U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket Nos:	50-498, 50-499
License Nos:	NPF-76, NPF-80
Report No:	50-498/96-06, 50-499/96-06
Licensee:	Houston Lighting & Power (HL&P)
Facility:	South Texas Project Electric Generating Station, Units 1 and 2
Location:	8 Miles West of Wadsworth on FM 521 Wadsworth, Texas 77483
Dates:	July 28 through September 7, 1996
Inspectors:	D. P. Loveless, Senior Resident Inspector
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EXECUTIVE SUMMARY

South Texas Project, Units 1 & 2
NRC Inspection Report 50-498/96-06, 50-499/95-06

This resident inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a 6-week period of resident inspection.

Operations

- Operations continued in a safety-conscious and professional manner (Section O1). Control room operations reflected operator attention to detail, positive shift turnover activities, quality supervision, and formal communications (Section O1.1).

- Operators demonstrated a detailed knowledge of consequences and proper level of caution during the performance of infrequently performed procedures and during operation with automatic equipment out of service (Section O1.1).

- Equipment material condition, plant cleanliness, and equipment availability were excellent (Section O2). Equipment clearance orders were properly implemented. Management was actively involved in overseeing the material condition of the plant (Section O2.1).

Maintenance

- Maintenance and surveillance activities were professionally performed by knowledgeable technicians with appropriate levels of field supervision. Activities observed were well conducted and included good self-verification and independent verification techniques (Sections M1.1 and M1.2).

- A noncited violation was identified for the failure of contractor personnel to install a set screw in a valve actuator spring pack assembly. This event-revealed and licensee-corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy. Licensee management demonstrated an aggressive approach to determining if the missing set screw was an isolated event (Section M1.5).

- Coordination among operations, maintenance, and engineering personnel during the replacement of a solid state protection system relay and during the implementation of a plan of action to determine the source of leakage into a Safety Injection Accumulator were exceptional (Sections M1.6 and M1.7).

- A violation was identified for the failure to establish procedures to verify the accuracy of plant process computer constants that were required by the computer to perform the axial flux difference monitor alarm device function. This violation was similar to a previous violation and should have been prevented by licensee corrective action. (Section M1.8).

Engineering

- The design change package for the modification of molded case circuit breaker setpoints was comprehensive and of good quality. The package was properly reviewed and the safety evaluation met the requirements of 10 CFR 50.59 (E2.1).

- The downgrading of a condition report without a documented basis and the resultant failure to assess operability and reportability were considered a weakness in the implementation of the corrective action program (Section M1.3).

Plant Support

- The radiological controls, chemistry, physical security, and fire protection activities which were observed and reviewed were appropriately conducted (Sections R1 and S1).

Report Details

Summary of Plant Status

Unit 1 operated at essentially 100 percent reactor power throughout this inspection period.

Unit 2 operated at essentially 100 percent reactor power throughout this inspection period.

I. Operations

O1 Conduct of Operations

O1.1 Control Room Observations (Units 1 and 2)

a. Inspection Scope (71707)

Using Inspection Procedure 71707, the inspectors routinely observed conduct of operations in the Units 1 and 2 control rooms. Daily control board walkdowns, attendance at shift turnover meetings, observations of operator performance, and reviews of control room logs and documentation, were performed.

b. Observations and Findings

On July 29, the inspector observed the unit supervisors in Unit 1 during a control board walkdown for shift turnover. The information exchange was very detailed and effective.

On August 2, the inspector observed the placement of a fresh cation bed in service in the chemical and volume control system in Unit 2. Since this evolution was seldom performed at full power and had the potential to affect reactivity, the inspector reviewed the licensee's preparations prior to the evolution. Appropriate precautions had been taken to prevent or accommodate any reactor coolant system boron dilution caused by the activity. Reactor power had been reduced to 99.5 percent. The activity proceeded smoothly with no noticeable power change and in accordance with Plant Operating Procedure 0POP02-CV-0004, Revision 10, "Chemical and Volume Control System Subsystem." Good attention to detail was demonstrated.

On August 13, the inspectors observed Unit 2 control room operators respond to an alarm for Accumulator 2C. The operators referred to the alarm response procedure and verified that the alarm was of no immediate concern. Communications related to the alarm investigation were formal and closed loop.

