ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-445/95-21
50-446/95-21

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: September 25-29, 1995

Inspectors: Gail M. Good, Senior Emergency Preparedness Analyst
Thomas R. Meadows, Reactor Inspector

Approved: for Blaine Murray, Chief
Plant Support Branch

11-9-95
Date

Inspection Summary

Areas Inspected (Units 1 and 2): Routine, announced inspection of the operational status of the emergency preparedness program including changes to the emergency plan and implementing procedures; emergency facilities, equipment, instrumentation, and supplies; organization and management control; training; independent and internal reviews and audits; effectiveness of licensee controls; and followup on previous inspection findings.

Results (Units 1 and 2):

Plant Support

- Changes to emergency plans and implementing procedures were properly reviewed and submitted to NRC. Development of position assistance documents was identified as a strength. A concern involving the current plans and procedures for monitoring personnel evacuated from the site was identified (Section 1).

- The emergency response facilities were maintained in an operational state, and appropriate procedures, equipment, and supplies were available. Operability of the Emergency Operations Facility was considered during the planning for facility upgrades (Section 2).

- The licensee maintained sufficient depth in its emergency response organization. Overall, emergency planning management and staffing were considered strong (Section 3).

- The licensee was satisfactorily implementing its emergency preparedness training program, including drills and exercises. Overall, performance of the operating crews during the walkthroughs was good. One exercise weakness was identified for failure to take appropriate actions to protect plant personnel, and an unnecessary delay in making offsite agency notifications was identified as a concern. A violation was identified for failure to train personnel on the existence and appropriate responses to visual evacuation alarms in high noise areas (Section 4).

- The annual independent review of the emergency preparedness program was performed by qualified personnel and was of proper scope and depth. Relationships with offsite agencies were adequately maintained (Section 5).

- The emergency preparedness action item tracking system appeared to be an effective control system. Items were tracked to completion, and root cause identification and management oversight appeared appropriate (Section 6).

- No emergency event had been declared at the site since the last routine emergency preparedness inspection (Section 8).

Summary of Inspection Findings:

- Exercise Weakness 445/9521-01; 446/9521-01 was opened (Section 4.2).
- Violation 445/9521-02; 446/9521-02 was opened (Section 4.3).
- Exercise Weakness 445/9404-01; 446/9404-01 was closed (Section 7.1).
- Exercise Weakness 445/9404-02; 446/9404-02 was closed (Section 7.2).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Emergency Preparedness Inspection Scenario Narrative Summary

DETAILS

1 EMERGENCY PLAN AND IMPLEMENTING PROCEDURES (82701-02.01)

The inspectors reviewed changes in the licensee's emergency plan and implementing procedures to verify that these changes had not decreased the effectiveness of emergency planning and that the changes had been properly reviewed and submitted to NRC.

The emergency plan had been revised five times since the last inspection (Revisions 19-23). The inspectors verified that the revisions had been properly reviewed and approved. Revisions 19-22 had been submitted to the NRC in accordance with 10 CFR 50.4 and 50.54(q). With the exception of Revision 22, which was still under review by the NRC, the changes were acceptable and did not decrease the effectiveness of the licensee's emergency plan. Revision 23 had not yet been submitted to the NRC.

The inspectors also determined if emergency plan implementing procedures were being reviewed at least once per 12 months in accordance with Section 14.0 of the emergency plan. All of the sampled procedures had been properly reviewed.

In addition to the emergency plan implementing procedures, the licensee had developed position assistance documents for members of the emergency response organization. The position assistance documents consolidated and detailed the steps required to complete position specific emergency actions. The licensee was fully aware of the challenges associated with maintenance of the position assistance documents. The inspectors reviewed several position assistance documents and concluded they were current. The development of the position assistance documents was identified as a strength.

As part of the inspection, the inspectors reviewed the portions of the emergency plan and implementing procedures that describe the process for monitoring personnel evacuated from the site. Applicable regulatory requirements and industry standards include: (1) Planning standard 10 CFR 50.47(b)(10) which requires the need to develop a range of protective actions for emergency workers and public; (2) NUREG-0654, Evaluation Criterion J2, which discusses provisions for evacuating onsite personnel to some **suitable offsite** location; and (3) NUREG-0654, Evaluation Criteria J3 and J4, which discuss monitoring evacuees and decontamination capabilities, respectively.

The inspectors found that the licensee's current plan and procedures addressed the emergency coordinator's responsibly to authorize monitoring and decontamination actions; however, the only position with a position assistance document that addresses personnel and vehicle monitoring was the Emergency Operations Facility radiation protection coordinator. The position assistance

document stated that this position was responsible for coordinating the establishment of radiation monitoring stations; however, the position assistance document did not include guidance regarding the location of the monitoring stations or alternatives if the "normal" locations were not appropriate.

