ENCLOSURE
U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket Nos:	50-498, 50-499
License Nos:	NPF-76, NPF-80
Report No:	50-498/97-07, 50-499/97-07
Licensee:	STP Nuclear Operating Company
Facility:	South Texas Project Electric Generating Station, Units 1 and 2
Location:	8 Miles West of Wadsworth on FM 521 Wadsworth, Texas 77483
Dates:	October 5 through November 15, 1997
Inspectors:	D. P. Loveless, Senior Resident Inspector W. C. Sifre, Resident Inspector
Approved by:	J. I. Tapia, Chief, Project Branch A Division of Reactor Projects

EXECUTIVE SUMMARY

South Texas Project, Units 1 and 2
NRC Inspection Report 50-498/97-07; 50-499/97-07

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

Operations

- Control room operators maintained an excellent awareness of control board indications and existing plant conditions (Section O1.1).

- An action plan to reseat two leaking moisture separator reheater relief valves properly included personnel safety controls, plant impact assessment, and appropriate contingency plans. Shutting down the turbine-generator to repair the valves was a conservative action (Section O1.1).

- Licensed operator response to a failure of a moisture separator reheater relief valve was excellent. The shift supervision exhibited superior command and control in directing the rapid shutdown of the unit (Section O1.2).

- Licensed operators properly stabilized plant conditions following a Unit 1 reactor trip caused by a faulty relay in the main turbine overspeed protection circuitry. However, an inadvertent auxiliary feedwater system actuation occurred while transferring the steam dumps to the steam pressure mode of control (Section O1.3).

- Equipment availability and material condition in the areas toured were excellent. However, poor position indication was noted for a number of remote-manually operated valves (Section O2.1).

- The implementation of the Unit 2 control room human interface modification was coordinated with plant operators and well controlled. Contingency plans and compensatory actions were well developed and in place. However, one fire loading issue was identified and resolved (Section O2.2).

Maintenance

- Maintenance activities observed were conducted in a professional manner. Technicians demonstrated a good knowledge of systems and components and good oversight of activities was evident (Section M1.1).

- Surveillance testing observed was conducted in accordance with approved procedures and implemented the Technical Specification surveillance requirements (Section M1.2).

- A question regarding the proper application of the ASME Code Section XI testing of main steam safety valves will be reviewed further during the review of a related licensee event report (Section M1.2).

Engineering

- An air actuator diaphragm on a containment isolation valve was replaced as a result of conditions identified by a thorough review for the applicability of NRC Information Notice 96-68 (Section M1.1).

- The temporary modification written to repair a leaking high pressure seal at the seal plate was properly developed and implemented. An unreviewed safety question determination and work risk assessment were performed and specified conservative controls over the field work (Section E1.1).

- An evaluation of a concern related to the local leak rate test of a containment penetration properly bounded the potential problem. The engineering analysis and calculations were thorough and conclusions were well founded (Section E1.2).

Plant Support

- On one occasion, instrumentation and control technicians placed tools and parts across a contaminated area boundary adjacent to their work area. The condition was promptly corrected and no contamination occurred. However, technicians did not write a condition report until prompted by the inspectors (Section R1.1).

Report Details

Summary of Plant Status

At the beginning of this inspection period, Unit 1 was operating at 29 percent power with power ascension to 100 percent in progress. On October 6, the unit was rapidly shut down from 74 percent reactor power in response to a failed open moisture separator reheater relief valve. On October 8, the unit was returned to 100 percent power operations. On November 10, the unit tripped from 100 percent reactor power in response to a failed component in the turbine overspeed protection circuit. On November 14, the unit was returned to service. At the end of this inspection period, the Unit 1 reactor was operating at 100 percent power.

Unit 2 operated at 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)

The inspectors routinely observed the conduct of operations in the Units 1 and 2 control rooms. Frequent reviews of control board status, routine attendance at shift turnover and turnover meetings, observations of operator performance, and reviews of control room logs and documentation were performed. The inspectors observed portions of the following evolutions in addition to full power operations:

- Unit 1 power ascension activities following Refueling and Equipment Outage 1REO7 (10/5-10/6)
- Response to a moisture separator reheater relief valve failure in Unit 1 (10/6)
- Unit 1 return to power operations (10/8)
- Implementation of Unit 2 control room human interface modification (11/4-11/15)
- Response to a Unit 1 reactor trip (11/10)
- Response to a Unit 1 turbine trip (11/12)

b. Observations and Findings

During routine observations and interviews, the inspectors determined that the control room operators were continually aware of existing plant conditions. Operators responded to annunciator alarms in accordance with approved procedures. Annunciator alarms were promptly announced to the control room staff who, in turn, acknowledged by restating the announcement. The unit supervisors remained cognizant of ongoing

activities. Licensed operators' use of self-verification techniques was evident. The engineered safety features systems in both units were verified to be aligned in accordance with Technical Specifications requirements during various plant operating conditions.