On August 16, the inspector noted that the Unit 2 main generator voltage regulator was in manual. Control room operators stated that voltage spikes had been observed on the output of the automatic voltage regulator. The control room supervisor had directed the operators to place the voltage regulator in manual. In

discussions with the inspector, the operators demonstrated a detailed knowledge of the consequences of running with the main generator voltage regulator in manual.

c. Conclusions

Operators continued to perform in a safety-conscious and professional manner. Unit supervisors were observed performing detailed control board walkdowns. Operators were very cautious when performing seldom used procedures. Formal communications techniques within the control rooms and with reactor plant operators were good. The response to annunciators by reactor operators was excellent.

O2 Operational Status of Facilities and Equipment

O2.1 Plant Tours (Units 1 and 2)

a. Inspection Scope (71707)

The inspectors toured portions of the accessible plant areas in Units 1 and 2 on a daily basis. Areas of special attention during this inspection period included:

- Protected area yard
- Containment penetration rooms in Units 1 and 2
- Emergency electrical switchgear and battery rooms in Unit 2
- Fuel handling buildings for Units 1 and 2
- Turbine generator buildings for Units 1 and 2
- Essential Cooling Water Pump Rooms in Unit 1

The inspectors found that equipment inside the buildings was properly stored. All areas toured were clean and free of debris.

On August 19, the inspector verified portions of equipment clearance order tagouts for a Unit 1, Train B, work week. The equipment clearance orders were properly signed and the equipment tags were properly hung and verified.

c. Conclusions

The inspectors concluded that equipment material condition, plant cleanliness, and equipment availability were excellent. Equipment clearance orders reviewed were properly developed and implemented. Licensee management was actively monitoring work areas for material condition.

O8 Miscellaneous Operations Issues (92701)

O8.1 (Closed) Violation 50-499/96001-01: two main feedwater isolation valves were made inoperable in violation of Technical Specification 3.0.3.

The licensee found that the root cause of the occurrence was a misapplication of a Technical Specification interpretation. In addition, poor shift turnover practices contributed to increasing the duration of the violation.

The lessons learned from this event resulted in discussions with licensed operators regarding management expectations. The discussions focused on communications and control of entries into Technical Specification action statements. In addition, guidance was issued regarding work coordination and communications between the control room staff and the outage work start authority.

The licensee also revised Plant Operating Procedure 0POP01-ZQ-0022, Revision 8, "Plant Operations Shift Routines," to include main feedwater isolation valve operability as an item to be reviewed during shift turnover on the Mode 3 safety function checklist. The inspectors concluded that the licensee's corrective actions had been appropriate.

O8.2 (Closed) Licensee Event Report 50-499/96-001: two main feedwater isolation valves were made inoperable in violation of Technical Specification 3.0.3.

This licensee event report documented the event cited in Violation 50-499/96001-01. This matter was closed in Section O8.1 of this inspection report. No new issues were revealed in the licensee event report.

O8.3 (Closed) Violation 50-499/95027-01: inadequate controls governing the configuration of fuel handling equipment.

On October 18, 1995, a contract technician improperly attached a safety sling on the fuel handling machine during fuel movement in Unit 2. This resulted in insufficient clearance between the fuel assembly being moved and the fuel racks in the spent fuel pool. This violation was a repeat violation caused by inappropriate contractor controls.

The licensee identified the root cause of this violation as less than adequate supervisory oversight of the task and concluded that contractor control was adequate and effectively implemented.

In order to preclude repetition of this event, the licensee enhanced the fuel handling machine procedure to clarify the proper configuration of the fuel handling machine hoist and to include independent verification of proper rigging. In addition, the lessons learned from this event were included as a case study in contract technical coordinator training.

The inspector concluded that the licensee's corrective actions had been appropriate.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments on Field Maintenance Activities

a. Inspection Scope (62707)

The inspectors observed all or portions of the following work activities, identified by their work authorization numbers:

Unit 1:

- 96077861: Replace Breaker for the Outside Containment Isolation Valve in Auxiliary Feed Water System Train C
- 95003578: Spent Fuel Pool Gate Seal Replacement

Unit 2:

