



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**

REGION IV  
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August 18, 1999

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

SUBJECT: NRC INSPECTION REPORT NO. 50-445/99-13; 50-446/99-13

Dear Mr. Terry:

From July 20-23, 1999, an announced, emergency preparedness inspection was conducted at your Comanche Peak Steam Electric Station, Units 1 and 2, facilities. The enclosed report presents the results of this inspection.

The inspection included implementation of your emergency plan and procedures during your biennial emergency preparedness exercise. Overall, performance during the biennial exercise was good.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR).

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

Sincerely,

Original signed by

Gail M. Good, Chief  
Plant Support Branch  
Division of Reactor Safety

Docket Nos.: 50-445  
50-446  
License Nos.: NPF-87  
NPF-89

Enclosure:  
NRC Inspection Report No.  
50-445/99-13; 50-446/99-13

TU Electric

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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.: 50-445/99-13  
50-446/99-13

Licensee: TU Electric

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

Location: FM-56  
Glen Rose, Texas

Dates: July 20-23, 1999

Inspectors: Harry A. Freeman, Senior Emergency Preparedness Analyst, Team  
Leader, Plant Support Branch

Paul J. Elkmann, Emergency Preparedness Analyst, Plant Support  
Branch

Scott C. Schwind, Resident Inspector, Projects Branch A

James E. Spets, Resident Inspector, Projects Branch E

Approved By: Gail M. Good, Chief, Plant Support Branch  
Division of Reactor Safety

ATTACHMENT: Supplemental Information

## EXECUTIVE SUMMARY

Comanche Peak Steam Electric Station, Units 1 and 2  
NRC Inspection Report No. 50-445/99-13; 50-446/99-13

A routine, announced inspection of the licensee's performance and capabilities during the full-scale, biennial exercise of the emergency plan and implementing procedures was performed. The inspection team observed activities in the control room simulator, technical support center, operations support center, and emergency operations facility.

### Plant Support

- A licensee emergency plan implementing procedure concerning the activation and operation of the emergency operations facility was not consistent with the emergency plan in that it stated that the facility could be considered activated with only three key personnel present while the plan required six (Section P3.1).
- Overall, performance was good. The control room, technical support center, operations support center, and emergency operations facility successfully implemented key emergency plan functions including emergency classifications, notifications, protective action recommendations, and dose assessment. Engineering analysis and support from the technical support center was noteworthy (Sections P4.2, P4.3, P4.4, and P4.5).
- The control room simulator crew performed satisfactorily during the emergency preparedness exercise. The crew was able to correctly interpret plant information, recognize and classify events, and make appropriate announcements and notifications in a timely manner. However, the control room simulator crew inconsistently used three-way communications and peer checking (Section P4.2).
- Performance in the technical support center was generally good. Facility staffing and activation were timely. Facility coordinators showed good teamwork in analyzing and declaring the general emergency classification. Notifications were completed within regulatory and emergency plan requirements. Offsite agency notifications for the general emergency were transmitted within regulatory requirements, and followup notifications were made frequently (Section P4.3).
- The operations support center staff's performance was good. The operations support center manager maintained good command and control throughout the exercise and emergency repair damage control teams completed assigned tasks effectively and safely. Communication with personnel dispatched into the field was effective and personnel were kept informed of changes in plant conditions. Radiation protection technician coverage for emergency repair damage control teams conformed with plant procedures and management expectations; however, inconsistencies were noted between the expectations for personnel dispatched from the operations support center and those dispatched from the control room (Section P4.4).
- Performance in the emergency operations facility was generally good. Facility management and control were effective. Dose assessment was generally conducted

and analyzed quickly and accurately. Communications with offsite officials occurred frequently (Section P4.5).

- One notification from the emergency operations facility, which contained updated protective action recommendations, was unnecessarily delayed due to a facility briefing and obtaining the Texas Bureau of Radiation Controls concurrence prior to the notification (Section P4.5).
- The scenario was sufficient to test onsite response capabilities and to drive the interaction between the licensee and offsite officials. Some aspects of exercise conduct and control detracted from the realism and training value of the exercise (Section P4.6).
- The licensee's post-exercise facility debriefs and the management critique were generally thorough, open, and self critical. However, in the control room simulator, the licensee did not discuss issues concerning normal conduct of operations or basic operator knowledge even though these areas could affect emergency response efforts (Section P4.7).

