APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-445/94-06
50-446/94-06

Licenses: NPF-87
NPF-89

Licensee: TU Electric
Skyway Tower
400 North Olive Street, L.B. 81
Dallas, Texas

Facility Name: Comanche Peak Steam Electric Station, Units 1 and 2

Inspection At: Glen Rose, Texas

Inspection Conducted: February 6 through March 19, 1994

Inspectors: D. N. Graves
K. M. Kennedy

Approved: L A Yandell
L. A. Yandell, Chief, Projects Branch B

APRIL 13 '94
Date

Inspection Summary

Areas Inspected (Units 1 and 2): Routine, unannounced inspection of onsite followup of events, operational safety verification, safety system walkdown, maintenance and surveillance observations, startup testing program, inservice testing of pumps and valves, and followup on corrective actions for violations.

Results (Units 1 and 2):

- The licensee's initiative regarding improved housekeeping (zone accountability program) and the licensee's senior management participation in a hands-on plant wide cleanup day brought the general plant housekeeping to a high level of cleanliness. The licensee also addressed the repair of steam leaks (Section 3.1).

- A safety stop work order was issued as a result of a craftsman receiving a slight shock while removing Thermo-Lag flexi-blanket from around an energized cable. The licensee's corrective actions revised the process for authorizing Thermo-Lag removal and required personnel training in

the new process. The safety stop work order was subsequently rescinded following completion of the corrective actions (Section 3.2).

- Failure of reactor operators to acknowledge a ventilation stack monitor alarm resulted in a loss of sample flow and rendered the radiation monitor inoperable to perform its sample function. The failure to implement the annunciator response procedure was a violation of Technical Specification 6.8.1a, but was not cited (Section 3.3).

- There was reliance on engineering judgement for a long term operability determination without an analytical backup (Section 3.5).

- In general, the conduct of observed maintenance and surveillance activities including administrative requirements was excellent. Good work practices were observed including excellent self-verification (Sections 5 and 6).

- One weakness was identified regarding the untimely disposition of evaluation reports regarding out-of-tolerance test equipment (Section 5.5).

- The Startup Testing Phase Inspection Program (2514) was completed for Unit 2 (Section 7).

- Unit 1 station service water system was determined to be in good material condition with relatively few open work items, none of which impacted system operability (Section 4).

Summary of Inspection Findings:

- One noncited violation was identified (Section 3.3).
- Violation 445/9262-03 was closed (Section 8.1).
- Violation 445/9231-01 was closed (Section 8.2).
- Violation 445/9322-01; 446/9322-01 was closed (Section 8.3).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Documents Reviewed

DETAILS

1 PLANT STATUS (71707)

At the beginning of this inspection period, Unit 1 was at 100 percent power and continued at full power for the remainder of the inspection period.

Unit 2 began the inspection period operating at 55 percent to perform maintenance on the moisture separator reheaters and for fuel conservation purposes. Power was increased to 100 percent on February 10 because of electrical grid system demands due to cold weather and returned to 55 percent on February 15. The reheater outage was completed and power was increased to approximately 73 percent on February 25. On March 5, the unit was manually tripped when main turbine control problems resulted in significant load swings. The reactor was restarted on March 13 and power was increased to approximately 73 percent on March 16 where it remained for the duration of the inspection period.

2 ONSITE FOLLOWUP TO EVENTS (93702)

Unit 2 Reactor Manual Trip

On March 5, 1994, at 2:29 p.m. (CST), operators manually tripped the Unit 2 reactor after experiencing a rapid decrease in electrical load from approximately 800 MWe to 350 MWe. All safety systems responded as required with the exception of Source Range Nuclear Instrument Channel N-31, which failed to energize automatically or manually. It was later determined that the cause of the failed source range channel was a faulty universal circuit board. The card was subsequently replaced and the source range channel returned to operation. The inspector reviewed the operators responses to the load swings and reactor trip and found their actions to be appropriate.

Suspecting a malfunction of the main turbine electrohydraulic control (EHC) system, the licensee removed all three EHC pumps for inspection, drained and replaced the EHC fluid, and conducted other system inspections and tests in an attempt to determine the cause of the load swings. These troubleshooting efforts failed to identify a specific cause for the main turbine load swings. The unit was restarted on March 12, 1994, and the licensee again experienced electrical load swings. The licensee secured the main turbine and shut down to Mode 3. Further troubleshooting revealed that a coil in the EHC control circuitry had failed. It appeared that the intermittent failure of this coil had caused the earlier load swings.

