ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-445/95-12
50-446/95-12

Licenses: NPF-87
NPF-89

Licensee: TU Electric
Energy Plaza
1601 Bryan Street, 12th Floor
Dallas, Texas

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

Inspection At: Glen Rose, Texas

Inspection Conducted: June 26 through July 20, 1995

Team Leader: L. J. Smith, Acting Team Leader, Engineering Branch
Division of Reactor Safety

Team Members: T. Polich, Project Manager
Office of Nuclear Reactor Regulation

P. C. Gage, Reactor Inspector, Engineering Branch
Division of Reactor Safety

W. M. McNeill, Reactor Inspector, Engineering Branch
Division of Reactor Safety

C. J. Myers, Reactor Inspector, Engineering Branch
Division of Reactor Safety

Approved: Elmo E Collins 9/5/95
Elmo E. Collins, Acting Chief, Engineering Branch Date
Division of Reactor Safety

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EXECUTIVE SUMMARY

This inspection was performed in accordance with Inspection Procedures 37550, "Engineering," and 37001, "10 CFR 50.59 Safety Evaluation Program." To assess the engineering function, the team used a vertical slice inspection technique. The team reviewed design basis documentation associated with the auxiliary feedwater system and the Class 1E power system to determine the adequacy of the Comanche Peak Steam Electric Station engineering work products. The team assessed the engineering basis for the system safety functions and the technical support applied to preserve the safety functions. The team interviewed engineering supervisors and reviewed work scheduling documents. This inspection was conducted concurrently with NRC Inspection 50-445/95-13; 50-446/95-13. Based on the results of these two inspections, the team performed an overall assessment of engineering and technical support.

In general, the team found that the engineering work products were sound, showed a good safety focus, and represented a good technical capability. The team concluded the system engineers demonstrated sound knowledge and awareness of system problems and deficiencies, reflecting a positive sense of ownership and responsibility.

The team reviewed documentation of the licensee process for evaluating modification scope reductions and cancellations. The team found that the process for evaluating design modifications for cancellation was effective in that licensee personnel did not cancel any safety-significant modifications. The team reviewed lists of incomplete engineering tasks and did not identify any operability issues which had not been addressed. The team noted that two of the six supervisors that were interviewed, maintained backlogs which were significantly beyond the natural length of the work processes (dating back to 1992). In both cases, the supervisors explained that the older items were not completed because of the reactive nature of the work environment. The team concluded that licensee personnel's overall management of the engineering function was somewhat reactive, but showed good safety focus.

The team found that the licensee personnel were routinely identifying and resolving problems. While there were no formal integrated self assessments of the engineering organization, several formal audits were conducted and licensee personnel performed lessons learned reviews to address specific engineering issues. The team noted that licensee personnel initiated significant numbers of technical evaluations and operations notification and evaluation forms, which was an indicator of aggressive problem identification. Engineering personnel provided timely support to the operating staff by using the quick technical evaluation process.

Licensee personnel proactively identified problems with the master equipment list and had developed a plan for correcting the list. The team was concerned that the regulatory basis for the master equipment list was not clearly specified in procedures. Licensee personnel planned to review the regulatory basis for the master equipment list and to ensure the appropriate procedures were updated. The team noted several instances where licensee personnel did not carefully update design basis and licensing basis documents.

The team found that the current revision to the 10 CFR 50.59 procedures and review guide clearly defined the management expectations related to screening and review of safety evaluations. The team concluded that the technical aspects of the program were met, but in some cases, the administrative aspects lacked detail and rigor. The team also determined that the training program was weak because periodic refresher training was not required.

The team found that the diesel generator reliability monitoring program was extensive and correctly implemented 10 CFR 50.65, "Requirements for Monitoring and Effectiveness of Maintenance at Nuclear Power Plants." One weakness was noted, the program developed to monitor diesel generator reliability did not fully specify the frequency of monitoring and trending. The team found that the auxiliary feedwater system reliability monitoring program was on schedule to be upgraded, consistent with the recently revised regulatory requirements of 10 CFR 50.65.

The team noted that the Unit 1 turbine-driven feedwater pump did not run reliably when called upon to function following a reactor trip. The team also noted that technical support to operations and maintenance for test procedure development was weak (Reference NRC Inspection Report 50-445/95-13; 50-446/95-13).

The team identified that licensee personnel did not define a calibration interval for the low battery voltage shutdown devices in the Class 1E safety-related ELGAR inverters. Licensee personnel began developing the periodic calibration procedure in 1990, but they did not appropriately prioritize completion of the activity. The team concluded the lack of a defined interval of calibration for the low battery voltage shutdown device in the Class 1E safety-related ELGAR inverters was a violation of Technical Specification 6.8.1.

DETAILS

1 INTRODUCTION

This inspection was performed according to Inspection Procedures 37550, "Engineering," and 37001, "10 CFR 50.59 Safety Evaluation Program." To apply focus for the inspection, the team assessed the engineering and technical support for the auxiliary feedwater and Class 1E power systems. For each system, the team reviewed the Technical Specifications, Updated Safety Analysis Report, site design documents, system descriptions, selected operating and test procedures, selected safety reviews, selected drawings, selected modifications, selected operations notification and evaluation forms and technical evaluations. A list of the documents reviewed is contained in Attachment 3. The team performed system walkdowns. The team assessed the engineering basis for the system safety functions and the technical support applied to preserve the safety functions. Based on the results of these activities, the team performed the overall assessment of engineering and technical support.

