



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

February 11, 2009

Mr. Edward D. Halpin, Chief Nuclear Officer
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, TX 77483

Subject: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION - NRC
INTEGRATED INSPECTION REPORT 05000498/2008005 and
05000499/2008005

Dear Mr. Halpin:

On December 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your South Texas Project Electric Generating Station, Units 1 and 2, facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 8, 2009, with Mr. J. Sheppard, President and CEO, and other members of your staff.

The inspections examined 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC identified finding of very low safety significance (Green). This finding involved a violation of NRC requirements. Additionally, a licensee-identified violation, which was of very low safety significance, is listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the noncited violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the South Texas Project Electric Generating Station, Units 1 and 2, facility.

In accordance with 10 CFR 2.390 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 component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

George Replogle, Chief
Project Branch A
Division of Reactor Projects

Dockets: 50-498
50-499
Licenses: NPF-76
NPF-80

Enclosure:
NRC Inspection Report 05000498/2008005 and 05000499/2008005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000498, 05000499

License: NPF-76, NPF-80

Report: 05000498/2008005 and 05000499/2008005

Licensee: STP Nuclear Operating Company

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

Location: FM521 - 8 miles west of Wadsworth
Wadsworth, Texas 77483

Dates: September 28 through December 31, 2008

Inspectors: J. Dixon, Senior Resident Inspector
J. Drake, Senior Reactor Inspector
S. Graves, Senior Reactor Inspector
G. Guerra, CHP, Emergency Preparedness Inspector
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Approved By: George Replogle, Chief, Project Branch A
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000498/2008005, 05000499/2008005; 09/28/2008 – 12/31/2008; South Texas Project Electric Generating Station, Units 1 and 2, Integrated Resident and Regional Report; Surveillance Testing.

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspection by regional based inspectors. One Green noncited violation of very low safety significance was identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified two examples of a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V (Procedures), for the failure to adequately perform routine operator rounds in accordance with station procedures. Plant operators had failed to observe degraded material conditions (oil soaked insulation) and abnormal oil leakage onto the floor below Essential Chiller 22C, and stray material (oil absorbent pads) in between the cylinder heads of the standby Diesel Generators 11 and 13. The inspectors determined that both examples resulted in fire hazards. The licensee implemented corrective actions to remove the fire hazards and entered the concerns into their corrective action program as Condition Reports 08-18903, 08-19296, 09-184, and 09-195.

The finding was more than minor because it was similar to example 4.f of Manual Chapter 0612, Appendix E, "Examples of Minor Issues," because both conditions created a fire hazard. The inspectors used NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to determine that the finding was of very low safety significance because the deficiency resulted in a low degradation rating that minimally impacted the plant combustible material controls program element of the fire prevention and administrative controls category. In addition, the finding had a Problem Identification and Resolution crosscutting aspect (corrective action program component), because operators failed to implement a corrective action program with a low threshold for identifying issues [P.1(a)] (Section 1R22).

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers (condition report numbers) are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent rated thermal power and remained there for the remainder of the inspection period.

Unit 2 began the inspection period in coastdown operations for Refueling Outage 2RE13, which commenced on October 4, 2008. The licensee completed Refueling Outage 2RE13 on November 4, 2008, following reactor startup and closing the main generator output breaker. On November 7, 2008, they achieved 100 percent rated thermal power and remained there for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of the licensee's adverse weather procedures for seasonal extremes (e.g., extreme high temperatures, extreme low temperatures, or hurricane season preparations). The inspectors verified that weather-related equipment deficiencies identified during the previous year were corrected prior to the onset of seasonal extremes; and evaluated the implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of, and during, the adverse weather conditions.

During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- November 13, 2008, Units 1 and 2, reviewed plant implementation of Procedure 0POP01-ZO-0004, "Extreme Cold Weather Guidelines," Revision 27, and walked down control panels; essential cooling water intake structure; startup feed pumps; plant exterior perimeter, including standby, auxiliary, and main transformers; and main turbine decks

These activities constitute completion of one readiness for seasonal adverse weather sample as defined in Inspection Procedure 71111.01.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- October 10, 2008, Unit 2, spent fuel cooling Trains A and B
- November 11, 2008, Unit 1, high-head and low-head safety injection Train C
- November 12, 2008, Unit 2, Standby Diesel Generator 21
- December 3, 2008, Unit 1, auxiliary feedwater Train C

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

On October 17, 2008, the inspectors performed a complete system alignment inspection of the Unit 2 Train A residual heat removal system to verify the functional capability of the system. The inspectors selected this system because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment

line-ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one complete system walkdown sample as defined in Inspection Procedure 71111.04.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- October 25, 2008, Unit 2, reactor containment building (multiple Fire Zones from elevations of minus 11 feet to plus 68 feet)
- December 3, 2008, Unit 1, electrical switchgear room Train B (Fire Zone Z042)
- December 3, 2008, Unit 1, standby diesel generator building Train C (Fire Zones Z500 and Z506)
- December 3, 2008, Unit 1, auxiliary feedwater Train C (Fire Zone Z403)

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk, as documented in the plant's Individual Plant Examination of External Events, with later additional in-sights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified

during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also walked down the area listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- December 12, 2008, Units 1 and 2, essential cooling water Trains A, B, and C

These activities constitute completion of one flood protection measure inspection sample as defined in Inspection Procedure 71111.06.

b. Findings

No findings of significance were identified.

1R08 In-service Inspection Activities (71111.08)

Completion of Sections .1 through .5, below, constitutes completion of one sample as defined in Inspection Procedure 71111.08.

.1 Inspection Activities Other Than Steam Generator Tube Inspection, Pressurized Water Reactor Vessel Upper Head Penetration Inspections, Boric Acid Corrosion Control (71111.08-02.01)

a. Inspection Scope

The inspection procedure requires review of two or three types of nondestructive examination activities and, if performed, one to three welds on the reactor coolant system pressure boundary. Also review one or two examinations with relevant indications that have been accepted by the licensee for continued service.

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Main Steam	30-MS-2001-GA2, #27	Ultrasonic Test
Main Steam	16-MS-2002-GA2, #2	Ultrasonic Test
Reactor Coolant	Reactor Pressure Vessel Closure Studs 19B - 24B	Magnetic Particle Test (Fluorescent)
Reactor Coolant	Reactor Pressure Vessel Closure Stud Nuts and Washers 19B - 24B	Visual Test-1
Residual Heat Removal	Nozzle to Shell Weld RHAHRS-2A-NB	Penetrant Test
Reactor Coolant	Reactor Pressure Vessel Head	Visual Test-2
Reactor Coolant	RPV2-N1ASE	Remote Ultrasonic Test
Residual Heat Removal	1R162XRH0061A	Penetrant Test

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Coolant	Pressurizer Surge Line PZR-2-N1-SE-WOL	Ultrasonic Test
Reactor Coolant	Pressurizer Spray Line PZR-2-N2-SE-WOL	Ultrasonic Test
Reactor Coolant	Pressurizer Safety Line PZR-2-N3-SE-WOL	Ultrasonic Test
Reactor Coolant	Pressurizer Relief Line PZR-2-N4A-SE-WOL	Ultrasonic Test
Reactor Coolant	Pressurizer Safety Line PZR-2-N4B-SE-WOL	Ultrasonic Test
Reactor Coolant	Pressurizer Safety Line PZR-2-N4C-SE-WOL	Ultrasonic Test
Main Steam	30-MS-2001-GA2	Ultrasonic Test
Main Steam	16-MS-2002-GA2	Ultrasonic Test

<u>SYSTEM</u>	<u>IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Coolant	Reactor Pressure Vessel Closure Studs 19B - 24B	Magnetic Particle Test (Fluorescent)
Reactor Coolant	Reactor Pressure Vessel Closure Stud Nuts and Washers 19B - 24B	Visual Test-1
Reactor Coolant	Reactor Coolant Pump Flywheels 2A and 2D	Ultrasonic Test
Residual Heat Removal	Nozzle to Shell Weld RHAHRS-2A-NB	Penetrant Test
Reactor Coolant	Reactor Pressure Vessel Head	Visual Test-2

During the review and observation of each examination, the inspectors verified that activities were performed in accordance with ASME Boiler and Pressure Vessel Code requirements and applicable procedures. Indications were compared with previous examinations and dispositioned in accordance with ASME Code and approved procedures. The qualifications of all nondestructive examination technicians performing the inspections were verified to be current.