The inspectors discussed the process with several individuals who were identified as emergency operations facility radiation protection coordinators on the emergency response organization roster. These individuals stated that the current practice was to set up the radiation monitoring stations on the plant access road. If evacuees and vehicles were contaminated and had to be monitored, they would be directed to park their vehicles and report to the emergency operations facility for decontamination. When presented with a scenario that involved a radiological release and the need to evacuate and monitor 500 vehicles/evacuees, the individuals acknowledged the difficulties and indicated that the need for alternative locations would be handled on an ad hoc basis by logistical support personnel. During a followup conversation, the Manager, Emergency Planning, stated that this element of the emergency plan had not been tested during a drill or an exercise to determine whether the process was capable of being implemented.

After reviewing/discussing the current plans and procedures for monitoring personnel evacuated from the site, the inspectors concluded that the emergency plan and procedures (including position assistance documents) were not well-linked and that the process may not be appropriate in some situations (radiological releases during normal work hours). Moreover, since these actions may need to be rapidly implemented, identifying suitable offsite locations on an ad hoc basis, as opposed to making pre-determined arrangements, could exacerbate the problem. The inspectors characterized this issue as a concern. In response, the Manager, Emergency Planning, stated that the need to identify an offsite location to perform monitoring of evacuees had been previously identified as a future goal but that the scheduled implementation date would be accelerated.

2 EMERGENCY FACILITIES, EQUIPMENT, INSTRUMENTATION, AND SUPPLIES (82701-02.02)

The inspectors toured onsite emergency facilities and reviewed the licensee's emergency equipment inventories and maintenance to verify that facilities and equipment had been maintained in a state of operational readiness.

The inspectors toured the control room, technical support center, operations support center, and emergency operations facility and observed that the facilities were maintained in an operational state. The facilities contained appropriate procedures (including position assistance documents), calibrated emergency equipment, and supplies. During the inspection, the Manager, Emergency Planning, discussed plans to upgrade the emergency operations facility (painting and new carpet). The operability of the facility was appropriately considered in the planning process.

3 ORGANIZATION AND MANAGEMENT CONTROL (82701-02.03)

The inspectors reviewed the emergency response organization staffing levels to determine whether sufficient personnel resources were available for emergency response. The emergency planning organization was reviewed to ensure that an effective programmatic management system was in place.

With the exception of shift personnel, the licensee's emergency response organization, as shown on a September 22, 1995, Emergency Response Organization Roster, consisted of individuals assigned to positions within three different response teams (blue, green, or red). As a result, a minimum depth of three individuals was maintained for nearly all positions. Some positions were maintained at even higher levels. The inspectors concluded that sufficient emergency response personnel were available.

At the time of the inspection, the licensee's emergency planning organization consisted of one manager, two supervisors (one for onsite planning and the other for offsite planning), and eight staff members (seven emergency planners and one support clerk). The inspectors and the Manager, Emergency Planning, discussed individual work assignments, staff member backgrounds and qualifications, and existing methods to ensure that staff members remained proficient in the area of emergency preparedness. The inspectors determined that: (1) staffing was sufficient to complete required emergency planning tasks, (2) work assignments appeared evenly and appropriately distributed based on individual qualifications, and (3) existing methods to keep staff members apprised of emergency preparedness changes were adequate. Overall, emergency planning management and staffing were considered strong.

4 TRAINING (82701-02.04)

The inspectors reviewed the emergency response training program to determine whether emergency response personnel had received the required training and complied with the requirements of the Comanche Peak Steam Electric Station Emergency Plan (Section 13.0), 10 CFR 50.47(b)(15), and 10 CFR Part 50, Appendix E.IV.F.

4.1. Training Program

A general description of the licensee's emergency preparedness training program was contained in Section 13.0 of the emergency plan. The program included an orientation on the site emergency plan and training for those who had specific emergency response duties. As referenced in the plan, details of the training program were specified in TRA-105, "Emergency Preparedness Training." TRA-105 contained a position versus training matrix for each emergency response facility. Within each facility, the matrix was broken down by position and included a description of initial training and recommended reading. In addition to the classroom training, a walkdown of specific

position tasks was required for initial training (70 percent passing criteria). Classroom requalification training included a discussion of procedure changes, problems observed during drills and exercises, and completion of an exam or participation in a drill/exercise.