The inspectors routinely attended shift turnover meetings. The on shift operators provided clear and concise information to the oncoming operators. Oncoming operators routinely reviewed the control room logs, discussed current plant conditions, and verified major equipment status. Plant managers and operations department managers were often observed in attendance during shift turnover.

On November 14, maintenance and operations personnel attempted to manually open two leaking moisture separator reheater relief valves. This effort was performed at low power and was designed to reseat the valves. A thorough contingency plan had been developed and was followed. Plans for personnel safety aspects of the evolution were stellar. The evolution was suspended when the valves failed to reseat. The turbine-generator and condenser systems were conservatively removed from service, and the valves were inspected and repaired.

c. Conclusions

Licensed operators in the control room performed in a professional manner and were continuously aware of existing plant conditions. Shift turnover meetings were thorough and routinely attended by management. The action plan to reseat two leaking relief valves included excellent personnel safety controls, a plant impact assessment, and appropriate contingency plans. Shutting down the turbine-generator to repair the valves was a conservative action.

O1.2 Premature Lift of a Moisture Separator Relief Valve

a. Inspection Scope (93702)

On October 6, at approximately 11:15 a.m., the Unit 1 Moisture Separator Reheater 11 northeast relief valve failed open. The inspectors responded to the control room to observe operator actions in response to the event. The following procedures related to this event were reviewed:

- Plant Operating Procedure 0POP03-ZG-0006, Revision 7, "Plant Shutdown from 100 percent to Hot Standby"
- Plant Operating Procedure 0POP04-TM-0005, Revision 1, "Fast Load Reduction"

b. Observations and Findings

Licensed operators first received notification, by radio call, of a steam leak on the turbine deck. No annunciators alarmed in the main control room. A quick assessment of plant

parameters identified that main generator output had decreased. Control room operators responded to the event in a calm and controlled manner. The shift supervisor took control of the event and ensured that the response was reasonable and timely. Closed communications practices were used and the reactor operators continually assessed plant conditions. Normal control room operations and communications were diverted to the one stop shop in order to decrease the administrative work load on the operators.

Operators quickly determined that the condenser hotwell level was decreasing at a rapid rate. The shift supervisor directed that Procedure 0POP04-TM-0005 be implemented, and reactor power was reduced at approximately 5 percent per minute. Despite this rapid rate of shutdown, licensed operators properly controlled plant parameters and maintained control of the situation. At 20 percent reactor power, the valve reseated and licensed operators transitioned to Procedure 0POP03-ZG-0006. A briefing was held to discuss plant conditions and to verify that the turbine was ready to be removed from service for repairs.

The opening of the valve caused an excessively loud sound that was audible for several miles around the plant. As a result, two plant personnel were injured in their haste to evacuate the immediate vicinity of the valve. A reactor operator was assigned to the one stop shop to respond to the medical emergency. This removed a potential distraction from the licensed operators. One individual was treated by site industrial safety personnel and transported offsite for a medical evaluation. The other received minor first aid on site.

The cause of the relief valve lifting was the failure of the main disc seal. Failure of the seal allowed leakage of the balancing steam from above the main poppet. This leakage was sufficient to exceed steam supply through the balancing orifice. Therefore, the pressure above the main poppet decreased sufficiently to cause the valve to lift prematurely. Further analysis of the failure mechanism was being performed by the licensee at the end of this inspection period.

c. Conclusions

Licensed operator response to the failure of a moisture separator reheater relief valve was excellent. The shift supervision exhibited superior command and control in directing the rapid shutdown of the unit. Operators properly responded to the medical emergency that occurred during the event. Administrative duties were conservatively directed to the one stop shop and away from the control room operators.