Ultrasonic examinations of reactor coolant pump Flywheels 2A, 2B, 2C, and 2D were performed in accordance with the guidance in the licensee's augmented inspection program. The examination procedure was reviewed and found to be in accordance with the requirements of Section XI of the ASME Code.

None of the above observed or reviewed nondestructive examinations identified any relevant indications and cognizant licensee personnel stated that no relevant indications were accepted by the licensee for continued service.

One example of welding on the residual heat removal system was examined through direct observation and six examples of welding on the reactor coolant system were reviewed through records.

The inspectors verified, by review, that the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section IX, requirements. The inspectors also verified, through observation and record review, that essential variables for the welding process were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of Section 02.01 as defined in Inspection Procedure 71111.08-05.

b. Findings

No findings of significance were identified.

.2 Vessel Upper Head Penetration Inspection Activities (71111.08-02.02)

a. Inspection Scope

The licensee performed the required visual inspection of pressure-retaining components above the reactor pressure vessel head. The results of this inspection confirmed that there was no evidence of leaks or boron deposits on the surface of the reactor pressure vessel head or related insulation. The personnel performing the visual inspection were certified as Level II and Level III Visual Test-2 examiners. Specific documents reviewed during this inspection are listed in the attachment.

The licensee was not required to perform any volumetric nondestructive examination of the reactor vessel upper head penetrations during Refueling Outage 2RE13 per the licensee's nondestructive examination inspection plan.

These activities constitute completion of Section 02.02 as defined in Inspection Procedure 71111.08-05.

b. Findings

No findings of significance were identified.

.3 Boric Acid Corrosion Control Inspection Activities (71111.08-02.03)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion.

The inspection procedure required review of a sample of boric acid corrosion control walkdown visual examination activities through either direct observation or record review. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified in Procedure OPGP03-ZE-0033, "RCS Pressure Boundary Inspection for Boric Acid Leaks," Revision 10. Visual records of the components and equipment were also reviewed by the inspectors. Additionally, the inspectors independently performed examinations of piping and components containing boric acid during a walkdown of the containment building and the auxiliary building. The inspection procedure required verification that visual inspections emphasize locations where boric acid leaks can cause degradation of safety significant components. The inspectors verified through direct observations and by program/record review that the licensee's boric acid corrosion control inspection efforts are directed towards locations where boric acid leaks can cause degradation of safety-related components. On those components where boric acid was identified, the engineering evaluations gave assurance that the ASME Code wall thickness limits were properly maintained. The evaluations also confirmed that the corrective actions performed for evidence of boric acid leaks were consistent with requirements of the ASME Code.

The inspection procedure required review of one to three engineering evaluations performed for boric acid leaks found on reactor coolant system piping and components, and one to three corrective actions performed for identified boric acid leaks. The inspectors reviewed three engineering evaluations: (1) Residual Heat Removal Suction Isolation Valve 2RHMOV0061B, (2) Chemical and Volume Control System Auxiliary Spray Level Control Valve N2CVLV3119, and (3) Reactor Vessel Head Atmospheric Vent Valve 2-RC-0132. The inspectors reviewed two corrective action plans for two engineering evaluations where boric acid leakage was confirmed: (1) Residual Heat Removal Suction Isolation Valve 2RHMOV0061B, and (2) Safety Injection Accumulator 2A Outlet Valve 2XSI0039A. The evaluations appropriately addressed the causes and corrective actions and were generally consistent with industry standards. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of Section 02.03 as defined in Inspection Procedure 71111.08-05.

b. Findings

No findings of significance were identified.

.4 Steam Generator Tube Inspection Activities (71111.08-02.04)

a. Inspection Scope

The inspection procedure specified performance of an assessment of in situ screening criteria to assure consistency between assumed nondestructive examination flaw sizing accuracy and data from the Electric Power Research Institute's examination technique specification sheets. It further specified assessment of appropriateness of tubes selected for in situ pressure testing, observation of in situ pressure testing, and review of in situ pressure test results.

At the time of this inspection, no conditions had been identified that warranted in situ pressure testing in any steam generator.

The inspectors reviewed the licensee site-validated and qualified acquisition and analysis technique sheets used during this refueling outage and the qualifying Electric Power Research Institutes examination technique specification sheets to verify that the essential variables regarding flaw sizing accuracy, tubing, equipment, technique, and analysis had been identified and qualified through demonstration.

The inspection procedure specified comparing the estimated size and number of tube flaws detected during the current outage against the previous outage operational assessment predictions to assess the licensee's prediction capability. Refueling Outage 2RE13 is the second steam generator in-service inspection for the Unit 2 steam generators. The inspectors compared the previous outage operational assessment predictions contained in Report SG-SGDA-4-033 with the indications identified thus far during the current steam generator tube inspection effort. Compared to the projected damage mechanisms identified by the licensee, the number of identified indications fell within the range and was consistent with predictions. For this outage, foreign object wear and anti-vibration bar related tube wear were identified as the only potential degradation mechanisms. No tube corrosion, anti-vibration bar wear, or foreign

object wear were observed during the previous Refueling Outage 2RE10 steam generator inservice inspection, and no tubes were repaired.

The inspection procedure specified that if new degradation mechanisms were identified, the licensee must verify in its analysis of extended conditions that the problem, including operating concerns, was fully enveloped and appropriate corrective actions had been taken before plant startup. To date, the eddy current examination results had not identified any new degradation mechanisms.

The inspection procedure specified confirmation that the steam generator tube eddy current test scope and expansion criteria meet technical specification requirements, Electric Power Research Institute guidelines, and commitments made to the NRC. The inspectors compared the recommended test scope to the actual test scope and found that the licensee test scope met technical specification requirements, Electric Power Research Institute guidelines, and commitments made to the NRC. For South Texas Project steam generators, the Electric Power Research Institute Steam Generator Examination Guidelines allow no more than 72 effective full power months or three cycles of operation, whichever is less, between inspections of any steam generator. South Texas Unit 2 steam generators will have accrued approximately 63 effective full power months' cumulative operations at the time of Refueling Outage 2RE13.

The inspection procedure requires confirmation that the eddy current test probes and equipment were qualified for the expected types of tube degradation, and an assessment of the site-specific qualification of one or more techniques. The inspectors observed portions of eddy current tests performed on the tubes in all steam generators. During these examinations, the inspectors verified that: (1) the probes appropriate for identifying the expected types of indications were being used, (2) probe position location verification was performed, (3) calibration requirements were adhered to, and (4) probe travel speed was in accordance with procedural requirements. The inspectors performed a review of site-specific qualifications of the techniques being used.