The emergency preparedness training program as described in TRA-105 appeared acceptable; however, one concern was identified regarding the frequency of requalification training. According to Section 6.2.3.1.2 of TRA-105, annual requalification is required. In a January 27, 1993, office memorandum to Emergency Planning File T02, the Manager, Emergency Planning, changed the definition of annual (for emergency preparedness training only) from every 365 days to once per calendar year. The change was made to accommodate the team training concept. As a result of the change, and shifts in team assignments and team rotations for exercises, some individuals could go nearly 2 years without training (i.e., training in January of 1 year and December the next year). There did not appear to be any controls in place to prevent this cycle from occurring on a regular basis. For example, the inspector found that the majority of the blue team received training in February/March 1994 but were not scheduled for requalification training until November 1995; 1 month before the biennial exercise. The blue team had been selected as the participating team for the exercise. In response to this concern, the licensee stated that team members received training as participants in periodic drills and that it was not the normal practice to use the maximum time in between training. Subsequent to the inspection, based on discussions with the program office, it was determined that the licensee's definition of annual was acceptable.

To evaluate implementation of the training program, the inspectors reviewed selected emergency response personnel training records and examined the drill and exercise program. The drill and exercise programs were described in Emergency Plan Procedure EPP-100, "Maintaining Emergency Preparedness." The inspectors concluded that the initial/requalification training program was being implemented in accordance with TRA-105 (i.e., all selected personnel were current in their training) and that the required drill and exercise program was being implemented.

4.2 Simulator Walkthroughs

The inspectors conducted walkthroughs with operating crews to evaluate the adequacy and retention of skills obtained from the emergency preparedness training program. The scenario used in the walkthroughs was developed to determine if control room teams were able to classify events accurately, perform the required notifications in a timely manner, perform offsite dose assessments, and make adequate protective action recommendations. The inspectors observed two operating crews during the walkthroughs using the control room simulator in the dynamic mode. The scenario consisted of a sequence of events requiring an escalation of emergency classifications, culminating in a General Emergency. Attachment 2 to this inspection report

contains a narrative summary of the walkthrough scenario. Each walkthrough lasted about 60 minutes. During the walkthroughs,the inspectors were able to observe the interaction of the response crews to verify that authorities and responsibilities were clearly defined and understood.

Operationally, the crews performed well to a challenging scenario. Communications were good, and control board operators interacted well as a group. Command and control were generally effective. The inspectors made the following observations during the walkthroughs.

First, prior to announcing the site evacuation, the Crew 2 emergency coordinator did not consider wind direction and the potential for evacuating personnel through the plume. Personnel were instructed to use the "normal" site exit routes which caused them to evacuate through the simulated radioactive plume. In addition, the same emergency coordinator did not follow the prescribed method for announcing the site evacuation. The site evacuation alarm was not sounded and the announcement was not repeated. The failure to take appropriate actions to protect plant personnel was identified as an exercise weakness (445/9521-01; 446/9521-01). The licensee acknowledged this observation.

Second, it took Crew 2 approximately 15 minutes to initiate offsite notifications at the General Emergency classification level. The notification was inappropriately delayed to incorporate computer dose projections. This delay in making offsite agency notifications was identified as a concern. The licensee acknowledged the need to emphasize this area in training.

Third, shift technical advisors on both crews incorrectly used a release duration time of 8 hours instead of 4 hours. This error extended the area for recommending evacuation. The dose assessment instructor stated that individuals receiving dose assessment training are instructed to use a 4-hour release duration period for steam generator tube rupture events and 8 hours for all other events. The instructor stated that this information had not been incorporated into the position assistance document or the computer software (as default value). The licensee acknowledged the need to provide additional written guidance to individuals responsible for completing dose assessments.

Fourth, an area for improvement was observed concerning notification form content. For example, potentially confusing information was included on notification forms issued by Crew 1. One section of the General Emergency form stated that a release was in progress; another section stated that there was a risk of a major radioactive release. The licensee acknowledged that the prescripted event descriptions which are automatically incorporated into the computer-generated notification forms contributed to the apparent discrepancy. The "canned" event descriptions are determined from the applicable initiating events (one or more checked boxes).

4.3 Site Evacuation Alarm Training

During the inspection, the inspectors had an opportunity to review the general emergency preparedness material included in the plant access training manual. The inspectors noticed that the manual did not include information about visual alarms in high noise areas. The inspector discussed the existence of these devices with emergency planning personnel and learned that there were blue flashing lights in high noise areas to alert personnel of the need to evacuate the site during radiological or other plant emergencies. The inspector consulted the system engineer regarding the alarms. The system engineer stated that the alarms were located in approximately 44 locations of the plant and that notices were not posted on the units to inform personnel of the appropriate response when the lights are flashing. The system engineer also confirmed that the blue flashing lights were automatically activated as part of the site evacuation signal.

