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

October 18, 2002

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

SUBJECT: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION - NRC INSPECTION REPORT 50-498/02-04; 50-499/02-04

Dear Mr. Cottle:

On September 21, 2002, the NRC completed an inspection at your South Texas Project Electric Generating Station, Units 1 and 2, facility. The enclosed report documents the inspection findings which were discussed on September 26, 2002, with Mr. J. Sheppard and other members of your staff.

This inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC has identified two issues that were evaluated under the risk Significance Determination Process as having very low safety significance (Green). One of these issues was a violation which is being treated as a noncited violation (NCV), consistent with Section VI.A of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or significance of this NCV, 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, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 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 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) 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).

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

Sincerely,

/RA/

William D. Johnson, Chief
Project Branch A
Division of Reactor Projects

Dockets: 50-498
50-499
Licenses: NPF-76
NPF-80
Enclosure:
NRC Inspection Report
50-498/02-04; 50-499/02-04

cc w/enclosure:
Tom Jordan, Vice President
Engineering & Technical Services
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, Texas 77483

S. M. Head, Manager, Licensing
Nuclear Quality & Licensing Department
STP Nuclear Operating Company
P.O. Box 289, Mail Code: N5014
Wadsworth, Texas 77483

A. Ramirez/C. M. Canady
City of Austin
Electric Utility Department
721 Barton Springs Road
Austin, Texas 78704

M. T. Hardt/W. C. Gunst
City Public Service Board
P.O. Box 1771
San Antonio, Texas 78296

D. G. Tees/R. L. Balcom
Houston Lighting & Power Company
P.O. Box 1700
Houston, Texas 77251

Jon C. Wood
Matthews & Branscomb
112 E. Pecan, Suite 1100
San Antonio, Texas 78205

A. H. Gutterman, Esq.
Morgan, Lewis & Bockius
1111 Pennsylvania Avenue NW
Washington, DC 20004

C. A. Johnson/R. P. Powers
AEP - Central Power and Light Company
P.O. Box 289, Mail Code: N5022
Wadsworth, Texas 77483

INPO
Records Center
700 Galleria Parkway
Atlanta, Georgia 30339-5957

Director, Division of Compliance
& Inspection

Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, Texas 78756

Brian Almon
Public Utility Commission
William B. Travis Building
P.O. Box 13326
1701 North Congress Avenue
Austin, Texas 78701-3326

Environmental and Natural
Resources Policy Director
P.O. Box 12428
Austin, Texas 78711-3189

Judge, Matagorda County
Matagorda County Courthouse
1700 Seventh Street
Bay City, Texas 77414

G. R. Bynog, Program Manager/
Chief Inspector
Texas Department of Licensing & Regulation
Boiler Division
P.O. Box 12157, Capitol Station
Austin, Texas 78711

Susan M. Jablonski
Office of Permitting, Remediation and Registration
Texas Commission on Environmental Quality
MC-122, P.O. Box 13087
Austin, Texas 78711-3087

Ted Enos
4200 South Hulen
Suite 630
Fort Worth, Texas 76109

Electronic distribution by RIV:
Regional Administrator **(EWM)**
DRP Director **(KEB)**
DRS Director **(EEC)**
DMB **(IE35)**
Senior Resident Inspector **(NFO)**
Branch Chief, DRP/A **(WDJ)**
Senior Project Engineer, DRP/A **(CJP)**
Staff Chief, DRP/TSS **(PHH)**
RITS Coordinator **(NBH)**
W.A. Maier, RSLO **(WAM)**
Scott Morris **(SAM1)**
STP Site Secretary **(LAR)**

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets:	50-498 50-499
Licenses:	NPF-76 NPF-80
Report No:	50-498/02-04 50-499/02-04
Licensee:	STP Nuclear Operating Company
Facility:	South Texas Project Electric Generating Station, Units 1 and 2
Location:	FM 521 - 8 miles west of Wadsworth Wadsworth, Texas 77483
Date:	June 23 through September 21, 2002
Inspectors:	N. F. O'Keefe, Senior Resident Inspector G. L. Guerra, Resident Inspector J. M. Keeton, Project Engineer, Project Branch A R. P. Mullikin, Senior Reactor Inspector, Engineering and Maintenance Branch J. L. Taylor, Reactor Inspector, Engineering and Maintenance Branch R. E. Lantz, Senior Emergency Preparedness Inspector, Plant Support Branch
Approved By:	W. D. Johnson, Chief, Project Branch A, Division of Reactor Projects
Attachment:	Supplemental Information

SUMMARY OF FINDINGS

South Texas Project Electric Generating Station, Units 1 and 2
NRC Inspection Report 50-498/02-04; 50-499/02-04

IR 05000498-02-04; IR 05000499-02-04; on 6/23/2002 - 9/21/2002; STP Nuclear Operating Company; South Texas Project Electric Generating Station; Units 1 & 2. Integrated Resident and Regional Report; event followup, surveillance testing.