2 SYSTEM REVIEWS (37550)

2.1 Auxiliary Feedwater

2.1.1 System Operation and Testing

The team reviewed Design Basis Document DBD-ME-206, "Auxiliary Feedwater System," and verified that licensee personnel had correctly included the minimum flow and equipment qualification limits in the standard operating procedures for the system. The integrated plant operating procedures used during startup included the minimum steam generator level requirement for operation of the auxiliary feedwater system. This requirement prevented reverse flow of steam into the pump discharge piping.

The team reviewed Calculations ME(B)-241, "AFW Pumps Technical Specification Limits," and ME(B)-240, "Condensate Storage Tank Technical Specification Limits." The team determined that licensee personnel correctly translated the minimum differential pressure associated with the design flows for the motor- and turbine-driven pumps into the Technical Specification surveillance requirements. This assured minimum flow to the steam generators at accident conditions with back pressures from the steam generators. Licensee personnel were determined to have correctly translated the condensate storage tank level requirements into the Technical Specification surveillance requirements. This volume assured operation of the auxiliary feedwater system for 18 hours at shutdown conditions.

The team verified inservice testing was in accordance with the program and procedures. The team confirmed that the 23 active valves and 48 check valves listed in Design Basis Document DBD-ME-206 were included in the inservice test program. The team reviewed the inservice test results for the past 2 years and only found one problem. The team identified Check Valve 2-MS-0143 was not tested as required during May of 1994. The team discussed the missed surveillance with the licensee and discovered that licensee personnel

previously identified and reported the missed surveillance in Licensee Event Report 446/95-001. Licensee personnel indicated that the missed surveillance was discovered during a routine post-work review performed prior to sending the test records to the storage vault. Based on a review of Licensee Event Report 446/95-001 and Operations Notification and Evaluation Form 95-104 the team concluded that the licensee correctly determined the cause of the missed surveillance.

The work order used to plan the check valve test was a multi-purpose repetitive task instruction. The work order was used to implement Technical Specification 4.0.5 and 4.1.7.2.a.2, which included staggered test requirements for the auxiliary feedwater system. The work order did not give sufficient information to ensure operating personnel would select and perform the correct test each month. Licensee personnel revised the work order for auxiliary feedwater testing to provide clearer guidance for selecting the correct test. The team concluded licensee personnel implemented appropriate corrective actions. Licensee Event Report 446/95-001 is closed.

The team concluded that licensee personnel effectively performed post-work reviews of surveillance tests. The team concluded that licensee personnel correctly translated the design basis of the auxiliary feedwater system into operating and test requirements.

2.1.2 System Walkdown

The team did a physical inspection or walkdown of the system in both units. The team observed portions of in-process activities including: preventive maintenance on strainers, the shaft alignment check, and the governor valve disassembly. These activities were conducted in a controlled fashion according to the associated work instructions. During the walkdown, the team found some oil on the floor of the Unit 2 No. 1 motor-driven auxiliary feedwater pump room. The system engineer planned to monitor the condition. He suggested that the oil may have been spillage from a recent oil change.

2.1.3 Design Changes

The team reviewed four minor modifications and three design modifications. Minor Modification 92-454 did not have a safety evaluation, only a screening document. The team concluded this was in conformance with licensee procedures and Technical Specifications requirements. The team determined that the design changes for the auxiliary feedwater system were good.

2.1.4 Design Basis Document Updates

The team identified that licensee personnel were not documenting and evaluating unit differences as required by the procedure for the development of design basis documents. Section 8 of the auxiliary feedwater system design basis document stated that the units were "essentially the same." During the inspection, the team identified unit differences. A drain line was installed at the bottom of the Unit 1 turbine-driven pump steam discharge piping to the plant stack. A similar drain connection was not installed on Unit 2. This affected the ability of condensate to drain from the exhaust stack. Two

features were installed on Unit 2, but not on Unit 1: isolation valves for the steam admission valve air accumulators and a bladder and nitrogen cover gas for the condensate storage tank. Engineering agreed these differences were significant and that this was a violation of Engineering Procedure ECE 5.01-01, "Design Basis Documents," Attachment A, Section 4.0.

The engineering staff believed this finding was potentially generic. Near the end of construction of Unit 2, unit differences, when found, required a technical evaluation. Once a procedure addressed the difference (e.g., inclusion in a valve lineup list), the issue was considered resolved, without updating the associated design basis document. The engineering staff initiated Operations Notification and Evaluation Form 95-0719 to address this issue.

Engineering Procedure ECE 5.01-01, "Design Basis Documents," Attachment A, Section 4.0 required the design basis document to describe significant differences, including physical, functional and programmatic differences in Section 8. The failure to fully implement established measures for controlling the design is a violation of Appendix B, Criterion III. Since no examples were identified where the actual design was inadequate, this failure constitutes a violation of minor significance. The violation is being treated as a Non-Cited Violation, consistent with Section IV of the NRC Enforcement Policy.