The main turbine was started and placed on the grid on March 14. No further electrical load fluctuations were experienced.

3 OPERATIONAL SAFETY VERIFICATION (71707, 92701)

3.1 Plant Tours

The inspectors conducted tours of the facility to determine the general state of housekeeping and material condition of plant equipment.

In general, housekeeping had improved over that observed during previous inspections. The licensee initiated a zone accountability program where the entire plant within the protected area was divided into zones with a specific individual having responsibility for the housekeeping in a specific zone. In addition to a responsible individual, a team of individuals was assigned to each zone. A placard identifying the responsible group of individuals by name and organization was posted in each zone. The responsible group leader was responsible for periodic tours of the assigned area with assistance as needed from the assigned team members. In addition to this zone approach, a plant wide cleanup day was held in which numerous licensee personnel, including licensee senior management, were in the plant participating in hands-on cleanup. The effort was productive in bringing the general plant housekeeping level to a high level of cleanliness.

The number of steam leaks present, especially in the Unit 2 penetration rooms, appeared to be more numerous than in the previous inspection period. The severity of the leaks did not directly impact plant operations nor present personnel safety hazards. The licensee acknowledged the concern associated with the steam leaks and demonstrated to the inspector that repair of the leaks was scheduled to be accomplished in a Unit 2 midcycle outage tentatively planned to begin in mid-April of this year, unless plant conditions allow an earlier repair.

On one tour, the inspector observed hoses, gages, a freon bottle, and other miscellaneous test equipment staged in a sensitive equipment area around the Unit 1 process instrument racks outside the technical support center. No "Work-in-Progress" tag was visible nor were any personnel present in the area. The unit supervisor was informed of the equipment and it was promptly relocated to a designated storage area.

The inspector reviewed six licensee bulletin boards both inside and outside the protected area and verified that the information required by 10 CFR 19.11 was posted and current.

3.2 Thermo-Lag Stop Work Order

On February 14, 1994, a craftsman was performing removal of Thermo-Lag flexi-blanket from around a cable in order to install a modified, upgraded Thermo-Lag configuration around the cable. During the removal process, the craftsman cut through the cable insulation and received a slight shock. He immediately informed his supervisor of the event, who informed the control room, quality control, engineering, and safety. The Manager, Construction Operations Support Group verbally directed that all Thermo-Lag removal work be

ceased until further notice. Operations Notification and Evaluation (ONE) Form 94-0200 was initiated to document and evaluate the event.

Cable E0100169B, the damaged cable, was one phase of a three-phase cable to common Motor Control Center XEB1-2. The motor control center was shifted to an alternate power supply and the cable was deenergized and repaired. Design Change Notice 7571 authorized the repair to the cable. The inspector reviewed the design change notice and found it to be adequate to ensure the integrity of the cable.

Following the plan-of-the-day meeting on February 15, the Vice President, Nuclear Operations chaired a meeting in which the event was reviewed. Safety Stop Work Order 94-001 was issued as a result of this meeting which formally terminated the removal of Thermo-Lag until corrective actions were implemented.

An action plan was generated by the licensee to identify the corrective actions required to be implemented prior to authorizing the restart of work involving Thermo-Lag removal. These corrective actions included defining various terms relating to removal of Thermo-Lag, establishing guidance for classifying the removal as encumbered or unencumbered depending on location and accessibility of the work site, assigned engineering responsibility for making the above determination, determined safe methods for material removal, and implemented a Thermo-Lag Removal Safe Operation Review Form. This form provided guidance on the revised process including the consideration of clearances prior to Thermo-Lag removal from energized components, review of alternate design or special removal processes, defined the organization responsible for review and authorization of Thermo-Lag removal, and ensured that special safety precautions were defined. All personnel involved in the revised process were trained in the new requirements for review, authorization, and implementation of the new process.

The inspectors reviewed the stop work order, the guidance contained in the Thermo-Lag Removal Safe Operation Review Form, the lesson plan for the additional training, and the corrective action plan to resume work. The corrective actions implemented to restart removal of Thermo-Lag were comprehensive.

The stop work order was rescinded on February 17, 1994, following the completion of the recommended training.

The licensee also reviewed past ONE forms concerning cable damage attributed to thermal lag removal. Several instances of minor damage to the outside mechanical jacket and one instance of conductor insulator damage were identified prior to the above cable damage. No changes to the work process were made at the time, since these instances of damage were viewed as isolated.