The inspection procedure requires confirmation that the licensee inspected all areas of potential degradation, especially areas that were known to represent potential eddy current test challenges (e.g., top-of-tube sheet, tube support plates, and U-bends). The inspectors confirmed that all known areas of potential degradation were included in the scope of inspection and were being inspected. The scope of the licensee's examinations of Unit 2 steam generators included:

Primary Side

- Full length bobbin inspection of 100 percent of the outer peripheral tubes. This inspection included 10 tubes in from the periphery into the no-tube lane near the divider plate
- Full length bobbin inspection of 50 percent of remaining tubes
- Plus-Point inspection of the upper tube support plate hot leg to upper tube support plate cold leg
- Plus-Point inspection top of tube sheet on hot and cold leg outer peripheral tubes to aid in loose parts detection at the top of tube sheet

- Rotating coil inspection of any previously reported dents and dings indicating greater than five volts by bobbin coil, and any dent and ding locations indicating greater than five volts identified by bobbin coil

Secondary Side

- Sludge lancing in all four steam generators
- Top of tube sheet foreign object search and retrieval of periphery, tube lane, and bundle areas
- Steam drum inspection of Steam Generators 2C and 2D, with upper steam drum and steam nozzle inspections in Steam Generator 2D only
- Tube scale profiling of Steam Generators 2B and 2C

The inspection procedure required confirmation of adherence to the technical specification plugging limit, unless alternate repair criteria have been approved. The inspection procedure further required determination of whether depth sizing repair criteria were being applied for indications other than wear or axial primary water stress corrosion cracking in dented tube support plate intersections. The inspectors determined that the technical specification plugging limits were being adhered to (i.e., 40 percent maximum through-wall indication). At the time of this inspection, it was estimated that three tubes were to be plugged in Steam Generator 2D as a conservative approach to mitigate the presence of a non-retrievable foreign object located between the tubes. The inspectors verified that the plugging process to be used was an NRC-approved repair process.

If loose parts or foreign material on the secondary side were identified, the inspection procedure specified confirmation that the licensee had taken or planned appropriate repairs of affected steam generator tubes and that they inspected the secondary side to either remove the accessible foreign objects or perform an evaluation of the potential effects of inaccessible object migration and tube fretting damage. During the steam generator secondary side inspections, Steam Generator 2D had 27 foreign objects identified. Of these objects, two were categorized as Priority 1. One of these objects, identified as a piece of weld slag, could not be removed and the three tubes surrounding the object will be plugged. The object was discovered near Tube R49C140 in the top of tube sheet region in the cold leg side. The other Priority 1 object was removed. Steam Generator 2A secondary side inspections had nine foreign objects identified. Of the nine, one was categorized as a Priority 1 object and was retrieved. Steam Generator 2B had four foreign objects identified, with one Priority 1 object, which was retrieved. Steam Generator 2C had 10 foreign objects with two Priority 2 objects. Both were retrieved.

If steam generator leakage, greater than three gallons per day, was identified during operations or during post shutdown visual inspections of the tube sheet face, the inspection procedure requires verification that the licensee had identified a reasonable cause based on inspection results and that corrective actions were taken or planned to address the cause for the leakage. This condition did not exist during this inspection. No assessment was conducted.

Finally, the inspection procedure specified review of one to five samples of eddy current test data if questions arose regarding the adequacy of eddy current test data analyses. The inspectors did not identify any results where eddy current test data analyses adequacy was questionable. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of Section 02.04 as defined in Inspection Procedure 71111.08-05.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems (71111.08-02.05)

a. Inspection scope

The inspection procedure requires review of a sample of problems associated with inservice inspections documented by the licensee in the corrective action program for appropriateness of the corrective actions.

The inspectors reviewed 97 condition reports which dealt with in-service inspection activities and found the corrective actions were appropriate. From this review, the inspectors concluded that the licensee has an appropriate threshold for entering issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective program for applying industry operating experience. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On December 8, 2008, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures

- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- December 18, 2008, Units 1 and 2, reactor coolant system pressurizer instrumentation concerns related to calibration tolerances, procedure adequacy, and design control
- December 18, 2008, Units 1 and 2, 7300 Processor Support System card replacements due to capacitor issues and overall health
- December 24, 2008, Units 1 and 2, safety injection system overall health

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or (a)(2)

- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- October 4 through November 7, 2008, Unit 2, Refueling Outage 2RE13 shutdown, outage, and startup activities
- December 1 through 5, 2008, Units 1 and 2, planned and emergent work on Unit 1 Train C and Unit 2 Train B including un-quantified maintenance risk involving a diesel driven firewater pump
- December 15 through 19, 2008, Units 1 and 2, planned and emergent work on Unit 1 Train A and Unit 2 Train D including a nitrogen leak on feedwater isolation Valve 2D accumulator resulting in emergent temporary leak repairs

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- October 21, 2008, Unit 1, Power Range Nuclear Instrument NI-42 reactor trip bi-stable high flux rate trip
- December 12, 2008, Units 1 and 2, reactor coolant pressurizer pressure transmitters not calibrated to correct accuracy
- December 18, 2008, Unit 2, nitrogen leak on feedwater isolation Valve 2D accumulator
- December 30, 2008, Units 1 and 2, air filters not installed in the instrument air line upstream of the solenoid valves for the main steam isolation valves

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Updated Final Safety Analysis Report to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four operability evaluation inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following permanent modification to verify that the safety functions of important safety systems were not degraded:

- December 30, 2008, Unit 1, Essential Chiller 12A design change package to lower the lube oil heater setpoint from 150 degrees Fahrenheit to 135 degrees Fahrenheit

The inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the modification listed below. The inspectors verified that modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, systems, structures and components' performance characteristics still meet the design basis, the appropriateness of modification design assumptions, and the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample for permanent plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- October 25, 2008, Unit 2, replacement of safety injection Switch S106 (provides signal to Standby Diesel Generator 21 output breaker)
- October 28, 2008, Unit 2, rebuild of auxiliary spray level control Valve LV-3119
- November 18, 2008, Unit 2, auxiliary feed water Pump 24 control room trip pushbutton replaced due to faulty contacts that prevented the trip/throttle motor operated valve from re-latching

- November 26, 2008, Unit 2, replaced engineered safety feature load sequencer Train A blocking relay opto-isolator – OPTO 22 Model ODC 24 due to failure to de-energize resulting in the inoperability of Standby Diesel Generator 21
- December 2, 2008, Unit 2, Essential Chiller 22B replaced clean up kit filters, oil, and oil filter to reduce amount of particulate matter in oil
- December 5, 2008, Unit 2, body to bonnet gasket replacement and seal weld of body to bonnet on residual heat removal Pump 2A suction valve to repair active leakage
- December 18, 2008, Unit 2, main steam line flow loop Processor 7300 card replacement

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Updated Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of seven postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 2 2RE13 refueling outage, conducted from October 4 through November 4, 2008, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense-in-depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error
- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities
- Monitoring of decay heat removal processes, systems, and components
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss
- Controls over activities that could affect reactivity
- Maintenance of secondary containment as required by the technical specifications
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the primary containment to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing
- Licensee identification and resolution of problems related to refueling outage activities
- Additionally, the inspectors performed a smart sample per Review of Operating Experience Smart Sample FY2007-03, Crane and Heavy Lift Inspection-Supplemental Guidance for IP 71111.20, Revision 1

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, procedure requirements, and technical specifications to ensure that the six surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- October 9, 2008, Unit 2, Standby Diesel Generator 22, operability and twenty-four hour load test
- October 10, 2008, Unit 2, full flow testing of safety injection Train A (pump/valve inservice test)
- October 28, 2008, Unit 2, digital rod position indication operability test

- November 3 through 14, 2008, Unit 2, reactor coolant system leakage detection
- December 4 and 5, 2008, Unit 2, reactor containment building personnel air lock (containment isolation valve) local leak rate test
- December 30, 2008, Unit 2, preventative maintenance of Essential Chiller 22C

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of six surveillance testing inspection samples as defined in Inspection Procedure 71111.22.

b. Findings

Introduction. The inspectors identified two examples of a noncited violation of 10 CFR Part 50, Appendix B, Criterion V (Procedures), for the failure to adequately perform routine operator rounds in accordance with station procedures. Plant operators had failed to observe degraded material conditions (oil soaked insulation) and abnormal oil leakage onto the floor below essential Chiller 22C, and stray material (oil absorbent pads) in between the cylinder heads of the standby diesel generators 11 and 13. The inspectors determined that both examples resulted in fire hazards. The licensee has implemented corrective actions to remove the fire hazards and has entered the concerns into their corrective action program as Condition Reports 08-18903, 08-19296, 09-184, and 09-195.

