



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-8064**

August 2, 2000

William T. Cottle, President and  
Chief Executive Officer  
STP Nuclear Operating Company  
P.O. Box 289  
Wadsworth, Texas 77483

**SUBJECT: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION'S NRC  
INSPECTION REPORT NO. 50-498/00-06; 50-499/00-06**

Dear Mr. Cottle:

On July 1, 2000, the NRC completed an inspection at the South Texas Project Electric Generating Station, Units 1 and 2, facility. The enclosed report presents the results of that inspection. The results were also discussed with Mr. T. Cloninger and other members of your staff in exit meetings on April 7, May 25, and June 27, 2000.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel. Specifically, this inspection focused on the Unit 1 steam generator replacement activities.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

*/RA/*

Joseph I. Tapia, Chief  
Project Branch A  
Division of Reactor Projects

Docket Nos.: 50-498  
50-499

License Nos.: NPF-76  
NPF-80

Enclosure:

NRC Inspection Report No.  
50-498/00-06; 50-499/00-06

cc w/enclosure:

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Only inspection reports to the following:

D. Lange (**DJL**)

NRR Event Tracking System (**IPAS**)

STP Site Secretary (**LAR**)

Wayne Scott (**WES**)

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket Nos.: 50-498  
50-499

License Nos.: NPF-76  
NPF-80

Report No.: 50-498/00-06  
50-499/00-06

Licensee: STP Nuclear Operating Company

Facility: South Texas Project Electric Generating Station, Units 1 and 2

Location: FM 521 - 8 miles west of Wadsworth  
Wadsworth, Texas 77483

Dates: April 2 through July 1, 2000

Inspectors: N. F. O'Keefe, Senior Resident Inspector  
G. L. Guerra, Resident Inspector  
D. B. Allen, Project Engineer  
L. E. Ellershaw, Senior Reactor Inspector  
C. A. Clark, Reactor Inspector

Approved By: J. I. Tapia, Chief, Project Branch A

**ATTACHMENTS:**

Attachment 1: Supplemental Information

Attachment 2: NRC's Revised Reactor Oversight Program

## SUMMARY OF FINDINGS

South Texas Project Nuclear Station, Units 1 and 2  
NRC Inspection Report 50-498/00-06, 50-499/00-06

This inspection covered the activities related to the replacement of the Unit 1 steam generators. The report includes input from the resident inspectors and region-based inspectors who performed onsite inspections in areas that included steam generator replacement work activities, lifting and rigging of heavy loads, cutting, welding, and nondestructive testing, and return to service testing. This inspection report covers the period from April 2 to July 1, 2000. The significance of issues is indicated by their color (green, white, yellow, red) and was determined by the significance determination process in draft Inspection Manual Chapter 0609.

No findings were identified.

## Report Details

Summary of Plant Status: Unit 1 was in a planned steam generator replacement outage at the beginning of the inspection. The unit was restarted on May 15 and resumed full power operation on May 20. With the exception of a planned generator outage June 2-9 when the reactor operated at 7 percent power, Unit 2 operated at full power during the inspection period.

### **1 REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity**

#### 10A5 Steam Generator Replacement Inspections (IP 50001)

##### a. Inspection Scope

The inspectors reviewed the Unit 1 steam generator replacement. This review was performed in accordance with NRC Inspection Procedure 50001, "Steam Generator Replacement Inspection," to verify that steam generator removal and replacement activities were safely performed and satisfied regulatory and licensee requirements. As part of this effort, the inspectors:

- Reviewed a sample of licensee and contractor (Bechtel Energy Corporation) nondestructive examination and welding procedures.
- Reviewed a sample of nondestructive examination personnel training and qualification documentation.
- Observed portions of the fit up and welding of the following:
  - The eight reactor coolant system piping welds to Steam Generators A, B, C, and D reactor coolant inlet and outlet nozzles.
  - The welds between feedwater system piping and Steam Generators B and C feedwater nozzles.
  - The two welds between a section of piping installed between Steam Generator C main steam discharge nozzle and the main steam system.
- Reviewed a sample of Unit 1 magnetic particle examination and ultrasonic examination records for reactor coolant system, feedwater, and main steam piping welds.
- Observed in-process radiography on reactor coolant system and feedwater pipe to nozzle welds.
- Reviewed applicable ASME Code Cases.
- Reviewed a sample of design and work packages.