3.3 Failure to Respond to Radiation Monitor Failure

On February 26, 1994, at approximately 7:37 a.m. according to the alarm printer, a loss of sample flow alarm was received on the PC-11 digital radiation monitoring system regarding the south ventilation stack Radiation Monitor PVG-084/684 and was acknowledged at Terminal S111A near the Unit 1 reactor operator's desk. The loss of sample flow rendered the radiation monitor inoperable to perform its sample function.

At approximately noon, the Unit 2 supervisor was preparing a containment vent permit and observed that the south ventilation stack monitor was not functioning. No reason could be determined for the monitor to be out of service and the sample pump was restarted at approximately 12:12 p.m. and the alarm cleared. ONE Form 94-274 was initiated to document and evaluate the event.

None of the operators recalled acknowledging the initial alarm. Offsite Dose Calculation Manual (ODCM) Table 3.3-8 requires that if one of the ventilation stack monitors is out of service, effluent releases may continue if alternate monitors are available or stack samples are periodically taken and analyzed. Alarm Response Procedure ALM-3200, "Alarm Procedure DRMS," Revision 1, refers the operator acknowledging a stack monitor alarm to the applicable section(s) of the ODCM and provides guidance regarding actions to investigate and return the monitor to service. None of these actions were taken between the time of acknowledging the alarm and the Unit 2 supervisor identifying the failed monitor.

In addition to restoring the monitor to service and initiating the ONE form, the licensee discussed the event with the shift crew via the shift orders and generated a "Lessons Learned" regarding the event. A request was submitted to the training department to incorporate PC-11 training into the next requalification cycle for all operators. Additionally, the alarm program for the PC-11, when acknowledged, silences all alarms on the PC-11, not only the alarms visible on the grid currently on the monitor screen. This would allow acknowledgement of alarms not visible unless the grid containing those monitors was specifically requested. This alarm program was also being reviewed for any recommended changes.

The inspector verified that the alternate monitors were in service during the period when the stack monitor was out of service. No ODCM requirements were violated. However, the failure to follow the actions delineated in Procedure ALM-3200 is a violation of procedural requirements per Technical Specification 6.8.1a. Because the condition was identified by the licensee, no ODCM actions were violated, the event was of low safety significance, and the stated corrective actions were initiated, this violation will not be cited because the criteria in paragraph VII.B.2 of Appendix C to 10 CFR Part 2 of the NRC's "Rules of Practice," were satisfied. It was, however, an example of poor operator response to a loss of required plant monitoring capability.

3.4 Unit 2 Safeguards Building

During a tour of the Unit 2 safeguards building on March 1, 1994, the inspector observed that the cabinet door for Unit 2 Containment Elevation 808' High Range Radiation Monitor 2RUK-6255 (RM-80) was ajar. The cabinet was energized and leads from a detector temporarily attached outside of the cabinet were routed into the cabinet. Two work-in-progress tags dated January 18 and January 30, 1993, were attached to the cabinet. Work Request Tag 1364461, attached to the cabinet and dated January 11, 1993, indicated that the monitor spiked high.

After bringing this to the licensee's attention, the inspector reviewed Corrective Maintenance Work Order 1-93-034795-00 written to troubleshoot and repair the Unit 2 containment Elevation 808' High Range Area Monitor Radiation Detector 2-RE-6255. This maintenance began on January 18, 1993. On March 12 the licensee determined that the probable cause of the spiking condition was a loose connection in the cabling between the detector inside containment and Monitor 2RUK-6255 and documented this condition on ONE Form 93-714. The resolution of this ONE form was to check the terminations at the containment penetration for loose connections and rework as required. As of March 1, 1994, this work had not been completed. The licensee indicated that, since access to the bioshield would be required, troubleshooting and repair activities would resume during the Unit 2 midcycle outage scheduled to begin in April 1994. The temporary leads were removed and the cabinet door was closed.

The inspector was concerned that the cabinet door of Monitor 2RUK-6255 had remained ajar with the monitor energized for a longer period than necessary considering the probable cause for the spiking condition had been determined in March 1993. In addition, the inspector was concerned that the radiation monitor had not been repaired at an earlier opportunity. The licensee's actions and proposed plan to repair the radiation detector addressed the inspector's personnel safety and scheduling concerns.

