UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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January 4, 2005

James J. Sheppard, President and
Chief Executive Officer
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, Texas 77483

SUBJECT: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION -- NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000498/2004011 AND 05000499/2004011

Dear Mr. Sheppard:

On December 17, 2004, the NRC completed an inspection of problem identification and resolution at your South Texas Project Electric Generating Station, Units 1 and 2, facility. The enclosed report documents the inspection findings, which were discussed on November 4, 2004, with Mr. Thomas Jordan and other members of your staff. Following additional in-office inspection, a discussion was held by telephone with Mr. Gary Parkey, Vice President Generation, on December 17, 2004, to notify you of the final resolution of two issues.

This inspection examined activities conducted under your license as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations and with the conditions of your license. The team reviewed approximately 225 condition report documents, apparent and root cause analyses, and plant procedures for the identification and resolution of problems. In addition, the team reviewed crosscutting aspects of NRC and licensee-identified findings and interviewed personnel regarding the safety conscious work environment.

On the basis of the sample selected for review, the team concluded that in general, problems were properly identified, evaluated and corrected. Your processes to identify, prioritize, evaluate, and correct problems were generally effective; thresholds for identifying issues remained appropriately low and, in most cases, corrective actions were adequate to address conditions adverse to quality. The team concluded that a positive safety-conscious work environment exists at South Texas. The team also identified that problem identification and evaluation thoroughness as well as the effectiveness of corrective actions has improved in the last six to nine months.

The report documents two findings that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that violations were associated with these findings. The violations are being treated as noncited violations because they are of very low safety significance and because they have been entered into your corrective action program consistent with Section VI.A of the Enforcement Policy. If you contest the violations or the significance of these noncited

violations, you should provide a response within 30 days of the date of the inspection report, with the basis for your denial, to the U.S. Nuclear Regulator 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 facility.

In accordance with 10 CFR 2.390 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 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//

Linda Joy Smith, Chief
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50-499
Licenses: NPF-76
NPF-80

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets:	50-498, 50-499
Licenses:	NPF-76 NPF-80
Report No.:	05000498/2004011 05000499/2004011
Licensee:	STP Nuclear Operating Company
Facility:	South Texas Project Electric Generating Station, Units 1 and 2
Location:	FM 521 - 8 miles west of Wadsworth Wadsworth, Texas 77483
Dates:	October 18 through November 4, 2004 (Onsite); November 5 through December 17, 2004 (In-Office)
Inspectors:	F. L. Brush, Senior Resident Inspector G. W. Johnston, Senior Operations Engineer R. P. Mullikin, Senior Reactor Inspector G. L. Guerra, Resident Inspector
Approved by:	L. J. Smith, Chief Plant Engineering Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000498/2004011, 05000499/2004011; 10/18/04 - 12/17/04; South Texas Project Electric Generating Station; Units 1 & 2; biennial baseline inspection of the identification and resolution of problems.

The inspection was conducted by a senior resident inspector, a senior operations engineer, a senior reactor inspector, and a resident inspector. Two Green findings of very low safety significance were identified during this inspection and were classified as noncited violations. The findings were evaluated using the significance determination process. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP 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 3, dated July 2000.

Identification and Resolution of Problems

- The team reviewed approximately 225 condition reports, apparent and root cause analyses, and plant procedures for the identification and resolution of problems. Based on this review, the team found that your processes to identify, prioritize, evaluate, and correct problems have improved during the last six to nine months. The processes were generally effective; thresholds for identifying issues were low and, in most cases, corrective actions were adequate to address conditions adverse to quality. However, the team noted that, due to the lack of aggressive problem identification, evaluation and resolution in the past, two vital plant components experienced several failures. The components were the essential chillers and Class 1E inverters. The team also identified that licensee personnel undertook extensive corrective actions earlier in 2004 to address these failures.

  Based on the interviews conducted, the team concluded that a positive safety-conscience work environment exists at the South Texas Project. The team determined that employees feel free to raise safety concerns to their supervision, the employee concerns program, and the NRC.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

C Green: A self-revealing, noncited violation of 10CFR 50, Appendix B, Criterion V was documented due to an inadequate maintenance procedure, which resulted in chiller operation with a misaligned oil pump. The licensee initiated CR 03-11531 to address this violation.