- Observed the performance of test Procedures 0TEP04-SG-0005, “Load Swing Test,” Revision 1, and 0TEP04-SG-0006, “Large Load Reduction Test,” Revision 1.
- Reviewed test Procedure 0TEP04-SG-0001, “Steam Generator Replacement and Core Reload Initial Startup Testing,” Revision 0, and associated test results for steam flow transmitter calibration checks and reactor coolant system flow transmitter calibrations.
- Reviewed the test results from Procedures 0TEP04-SG-0003, “Low Power Steam Generator Water Level Control Test,” Revision 0, and 0TEP04-SG-0004, “Steam Generator Water Level Control Test,” Revision 0.
- Reviewed the 10 CFR 50.59 evaluation related to the Updated Final Safety Analysis Report Chapter 14 description of the return-to-service tests performed following steam generator replacement.
- Reviewed Condition Reports 00-9114 and 00-9405 related to return-to-service testing.
- Reviewed the results of the reactor coolant system thermal expansion monitoring program as documented in “Steam Generator and Reactor Coolant Pump Supports System Thermal Expansion Test Procedure - Post Steam Generator Replacement (TGX-TETP-1, Revision 2).”
- Reviewed changes made to the following operating procedures as a result of the steam generator replacement:
  - 0POP05-EO-EO00, “Reactor Trip or Safety Injection,” Revision 12
  - 0POP05-EO-ES01, “Reactor Trip Response,” Revision 16
  - 0POP05-EO-ES03, “Natural Circulation Cooldown with Steam Void in Vessel,” Revision 4
  - 0POP05-EO-EO30, “Steam Generator Tube Rupture,” Revision 11
  - 0POP05-EO-EC02, “Loss of All AC Power Recovery With SI Required,” Revision 9
  - 0POP05-EO-EC33, “SGTR Without Pressurizer Pressure Control,” Revision 7.

b. Findings

No findings were identified.



**2 RADIATION SAFETY**  
**Cornerstone: Occupational Radiation Safety**

2OS4 Problem Identification and Resolution (IP 50001)

.1 Dosimetry Control

a. Inspection Scope

During the outage, the inspectors performed a problem identification and resolution review of dosimetry and dose monitoring efforts. This included reviewing Condition Reports, discussions with Health Physics personnel, and observations of radiation worker briefings and job performance.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA6 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. T. Cloninger and other members of licensee management at exit meetings on April 7, May 25, and June 27, 2000. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## ATTACHMENT 1

### SUPPLEMENTAL INFORMATION

#### PARTIAL LIST OF PERSONS CONTACTED

##### Licensee

J. Crenshaw, Outage Director  
R. Fincher, Quality Manager  
E. Halpin, Operations Manager  
K. House, Engineering Manager, Return to Service Testing  
T. Jordan, Manger, Nuclear Engineering  
M. Kanavos, Steam Generator Replacement Engineering Manager  
B. Mookhoek, Licensing Engineer  
G. Parkey, Plant General Manager  
L. Peter, Steam Generator Replacement Project - Operations Area Manager  
R. Prater, Steam Generator Replacement Testing - Design Engineering  
K. Richards, Steam Generator Replacement Manager  
K. Silverthorne, Welding Engineer  
D. Stonestreet, Steam Generator Replacement Project Manager  
M. Van Noy, Licensing Engineer  
J. Wells, Outage Manager

##### Others

J. Boardman, Bechtel Nondestructive Examination Level III, Contractor  
T. Bosquez, Representative, Central Power & Light Company  
G. Caul, Bechtel Project Quality Assurance Manager, Contractor  
R. Janysek, Bechtel Welding Manager, Contractor  
B. Russell, Authorized Nuclear Inservice Inspector

#### ITEMS OPENED, CLOSED, AND DISCUSSED

##### Opened

None.

##### Closed

None.

##### Discussed

None.