2.1.5 Licensing Basis Document Updates

Licensee personnel did not clearly establish the licensing basis for the response time requirements for the turbine-driven auxiliary feedwater system. The turbine was originally designed to start and deliver full flow to the steam generators within 60 seconds. In 1991, licensee personnel determined that the turbine would not respond within 60 seconds for some configurations.

Licensee personnel pursued parallel paths to resolve this issue. Licensee personnel made modifications to the turbine steam supply valves and the turbine controls to bring the response time into conformance with the original response time of 60 seconds. Licensee personnel simultaneously requested Westinghouse to revise the accident analysis to establish that an 85 second response time was acceptable. Licensee personnel performed a safety evaluation of the change to an 85 second response time based on an attached safety evaluation performed by Westinghouse. These records supported a "de facto" design change.

In 1992, licensee personnel planned to upgrade the design documentation for consistency. This activity was not given a high priority because the underlying safety issue was resolved. In a sense, licensee personnel maintained two design values for the response time. For example, the safety evaluation resulted in a change in Chapter 15.2.8, "Feedwater System Pipe Break," but not elsewhere in the Final Safety Analysis Report, such as Chapter 10.4.9. Section 6.4 of Design Basis Document DBD-ME-206 and

Table 1.2.1 in the Technical Requirement Manual were also changed in regard to the 85-second start time. The test procedures were revised to reflect an 85-second test requirement. Section 4.3.1.1 of Design Basis Document DBD-ME-206, Section 4.3.1.1 was not changed to reflect a start time of 85 seconds.

The team discussed this ambiguity with licensee personnel. They maintained that the current design value for the turbine-driven auxiliary feedwater pump was 60 seconds. The team noted that the acceptance criteria for a successful response time test should be consistent with the design value. The purpose of testing was to verify continued conformance with the design. The engineering staff revised the test procedures, PPT-S2-9104A and PPT-S2-9104B, on July 19, 1995, to reflect a 60-second test requirement. Previous testing was reviewed by the engineering staff to assure that the 60-second acceptance criteria was not exceeded. Licensee personnel planned to clarify the licensing basis using Licensing Document Change Request SA-95-078.

The team noted that the Technical Specification surveillance requirements associated with turbine-driven auxiliary feedwater pump response time testing ambiguously referred to the Technical Requirements Manual for a full definition of the test requirements. This ambiguity was introduced when the response time testing acceptance criteria were removed from the Technical Specifications and placed in the Technical Requirements Manual. The team determined that the actual testing being performed by licensee personnel was technically acceptable and in accordance with the original intent of the Technical Specifications. Licensee personnel planned to update Technical Specifications to clarify the references to the Technical Requirements Manual in a future administrative update.

The team identified a minor editorial error. The team noted that page 84 of Chapter 10.4.9, Auxiliary Feedwater System, of the Final Safety Analysis Report was not correctly updated to state the current design flow of the motor-driven auxiliary feedwater pumps. The engineering staff initiated a licensing document change request, SA-95-078, after the team pointed out the error.

2.1.6 Engineering Dispositions

The team reviewed the engineering disposition of operations notification and evaluation forms and technical evaluations. The team determined that engineering personnel dispositioned documents, such as operations notification and evaluation forms and technical evaluations, effectively.

2.1.7 Auxiliary Feedwater System Reliability

The inspection documented in NRC Inspection Report 50-445/95-13; 50-446/95-13 was initiated to review the June 11, 1995, failure of the Unit 1 turbine-driven auxiliary feedwater pump to operate on demand. The scope of the inspection was expanded to include the June 21, 1995, mechanical overspeed trip of the Unit 2 turbine-driven auxiliary feedwater pump during testing. The team noted that the Unit 1 turbine-driven feedwater pump did not run reliably when called upon to function.

The team reviewed the licensee's reliability monitoring program for the auxiliary feedwater system. The team found that the system engineer was monitoring auxiliary feedwater system reliability at the system level. Procedure STA-736, "Equipment Performance Monitoring Program," provided suggested parameters for monitoring and trending at the component level. The team noted that the auxiliary feedwater reliability program was on schedule to be upgraded, consistent with the recently revised regulatory requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants."

2.1.8 Design Basis Implementation

The team found that the engineering staff had translated design requirements for the auxiliary feedwater system into working documents such as operating and testing procedures. Engineering work products were sound, showed a good safety focus, and represented a good technical capability. The team noted two instances where licensee personnel did not carefully update the licensing basis to reflect current operating practices. Licensee personnel did not clearly establish the licensing basis for the response time requirements for the turbine-driven auxiliary feedwater system. The Final Safety Analysis Report was not correctly updated to state the current design flow of the motor-driven auxiliary feedwater pumps. The team noted that differences between the Unit 1 and Unit 2 auxiliary feedwater systems were not documented and evaluated in the licensee's design basis summary documents as required.

2.2 Class 1E Power

2.2.1 System Operation and Testing

The design basis for the emergency diesel generators included drawings, calculations, and Technical Specifications. The Technical Specification surveillance requirements for the emergency diesel generators specified that the diesels should be verified to start from ambient conditions and accelerate to at least 441 rpm in less than or equal to 10 seconds and the generator voltage and frequency should be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds after the start signal.

