



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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December 22, 2000

Mr. C. L. Terry
TXU Electric
Senior Vice President & Principal Nuclear Officer
ATTN: Regulatory Affairs Department
P.O. Box 1002
Glen Rose, Texas 76043

SUBJECT: NRC'S COMANCHE PEAK STEAM ELECTRIC STATION
INSPECTION REPORT NO. 50-445/00-08; 50-446/00-08

Dear Mr. Terry:

On November 25, 2000, the NRC completed an inspection at your Comanche Peak Steam Electric Station, Units 1 and 2, facility. The enclosed report documents the inspection findings which were discussed with you and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

Joseph I. Tapia, Chief
Project Branch A
Division of Reactor Projects

TXU Electric

-2-

Docket Nos.: 50-445

50-446

License Nos.: NPF-87

NPF-89

Enclosure:

NRC Inspection Report No.

50-445/00-08; 50-446/00-08

cc w/enclosure:

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Only inspection reports to the following:
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.: 50-445
50-446

License Nos.: NPF-87
NPF-89

Report No.: 50-445/00-08
50-446/00-08

Licensee: TXU Electric

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

Location: FM-56
Glen Rose, Texas

Dates: October 8 through November 25, 2000

Inspectors: A. Gody, Senior Resident Inspector
S. Schwind, Resident Inspector
G. Guerra, Resident Inspector, South Texas Project
D. Schaefer, Physical Security Inspector
J. Nicholas, Ph.D., Senior Health Physicist

Approved By: J. Tapia, Branch Chief, Reactor Project Branch A
G. Good, Chief, Plant Support Branch

ATTACHMENTS:

Attachment 1: Supplemental Information

Attachment 2: NRC's Revised Reactor Oversight Process

SUMMARY OF FINDINGS

Comanche Peak Steam Electric Station, Units 1 and 2
NRC Inspection Report No. 50-445/00-08; 50-446/00-08

IR 05000445-00-08, IR 05000446-00-08; on 10/08-11/25/2000; TXU Electric; Comanche Peak Steam Electric Station, Units 1 & 2; Integrated Resident and Regional Report. No findings identified.

The inspection was conducted by resident inspectors and Region IV inspectors. The inspection identified no findings of significance. The significance of issues is indicated by their color (green, white, yellow, or red) and was determined by the Significance Determination Process (SDP) in NRC Inspection Manual Chapter 0609. Findings for which the SDP do not apply are indicated by "no color" and/or by the severity level of the applicable violation.

Report Details

Summary of Plant Status

Unit 1 operated at approximately 100 percent power for the entire report period.

Unit 2 began the report period in a refueling outage. On November 2, 2000, the unit was restored to power operation, reaching 100 percent power on November 10, 2000. On November 13, 2000, power was reduced to approximately 65 percent in order to repair a leaking expansion joint on the Train A heater drain pump. On November 14, 2000, Unit 2 returned to 100 percent power following completion of heater drain pump repairs.

1. REACTOR SAFETY **Cornerstones: Mitigating Systems, Barrier Integrity**

1R04 Equipment Alignment

.1 Partial System Walkdown

a. Inspection Scope (71111.04)

The inspectors conducted partial inspections of the following risk-significant systems to verify that they were in their proper standby alignment. In addition, the inspectors evaluated the effectiveness of the licensee's problem identification and resolution program in resolving issues which could increase event initiation frequency or impact mitigation system availability.

- Unit 1, Train A and B emergency diesel generators
- Unit 1, Train A and B motor-driven auxiliary feedwater pumps
- Unit 2, Train B residual heat removal system

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Routine Fire Area Walkdowns

a. Inspection Scope (71111.05)

The inspectors toured the following areas to assess the licensee's control of transient combustible materials, the material condition and lineup of fire detection and suppression systems, and the material condition of manual fire equipment and passive fire barriers and to evaluate the effectiveness of compensatory measures for degraded equipment:

- Unit 1 cable spreading room
- Unit 1, Train A switchgear room

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope (71111.11)

The inspectors observed operator performance during training in the control room simulator and attended the posttraining critique. Simulator observations concentrated on the conduct of operations, procedure usage, and command and control. The following training scenario was observed:

- Indian Point 2 steam generator tube leak scenario, LO44.E01.IP2

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule

.1 Maintenance Effectiveness

a. Inspection Scope (71111.12)

The inspectors independently verified that the licensee properly implemented 10 CFR 50.65, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for the following equipment performance problems.