Description. On December 2, 2008, the inspectors performed a walkdown of essential Chiller 22C and observed oil soaked degraded insulation material and abnormal oil leakage on the chiller's insulation and on the floor beneath the chiller cylinder. The inspector asked a maintenance technician to investigate the source of the leakage. The maintenance technician located a saturated oil absorbent pad that had been left on top of the seven-foot high cylindrical chiller housing (below the compressor motor housing) since April 28, 2008. This oil absorbent pad was placed on top of the chiller by maintenance personnel to absorb small amounts of known leakage from the compressor motor. The placement of this absorbent pad was unknown to operations personnel, however, the oil on the floor and insulation was within the ability of the operators to see and determine the source of the oil during routine shift operator rounds. The licensee reviewed the extent of this condition on the other chillers and determined that four out of five other essential chillers had degraded oil soaked insulation. The inspectors determined that a fire hazard was created because hot work (welding, grinding, etc.) has been performed in the area where the oil was discovered and would have provided an ignition source for a potential fire.

On December 16, 2008, the inspectors provided the licensee with additional observations of oil absorbent pads placed in between cylinder heads of some of the standby diesel generators that could also be potential fire hazards and could impact safety related equipment. The inspectors requested that the licensee perform visual inspections of each Unit 1 and Unit 2 standby diesel generator. The licensee's visual inspections confirmed that Standby Diesel Generators 11 and 13 did have several absorbent pads placed in between the diesel's cylinder heads. The most significant was Standby Diesel Generator 13, which had an oil absorbent pad placed in between each of the ten cylinder heads on the left bank of the standby diesel generator. The inspectors

determined that these conditions created a fire hazard because of the potential for high temperature exhaust gas leakage that could have caused a diesel generator fire.

In each of these examples, plant operators entered each of these rooms at least twice a day to perform routine operator rounds as required by Procedure 0POP01-ZQ-0022, "Plant Operations Shift Routines," Revision 56. Step 5.2, of this procedure describes responsibilities of each plant operator for a given watchstation, including identifying and initiating corrective actions for material condition deficiencies. Step 5.3 of the procedure describes the performance of routine rounds by observing that areas are free of loose debris and stray material, and that there is no abnormal oil leakage from pumps and motors. In the diesel generator example, operators failed to observe that in between each diesel generator cylinder head there was stray material (i.e., the oil absorbent pads). In the essential chiller example, the operators failed to observe abnormal leakage of oil on the floor and on the insulation of the chiller.

Analysis. The failure to adequately perform routine operator rounds and initiate corrective actions for stray and degraded material conditions was a performance deficiency. The finding was more than minor because it was similar to example 4.f of Manual Chapter 0612, Appendix E, "Examples of Minor Issues," because both conditions created a fire hazard. The inspectors used NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to determine that the finding was of very low safety significance because the deficiency resulted in a low degradation rating that minimally impacted the plant combustible material controls program element of the fire prevention and administrative controls category. In addition, the finding had a Problem Identification and Resolution crosscutting aspect (corrective action program component), because operators failed to implement a corrective action program with a low threshold for identifying issues [P.1(a)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented procedures and shall be accomplished in accordance with these procedures. Procedure 0POP01-ZQ-0022, Revision 56, required, in part, that watchstanders "shall initiate corrective actions for any identified deficiencies (i.e., material condition deficiencies)." Step 5.3, provides guidance about what these deficiencies may be, and states in part that "during performance of rounds, observe areas are free of loose debris, free of stray material, and there is no abnormal oil leakage from pumps and motors." Contrary to the above, on December 2, 2008, and December 16, 2008, the inspectors identified that during performance of operator rounds, plant personnel failed to observe that areas are free of loose debris, free of stray material, and there is no abnormal oil leakage from pumps and motors. Since the violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Reports 08-18903, 08-19296, 09-184, and 09-195, it is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000498; 05000499/2008005-01, "Failure to Adequately Perform Routine Operator Rounds Results in the Creation of Fire Hazards."

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspectors performed an in-office review of Revision ICN 20-7 to the South Texas Project Electric Generating Station Emergency Plan, submitted November 12, 2008, and to Emergency Plan Implementing Procedures 0PGP05-ZV-0009, "Emergency Facility Inventories and Inspections," Revision 13, 0PGP05-ZV-0012, "Emergency Facility Inventories," Revision 11, and 0ERP01-ZV-OF01, "Alternate Emergency Operations Facility Activation, Operation, and Deactivation," Revision 5. The changes related to the relocation of the alternate emergency operations facility, changes to emergency kit equipment inventories and location, entry and activation procedures for the relocated facility, and made minor editorial changes.

The revisions were compared to their previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q). This review was not documented in a Safety Evaluation Report and did not constitute an approval of the licensee's changes; therefore, these revisions are subject to future inspection.

These activities constitute completion of four samples as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on December 4, 2008, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the emergency operations facility and the simulator to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

40A1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the third Quarter 2008 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - Emergency ac Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Emergency ac Power System performance indicator for Units 1 and 2 for the period from the fourth Quarter 2007 through the third Quarter 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, mitigating systems performance index derivation reports, issue reports, event reports and NRC integrated inspection reports for the period of October 2007 through September 2008 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and verified that the licensee had corrected and/or captured the problem in the corrective action database for appropriate action. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index emergency ac power system samples as defined in Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - High Pressure Injection Systems performance indicator for Units 1 and 2 for the period from the fourth Quarter 2007 through the third Quarter 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports and NRC integrated inspection reports for the period of October 2007 through September 2008 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index high pressure injection system samples as defined in Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.4 Mitigating Systems Performance Index - Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Heat Removal System performance indicator for Units 1 and 2 for the period from the fourth Quarter 2007 through the third Quarter 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of October 2007 through September 2008 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and verified that the licensee had corrected and/or captured the problem in the corrective action database for appropriate action. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index heat removal system samples as defined in Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.5 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Residual Heat Removal System performance indicator for Units 1 and 2 for the period from the fourth Quarter 2007 through the third Quarter 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports and NRC integrated inspection reports for the period of October 2007 through September 2008 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index residual heat removal systems sample as defined in Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.6 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Cooling Water Systems performance indicator for Units 1 and 2 for the period from the fourth Quarter 2007 through the third Quarter 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports and NRC integrated inspection reports for the period of October 2007 through September 2008 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and verified that the licensee had corrected

and/or captured the problem in the corrective action database for appropriate action. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index cooling water system samples as defined in Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included: the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of July through December 2008, although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one single semi-annual trend inspection sample as defined in Inspection Procedure 71152.

b. Findings

No adverse trends were identified.