#### IV. Plant Support

### **P3 Emergency Preparedness Procedures and Documentation**

#### **P3.1 Minimum Staffing and Activation of the Emergency Operation Facility (82301)**

##### **a. Inspection Scope**

Based on observations that the licensee had declared the emergency operation facility activated during the alert phase of the exercise (Section P4.5), the inspectors reviewed the emergency plan and implementing procedures to review the licensee's use of the term "activated."

##### **b. Observations and Findings**

The inspectors determined that the term "activated" was not defined in the emergency plan; however, Section 6.0 stated that the details regarding activation and staffing of each facility are provided in Emergency Plan Procedures. Procedure EPP-206, "Activation and Operation of the Emergency Operations Facility (EOF)," Revision 13, defined activation as the "condition where the EOF is staffed with minimum personnel and capable of performing the functions defined in the CPSES Emergency Plan, Table 1.1." Table 1.1 did not list specific functions required to be performed in the emergency operation facility. However, it did list five different positions (manager, communications coordinator, security coordinator, logistical support coordinator, and radiation protection coordinator) relating to five different functional areas, which are manned in the emergency operation facility at a site area emergency. In contrast, Procedure EPP-206, Step 4.3.2, stated that the following positions should be present to declare the facility activated, "manager, radiation protection coordinator, and communications coordinator."

Section 6.4.3 of the emergency plan stated that the staffing requirements and responsibilities of emergency operation facility personnel are discussed in Section 1.1.2.2, that Table 1.1 shows the staffing requirements in emergencies, and that Figure 1.5 shows an organization chart of the emergency operation facility. Section 1.1.2.2 indicated that in addition to the five positions stated above, that a technical support center liaison was required in the emergency operation facility. While the emergency plan does not specifically define the minimum positions necessary to activate the emergency operation facility, Section 1.1.2.2 and Table 1.1 indicated that there are three more positions required in the emergency operation facility than the three positions defined in Procedure EPP-206.

The inspectors reviewed Emergency Plan Figure 1.3, "Emergency Organization (Technical Support Center Manager as Emergency Coordinator)," and Figure 1.5, "Emergency Organization (Emergency Operations Facility Manager as Emergency Coordinator)." Figure 1.3 stated that the emergency coordinator assumes the position of technical support center manager after the emergency operations facility is activated.

Figure 1.5 states that the emergency coordinator assumes the position of emergency operations facility manager prior to facility activation. Therefore, Figures 1.3 and 1.5 indicate that the facility is not activated until the emergency coordinator's duties are transferred to the emergency operations facility manager.

Finally, Procedure EPP-206 also stated that the procedure becomes effective upon declaration of a site area or general emergency but that it may also become effective upon declaration of an unusual event or an alert if the emergency coordinator directs the activation of the emergency operation facility. The licensee's practice is to "activate" the facility when fully staffed after declaration of an alert whether directed to activate by the emergency coordinator or not.

The issues concerning "activation" were discussed with the emergency preparedness manager who agreed that the procedures concerning the activation of the emergency response facilities needed a review to clarify the meaning and requirements for facility activation.

c. Conclusions

Procedure EPP-206, concerning the activation and operation of the emergency operations facility, was not consistent with the emergency plan in that it stated that the facility could be considered activated with only three key personnel present while the plan required six.

**P4 Staff Knowledge and Performance in Emergency Preparedness**

**P4.1 Exercise Conduct and Scenario Description (82301 and 82302)**

The licensee conducted a full-scale, biennial emergency preparedness exercise on July 21, 1999. The exercise was conducted to test major portions of the onsite (licensee) and offsite emergency response plans. The licensee activated its emergency response organization and all emergency response facilities. The Federal Emergency Management Agency evaluated the offsite response capabilities of the State of Texas and the Counties of Hood and Somervell. The Federal Emergency Management Agency will issue a separate report.