O1.3 Response to a Unit 1 Reactor Trip

a. Inspection Scope (92703, 71707)

On November 10, the Unit 1 reactor automatically tripped on an overtemperature-deltatemperature signal. All rod control cluster assemblies fully inserted into the core and all systems and components functioned in accordance with design. The inspector

responded to the site and observed the recovery and stabilization of the plant. The following documents were reviewed:

- Plant Operating Procedure 0POP05-EO-E000, Revision 9, "Reactor Trip or Safety Injection"
- Plant Operating Procedure 0POP05-EO-ES01, Revision 14, "Reactor Trip Response"
- Plant General Procedure 0PGP03-ZO-0022, Revision 4, "Post-Trip Review Report"
- Condition Report 97-18170
- Condition Report 97-18146
- Event Review Team Report
- Event Notification Worksheet

b. Observations and Findings

Just prior to the event, licensed operators reported observing minor swings in generator output. Automatic rod motion was then observed coincident with an alarm of the steam flow/feedwater flow mismatch annunciator. The reactor tripped on an overtemperature-deltatemperature trip signal. Operators entered Procedure 0POP05-EO-E000 and responded appropriately to the event. One exception was noted. While transferring the steam dump control from average temperature mode to steam pressure mode, an imbalance in the control circuit caused a perturbation of steam generator water levels. This resulted in a reinitiation of the auxiliary feedwater control system. Further review of of the causes for this actuation will be conducted upon issuance of the licensee event report.

The event was caused by a spurious firing of a solid state relay which resulted in a momentary actuation of an overspeed protection control circuitry solenoid. The solenoid actuation caused the main turbine governor valves and intercept valves to rapidly close. Because the actuation was momentary, the governor valves promptly reopened. However, the intercept valves remained closed for the remainder of the event because the intercept valves responded significantly slower than the governor valves, as designed. Rapid closing and reopening of the governor valves produced oscillations in steam generator levels and pressures. This condition combined with the rapid closing of the intercept valves produced a partial loss of turbine load and resulted in a momentary step increase in reactor coolant system temperature and pressure. The reactor coolant system transient resulted in the reactor trip on an overtemperature-deltatemperature reactor trip signal.

In their review of this event, licensee engineers determined that the solid state relay whose failure initiated the event was the subject of a Westinghouse vendor publication dated November 1, 1976 wherein the vendor identified the possibility of failure of these solid state relays and recommended their replacement with mercury-wetted design relays. Licensee technicians verified that the mercury-wetted relays had been installed in the overspeed protection control system. However, they also identified that the solid state relays had not been removed. The licensee removed the solid state relays and tested the system prior to restart. The inspectors will address the question of why the solid state relays remained installed during subsequent review of the licensee event report.

The inspectors observed licensed operator response during the recovery and stabilization of the plant. Operators followed plant operating procedures throughout the recovery. Controls were manipulated in a careful and methodical manner. Shift supervision provided appropriate levels of oversight in ensuring that plant parameters were being maintained. Annunciator alarms were observed and quickly acknowledged.

The inspectors reviewed the posttrip review. The plant had responded well to the event and no deficiencies were noted. All plant equipment functioned as expected after the reactor trip. This was indicative of outstanding plant system and equipment material condition prior to the reactor trip.

c. Conclusions

Licensed operators properly stabilized plant conditions following a Unit 1 reactor trip. However, inadvertent auxiliary feedwater system actuation resulted from the failure to balance instrument signals prior to transferring to the steam pressure mode of control for the steam dumps. Licensee engineers had a prior opportunity to identify potential design problems with the relay that caused the event. Additional review of these issues will be conducted upon issuance of the licensee event report. The material condition of plant systems and equipment responding to the reactor trip was outstanding.

O2 Operational Status of Facilities and Equipment

O2.1 Plant Tours (Units 1 and 2)

a. Inspection Scope (71707)

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

- Circulating water intake and discharge structures
- Units 1 and 2 turbine generator buildings
- Standby Diesel Generator 21

- Units 1 and 2 mechanical and electrical auxiliary buildings
- Isolation Valve Cubicle 2D
- Unit 1 auxiliary feedwater pump rooms

b. Observations and Findings

The inspectors found that plant equipment was maintained in excellent material condition. Plant housekeeping was good. Minor deficiencies identified were communicated to the appropriate shift supervisor and were promptly corrected. Licensee management was routinely observed in the plant monitoring ongoing activities.