4OA3 Event Follow-up (71153)

(Closed) LER 05000498/2007-002-00, "Entry into Technical Specification 3.0.3 for Greater Than 1 Hour due to Inoperable Degraded Voltage Relays"

On May 17, 2007, with Unit 1 at 100 percent power, during surveillance on the Train B 4160 volt Engineered Safety Feature Bus Degraded Voltage Relays, a broken lug was discovered on Terminal 6 in E1B Cubicle 2 relay protection and metering cabinet. The broken lug affected dc control power to all four Train B degraded voltage relays and would have prevented the relays from actuating. On May 17, 2007, at 8:39 a.m., all four degraded voltage relays were declared inoperable and technical specification 3.0.3 was entered. Subsequently, at 10:41 a.m., the broken lug was replaced, dc control power was restored to the four degraded voltage relays, and the licensee exited technical specification 3.0.3. This event is documented in the licensee's corrective action program as Condition Report 07-8374.

The licensee performed a root cause investigation of this event and determined that the lugs failed due to low cycle fatigue from continuous opening and closing of the relay protection cabinet door. In addition, the licensee identified that a corrective action to improve the structural support by adding a support bracket to aid in preventing low cycle fatigue of the lugs was not implemented. In November 2004, corrective action document Condition Report 04-14776-4 prescribed instructions to install a support bracket in the relay protection cabinet. In May 2005, the corrective action was closed as being completed, but the support bracket was not installed due to concerns about damage to the wire bundle. This work was subsequently reassigned to another corrective action document and postponed to the Unit 1 refueling outage in October 2006. In October 2006, the work was cancelled because it was considered to have been a duplicate of a maintenance work order that had already been completed. Therefore, the support bracket was not installed as required by the corrective action instructions in Condition Report 04-14776-4, and as a result contributed to the event on May 17, 2007. Corrective actions included revisions to the procedures for cancelling work orders and training for personnel on the work closure and cancellation process. The finding is more than minor because if left uncorrected it could become a more safety significant concern because corrective actions for safety significant systems and components may not be implemented as required. This licensee identified finding is a violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to implement corrective action instructions. The enforcement aspects of this violation are discussed in Section 4OA7. This LER is closed.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with South Texas Project Electric Generating Station security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.2 Temporary Instruction 2515-172, "Reactor Coolant System Dissimilar Metal Butt Welds"

a. Inspection Scope

Temporary Instruction TI 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds" was continued at South Texas Project Unit 2 during Refueling Outage 2RE13 in October 2008.

(1) Licensee's Implementation of the Material Reliability Program-139 Baseline Inspections

(a) Material Reliability Program-139 baseline inspections

- (i) The inspectors reviewed records of examination activities associated with the South Texas Project Material Reliability Program-139 program. The baseline inspections of the pressurizer dissimilar metal butt welds for Unit 2 were completed during the spring 2007 Refueling Outage 2RE12. Baseline inspections for dissimilar metal butt welds that are greater than 14" diameter and exposed to temperatures equivalent to the hot leg were volumetrically inspected this outage. Baseline inspections for dissimilar metal butt welds that are exposed to temperatures equivalent to the cold leg are scheduled to be volumetrically inspected during the Spring 2010 Refueling Outage 2RE14.
- (ii) At present, the licensee has not planned any deviations from the baseline inspection requirements of Material Reliability Program-139, and all other applicable dissimilar metal butt welds were scheduled in accordance with Material Reliability Program-139 guidelines and NRC approved schedules.

(2) Volumetric Examinations

- (a) The inspectors observed volumetric examinations of unmitigated dissimilar metal butt welds in the reactor vessel hot leg outlet nozzle to safe-ends Welds RPV2 N1ASE, RPV2 N1BSE, RPV2 N1CSE, and RPV2 N1DSE. The examination techniques met the requirements of the Material Reliability Program-139 guidelines (i.e., personnel, procedures, and equipment qualified in accordance with ASME Code, Section XI, Supplement VIII [Performance Demonstration Initiative] requirements).
- (b) The inspectors reviewed records of the volumetric examinations performed on Unit 2 pressurizer and reactor vessel hot leg outlet nozzle to safe-end welds. Nondestructive examinations for the following welds were reviewed:

<u>LOCATION</u>	<u>WELD IDENTIFICATION</u>
Surge Nozzle	PZR-2-N1-SE
Spray Nozzle	PZR-2-N2-SE
Safety Nozzle	PZR-2-N3-SE
Relief Nozzle	PZR-2-N4A-SE
Safety Nozzle	PZR-2-N4B-SE
Safety Nozzle	PZR-2-N4C-SE
Reactor Vessel Hot Leg	RPV2-N1ASE
Reactor Vessel Hot Leg	RPV2-N1BSE
Reactor Vessel Hot Leg	RPV2-N1CSE
Reactor Vessel Hot Leg	RPV2-N1DSE

Inspection coverage met the requirements of Material Reliability Program-139.

- (c) The certification records of ultrasonic examination personnel used in the examination of the mitigated pressurizer nozzles dissimilar metal butt welds and personnel used in the examination of the reactor vessel hot leg nozzles were reviewed. All personnel records showed that they were qualified under the Electric Power Research Institute Performance Demonstration Initiative .
 - (d) Deficiencies were identified during the nondestructive examination of the pressurizer weld overlays, and correctly dispositioned.
- (3) Weld Overlays
- (a) No weld overlays were being performed this outage; however the inspectors reviewed records from the previous Refueling Outage 2RE12 associated with welding the full structural overlays on Unit 2 pressurizer nozzles. The inspectors determined that welding was performed in accordance with ASME Code Section IX requirements. A full structural weld overlay has sufficient thickness such that ASME Code Section XI Safety Factors are met without taking credit for any of the original pipe wall. The design of the overlay is contained in ASME Code Case N 504 2 or its revisions.
 - (b) Weld overlay records for the Unit 2 Pressurizer Spray (PRZ-2-N2-SE), Safeties (PRZ-2-N3-SE), (PRZ-2-4B-SE), (PRZ-2-4C-SE) and Relief (PRZ-2-N4A-SE) nozzles were reviewed and were found to be in conformance with NRC-approved Relief Request RR-ENG-2-43, "Application of Weld Overlays in Pressurizer Nozzle Safe End Welds," dated April 2, 2007.
 - (c) The qualification records of welders were reviewed and all qualifications were current.
 - (d) Deficiencies identified during weld overlays were correctly identified and dispositioned.

(4) Mechanical Stress Improvement

No mechanical stress improvement processes were used during this outage

(5) In-service Inspection Program

South Texas Project Nuclear Operating Company has prepared an Alloy 600 Management Program incorporating requirements of Material Reliability Program-139. Dissimilar metal butt weld inspections are scheduled consistent with the requirements of Tables 6-1 and 6-2 of Material Reliability Program-139. In support of the Alloy 600 Management Program, the licensee maintains a tracking program for their dissimilar metal butt welds, which includes the weld location, nondestructive examination method of inspection, schedule for inspection, and status relative to their 10-year inservice inspection plan.

Five welds on the Unit 2 pressurizer were originally categorized as "H" in accordance with Material Reliability Program-139, Section 6.8. Category H weldments are those that are not made of resistant materials and cannot be volumetrically inspected in accordance with Material Reliability Program-139 guidance, and are exposed to temperatures equivalent to hot leg or pressurizer

temperatures. All five welds have been mitigated by full structural weld overlays and have been re-categorized as “B” welds in accordance with Section 6.2. Category B weldments are those not made of resistant materials, have no known cracks based on examination by personnel using procedures in conformance with qualified ultrasonic testing techniques, and that have been reinforced by a full structural weld overlay made of primary water stress corrosion cracking-resistant material.

No Category “I” welds exist. Category I weldments are those that are not made of resistant materials and cannot be volumetrically inspected in accordance with Material Reliability Program-139 guidance and are exposed to temperatures equivalent to cold leg temperatures.