3.5 Auxiliary Feedwater Pipe Voiding

During a plant tour, the inspectors noted a pinging sound in the vicinity of the auxiliary feedwater piping to the No. 2-04 steam generator in the feedwater isolation valve penetration room. A similar condition had been documented by the licensee on ONE Form 93-1422 in July 1993. Investigation by the licensee at that time determined that the auxiliary feedwater lines to the Unit 2 steam generators were not remaining full and that the noise was due to steam flashing in the lines. An engineering judgement based on experiences gained during the Unit 2 startup concluded that system operability was not affected as long as the water level was maintained above a level specified by the system engineer based on the Unit 2 startup information. Design engineering was informed that additional transient analysis may be required to analytically demonstrate acceptability of the engineering judgement practices. The system engineer in conjunction with quality control personnel were

performing ultrasonic measurements to determine the water level in the piping and having operations refill the piping when level was observed to decrease.

The inspectors questioned the validity of the operability determination based on experience without analytical backup. The system engineer and design engineer stated that initial calculations had been performed which supported the operability determination, but that the calculations had not been finalized, approved, and vaulted. Subsequent to the inspectors' discussions with the licensee, the calculations were completed and vaulted.

Additionally, the licensee's investigation into the cause of the piping draindown was continuing, with the primary cause of the voiding being due to leakage out of the system via valve and pump packing. The valves and pumps were being monitored for visible leakage and reworked as plant conditions permitted.

3.6 Conclusions

Plant housekeeping had improved over that observed during previous inspections. Although steam leaks were more numerous, especially on Unit 2, the licensee had an action plan in place to repair the leaks during the upcoming midcycle outage on Unit 2. The corrective actions regarding the Thermo-Lag stop work order were conservative and comprehensive.

The inspectors noted that reliance was placed on engineering judgement for a long-term operability determination without an analytical backup.

4 ENGINEERED SAFETY FEATURE SYSTEM WALKDOWN (71710)

The inspector performed a walkdown of Unit 1 station service water to verify that the system was properly constructed as designed, that vital station drawings and procedure lineups were consistent, that system material condition was adequate to support plant operations, and that system deficiencies were identified and dispositioned appropriately.

4.1 Discussion

During this inspection period, the inspectors independently verified the status of the Unit 1 station service water system. Utilizing the system lineups found in Procedure SOP-501A, "Station Service Water System," Revision 7, the inspectors conducted a walkdown of the Unit 1 service water system to verify the operability of the system. This activity included verification that the system was properly aligned and a review of outstanding work requests.

Prior to conducting the system walkdown, the inspectors compared Procedure SOP-501A, "Train A SSW Valve Lineup," Attachment 1; and "Train B SSW Valve Lineup," Attachment 2, with the plant drawings for the service water system. No discrepancies were identified.

The walkdown of the service water system revealed that all valves and control switches were in their proper position. The material condition of the system was good. The number of open work requests were few and did not identify any significant challenges to system operability. Housekeeping in the service water intake structure and in other portions of the plant observed during the walkthrough was excellent.

The inspector identified several discrepancies between the component nomenclature listed in Procedure SOP-501A and the labels attached to the components in the field. In addition, the inspector identified that the Train B station service water valve lineup incorrectly listed a Train A valve, and failed to list the corresponding Train B valve. These discrepancies were identified to the licensee and corrections were made to the procedure by the end of the reporting period. The inspector also identified that the ground straps on Station Service Water Pump 1-01 and 2-01 discharge valve motors were not properly attached. This was identified to the licensee and subsequently corrected.

The inspectors reviewed DNE Form 92-1560 which documented a condition in which the bearing cooling [illegible] for Station Service Water Pump 1-02 flowed in the reverse direction. As a result, lake water did not flow through the strainers prior to reaching the pump bearings and the pump bearings were cooled with unfiltered lake water. In response to this condition, the licensee changed the interval for monitoring pump performance from 92 days to 46 days in order to closely monitor for any degradation in pump performance due to premature bearing wear. The licensee had not observed any degradation in pump performance and planned to correct the reverse flow condition during the next refueling outage. The licensee identified a similar condition on Station Service Water Pump 2-01 and have increased the testing frequency to monitor pump performance. This pump will be worked during Unit 2 Refueling Outage 1. The inspector determined that the licensee's response to the identified reverse flow condition was appropriate.

4.2 Conclusion

The Unit 1 station service water system was determined to be in the correct lineup. System material condition was good, and the number and scope of open work requests against the system did not affect system operability. Several minor discrepancies were identified to the licensee and were promptly corrected.

5 MAINTENANCE OBSERVATIONS (62703)

5.1 Emergency Filtration Unit Damper Repair

The inspector observed the activities associated with the adjustment of the Rotor 4 on the motor actuator for control room makeup supply to emergency filtration Unit X-24 inlet damper (X-21). The adjustment was made under Work Order 1-93-060091-00.