- Hydraulic system failures on Feedwater Isolation Valve 1-HV-2137
- Repetitive failures of hand switch for Temperature Indicator 1-TI-3420 (Unit 1, Train B emergency diesel generator stator temperature indicator)
- Repetitive failures of the Unit 2 containment reactor makeup water containment isolation relief valve (2-RC-0036)
- Failure of the Unit 2, centrifugal charging pump suction high point vent valve to stroke during testing (2-HV-8220)
- Failure of the Unit 2, reactor vessel head vent valve to stroke during testing (2-HV-3608)
- Class 1E electric motor fan failures
- Component cooling water system butterfly valve seat failures

The inspector's review focused on whether the structures, systems, or components (SSC's) that experienced problems were properly characterized with respect to the maintenance rule, on the adequacy of the licensee's significance classification for the SSC, on the appropriateness of the performance criteria established for the SSC, and on the adequacy of corrective actions for SSC's classified in accordance with 10 CFR 50.65 a(1).

b. Findings

No findings of significance identified.

1R13 Maintenance Risk Assessment and Emergent Work

.1 Routine Work Activities

a. Inspection Scope (71111.13)

The inspectors conducted routine daily reviews of scheduled ongoing maintenance that was conducted at both shutdown and power to determine if the licensee properly considered risk in the development and implementation of planned maintenance. The following meetings were routinely attended:

- Daily plan-of-the-day and work implementation review, Units 1 and 2
- Daily outage schedule and work implementation review, Unit 2

b. Findings

No findings of significance were identified.

.2 Unscheduled work activities

a. Inspection Scope (71111.13)

The inspectors evaluated the effectiveness of the licensee's risk assessment for the following routine and emergent at-power work:

- Troubleshooting on the Unit 2, Train B emergency diesel generator for a voltage regulator failure and high jacket water temperatures
- Unit 1, Train A containment spray pump bearing oil cooler service water supply line flushing due to biological fouling
- Component cooling water system flow element installation

When the need for emergent work was identified on risk-significant structures, systems, or components, the inspectors verified that the licensee took appropriate steps to plan and control the resulting activities, including the acceptability of any necessary compensatory actions and contingency plans.

b. Findings

No findings of significance were identified.

1R14 Nonroutine Plant Evolutions and Events

.1 (Closed) Licensee Event Report 446/00-003-00, core alterations conducted contrary to Technical Specifications

a. Inspection Scope (711111.14)

The inspectors reviewed operator logs, plant computer data and strip charts and conducted interviews of personnel involved in the licensee's failure to recognize that a source range nuclear instrument was inoperable during Unit 2 core alterations, which was contrary to plant Technical Specifications. The Technical Specification (TS) violation was reported to the NRC as Licensee Event Report (LER) 446/00-003-00.

b. Findings

LER 446/00-003-00 stated that on October 13, 2000, the licensee discovered that Source Range Neutron Flux Monitor N-31 did not provide a valid neutron flux indication after fuel had been completely removed from the core. The core offload started on October 8 and was completed on October 13. Plant TS 3.9.3, "Refueling Operations, Nuclear Instrumentation," requires that two source range neutron flux monitors be operable while in Mode 6, otherwise all core alterations must stop. Contrary to TS 3.9.3, the licensee conducted core alterations from October 8-13 when the core was completely offloaded. The issue was determined to be minor due to the fact that, during core offload, predominately negative reactivity is added to the core and because both source range neutron flux monitors were still capable of providing the neutron high flux shutdown alarm. This violation of TS 3.9.3 is being treated as a minor violation consistent with Section VI.A of the NRC Enforcement Policy. The issue was placed into the licensee's problem identification and resolution program as Smart Form SMF-2000-002780-00.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed selected operability evaluations conducted by the licensee during the report period involving risk-significant systems or components. The review included an evaluation of the technical adequacy of the licensee's operability determination, a verification that appropriate compensatory measures were implemented, and a statement that the licensee considered all other applicable pre-existing conditions. The inspectors also evaluated the adequacy of the licensee's problem identification and resolution program as it applied to operability evaluations. The following operability evaluations were reviewed:

- Unit 1, main steam isolation valve stem thread engagement
- Component cooling water system butterfly valve cavitation

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing

a. Inspection Scope (71111.19)

The inspector witnessed or reviewed the results of postmaintenance testing for the following maintenance activities:

- Unit 2, emergency core cooling system flow balance testing
- Unit 2, emergency core cooling system check valve testing
- Unit 1, Train A containment spray pump bearing oil cooler cleaning

In each case, the associated work orders and test procedures were reviewed to determine the scope of the maintenance activity and to determine if the test adequately tested components affected by the maintenance. The Updated Final Safety Analysis Report, Design Basis Documents, and selected calculations were also reviewed to determine the adequacy of the acceptance criteria listed in the test procedures.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope (71111.20)

The inspectors evaluated selected Unit 2 outage activities to ensure that risk was considered in developing the outage schedule, that plant configuration was controlled in consideration of facility risk, that mitigation strategies were developed and properly implemented, and that Technical Specification requirements were implemented to maintain the appropriate defense-in-depth. Specific outage activities reviewed and/or observed by the inspectors included:

- Residual heat removal system fill, vent, and boration
- Boron thermal regeneration system fill, vent, and boration
- Refueling bridge crane load cell testing
- Defense-in-depth and mitigation strategy review
- Refueling outage schedule review
- Unit shutdown and cooldown
- Centrifugal Charging Pump 2-02 Maintenance

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope (71111.22)

The inspectors evaluated the adequacy of the periodic testing of selected plant equipment. The review included aspects such as preconditioning, the impact of testing during plant operations, the adequacy of acceptance criteria, the adequacy of test equipment, procedure adherence, record keeping, the restoration of standby equipment, test failure evaluations, jumper control, and the effectiveness of the licensee's problem identification and correction program. The following surveillance test activities were observed and evaluated:

- Unit 2, Reactor Coolant System Valve Operability Test (OPT-505B)
- Unit 2, Safety Injection Coincident with Loss of Offsite Power Test (OPT-431B)
- Unit 2, Safety Injection Test (OPT-432B)
- Unit 2, Containment Closeout Inspection (OPT-305)

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope (71111.23)

The inspectors reviewed the adequacy of the temporary plant modification that changed the accident position of component cooling water valves in an effort to minimize the potential failure of the butterfly valve seats due to cavitation:

b. Findings

No findings of significance were identified.

2. Radiation Safety
Cornerstone: Occupational Radiation Safety

2OS1 Access Controls to Radiologically Significant Areas

a. Inspection Scope (71121.01)

Radiation workers and radiation protection personnel were interviewed concerning applicable radiation protection work requirements. Tours of the radiologically controlled area and Unit 2 containment were also conducted. The following items were reviewed

to ensure that the physical and administrative controls for airborne radiation areas, radiation areas, high radiation areas, and locked high radiation areas were established and that workers were adhering to these controls:

- Quality Assurance Evaluations EVAL-1999-035, EVAL-1999-059, EVAL-2000-041, and EVAL-2000-043
- Radiation protection department self-assessments (February, May, and June 2000)
- Access controls and surveys of the following three significant high dose work areas in the radiologically controlled area: Steam Generator Nozzle Dam Installations, Steam Generator Eddy Current Activities, and Reactor Cavity Upriser Area Activities
- The following three job-in-progress reviews were performed: Steam Generator Nozzle Dam Installations, Centrifugal Charging Pump Disassembly, and Reactor Coolant Pump Seal Changeout
- Radiation work permits and specified electronic dosimeter setpoints
- Placement of personnel dosimetry
- Radiation postings and barricades used at entrances to high dose rate areas, high radiation areas, and very high radiation areas
- Job coverage by radiation protection personnel
- Radiation protection program procedures
- Radiation protection ALARA prejob briefing for the installation of the steam generator nozzle dams
- A summary of radiological operational SMART Forms written between April 1, 1999, and October 10, 2000. Seven of these SMART Forms dealing specifically with high radiation areas and radiation worker performance were reviewed in detail (SMF-1999-001591-00, SMF-1999-002660-00, SMF-1999-003100-00, SMF-2000-000385-00, SMF-2000-002008-00, SMF-2000-002276-00, and SMF-2000-002283-00).

b. Findings

No findings of significance were identified.

3. SAFEGUARDS
Cornerstone: Physical Protection

3PP1 Access Authorization

a. Inspection Scope (71130.01)

The inspector:

- Reviewed licensee event reports and safeguards event logs to identify problems in the access authorization program
- Reviewed procedures, audits, and self-assessments of the following programs/areas: behavior observation, access authorization, fitness-for-duty, supervisor and escort training, and requalification training
- Interviewed six supervisors/managers and five individuals who had escorted visitors into the protected and/or vital areas to determine their knowledge and understanding of their responsibilities in the behavior observation program

b. Findings

No findings of significance were identified.

3PP2 Access Control

a. Inspection Scope (7113002)

The inspector:

- Reviewed licensee event reports and safeguards event logs to identify problems with access control equipment
- Reviewed procedures and audits for testing and maintenance of access control equipment and for granting and revoking unescorted access to protected and vital areas
- Interviewed security personnel concerning the proper operation of the explosive and metal detectors, X-ray devices, and key card readers
- Observed licensee testing of access control equipment and the ability of security personnel to control personnel, packages, and vehicles entering the protected area
- Reviewed procedures to verify that a program was in place for controlling and accounting for hard keys to vital areas

- Reviewed the licensee's process for granting access to vital equipment and vital areas to authorized personnel having a need for access
- Reviewed condition reports, LERs, safeguards event logs, audits, selected security event reports, and self-assessment for the licensee's access control program in order to identify the licensee's ability to identify and resolve problems with the access control program
- Interviewed key security department and plant support personnel to determine their knowledge and use of the corrective action reports and resolution of problems regarding repair of security equipment

b. Findings

No findings of significance were identified.

3PP3 Security Plan Changes (IP 7113004)

a. Inspection Scope

The inspector completed the following actions:

- Reviewed Comanche Peak Steam Electric Station Physical Security Plan, Revision 32, and Security Training and Qualification Plan, Revision 12, to determine if requirements of 10 CFR 50.54(p) had been met.
- Reviewed safeguards event logs and interviewed security personnel to determine their knowledge and use of the corrective action program and resolution of problems as it related to making changes to the licensing documents

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

.1 Barrier Integrity Cornerstone

a. Inspection Scope (71151)

The inspector reviewed a sample of performance indicator data submitted by the licensee regarding the barrier integrity cornerstone to determine its accuracy and

completeness. The sample included data on reactor coolant system leakage taken in January 2000 for both units and data on reactor coolant system activity taken in March 2000 for both units.

b. Findings

No findings of significance were identified.

.2 Occupational Radiation Safety and Public Radiation Safety Cornerstone

a. Inspection Scope (71151)

The inspector reviewed corrective action program records for high radiation areas, locked high radiation areas, and unplanned exposure occurrences for the past 12 months to confirm that these occurrences were properly recorded as performance indicators. Radiologically controlled area exit transactions with exposures greater than 100 millirems for the past 12 months were reviewed. Selected examples were investigated to determine whether they were within the dose projections of the governing radiation work permits.