The exercise scenario was conducted using the plant control room simulator. The exercise began at 7:20 a.m. with Unit 1 at 100 percent power. The inside reactor containment isolation ventilation valve had previously failed to fully close and was subject to a technical specification limiting condition for operation. At 7:25 a.m., the unit developed a 25 gpm reactor coolant system leak from an unknown location. At 7:43 a.m., the operating crew declared an unusual event based on the leakage. At 8:08 a.m., the crew began a controlled unit shutdown.

At 8:26 a.m., a fire broke out on the Train A emergency diesel generator. At 8:40 a.m., the crew declared an alert based on the fire lasting longer than 15 minutes. The emergency response organization was activated.



At 9:30 a.m., a large break loss-of-coolant accident occurred and resulted in a reactor trip. At 9:31 a.m., the outside containment isolation ventilation valve and a ventilation damper failed partially open, which created a radiological release path. At 9:37 a.m., the licensee declared a general emergency.

At 10:02 a.m., a bus fault caused the loss of the Train A electrical power and the Train A emergency core cooling system.

At 11:34 a.m., a medical emergency occurred due to injuries to an electrician working on the electrical bus fault.

At 12:38 a.m., the emergency exercise was terminated.

#### P4.2 Control Room

##### a. Inspection Scope (82301-03.02)

The inspectors observed and evaluated the control room simulator staff as they performed tasks in response to the exercise scenario conditions. These tasks included event detection and classification, analysis of plant conditions, coordination of control room simulator response, offsite agency notification, internal and external communications, and adherence to the emergency plan and procedures. The inspectors reviewed applicable emergency plan sections, emergency plan procedures, logs, checklists, notification forms, training records, and plant procedures.

##### b. Observations and Findings

The inspectors found that the operating crew was able to correctly interpret plant information and recognize abnormal events in a timely manner. The crew correctly classified events.

The inspectors found that plant announcements were made in a timely manner and were appropriate for the circumstances. In addition, notifications were made to state and local agencies and to the NRC within allowed times.

The inspectors noted satisfactory procedure use by the unit supervisor. Specifically: (1) applicable procedures were obtained and used in a timely manner, (2) place keeping was evident, (3) procedure steps were generally read verbatim to operators, and (4) backup was obtained from the shift technical advisor. However, the inspectors noted that the STA had to challenge the unit supervisor's decision not to perform a step in Procedure EOP-1.0A, "Loss of Reactor or Secondary Coolant," that specifically required closing all accumulator injection valves. The shift technical advisor informed the unit supervisor that an evaluation was required to determine if a deviation existed by not performing the step. The crew subsequently decided to shut the valves. Also, during the post-exercise critique, the simulator lead controller noted that some steps in Procedure ABN-103, "Excessive Reactor Coolant Leakage," had not been completed.

The inspectors found that briefings were generally performed satisfactorily. During the briefings, the unit supervisor identified procedures in use or completed and identified steps to be taken if plant conditions changed. Personnel appeared attentive to the briefings without losing sight of plant conditions, and operators provided information that the unit supervisor failed to cover. However, on several occasions, the inspectors observed that personnel responded slowly to the unit supervisor's request for briefings and multiple summons were required. In addition, outside communications had a disruptive effect on the briefings.

The inspectors noted that three-way communication was not used consistently throughout the exercise. The inspectors did not identify any operational failures caused by poor communications. However, a reactor operator became confused during the manipulation of four centrifugal charging pump isolation valves while performing Procedure EOS-1.3A, "Transfer to Cold Leg Recirculation," because of a communication problem.

The inspectors noted the use of peer checking on several occasions, but the practice was not consistently used throughout the exercise. On one occasion, the inspectors observed that an operator providing a peer check did not look at the valve to be operated. The inspectors found no operational errors associated with the incorrect manipulation of controls.

The inspectors found that the formality in the control room simulator was mixed. Early in the exercise formality was good, but by exercise end, the formality had deteriorated. The inspectors did note that the shift manager, in an attempt to maintain formality and control, directed support individuals to relocate to the back of the control room simulator in the event that the exercise scenario became demanding.

c. Conclusions

The control room simulator crew performed satisfactorily during the emergency preparedness exercise. The crew was able to correctly interpret plant information, recognize and classify events, and make appropriate announcements and notifications in a timely manner. However, the control room simulator crew inconsistently used three-way communications and peer checking.