  This finding is greater than minor because it affected the Mitigating Systems Cornerstone in that the misalignment caused unplanned chiller outages, lowering chiller reliability and making the chiller inoperable during the repairs. The chillers provide water for temperature control of safe shutdown equipment rooms. Based on the results of a Significance Determination Process (SDP) using Manual Chapter (MC) 0609, Appendix A1, Phase 1 work sheet, this finding was determined to have very low safety

significance. The finding was not a design or qualification deficiency of safety related equipment, did not result in a loss of a safety function, did not result in a loss of a safety function of a single train for greater than its allowed Technical Specification outage time, and screened out for external events. The failure to have an adequate maintenance procedure for the essential chiller's oil pump is a violation of 10 CFR 50, Appendix B, Criterion V. This violation is being treated as
Noncited Violation 5000498;499/2004011-01 consistent with Section VI.A of the Enforcement Policy. See Report Section 4OA2.e(2)i for additional details.

C Green: A self-revealing, noncited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, was documented regarding two failures to take timely corrective action to replace defective relays. The licensee initiated CR 03-12081 and CR 04-5286 to address these issues.

a. The licensee did not promptly replace Potter & Brumfield relays, which had exceeded their service life. In 2003, the licensee attributed the failure of an essential chiller 22R Potter & Brumfield relay to exceeding the service life. While the licensee planned to replace the remaining outdated relays, their corrective actions were not prompt and in 2004, another chiller's 22R relay failed, which affected the operability of an essential chiller and impacted the mitigating systems cornerstone.

b. The licensee did not promptly replace Potter & Brumfield relays with known manufacturing flaws that impacted both single stack and double stack Potter & Brumfield relays manufactured before 1990. After being alerted to a manufacturing flaw through 10 CFR Part 21 reports and an information notice and after a double stack relay failed because of this manufacturing flaw, the licensee failed to promptly replace the single coil stack & Potter & Brumfield relays installed at the facility. In 2004, a single coil stack relay failed, which again affected the operability of an essential chiller and impacted the mitigating systems cornerstone. The licensee then decided to replace all the essential chiller normally energized Potter & Brumfield relays manufactured before 1990.

Based on the results of a Significance Determination Process (SDP) using Manual Chapter (MC) 0609, Appendix A1, Phase 1 work sheet, this finding was determined to have very low safety significance. The finding was a design or qualification deficiency of safety related equipment that did not result in a loss of a safety function. Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion XVI, requires that conditions adverse to quality be promptly corrected. The licensee failed to take timely corrective actions to replace the defective Potter & Brumfield relays and 22R relays. This failure is a violation of 10 CFR 50, Appendix B, Criterion XVI. This violation is being treated as Noncited Violation 05000498;499/2004011-02 consistent with Section VI.A of the Enforcement Policy. See Report Section 4OA2.e(2)ii for additional details.

B. Licensee-Identified Violations

A violation of very low 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 actions are listed in Sections 4OA7.

REPORT DETAILS

4 OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors reviewed items selected across the seven cornerstones to determine if problems were being properly identified, characterized, and entered into the corrective action program (CAP) for evaluation and resolution. Specifically, the team's review included a selection of approximately 225 condition reports (CRs). The majority were opened or closed since the last NRC Problem Identification and Resolution Inspection completed on March 6, 2003. The team also performed a historical review of CRs written over the last 5 years for the essential chillers. The team reviewed a sample of licensee audits and self assessments, trending reports, system health reports, and various other reports and documents related to the CAP.

The team interviewed station personnel and evaluated corrective action documentation to determine the licensee's threshold for identifying problems and entering them into the CAP. In addition, the team reviewed the licensee's evaluation of selected industry experience information, including operator event reports, NRC Generic Bulletins and Information Notices, and generic vendor notifications, to assess if issues applicable to the South Texas Project were appropriately addressed.

A listing of specific documents reviewed during the inspection is included in the attachment to this report.

(2) Assessment

The team determined that, in general, problems were adequately identified and entered into the CAP. The threshold for entering issues into the CAP program was appropriately low. Recent conditions adverse to quality were properly entered into the licensee's program. The team identified that the licensee's effectiveness had improved during the last six to nine months, particularly with respect to self assessments. The team determined that the licensee was generally effective in identifying applicable industry experience information in the evaluation of condition records. The team also determined that the licensee was effective at identifying adverse trends.

However, the team identified some examples of inadequate problem identification. The licensee did not identify that essential chiller relays had exceeded their service life until after the relays failed. The licensee did not identify an inadequate maintenance procedure until after repeated equipment failures. The team also determined that, in some cases, the licensee was not effective in determining the operability of Technical Specification required equipment or requesting timely reportability reviews.