Radiological effluent release program corrective action records, licensee event reports, and annual effluent release reports documented during the past four quarters were reviewed to determine if any events exceeded the performance indicator thresholds.

b. Findings

No findings of significance were identified.

.3 Physical Protection Cornerstone

a. Inspection Scope (71151)

The inspector reviewed the program for collection and submittal of performance indicator data. Specifically, a random sampling of security event logs and corrective action reports were reviewed for the following program areas:

- Fitness-for-duty program performance
- Access Authorization program performance
- Perimeter detection system performance
- Assessment aids system performance

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

40A6 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. C. Lance Terry and other members of licensee management at exit meetings on October 13 and 20 and November 30, 2000. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Alps, Manager, Security
J. Ayres, Manager, Plant Support Overview
B. Bird, Manager, Plant Support
J. Britt, Manager, Corporate Security
M. Blevins, Vice President, Nuclear Operations
S. Bradley, Supervisor, Radiation Protection
J. Brown, Coordinator, Fitness-for-Duty
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NRC

A. Gody, Senior Resident Inspector
S. Schwind, Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-446/00-003-00 LER Core alterations conducted with only one source range nuclear instrument operable contrary to plant TS (Section 1R14)

Closed

50-446/00-003-00 LER Core alterations conducted with only one source range nuclear instrument operable contrary to plant TS (Section 1R14)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

Safeguards Event Logs from October 1, 1999, to October 15, 2000, and event trending data

Fitness-for-Duty 6-Month Reports dated January 19 and July 27, 2000

Smart Form (Condition Report) SMF-2000-2920, dated October 20, 2000

Security Field Report 0881-00, dated October 20, 2000

Security Field Reports October 1, 1999, through September 30, 2000, pertaining to unauthorized access to plant vital areas (8)

Security Field Reports January 1 through September 30, 2000, pertaining to malfunctioning security search equipment: X-Ray machines (17); metal detectors (7); and explosive detectors (18)

Computer listing of maintenance performed on all personnel search equipment from January 1 to September 26, 2000

Procedure SEC-108, "Security Reporting Requirements and Fitness for Duty Responsibilities," Revision 6

Procedure SEC-302, "Personnel Identification, Key Card Badge Issuance, and Access Control, Revision 14

Procedure SEC-306, "Lock, Key, and Key Card Badge Control System, Revision 16

Procedure SEC-506, "Security Equipment Testing and Observation," Revision 11

Procedure SAT-902, "Access to Protected and Vital Areas," Revision 14

Procedure SAT-910, "Fitness for Duty Program," Revision 3

Evaluation EVAL-2000-009, "Security Administrative Controls," dated March 9, 2000

Audit of Pharmchem Laboratory, dated April 3, 2000

Evaluation EVAL-2000-021, "Site Access Controls," dated August 2, 2000

Evaluation EVAL-2000-051, "Security Contingency Operations," dated September 18, 2000

Comanche Peak Steam Electric Station Plant Technical Specifications and their bases

Comanche Peak Steam Electric Station Final Safety Analysis Report

Comanche Peak Steam Electric Station Design Bases Documents

Comanche Peak Steam Electric Station Fire Protection Report

Comanche Peak Steam Electric Station Offsite Dose Calculation Manual

Comanche Peak Steam Electric Station Technical Requirements Manual

Comanche Peak Steam Electric Station Fire Pre-Plans

Comanche Peak Steam Electric Station Safety Analysis Reports

LER 50-446/00-003-00, "Core Alterations Conducted Contrary to Plant Technical Specifications"

Plant Incident Report PIR-2000-002780-00, "Core Alterations Conducted Contrary to Plant Technical Specifications"

ATTACHMENT 2

NRC'S REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
<ul style="list-style-type: none">•Initiating Events•Mitigating Systems•Barrier Integrity•Emergency Preparedness	<ul style="list-style-type: none">•Occupational•Public	<ul style="list-style-type: none">•Physical Protection

To monitor these seven cornerstones of safety, the NRC used two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, or RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.