P4.3 Technical Support Center

a. Inspection Scope (82301-03.03)

The inspectors observed and evaluated the technical support center staff as they performed tasks necessary to respond to the exercise scenario conditions. These tasks included staffing and activation, facility management and control, accident assessment, classification, notifications and communications, and assistance and support to the control room and emergency operations center. The inspectors reviewed applicable sections of the emergency plan, procedures, position assistance documents, checklists, and facility logs.

b. Observations and Findings

The technical support center was promptly staffed following the alert declaration. The initial responders arrived within 6 minutes of the site-wide announcement. All minimum staff positions were filled within 11 minutes of the announcement, with the exception of the emergency coordinator (technical support center manager), who was at the simulator control room for briefing. The facility was activated 12 minutes after the alert announcement, with the operations coordinator as acting technical support center manager. The emergency coordinator arrived in the technical support center 19 minutes after the activation of the facility.

Key coordinators in the technical support center worked as a team to identify the correct classification based on reactor parameters and radiological conditions. The onsite radiological assessment coordinator analyzed release and dose assessment information and correctly concluded that the radiological emergency action level for a general emergency was not met. The technical support center correctly classified the general emergency based on the loss of two fission product barriers and challenge to the third. The general emergency was classified 6 minutes after initial indications. The engineering team coordinator ensured that the emergency coordinator was immediately aware of indications of core damage which were crucial to correct classification.

Protective action decision making for the general emergency was performed in the emergency operations facility. The onsite radiological assessment coordinator confirmed that the correct protective action recommendations were made.

Notifications by the technical support center to offsite agencies were accurate and timely. The notification of the general emergency was completed within regulatory requirements. Followup notifications were completed as required by the licensee's emergency plan.

Accountability in the technical support center was maintained through a sign-in status board and the facility card reader. The technical support center staff recorded their status on the sign-in status board, which was consistently current as staff entered and exited the facility. Habitability was maintained by a radiation protection technician using a continuous iodine air sampler, an alarming area radiation monitor, posted area dosimetry, and periodic dose rate measurements within the facility. Technical support center staff regularly consulted the onsite radiation assessment coordinator about plant radiation levels prior to leaving the facility.

The performance of the technical support center engineering team was noteworthy. The team remained focused throughout the exercise and exhibited a strong questioning attitude. Several innovative solutions were developed for plant casualties (e.g., stopping the release by flooding water back through the broken pipe) and valuable support was provided to the plant operations staff. Additional information was promptly developed and provided to the onsite radiological coordinator, such as the analysis of the expected length of the radiological release. Additional engineering expertise was called upon as needed, for questions about the structural integrity of ducts under some conditions. The

staff was fully capable of supporting the analysis of multiple independent solutions to the station casualties.

The onsite radiological assessment coordinator showed good sensitivity toward emergency worker protection. Following the start of the radiological release, a site-wide announcement was immediately made identifying the affected plant areas. A recommendation was made to relocate affected security staff within 20 minutes of the recognition of a release occurring.

Facility briefings were conducted regularly to discuss current plant conditions and re-assess goals and priorities. Briefings were frequent, had a consistent format, included all key coordinators in the facility, and covered all of the essential elements of the situation. The initial facility briefing discussed management expectations and possible upgrade criteria for a site area emergency. Facility priorities and habitability status were discussed during every briefing. The staff was generally very attentive during briefings. The facility also made good use of short internal announcements to convey single important pieces of information as they occurred. Some briefings were long enough that there was not enough time remaining before the next brief to accomplish additional work.