During routine tours of both units' mechanical auxiliary buildings, the inspectors observed position indication for various valve actuators. The inspectors noted that the indication for Valves 2-FC-0026B and 2-FC-0027B, that were associated with previous events and for other valves in the general vicinity, were inadequate. These events were described in NRC Inspection Report 50-498/97-06; 50-499/97-06, Sections O1.3 and O1.4. No formal position indication was permanently labeled for multiple remote-manually operated valves. Markings and notations were handwritten in pen at the hand wheel describing expected valve positions and noted weaknesses in the valve actuators.

c. Conclusions

Plant equipment availability and material condition were excellent and plant housekeeping was good. However, position indication for remote-manually operated valves associated with previous events was inadequate.

O2.2 Unit 2 Control Room Modification

a. Inspection Scope (71707)

From November 4-15, craftsmen installed the major portions of the human interface modification in the Unit 2 main control room. The modification was developed to assist in the installation of a new plant computer, to improve traffic flow and operator positioning, and to provide emergency operating procedure storage and laydown areas. The inspectors reviewed the action plans and implementation of the modification to ensure minimal impact to plant operations.

b. Observations and Findings

The inspectors reviewed the modification scope and determined that the following systems and components were impacted:

- Safety-Related Equipment:

  - Control Room Envelope Base Mat
  - Control Room Penetrations

- Technical Specification Equipment:

  - Power Distribution Limits Annunciation
  - Reactor Power and Core Analysis Monitoring

- Important Equipment:

  - Safety Parameter Display System
  - Digital Radiation Monitoring System
  - Approximately ⅓ of All Annunciators
  - Westinghouse Operating Subroutines
  - Control Room Communications
  - Fire Protection Computer
  - Vital Area Boundaries
  - IEEE 338 Bypass/Inop System
  - Emergency Operating Procedure Storage and Laydown Areas
  - Control Room Traffic Routing

Several interim states had been devised to ensure that equipment availability was maximized. Examples included providing temporary computer monitors on roll-away carts, interim digital radiation monitoring from outside the control room, temporary risk and dose assessment software provided on a personal computer, and metal tables to support potential emergency response while consoles were removed. The work was performed during periods when the risk associated with online maintenance was low. In addition, licensed operators had full authority to stop or restrict work as needed to respond to plant operational occurrences. The inspectors noted that on several occasions, operators placed limits on the scope of work to be performed at that time. On one occasion, workers were expelled from the control room while operators responded to main transformer alarms.

The inspectors determined that a health physics technician was continuously monitoring the digital radiation monitoring system and had communications established to contact the control room should a monitor alarm. No loads were suspended or carried over the main control panels. Cutting of the existing control room desks and consoles was shielded from the operators and the control panels. The ventilation system was aligned to move dust and debris away from the at-the-controls area.

The inspectors observed the installation of raised flooring in the unit supervisor's area. The floor panels were made of sheet metal laminate over compressed wood. The inspectors reviewed the additional fire loading associated with the use of compressed wood. The design review had concluded that the sheet metal prevented oxygen from

entering the wood, thereby, eliminating the fire potential. However, the inspectors noted that end panels were cut to fit leaving an open end of bare wood. Licensee craftsmen developed and installed sheet metal end caps to enclose the bare wood in response to the inspector's observations.

c. Conclusions

The implementation of the Unit 2 control room human interface modification was well coordinated with plant operators and well controlled. Contingency plans and compensatory actions were well developed and in place. However, one fire loading issue was identified and resolved.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments on Field Maintenance Activities

a. Inspection Scope (62707)

The inspectors observed portions of the following ongoing work activities identified by their work authorization numbers:

Unit 1:

- 122386 Comparator card replacement on Steam Generator 1A main steam outlet pressure transmitter Channel 1.

Unit 2:

- 109225 Air actuator diaphragm replacement on the containment normal sump discharge Flow Control Valve 2-ED-FV-7800.

b. Observations and Findings

The inspectors found that the work was performed by knowledgeable, qualified technicians utilizing approved procedures. Self checking and peer reviews were routinely utilized. Supervisors were observed providing an appropriate level of oversight. System engineers were observed providing quality technical support as needed. Through procedure review and interviews with craft and technicians, the inspectors ascertained that the work instructions were thorough, properly scoped, and appropriately detailed. The inspectors verified the adequacy of equipment clearance orders.