The inspection was conducted by resident inspectors and region-based engineering and plant support inspectors. One Green noncited violation and one Green finding were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at http://www.nrc.gov/NRR/OVERSIGHT/index.html.

Cornerstone: Barrier Integrity

Green. Instrumentation and controls technicians did not ensure that computer constants needed to calculate axial flux difference were updated during calibrations of the nuclear instruments as required by the calibration procedures. The plant computer was the only method used to calculate core axial flux difference and to alarm if limits were approached. This failure to follow procedures was a noncited violation of Technical Specification 6.8.1 and Regulatory Guide 1.33.

The axial flux difference function was still operable with the old constants not properly updated for two channels, since the computer constants had changed by a small amount. However, this issue was considered to be more than minor because, if left uncorrected, it would be of greater safety concern because instrument inaccuracies could increase over time as the core burned up and detectors aged. The error affected operators' ability to maintain reactor power distribution within limits in order to protect the fuel clad barrier. This issue screened as a Green issue using Phase 1 of the Significance Determination Process because only the fuel clad barrier was potentially affected (Section 1R22).

Cornerstone: Initiating Events

Green. On July 7, 2002, power was lost to the Train D instrumentation channel when the associated inverter blew a fuse. Because it was the licensee's practice to operate with all four controlling steam generator water level channels powered from that channel, the level instruments all failed low, causing the control system to increase feedwater flow to maximum. Operators were unable to gain manual control of the four channels fast enough to control level and the unit tripped on high steam generator water level.

The inspectors concluded that plant personnel had not maintained an operating equipment lineup that would minimize events that upset plant stability and challenged safety functions. This performance deficiency was considered to be of more than minor significance because it affected the performance objective of the initiating events cornerstone by increasing the likelihood of a plant trip or transient. The issue was screened as Green using Phase 1 of the Significance Determination Process (Section 4OA3.1).

Report Details

Plant Status

Unit 1 operated at full power throughout the inspection period.

Unit 2 began this inspection period at full power. On July 7, 2002, the unit automatically tripped on high steam generator water level when power was lost to one train of safety-related instrumentation. After repairs to the inverter power supply, the unit started up on July 9 and achieved full power on July 10. The unit operated at full power for the remainder of the inspection period.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdown

a. Inspection Scope

The inspectors performed a partial system walkdown of the Unit 2 safety injection system, Trains A and B, while Train C was out of service for maintenance on July 2, 2002. The inspectors verified the proper standby equipment and control board lineup in accordance with Plant Operating Procedure 0POP02-SI-0002, "Safety Injection System Initial Lineup," Revision 15, and system piping and instrumentation diagrams to verify that the trains were in a proper standby lineup. The inspectors also examined component material condition.

The inspectors performed a partial system walkdown of the Unit 1 auxiliary feedwater system, Trains A and B, on July 22, 2002, while Train C was out of service for maintenance. The inspectors verified the proper standby equipment and control board lineup in accordance with Plant Operating Procedure 0POP02-AF-0001, "Auxiliary Feedwater," Revision 16, and system piping and instrumentation diagrams. The inspectors also examined component material condition.

b. Findings

No findings of significance were identified.

.2 Semi-Annual System Walkdown

a. Inspection Scope

The inspectors performed a detailed system walkdown of the accessible portions of the Unit 2 125 VDC and 120 VAC Class 1E electrical distribution systems on August 15-16, 2002. The inspectors verified that all four trains of the system were in a proper operational and standby equipment lineup per Plant Operating Procedures 0POP02-EE-0001, "ESF Class 1E DC Distribution System," Revision 10;

0POP02-AE-0004, “120 VAC ESF Vital Distribution Power Supplies,” Revision 7; and 0POP02-AE-0001, “AC Electrical Distribution Breaker Lineup,” Revision 11. Technical Specification 3.8, Updated Final Safety Analysis Report Section 8.3.2.1, and the licensed operator training manual were also reviewed for information on the required system conditions and alignment. The inspectors verified that components were in good condition.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Fire Area Walkdowns

a. Inspection Scope

The inspectors used Inspection Procedure 71111.05 to evaluate the control of transient combustibles and ignition sources. The individual plant examination, fire preplans, and Fire Hazards Analysis Report were used to identify important plant equipment, design fire loading, fire detection and suppression equipment locations, and planned actions to respond to a fire in each of the plant areas selected. The inspection included observing the condition and operational lineup of fire protection systems and fire barriers used to prevent fire damage or propagation. The following plant areas were inspected:

- Unit 1 electrical auxiliary building Train A cable spreading rooms (Fire Zones Z010, Z026, and Z027) on July 1, 2002
- Unit 1 boron storage, batching tank, and support system rooms (Fire Zones Z108, Z138, Z127, and Z141) on July 18, 2002
- Unit 2 electrical auxiliary building Train C cable spreading room (Fire Zone Z47) on August 29, 2002
- Unit 2 electrical auxiliary building Train A cable spreading rooms (Fire Zones Z010, Z026, and Z027) on July 18, 2002

b. Findings

No findings of significance were identified.

