Tubing

Enclosed are four copies of the summary report describing the results of the steam generator tube inspection performed during refueling outage 1RE14. The summary report satisfies the reporting requirements of ASME Section XI, Article IWA-6230, and Section 6.9.1.7 of the South Texas Project Technical Specifications.

This inspection was not required by STP Technical Specification Section 6.8.3.o for maintaining steam generator tube integrity and therefore is not for surveillance credit. This report has been prepared to continue appropriate communication with the Nuclear Regulatory Commission regarding all examinations performed during 1RE14 and their results.

There are no commitments in this letter.

If there are any questions regarding this report, please contact either Mr. P. L. Walker at (361) 972-8392 or me at (361) 972-7431.

Brandon Jenewein
Manager,
Testing/Programs

PLW

Enclosure: 1RE14 Inspection Summary Report for Steam Generator Tubing of the South Texas Project Electric Generating Station Unit 1

STI: 32357583

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NRR

cc: (one copy of attachment)
(paper copy)

Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
612 East Lamar Blvd., Suite 400
Arlington, Texas 76011-4125

Mohan C. Thadani
Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North (MS 7 D1)
11555 Rockville Pike
Rockville, MD 20852

Richard A. Ratliff
Bureau of Radiation Control
Texas Department of State Health Services
1100 West 49th Street
Austin, TX 78756-3189

C. M. Canady
City of Austin
Electric Utility Department
721 Barton Springs Road
Austin, TX 78704

Senior Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 289, Mail Code: MN116
Wadsworth, TX 77483

(electronic copy)

Kevin Howell
Catherine Callaway
Jim von Suskil
NRG South Texas LP

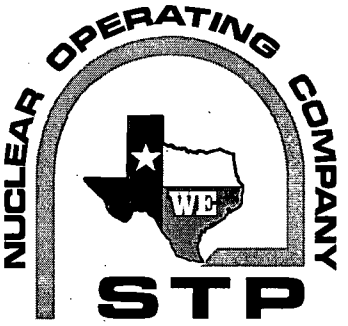
A. H. Gutterman, Esquire
Morgan, Lewis & Bockius LLP

Mohan C. Thadani
U. S. Nuclear Regulatory Commission

Ed Alarcon
J. J. Nesrsta
R. K. Temple
Kevin Pollo
City Public Service

Jon C. Wood
Cox Smith Matthews

C. Kirksey
City of Austin



1RE14 INSPECTION SUMMARY REPORT

FOR STEAM GENERATOR TUBING

of the

SOUTH TEXAS PROJECT

ELECTRIC GENERATING STATION

UNIT 1

P.O. BOX 289

WADSWORTH, TEXAS 77483

Commercial Operation: August 25, 1988

Issue Date: August 20, 2008

1RE14 INSPECTION SUMMARY REPORT

FOR STEAM GENERATOR TUBING

of the

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

UNIT 1

USNRC DOCKET NO.: STN 50-498

OPERATING LICENSE NO.: NPF-76

COMMERCIAL OPERATION DATE: August 25, 1988

Prepared By: David Stuhler 9-18-08

D. A. Stuhler Date
Test Engineer

Approved By: Lyle Spiess 9-18-08

L. D. Spiess Date
Supervisor, Test Engineering

SOUTH TEXAS PROJECT UNIT 1

1RE14 INSPECTION SUMMARY REPORT FOR STEAM GENERATOR TUBING

Introduction

This summary report describes the inspection of steam generator (SG) tubing at South Texas Project (STP) Unit 1 performed during refueling outage 1RE14 in April 2008. The 1RE14 inspection was required only for SG 1D.

Steam generator eddy current inspection and Foreign Object Search and Retrieval (FOSAR) programs were conducted in steam generator 1D during refueling outage 1RE14. The inspection plan was developed to address tube wear and subsequent structural integrity concern associated with the inventory of feedwater stabilizer wire remaining in SG 1D. The wire remnants originated from a feedwater heater cable stabilizer and migrated into the steam generator during cycle 11.

The 1RE13 assessments projected that the structural and leakage integrity for SG's 1A, 1B, and 1C will continue until the steam generator inspection planned for 1RE16; therefore, no inspections of these steam generators were performed during 1RE14.

The inservice inspection program, "2008 Outage Plan In-service Steam Generator Inspection for South Texas Project Electric Generating Station, Unit 1," identified the steam generator tube areas to be examined by eddy current (EC) testing and the procedures expected to be used during the inservice inspection. A degradation assessment was prepared prior to the outage to establish the scope of eddy current inspections and identify necessary examination techniques and areas of applicability. These techniques were reviewed to ensure their qualification.

Scope of Examinations

The primary side eddy current inspection for SG 1D was 100% +Pt inspection of all open tubes (7572) both hot and cold legs from below the top of the tubesheet (TTS) to the top of the 1st tube support plate (TSP). The +Pt inspection region was the entire tube length from TTS (-3") to 1st TSP (+6"). No bobbin coil inspections were performed during 1RE14 since +Pt is more sensitive for loose parts and loose parts wear.

Included in the +Pt inspection of the hot leg from below the TTS were fourteen locations containing overexpansions/bulges identified during pre-service inspection (PSI) of SG 1D.