Example 1 - Self-Revealing Failure that the 22R Relay in an Essential Chiller Exceeded Its Service Life

The licensee did not discover an essential chiller relay had exceeded its service life until after it had failed. A chiller became inoperable when its 22R relay failed and caused the oil to drain from the chiller. The relay failure allowed a valve to stay open which caused a tank to fill with oil which then overflowed to the floor through a relief valve. The licensee determined that the failure was due to a manufacturing defect. The licensee discovered, when investigating the failure, that the 22R relay had also exceeded its service life. The licensee documented the failure and subsequent investigation in CR 03-12081. See Report Section 4OA2e(2)ii for additional details.

Example 2 - Self-Revealing Failure to Identify an Inadequate Maintenance Procedure

The licensee did not identify an inadequate maintenance procedure until after repeated equipment failures. The team documented that, due to an inadequate maintenance procedure, the chiller's oil pump and motor were misaligned. The inadequate procedure caused the shaft key and keyway on the pump-to-motor interface to fail which rendered the chiller inoperable. The licensee wrote CR 03-11531 to document the issue and the failure investigation. See Report Section 4OA2e(2)i for additional details.

Example 3 - Failure to Recognize Technical Specification Operability of Control Room Envelope

The team reviewed NRC identified Noncited Violation 05000498;499/2004004-03 regarding control room envelope heating, ventilation, and air conditioning testing. The results of the tests showed some control room envelope areas not being at 1/8 inch water gauge positive pressure with respect to an adjacent area as required by Technical Specifications and the licensee did not declare the control room envelope inoperable. Please refer to the NRC Inspection Report 05000498;499/2004004, for additional information.

Example 4 - Operability Review of Pressurizer Power Operated Relief Valve (PORV) not Performed in a Timely Manner

The team reviewed CR 04-6255 which documented actions the licensee took in regard to seat leakage on pressurizer PORV 655A. The licensee closed the associated block valve in order to decrease temperatures. Also, the licensee planned to keep the block valve closed for an extended period of time. However, they did not perform an operability review in a timely manner in accordance with their procedures to address potential environmental qualification concerns due to the elevated temperatures caused by the seat leakage. The licensee performed the review after the resident inspector staff asked questions concerning the PORV's operability. The review determined that the PORV could not meet environmental qualifications due to elevated temperatures if the block valve was left open. It is a minor violation because the license had closed the valve which prevented the PORV from exceeding its environmental limits.

Example 5 - Licensee Identification that Some Root Cause and Apparent Cause Evaluations did not Adequately Address the Plant Design Basis

In 2004, the licensee performed a self assessment of various root cause and apparent cause evaluations. The licensee identified that some of the evaluations did not adequately address the plant design basis. The licensee implemented training for personnel certified to perform operability reviews. The identification of the need for improvement and the corrective actions implemented was indicative of improved problem identification their self assessment program. The licensee wrote CR 04-7635 to document this issue.

Example 6 - Licensee Identified an Adverse Trend in the Number of CRs Written Against Parts or Material Issues

The licensee wrote CR 03-14375 which described 33 CRs written in the preceding 3 months that identified parts or material issues that either did or could have affected the completion of station maintenance activities. These CRs included: wrong parts in stock, incorrect parts documentation, wrong parts installed, and parts did not arrive on site in time to support work schedule. The main corrective action was to co-locate in the warehouse all of the groups that were involved with the parts supply function. The licensee's reasoning was that this would allow personnel to have a readily available source of information for questions arising during the purchasing and receiving process. The team noted that since this action was taken the number of CRs written against parts or material issues have decreased significantly. Thus, the licensee identified a potentially adverse trend and took adequate corrective action.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The team reviewed CRs, engineering operability evaluations, and operations operability determinations to assess the licensee's ability to evaluate the importance of the conditions adverse to quality. The team reviewed a sample of failure mode analyses, apparent cause analyses and root cause analyses, to ascertain whether the licensee identified and considered the full extent of conditions, generic implications, common causes, and previous occurrences. The team also observed management oversight of significant conditions adverse to quality including attendance at the following meetings:

- Condition review group
- Weekly operational excellence
- Radiation protection condition report review

In addition, the team reviewed licensee evaluations of selected industry operating experience information, including NRC Information Notices and industry provided information, to assess whether issues applicable to the South Texas Project were appropriately addressed. The team also reviewed the licensee's program for addressing Generic Letter 91-18 aspects during operability evaluations. The licensee conducted the evaluations following equipment performance problems during inservice

and surveillance testing. The team assessed the licensee's evaluation of human performance for crosscutting aspects in regard to repetitive events with emphasis on operations personnel.

The team performed a historical review of CRs covering the last 5 years regarding the essential chillers to determine if the licensee had appropriately addressed long-standing issues.