.2 Fire Brigade Drills

a. Inspection Scope

The inspectors observed announced fire brigade drills on July 25 and August 28, 2002, to evaluate the readiness of plant personnel to fight fires. The fires were simulated to be in the Unit 2 electrical auxiliary building 60 foot penetration spaces and the Train B

cable spreading room, respectively. Licensee performance was evaluated against criteria listed in Inspection Procedure 71111.05. For the first drill, the inspectors observed the predrill brief and then observed the actions of the fire brigade within the plant. The second drill was observed from the control room to assess the response of licensed operators to assess command and control, simulated communications with offsite organizations, and manual actions for the fire area required to be performed by the operator actions list.

b. Findings

No findings of significance were identified.

1R06 Flood Protection (71111.06)

a. Inspection Scope

The inspectors used the criteria in Inspection Procedure 71111.06 to perform a semiannual inspection of the flood protection features associated with the Unit 2 mechanical auxiliary building rooms housing all three trains of essential chillers, component cooling water pumps, and charging pumps. A walkdown of each room was conducted on September 7, 2002, to assess whether sump equipment was in working condition, to identify sources of flooding which were not considered in the licensee's analysis, as well as to identify any missing or degraded flood barriers and flood control features credited in Flooding Analysis Calculation NC-9703, Revision 2.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors used the guidance in Inspection Procedure 71111.11 to assess licensed operator requalification training in the control room simulator on August 28, 2002, as discussed in Section 1EP6.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness Review (71111.12)

a. Inspection Scope

The inspectors used the guidance provided in Inspection Procedure 71111.12 to independently assess maintenance effectiveness, including Maintenance Rule Program

activities, work practices, and common cause failure issues. The following equipment performance problem was reviewed:

- Failed rectifier assembly in feedwater control system caused loss of feedwater (Work Authorization Number (WAN) 231187, Condition Report (CR) 02-8679)

The following work item was selected to evaluate the appropriateness of work practices related to foreign material exclusion by mechanical maintenance personnel due to previous problems in this area:

- Residual Heat Removal Pump 2B seal rebuild (WAN 231537 CR 02-2146)

The inspectors verified that system, structure, and component (SSC) performance or condition problems were properly characterized in the scope of the Maintenance Rule Program. The inspectors assessed the adequacy of the licensee's significance classification for the SSC. This included the appropriateness of the performance criteria established for the SSC (if applicable) and the adequacy of corrective actions for SSCs classified in accordance with 10 CFR 50.65 a(1) as applicable.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation (71111.13)

a. Inspection Scope

The inspectors assessed whether the licensee's performance of risk assessments for selected planned and emergent maintenance activities was in accordance with 10 CFR 50.65(a)(4) by reviewing five planned and emergent work items. The inspectors assessed the completeness and accuracy of the information considered in the risk assessments, and compared the actions taken to manage the resultant risk with the requirements of the Configuration Risk Management Program. The inspectors discussed emergent work issues with work control personnel and reviewed the potential risk impact of these activities to verify that the work was adequately planned, controlled, and executed. The activities reviewed were associated with:

- (Unit 2) Swapping of the Train B battery chargers using revised procedure on July 11, 2002 (CR 02-9755)

- (Unit 1) Engineered safety feature Train C transformer work with loads being carried by the standby diesel generator on July 16, 2002 (WAN 228929)

- (Unit 1) Main feedwater flow control system adjustments on August 8, 2002 (CR 02-7510)

- (Unit 1) Spent Fuel Pool Cooling Loop 1B out of service for valve repair on September 9-12, 2002 (Work Order FC-418208)

- (Unit 1) Main feedwater regulating valve gain adjustments on September 12, 2002

For the Unit 1 spent fuel pool cooling system work, the inspectors verified that the risk management actions taken were in accordance with Plant Operating Procedure 0POP02-FC-0001, "Spent Fuel Pool Cooling and Cleanup System," Revision 37, to manage the increased potential for boiling in the spent fuel pool.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

.1 Fuel Assembly Top Nozzle Replacement

a. Inspection Scope

The inspectors observed and reviewed the activities in Unit 1 and 2 regarding the fuel assembly top nozzle replacements. On June 25-26, 2002, one assembly from each unit had the top nozzle replaced. The inspectors reviewed Plant Engineering Procedure 0PEP02-FH-0004, "Irradiated Fuel Assembly Reconstitution," Revision 4, used to control the work. The inspectors reviewed the procedure and work package to evaluate the work (WAN 222701).

b. Findings

No findings of significance were identified.