The technical support center was provided with adequate status boards. Status board recorders promptly initiated information on each board and most boards were well maintained throughout the exercise. Information was easily seen and could be read throughout the facility. The inspectors observed that time stamps were not used on most status boards and that times were not updated on those boards that were time stamped. The time stamp on the critical safety functions board was not updated between 9:23 and 11:13 a.m., though the data was updated several times during that period. The chronology of events board contained primarily operations information rather than recording overall scenario events. These deficiencies in status board tracking could affect the licensee's ability recreate and understand the sequence in which the events occurred. The chronology of events board was not updated between 10:13 and 11:34 a.m., even though the following events occurred: the simulated NRC team arrived in the technical support center, site accountability was completed, site evacuation was completed, two core damage assessments were reported, a radiological release began, radioactive material was detected offsite, protective action recommendations were made to offsite officials, and 50.54(x) authority was invoked when security officers were relocated.

The technical support center did not formally track the progress of operations support center teams that were dispatched. The operations coordinator was in open-line communications with the operations support center but did not maintain a written record of the teams requested, their status, or when individual jobs were completed. The technical support center did not provide guidance to the operations support center about the relative priority of the teams being requested. The status of the operations support center (OSC) work and teams were inconsistently discussed during briefings. Due to the lack of tracking and discussion of the status of OSC work, the inspectors observed some uncertainty among the engineering team about whether teams had been dispatched to implement technical recommendations. Additionally, the failure to

maintain a written record could impact the licensee's ability to effectively conduct a shift turnover if the scenario had progressed beyond one shift.

Individuals in the technical support center generally maintained personal logs; however, the Inspectors observed considerable variation in the thoroughness and depth of logs, and in their attention to details. Log keeping performance declined after approximately 10:15 a.m., following transfer of emergency coordinator duties to the emergency operations facility.

c. Conclusions

Performance in the technical support center was generally good. Facility staffing and activation were timely. Facility coordinators showed good teamwork in analyzing and declaring the general emergency classification. Notifications were completed within regulatory and emergency plan requirements. Performance in the area of engineering analysis and support was noteworthy. Offsite agency notifications for the general emergency were transmitted within regulatory requirements, and followup notifications were made frequently. There was room for improvement in the areas of facility documentation, status boards, and in the tracking of operational support center teams.

P4.4 Operations Support Center

a. Inspection Scope (82301-03.05, 03.08)

The inspectors observed emergency response activities in the operations support center during the biennial emergency preparedness exercise. Observations included fire brigade response, emergency repair damage control team activities in the plant and command and control in the operations support center (OSC).

b. Observations and Findings

The OSC was fully staffed and declared operational in approximately 20 minutes. All required emergency equipment was present and in good working condition. Habitability controls were established per plant procedures. Throughout the exercise, the OSC manager conducted routine briefings of appropriate depth, duration, and frequency. The OSC staff was kept informed of plant equipment status, radiological conditions and the OSC priorities.

During the exercise, the inspectors observed the fire brigade response to a simulated fire in the Unit 1, Train A diesel generator room. Fire brigade response was timely and personnel used appropriate precautions when entering the room. However, a plant equipment operator, who had not donned fire fighting gear, volunteered to feed hose into the room and stationed himself directly in front of the open door. This was brought to the attention of the licensee and noted as an area for improvement.

The "prompt" team, consisting of a group of mechanical, electrical, instrumentation and controls craftsmen, and system engineers that the facility uses for immediate equipment repair needs, was used to staff the emergency repair damage control teams. Each

team received a thorough briefing by the prompt team supervisor and the radiation protection supervisor prior to being dispatched into the plant. The prompt team supervisor was particularly effective in briefing his crew on the use of emergency work permits and the accountability requirements for personnel assigned to the OSC.

The status of the teams was effectively managed through the use of emergency work permits which were completed for each team leaving the OSC. The status of each team was updated regularly on a status board. The OSC also maintained good communications with teams in the field and was able to inform two teams which had been dispatched prior to the beginning of the radiological release of the release.

The inspectors accompanied several teams into the Unit 1 safeguards and auxiliary buildings to observe damage control activities. All teams were provided continuous escort by a radiation protection technician and observed appropriate precautions while in the radiologically controlled area. Teams were generally timely in completing assigned tasks. However, on one occasion, a team was dispatched under the same emergency work permit as a plant equipment operator since both were directed to the Unit 1, Train A switchgear room and a single radiation protection technician could provide coverage for both activities. The team was delayed approximately 15 minutes in their response while waiting for the plant equipment operator to obtain appropriate procedures and receive a briefing from the control room.