(2) Assessment

The team concluded that problems were generally prioritized and evaluated in accordance with the licensee's CR program guidance and NRC requirements. The team found that for the sample of root cause analyses reviewed, the licensee was generally self critical and exhaustive in its research into the history of significant conditions adverse to quality. The team also determined that the licensee was generally effective in evaluating industry experience information in the review of recent CRs,

However, the team noted that, due to the lack of aggressive problem evaluation, use of operating experience and prioritization in the past, the essential chillers and the Class 1E inverters experienced several failures. The licensee also identified past ineffective use of operating experience related to the lifting of the pressurizer power operated relief valves (PORVs).

The team determined that the licensee did not have a formalized process for evaluation of conditions involving operability of components or systems when Generic Letter 91-18 aspects may be considered. Specifically the following procedures either did not reference Generic Letter 91-18, nor provided guidance incorporating Generic Letter 91-18 considerations:

- 0PG04-ZA-0002 "Condition Report Engineering Evaluation," Revision 5
- 0PGP03-ZX-0002 "Condition Reporting Process," Revision 29
- "Conduct of Operations," Revision 24, Chapter 2, Shift Operating Practices
- "Work Control Screening Group (WCSG) Guide," Revision 14

The team determined, however, that licensee personnel who would be involved with operability determinations are trained periodically and are required as part of their qualifications to have been trained on the implications of Generic Letter 91-18.

The licensee also identified, during their review of some recent CRs, that the use of operating experience information was not effectively used in the evaluation of events in prior years. The licensee also improved their radiation protection violation trend program to provide better focus.

Example 1 - The Licensee Identified a Failure to Take Timely Corrective Action to Replace Essential Chiller 22R Relays

In 2003, the licensee identified that the Essential Chillers 22R relays had exceeded their service life when a relay failed as the result of a manufacturing defect. The relay failure had rendered one of the chillers inoperable. The licensee replaced the relay and set up a schedule to replace the 22R relays on the other chillers. However, in 2004, a 22R relay failed on a different chiller. The licensee identified, in CR 04-2764, that the corrective action to replace the relays on all the chillers was not timely. See Report Section 4OA2e(2)ii for additional details.

Example 2 - Self Revealing Failure to Take Timely Corrective Action for Defective Potter & Brumfield Relays

For the time period 1988 through 1992, the licensee received industry information concerning Potter & Brumfield relays manufactured prior to 1990. The relays, if normally energized, degraded over time due to a manufacturing flaw. Initially, in 1994, the licensee sent a sample of relays for evaluation and the testing laboratory did not identify any problems. The licensee then decided to allow the relays to run-to-failure. In 1998, a double coil stack relay failed and affected the operability of an essential chiller. The licensee replaced these relays but not the single coil stack relays. In 2004, a single coil stack relay failed which affected the operability of an essential chiller. The licensee then decided to replace all the essential chiller normally energized Potter & Brumfield relays manufactured prior to 1990 as part of the corrective actions identified in CR 04-5286. See Report Section 4OA2e(2)ii for additional details.

Example 3 - Licensee Identified the Ineffective Use of Operating Experience Information

The licensee evaluated in CR 03-4794 five significant plant events, such as the lifting of pressurizer PORVs, that occurred during shutdown since the beginning of 2003. The licensee's evaluation determined that a contributing cause of these events was the failure to effectively use available information, such as operating experience, station events, and self assessments, to proactively establish defenses for preventing four out of the five events. These events were dispositioned in NRC Inspection Reports 05000498;499/20002006, 2003002, and 2003004.

Example 4 - Self Revealing Failure to Determine an Extent of Condition

The licensee documented in CR 03-8824 the failure of the high head safety injection Pump 1C (Unit 1) to manually start during inservice testing. The failure was due to an improperly adjusted breaker truck operated cell switch in the breaker cubicle. The apparent cause was incomplete instructions in the 4160 volt maintenance and breaker test procedures. The licensee's investigation revealed that a similar problem was documented in CR 03-928 but involved mechanically operated cell switches. The licensee's extent of condition evaluation in CR 03-928 failed to identify that the two types of switches were susceptible to the same failure mechanism. However, if the licensee had performed, for CR 03-928, the same quality evaluation as was performed for CR 03-8824, then the failure of Pump 1C to start would likely have not occurred.

Example 5 - Licensee Identified the Human Performance Crosscutting Aspects for Relief Valve Lifts

The licensee evaluated and adequately addressed human performance aspects for a relief valve lift. The team reviewed self revealing NRC Violation 05000498/2004003-02. The licensee documented in CR 04-1143 that on January 21, 2004, during a letdown orifice swap, the operations crew lifted valve PSV-3100. The licensee determined that several deficiencies contributed to the event. These were an inadequate pre-job brief, lack of direct oversight by supervision of a complex evolution involving the noted slow response of letdown backpressure Control Valve PCV-135, and an inadequate procedure.