The team reviewed the surveillance tests for the emergency diesel generators and the associated surveillance test results. The results of the 24-hour load test, and the monthly operability tests for the emergency diesel generators were compared against Technical Specification surveillance requirements. The team concluded the Technical Specification surveillance requirements were met by the applicable surveillance procedures and that actual test results fell within the allowable tolerances. Additionally, the team found that qualified data acquisition personnel were conducting the full-stroke check valve tests for the emergency diesel generator starting air system as part of the inservice test program.

The team reviewed the surveillance tests and test results for the Class 1E batteries, battery chargers, and inverters. The surveillance results of the Class 1E batteries were compared against Technical Specification surveillance requirements. The team concluded the Technical Specification surveillance requirements for the Class 1E batteries were met by the applicable surveillance procedures and that actual test results fell within the allowable tolerances.

The team identified that the procedure for placing the battery on an equalizing charge was not consistent with the Final Safety Analysis Report, the design basis document or the system operating procedure, which stated that the maximum voltage for the battery bus was 140 volts direct current. Through discussions with the plant engineering staff, the team determined that the battery equalizing procedure limitation was specified to allow for the ± 0.5 percent voltage regulation capability of the battery charger. The team concluded that under worst-case conditions of a setpoint of 139.8 volts direct current and a +0.5 percent regulation tolerance, that a safeguards direct current system would have 140.5 volts direct current, which would be in excess of the maximum limit of 140 volts direct current as described in the design basis document and the Final Safety Analysis Report.

The team considered that the technical basis for this condition was acceptable; however, the team concluded that the licensee specified a maximum value when they meant to specify a nominal limit. The team concluded that this was an example of not maintaining consistency between information found in design basis documents and operating procedures. The engineering staff stated their intention of incorporating changes to provide consistency between the Class 1E battery equalizing procedure and the corresponding design basis and licensing basis limits.

2.2.2 System Walkdown

The team walked down the emergency diesel generators and the 125 volts direct current distribution system with the responsible system engineers. During the walkdown, the team noted that the system engineers were familiar with the outstanding deficiency tags on their system. Many of the deficiency tags were for minor leaks on the engine and generator portions of the emergency diesel generator system. The team found that the housekeeping was adequate. The team concluded the system engineers demonstrated sound knowledge and awareness of system problems and deficiencies, reflecting a positive sense of ownership and responsibility.

Additionally, the team found that the system engineers performed routine walkdowns of the diesel generator and the 125 volts direct current distribution systems about every two weeks on the average, although this frequency depended on plant conditions and events. The team noted that the minimum frequency required for documenting the results of system walkdowns was quarterly as specified within Procedure TSP-206, "System Walkdowns," Revision 3.

During the walkdown of the Class 1E battery systems, the team questioned whether or not the clearances between the seismic brackets, or stringers, and the end cells in several different racks were acceptable. Licensee measured these clearances as less than or equal to 1/4 inch. Licensee personnel provided written correspondence from Gould, GNB, dated March 27, 1985, recommending, based on seismic testing of the battery, that the end stringer and end cell spacing not exceed 1/4 inch. During a review of Design Change Authorization 25378, the team noted that the applicable vendor drawing was revised to reflect the spacing clearances identified in the Gould letter of March 27, 1985.

During the inspection, licensee personnel received written correspondence, dated July 5, 1995, from Nuclear Logistics Inc., which indicated that GNB dropped their nuclear quality assurance program in June 1990, and that Nuclear Logistics Inc., was now available to supply the necessary technical support. Nuclear Logistics, Inc., required that: (1) the cell to end stringer clearance be a nominal zero gap with a tolerance up to 1/16 inch and, that (2) significant gaps were not acceptable. Some of the as-found clearances were greater than 1/16 inch. Based on the criteria specified by Nuclear Logistics Inc., licensee personnel processed Operations Notification and Evaluation Form 95-691 and Design Change Notice 9487 to incorporate the maximum tolerance on end cell and stringer spacing of 1/16 inch. Licensee personnel promptly adjusted the battery racks so that the clearances were acceptable.

2.2.3 Design Changes

Tne team reviewed Design Modification 90-502 which installed an alarm defeat switch in the normal alternate current power input to the reactor protection system inverters. Licensee personnel stated the design modification would permit inverter operation with the direct current power input to the inverter as a normal operation condition and allow the normal alternate current supply breaker to be opened. Licensee personnel adopted this lineup as the normal configuration for the reactor protection system inverters. With the alarm defeat switch in the "off" or "defeat" position, the team determined that the corresponding low alternate current supply voltage annunciator would not be actuated and that the inverter would not be directly subjected to voltage fluctuations from the alternate current supply input. The team concluded that this design modification was technically acceptable and was installed properly.

2.2.4 Design Basis Document Updates

The team confirmed that Electrical Drawing 4950C67 reflected Design Modification 90-502. The associated outstanding design change notice was correctly posted against the drawing. Section 5.2.2 in Design Basis Document DBD-EE-043, "118V ac Uninterruptible Power Supply System," Revision 4, was not revised to reflect the change in normal operating lineup.