.2 Unit 2 Automatic Reactor Trip

a. Inspection Scope

The inspectors observed and reviewed operator response to the loss of power to Train D instrumentation and the resulting reactor trip on high steam generator level on July 7, 2002. The inspectors observed portions of the restart on July 9, 2002. The inspectors focused on observations of operator performance, command and control, procedure use, reactivity control, and communications. Plant equipment was verified to perform as expected in response to the trip. There were no challenges to safety-related equipment during the event. The inspectors observed the proper operation of radiation monitors being used to trend operational leakage from all four Unit 2 steam generators during the automatic trip to verify that leakage remained minor. The trip response is further discussed in Section 4OA3.1.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors used Inspection Procedure 71111.15 to review four operability evaluations conducted by plant personnel during the report period involving risk-significant systems or components. The inspectors evaluated the technical adequacy of the operability determinations, reviewed any compensatory measures, and checked to see that the impact of other pre-existing conditions were considered, as applicable. Additionally, the inspectors evaluated the adequacy of the problem identification and resolution program as it applied to operability evaluations. Specific operability evaluations reviewed are listed below.

- (Unit 1) Accumulator 1A pressure relief Valve PSV-3981 not at proper set point on July 16, 2002 (CR 02-8877)
- (Unit 2) Evaluation of E2D11 bus inverter after fuse replacement on July 16, 2002 (CR 02-9755)
- (Unit 2) Evaluation of E2D11 bus inverter after second fuse replacement on August 8, 2002 (CR 02-11228)
- (Unit 2) Steam Generator Water Level Narrow Range Instrument L-0539 spiking on September 18, 2002 (CR 02-12882)

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors reviewed licensee-identified operator workarounds and other existing equipment conditions with the potential to be workarounds in order to determine the overall potential impact on human performance during event response. The inspectors specifically focused on identifying equipment conditions that would affect the functionality of mitigating systems.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed five permanent plant modification packages and associated documentation, such as review screens and safety evaluations, to verify that they were performed in accordance with regulatory requirements and plant procedures. The inspectors also reviewed procedures governing plant modifications to evaluate the effectiveness of the programs for implementing modifications to risk-significant systems, structures and components, such that these changes did not adversely affect the design and licensing basis of the facility. Permanent plant modifications and procedures reviewed are listed in the attachment to this report.

The inspectors interviewed the cognizant engineers for selected modifications as to their understanding of the modification packages.

The inspectors evaluated the effectiveness of the licensee's corrective action process to identify and correct problems associated with the performance of permanent plant modifications. In this effort, the inspectors reviewed the corrective action documents listed in the attachment to this report.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors witnessed or reviewed the results of postmaintenance testing for the following four maintenance activities:

- (Unit 1) Control room envelope ventilation supply damper not fully opening, July 3, 2002 (WAN 232221, CR 02-9402)
- (Unit 2) E2D11 Battery Charger 2 high voltage condition, July 10, 2002 (WAN 195241)
- (Unit 2) E2D11 bus inverter maintenance, August 8, 2002 (WAN 234680)
- (Unit 2) Residual Heat Removal Pump 2B seal rebuild, August 22, 2002 (WAN 281537)

In each case, the associated work orders and test procedures were reviewed to determine the scope of the maintenance activity and determine if the test adequately verified proper performance of the components affected by the maintenance. The Updated Final Safety Analysis Report, Technical Specifications, and design-basis

documents were also reviewed as applicable to determine the adequacy of the acceptance criteria listed in the test procedures.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors evaluated the adequacy of five periodic tests of important nuclear plant equipment. This review included aspects such as preconditioning; the impacts of testing during plant operations; the adequacy of acceptance criteria; test frequency; procedure adherence; record keeping; the restoration of standby equipment; the effectiveness of the licensee's problem identification and resolution program; and test equipment accuracy, range and calibration. The inspectors observed or reviewed the following tests:

- (Unit 1) 0PSP06-RC-0004, "Reactor Coolant Pump 1D TADOT," Revision 9, on July 2, 2002
- (Unit 2) 0PSP11-XC-0008, "LLRT: Penetration M-90 Personnel Airlock Door Seals," Revision 13, on July 2, 2002
- (Unit 2) 0PSP11-SI-0003, "LLRT: M-20 Emergency Sump 2C," Revision 6, on July 2, 2002
- (Unit 2) 0PMP05-VA-0004, "120 VAC Vital Inverter Performance Test," Revision 1, on August 8, 2002
- (Unit 1) 0PSP05-NI-0042A/0043A, "Nuclear Instrumentation System Axial Flux Difference Calibration," Revision 19 on August 29, 2002

For the nuclear instrument calibration issue, the inspectors observed the investigation of the procedure error by plant personnel, reviewed the Event Review Team report, and reviewed corrective actions from a similar previous error (CR 02-2756 and 02-12660).

b. Findings

Plant personnel identified that instrumentation and controls technicians did not ensure that computer constants needed to calculate axial flux difference were updated during calibrations of the nuclear instruments. This failure to follow procedures was a Green noncited violation of Technical Specification 6.8.1 and Regulatory Guide 1.33.