Although good radiation protection technician coverage was afforded to the teams, the inspectors noted inconsistencies in the requirements and expectations for plant equipment operators. In accordance with plant procedures, plant equipment operators are not considered part of an emergency repair damage control team unless specifically assigned to a team. Therefore, the requirements of Procedure EPP-116, "Emergency Repair & Damage Control and Immediate Entries," did not apply. While in the auxiliary building, the inspectors observed a plant equipment operator performing emergency tasks under direction from the control room and accompanied by a radiation protection technician. When redirected by the control room, the plant equipment operator left the area and the radiation protection technician did not accompany him. Although the plant equipment operator was traveling through low dose rate areas and this practice was not in violation of any plant procedure, it was inconsistent with the expectation for radiation protection of individuals dispatched from the OSC.

The inspectors observed the medical emergency team respond to a simulated injured man in the Unit 1, Train A switchgear room. The team's response was timely, as they arrived at the scene in approximately 6 minutes. The simulated injuries were not life-threatening and personnel observed contamination control practices appropriate to the injuries while exiting the radiologically controlled area.

c. Conclusions

The operations support center staff's performance was good. The operations support center manager maintained good command and control throughout the exercise, and emergency repair damage control teams completed assigned tasks effectively and safely. Communication with personnel dispatched into the field was effective, and

personnel were kept informed of changes in plant conditions. Radiation protection technician coverage for emergency repair damage control teams conformed with plant procedures and management expectations, however, inconsistencies were noted between the expectations for personnel dispatched from the operations support center and those dispatched from the control room.

#### P4.5 Emergency Operations Facility

##### a. Inspection Scope (82301-03.04)

The inspectors observed the emergency operation facility staff as they performed tasks in response to the exercise. These tasks included facility activation, notification of State and local response agencies, development and issuance of protective action recommendations, dose projections, field team control, and direct interactions with offsite agency response personnel. The inspectors reviewed applicable emergency plan sections and procedures, forms, dose projections, logs, and press releases.

##### b. Observations and Findings

In accordance with the licensee's emergency plan, the emergency operations facility was staffed following the alert declaration at 8:40 a.m. Personnel quickly and efficiently manned their positions, tested equipment, and established communications. The facility was declared "activated" at 9:06 a.m. Emergency coordinator duties were transferred to the facility manager at 10:13 a.m., following the declaration of a general emergency.

Facility management and control were very good. The facility manager/emergency coordinator provided frequent briefings, which provided facility personnel with relevant information but did not distract from facility operation. Information passed smoothly within the organization, to the Texas Bureau of Radiation Control, and to other State and local officials. Noise was never a problem during the exercise, and discussions were kept at a professional level. Facility logs were generally kept neatly and were complete. Outside resources were pursued and obtained as requested by the control room, the technical support center, or the OSC.

The licensee's performance in the area of dose assessment was good. The licensee correctly assessed and integrated information from the plant computer and onsite meteorological systems. The licensee initially used installed instruments for dose assessments but later refined the assessments with actual measurements (simulated) from the offsite teams.

Notifications and communications by emergency operation facility personnel were generally very good. Communications between the different groups within the emergency operation facility were noted to be good. The emergency operation facility issued two notifications. The first was a periodic update, while the second contained additional protective action recommendations. The forms were clear, accurate, and easy to read.

The licensee recognized that a change to the protective actions would be needed based on a calculation completed at 11:28 a.m. The radiation protection coordinator recorded that a new protective action recommendation was need at 11:29 a.m. and promptly went to inform the emergency coordinator. Because the coordinator was preparing for a briefing, the development of a notification did not receive top priority and was subsequently issued at 11:45 a.m., roughly 15 minutes after the emergency coordinator had decided that an updated recommendation was needed. At about the same time, the radiation protection coordinator was briefing the Texas Bureau of Radiation Controls concerning the updated recommendation. While the protective action recommendations met procedural and regulatory requirements for timeliness (within 15 minutes), the inspectors concluded that this notification was unnecessarily delayed. The licensee also identified this delay during their facility critique.