The inspectors’ review determined that the hot leg and cold leg dissimilar metal butt welds are appropriately categorized in accordance with Material Reliability Program-139 requirements.

The licensee’s Material Reliability Program-139 inservice inspection program will receive additional inspection effort in the future to examine the licensee’s progress.

b. Findings

No findings of significance were identified.

.3 Temporary Instruction 2515/176, “Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing”

a. Inspection Scope

The objective of Temporary Instruction 2515/176 was to gather information to assess the adequacy of nuclear power plant emergency diesel generator endurance and margin testing as prescribed in plant-specific technical specifications. The inspectors reviewed the licensee’s technical specifications, procedures, and calculations and interviewed licensee personnel to complete the temporary instruction. The information gathered while completing this temporary instruction was forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation on December 18, 2008.

b. Findings

No findings of significance were identified.

40A6 Meetings

Exit Meeting Summary

On October 16, 2008, the inspectors presented the results of this inservice inspection to Mr. G. Powell, Vice President Engineering, and other members of licensee management. Licensee management acknowledged the inspection findings.

On December 18, 2008, the inspector conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee’s emergency plan implementing procedures to Mr. T. Frawley, Manager, Plant Protection and other members of his staff, who acknowledged the findings.

On January 8, 2009, the inspectors presented the inspection results to Mr. J. Sheppard, President and CEO, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

The inspectors returned proprietary material examined during the inspection.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a noncited violation.

- Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions and shall be accomplished in accordance with these instructions. Corrective action instructions documented in Condition Report 04-14776-4, required in part, that the licensee install a support bracket for a relay protection cabinet door in accordance Work Order 317871. Contrary to the above, on August 16, 2007, the licensee's root cause investigation for the event described in Section 4OA3 identified that the licensee failed to install the support bracket. This finding is documented in the licensee's corrective action program as Condition Report 07-8374. The finding was of very low safety significance because the deficiency did not result in an actual loss of a safety function or the actual loss of one train of the reactor protection system for greater than its technical specification allowed outage time, and did not involve a risk-significant fire, seismic, flooding, or severe weather initiating event.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Sheppard, President and CEO
C. Bowman, General Manager Oversight
W. Bullard, Manager, Health Physics
J. Calvert, Manager, Training
D. Cobb, STP Employee Concerns Program (EAP) Manager
R. Dunn Jr., Supervisor, Configuration Control and Analysis
R. Engen, Manager, Maintenance Engineering
T. Frawley, Manager, Plant Protection
R. Gangluff, Manager, Chemistry, Environmental and Health Physics
E. Halpin, Chief Nuclear Officer
W. Harrison, Manager, Licensing
G. Hildebrant, Manager, Operations Division, Unit 2
K. House, Manager, Design Engineering
G. Janak, Manager, Operations Division, Unit 1
J. Lovejoy, Manager, I&C Maintenance
N. Mayer, Manager, Outage and Projects
A. McGalliard, Manager, Performance Improvement
J. Mertink, Manager, Operations
H. Murray, Manager, Maintenance
M. Murray, Manager, Systems Engineering
R. Niemann, Authorized Nuclear Inservice Inspector
J. Paul, Engineer, Licensing Staff Specialist
J. Pierce, Manager, Operations Training
G. Powell, Vice President, Engineering
M. Reddix, Manager, Security
D. Rencurrel, Site Vice President
M. Ruvalcaba, Supervisor, Engineering
J. Williams, NDE/ISI Coordinator
C. Younger, Test Engineering Supervisor
D. Zink, Supervising Engineer

NRC Personnel

M. Shannon, Chief, Plant Support Branch 1

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000498/2008005-01	NCV	Failure to Adequately Perform Routine Operator Rounds Results in the Creation of Fire Hazards (Section 1R22)
05000499/2008005-01		

Closed

05000498/2007-002-00	LER	Entry into Technical Specification 3.0.3 for Greater Than 1 Hour due to Inoperable Degraded Voltage Relays (Section 4OA3)
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LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

CONDITION REPORTS

08-1344	08-1360	08-15180
08-1352	08-1361	08-15596
08-1354	08-1362	08-15600
08-1356	08-1363	08-15651
08-1357	08-1365	
08-1359	08-1367	

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
5S141F00024	Piping & Instrumentation Diagram – Auxiliary Feedwater	12

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
OPOP02-FC-0001	Spent Fuel Pool Cooling and Cleanup System	49
OPOP02-RH-0001	Residual Heat Removal System Operation	47
OPOP02-SI-0002	Safety Injection System Initial Lineup	20
OPOP02-DG-0001	Emergency Diesel Generator 11(21)	42
OPOP02-AF-0001	Auxiliary Feedwater	26

QUALITY MONITOR REPORTS

MN-08-2-42866

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
5E020E02875	Electrical Essential Cooling Water Intake Structure Conduit Plan Unit 1	8
9P200B0070	Essential Cooling Water Intake Structure Building Floor Plans & Details	8

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
0POP09-AN-02M3	Annunciator Lampbox 2M03 Response Instructions 02M3-C-2 ECW INTK STRUC SUMP LVL HI-HI	20

Section 1R08: Inservice Inspection Activities

CONDITION REPORTS

04-4269	07-0279	08-12374
04-4863	07-1858	08-12500
04-8286	07-4078	08-14371
04-8300	07-4250	08-14404
05-1849	07-4401	08-14418
05-10211	07-4413	08-14640
05-10223	07-4418	08-14641
05-10226	07-5190	08-14642
05-10229	07-6952	08-14643
05-11911	07-7161	08-14644
05-13787	07-7294	08-14645
06-0715	07-8189	08-14646
06-0962	07-8449	08-14647
06-3638	07-9269	08-14649
06-3750	07-14399	08-14651
06-4507	07-16700	08-14652
06-6446	07-16702	08-14653
06-6523	07-16711	08-14654
06-6531	07-16999	08-14833
06-6532	07-17073	08-15428
06-6538	07-18722	08-15428-1
06-6541	08-1252	08-15728

06-6543	08-1255	08-15729
06-6545	08-2745	08-15731
06-6546	08-2746	08-15732
06-10523	08-2814	08-15733
06-15618	08-3736	08-15734
06-16774	08-5380	08-15735
06-16915	08-5453	08-15736
06-16916	08-7609	08-15739
06-16919	08-8277	
06-17153	08-8874	
06-17154	08-12206	

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
6488E71 (Partial), Sheets 2, 5, and 6	SG Primary Side Manways and Manway Closure Seals	1
B-RHX-1	Isometric Figure for Residual Heat Removal Heat Exchanger 2A	0
A-RPV-1	Isometric Figure for Reactor Pressure Vessel	0
A-PRZ-1	Isometric Figure for Pressurizer	0
A-RCP-2	Isometric Figure for Reactor Coolant Pump Flywheel	0
A-RPV-3	Isometric Figure for Reactor Pressure Vessel Closure Studs, Nuts and Washers	0
A-RSG-1	Isometric Figure for Replacement Steam Generators 2A & 2C Primary Side	0
B-MS-2	Isometric Figure for Main Steam System in Room 403	1
B-MS-4	Isometric Figure for Main Steam System in Room 402	1
A-RPV-6	Isometric Figure for Reactor Vessel Closure Head Top Head Penetrations	0

MISCELLANEOUS

Alternative Requirements for VT-2 Visual Examination of Classes 1, 2, and 3 Insulated Pressure Retaining Bolted Connections Section XI, ASME Code Case N-616, May 7, 1999

ASME Section XI Interpretation for Bolted Joints Requirements, XI-1-86-21R,
September 19, 1989

