APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-445/93-05
50-446/93-05

Operating License: NPF-87

Construction Permit: CPPR-127

Licensee: TU Electric
Skyway Tower
400 North Olive Street, L.B. 81
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station

Inspection At: Glen Rose, Texas

Inspection Conducted: January 4-8, 1993

Inspector: L. T. Ricketson, P.E., Senior Radiation Specialist
Facilities Inspection Programs Section

Approved: Blaine Murray 1/19/93
B. Murray, Chief, Facilities Inspection Programs Section — Date

Inspection Summary

Areas Inspected: Routine, announced inspection of areas related to the radiation protection program including audits and appraisals, program changes, training and qualifications, external exposure controls, internal exposure controls, controls of radioactive materials and contamination, the program for maintaining occupational exposures as low as reasonably achievable (ALARA), and the low-level waste storage facility.

Results (Unit 1):

- A good audit was performed by the quality assurance department. The audit team included technical experts. The radiation protection department's response to the audit findings was timely (Section 2.1).

- The training department provided high quality training to radiation workers. The practical factors training was particularly noteworthy (Section 2.3).

- Professional development of radiation protection technicians was actively promoted (Section 2.3).
- A good training program had been established for radiation protection supervisors (Section 2.3).
- Procedures had been revised to provide guidance for the implementation of new 10 CFR Part 20 (Sections 2.4 and 2.5).
- A low number of personnel contaminations were identified. The percentage of the radiological controlled area identified as a contaminated area was maintained at a low level (Section 2.6).
- Excellent results were obtained in maintaining personnel radiation doses ALARA (Section 2.7).

Results (Unit 2):

- Sufficient radiation protection department staffing will be available for operation of Unit 2 (Section 3.1).
- Few changes to the existing Unit 1 radiation protection programs will be necessary to provide the proper coverage for Unit 2 operations (Sections 3.2-3.7).
- The area radiation monitors were operational and properly calibrated (Section 3.5).

Summary of Inspection Findings:

- TMI Action Item II.B.2.2 (SIMS II.B.2.3) was closed (Section 5.1).
- Unresolved Item 445/9247-04 was closed (Section 5.2).

Attachment

- Attachment - Persons Contacted and Exit Meeting

DETAILS

1 PLANT STATUS

At the beginning of this inspection period, Unit 1 was operating at 86 percent power. Unit 2 was anticipating fuel loading February 1993.

2 UNIT 1 - OCCUPATIONAL RADIATION EXPOSURE (83750)

The licensee's programs were inspected to determine compliance with Technical Specification 6.11 and the requirements of 10 CFR Part 20, and agreement with the commitments of Chapter 12.5 of the Final Safety Analysis Report.

2.1 Audits and Appraisals

The inspector reviewed the results of Quality Assurance Audit QA-92-119, performed July 13-23, 1992. The audit team included technical experts, including the radiation protection manager at another utility. The audit was thorough and identified program deficiencies. Responses to the findings by the radiation protection organization were timely, with some items being addressed at the time of identification.

2.2 Changes

The licensee implemented new 10 CFR Part 20 on January 1, 1993.

2.3 Training and Qualifications

The inspector reviewed portions of initial radiation worker training and noted that the instructor was knowledgeable of the material and presented it well.

The inspector noted that the workers were not tested on the new 10 CFR Part 20. Training representatives stated that the test was not ready in time for the class; however, at the exit meeting, the representatives confirmed that all training and testing materials were ready for presentation starting the week of January 11, 1993.

The inspector reviewed a video taped presentation of the changes in the licensee's procedures as a result of the implementation of the new Part 20. The video was high quality and provided a good discussion and explanation of the changes in regulation. The licensee began showing the video during the last quarter of 1992 and by the time of this inspection, most workers had seen it.

Because of the large number of personnel involved, the licensee's training department fell behind in its efforts to generate and maintain a current list of individuals who had seen the Part 20 video. The list was used at the radiological controlled area access point to ensure that everyone entering had seen the video. Because the list was not current, access control personnel relied on the honor system, questioning workers to determine if they had seen the video. The inspector confirmed that this action did not constitute a deviation from any commitments made to NRC.

The licensee promoted the professional development of radiation protection technicians by sponsoring an onsite examination on August 15, 1992, for registration by the National Registry of Radiation Protection Technologists. Previously, approximately 10 percent of the personnel in the radiation protection department were registered. Thirteen permanent radiation protection technicians passed the examination, raising the total registered to approximately 36 percent.

The inspector determined that the radiation protection manager and all radiation protection supervisors attended training in their technical specialties and/or attended professional meetings related to their duties.