2.2.5 Licensing Basis Document Updates

The team identified a deficiency in the descriptions regarding the normal operation of the reactor protection system inverters as identified in the Final Safety Analysis Report, Section 7.6.1.2. The Final Safety Analysis Report was not updated to reflect the lineup change associated with Design Modification 90-502. The Final Safety Analysis Report described normal inverter operation prior to the installed modification, and did not reflect the lineup currently in effect for plant operations. The inspector discussed this concern with licensee personnel. They stated that they correct the licensing basis using Licensing Document Change Request SA-95-81. The failure to update the Final Safety Analysis Report following a modification to the plant is a violation of 10 CFR 50.71(e). This failure constitutes a violation of minor significance and is being treated as a non-cited violation consistent with Section IV of the NRC Enforcement Policy.

2.2.6 Engineering Dispositions

The team reviewed Technical Evaluations 91-307 and 94-1657 regarding capacitor replacements for the ELGAR safeguards inverters. The team determined that licensee personnel were adhering to the vendor recommendations on capacitor replacement. They instituted a program through Procedure TSP-509, "Predictive Maintenance Thermographic Analysis Program," Revision 2, which was utilized by system engineers. They reviewed the thermographic pictures recorded for various electrical systems and components. The team determined, through interviews, that this technique was used to identify potential impending failures of the inverter capacitors and schedule the replacement of the affected components prior to failure. The team considered the use of the thermographic technique in identifying potential problems by engineering staff members as a strength.

During discussions with the team, licensee personnel indicated that the ELGAR inverters were provided with low battery voltage shutdown devices which would shutdown the inverter on low input voltage. The team determined that an initial calibration was performed on February 26, 1989, in accordance with a Special Performance Test Procedure 1CP-SPT-28, "Calibration of adjustable setpoints of 10 kVa ELGAR Inverters," Revision 0, but no calibrations, calibration checks, tests, or surveillances were performed for the low battery voltage shutdown devices since the initial calibration. The team noted that licensee personnel began development of periodic calibration instructions for the shutdown devices in 1990. The licensee had not established a basis for the extended calibration interval. The team was concerned that the calibration was not appropriately prioritized. The licensee determination of whether or not the expected setpoint drift for the low battery voltage shutdown devices was likely to be acceptable was still in progress at the end of this inspection.

Technical Specification 6.8.1 requires, ". . . written procedures be established, implemented, and maintained . . . ," covering a list of activities including the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, February 1978. Appendix A of Regulatory Guide 1.33, February 1978, listed typical safety-related activities such as the calibration,

testing, and adjustment of equipment that provided interlock permissive or prohibit functions. Regulatory Guide 1.33, dated February, 1978, generally endorses ANSI N18.7-1976/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants." Section 5.2.16 of ANSI N18.7-1976/ANS-3.2 requires that the "method and interval of calibration for each installed instrument and control device shall be defined and shall be based on the type of equipment, stability and reliability characteristics, required accuracies and other conditions affecting calibration."

The team determined that licensee personnel did not define the appropriate calibration interval for the low battery voltage shutdown devices in the following Class 1E safety-related ELGAR inverters: IV1EC1, IV1EC2, IV1EC3, IV1EC4, IV2EC1, IV2EC2, IV2EC3, and IV2EC4. The team concluded the lack of a defined interval of calibration for the low battery voltage shutdown device in the Class 1E safety-related ELGAR inverters was a violation of Technical Specification 6.8.1 (445/9512-01; 446/9512-01).

2.2.7 Emergency Diesel Generator and Support System Reliability

On March 3, 1995, licensee personnel were granted an amendment to their license to remove the requirements for accelerated testing of the emergency diesel generators and to require implementation of 10 CFR 50.65 on the emergency diesel generators and support systems by June 1, 1995. This amendment was granted consistent with Generic Letter 94-01, "Removal of Accelerated Testing and Special Reporting Requirements for Emergency Diesel Generators," dated May 31, 1994.

As part of the implementation of the 10 CFR 50.65, licensee personnel established performance criteria for the emergency diesel generator and the support systems. Licensee personnel established the performance criteria and basis for each system function using their "Performance Criteria Guideline for Monitoring Maintenance Effectiveness," which covered the last 2 years of operation for Unit 1 and the time since commercial operation for Unit 2. The process was documented in "Report on Implementation of the Maintenance Effectiveness Monitoring Program on the Diesel Generator and Support Systems." The performance history for the diesel generator and auxiliaries (including the fuel oil system) was listed as one start and load demand failure per hundred demands on Unit 1 and three start and load demand failures per hundred demands on Unit 2. The unavailability time reported for the Unit 1 was 9.8 hours for Train A and 11.7 hours for Train B and for Unit 2 was 12.7 hours for Train A and 6.4 hours for Train B.

Additionally, licensee personnel revised effective June 1, 1995, Procedure TSP-503, "Emergency Diesel Generator Reliability Program," which incorporated a more comprehensive methodology for tracking emergency diesel generator reliability. The team identified two discrepancies that were generated in the latest revision of the procedure which was revised as a result of the implementation of 10 CFR 50.65 for the emergency diesel generators. The discrepancies noted in Procedure TSP-503 were: (1) failure to transfer information regarding frequency of monitoring and trending from

the Cooper Energy Services technical manual for the emergency diesel generator into Section 8.3 of Procedure TSP-503 and, (2) failure to delete the Technical Specification Table 4.8-1 (deleted by License Amendment dated March 3, 1995) as a reference in Section 4.7 of Procedure TSP-503.