On August 26, 2002, technicians began several days of work to calibrate nuclear instrumentation in order to compensate for core burnup and detector aging. The process involved taking in-core flux measurements and then calibrating the ex-core

instrumentation to the latest conditions. Since there are four channels of ex-core nuclear instruments, they must be calibrated sequentially. When each channel is adjusted, its output signal is converted so that the plant computer can compare channels and compute a core axial flux difference (AFD). These values measure a departure from an even power distribution which, if large enough, could result in core damage when the overall core was within its rated power level. The values for AFD are required by Technical Specifications to be monitored and maintained within specified limits; the licensee relied on the plant computer to perform the monitoring and to alarm if values became excessive.

On August 29, 2002, technicians were performing the calibration of the last of the four channels when it was recognized that the computer constants for the second and third channels had not been updated as required. Operators promptly manually checked AFD values and found them to be within Technical Specification limits. The constants were updated as soon as possible. The licensee determined that the instrumentation and controls technicians who performed all four calibrations incorrectly assumed that all four channels were updated when the constant for the first channel was updated. Therefore, they signed the procedure steps to notify the responsible individual to update the constants for the second and third channels without notifying anyone.

The licensee determined that the AFD functions were still operable with the old constants not properly updated for two channels, since the computer constants had changed by a small amount. This issue was entered into the corrective action program under Condition Report 02-12660.

The inspectors concluded that this failure to follow Plant Surveillance Procedures 0PSP05-NI-0042A and 0PSP05-NI-0043A was more than minor because, if left uncorrected, it would be of greater safety concern because instrument inaccuracies could increase over time as the core burned up and detectors aged. The issue was associated with operators' ability to maintain reactor power distribution within limits in order to protect the fuel clad barrier. This issue screened as a Green issue using Phase 1 of the Significance Determination Process because only the fuel clad barrier was potentially affected. Failure to follow a procedure required by Technical Specification 6.8.1 and Regulatory Guide 1.33 is being treated as NCV, consistent with Section VI.A of the Enforcement Policy (NCV 50-448/02-04-01).

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors used the guidance in Inspection Procedure 71111.23 to review two temporary modifications, using the guidance contained in Inspection Procedure 71111.23 with respect to design bases, approvals, and tracking. The inspectors reviewed the screening done in accordance with 10 CFR 50.59, updated procedures, and drawings. The inspectors also walked down the temporary modifications.

- T2-02-7841-2, “Time Delay for Power Range Channel Deviation,” on July 3, 2002

- T2-02-10434-2, “Rod C9 Normalized to Full Out Position to Eliminate Alarms,” on July 30, 2002

b. Findings

No findings of significance were identified.

1EP1 Exercise Evaluation (71114.01)

a. Inspection Scope

The inspectors reviewed the objectives and scenario for the 2002 Biennial Emergency Preparedness Exercise to determine if the exercise would acceptably test major elements of the emergency plan. The scenario included reactor protection system problems, a main steam break inside containment, a loss of coolant accident, fuel damage, and an unfiltered radiological release to demonstrate the licensee's capabilities to implement the emergency plan.

The inspectors evaluated exercise performance by focusing on the risk-significant activities of classification, notification, protective action recommendations, and assessment of offsite dose consequences in the simulator control room and the following emergency response facilities:

- Technical Support Center
- Operations Support Center
- Emergency Operations Facility

The inspectors also assessed personnel recognition of abnormal plant conditions, the transfer of emergency responsibilities between facilities, communications, protection of emergency workers, emergency repair capabilities, and the overall implementation of the emergency plan to verify compliance with the requirements of 10 CFR 50.47(b), 10 CFR 50.54(q), and Appendix E to 10 CFR Part 50.

The inspectors attended the postexercise critiques in each of the above emergency response facilities to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended the formal presentation of critique items to plant management.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed Revision 20 to the Emergency Plan against 10 CFR 50.54(q) to determine if the revision decreased the effectiveness of the plan.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspectors reviewed the following documents related to the licensee's corrective action program to determine the licensee's ability to identify and correct problems in accordance with the requirements of 10 CFR 50.47(b)(14) and 10 CFR Part 50, Appendix E.