The work order was verified to be properly authorized and reviewed to ensure the work was within the scope of the work order. The damper was appropriately danger tagged out of service under Clearance X-94-00584. The appropriate limiting condition for operation was referenced in Limiting Condition for Operation Action Request A3-94-0062, and the required actions were complied with until the damper was returned to service. Work practices, including personnel safety considerations, were observed to be good.

5.2 Emergency Diesel Generator 2-02 Exhaust Leak Repair

The inspectors observed the actions associated with the repair of a leak on the exhaust flange of right bank Cylinder 02 of the No. 2-02 diesel generator. The work was performed under Work Order 1-93-061084-00. Clearance 2-94-00779 was reviewed and determined to adequately protect the personnel performing the corrective maintenance. The replacement parts were verified to be correct as specified in the work document. A housekeeping cleanliness zone was established prior to removal of the exhaust flange, tools were observed to be restrained with lanyards, and a mechanical maintenance supervisor was present during removal of the flange. Good work practices were observed to be used by the crafts personnel with appropriate administrative and physical protection.

5.3 Pressure Indicating Switch Calibration

The inspector observed a portion of the calibration of pressure indicating Switch X-PIS-5844, the control room emergency filtration Unit X-24 fan differential pressure switch. The calibration was performed in accordance with Procedure INC-2027, "Calib. ITT Barton Diff. Press. Ind. Switches," Revision 2. The test equipment was verified to be within its current calibration cycle, and good work practices were utilized by the technicians during the calibration.

5.4 Borg-Warner Check Valve Corrective Maintenance

On February 7, the inspectors attended a prejob briefing for corrective maintenance which was to be performed on a Borg-Warner check valve in the auxiliary feedwater (AFW) system. Because the maintenance activity had the potential to take a significant portion of the Technical Specification allowable outage time of 72 hours, the licensee wanted to ensure that all parties involved were aware of their responsibilities, were prepared for the maintenance, and had developed contingencies for anticipated problems.

On February 8, the inspectors observed the performance of corrective maintenance on Motor-Driven AFW Pump 2-02 discharge to Steam Generator 2-04 Check Valve 2AF-0101. The scope of this corrective maintenance was to inspect and rework the check valve seats to correct a problem the licensee had been experiencing with minor backleakage through the valve, which allowed hot feedwater to enter the line during startup. This backflow of feedwater caused temperature increase of the AFW line and required licensed operator actions to prevent overheating.

The inspector noted appropriate procedural adherence, effective self-verification practices, and appropriate cleanliness controls during the performance of this maintenance activity. The maintenance, quality control, performance and testing, and system engineering personnel were knowledgeable of their duties. The participation of the system engineer during the performance of the backflow tests conducted prior to and following the repair of the valve was viewed as a strength. The maintenance reduced but did not elminate the b kflow.

5.5 Channel Calibration of Power Relief Valve Control

On March 1 the inspector observed technicians perform sections of Procedure INC-4341B, "Channel Calibration Power Relief Valve Control, SG 4, Channel 2328," Revision 0. This activity was performed under Corrective Maintenance Work Order 1-93-054971-00.

This corrective maintenance work order was being performed because a pressure test gauge used during the performance of Procedure INC-4341B in June 1993 was determined to be out-of-tolerance during a calibration of the gauge on July 30, 1993. Deficient Measuring and Test Equipment Evaluation Report ER-93-1540 was written on July 30 to document the out-of-tolerance condition. This evaluation report was dispositioned in accordance with Procedure TSP-207, "Evaluation of Out Of Tolerance M&TE," Revision 1. In order to determine the validity of calibrations performed since the last calibration of the pressure test gauge, the licensee chose to retest a minimum of the five most recent usages. In order to accomplish this, an Action Request was written on September 22, 1993, to perform a recalibration of applicable portions of the power relief valve control channel for Steam Generator 2-04. This recalibration was not conducted until March 1, 1994, 8 months after the evaluation report documenting the pressure test gauge out-of-tolerance condition was written. Technicians determined that output data for an air supply pressure regulator fell outside the calibration range, but was within the allowable range. Technicians made the appropriate adjustments to calibrate the regulator.

As a result of this finding, the inspector reviewed the status of all open evaluation reports and found an additional 10 examples of reports for which an evaluation to determine the validity of inspections, tests and calibrations performed since the last calibration of that measuring and test equipment device, had not been completed for periods ranging from 5 to 11 months.