Example 6 - Licensee Improved Radiation Program Trending

The licensee performed an evaluation in CR 04-11489 and determined that an occurrence rate of 2-3 events per 10,000 person hours could be expected for radiation protection program violations involving human error. This study backed up the licensee's automatic threshold limit in their CAP of 4 events in 30 days to capture trends. Although this limit had been reached several times, the licensee was able to close these trend reports as invalid because the Event Code 2Q5, "Labeling, Posting, and Warning Devices," encompassed many radiation protection issues, and in many cases the events were not related. As an improvement to the trending program the licensee divided the 2Q5 event code in to five separate or sub-event codes for trending and tracking purposes in order to get valid automatic trend CRs. The team determined that this was an improvement to the CAP program in radiation protection.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The team reviewed approximately 225 CRs to verify that corrective actions related to the issues were identified and implemented in a timely manner commensurate with safety, including corrective actions to address common cause or generic concerns. The team reviewed corrective actions planned and implemented by the licensee and sampled specific technical issues to determine whether adequate decisions related to structure, system, and component operability were made.

Of the CRs reviewed, the team reviewed 8 involving radiation work permit (RWP) violations by radiation workers and reviewed 28 CRs involving radiological surveys and postings. The team also reviewed Conduct of Operations for Radiation Protection, Chapter 9, "Condition Reporting Guideline," Revision 4.

In addition, the team reviewed a sample of those CRs written to address NRC inspection findings to ensure that the corrective actions adequately address the issues as described in the inspection report writeups. The team also reviewed a sample of corrective actions closed to other CRs and programs, such as work requests, to ensure that the condition described was adequately addressed and corrected.

A listing of specific documents reviewed during the inspection is included in the attachment to this report.

(2) Assessment

The processes to correct problems were generally effective; in most cases, corrective actions were adequate to address conditions adverse to quality. However, in one case, planned corrective actions were not managed to a satisfactory completion.

RWP violations have continued at a similar trend or rate since the March, 2003 PI&R inspection. The current rate of RWP violations as trended by the licensee is 0.3 RWP violations per 10,000 RCA hours and has been steady for the last 2 years. The team noted that this represented an overall low trend rate of RWP violations by radiation workers. Corrective actions appear adequate to maintain an overall low rate, but they have not prevented the continued recurrence of issues judged by the licensee as conditions adverse to quality.

Also, the last PI&R inspection identified CR 02-9454 as an example of a failure to adequately evaluate extent of condition related to dealing with the creation of a high radiation area on the chemical and volume control system (CVCS) piping during plant evolutions. This inspection identified another CR (03-7554) dealing with a similar CVCS area after changes to plant conditions. Although these events are of concern, the team did not identify an adverse trend or common precursors to these events.

Example 1 - Failure to Ensure Completion of Corrective Actions to Motor Operated Valve Actuators

The team reviewed NRC identified Noncited Violation 05000498;499/2004004-03 regarding the licensee's failure to ensure motor operated valve motor pinion gear setscrews were properly installed. The valve manufacturer provided information concerning installation of the setscrew. The licensee implemented corrective actions for future valve actuator work at the time the information was received. However, the licensee did not ensure previously worked actuator setscrews had been properly installed. As a result, a valve in the residual heat removal system failed to operate. Please refer to NRC Inspection Report 05000498;499/2003003 for additional information.

Example 2 - Licensee Identified the Failure of Radiation Workers to Follow RWP Requirements.

The team determined that the corrective action related to this licensee-identified issue was not effective based on two recent events. The corrective action of the first event did not prevent the other. The team identified that two CRs (04-6755 and 04-10470) were of significance because they involved a failure of multiple human performance barriers to prevent errors. Please refer to Section 4OA7 for the description of the licensee-identified noncited violation.

Example 3 - Failure to Survey/Post After Changing Plant Conditions

The licensee identified in CR 04-8683 that corrective actions have not been effective in preventing events when changes in the plant resulted in high radiation areas. The licensee also identified that radiation protection staff were not effective in anticipating these changing plant conditions. NRC Inspection Report 05000498;499/2004003 documented a noncited violation for the failure to control a high radiation area. The licensee wrote CR 03-7554 to track and implement corrective actions in response to the NRC identified noncited violation. CR 04-8683 was then written to document that the original CR contained insufficient corrective action. Subsequently, CR 03-7554 was re-opened to address the corrective action deficiency.

d. Assessment of Safety-Conscience Work Environment

(1) Inspection Scope

The team interviewed more than 15 individuals from the licensee's staff, representing a cross section of functional organizations and supervisory and nonsupervisory personnel. These interviews assessed whether conditions existed that would challenge the establishment of a safety-conscience work environment.