2.4 External Exposure Control

The inspector reviewed the following procedures and determined that they had been satisfactorily revised in order to implement those portions of new 10 CFR Part 20 related to external radiation exposure:

STA-650	General Health Physics Plan, Revision 4
STA-655	Exposure Monitoring Program, Revision 7
STA-660	Control of High Radiation Areas, Revision 4

Additional guidance for radiation protection personnel was found in:

RPI-105	Exposure Records, Revision 7
RPI-602	Radiological Surveillance and Posting, Revision 13
RPI-614	Skin Dose Calculation, Revision 1

The procedures implemented the concepts of deep dose equivalent, eye dose equivalent, total effective dose equivalent, planned special exposure, and very high radiation area, among others.

2.5 Internal Exposure Control

The following procedures were revised to implement those portions of new 10 CFR Part 20 related to internal radiation exposure:

STA-650	General Health Physics Plan, Revision 4
STA-655	Exposure Monitoring Program, Revision 7
STA-659	Respiratory Protection Program, Revision 4

Additional guidance for radiation protection personnel was found in:

RPI-500	Bioassay Program, Revision 3
RPI-506	Calculation and Tracking of Personnel Exposures to Airborne Radioactive Material, Revision 6
RPI-507	Internal Dose Calculation, Revision 1
RPI-602	Radiological Surveillance and Posting, Revision 13
RPI-615	Airborne Radioactivity Surveys, Revision 1

The procedures satisfactorily implemented the concepts of annual limit on intake, derived air concentration, committed dose equivalent, committed effective dose equivalent, and effective dose equivalent, among others.

2.6 Control of Radioactive Materials and Contamination, Surveys, and Monitoring

The licensee recorded 45 personnel contaminations for 1992. Four of the personnel contamination events were caused by hot particles. A low percentage (2.1) of the radiological controlled area was identified and maintained as a contaminated area.

2.7 Maintaining Occupational Exposure ALARA

The 1992 cumulative exposure results, in person-rems, were as follows:

	License Goal	Actual
Outage (1RF02)	145	141*
Yearly Total	179	163*

*Based on pocket ion chamber results for the fourth quarter.

The inspector discussed the ALARA suggestion program with licensee representatives and determined that 22 suggestions were submitted in 1992. Suggestions were reviewed and implemented, if accepted, in a timely manner.

2.8 Conclusions

- The quality assurance audit team included technical experts and provided a good appraisal for management of the radiation protection department's performance. The radiation protection department was quick in responding to the findings of the audit.
- The training department provided high quality training to radiation workers, particularly during the practical factors training.
- The licensee actively promoted the professional development of radiation protection technicians.
- A good training program had been established for all radiation protection supervisors.
- Procedures had been revised to provide guidance for the implementation of new 10 CFR Part 20.
- There was a low number of personnel contaminations in 1992. Also, the licensee maintained a low percentage of area as contaminated within the radiological controlled area.

- Excellent results were obtained in maintaining radiation doses ALARA. A successful ALARA suggestion program was maintained.

3 UNIT 2

3.1 Organization and Management Controls (83522)

The inspector reviewed the staffing of the radiation protection department and determined that it received authorization to fill the five vacant positions discussed in NRC Inspection Report 50-445/92-29; 50-446/92-29. Radiation protection representatives stated that authorization has been granted for an additional 30 people to handle the increased work load brought about by the operation of Unit 2.

3.2 Training and Qualifications (83523)

No changes were made to the existing Unit 1 program as a result of the operation of Unit 2.

3.3 External Exposure Control (83525)

No changes were made to the existing Unit 1 program as a result of the operation of Unit 2.

3.4 Internal Exposure Control (83525)

No changes were made to the existing Unit 1 program as a result of the operation of Unit 2.

3.5 Control of Radioactive Material and Contamination, Surveying, and Monitoring (83526)

The inspector interviewed licensee personnel and reviewed calibration records and determined that the Unit 2 area radiation monitors were operational and calibrated. Radiation protection personnel will establish the setpoints for the monitors.

3.6 Facilities (83527)

Lockdown for the Unit 2 radiological controlled area was completed. Access to both units was gained through the Unit 2 access control point. The inspector reviewed the Final Safety Analysis Report and noted that it had been amended to accurately describe the means of access to the radiological controlled area.

3.7 Maintaining Occupational Exposure ALARA (83528)

The ALARA program established for Unit 1 will remain essentially unchanged for Unit 2 operation, except for additional staffing. The number of positions will be increased by four.

3.8 Conclusions

- The radiation protection department will have sufficient personnel to perform the additional work required by the operation of Unit 2.