To further investigate this matter, the inspectors contacted training personnel and polled several individuals to determine whether they were aware of the units and knew what to do if the lights were flashing. Training personnel stated that information about the blue lights and expected responses had never been included in plant access training manuals, written handouts, or instructor lesson-plans and was not currently incorporated into computer-based training. On September 28, 1995, the inspector polled several individuals who would routinely access the site protected area. The results of the poll were as follows: six individuals were not aware of the units and did not know what to do if they saw the lights flashing (two of the six thought the lights were a low-level alarm), two individuals were vaguely familiar with the units and thought they knew what to do if they saw the lights flashing (from experience at other plant sites), and two were clearly familiar with the units and the expected response.

Based on the above information, the inspector concluded that as of September 28, 1995, the licensee had failed to inform and instruct personnel regarding the purposes, functions, and appropriate responses to blue flashing light devices used to alert personnel in high noise areas of the need to evacuate the site during a radiological emergency. This failure was identified as a violation of 10 CFR 19.12 which states,in part, "All individuals working in or frequenting any portion of a restricted area shall be kept informed of . . . the purposes and functions of protective devices employed . . . shall be instructed in the appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation or radioactive material . . . ." (445/9521-02; 446/9521-02).

The licensee took prompt corrective action once this issue was identified. Corrective action included: (1) site-wide distribution of a memorandum that described the omission and informed personnel of the location and appropriate responses to the blue flashing lights, (2) use of the Comanche Peak television to communicate instructions and reminders, (3) development of a handout to issue to all new plant workers, (4) revision of plant access training

materials (manual and computer-based training), and directions from plant management to have all managers discuss the matter with their employees. Items 1-3 were completed on September 28, 1995, or prior to the end of the inspection; Item 4 was completed on October 6, 1995.

5 INDEPENDENT AND INTERNAL REVIEWS AND AUDITS (82701-02.05)

The inspectors reviewed independent and internal audits of the emergency preparedness program performed since the last inspection to determine compliance with the requirements of 10 CFR 50.54(t).

The inspectors reviewed the most recent independent review of the emergency preparedness program (Nuclear Overview Evaluation Report 95-000012, dated February 3, 1995). The review was conducted during the period January 16-27, 1995, by personnel with appropriate qualifications (including emergency preparedness). The scope and depth of the independent review were appropriate. The evaluation team concluded that the emergency preparedness program was being effectively implemented and relationships with offsite agencies were adequate. Five areas for improvement were identified in the report. The inspector noted that there was a delay in transmitting the offsite portion of the report to offsite authorities; the transmittal was not sent until September 12, 1995. The lead evaluator acknowledged the delay and indicated that steps were taken to prevent similar delays in the future.

6 EFFECTIVENESS OF LICENSEE CONTROLS (82701-02.06)

The inspectors reviewed the adequacy of the licensee's control system pertaining to safety issues, events, or problems. The review included discussions with emergency preparedness personnel regarding procedures and documentation of problem identification, root cause analysis, management review of problem identification and solution, and corrective actions.

The inspectors reviewed the implementation, maintenance, and management oversight of the emergency preparedness action item tracking system. The system is used to track issues identified during drills, exercises, NRC inspections, independent evaluations, and emergency preparedness training. The inspector verified that items entered as action items were tracked to completion and that root cause identification appeared appropriate. Management oversight of the system appeared appropriate. The system appeared to be an effective tool.

7 FOLLOWUP - PLANT SUPPORT (92904)

7.1 (Closed) Exercise Weakness 445/9404-01 and 446/9404-01: Notification of Offsite Authorities

During a previous routine emergency preparedness inspection, one crew failed to notify offsite authorities of a Site Area Emergency. The failure was due, in part, to the close timing between the Site Area Emergency and General Emergency declarations. In response, the licensee conducted additional

training of emergency response personnel responsible for making offsite agency notifications. Interviews with the two shift managers who participated in the simulator walkthroughs indicated that the additional training had been effective.

7.2 (Closed) Exercise Weakness 445/9404-02 and 446/9404-02: Dose Assessment

During a previous routine emergency preparedness inspection, difficulties in the area of dose assessment were identified; one crew was unable to calculate dose projections for 34 minutes, computer-generated protective action recommendations were incorrect, and incorrect assumptions were entered into the dose assessment program resulting in an incorrect protective action recommendation. Corrective actions included transferring the responsibility for dose assessment to the shift technical advisors, making software modifications, and discussing the problem during training. Corrective actions appeared effective; dose assessment activities were performed adequately during this inspection.

