EXECUTIVE SUMMARY

South Texas Project, Units 1 and 2
NRC Inspection Report 50-498/97-05; 50-499/97-05

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 performed their duties in a professional manner, were attentive to control board indications, and maintained a good focus on safety (Section O1.1).

- The failure to track the Technical Specification action statements associated with the inoperability of the hydrogen analyzer was in violation of administrative requirements. This condition continued for 7 days without identification by on shift operators. This nonrepetitive licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (Section O1.2).

- Incomplete corrective action for a previous event resulted in an inadvertent partial drain down of the Unit 1 spent fuel pool (Section O1.3).

- Plant systems were maintained in good material condition. The instrument air system and selected containment isolation valves were properly aligned (Sections O2.1, O2.2 and O2.4).

- A reactor plant operator exhibited good attention to detail and safety system knowledge by identifying low hydraulic fluid level in a power-operated relief valve (Section O2.3).

- One example of an inadequate equipment clearance order resulted in an inadvertent start of a Unit 2 essential cooling water screen wash booster pump while the system was drained (Section O4.1).

Maintenance

- Planners failed to identify that painting of the air start solenoids could adversely affect Standby Diesel Generator 11 operability (Section O2.1).

- In general, maintenance activities were performed in accordance with management's expectations. However, several examples of the failure to properly implement maintenance related programs were discussed (Section M1.1).

- Surveillance test procedures were well performed and properly implemented Technical Specification surveillance requirements (Section M1.2).

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- Craftsmen did not initially remove plastic bags from containment as required by the containment inspection procedure. Previous corrective actions were inadequate to ensure that plant workers fully understood the requirements of Technical Specifications regarding loose debris in containment (Section M4.1).

- A second example of the failure to establish an effective equipment clearance order boundary was identified when craftsmen breached an unisolated portion of the component cooling water system. In addition, craftsmen had prior opportunity to identify this condition (Section M4.2).

Engineering

- The actions of the engineers in stopping the attempted removal of the essential cooling water structure gantry crane was notable. The recalculation of the crane weight and potential impact on operability of the essential cooling water systems were considered to be conservative (Section E1.1).

- The failure to perform adequate surveillance testing of the Pressurizer Pressure Interlock P-11 was a violation of Technical Specification surveillance requirements. This nonrepetitive licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (Section E2.1).

- The identification of surveillance testing inadequacies associated with Permissive P-11 during an operational experience review was considered to be excellent (Section E2.1).

- Maintenance and engineering personnel properly evaluated the causes of a fire that initiated during a leak sealing evolution on main steam isolation Valve 2D. The associated temporary modification package was properly developed and reviewed. The use of an injection clamp during this evolution was considered conservative (Section E2.2).

- The licensee's failure to assure that all of the requirements of IEEE 338-1997, Regulatory Guide 1.22, and Regulatory Guide 1.118, related to removing the AFW and containment spray systems from service, were correctly translated into the applicable procedure for testing of the AFW system was a violation. This nonrepetitive, licensee identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (Section E2.3).

Plant Support

- Routine observations of radiological work practices indicated that controls were in place and effective with one minor exception. Several contaminated area signs were not properly secured and had fallen down (Section R1.1).

- Routine observations of daily security force activities, secondary chemistry controls, emergency response facility readiness, and meteorological tower operability indicated appropriate management attention to these functional areas (Sections R1.2, P2.1, P2.2, and S1.1).

performed on the pump or screen wash system during the inadvertent start. This event was the result of an inadequate equipment clearance order boundary.

The inspectors reviewed Plant General Procedure 0PGP03-ZO-ECO1, Revision 6, "Equipment Clearance Orders." Procedure 0PGP03-ZO-ECO1 required that equipment clearance orders provide adequate boundaries to ensure personnel safety and equipment integrity. The execution of Equipment Clearance Order 97-76518 did not properly implement this safety-related procedure. The failure to properly implement this safety-related procedure was the first example of a violation of Technical Specification 6.8.1 (498;499/97005-03).