- 95003280: Lubrication, Inspection, and Testing of Fuel Handling Building Ventilation Backdraft Damper for Exhaust Booster Fan 11C
- 95003297: Lubrication, Inspection, and Testing of Fuel Handling Building Ventilation Backdraft Damper for Exhaust Fan 11C
- 90002276: Steam Generator Header Pressure Loop Calibration

b. Observations and Findings

The inspectors found the work performed under these activities to be professional and thorough. The mechanics and technicians demonstrated a detailed knowledge of the associated procedures and equipment. Self- verification and independent verification techniques were performed in accordance with management expectations. Supervisors and managers were observed as having an active role in providing oversight of the maintenance activities.

c. Conclusions

The inspectors concluded that the routine maintenance activities observed were professionally performed by very knowledgeable mechanics and technicians. Maintenance supervisors were found to be providing an appropriate level of field supervision and oversight.

M1.2 General Comments on Surveillance Testing

a. Inspection Scope (61707)

The inspectors observed all or portions of the following surveillances:

Unit 1:

- Plant Surveillance Procedure 0PSP03-DG-0002, Revision 6: Standby Diesel 12(22) Operability Test

Unit 2:

- Plant Surveillance Procedure 0PSP03-CV-0009, Revision 3: Monthly Boration Flow Path Verification

b. Observations and Findings

The inspectors found that the testing activities performed under these activities were professional and thorough. All observed tests were performed in accordance with the approved surveillance procedure. Technicians and operators were experienced and knowledgeable of their assigned tasks. Pretest briefings were detailed and included discussions of plant and personnel safety and equipment integrity issues. Surveillance tests were satisfactorily completed within the Technical Specification required frequency, and the associated procedures properly implemented the surveillance requirements. Test instruments were within their current calibration cycle. Dual verification was observed when required by procedures, and the technicians informed the control room operators of expected alarms.

c. Conclusions

The inspectors concluded that the observed surveillance tests were professional, thorough, and fully implemented the associated Technical Specification surveillance requirements.

M1.3 Visual Inspections of Fuel Handling Building Main Exhaust Booster Fan Backdraft Dampers

a. Inspection Scope (62707)

On July 29, 1996, during the observation of the lubrication, inspection and testing of the Fuel Handling Building Main Exhaust Booster Fan 11C backdraft damper, the inspector noted that a field change had been made to the preventive maintenance work instructions that was characterized as a one-time change. The change instructed the mechanics to perform boroscopic inspections of the dampers. Prior

to the change, the work instruction had directed the mechanics to enter the plenum, common to all three trains, between the main exhaust fans and the main exhaust booster fans and visually inspect the damper. The inspector reviewed the basis for the work instruction change and the effect of previous preventive maintenance activities on system operability.

b. Observations and Findings

The inspector interviewed craft personnel, the system engineer, and a shift supervisor concerning the work instruction change. On April 9, 1996, the shift supervisor had raised an operability concern prior to work-start of a previous occurrence of this maintenance activity. Condition Report 96-4187 had been written to document that the preventive maintenance task had not been performed and that the shift supervisor questioned whether the evolution had caused all three trains to be inoperable in the past. The specific concern raised by the shift supervisor was that opening of the plenum access door would render all three trains of the fuel handling building exhaust filtration system inoperable by providing a bypass flowpath. The plenum between the main exhaust fans and the booster fans was common to all three trains of the fuel handling building main exhaust subsystems. With the plenum door open, unfiltered air would be drawn from the fuel handling building, through the main exhaust fans, and out the main plant stack.

During previous performances of this preventive maintenance activity, one technician had entered the plenum and closed the door. Constant radio contact had then been maintained with a second technician outside the plenum.

While reviewing the condition report, the inspector noted that the condition had originally been characterized as a station-wide level condition adverse to quality.

On April 11, the Condition Review Group downgraded the condition report to a condition not adverse to quality and, therefore, not a condition requiring management level coordination. As a result of this action, an engineering evaluation for operability or reportability of the past practice of breaching the system had not been performed. The inspector brought this matter to the attention of the shift supervisor. The shift supervisor agreed with the inspector's concern and requested an engineering evaluation of past system operability. The evaluation indicated that the momentary opening and closing of the plenum door would not result in exceeding the offsite dose release limits described in the Updated Final Safety Analysis Report, did not affect system operability and was not reportable. The inspector found the results of the engineering evaluation to be thorough and reasonable.

c. Conclusions

The past practice of entering the plenum common to all three trains of the fuel handling building main exhaust systems indicated a previous work process

weakness. The licensee had adequately addressed this specific practice, however, questions concerning past system operability were not well addressed. The downgrading of the condition report without a documented basis and the resultant failure to assess operability or reportability were considered a weakness in the implementation of the corrective action program. The quality and thoroughness of the engineering evaluation were considered adequate.