The air actuator diaphragm replacement was an action taken in response to the licensee's evaluation for applicability of NRC Information Notice 96-68. The inspector reviewed Condition Report Engineering Evaluation 96-13732. Engineers had determined

that several air actuators were susceptible to stretching of the diaphragm as described in the information notice. The evaluation was thorough with appropriate determinations made in accordance with 10 CFR 50.59.

c. Conclusions

Observed maintenance activities were conducted in a professional manner. Technicians demonstrated a good knowledge of systems and components and good oversight of activities was evident. The inspectors considered the air actuator diaphragm replacement a good response to generic communications and industry experience.

M1.2 General Comments on Surveillance Testing

a. Inspection Scope (61726)

The inspectors observed portions of the following surveillance activities:

- Plant Surveillance Procedure 0PSP11-MS-0001, Revision 10, "Main Steam Safety Valve Inservice Test"
- Plant Surveillance Procedure 0PSP11-WL-0001, Revision 7, "LLRT: M-56 Liquid Waste to Holdup Tank"

b. Observations and Findings

The inspectors found that the observed surveillance activities were performed in accordance with approved procedures. The test instruments utilized were within current calibration cycles. A review of the procedures indicated that Technical Specification surveillance requirements were properly implemented. Limiting conditions for operation were properly adhered to throughout the testing evolution and adequately tracked in the operability assessment system.

The inspectors observed the performance of Preventive Maintenance Task 97000834, "S/G 2C Main Steam Outlet ORC Safety Relief Valve." This task directed the craftsmen to test two of the safety valves in accordance with Procedure 0PSP11-MS-0001. The two valves, Safety Relief Valves N2MSPSV7430A and N2MSPSV7440, had previously failed to lift within Technical Specification tolerances during testing. As documented in Licensee Event Report 50-498/97-009, the valves were subject to oxide layer locking between the nozzle and disk surfaces.

Licensee engineers stated that the preventive maintenance task had been developed because these two valves had different characteristics and maintenance history than the other 18 safety relief valves. Condition Report Engineering Evaluation 97-4410-21 was prepared to address the ASME Code Section XI testing requirements associated with the valves. Paragraph IWV-3513 of the Code requires that when a valve in a system fails to function properly during a regular test, additional valves in the system shall be tested.

The engineers concluded that, because the preventive maintenance task was not a "regular test," no additional testing would have been required had the valves failed.

The NRC continues to review the oxide-locking phenomenon. The question regarding the proper application of the ASME Code to testing failures during this preventive maintenance task will be reviewed during the closure of Licensee Event Report 50-498/97-009.

c. Conclusions

Surveillance testing observed was conducted in accordance with approved procedures and properly implemented the Technical Specification surveillance requirements. A question regarding the proper application of the ASME Code Section XI testing of main steam safety valves will be addressed during further with the review of a related licensee event report.

M8 Miscellaneous Maintenance Issues (92902, 92700)

M8.1 (Closed) Violation 50-498/9606-03; 50-499/9606-03: Proteus plant computer alarms were not calibrated utilizing approved procedures.

This violation addressed repeat concerns that plant computer constants providing Technical Specification alarm functions were not being properly maintained. In addition, procedures were inadequate and quality records were not maintained.

In their response, licensee management documented the following corrective actions:

- Plant Surveillance Procedure 0PSP03-CU-0001, Revision 0,"Proteus Plant Computer System Operability," was issued to verify that plant computer functions required by Technical Specifications were operable;
- Operations, maintenance, and engineering personnel were briefed on the new procedural requirements and related management expectations; and
- Computer software was developed to verify that computer constants were correct when updated.

In addition, corrective actions were implemented to address the lack of timeliness in and ineffectiveness of previous actions taken.

The inspectors reviewed Revision 1 to Procedure 0PSP03-CU-0001. This procedure was written to verify that the plant computer constants were correctly entered following a reboot of the Proteus computer. Verification of alarm function operability for Technical Specification required parameters was also accomplished. The completed procedure was required to be maintained as a quality record for 5 years from the date of performance.

The inspectors performed a review of all condition reports involving proteus constants written since August 1996. Two similar events were reviewed in detail. Condition Report 96-12690 documented the discovery of eight constants that did not agree with the accessible constants log. The inspector noted that the computer was out of service when the condition was identified and that the corrective actions addressed above had resulted in the identification of these incorrect constants. In addition, Condition Report 97-4716 documented that the accessible constants log had not been updated following changes to axial flux difference program constants. The constants were correct in the plant computer and corrective actions appeared to be adequate to prevent recurrence.