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 on-going work activities identified by their work authorization numbers:

Unit 1:

- 95013550 Bench Test Charging Pump Cooler Air Handling Unit 11A/ Component Cooling Water Return Pressure Relief Valve (June 30)
- 114733 Rod Cluster Control Assembly Tool Repairs (July 17, 21)
- 347683 Residual Heat Removal Pump 1B Flange Leak Repair and Impeller Inspection (July 21)

Unit 2:

- 114761 Steam Generator 2A Main Steam Pressure Low Alarm Lead/Lag Card and Comparator Card Replacement and Calibration (July 16)
- 347818 Steam Generator 2D Main Steam Isolation Valve has a Small Hissing Steam Leak at the Body-to-Bonnet Flange

b. Observations and Findings

In general, the inspectors found the work performed during these activities thorough and conducted in a professional manner. The work was performed by

- The work package did not identify the need to establish a component cooling water boundary,
- The job scope was not fully understood by either the equipment clearance order preparer nor reviewer,
- The equipment clearance order acceptor did not adequately walk down the boundary.

The inspectors reviewed Plant General Procedure 0PGP03-ZO-ECO1, Revision 6, "Equipment Clearance Orders." Procedure 0PGP03-ZO-ECO1 required that equipment clearance orders provide adequate boundaries to ensure personnel safety and equipment integrity. The execution of Equipment Clearance Order 97-1-71609 did not properly implement this safety-related procedure. The failure to properly implement this safety-related procedure was the second example of a violation of Technical Specification 6.8.1 (498;499/97005-03).

c. Conclusions

This event and the event discussed in Section O4.1 of this inspection report have regulatory significance because equipment clearance orders establish necessary boundaries to protect critical equipment and to ensure personnel safety. Both of these events were of low safety significance because the consequences were relatively inconsequential. However, the fact that neither personnel safety nor equipment integrity were jeopardized cannot be attributed to the equipment clearance order quality. This event-disclosed, non-repetitive, licensee corrected violation is being cited because the licensee had prior opportunity to identify the inadequate equipment clearance order when the mechanics discussed the need to walk down the component cooling water boundary.

M8 Miscellaneous Maintenance Items (92902)

M8.1 Use of Lifting Device Without Proper Inspection (93001)

On July 17, during an observation of activities being performed under Work Authorization Number 114733. The inspectors observed a problem associated with the use of a temporary lifting device. Workers in the fuel handling building determined that an additional hoist was desirable while removing a refueling tool from the spent fuel pool. An electric hoist attached to a rail-mounted trolley on the refueling machine was utilized. The inspector asked the craftsmen and operators present and was informed that no one had performed a daily inspection of the trolley, as required by the licensee's lifting program. Management was informed of the problem, and Condition Report 97-12532 was written to document the occurrence and evaluate appropriate corrective actions.

deficiencies in the previous testing methods. Permissive P-11 had been declared inoperable and Technical Specification 3.3.2 Action 21 was implemented to ensure that the interlock was in its required state. The technicians were knowledgeable of the system and the appropriate testing methods. The permissive was properly tested and returned to service. Observed indications verified that the permissive had been properly returned to service. The inspectors determined that the identification of this condition resulted from a quality operational experience review process.

As documented in Section M8.1 of this inspection report, the licensee properly reported this problem in Licensee Event Report 50-498/97-007. However, the failure to properly test Permissive P-11, prior to June 19, 1997, in accordance with Technical Specification Surveillance Requirement 4.3.2.1, Table 4.3.2 was a violation. This licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (498;499/97005-04).

E2.2 Fire During High Temperature Leak Sealing Activities

a. Inspection Scope (93702, 37551)

On July 15, a small fire was discovered on the insulation surrounding Main Steam Isolation Valve 2D during steam leak sealing activities. The crew performing the leak sealing activities left the area following a series of leak sealant injections. Shortly thereafter, a security officer making a routine patrol of the area observed the flames and contacted a nearby mechanic. The mechanic extinguished the flame with a fire extinguisher. The fire brigade was notified, the insulation removed, and the embers extinguished. The inspectors reviewed the licensee's response to and evaluation of the event; the event review team's report; and the temporary modification package associated with the leak sealing activity.

b. Observations and Findings

An event review team noted that the material safety data sheet indicated that the leak sealant material should not have caught fire in the specific application nor at the piping temperatures encountered. The team determined that mineral oil in the leak sealant material had leached out from under the injection clamp and collected in the fiberglass insulation. The conditions were then sufficient to cause the oil to autoignite. Licensee engineers stated that the spontaneous ignition of oil soaked insulation can occur under the following conditions:

- The liquid is insufficiently volatile to evaporate rapidly.
- The insulation is sufficiently porous to allow oxygen to diffuse to the surface of the absorbed liquid.

regulatory guidance and that the bypass testing was acceptable. However, the inspector noted that this testing methodology did not specifically meet the description provided in the original FSAR design. UFSAR 7.3.1.2.2.5.4.5 stated that automatic actuation circuitry will override testing activities and actuate the system. The licensee identified this discrepancy and had decided to install a field change to install a second slave relay which will inactivate the discharge motor-operated valve in the respective train. The field change had been scheduled to be implemented during the 1998 and 1999 refueling outage time frames. This is a third example of a failure to implement the design commitments from applicable regulatory guidance into the AFW system design.