M1.4 Steam Generator 2D Pressure Loop P-0546 (Unit 2)

a. Inspection Scope (62707)

On August 27, during the performance of a quarterly analog channel actuation test on Steam Generator 2D Pressure Loop P-0546, the instrumentation and controls technicians discovered a mispositioned jumper on a lead/lag circuit card. The inspectors reviewed the implications of the mispositioned jumper and the efforts of the licensee in determining the root cause.

b. Observations and Findings

Condition Report 95-10591 was developed to assess the mispositioned jumper. The jumper consisted of a lead with two pin positions. The lead was found terminated to the "fixed" position pin as opposed to the required "variable" position.

The inspectors reviewed the control room logs and found that the operators had entered the appropriate Technical Specification action statements upon discovery of the failed channel. The analog channel actuation test was correctly reperformed after proper positioning of the jumper. The pressure loop was declared operable and the channel was returned to service.

To ascertain the extent of the problem, the technicians promptly verified the configuration of the circuits for the other 11 main steam line pressure channels. All jumpers were found in the required position. Licensee management established an event review team to perform the investigation. The team determined that, with the jumper in the fixed position, all dynamic output response of the circuit was removed. Therefore, although the channel would have tripped at a less conservative fixed setpoint, the rate function would not have caused the channel to trip prior to reaching the fixed setpoint following a main steam line break. The impact of this delay in the main steam line isolation trip circuitry was still being reviewed at the end of this inspection period.

A licensee event report will be issued in accordance with 10 CFR 50.73. The inspectors will further review this event in conjunction with the closure of this 30-day report.

c. Conclusion

The immediate response to the event was good. Plant personnel adequately addressed the potential for generic implications as well as the return to service of the specific channel. The issue will remain open and will be addressed after issuance of the licensee event report.

M1.5 Degradation of Safety Injection Motor-Operated Valve 1-SI-MOV-0016C Actuator

a. Inspection Scope (62707)

On August 27, while closing Valve 1-SI-MOV-0016C after performance of a local leak rate test, a breaker thermal overload indication was received. Condition Report 96-10562 was written to investigate the cause. The inspectors followed the investigation process and reviewed the licensee's findings.

b. Observations and Findings

The valve actuator was disassembled to determine the cause of the overload indication. The maintenance technicians found several indications of damage in the valve actuator:

- The motor shaft was cracked along the edges of the key way.
- The grease in the actuator contained bits of shinny brass.
- The brass worm gear had damage on the teeth.
- The bearing cap had damage where it had interfered with the worm gear.

The investigation revealed that a set screw was missing from the bearing cap. The missing set screw allowed the bearing cap to travel along the threads on the worm shaft until it contacted the worm gear. The additional torque had apparently created enough heat to cause the motor overload indication switch to actuate.

The potential for cracks to occur in the motor shaft key way was a condition that had been previously discussed during an owner's group meeting. Engineering management had developed a plan to inspect the susceptible motor shafts prior to the overload indication occurring. The failure to install a set screw and the resultant contact of the bearing cap with the worm gear was independent of the shaft cracking.

During the investigation, engineering personnel determined that the bearing cap set screw should have been installed in 1993 during a modification to the actuator which was performed by a motor-operated valve maintenance contractor. The same modification had been installed in other valves during that time frame. A plan

of action was developed that outlined the following steps in investigating the condition of other valves that could have the same problem:

- Inspections were conducted on three additional motor-operated valve actuators during the week of September 1, 1996, with no deficiencies identified.
- Documentation from the 1993 actuator modifications was reviewed.
- A schedule was developed to inspect valve actuators for the installation of set screws as motor-operated valves were removed from service for routine maintenance.
- Valves with potential drive motor shaft cracking were scheduled to be inspected by November 1996.