Licensee personnel's "Report on Implementation of the Maintenance Effectiveness Monitoring Program on the Diesel Generator and Support Systems," identified the 6.9 kV switchgear and 125/250 volts direct current system as support systems for the emergency diesel generator. A maintenance rule screening was performed for each system function and performance criteria were developed. For the last 24 months on Unit 1 and since commercial operation of Unit 2, there were no functional failures reported for either train of the 6.9 kV switchgear or either train of the 125/250 volts direct current system. The unavailability time reported for the Unit 2 Train B 125/250 volts direct current system since commercial operation was 2.3 hours. All other unit and train unavailability times for the 125/250 volts direct current system was reported as zero.

The team concluded that the emergency diesel generator and associated support systems were performing reliably.

2.2.8 Design Basis Implementation

The team found that the engineering staff had translated design requirements for the Class 1E power system into working documents such as operating and testing procedures with one exception. The procedure for charging the safety-related batteries specified an equalizing charge voltage which was in excess of the maximum system voltage specified in the Final Safety Analysis Report and the design basis document. In general, the team found that the engineering work products were sound, showed a good safety focus, and represented a good technical capability. The team noted licensee personnel did not carefully update the design basis and the licensing basis documents to reflect a modification of operating practices related to the reactor protection system inverters.

3 LICENSEE INITIATIVES (37550)

3.1 Master Equipment List

Licensee personnel used the computer based master equipment list to identify safety-related equipment (Q-list). The list was used in conjunction with the master parts list to review vendor information such as 10 CFR 21 reports. Licensee personnel identified weaknesses in the accuracy and completeness of the information in the list and initiated an improvement program in this area. Licensee personnel intended to improve the accuracy, completeness, and user-interface aspects of their program.

Licensee personnel initially documented a failure to update the master equipment list following implementation of a design change notice on Operations Notification and Evaluation Form 94-194. Licensee personnel revised the work process procedure to include a step to update the master equipment list. A subsequent nuclear oversight department audit of closed

design change notices revealed continuing examples of failures to update the master equipment list. Licensee personnel initiated Operations Notification and Evaluation Form 95-599 dated June 6, 1995, which identified continuing problems in updating the master equipment list. The team agreed with the licensee that the incomplete status of the master equipment list and the lack of timely updating of the master equipment list was a weakness.

The team noted that Operations Notification and Evaluation Form 95-599 documented numerous instances of incomplete and inaccurate information in the master equipment list. Field walkdowns were sometimes required to obtain the as-built model number information from equipment nameplates. The team noted that Procedure No. STA-716, "Site Modification Process," only specified one mandatory field in the master equipment list, which was required to be updated following a modification, the basic Q-list identification of safety-related equipment. The team found that model numbers were not routinely updated in the master equipment list following equipment modification.

The team reviewed licensee personnel's commitments related to Generic Letter 83-28 regarding the maintenance of current vendor information. The team found that licensee personnel committed to update the master equipment list to reflect the as-built configuration of the plant for use as part of their vendor information review process. The NRC staff based the safety evaluation of the licensee's response to Generic Letter 83-28 on the licensee's stated intent to have the master equipment list reflect the as-built configuration of the plant.

The team questioned licensee personnel cognizant of the Generic Letter 83-28 program and found that they intended to have the master equipment list updated as part of the routine processing of modifications. The team was concerned that the regulatory basis for the master equipment list was not clearly specified in procedures. In response to the team's concern, licensee personnel planned to review their regulatory commitments related to the master equipment list as part of their upgrade program and to ensure the appropriate procedures were updated.

The team reviewed a sample of ten recent modification packages and found that the master equipment list was updated to identify the current as-built configuration of the plant following implementation of the modifications.

The team concluded that licensee personnel maintained the identification of safety-related equipment in their master equipment list, but they had not always maintained all applicable vendor information. The team noted that licensee personnel proactively identified problems with the master equipment list and planned to correct the list. The team concluded that licensee personnel actions were acceptable.

3.2 Cancelled Modifications

During 1994, licensee personnel reviewed the back log of proposed modifications to identify unnecessary modifications. The team reviewed documentation of the licensee process for evaluating modification scope reductions and cancellations. The team determined that the process for evaluating design modifications for cancellation was effective, in that licensee personnel did not cancel any safety significant modifications.

3.3 Workload Management

The team interviewed six engineering supervisors to assess work load management at the facility. The supervisors had developed a variety of tools to track the status and assignment of open work items. The team reviewed lists of incomplete engineering tasks and did not identify any operability issues which had not been addressed.

The team noted that two supervisors maintained backlogs which were significantly beyond the length of the natural work processes (dating back to 1992). In both cases, the supervisors explained that the older items were not completed because of the reactive nature of the work environment. The team concluded that licensee personnel's overall workload management for the engineering function was somewhat reactive, but showed good safety focus.

3.4 Planned Modification Process Change

During the inspection, licensee personnel described future plans to improve the modification process. The process was being modified to improve efficiency and to provide better focus for prioritizing modification activities. The team noted that the new process will provide challenge to carefully evaluate scope reductions, since the decisions will in many cases be made by one person. The team noted that such a significant change will require careful implementation to ensure current performance levels are not degraded.