(2) Assessment

The team concluded that a positive safety-conscience work environment exists at the South Texas Project. The team determined that employees and contractors feel free to raise safety concerns to their supervision, to the employees concern program, and to the NRC. The team determined that licensee management was receptive to employee concerns and was willing to address the issues.

e. Specific Issues Identified During This Inspection

(1) Inspection Scope

During this assessment the team performed the inspections scoped in Sections 4OA2 a.(1), 4OA2 b.(1), 4OA2 c.(1), 4OA2 d.(1) above.

(2) Findings and Observations

(i) Noncited Violation 05000498;499/2004011-01; Essential Chillers

Introduction. A Green, self-revealing, noncited violation of 10 CFR 50, Appendix B, Criterion V, was documented due to an inadequate maintenance procedure that resulted in chiller operation with a misaligned oil pump. The misalignment caused unplanned chiller outages, which rendered it inoperable. The chillers provide water for temperature control of safe shutdown equipment rooms. This finding included cross-cutting aspects for prior missed opportunities to identify the inadequate procedure.

Description. On July 27, 2003, the essential chiller 12B oil pump failed. The licensee's investigation determined that the pump and motor were misaligned. In 1999, the pump's internals and housing were replaced. The pump was also worked on in 2000 and 2001 due to performance problems. The oil pump maintenance procedure did not contain requirements to align the pump and motor. The components were shimmed improperly which introduced the failure mechanism. In July, 2003, the licensee determined the problem with the maintenance procedure and revised it to contain instructions to properly align the chillers' pumps and motors.

Analysis. This finding involves the failure to identify that a maintenance procedure was inadequate which caused unplanned chiller outages. Therefore, this finding affected the Mitigating System Cornerstone since it impacted safe shutdown equipment operability. Based on the results of a Significance Determination Process (SDP) using Manual Chapter (MC) 0609, Appendix A1, Phase 1 work sheet, this finding was determined to have very low safety significance. The finding was not a design or qualification deficiency of safety related equipment, did not result in a loss of a safety function, did not result in a loss of a safety function of a single train for greater than its allowed Technical Specification outage time, and screened out for external events.

Enforcement. Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion V, requires that activities affecting quality shall be prescribed by documents such as procedures which prescribe all activities affecting quality. The licensee failed to have adequate procedures to identify the correct method for aligning the chiller oil pump. This failure is a violation of 10 CFR 50, Appendix B, Criterion V. This violation is being treated as a Noncited Violation 05000498;499/2004011-01 consistent with Section VI.A of the Enforcement Policy.

ii Noncited Violation 05000498;499/2004011-02; Potter & Brumfield Relays

Introduction. A Green, self-revealing, noncited violation (NCV) was documented regarding two failures to take timely corrective action to replace defective relays.

Description. The licensee did not promptly replace Potter & Brumfield relays with known manufacturing flaws that impacted both single stack and double stack relays manufactured before 1990. After being alerted to a manufacturing flaw through 10 CFR Part 21 reports and an information notice and after a double stack relay failed because of this manufacturing flaw, the licensee failed to promptly replace the single coil stack Potter & Brumfield relays installed at the facility. In 2004, a single coil stack relay failed, which again affected the operability of an essential chiller. The licensee then decided to replace all the essential chiller normally energized Potter & Brumfield relays manufactured before 1990 as part of the corrective actions identified in CR 04-5286.

The licensee also did not promptly replace Potter & Brumfield relays, which had exceeded their service life. During a repair in 2003, the licensee identified that all of the essential chiller 22R Potter & Brumfield relays had exceeded their service life. While the licensee planned to replace outdated relays, their corrective actions were not prompt and in 2004, another chiller's 22R relay failed, which again affected the operation of an essential chiller.

Analysis. This finding involves the failure to take prompt corrective actions to replace defective Potter & Brumfield relays on essential chillers. Therefore, this finding affected the Mitigating System Cornerstone since it impacted safe shutdown equipment operability. Based on the results of a Significance Determination Process (SDP) using Manual Chapter (MC) 0609, Appendix A1, Phase 1 work sheet, this finding was determined to have very low safety significance. The finding was not a design or qualification deficiency of safety related equipment, did not result in a loss of a safety function, did not result in a loss of a safety function of a single train for greater than its allowed Technical Specification outage time, and screened out for external events.