In response to these findings, the licensee generated ONE Form 94-347 to address the specific causes for the untimely completion of Evaluation Report ER-93-1540 and the potential programmatic deficiencies related to the other open evaluation reports.

5.6 Component Cooling Water Heat Exchanger Cleaning

On March 8, the inspector observed portions of the performance of Corrective Maintenance Work Order 1-93-059858-00 written to clean Component Cooling Water

Heat Exchanger 2-02. The work order indicated that the cleaning of the heat exchanger was necessary prior to the summer months to ensure its operability. The inspector reviewed the work order, the confined space entry permit, and the prejob safety checklist. The prejob safety checklist included provisions for barricades and warning signs, confined space entry, electrical safety, eye protection, housekeeping, and ladders and scaffolds. No discrepancies were noted. The inspector noted that the personnel performing the heat exchanger maintenance observed proper safety precautions and conducted their activities in accordance with the instructions contained in the work order.

5.7 Conclusions

The observed maintenance activities were effectively controlled and performed. Administration requirements including authorizations, technical specification compliance, cleanliness, and procedural adherence were observed to be good. The lack of a timely evaluation to determine the validity of inspections, tests, and calibrations performed since the last calibration of measuring and test equipment devices found to be out-of-tolerance was identified as a program weakness.

6 SURVEILLANCE OBSERVATIONS (61726)

6.1 Unit 1 Reactor Coolant Charging System

The inspector observed the activities associated with performing a surveillance on Centrifugal Charging Pump 1-01. The test was performed under Work Order 5-93-501772-AD utilizing Surveillance Test Procedure OPT-201A, "Charging System," Revision 8. The test also satisfied the quarterly testing requirements of ASME Code Section XI pump testing.

The test was properly authorized and performed. Vibration, pressure, and flow data were taken as required and demonstrated that the pump was performing acceptably in accordance with technical specification requirements.

One minor typographical procedure deficiency was noted by the inspector in that one of the check valves tested by the surveillance was not noted on the data sheet although it was addressed in the body of the procedure. The unit supervisor was informed of this observation and informed the Operations Support Group (responsible for updating and revising operations procedure) of the deficiency.

6.2 Safety Injection Accumulator 1-04 Pressure

The inspector observed the performance of a surveillance test on Accumulator 1-04 Pressure Channel 0967. The procedure was performed under Work Order 5-94-500229-AB and was performed in accordance with Procedure INC-7875A, "Analog Channel Operational Test and Calibration."

All test data were within acceptable tolerances and no calibration was necessary. The technicians performing the test demonstrated excellent

self-verification practices during the test and during restoration from the test. All test equipment utilized was within its current calibration cycle.

6.3 Unit 2 Reactor Coolant Pump Undervoltage Relay Test

On March 10 the inspectors observed operators verify the operability of Reactor Coolant Pump 2-04 undervoltage relay using Procedure OPT-222B, "Reactor Coolant Pump Undervoltage Relay Test," Revision 0. This procedure satisfied the trip actuating device operational test of Technical Specification 4.3.1.1.14. The prejob brief held prior to the start of the surveillance was thorough. Procedural compliance and self-verification practices were determined to be appropriate. In addition, the inspector verified that the surveillance was performed within the interval required by Technical Specifications.

6.4 Unit 1 Solid State Protection System (SSPS) Actuation Logic Test

Operators tested the SSPS Train B actuation logic on March 11 in accordance with Procedure OPT-448A, "Mode 1, 3 and 4 Solid State Protection System, Train B Actuation Logic Test," Revision 0. This procedure satisfied the applicable portions of Technical Specifications 4.3.1 and 4.3.2. A prejob briefing was conducted using the "Checklist for High Risk, Infrequent Evolutions or Heighten Level Of Awareness Activities" found in Procedure ODA-407, "Guideline On Use Of Procedures." The brief included a summary of the evolution, procedural precautions and limitations, expected plant indications, and the surveillance termination requirements. Management expectations regarding the use of self-verification, open and concise communications, and the operator actions to unexpected plant responses were also discussed.

The surveillance was performed by a licensed reactor operator and was supervised by the shift manager. Constant communications were maintained between personnel in the control room, at the SSPS cabinet, and at the reactor trip and bypass breakers. The inspector observed appropriate procedural compliance, excellent self-verification practices, and excellent communications. The inspector verified that the surveillance was performed within the required Technical Specification interval.

6.5 Diesel Generator 2-02 Operability Test

On March 10 inspectors observed Unit 2 operators perform portions of Procedure OPT-214A, "Diesel Generator Operability Test," Revision 6. No discrepancies were noted.