Failure to install the set screw during the modification of the actuator in 1993 constituted a noncompliance with the contractor's Maintenance/Operation Procedure 3.0, Revision 1, "Limitorque Operator Overhaul, Models SMB-0 through SMB-4." This was in violation of Technical Specification 6.8.1 which required that maintenance of safety-related equipment be performed in accordance with written procedures. Based on the licensee response, the missing set screw was determined to be an isolated instance. This event-revealed and licensee-corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (Noncited Violation 498/96006-01).

c. Conclusions

A violation was identified for the failure to modify a safety-related valve actuator in accordance with written procedures which required the installation of a set screw in the actuator spring pack. This event-revealed and licensee-corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy. Licensee management demonstrated an aggressive approach to determining if the missing set screw was an isolated event. Valve actuators inspected for similar problems were found to have the bearing cap set screws in place.

M1.6 Steam Generator 2D Level Loop L-0547 Relay Failure (Unit 2)

a. Inspection Scope (62707)

On August 24, the inspector was informed that Steam Generator 2D Water Level Loop L-0547 had failed and had been placed in a tripped condition in accordance with appropriate Technical Specifications. The inspector observed and reviewed the activities involved in the repair of the failed channel.

b. Observation and Findings

On August 24, Unit 2 operators responded to alarms related to Steam Generator 2D. The operators determined that an instrument failure had occurred on Loop L-0547 and took the appropriate actions in accordance with Technical Specification 3.3.2.6.d Action 20 by placing the affected channel in trip condition within 1 hour. During subsequent troubleshooting, instrumentation and controls technicians discovered a faulty field input relay to the solid state protection system Logic Train R cabinet.

Work planners prepared a work package that contained guidance on replacing the field input relay. The package indicated that the solid state protection system Protective Channel IV would remain inoperable throughout the evolution. Prior to field work, a prejob briefing was conducted with ensuing discussions related to the relay replacement. The shift supervisors elicited discussion on areas of concern from the control room operators and technicians. The discussions were detailed and exhaustive. A reactor operator identified that the removal of the relay would remove the trip signal provided by Channel IV to the solid state protection system Logic Train R. This would have nonconservatively changed the required two-out-of-four logic. With the field input relay removed, the resulting Train R logic would have been two out of three channels to trip. In addition, none of the remaining channels would have been in the tripped condition. Operators determined that, with the logic train inoperable, Technical Specification 3.3.1.21, Action 9, would be applicable. Action 9 required a unit shutdown to hot standby within 6 hours with no prior allowed outage time.

Notwithstanding the problems encountered with the planning of the package, the shift supervisor concluded that the replacement of the field input relay should proceed in an expeditious manner. This decision was based on the increased risk of a second channel inadvertently tripping as a result of severe weather that was in the area. Several telephone calls were made to offsite duty managers to brief them on details of the work to be performed. In addition, the work authorization package received a quality assurance signoff via telecommunication.

The inspector observed the replacement of the failed relay in accordance with Work Authorization 91267. Continuous communications were provided between the field personnel and control room operators. Precise communications techniques were observed. Plant Operating Procedure 0POP03-ZG-0006, Revision 6, "Plant Shutdown From 100% to Hot Standby," was entered when the first wire to the relay was cut. The work was performed in accordance with approved procedures and the technicians performed the relay replacement in a very efficient manner. Each step of the activity was independently verified. The new relay was soldered in place in 16 minutes, the channel trip was reestablished, and the shutdown procedure was exited. The new field input relay was tested, Plant Surveillance Procedure 0POP02-FW-0517, Revision 2, "Steam Generator Narrow Range Level

ACOT," was performed, and Level Loop L-0547 was returned to service. The shift supervisor was observed routinely reviewing and providing oversight at each step of the work process.

During a followup review, the inspectors posed the following questions:

- Was it appropriate to enter a Technical Specification action statement that had no allowed outage time in order to make the repair?

- Was it appropriate to perform a quality assurance review by telephone for a system this critical to safety or should quality assurance and control representatives have been present to inspect the work package and repairs?

This issue will remain open and tracked as an unresolved item until these questions are answered (Unresolved Item 498;499/96006-02).

c. Conclusions

The replacement of the field input relay and associated activities were conducted in a carefully controlled manner. Supervisory oversight was considered excellent. Communications among operations, maintenance, and engineering personnel during the prejob briefing and throughout the evolution had a positive impact on the control of the evolution.