- Quality Audit Report 02-002 Emergency Preparedness (EP), dated March 6, 2002

- Listing of emergency preparedness related condition reports from the first calendar quarter 2001 through the first calendar quarter 2002

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors used the guidance in Inspection Procedure 71114.06 to assess licensed operator drills in the control room simulator on August 28, 2002. The inspectors observed the performance of Crew 1A during the annual requalification simulator exam for clarity and formality of communications, correct use of procedures, high risk operator actions, and the oversight and direction provided by the shift supervisor. The simulator session included two scenarios: a steam generator tube rupture, and a faulted steam generator. The inspectors observed the licensee's use of emergency action levels for proper emergency classification and reporting timeliness, reviewed the scenario sequence and objectives, observed the licensee's critique, and discussed crew performance with exam evaluators.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS
Cornerstone: Physical Protection (PP)

3PP3 Response to Contingency Events (71130.03)

The Office of Homeland Security (OHS) developed a Homeland Security Advisory System (HSAS) to disseminate information regarding the risk of terrorist attacks. The HSAS implements five color-coded threat conditions with a description of corresponding actions at each level. NRC Regulatory Information Summary (RIS) 2002-12a, dated August 19, 2002, "NRC Threat Advisory and Protective Measures System," discusses the HSAS and provides additional information on protective measures to licensees.

a. Inspection Scope

On September 10, 2002, the NRC issued a safeguards advisory to reactor licensees to implement the protective measures described in RIS 2002-12a in response to the Federal government declaration of threat level Orange. Subsequently, on September 24, 2002, the OHS downgraded the national security threat condition to Yellow and a corresponding reduction in the risk of a terrorist threat.

The inspectors interviewed licensee personnel and security staff, observed the conduct of security operations, and assessed licensee implementation of the threat level Orange protective measures. Inspection results were communicated to the region and headquarters security staff for further evaluation.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

.1 Barrier Integrity Performance Indicator Review

a. Inspection Scope

During the weeks of August 5 and 12, 2002, the inspectors reviewed performance indicator data reported by the licensee in order to assess the accuracy and completeness of the information. The inspectors used Nuclear Energy Institute (NEI) Guidance NEI 99-02, "Performance Indicator Verification," Revision 2, as guidance for this inspection. Data was reviewed for two indicators for each unit for the second quarter of 2001 through the second quarter of 2002:

- Reactor Coolant System Activity
- Reactor Coolant System Leak Rate

b. Findings

No findings of significance were identified.

.2 Drill and Exercise Performance

a. Inspection Scope

The inspectors verified the licensee's reported results for the drill and exercise performance indicator by reviewing a 100 percent sample of records for exercises, actual declared emergencies, drills, and simulator training scenarios conducted from the second calendar quarter 2001 through the first calendar quarter 2002 to verify the accuracy of the reported performance indicator data. The inspectors evaluated performance indicator collection and reporting practices against the standards of NEI 99-02, "Regulatory Assessment Performance Indicator Guideline."

b. Findings

No findings of significance were identified.

.3 Emergency Response Organization Drill Participation

a. Inspection Scope

The inspectors verified the licensee's reported results for the emergency response organization drill participation performance indicator from the second calendar quarter 2001 through the first calendar quarter 2002 by reviewing drill participation attendance records for a sample of eight key emergency responders. The inspectors evaluated licensee performance indicator collection and reporting practices against the standards of NEI 99-02, "Regulatory Assessment Performance Indicator Guideline."

b. Findings

No findings of significance were identified.

.4 Alert and Notification System Reliability

a. Inspection Scope

The inspectors verified the licensee's reported results for the alert and notification system reliability performance indicator by reviewing a 100 percent sample of offsite siren test results performed from the second calendar quarter 2001 through the first calendar quarter 2002 to verify the accuracy of the reported performance indicator data. The inspectors evaluated licensee performance indicator collection and reporting practices against the standards of NEI 99-02, "Regulatory Assessment Performance Indicator Guideline."

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution

.1 Selected Issue Followup (71152)

a. Inspection Scope

During the week of August 19, 2002, the inspectors reviewed licensee event report (LER) 50-499/01-004, "Automatic reactor trip (in Unit 2) due to low water level in Steam Generator 2A," caused by connecting test equipment. The inspectors selected this event to evaluate the corrective actions with regard to the use and control of test equipment. The inspectors considered the following attributes in evaluating this issue: (1) complete and accurate identification of the problem in a timely manner commensurate with its significance; (2) evaluation and disposition of performance issues; (3) evaluation and disposition operability/reportability issues; (4) consideration of extent of condition, generic implications, common cause, and previous occurrences; (5) classification and prioritization of the resolution of the problem commensurate with its safety significance; (6) identification of root and contributing causes of the problem; (7) identification of corrective actions which are appropriately focused to correct the problem; and (8) completion of corrective actions in a timely manner commensurate with the safety significance.

b. Findings

No findings of significance were identified.