6.6 Conclusions

All observed surveillances were well performed. No deficiencies in personnel procedural adequacy were identified, and personnel performance was excellent.

7 COMPLETION OF STARTUP TESTING INSPECTION PROGRAM (72596, 72616, 72624, 72301)

This review of the final three modules of the Startup Testing Phase Inspection Program was performed to determine that the required testing had been appropriately conducted, reviewed, and documented. These included precritical testing, and testing performed at the 75 percent and 100 percent power plateaus.

7.1 Discussion

The inspector reviewed the documents listed in Attachment 2 of this report. The documents were reviewed to ensure that the test results satisfied the acceptance criteria. A detailed review of the majority of the referenced tests had been previously performed and documented in various NRC inspection reports. Additionally, the tests were reviewed to confirm that the results had been reviewed and approved by the appropriate level of licensee management, and that test deficiencies or anomalies were properly reviewed and dispositioned. The sequencing documents were reviewed to ensure that appropriate prerequisites were completed prior to test initiation and that conditions existing at the time of the test did not invalidate any test results.

7.2 Conclusions

The inspector's review of the listed documents concluded that the test results were acceptable as documented, that the resolution of deficiencies noted during the tests had been properly reviewed and approved, and that none of the test results would have been invalidated by plant conditions existing at the time of this test. This completed the Startup Testing Phase Inspection Program (2514) for Comanche Peak Steam Electric Station Unit 2.

8 INSERVICE TESTING OF PUMPS AND VALVES (73756)

A review was performed of the equipment currently in ALERT status or removed from ALERT status within the past 12 months. Included in the review was the length of time the equipment was outside its normally expected baseline values, the parameters that caused the equipment to be in ALERT, the corrective actions taken, and the justification for returning the equipment to a normal testing frequency.

8.1 Discussion

At the time of the inspection, the only piece of equipment in ALERT was Spent Fuel Cooling Pump X-01 which exceeded its vibration limit on August 16, 1993.

The pump was rebuilt and a new baseline was established without increasing its testing frequency. On November 12, 1993, the pump vibration was again found to be in the ALERT range. Additional troubleshooting determined that the impeller was not axially centered in the volute casing. The impeller position was adjusted and the pump was retested. Although the vibration decreased, it was still in the ALERT range. Engineering evaluations are continuing, and the pump is being tested at an increased frequency in accordance with the procedures for complying with ASME code requirements.

Additional pieces of equipment that had been in ALERT status and subsequently removed included Spent Fuel Cooling Pump X-02, Boric Acid Transfer Pump 1-02, Stations Service Water Pump 1-02, Reactor Water Makeup Pump 1-01, Residual Heat Removal Pump 2-02, Containment Spray Pump 2-01, Valve 1-7150 (reactor coolant drain tank vent header isolation valve), and Valve 1-PV-2328 (No. 4 steam generator atmospheric relief valve).

The longest period of time any of the reviewed components was in ALERT was from March 28, 1991, to February 8, 1993, for Valve 1-PV-2328 when the stroke time was found to be excessive. No cause could be determined nor was the stroke time inconsistent with the stroke times for the other atmospheric relief valves. The licensee determined that additional information and evaluation was needed prior to reworking the valve. Data from fifteen different stroke measurements indicated consistent stroke times and that no degradation in performance was occurring. A new baseline stroke time was established at the current condition (approximately 5 seconds) which was well below the 20 seconds assumed in the design basis.

The inspector reviewed sixteen technical evaluations associated with the various components referenced above. The technical evaluations were generated to evaluate test data to place a component into an increased testing frequency or rework the component as well as evaluating test data to relax the testing frequency when warranted. The evaluations were found to be well written with appropriate technical justification for removing components from ALERT status.

8.2 Conclusions

The licensee's program for identifying, tracking, and resolving components with parameters outside the normal range was found to be well established. Positive measures were taken to resolve identified deficiencies, and additional data was recorded when necessary to make an accurate evaluation of the condition of the component. The technical evaluations initiated to evaluate the components and the resolutions of the abnormal conditions were found to be strong in their justification to return the components to a normal testing frequency.

9 FOLLOWUP ON CORRECTIVE ACTIONS FOR VIOLATIONS (92702)

9.1 (Closed) Violation 445/9262-03: Inadequate Clearance Procedure Regarding Temporary Modifications

Two examples were cited in this violation where the existing procedure governing clearances was inadequate to ensure that temporary modifications were included in the body of information reviewed during the construction, impacting, and implementation of clearances.