Enforcement. Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion XVI, requires that conditions adverse to quality causes be promptly corrected. The licensee failed to take prompt corrective actions to replace defective Potter and Brumfield relays. This failure is a violation of 10 CFR 50, Appendix B, Criterion XVI. This violation is being treated as a noncited violation 05000498;499/2004011-02 consistent with Section VI.A of the Enforcement Policy.

4OA6 Exit Meeting

The team discussed the findings with Mr. T. Jordan, Vice President Engineering and Technical Services and other members of the licensee's staff on November 4, 2004. On December 17, 2004, the team leader discussed the findings with Mr. Gary Parkey, Vice President Generation, by telephone. Licensee management did identify that proprietary materials were provided to the team. The materials were either returned to the licensee or disposed of by shredding.

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 meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

Technical Specification 6.8.1 requires implementation of procedures listed in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, Appendix A, Section 7.e.(1), specifies procedures for access control to radiation areas including a radiation work permit system. Plant Procedure 0PGP03-ZR-0051, "Radiological Access and Work Controls," Revision 19, Step 4.4.2, requires workers to review and comply with applicable RWPs. There were several RWP violations identified in the licensee corrective actions system; however, the following example had the most significance.

On May 4, 2004, two workers entered room 105 of the reactor containment building, which was posted as a high radiation area, under an RWP that did not allow entry into a high radiation area (CR 04-6755). The safety significance of this finding was determined to be very low by the occupational radiation safety significance determination process because there was no actual over-exposure or substantial potential for an over-exposure, and the ability to assess dose was not compromised.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Aguilera, Health Physics Supervisor
T. Jordan, Vice President Engineering and Technical Services
J. Loya, Senior Engineer
W. Mookhoek, Senior Licensing Staff Engineer
T. Powell, Performance Improvement Manager
J. Sheppard, President and Chief Executive Officer
L. Stoicescu, Health Physicist
D. Towler, Operations Division Manager

NRC

J. Cruz, Senior Resident Inspector, South Texas
L. Smith, Chief, Plant Engineering Branch

ITEMS OPENED AND CLOSED

05000498;499/2004011-01	NCV	Inadequate Maintenance Procedure for the Essential Chiller's Oil Pump (Section 4OA2e(2)i).
05000498;499/2004011-02	NCV	Two Failures to take Timely Corrective Action to Replace Defective Relays (Section 4OA2e(2)ii).

DOCUMENTS REVIEWED

PLANT PROCEDURES

Procedure	Title
0PG03-ZE-0022	Inservice Testing Program for Pumps, Revision 19
0PG04-ZA-0002	Condition Report Engineering Evaluation, Revisions 3 and 5
0PGP03-ZX-0002	Condition Reporting Process, Revisions 28 and 29
0PGP05-ZV-0014	Emergency Response Activities, Revision 3
0PMP04-CV-003	Centrifugal Charging Pump Maintenance, Revisions 11, 12, and 13
0POP02-CH-0005	Essential Chiller Operation, Revision 30

CAP-0001	CR Classification Guideline, Revision 0

Licensee Event Reports

LER Number	Title	CR Number
2004-002	Control room envelope HVAC testing.	04-3148
2004-003-00 (Unit 1)	An unanalyzed condition that significantly degraded plant safety due to a valve out of position	04-4033

NONCITED VIOLATIONS and FINDINGS REVIEWED

NCV Number	Title	CR Number
2002-005	Licensee was not monitoring or addressing declining performance in circulating water system, resulting in catastrophic pump failure and plant trip	
2003002-08 (Unit 2)	Failure to follow a procedure to ensure gas accumulation in the reactor head was vented	
2003003-01	Ineffective maintenance practices for motor operated valve actuators resulted in failure of a residual heat removal valve actuator	
2003004-02 (Unit 1)	Inappropriate operator response to PORV lifts during solid plant operations	
2004002-01 Unit 1)	Inadequate procedure results in relief valve opening	
2004002-005	Ferro-Resonant transformer failures in Class 1E inverters	

NRC Information Notices:

NRC INFORMATION NOTICE 88-98: Electrical Relay Degradation Caused by Oxidation of Contact Surfaces

NRC INFORMATION NOTICE 92-04: Potter & Brumfield Relay Failures

NRC INFORMATION NOTICE 2003-001: Failure of a Boiling Water Reactor Target Rock Main Steam Safety Valve

NRC INFORMATION NOTICE 2003-003: Part 21 - Inadequately Staked Capscrew Renders Residual Heat Removal Pump Inoperable

NRC INFORMATION NOTICE 2003-006: Failure of a Safety-Related Linestarter Relay at San Onofre Nuclear Generating Station