- The programs for training, radiation exposure control, control of radioactive material control and monitoring, and ALARA will be extensions of those already found to be successful in Unit 1. No major changes are anticipated for Unit 2 operation.

- The Unit 2 area radiation monitors were operational and properly calibrated.

4 LOW-LEVEL RADIOACTIVE WASTE STORAGE FACILITIES (65051)

The inspector visited the low-level waste storage facility (previously discussed in NRC Inspection Report 50-445/92-29; 50-446/92-29) and noted that it provided ample storage area. The facility had no area radiation or effluent monitoring capability; however, licensee representatives stated that no processing of waste would be performed in the building.

The facility was not within the protected area. Access to the building and yard areas was properly controlled. Remote radiological controlled areas were established within the facility, necessitating personnel to conduct operations in accordance with instructions of a radiation work permit and to wear their personnel dosimetry even though they were not in the protected area. Routine radiation surveys of the facility were performed.

5 FOLLOWUP

5.1 (Closed) TMI Action Item II.B.2.2 (SIMS Item II.B.2.3) Plant Shielding to Provide Access to Vital Areas and Protect Equipment for Post Accident Operation

This item required the applicant to review the shielding design to evaluate the ability to access the areas necessary to operate essential systems that are required after a loss of coolant accident with significant core damage. As previously documented in NRC Inspection Report 50-445/89-09; 50-446/89-09, this item was reviewed and closed for Unit 1 based on the staff's review, documented in Supplement 2 to NUREG-0797, "CPSES Safety Evaluation Report," of the licensee's design review and time-motion study. The study detailed the path, time, and dose rates for each task required postaccident.

With respect to Unit 2, the staff reviewed an advance Final Safety Analysis Report change (prior to Amendment 87) dated October 9, 1992, which included an analogous design review and time-motion study for Unit 2. The staff found it to be an acceptable subject to the inclusion of certain additional information. The inspector reviewed Amendment 87 of the Final Safety Analysis Report and determined that the requested information relating to radiation levels for premission briefings and equipment use were determined and included in the total dose figures given in Table II.B.2-4. Also, the extremity dose

was determined to be less than 75 rems (considered "equivalent" to the GDC-19 criterion of 5 rems whole body) and was explained in the footnotes.

The bases for the performance times were reviewed as part of NRC Inspection 50-445/92-57; 50-446/92-57 and found to be acceptable.

5.2 (Closed) Unresolved Item 445/9247-04: Poor Radiological Work Practices

The inspectors observed maintenance activities conducted by noncontract personnel inside contaminated areas and noted poor radiological work practices. The practices included using gloved hands to adjust safety glasses and reaching inside protective clothing with potentially contaminated gloves to retrieve dosimetry.

The inspector determined that, although these were examples of poor work practices, they did not constitute a violation of regulations, procedures, or radiation work permit instructions. Licensee representatives acknowledged that such work practices could lead to internal depositions of radioactive materials and committed to conducting a lessons-learned training seminar for selected permanent employees prior to the next scheduled outage. Emphasis will be placed on reviewing examples of poor work practices at the licensee's facility.

ATTACHMENT

1 PERSONS CONTACTED

1.1 Licensee Personnel

*M. R. Blevins, Director, Nuclear Overview
*S. E. Bradley, Radiation Protection Supervisor
*H. D. Bruner, Senior Vice President
*J. R. Curtis, Radiation Protection Supervisor
*D. C. Kay, Radiation Protection Supervisor
*J. J. Kelley, Vice President, Nuclear Operations
F. E. Maddy, System Engineer, Digital Radiation Monitoring System
*D. McAfee, Manager, Quality Assurance
*J. F. McMahon, Manager, Nuclear Training
R. Parsons, Instruments and Controls, Supervisor, Unit 2
*R. J. Prince, Radiation Protection Manager
*S. Swam, Technical Training Supervisor
*C. L. Terry, Vice President, Nuclear Engineering and Support
C. Wilkerson, Senior Licensing Engineer

1.2 NRC Personnel

D. N. Graves, Senior Resident Inspector, Unit 2
*W. B. Jones, Senior Resident Inspector, Unit 1
*R. M. Latta, Resident Inspector, Unit 2
G. E. Werner, Resident Inspector, Unit 1

*Denotes personnel that attended the exit meeting. In addition to the personnel listed, the inspector contacted other personnel during this inspection period.

2 EXIT MEETING

An exit meeting was conducted on January 8, 1993. During this meeting, the inspector reviewed the scope and findings of the report. The licensee did not identify as proprietary, any information provided to, or reviewed by the inspector.