A number of interim corrective actions were implemented regarding the processing of temporary modifications in general. Resulting from these interim actions were specific changes to the document controlling the actual implementation of clearances and temporary modifications, Procedure OWI-110, "Operations Department Work Control and Clearance Guideline," Revision 3. Section 6.2 specifically required that clearances be reviewed against active temporary modifications during clearance preparation and prior to authorization. Section 6.6 specifically required that temporary modifications be compared to existing, accepted, or prepared clearances to ensure no conflict exists between the two documents. These procedure changes and their implementation have been effective in preventing the compromise of clearances as a result of temporary modifications.

9.2 (Closed) Violation 445/9231-01: Troubleshooting Activities Performed Without Proper Authorization

This violation involved the performance of troubleshooting activities including removal and installation of fuses which resulted in the loss of approximately 40 percent of the control room annunciators.

In addition to the restoration of the annunciators and direct counseling of the individual regarding the procedural requirements and management's expectations regarding adequate communications with control room personnel during troubleshooting activities, the Procedure STA-694, "Station Verification Activities," was revised to clarify the verification and self-checking requirements. The guidance contained in Procedures STA-694 and MDA-111, "Maintenance Department Troubleshooting Activities," provided sufficient direction that, when properly implemented, assured proper authorization and conduct of troubleshooting activities.

9.3 (Closed) Violation 445/9322-01; 446/9322-01: Failure to Perform Technical Evaluation for Delinquent/Deferred Preventive Maintenance

This violation involved the failure of the licensee to perform an evaluation of the effect of deferring preventive maintenance inspections on safety-related Control Room Air Conditioning Unit X-03.

Corrective actions included the performance of a technical evaluation regarding the specific deferred inspection which determined that no detrimental effects would result from the deferring of the inspection.

Additionally, a number of work orders originally scheduled for completion during Refueling Outage 1RF02 were reviewed by the licensee to ensure that they were either completed, had technical evaluations initiated, or were not required to have evaluations performed. This review determined that technical evaluations had been initiated where required. Subsequently, the annual inspection was performed satisfactorily.

In order to prevent recurrence of this condition, the licensee revised Procedure STA-677, "Preventive Maintenance Program," to provide clarification on defining when preventive maintenance items are overdue, when a technical evaluation is required, and the requirements for processing a technical evaluation regarding preventive maintenance items. The inspector determined through a review of the revised procedure that sufficient guidance was in place to prevent recurrence.

ATTACHMENT 1

1 PERSONS CONTACTED

Licensee Personnel

T. A. Hope, Regulatory Compliance Manager
D. C. Kross, Operations Support Manager
M. L. Lucas, Instrumentation and Control Manager
D. M. Snow, Regulatory Affairs Technician
C. L. Terry, Vice President, Nuclear Operations

The personnel listed above attended the exit meeting. In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

2 EXIT MEETING

An exit meeting was conducted on March 22, 1994. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee did not express a position on the inspection findings documented in this report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.

ATTACHMENT 2

PROCEDURE	SUBJECT	REVISION
ISU-003B	Core Loading Instrumentation and Neutron Source Checks	Revision 0
ISU-010B	Post-Core Load Precritical Test Sequence	Revision 1
ISU-015B	Reactor Trip System Testing	Revision 0
ISU-016B	Incore Moveable Detector System Alignment	Revision 0
ISU-019B	Plant Computer Software Verification	Revision 0
ISU-021B	Pressurizer Spray and Heater Capability	Revision 0
ISU-022B	Reactor Coolant System Leakage Test	Revision 0
ISU-023B	Reactor Coolant Flow Measurement	Revision 0
ISU-024B	Reactor Coolant System Flow Coastdown Test	Revision 0
ISU-026B	Cold Control Rod Operability Test	Revision 0
ISU-027B	Hot Control Rod Operability Test	Revision 0
ISU-101B	Initial Criticality and Low Power Test Sequence	Revision 1
ISU-212B	Piping Vibration Monitoring	Revision 0
ISU-222B	Turbine Generator Trip Concurrent with Loss of Offsite Power	Revision 0
ISU-231B	Design Load Swing Test	Revision 0
ISU-260B	75% Reactor Power Test Sequence	Revision 1
ISU-263B	Large Load Reduction Test	Revision 0
ISU-280B	100% Reactor Power Test Sequence	Revision 1
ISU-281B	Full Power Performance Test	Revision 0
ISU-284B	Dynamic Response to Full Load Rejection and Turbine Trip	Revision 0