M8.2 (Closed) Licensee Event Report 50-498/96-004: Two Spare Safety-Related Circuit Breakers were not in Seismically Qualified Positions.

This licensee event report documented that licensee engineers had determined that two spare safety-related circuit breakers had been found in a position other than the qualified position. Based on this finding, engineers determined that the associated Unit 1 switchgear had been in an unanalyzed seismic condition. The cause was determined to be the failure of site personnel to recognize the interaction between spare breaker positions and the equipment qualification.

Licensee personnel walked down all 480volt and 4160volt breakers in both units. Six additional breakers were identified as being out of the qualified position and were immediately returned to a qualified configuration. Training of maintenance and operations personnel was conducted. In addition, circuit breaker operation and maintenance procedures were revised to include the appropriate qualified positions.

The inspectors reviewed the corrective actions taken and determined that they were appropriate. Based on the limited number of breakers involved, the low probability of a seismic event, and the robust design of the South Texas Project, the inspectors determined that these examples were of minor significance. Inspection of spare breakers during routine inspection tours indicated that breakers were being maintained in the qualified position.

III. Engineering

E1 Conduct of Engineering

E1.1 Evaluation of Local Leak Rate Test Concern

a. Inspection Scope (37551)

On October 22, a licensee employee identified a concern regarding a local leak rate test performed on Containment Penetration M-46 during Refueling and Equipment Outage 1REO7. The inspectors reviewed the licensee's response to the identified concern. The following documents were reviewed:

- Condition Report 97-17105, "A High Leak Rate was Noted During Testing of Penetration M-46"
- Condition Report Engineering Evaluation 97-17105-1, "Evaluation of LLRT Testing of Penetration M-46"
- Plant General Procedure 0PGP04-ZA-0002, Revision 2, "Condition Report Engineering Evaluation Program"
- Plant Surveillance Procedure 0PSP11-CV-0001, Revision 5, "LLRT: M-46 CVCS Letdown"

b. Observations and Findings

The inspectors reviewed Evaluation 97-17105-1. On September 21, craftsmen had attempted to perform a test of the penetration in conjunction with ongoing check valve testing. Several problems believed to be related to the test equipment and to water in the process piping were encountered. Although the test pressure was never achieved, test personnel agreed that a pressure of approximately 40 psig had been obtained. At the end of the shift, the test was turned over to the night shift crew. The night shift crew determined that the test was not required and canceled the test. During a subsequent interview with the test rig operator, he confirmed that at the time of the turnover the flow rate had been declining as expected. In addition, a telltale had been used on the penetration and had not indicated gross leakage.

Licensee engineers determined that the decision to cancel the leak rate test had been appropriate. In order to address the concern regarding the condition of the subject penetration, engineers performed an evaluation of the partial completed test. Based on the facts compiled, an analysis of the worst case penetration leakage was performed. The worst case leakage from the penetration was identified as 3935.47 standard cubic centimeters per minute (sccm). This was derived from the highest reading on the flow rate meter that had been in range when the test was abandoned. The engineers concluded that the penetration remained operable and no additional testing was deemed necessary. With this leakage, the total building leakage was calculated to be 53,363.47 sccm. This was well within the Technical Specification limit of 455,050 sccm.

c. Conclusions

An evaluation of a concern related to the local leak rate test of a containment penetration properly bounded the potential problem. The engineering analysis and calculations were thorough and conclusions were well founded.

E1.2 Temporary Repairs for a Leaking High Pressure Seal

a. Inspection Scope (37551)

On October 2, maintenance technicians performing a postmaintenance test identified that the high pressure seal on Thimble D10 at the seal plate was leaking approximately 20 drops per minute. Temporary Modification TL 1-97-5525-4 was prepared to perform a leak sealant repair of the fitting. The inspectors reviewed the modification package and the circumstances surrounding this repair.

b. Observations and Findings

Engineers prepared Temporary Modification TL 1-97-5525-4 utilizing Plant General Procedure 0PGP03-ZO-0003, Revision 17, "Temporary Modifications." The design included a small enclosure clamped around the fitting and injected with a leak sealant compound. The design parameters were appropriate for the seal environment and the stress impact on the piping was bounded by a previous analysis. Repeat injections and peening were prohibited and the maximum number of sealant sticks to be used was clearly delineated. A fire hazard evaluation was performed for the repair.