3.5 Engineering Oversight

The team noted that there were no formal integrated self assessments. Several formal audits were conducted and licensee personnel performed lessons learned reviews to address specific engineering issues. The team noted that licensee personnel initiated significant numbers of technical evaluations and operations notification and evaluation forms, which was an indicator of aggressive problem identification.

4 SAFETY EVALUATIONS (37001)

Procedure STA-707, "10 CFR 50.59 Reviews," defined the 10 CFR 50.59 review program. In addition to the initial screening for 10 CFR 50.59 evaluations, this procedure was used to determine whether an activity required a

10 CFR 50.54 assessment, commitment material change evaluation, or involved a Technical Specification change. The procedure referenced the licensee's 10 CFR 50.59 review guide, which provided detailed guidance and examples of how to screen an activity.

4.1 Training Program

Procedure STA-707 required that all personnel, that prepared or reviewed activity screens and 10 CFR 50.59 evaluations, successfully complete 10 CFR 50.59 review process training and a record of this training was to be maintained. The procedure further required personnel to be knowledgeable of plant nuclear safety and competent in technical and administrative matters related to the activity being reviewed. The team noted that although training was available to refresh or enhance knowledge of the process, no training was required after initial training.

The licensee completed an evaluation of regulatory activities in March 1995 that included the 10 CFR 50.59 screening process (Nuclear Overview Department EVAL-95-000036). Licensee personnel observed that of the 33 screens reviewed 40 percent had shallow and brief statements justifying why an evaluation was not required. The licensee's evaluation concluded that increased management emphasis was needed on the importance of accurately completing safety screenings. Additionally, the report indicated that 50 percent of the qualified personnel were not trained on the 10 CFR 50.59 review guide. The auditor found an isolated case of an unqualified reviewer that performed a safety screen. At the time of the inspection, licensee personnel had not completed their response to these nuclear overview department observations and findings.

The team noted that of the over 600 personnel trained in performing 10 CFR 50.59 reviews, less than 10 percent were trained since January 1994, and only 9 individuals were trained after the procedure and review guide were revised in February 1995.

4.2 Sample Evaluation Review

The team reviewed a sample of the 10 CFR 50.59 evaluations performed during the past year. In general, the evaluations followed the steps required by Procedure STA-707 and were thorough and appropriate. The team identified one 10 CFR 50.59 evaluation that contained information that was not pertinent to the evaluation conclusion in that it referenced an undocumented fire endurance test. Licensee personnel agreed to revise Safety Evaluation SE-94-78 to remove the extraneous information.

4.3 Conclusions

The team concluded that a lack of required periodic refresher training was a weakness of the program. Few individuals were choosing to take refresher training on 10 CFR 50.59 and half the trained personnel were not formally trained on the 10 CFR 50.59 review guide. The team concluded that the technical aspects of the program were met, but in some cases, the administrative aspects lacked detail and rigor.

ATTACHMENT 1

EXIT MEETING AND ATTENDEES

1 PERSONS CONTACTED

1.1 Comanche Peak

B. Bhujary, Project Engineering Manager
M. Blevins, Plant Manager
D. Buschbaum, Technical Compliance Manager
R. Calder, Engineering Analysis Manager
R. Carver, Engineer
D. Dillinger, Nuclear Overview Evaluator
C. Feist, Consulting Engineer
T. Gilder, Maintenance Engineering Supervisor
T. Hope, Regulatory Compliance Manager
J. Kelly Jr., Vice President Engineering Support
S. Lakdawala, Civil Engineering Supervisor
F. Madden, Engineering Overview Manager
T. Marvray, Technical Programs Supervisor
G. Merka, Senior Nuclear Specialist
J. Meyer, Mechanical Engineering Supervisor
W. Morrison, Maintenance Engineering Manager
N. Paleologos, Vice President Operations
P. Passalugo, Civil Engineering Supervisor
D. Rencher, Balance-of-Plant Systems Supervisor
S. Smith, Work Control Manager
M. Sunseri, Project Manager
J. Taylor, Procurement Engineering Supervisor
L. Terry, Group Vice President
R. Walker, Regulatory Affairs Manager
D. Woodlan, Docket Licensing Manager
L. Yeager, Staff Assistant

1.2 NRC Personnel

E. Collins, Acting Engineering Branch Chief
A. Gody, Senior Resident Inspector
T. Polich, Project Manager

The above personnel attended the exit meeting in person or by telephone. In addition to the personnel listed above, the team contacted other personnel during this inspection.

2 EXIT MEETING

An exit meeting was conducted on July 20, 1995. During this meeting, the team leader summarized the scope and conclusions of the inspection. Licensee personnel acknowledged the conclusions presented at the exit meeting. Licensee personnel did not identify as proprietary any information provided to, or reviewed by, the inspectors.

ATTACHMENT 2

INSPECTION FINDING INDEX

- Licensee Event Report 446/95-001 was closed (Section 2.1.1).
- Two Non-Cited Violations were identified (Sections 2.1.4 and 2.2.5)
- Violation 445;446/9512-01 was opened (Section 2.2.6).