M1.7 Accumulator 1C Inleakage in Unit 1

a. Inspection Scope (62707)

On August 30, Unit 1 control room operators identified that water was leaking into Safety Injection Accumulator 1C. The inspector reviewed the plan of action developed by the operators and observed portions of the activities associated with finding the source of the leak.

b. Observations and Findings

After noting that the water level in Accumulator 1C had a gradual increase, the operators calculated that the level had been increasing at a rate of 3 gallons per hour. A written plan of action was developed by the unit supervisor and the shift supervisor to address this inleakage. The plan called for opening and closing certain valves in the system to determine where the leak was occurring and for pressurizing sections of the piping to help seat check valves in the system. The plan was comprehensive and carefully thought out by control room supervision. The shift supervisor, unit supervisor, and system engineer provided oversight for each step of the plan. A calculation was performed to determine how long it would take to dilute the accumulator to below the Technical Specification limit for boron

concentration if corrective action was not taken. It was determined that it would take greater than 372 hours at the identified leak rate.

The troubleshooting plan was implemented and the leak was identified as coming through one of the test line valves. Pressurizing sections of the piping during the troubleshooting resulted in reducing the leakage by reseating the check valves.

Similar problems had been previously identified in Unit 2. Condition Report 96-1443 had been written to address the problem in Unit 2, and Condition Report 96-10775 was written to specifically address the problem in Unit 1. The licensee planned further review of the problem and was investigating a proposed system modification that was designed to eliminate the leakage problems.

c. Conclusions

The operators demonstrated very good attention to detail and a questioning attitude during the activities. Supervisory oversight was noteworthy. Engineering personnel provided good support to the operations staff.

M1.8 Obsolete Plant Process Computer Constants Degrade Alarm Function

a. Inspection Scope (62707)

On August 24, 1996, operators determined that the constants in the plant process computer, utilized for the calculation of axial flux difference, were incorrect. This calculation was utilized by the plant process computer to provide annunciation in the main control room should axial flux difference be outside the Technical Specification required band. Operators determined that, following computer maintenance on August 23, technicians had input obsolete constants into the computer's memory instead of the recently revised data contained in the Accessible Constants Log. The inspectors reviewed this event and the plant process computer functions related to the axial flux difference monitor alarm.

b. Observations and Findings

The plant process computer provided continuous monitoring of axial flux difference and compared the instantaneous value with the Technical Specification required target band. If the axial flux difference was out of tolerance, the plant computer would generate an alarm on the axial flux difference monitor annunciator in the main control room. The Technical Specification bases document indicated that this function was designed to be automatic as opposed to requiring operators to routinely log the values of axial flux difference and compare them to the target. Conversely, Technical Specification 4.2.1.1.b required that manual data logging of the reactor axial flux difference be performed every hour whenever the alarm function was inoperable.

Because the target band changed over the life of the reactor core, new constants were routinely developed by plant engineers and input into the computer's data memory. The constants were lost from active memory when the computer was inadvertently deenergized or required a reboot. Engineers had maintained an Accessible Constants Log to provide the current design values of system constants.

Through interviews, the inspectors determined that, following a maintenance activity on August 23, 1996, control room operators had not updated the constants following a computer reboot using the Accessible Constants Log. The instrumentation and controls technicians had utilized a setpoint checklist which was incorrect.

Technical Specification 6.8.1.a required, in part, that written procedures be established, implemented, and maintained concerning the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33, Appendix A, recommended, in part, that procedures should be written covering surveillance tests and calibrations of alarm devices.

The failure to establish written procedures covering the control of the constants necessary for an accurate calibration of the axial flux difference monitor alarm device following system maintenance was a violation of these requirements (Violation 50-499/96006-03).

Although this violation was identified and corrected by the licensee, it was not considered for enforcement discretion because of the similarities of this violation to a noncited violation documented in NRC Inspection Report 50-498/96-001; 50-499/96-001. The inspectors found that the corrective actions to the noncited violation should have prevented the August 23, 1996, violation.