LIST OF DOCUMENTS REVIEWED

Procedures

OPGP04-ZE-0304	Inservice Inspection Program for Welds and Component Supports	Revision 1
OPQP05-ZA-0018	Dry Powder Magnetic Particle Examination for ASME XI PSI/ISI	Revision 2
OPQP05-ZA-0004	General Ultrasonic Examination	Revision 1
OPQP05-ZA-0023	Visual Examination of Component Supports for ASME XI Inservice Inspection	Revision 1
Radiography Procedure	Bechtel Nondestructive Examination Standard, RT Examination, RT-ASME III	Revision 1
P8-T(RA)	Bechtel Welding Procedure Specification	Revision 2
P3(G3)-AT-Lh (E10018-D2)(CVN+40)	Bechtel Welding Procedure Specification	Revision 0
GWS-1	General Welding Standard	Revision 2
PQR 1041	Procedure Qualification Record for P8-T(RA)	Revision 0
PQR 1235	Procedure Qualification Record for P3(G3)-AT-Lh(E10018-D2)(CVN+40)	Revision 0
0TEP04-SG-0001	Steam Generator Replacement and Core Reload Initial Startup Testing	Revision 0
0TEP04-SG-0003	Low Power Steam Generator Water Level Control Test	Revision 0
0TEP04-SG-0004	Steam Generator Water Level Control Test	Revision 0
0TEP04-SG-0005	Load Swing Test	Revision 1

0TEP04-SG-0006	Large Load Reduction Test	Revision 1
0POP05-EO-EO00	Reactor Trip or Safety Injection	Revision 12
0POP05-EO-ES01	Reactor Trip Response	Revision 16
0POP05-EO-ES03	Natural Circulation Cooldown with Steam Void in Vessel	Revision 4
0POP05-EO-EO30	Steam Generator Tube Rupture	Revision 11
0POP05-EO-EC02	"Loss of All AC Power Recovery With SI Required	Revision 9
0POP05-EO-EC33	SGTR Without Pressurizer Pressure Control	Revision 7

Nondestructive Examination Reports

Radiography Report RT99-132, March 30, 2000, technique sheets, reader sheets, and film  
Radiography Report RT99-143, April 2, 2000, technique sheets, reader sheets, and film  
Radiography Report RT99-161, April 5, 2000, technique sheets, reader sheets, and film  
Magnetic Particle Examination Report MT-00-0009, January 26, 2000  
Magnetic Particle Examination Report HFW 0251, March 3, 2000  
Ultrasonic Examination Report UT-00-0003, January 20, 2000  
Ultrasonic Calibration Record UTCAL-00-0006, January 20, 2000  
Ultrasonic Calibration Record UTCAL-00-0007, January 20, 2000

Certified Material Test Reports for Welding Material From Weldstar

ER308L, Control Number R027  
ER90S B3, Control Number R013 and R014  
E7018, Control Number R005 and R006  
E9018, Control Number R011 and R012  
E10018, Control Number R031 and R032

Requests for Relief

RR-ENG-08 through RR-ENG-31

Condition Records

CR 00-6166, dated April 6, 2000

CR 00-6318, dated April 6, 2000

ASME Code Cases

N-408, N-426, N-429, and N-491-1

Quality Assurance Audits and Surveillance Reports

Quality Surveillance Report 99-019, June 3, 1999

Quality Audit Report 99-11 (TE), August 16, 1999

Quality Audit Report 99-18 (EMN), December 14, 2000

Design Change Package

96-2842-4 Reactor Coolant System Work, Supplement 10, February 23, 2000

Work Packages

P-RCA-048 "Steam Generator 'A' Seven/Prep/Weld RCS Piping," Revision 0, January 20, 2000.

M-ULA-053 "Steam Generator 'A' Upper Lateral Support," Revision 0, January 20, 2000

M-VSA-057 "Steam Generator 'A' Lower Lateral Support And RC Pump 'A,'" Revision 0, March 06, 2000

M-TSA-061 "Install Temporary Column Support & Forging Blocks For Steam Generator 'A,'" Revision 0, January 26, 2000

R-RCA-107 "Rig In Replacement Steam Generator -S/G 'A,'" Revision 0, January 19, 2000

## ATTACHMENT 2

### **NRC'S REVISED REACTOR OVERSIGHT PROCESS**

The federal Nuclear Regulatory Commission (NRC) revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

<b>Reactor Safety</b>	<b>Radiation Safety</b>	<b>Safeguards</b>
<ul style="list-style-type: none"><li>•Initiating Events</li><li>•Mitigating Systems</li><li>•Barrier Integrity</li><li>•Emergency Preparedness</li></ul>	<ul style="list-style-type: none"><li>•Occupational</li><li>•Public</li></ul>	<ul style="list-style-type: none"><li>•Physical Protection</li></ul>

To monitor these seven cornerstones of safety, the NRC used two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, or RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an action matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the action matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.