4OA3 Event Followup (71153)

.1 (Closed) Licensee Event Report (LER) 50-499/2002-003: Automatic turbine trip and reactor trip due to high water level in Steam Generator 2B. On July 7, 2002, power was lost to the Train D instrumentation channel while switching battery chargers. All four controlling channels of narrow range steam generator water level instrumentation failed low, causing the feedwater control system to maximize feedwater flow to all steam generators. While the operators attempted to take manual control and reduce feedwater flow, an automatic trip occurred on high water level in Steam Generator 2B. The remaining plant equipment performed as expected during the trip response. Licensee personnel determined that power was lost to the instrumentation channel because a fuse blew due to an overcurrent condition in the inverter which powered the channel. Maintenance personnel were unable to find any failed components which caused the overcurrent condition, although additional troubleshooting is scheduled for the upcoming outage.

The inspectors reviewed the event and concluded that operator actions were appropriate, but were unlikely to have successfully avoided a plant trip. This was supported by experience during simulator training using similar conditions documented in Condition Report 02-9755. This was because of the difficulty in manually controlling feedwater flow and level in four steam generators simultaneously during an upset

condition, since this required operation of three steam generator feed pumps and four feedwater regulating valves. Licensee management recognized that operator actions were much more likely to succeed if two of the four controlling channels were selected to a channel with a different power source, limiting the number of steam generators that could be affected by a single failure. This corrective action was demonstrated to be effective on August 7, 2002, when the same fuse blew on overcurrent. Operators were able to manually control steam generator water level and feedwater flow of the two steam generators affected.

The inspectors concluded that the licensee did not maintain an operating equipment lineup that would minimize events that upset plant stability and challenge safety functions, because the plant was operated with all four steam generator water level controlling channels aligned to the same power source. This was supported by the fact that the probabilistic risk assessment did not model this as an initiating event because it was assumed that the controlling channels would be split among power sources, and that operator action would have a high success rate as a result. This performance deficiency was considered to be of more than minor significance because it affected the performance objective of the initiating events cornerstone by increasing the likelihood of a plant trip or transient. The issue was screened as Green during a Phase 1 Significance Determination Process assessment because it only affected trip/transient initiating events.

.2 (Closed) Licensee Event Report (LER) 50-499/2001-004: Automatic reactor trip due to low water level in Steam Generator 2A. On May 8, 2001, maintenance personnel were monitoring the valve positioner on Unit 2 Steam Generator 2A feedwater regulating valve using a laptop computer and communication adapter connected to the positioner signal leads. They were concerned that the laptop batteries would discharge during the monitoring activities, so it was decided to connect the laptop to a utility outlet. The feedwater regulating valve's control circuit was designed with the negative signal lead connected to plant ground. When the laptop and communications adapter were connected to the utility outlet the positive lead became grounded. With both leads grounded, the control signal to the feedwater regulating valve was lost. The valve closed, resulting in a rapid decrease in steam generator level and plant trip. The licensee identified the root cause as personnel not recognizing the ground potential of the laptop computer and adapter. A contributing cause was that the work control process did not provide adequate controls for this or similar activities using test/monitoring equipment. Condition Report 01-8043 documented the licensee's investigation and corrective action. No other issues from this event were identified. This event is also discussed in Section 4OA2.

.3 (Closed) Licensee Event Report (LER) 50-499/2002-002: Manual reactor trip due to unexpected closure of feedwater isolation valve. On June 14, 2002, the licensee was performing feedwater valve operability tests. The test strokes the feedwater isolation valves from 100 percent open to 90 percent open, then reopens the valve. During the test for Steam Generator 2C, its feedwater isolation valve went fully closed. Operators manually tripped the reactor after verifying no feedwater flow to Steam Generator 2C. The licensee determined that a blown fuse in the Class 1E control circuit caused the valve to close. The cause of the blown fuse was the result of a shorted rectifier

assembly used for surge suppression on the safety solenoid for the isolation valve. The root cause was considered to be a random failure. Condition Report 02-8678 documented the licensee's investigation and corrective action. No other issues from this event were identified.

4OA6 Meetings, including Exit

Exit Meeting Summary

The inspectors presented the results of the emergency preparedness inspection to Mr. G. Parkey, Vice President, Generation, and other members of licensee management at the conclusion of the inspection on July 12, 2002.

The inspectors presented the results of the permanent plant modification inspection to Mr. J. Sheppard, Vice President and Assistant to President/CEO, and other members of licensee management at the conclusion of the inspection on August 15, 2002.

The results of the resident inspection were presented to Mr. J. Sheppard, Vice President and Assistant to the President/CEO, and other members of licensee management at the conclusion of the inspection on September 26, 2002.