The inspectors also noted that the data sheets from previous performances of plant process computer rebooting were not being maintained as quality documents. The majority of these data sheets were being disposed of after the reboot. In addition, the Accessible Constants Log was a hand-written log with no apparent independent verification. The failure to properly implement and maintain the procedural data sheets as quality records and the informal Accessible Constants Log appeared to be contributors to the violation.

c. Conclusions

The failure to properly verify the accuracy of plant process computer constants following maintenance of the system resulted in a degradation of the axial flux difference monitor alarm device function. This resulted because an adequate procedure to address the surveillance and calibration of this alarm device following maintenance activities was not established. This violation was similar to a previous

violation and should have been prevented by licensee corrective actions. In addition, the control and maintenance of quality records appeared to be inappropriate.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Evaluation of Design Change Package for Molded Case Circuit Breakers

a. Inspection Scope (37551)

Design Change Package 95-1920-4 was developed to change molded case circuit breaker setpoints and, in some cases, replace the circuit breakers for certain safety-related motor-operated valves. The inspector reviewed the design change package for adequacy.

b. Observations and Findings

Various molded case circuit breakers used in safety applications at South Texas Project did not meet the revised industry standards contained in IEEE Standard 741-1990 and NRC Information Notice 92-51. These standards called for motor-operated valve circuit breakers to have an instantaneous trip value of not less than 200 percent of nominal locked rotor current. The replacement molded case circuit breakers were designed to handle the high starting currents without experiencing spurious trips.

The inspector determined that the design change package appropriately addressed the concerns in the Information Notice and the Standard.
The package was developed to support a global change to existing molded case circuit breakers in safety applications at the South Texas Project. A comprehensive screening was conducted in accordance with 10 CFR 50.59. No unreviewed safety question was found to exist. The modification did not require a revision to the safety analysis report nor did it impact the Technical Specifications.

c. Conclusions

The inspector concluded that the design change package was comprehensive and of good quality. The safety implications were adequately addressed in the safety evaluation.

E8 Miscellaneous Engineering Issues

E8.1 Spent Fuel Pool Gate Seal Replacement and Seal Design Review (Unit 1)

a. Inspection Scope (62707)

The inspector observed portions of the performance of a preventive maintenance activity to replace the leaking outer gate seal on the cask connecting channel end of the spent fuel pool. Discussions were held with control room operators, the system engineer, the system engineering manager, and the mechanical maintenance manager regarding the work activities and technical considerations.

The inspectors reviewed the historical problems associated with spent fuel pool gate seals documented in NRC Inspection Reports 50-498/95-020;50-499/95-020 and 50-498/95-021;50-499/95-021.

b. Observations and Findings

On August 8, the inspector observed the placement of the outer gate into the spent fuel pool for temporary storage. The outer gate had been replaced with a gate containing a newly installed seal. After installation, operators did not fill the area between the gates with water to test that the outer gate would not leak. The spent fuel pool was designed with a set of gates separating the spent fuel pool from the spent fuel cask handling area. Each gate had one seal inflated by air from the instrument air system via a pressure regulator and a check valve. The seals were not designated as safety related nor seismically qualified.

Engineers stated that the gate seal had previously been tested while installed on the transfer canal side of the spent fuel pool. The inspectors noted that the licensee had developed Plant Operating Procedure 0POP07-FH-0001, Revision 0, "Spent Fuel Pool Gate Seal Operability Check," to ensure the integrity of the gate seals. Engineers stated that a decision had been made not to perform Procedure 0POP07-FH-0001 because of concerns that the test would cause the inner seal to begin leaking.

In a letter dated December 19, 1995, the licensee had discussed providing an additional barrier at the south end of the cask connecting channel in order to minimize the risk associated with performing maintenance on one of the gates. Because this maintenance evolution was being performed without an additional barrier in place, the inspectors inquired about the projected date for installation of the additional barrier. It was determined that the licensee's 5-year plan scheduled the installation of a spent fuel pool cask connecting channel gate for Unit 1 on July 31, 1997, and on October 1, 1997, for Unit 2. As of this inspection, no design work had been conducted.

During a walkdown of the cask handling area drain system, the inspectors noted that the drain valves were closed. The valves were not danger tagged closed nor in the locked valve program. An equipment clearance order had been written to danger tag the drain valves closed in July 1995. This was documented in NRC Inspection Report 50-498/95-020;50-499/95-020. During a management meeting conducted in the Region IV office on July 25, 1995, senior licensee management had stated that, given the incomplete status of the cask handling areas, the associated drain valves would be closed and placed in the locked valve program. However, since that time, engineering personnel determined that the controls were not necessary and the danger tags were removed and the equipment clearance order was closed.