NRC INFORMATION NOTICE 2003-017: Reduced Service Life of Automatic Switch Company (ASCO) Solenoid Valves with Buna-n Material

NRC INFORMATION NOTICE 2003-018: General Electric Type SBM Control Switches with Defective Cam Followers

NRC INFORMATION NOTICE 2003-019: Unanalyzed Condition of Reactor Coolant Pump Seal Leakoff Line During Postulated Fire Scenarios or Station Blackout

NRC INFORMATION NOTICE 2004-001: Auxiliary Feedwater Pump Recirculation Line Orifice Fouling - Potential Common Cause Failure

NRC INFORMATION NOTICE 2004-008: Reactor Coolant Pressure Boundary Leakage Attributable to Propagation of Cracking in Reactor Vessel Nozzle Welds

NRC INFORMATION NOTICE 2004-009: Corrosion of Steel Containment and Containment Liner

Condition reports (CR) :

98-9587	01-3517	01-12600	01-16511	
02-09755	02-11228	03-11531	03-13724	03-17841
04-01238	04-04186	04-04674	04-05409	04-01238
04-07635	03-02041	04-05019	04-07217	04-06808
04-01238	04-010854	04-02764	04-03129	04-05286
	04-11136	04-10188	03-5296	04-5286
03-2041	02-14824	04-05645	03-12767	03-1325
03-13331	03-18545	03-18863	03-3694	03-4816
03-5805	03-5838	03-7000	03-7221	03-7772
03-9086	03-18350	04-11073	04-11713	04-1434
04-3554	04-4698	04-5236	04-5885	04-5972

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04-6235	04-6380	04-6808	04-7204	04-7218
04-7258	04-7389	04-8283	04-8754	04-9016
04-965	02-17729	03-928	04-11073	04-5972
04-5929	03-925	03-1001	04-10654	04-2363
04-4671	04-4672	04-6508	04-9557	03-1174
03-9908	04-1184	04-6688	04-11776	03-1654
03-9975	04-1241	04-6750	04-11780	03-2389
03-10103	04-2682	04-6757	04-11781	03-2430
03-10553	04-2683	04-6766	04-11788	03-2751
03-10964	04-2920	04-6956	04-11858	03-3390
03-11122	04-2949	04-7198	04-12193	03-3620
03-12629	04-3038	04-7669	04-12208	03-3769
03-12639	04-3331	04-7736	04-12213	03-4019
03-13333	04-3773	04-7846	04-12258	03-4091
03-14375	04-4033	04-8155	03-4356	03-14592
04-4239	04-8412	03-4441	03-15174	04-4252
04-8792	03-4558	03-15177	04-4441	04-8820
03-4763	03-15179	04-5435	04-8964	03-4794
03-15409	04-5585	04-9335	03-5417	03-15674
04-5838	04-9638	03-6288	03-15902	04-5969
04-9668	03-7126	03-17250	04-6278	04-10083
03-8824	03-17455	04-6346	04-10342	03-9433
03-18137	04-6380	04-10807	03-9480	03-18188
04-6385	04-11181	03-9632	04-1143	04-6605
04-11428				02-9454
02-15286	02-16056	02-17729	02-18011	03-1416
03-2359	03-2576	03-3186	03-4593	03-5333
03-5428	03-6263	03-7554	03-10475	03-11236

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03-11889	03-12037	03-13657	03-16246	03-17902
04-292	04-2930	04-3802	04-4153	04-4448
04-4787	04-4949	04-5974	04-6255	04-6291
04-6755	04-6929	04-7039	04-7986	04-8156
04-8683	04-9872	04-10470	04-11489	04-11741
04-11827	04-12151	04-12306	04-12378	04-12676
04-12752	04-12764	04-12860	04-12863	04-13662

OTHER

Cause Code Help

CAP Events Codes as of September 28, 2004

CAP Supply Chain 2004 Process Code Statistics

Conduct of Operations, Revision 24, Chapter 2, Shift Operating Practices

ESP403.013, Resolution of Degraded and Nonconforming Conditions (Computer Based Training Material)

Form 1, 0PG04-ZA-0002 “Condition Report Engineering Evaluation”, Revision 3

Operability and Reportability Assessments 03-1341, -9192, -11068, -6776 and 04-5279

Quality Audit 02-006, Problem Identification and Resolution

Quality Audit Report 03-04, Emergency Preparedness

Quality Audit Report 04-01, Emergency Preparedness

Receipt Inspection Process Self-Assessment from October 1 - 30, 2003

Work Control Screening Group (WCSG) Guide, Revision 14