10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures be established to assure that applicable regulatory requirements be correctly translated into specifications, procedures, and instructions. The three examples of the licensee's failure to assure that all of the requirements of IEEE 338-1997 and Regulatory Guide 1.118 were correctly translated into the applicable procedures for testing of the AFW system represents a violation of Criterion III of Appendix B to 10 CFR 50. However, the inspector determined that: the violation was identified by licensee personnel; corrective actions had been developed; the violation was not a repeat of a previous violation or finding; and the violation was not willful. Therefore, this nonrepetitive, licensee identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 498;499/97005-05).

In light of these findings, the inspector questioned whether these issues required a report to the NRC in accordance with 10 CFR 50.73(a)(2)(ii)(B), which stated that the licensee shall report any condition that was outside the design basis of the plant. The inspector noted that on November 26, 1996, the licensee had generated a reportability review for Condition Report 96-14496, wherein they concluded that the AFW system testing deficiencies were not reportable. The licensee stated that the testing of the AFW system was done with the system properly removed from service in accordance with the Technical Specifications, and that the testing adequately tests the system components in accordance with the Technical Specification requirements.

The inspector agreed with the licensee determination that the issues were not reportable because the testing of the AFW system was conducted with the applicable train properly removed from service in accordance with the Technical Specification 3.7.1.2 action statement. Based on the redundancy of having four trains, there was always a sufficient number of trains available, such that the AFW system was not degraded during the testing of one train of the system. In addition, the AFW train was taken out of service for testing with the full knowledge of all operators and monitored by entry in the control room log of the Technical Specification action statement. There were no ESF actuations involved. The testing conditions did not result in an inability to mitigate an accident or maintain safe shutdown (three remaining AFW systems were operable and only one AFW

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Cloninger, Vice President, Nuclear Engineering
W. Cottle, Executive Vice President and General Manager Nuclear
B. Dowdy, Manager, Operations, Unit 2
J. Groth, Vice President Nuclear Generation
E. Halpin, Manager, Maintenance, Unit 2
S. Head, Licensing Supervisor
K. House, Supervising Engineer, Design Engineering Department
T. Jordan, Manager, Systems Engineering
M. Kanavos, Manager, Mechanical/Civil Design Engineering
A. Kent, Manager, Electrical/ Instrumentation and Controls Systems
B. Logan, Manager, Health Physics
R. Lovell, Manager, Operations, Unit 1
B. Masse, Plant Manager, Unit 2
G. Parkey, Plant Manager, Unit 1
T. Waddell, Manager, Maintenance, Unit 1

INSPECTION PROCEDURES 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 92902: Followup - Maintenance
IP 93001: OSHA Interface Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

499/97005-01	NCV	Entry of Incorrect Technical Specification Action Statement into Operability Assessment System
498;499/97005-02	URI	Manual Valves in Certain Containment Penetrations not Surveilled in Accordance with Technical Specification 4.6.1.1.a
498;499/97005-03	VIO	Two Examples of Inadequate Equipment Clearance Order Boundaries

498;499/97005-04	NCV	Failure to Properly Test the Pressurizer Pressure Interlock P-11 in Accordance with Technical Specifications
498;499/97005-05	NCV	Failure to Translate Design Commitments into AFW and Containment Spray Systems Design

Closed

499/97005-01	NCV	Entry of Incorrect Technical Specification Action Statement into Operability Assessment System
498;499/97005-04	NCV	Failure to Properly Test the Pressurizer Pressure Interlock P-11 in Accordance with Technical Specifications
498;499/97005-05	NCV	Failure to Translate Design Commitments into AFW and Containment Spray Systems Design
50-498/97-007	LER	Engineered Safety Features Actuation System Pressurizer Pressure Interlock Not Fully Tested by Surveillance