8 ONSITE FOLLOWUP OF EVENTS AT OPERATING POWER REACTORS (93702)

No emergency event had been declared at the site since the last routine emergency preparedness inspection.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

*W. Taylor, Executive Vice President
*C. L. Terry, Group Vice President, Nuclear Production
*J. Ayres, Manager, Plant Support Overview
*G. Bell, Supervisor, Emergency Planning
*M. Blevins, Plant Manager
D. Fuller, Senior Nuclear Specialist
*N. Harris, Senior Licensing Specialist
*N. Hood, Manager, Emergency Planning
*T. Hope, Manager, Regulatory Compliance
*S. Johnson, Supervisor, Emergency Planning
*R. Kidwell, Senior Nuclear Specialist
W. Nix, Senior Nuclear Specialist
*C. Welch, Senior Nuclear Specialist

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

*Denotes those present at the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on September 29, 1995. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspectors.

ATTACHMENT 2

EMERGENCY PREPAREDNESS INSPECTION SCENARIO NARRATIVE SUMMARY

Licensee-provided Timeline (Crew 1):

T+00:05	Start of 7 GPM tube leak in S/G #1-04. This leak will ramp in over a 10 minute period. (Chart 3: 3.A false, 3.J false, 3.O false, 3.S true NOUE)
T+00:25	S/G tube leakage increases to 30 GPM. RCS activity will increase over a 15 minute period due to approximately 1 - 2% fuel cladding failure. This will call for declaration of an ALERT due to fuel damage with S/G tube leakage. (Chart 3: 3.A true, 3.B false, 3.F true, 3.G false ALERT)
T+00:35	Pressure transmitter on the turbine 1st stage fails low; steam dumps fail open. No impact on the emergency classification.
T+00:55	Main steam line break outside of the reactor containment building (unisolable). Events warrant escalation to a Site Area Emergency (Note 1). (Chart 4: 4.A true, 4.B true, 4.C false, 4.E true, 4.F true SAE)
T+01:00*	Steam generator #1-04 tubes rupture (1500GPM) once the generator has boiled dry. Events warrant escalation to a General Emergency. (Chart 4: 4.A true, 4.B true, 4.C true, 4.D true GE)(PAR: Evacuate 2A / Plant Conditions)
T+01:25	Exercise is terminated.

* Timing may vary slightly due to actual plant response.

General Notes:

1. Escalation to a Site Area Emergency may not be demonstrated due to the short time period before the next event. If the crew is still evaluating plant conditions when the SGTR occurs, a General Emergency declaration will be warranted.

2. Automatic containment phase A isolation will not occur on both trains A and B. Manual isolation will be successful. This causes no change in the emergency declaration.

Licensee-provided Timeline (Crew 2):

T+00:05 Start of 30 GPM tube leak in S/G #1-04. This leak will ramp in over a 10 minute period.

T+00:20 NOUE declared due to S/G leakage.
(Chart 3: 3.A false, 3.J false, 3.O false, 3.S true NOUa)

T+00:25 RCS activity will increase over a 15 minute period due to approximately 1 - 2% fuel cladding failure. This will call for escalation to an ALERT due to fuel damage with S/G tube leakage.
(Chart 3: 3.A true, 3.B false, 3.F true, 3.G false ALERT)

T+00:35 Pressure transmitter on the turbine 1st stage fails low; steam dumps fail open. No impact on the emergency classification.

T+00:50 Main steam line break outside of the reactor containment building (unisolable). Events warrant escalation to a Site Area Emergency (Note 1).
(Chart 4: 4.A true, 4.B true, 4.C false, 4.E true, 4.F true SAE)

T+00:55* Steam generator #1-04 tubes rupture (1500GPM) once the generator has boiled dry. Events warrant escalation to a General Emergency.
(Chart 4: 4.A true, 4.B true, 4.C true, 4.D true GE) (PAR: Evacuate 2A / Plant Conditions)

T+01:15 Exercise is terminated.

* Timing may vary slightly due to actual plant response.

General Notes:

1. Escalation to a Site Area Emergency may not be demonstrated due to the short time period before the next event. If the crew is still evaluating plant conditions when the SGTR occurs, a General Emergency declaration will be warranted.

2. 2 control rods will be stuck at step 227 on the reactor trip. This causes no change in the emergency declaration.

3. Automatic containment phase A isolation will not occur on both trains A and B. Manual isolation will be successful. This causes no change in the emergency declaration.