The secondary side inspection of SG 1D included an extensive in-bundle inspection and FOSAR. The FOSAR was performed for every hot and cold leg column at the top of the tubesheet, the top and bottom of the flow distribution baffle (FDB), and the top of the 1st and 2nd tube support plate.

Examination Results

Primary and secondary side inspections during 1RE14 were required for SG 1D only. The inspection plan was developed to address tube wear and consequent structural integrity concern associated with the inventory of feedwater stabilizer wire remaining in SG 1D.

The primary side eddy current inspection for SG 1D was 100% +Pt inspection of both hot and cold legs from below the top of the tubesheet (TTS -3") to the top of the 1st tube support plate (TSP +6"). This inspection included 100% of the flow distribution baffle. Site-specific EC detection and sizing techniques, qualified in accordance with EPRI non-destructive examination guidelines, were used to perform the analysis. One location (R70C140 HL) exhibited low level wear (9%) at the top of the tubesheet due to the presence of a metallic gasket remnant. Neither new wear due to stabilizer wire nor any corrosion-induced degradation was observed, and no tubes were removed from service.

During the +Pt inspection, signals indicative of external foreign objects (PLP) were detected. These PLP calls were attributed to stabilizer wire remnants trapped in the nanofoil at the FDB or deposited at or near the nanofoil. No wear was detected by eddy current associated with the PLP calls. The locations of these PLP calls were compared with the detailed visual inspection records and, if necessary, additional visual inspections were performed within the capability of the secondary side equipment to evaluate the PLP calls.

For secondary-side visual inspections, a total of 220 foreign objects were identified. Nine were identified at the 2nd TSP, fourteen at the 1st TSP, three below the 1st TSP, 86 on the top of the FDB, 27 at or below the FDB (four were duplicates from the top of the FDB), and 81 at the TTS. Of the 220 objects, 180 were stabilizer wire, 14 were metal gasket remnants, 11 were unspecified metallic remnants, five were graphite gasket filler, five were sludge rock/scale, two were called weld slag, and three other very small objects that did not warrant further investigation. 150 foreign objects were retrieved during the 1RE14 efforts. The 70 objects that remain in SG 1D are generally small and evaluation revealed no tube wear is expected over the next two cycles. Visual inspection of the TTS peripheral tubes was performed to identify and remove any foreign objects transposed to the periphery in the retrieval efforts that accompanied the in-bundle inspection and any objects resident in the annulus between the tube bundle and the vessel wall. All identified loose parts in the periphery annulus were removed from SG 1D. Final comparison of the eddy current PLP calls and visual inspection results was performed to identify any location requiring additional visual inspections.

The following is a list of tubes with signals of interest:

Row-84 Column-22 has a single signal just above the top of tube sheet hot leg. Sizing was performed last inspection with +Pt which read 20% at this location. The signal characteristics remain the same as previous with no foreign objects present.

Row-84 Column-24 has a single signal just above the top of tube sheet hot leg. Sizing was performed last inspection with +Pt which read 6% at this location. The signal characteristics remain the same as previous with no foreign objects present.

Row-99 Column-35 has a single signal just above the top of tube sheet cold leg. Sizing was performed last inspection with +Pt which read 11% at this location. The signal characteristics remain the same as previous with no foreign objects present.

Row-116 Column-48 has a single signal just above the top of tube sheet cold leg. Sizing was performed last inspection with +Pt which read 11% at this location. The signal characteristics remain the same as previous with no foreign objects present.

Row-2 Column-138 has two signals just above the top of tube sheet cold leg. Sizing was performed last inspection with +Pt, with values of 8% and 9% respectively. The signal characteristics remain the same as previous with no foreign objects present.

Row-70 Column-140 has a single signal just above the top of tube sheet hot leg. Sizing was performed this inspection with +Pt which read 9% at this location. The signal characteristics are consistent with low level signals identified previously. Secondary side visual examinations confirmed a very small wear scar caused by gasket material. The foreign object was removed prior to performing eddy current.

Tube Plugging

No tubes were removed from service during 1RE14.

The total number of tubes plugged per steam generator to date in STP Unit 1 is as follows:

Steam Generator 1A	33	0.44%
Steam Generator 1B	40	0.53%
Steam Generator 1C	26	0.34%
Steam Generator 1D	13	0.17%

Condition Monitoring Results

The maximum depth of the wear indication at location R70C140 was well below the condition monitoring limits defined in the degradation assessment. Based on the condition monitoring evaluation, inspections of tubes in service during Cycle 14 confirmed that they all met the Regulatory Guide 1.121 structural integrity requirements. The only confirmed degradation was low level wear (9%) due to a gasket remnant, and no primary-to-secondary leakage was observed prior to the end of Cycle 14. The condition monitoring assessment requirements for SG 1D operation were satisfied. The assessment of the secondary side inspection results demonstrated that any remaining foreign objects would not cause wear at a level that would violate the condition monitoring limit during the next two operating cycles for SG 1D. No challenges to the condition monitoring limits were identified; therefore, the condition monitoring requirements for the SG 1D tube bundle at end of Cycle 14 were satisfied.