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

ATTACHMENT

Supplemental Information

PARTIAL LIST OF PERSONS CONTACTED

Licensee

L. Barton, Manager, Offsite Emergency Planning Program
T. Bowman, Manager, Unit 1, Operations
E. Halpin, Plant Manager
S. Head, Manager, Licensing
T. Jordan, Vice President, Engineering and Technical Services
R. Kerr, Staff Engineer, Quality Assurance
M. Konavos, Manager, Plant Engineering
R. Lovell, Manager, Training
M. Ludwig, Quality Auditor
M. McBurnett, Director, Quality/Licensing
M. Meier, Manager, Human Resources/Information Technology
A. Moldenhauer, Engineer, Probabilistic Risk Analysis
C. Morgan, Supervisor, Emergency Preparedness
M. Oswald, Supervising Engineer, Design Engineering
G. Parkey, Vice President, Generation
R. Piggott, Senior Licensing Specialist
J. Price, Supervisor, Design Engineering
F. Puleo, Plant Protection Coordinator
P. Serra, Manager, Plant Protection
J. Sheppard, Vice President & Assistant to the President/CEO

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-448/2002-004-01	NCV	Failure to follow a procedure to update AFD computer constants as required by Technical Specification 6.8.1 and Regulatory Guide 1.33 (Section 1R22).

Closed

50-448/2002-004-01	NCV	Failure to follow a procedure to update AFD computer constants as required by Technical Specification 6.8.1 and Regulatory Guide 1.33 (Section 1R22).
50-499/2001-004	LER	Automatic reactor trip due to low water level in Steam Generator 2A (Section 4OA3.2).
50-499/2002-002	LER	Manual reactor trip due to unexpected closure of feedwater isolation valve (Section 4OA3.3).

50-499/2002-003	LER	Automatic turbine trip and reactor trip due to high water level in Steam Generator 2B (Section 4OA3.1).

LIST OF ACRONYMS USED

AFD	axial flux difference
CR	condition report
DCP	design change package
HSAS	Homeland Security Advisory System
LER	licensee event report
LLRT	local leak rate test
NCV	noncited violation
NEI	Nuclear Energy Institute
OHS	Office of Homeland Security
RIS	Regulatory Information Summary
SSCs	structures, systems, or components
UFSAR	Updated Final Safety Analysis Report
WAN	Work Authorization Number

DOCUMENTS REVIEWED

PERMANENT PLANT MODIFICATIONS INSPECTION

DESIGN CHANGE PACKAGES

NUMBER	DESCRIPTION
DCP 98-14263-23	Revise Wiring ESF Handswitch for CCW Pumps (Unit 2)
DCP 98-19051-3	Centrifugal Charging Pump 1A Shaft Upgrade (Unit 1)
DCP 00-00585-1	Pressurizer Pressure Transmitter Upgrade (Unit 1)
DCP 00-08186-3	Replace Existing NCX-1800 Cells with NCN-27 Cells in Train C Battery (Unit 1)
DCP 00-08189-1	Replace Existing NCX-1800 Cells with NCN-27 Cells for the Train A and C Batteries (Unit 2)

PROCEDURES

NUMBER	TITLE	REVISION
0PGP04-ZE-0309	Design Change Package	10

CONDITION REPORTS

CR 00-17944
CR 00-18092
CR 00-18717
CR 01-2187
CR 01-4012
CR 01-4741
CR 02-10006

SAFETY EVALUATIONS

NUMBER	DESCRIPTION
CR 00-6479-20	Add bypass testing capability to reactor protection system and engineered safety features actuation system
CR 00-8094-35	Evaluate the condition in Unit 1 Cycle 11 if the control rods fail to fully insert on a reactor trip
CR-00-8159-2	Revise the UFSAR to reflect changes in the description of a fuel handling accident in the fuel handling building
CR-8768-1	Evaluate a one-time deferral of Surveillance Test 88003992 in Motor Control Center E1C2 Cubicle H3 until October 2001
CR-01-9518-5	Allow an increase in pressurizer water level above the program level while in mode 3

EMERGENCY PREPAREDNESS INSPECTION

N/A	South Texas Project Emergency Plan	Revision 20
Emergency Plan Implementing Procedures:		
0ERP01ZVIN01	Emergency Classification	5
0ERP01ZVIN02	Notification to Offsite Agencies	13
0ERP01ZVIN03	Emergency Response Organization Notification	9
0ERP01ZVTS01	Technical Support Center Manager	9
0ERP01ZVOS01	Operations Support Center Coordinator	2
0ERP01ZVIN07	Offsite Protective Action Recommendations	7
0ERP01ZVEF01	Emergency Operations Facility Director	10

Other Documents:

0PGP05ZN0007, "Preparation and Submittal of NRC Performance Indicators," Revision 1

0PGP05ZV0001, "Emergency Resp9nse Exercises and Drills," Revision 6

0PGP05ZV0010, "Emergency Plan Revision," Revision 5

0PGP05ZV0013, "Performance Indicator Tracking Guide," Revision 1

0POP09-AN-06M3, "Annunciator Lampbox 6M03 Response Instructions," Revision 18

Quality Audit Report 02-002 Emergency Preparedness, March 6, 2002