ASME Section IX - Welder Performance Qualification (WPQ), Welder Qualifications, Various
Corrective Action for Leakage Identified at Bolted Connections Section XI, Division, ASME Code
Case N-566-1, February 15, 1999

Electric Power Research Institute Topical Report 1007904, Steam Generator In Situ Pressure
Test Guidelines, Revision 2, August 2003

Electric Power Research Institute Topical Report 107621R1, Steam Generator Integrity
Assessment Guidelines, Revision 1, March 2000

Email message from Jerry Stauber to Dan Sicking, STP, Steam Generator Manway Inserts,
October 2008

ETSS, Eddy Current Examination Technique Specification Sheets, various

Inservice Inspection Examination Plan, Examination Plan for the 2RE13 Inservice Inspection of
Unit 2 South Texas Project Electric Generating Station, September 2008

Letter from C. Haney, Director, Division of Operating Reactor Licensing, USNRC to
James J. Sheppard, South Texas Project Nuclear Operating Company, South Texas Project
Unit 2 - Completion of Actions for Confirmatory Action Letter NRR-07-009, December 26, 2007

Letter from Catherine Haney, Director, Division of Operating Reactor Licensing, NRC to
Mr. James J. Sheppard, President and Chief Executive Officer, STP Nuclear Operating
Company, South Texas Project Unit 2 - Completion of Actions for Confirmatory Action
Letter NRR-07-009, December 26, 2007

MRP-139, Materials Reliability Program, Primary System Piping Butt Weld Inspection and
Evaluation Guidelines, August 2005

NOC-AE-06002000, Proposed Alternative to ASME Section XI Requirements for Application of a
Weld Overlay (RR-ENG-43), May 1, 2006

NRC Safety Evaluation, South Texas Project, Units 1 and 2 - Request for Relief
No. Rr-Eng-2-43 for Remainder of Second 10 Year Inservice Inspection Interval Re: Application
of Weld Overlays in Pressurizer Nozzle Safe End Welds, April 2, 2007

Pressurizer Safety Nozzle Weld Overlay N3 (ISI #PZR-2-N3-SE), Weld Data Sheet,
April 21, 2007

Pressurizer Safety Nozzle Weld Overlay N4A (ISI #PZR-2-N4C-SE), Weld Data Sheet,
April 21, 2007

Pressurizer Safety Nozzle Weld Overlay N4B (ISI #PZR-2-N4B-SE), Weld Data Sheet,
April 21, 2007

Pressurizer Safety Nozzle Weld Overlay N4C (ISI #PZR-2-N4A-SE), Weld Data Sheet,
April 21, 2007

Pressurizer Spray Nozzle Weld Overlay N2 (ISI #PZR-2-N2-SE), Weld Data Sheet,
April 21, 2007

Pressurizer Surge Nozzle Weld Overlay N1 (ISI #PZR-2-N1-SE), Weld Data Sheet, April 21, 2007

QW-482, ASME Procedure Specification (WPS), various

QW-484, ASME Welder Performance Qualification Tests, various

RHVT2-2007-002, Reactor Vessel Closure Head/Bare Metal Visual Penetration Nozzles 1-9 and 14-83, April 6, 2007

SGS-08-004, Westinghouse Memorandum - Use of Appendix H Qualified Techniques, South Texas Unit 2, Fall 2008, October 6, 2008

South Texas 2RE10 Condition Monitoring Assessment and Operational Assessment, SG-SGDA-04-33, Revision 2, August 2004

Steam Generator Degradation Assessment, South Texas 2RE13, SG-CDME-08-10, August 2008

Steam Generator Eddy Current Data Analysis Guidelines, South Texas Project Units 1 and 2, Revision 1, April 2008

Steam Generator Management Program Assessment (CR 05-8340), September 2005

Steam Generator Program Guidelines, NEI 97-06, Revision 1, January 2001

STP Welder/Arcwire Thermal Spray Qualification Matrix, October 6, 2008

STP1-2 MRP-139, MRP-139 Butt Welds Schedules Spreadsheet, March 24, 2008

STP-NOC-AE-07002120, Inspection and Mitigation of Alloy 82/182 Pressurizer Butt Welds, Revised February 22, 2007

STP-NOC-AE-07002161, Unit 2 Weld Overlay Examination Results, May 1, 2007

Use of Appendix H Qualified Techniques, South Texas Unit 2, Fall 2008, SGS-08-004, October 6, 2008

Various Certification and Qualification records for nondestructive examination inspectors

Various Certification and Qualification records for welders

NON-DESTRUCTIVE EVALUATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
STP-14Q-LPA-01	Phased Array Ultrasonic Examination Record for N4A(W) N4C(ISI), Pressurizer SRV Nozzle, Component ID PZR-2-N4A-SE-WOL	April 10, 2007

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
STP-14Q-LPA-02	Phased Array Ultrasonic Examination Record for N-4B, Pressurizer SRV Nozzle WOL, Component Description PZR-2-N4B-SE-WOL	April 10, 2007
STP-14Q-LPA-03	Phased Array Ultrasonic Examination Record for N-3, Pressurizer SRV Nozzle Weld Overlay Component ID PZR-2-N3-SE-WOL	April 10, 2007
STP-14Q-LPA-04	Phased Array Ultrasonic Examination Record for N-2, Spray Nozzle Weld Overlay Component ID PZR-2 N2-SE-WOL	April 14, 2007
STP-14Q-LPA-05	Phased Array Ultrasonic Examination Record for N-4C, SRV Nozzle Weld Overlay Component ID PZR-2-N4C-SE-WOL	April 19, 2007
STP-14Q-LPA-06	Phased Array Ultrasonic Examination Record for N-1, Surge Nozzle Weld Overlay Component ID PZR-2-N1-SE-WOL	April 17, 2007
UT-2008-243	Ultrasonic Examination Record for 30 S 001 A2 Weld 27	October 13, 2008
UT-2008-250	Ultrasonic Examination Record for 16 S 002 A2 Weld 2	October 13, 2008
UT-2008-226	Ultrasonic Examination Record for Reactor Coolant Pump Flywheel 2D	October 12, 2008
UT-2008-223	Ultrasonic Examination Record for Reactor Coolant Pump Flywheel 2A	October 12, 2008
MT-2008-(200 to 205)	Magnetic Particle Examination Records for Reactor Pressure Vessel Closure Studs 19B - 24B	October 13, 2008
VT1/3-2008-(150 to 156)	Visual Examination Records for Reactor Pressure Vessel Closure Washers 19B - 24B	October 13, 2008
VT1/3-2008-(150 to 156)	Visual Examination Records for Reactor Pressure Vessel Closure Nuts 19B - 24B	October 13, 2008
PT-2008-082	Liquid Penetrant Examination for Nozzle to Shell Weld on RHAHRS-2A-NB	October 15, 2008
RHVT2-2008-005, -006, -007	Reactor Vessel Closure Head and CRDM Penetration Visual VT2 Examination of Nozzles 1-9 and 14-83	October 15, 2008