Since the additional barrier at the south end of the cask connecting channel had not been designed and the controls governing the testing of the spent fuel pool gate seals and the position of cask area drain system valves had been relaxed, the concerns with not having safety-related seals on the spent fuel pool gates remain. This matter will be further reviewed and will be tracked as Unresolved Item 498;499/96006-04. The following concerns will be inspected and verified as a part of this review:

- What design criteria was utilized for the seals during the original licensing review?
- What would be the final water level in the spent fuel pool should both nonsafety-related seals fail?
- Was the cask connecting channel gate considered a critical part of the originally accepted design?
- Has long-term exposure of the unfinished cask handling area surfaces to spent fuel pool boric acid affected the integrity of the reinforcing steel?
- Has the licensee performed a flooding analysis considering the potential for loss of the spent fuel pool gate seals?

c. Conclusions

The inspectors concluded that the seal replacement was a well coordinated and planned operation, demonstrating effective communications between interfacing plant organizations. However, because maintenance was performed on the spent fuel pool gate seals prior to installation of an additional barrier at the south end of the cask connecting channel, further reviews of the implications of having nonsafety-related gate seals will be conducted.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Tours of Radiologically Controlled Areas (RCAs)

a. Inspection Scope (71750)

The inspectors routinely toured the RCAs in Units 1 and 2. These tours included sampling of locked doors, observation of work and verification of proper radiological work permits, and observations of entrance and egress from the RCAs.

b. Observations and Findings

Radiological housekeeping in the areas toured in both units was good. Observed work was performed in accordance with proper radiological work permits and approved procedures. No discrepancies were identified with sampled locked doors. Entrances and egresses from the RCAs were observed to be in accordance with radiological protection procedures. Items carried out of the RCA were properly frisked prior to leaving the RCAs.

c. Conclusions

Implementation of radiological controls and control of RCA entrance and egress was good.

S1 Conduct of Security and Safeguards Activities (71750)

The inspector routinely observed security officers performing screening for personnel ingress and egress, including searches of personnel and packages. Protected area illumination was spot checked and no deficiencies were noted. Officers were alert and appropriately attentive. No discrepancies were observed.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Cloninger, Vice President, Nuclear Engineering
K. Coates, Manager, Maintenance 2
D. Daniels, Manager, Operating Experience
B. Dowdy, Assistant to Group Vice President
J. Groth, Vice President, Nuclear Generation
E. Halpin, Manager, Design Engineering Department
W. Harrison, Supervising Licensing Engineer
S. Head, Licensing Supervisor
T. Jordan, Manager, Systems Engineering
M. Kanavos, Manager, Mechanical Fluid Systems
D. Leazar, Director, Nuclear Fuels and Analysis
F. Mangan, General Manager, Plant Services
B. Masse, Plant Manager, Unit 2
G. Parkey, Plant Manager, Unit 1
D. Schulker, Compliance Engineer
W. Waddell, Manager, Maintenance 1
F. Wagar, General Manager, Human Resources

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 61726:	Surveillance Observations
IP 62707:	Maintenance Observations
IP 71707:	Plant Operations
IP 71750:	Plant Support Activities
IP 92901:	Followup - Plant Operations
IP 92903:	Followup - Engineering
IP 93702:	Prompt Onsite Response to Events at Operating Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

498/96006-01	NCV*	failure to install a required set screw in a motor-operated valve actuator spring pack
498;499/96006-02	URI	review the adequacy of entering an action statement with no allowed outage time for corrective maintenance
498;499/96006-03	VIO	inadequate controls
498;499/96006-04	URI	review the implications of not providing safety-related seals on the spent fuel pool gates

Closed

498/96006-01	NCV*	failure to install a required set screw in a motor-operated valve actuator spring pack
499/96001-01	VIO	two feedwater isolation valves out of service in violation of Technical Specification 3.0.3
499/96-001	LER	two feedwater isolation valves out of service in violation of Technical Specification 3.0.3
498/95027-01	VIO	inadequate controls governing the configuration of fuel handling equipment

* The noncited violations identified in this report require no further NRC review and are considered both opened and closed in this inspection report.

LIST OF ACRONYMS USED

IEEE	Institute of Electrical and Electronic Engineers
NCV	noncited violation
NRC	Nuclear Regulatory Commission
PDR	Public Document Room
RCA	radiological controlled area
URI	unresolved item
VIO	violation