ATTACHMENT 3

LIST OF DOCUMENTS REVIEWED

DESIGN BASIS DOCUMENTS

DBD-EE-041, 480V and 120V ac Electrical Power System, Revision 5

DBD-EE-043, 118V ac Uninterruptible Power Supply System, Revision 4

DBD-EE-044, DC Power Systems, Revision 6

DBD-ME-011, Diesel Generator Sets, Revision 5

DBD-ME-206, Auxiliary Feedwater System, Revision 7 with Design Change Notices 6538, 7931, and 9014

LDCR TR-91-02, Revise Turbine Driven Auxiliary Feedwater Pump Response Time, April 22, 1991

Technical Requirements Manual, June 30, 1995

LETTERS

TXX-901008, Response to Station Blackout Rule

TXX-91426, Response to NRC Request for Additional Information

TXX-92157, Response to NRC Request for Additional Information

TXX-92447, Response to Station Blackout (SBO) Rule

TXX-95010, Annual 10 CFR 50.59 Summary Report For 1994

PROCEDURES

ECE 5.01-01, Design Basis Documents, Revision 2 with Engineering Document Change Notices 1-4

ECE 5.01-05, Classification of Components

1CP-SPT-28, Special Performance Test Procedure, Revision 0

IPO-002B, Plant Startup From Hot Standby, Revision 2 with Procedure Change Notices 1-2

MSE-C0-5903, Battery Maintenance - Equalizing Charge, Revision 3

MSE-S0-5000, Class 1E Station Batteries Weekly Inspection, Revision 0

MSE-S0-5001, Class 1E Station Batteries Quarterly Inspection, Revision 0

MSE-S0-5002, Class 1E Battery Service Test, Revision 4

MSE-S0-5710, Battery Performance Discharge Test, Revision 4

OPT-206A, AFW System, Revision 12

OPT-206B, AFW System, Revision 5

OPT-215A, Class 1E Electrical Systems Operability, Revision 7

OPT-515B, Diesel Generator Fuel Oil Transfer System, Revision 2

PPT-S2-9104B, Turbine Driven AFW Pump Response Time Test, Revision 0 with Procedure Change Notices 1-5

SOP-304A, Auxiliary Feedwater System, Revision 11

SOP-304B, Auxiliary Feedwater System, Revision 3

SOP-605A, 125V DC Switchgear and Distribution Systems, Batteries, and Battery Chargers, Revision 8

SOP-607A, 118V AC Distribution System and Inverters, Revision 9

SOP-609A, Diesel Generator System, Revision 9

STA-309, Master Equipment List, Revision 4

STA-504, Technical Evaluations, Revision 10

STA-707, 10 CFR 50.59 Reviews, Revision 12

STA-716, Site Modification Process, Revision 11 with Procedure Change Notices 1-3

STA-750, Check Valve Reliability Program, Revision 2

STA-744, Maintenance Effectiveness Monitoring Program, Revision 0

STP-503, Emergency Diesel Generator Reliability Program, Revision 2

TSP-206, System Walkdowns, Revision 3

TSP-509, Predictive Maintenance Thermographic Analysis Program Revision 2

DESIGN MODIFICATIONS

93-002, Replace Oil Level Sight Glasses on Inboard and Outboard Bearing Housings on AFW Pumps, Revision 1

93-032, Cleanup Taps on U2 CST, Revision 0

94-007, Replace 4" Borg Warner Swing Check Valves, Revision 0

MINOR MODIFICATIONS

92-454, Addition of Overspeed Trip Test Devise to Auxiliary Feedwater Pump Turbine Governor, closed December 5, 1995

93-519, Replace MOV Motor Gear Set on MOV 1-HV-2494A-MO, closed March 15, 1994

93-589, Replace Existing Actuator Mounting Bolts with Stronger Bolt Material, closed November 17, 1994

94-155, Replace Existing Actuator Yoke Bolts with Stronger Bolt Material, closed October 21, 1994

CALCULATIONS

RXE-TA-CP1/0-017, Licensing Basis SGTR Analysis, Revision 3

ME(B)-240, Condensate Storage Tank Tech. Spec. Limits, Revision 2 with Change Notice 1

ME(B)-241, AFW Pumps Tech. Spec. Limits, Revision 1 with Change Notice 1

OPERATIONS NOTIFICATION AND EVALUATION FORMS

93-1373	94-0124	95-0104
93-1422	94-0144	95-0148
93-1883	94-0154	95-0191
93-2124	94-0496	95-0377
93-2147	94-1055	
93-2309	94-1227	
93-2400	94-1249	
94-303	94-1441	
94-355		
94-366		
95-341		

ENGINEERING REPORT

ER-ME-043, Borg Warner Check Valves Safety Significance Evaluation, Revision 1

SAFETY EVALUATIONS

93-0079
93-0081
93-0103
93-0119

94-0001
94-0014
94-0049
94-0063
94-0068
94-0078

TECHNICAL EVALUATIONS

93-1182
93-1394
93-1602

93-2072
93-2102
93-2329
93-2400
93-2459

90-2999
91-307
94-1657

94-0363
94-0440
94-0650

94-1029
94-0703
94-0843
94-1095
94-1582
94-1665

95-0090

OVERSIGHT REVIEWS

Independent Safety Engineering Group (ISEG) Assessment Report No. IAR 95-07, dated May 10, 1995

NOE-EVAL-95-000118-00-00, "CPSES Design Control and Modification Programs," dated June 9, 1995 (which included a section on master equipment list problems)