The inspectors reviewed the evaluation performed in accordance with 10 CFR 50.59 and determined that the findings were well founded and supported by the documentation. A work risk analysis was performed and appropriately addressed the work scope. Based on a review of the work documents, the installation was well controlled and properly supervised.

c. Conclusions

The temporary modification written to repair a leaking high pressure seal at the seal plate was properly developed and implemented. An unreviewed safety question determination and work risk assessment were performed and specified conservative controls over the field work.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Tours of Radiological Controlled Areas

a. Inspection Scope (71750)

The inspectors routinely toured the mechanical auxiliary and fuel handling buildings in Units 1 and 2. These tours included observation of work, verification of proper radiological work permits, sampling of locked doors, and observation of personnel entrance and egress from contaminated areas and the radiological controlled areas.

b. Observations and Findings

Radiological housekeeping in the areas toured was very good. Doors required to be locked in accordance with Technical Specification 6.1.12.2 and with the licensee's radiological program were properly secured. In general, work in radiological controlled areas was performed in accordance with approved radiological work permits.

On October 29, the inspectors observed instrumentation and controls technicians working on a valve actuator in the Unit 2 mechanical auxiliary building. The valve was located in the radiological controlled area approximately 2 feet outside of a contaminated area boundary. The contaminated area boundary was clearly marked with a magenta and yellow rope and a sign. The inspector noticed that the technicians had placed tools and parts across the boundary. The inspector discussed this with the supervisor who was present. The supervisor immediately stopped work and contacted a health physics technician who determined that the tools and parts had not been contaminated and that the area where the tools were placed, although still within the contaminated area boundary, was not contaminated . The boundary was later moved to exclude the area near the valve. Condition Report 97-18502 was developed to address this event. However, the condition report was not written until the inspectors asked to see it.

c. Conclusions

With one exception, radiological performance was good. Although the breach of a contaminated area was promptly corrected, a condition report to address the inattention to detail was not written until the inspectors intervened.

S1 Conduct of Security and Safeguards Activities

S1.1 Daily Physical Security Activity Observations (71750)

The inspectors observed the practices of security force personnel and the condition of security equipment on a daily basis. Protected and vital area barriers were in good condition. Temporary compensatory measures were implemented as appropriate. Personnel access measures and equipment searches for contraband were routinely good. The inspectors concluded that daily security force activities were conducted in an appropriate manner.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on November 18, 1997. Management personnel acknowledged the findings presented. The inspectors asked whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

Licensee

T. Cloninger, Vice President, Nuclear Engineering
J. Cook, Supervising Engineering Specialist
W. Cottle, President and Chief Executive Officer
B. Dowdy, Manager, Plant Operations, Unit 2
J. Groth, Vice President, Nuclear Generation
E. Halpin, Manager, Maintenance, Unit 2
S. Head, Senior Consulting Engineer
K. House, Supervising Engineer, Design Engineering Department
M. Kanavos, Manager, Mechanical/Civil Design Engineering
M. Lachley, Manager, Reliability Engineering
D. Leazar, Director, Nuclear Fuel and Analysis
B. Logan, Manager, Health Physics
R. Lovell, Manager, Plant Operations, Unit 1
B. Masse, Plant Manager, Unit 2
A. McIntyre, Director, Engineering Projects
G. Parkey, Plant Manager, Unit 1
D. Rencurrel, Manager, Electrical/I&C Design Engineering
F. Timmons, Manager, Nuclear Plant Protection
T. Waddell, Manager, Maintenance, Unit 1

INSPECTION PROCEDURES (IPs) USED

IP 37551: Onsite Engineering
IP 61726: Surveillance Observations
IP 62707: Maintenance Observation
IP 71707: Plant Operations
IP 71750: Plant Support
IP 92700: Onsite Followup of Written Reports at Power Reactor Facilities
IP 93702: Prompt Onsite Response to Events at Operating Power Reactors
IP 92902: Followup - Maintenance

ITEMS OPENED AND CLOSED

Closed

50-498/9606-03; 50-499/9606-03	VIO	Proteus Plant Computer Alarms were not Calibrated Utilizing Approved Procedures
50-498/96-004	LER	Two Spare Safety-Related Circuit Breakers were not in Seismically Qualified Positions

Statused Open

50-498/97-009	LER	Main Steam Safety Valve Setpoints Found Outside Required Tolerances