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
0PEP10-ZA-0001	Qualification and Certification of Nondestructive Examination Personnel for Examination Methods other than Ultrasonic Examination Method for Inservice Inspection Program	5
0PEP10-ZA-0012	Color Contrast Solvent Removable Liquid Penetrant Examination for ASME IX PSI/ISI	2
0PEP10-ZA-0019	Wet Fluorescent Magnetic Particle Examination for ASME Section IX PSI/ISI	1
0PEP10-ZA-0024	ASME XI Examination for VT-1 and VT-3	1
0PEP10-ZA-0031	Reactor Vessel Closure Head and Control Rod Drive Mechanism (CRDM) Penetration Visual VT-2 Examinations	2, 3
0PGP03-ZA-0090	Work Process Program	32
0PGP03-ZE-0027	ASME Section XI Repair, Replacement and Post-Maintenance Pressure Testing	26
0PGP03-ZE-0033	RCS Pressure Boundary Inspection for Boric Acid Leaks	10
0PGP03-ZE-0133	Boric Acid Corrosion Control Program	2
0PGP03-ZM-0028	Erection and Use of Temporary Scaffolding	13
0PGP03-ZT-0138, Form 1	Contractor/Staff Augmentation Volunteer Training and Qualification Program for Contract B03458R0 - Structural Weld Overlay	7
0PGP04-ZA-0108 (Westinghouse Proprietary)	Remote Inservice Inspection of Reactor Vessel Nozzle to Safe End, Nozzle to Pipe, and Safe End to Pipe Welds Using the Nozzle Scanner	8
0PGP04-ZE-0006	Alloy 600 Materials Management Program	0
0PGP04-ZE-0304	Inservice Inspection Program for Welds and Component Supports	6
0PGP04-ZE-0305	Inservice Inspection Program for Steam Generator Tubing	4
0PMP02-ZW-0001	General Welding Requirements	7
0PSP11-RC-0014	Steam Generator Inspection	16

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
0PSP11-RC-0016	Susceptibility Category Assessment for Reactor Pressure Vessel Head Inspections	0
MRS-SSP-1619-TGX/THX (Westinghouse Proprietary)	Steam Generator Eddy Current Data Analysis Guidelines for Inservice Inspections at South Texas Units 1 and 2	3
PDI-ISI-254-SE-NB (Westinghouse Proprietary)	Remote Inservice Inspection of Reactor Vessel Nozzle to Safe-End, Nozzle to Pipe, and Safe-End to Pipe Welds using the Nozzle Scanner	0
UTI-003	Manual Ultrasonic Examination of Reactor Coolant Pump Flywheels from the Access Holes	2
UTI-PDI-UT-1	PDI Generic Procedure for the Ultrasonic Examination of Ferritic Pipe Welds	0

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
RST208.18	Small Break LOCA (PZR steam space break)	0
RST208.19	Steam Generator Tube Rupture	0

Section 1R12: Maintenance Effectiveness

CONDITION REPORTS

98-1799	05-8993	07-11971
99-217	06-16528	08-7965
99-566	07-10281	08-10561
02-16678	07-10282	08-10964
03-18095	07-11216	08-16378

MISCELLANEOUS

Calculation ZC-7032, "Loop Uncertainty Calculation for Narrow Range Pressurizer Pressure Monitoring Instrumentation," Revision 4

Maintenance Rule Basis Document, Revision 14

System Health Report, Reactor Coolant, Third Quarter 2006 through Third Quarter 2008

System Health Report, Safety Injection, Third Quarter 2006 through Third Quarter 2008

System Health Report, 7300 Processor Support, Third Quarter 2006 through Third Quarter 2008

Technical Bulletin TB-05-06, "Retrofit of Printed Circuit Cards for 7300 Based

Systems-Capacitor C105 Replacement with Fuse Protection Added," Revision 1

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

MISCELLANEOUS

2RE13 Shutdown Risk Assessment Report, dated September 29, 2008
Planned Risk Profiles for Unit 1 Week of 12/01/2008
Planned Risk Profiles for Unit 1 Week of 12/15/2008
Planned Risk Profiles for Unit 2 Week of 12/01/2008
Planned Risk Profiles for Unit 2 Week of 12/15/2008
Condition Reports 08-18249, and 08-18259
Work Activity Risk Plan of Action Eval # 1864, 1869, and 1872

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
OPGP03-ZA-0101	Shutdown Risk Assessment	18
OPGP03-ZO-0035	Reduced RCS Inventory Operations	20
OPOP03-ZG-0009	Mid-Loop Operation	46

Section 1R15: Operability Evaluations

CONDITION REPORTS

04-3576	08-13224	08-13864
08-10561	08-13243	08-18249
08-10964	08-13328	08-19130

MISCELLANEOUS

Calculation MC-6154, "Feedwater Isolation Valve Actuator Minimum Nitrogen Pressure & FWIV Closure Times," Revision 1

Calculation ZC-7032, "Loop Uncertainty Calculation for Narrow Range Pressurizer Pressure Monitoring Instrumentation," Revision 4

OPOP09-AN-06M4, "Annunciator Lampbox 6M04 Response Instructions," Revision 29

OPSP05-RC-0455T, "Pressurizer Pressure Transmitter Calibration," Revision 15 and 16

PM 87007114

PM 89003310

Temporary leak repair TL2-08-18249-4

WORK AUTHORIZATION NUMBERS

367627

WORK AUTHORIZATION NUMBERS

317188	350636	353350
326824	352074	366940
338288	352116	368239
338527	352117	369682
338567	352118	370363

Section 1R20: Refueling and Other Outage Activities

CONDITION REPORTS

08-14658

MISCELLANEOUS

2RE13 Shutdown Risk Assessment Report, dated September 29, 2008

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
OPGP03-ZA-0101	Shutdown Risk Assessment	18
OPGP03-ZO-0035	Reduced RCS Inventory Operations	20
OPOP03-ZG-0009	Mid-Loop Operation	46

Section 1R22: Surveillance Testing

CONDITION REPORTS

06-4091	08-13399	08-16866
07-1237	08-13706	08-17230
07-15363	08-13768	08-17817
08-2407	08-14824	08-18374
08-3590	08-14959	08-18876
08-6851	08-14968	08-18903
08-7486	08-14974	08-19109
08-8404	08-15668	08-19118
08-9761	08-16846	08-19120
08-10713	08-16847	08-19296
08-11981	08-16862	09-184
08-12437	08-16865	09-195

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
0PSP03-RC-0006	Reactor Coolant Inventory	18
0PSP03-SI-0021	Safety Injection System Valve Operability Test (Refueling)	8

0PSP03-DG-0002	Standby Diesel 12(22) Operability Test	32
0PSP03-DG-0017	Standby Diesel 12(22) Twenty-Four Hour Load Test	27
0PSP03-RI-0001	Digital Rod Position Indication Operability Test	9
0PSP11-XC-0005	Containment Airlock Interlock Test	8
0PSP11-XC-0009	Personnel Airlock Pneumatic Seal System Pressure Drop Test	13
0PSP11-XC-0015	Personnel/Auxiliary Airlock Operability Testing	4
0PMP05-CH-0001	York Chiller Inspection & Maintenance 300 to 550 Tons	33
0POP01-ZQ-0022	Plant Operations Shift Routines	56

WORK AUTHORIZATION NUMBERS

231854	337148	348200
321720	338790	354378
334039	347436	367529
335951	347439	370429

Section 1EP6: Drill Evaluation

MISCELLANEOUS

STP Nuclear Operating Company Combined Functional Drill Blue Team Scenario Manual, November 4, 2008

Section 4OA1: Performance Indicator Verification

CONDITION REPORTS

07-9342	08-8806	08-14409
08-5456		

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
0PGP05-ZN-0007	Preparation and Submittal of NRC Performance Indicators	3
0PGP05-ZV-0013	Performance Indicator Tracking Guide	3

Section 4OA3: Event Follow-Up

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
OPGP03-ZX-0002	Condition Reporting Process	29, 36
WCG-003	Planner's Guide Work Package Development – General Guidelines	24
MG-0006	Work Execution and Closeout Guideline, Section 9 Work Completion	5

WORK ORDERS

317871	451572	479765
437956	477704	479766
437987	479763	
437988	479764	