The emergency coordinator did a good job interacting with offsite officials, mock NRC representatives, and other organizations. The coordinator briefed the State and local officials several times concerning changing plant conditions and changes to the protective action recommendations. Prior to the large break loss-of-coolant accident, the facility manager was preparing to brief the onsite NRC team (simulated by the licensee) when the general emergency was declared. The manager appropriately deferred the briefing to focus on the changing plant conditions and to assuming the duties of the emergency coordinator.

c. Conclusions

Performance by the emergency operation facility was generally good. Facility management and control was professional. Dose assessment was generally conducted and analyzed quickly and accurately. Communications with offsite officials occurred frequently.

One notification from the emergency operations facility, which contained updated protective action recommendations, was unnecessarily delayed due to a facility briefing and obtaining the Texas Bureau of Radiation Controls concurrence prior to the notification.

P4.6 Scenario and Exercise Control

a. Inspection Scope (82301, 82302)

The inspectors made observations during the exercise to assess the challenge and realism of the scenario and to evaluate exercise control.

b. Observations and Findings

The licensee submitted the exercise objectives and scenario for NRC review on April 19, and May 21, 1999, respectively. The inspectors discussed minor questions related to the exercise and objectives with licensee staff on April 29, and June 28, 1999, respectively. All questions were resolved by the licensee. The exercise objectives and



scenario were reviewed and considered adequate to meet emergency plan requirements (reference NRC letter to licensee dated July 2, 1999).

The following aspects of exercise control detracted from the realism and training value of the exercise:

- The onsite radiological assessment coordinator identified several instances where controllers lacked data for requested radiological measurements (e.g., measurements at the charcoal filter beds to indicate buildup in the filters). The controller reported that “no data was available” in at least one case and the information was not provided.
- The lead controller in the technical support center had to intervene with the onsite radiological coordinator to resolve an observed difference between the amount of radioiodine predicted by dose assessment calculations and that measured by environmental monitoring teams. The onsite radiological coordinator had concluded that a second release path existed and was taking steps to identify the second source. The licensee had intentionally altered the measured environmental data in order to allow offsite agency performance objectives to be met.
- The core damage assessments reported at 10:16 a.m. and 10:50 a.m. had results of “none to minimal” and “< 10% clad damage.” These results were not consistent with the containment radiation measurements or with effluent monitor data. The licensee had intentionally altered the measured environmental data in order to allow offsite agency performance objectives to be met.
- The simulator did not allow for re-aligning the component cooling water non-safeguards loop, as required by Emergency Operating Procedure 0.0A, “Reactor Trip or Safety Injection,” Revision 7, Attachment 9.
- The fire alarm received in the control room simulator during the exercise did not correspond to the location of the simulated fire.

c. Conclusions

The scenario was sufficient to test onsite response capabilities and to drive the interaction between the licensee and offsite officials. Some aspects of exercise conduct and control detracted from the realism and training value of the exercise.

P4.7 Licensee Self Critique

a. Inspection Scope (82301-03.13)

The inspectors observed and evaluated the licensee's post-exercise facility critiques and the formal management critique on July 23, 1999, to determine whether the process would identify and characterize weak or deficient areas in need of corrective action.

b. Observations and Findings

The post-exercise critique of the control room simulator crew was not self-critical in all applicable areas and heavily relied upon the simulator lead controller to identify problems with the crew's overall performance. The licensee stated that the control room simulator crew was not specifically required to provide self-critical feedback on issues of normal conduct of operations (e.g., three-way communications, peer checking, etc.) and basic operator knowledge, and that the purpose of the critique was to identify problems readily distinguishable as emergency preparedness exercise issues. However, the inspectors concluded that the crew's normal conduct of operations and overall knowledge could affect emergency response efforts. To address the inspectors' concerns regarding the critique conduct and scope, the licensee added the issues to the "7/21/99 Green Team Exercise Report" as an "Observation" for further evaluation.

The critique in the technical support center was satisfactory. The critique was largely conducted by the technical support center manager, using a critique checklist. The majority of technical support center participants were present during the critique. All technical support center staff were provided opportunity to participate in the critique and to provide written comments. The majority of the discussion was provided by the key facility managers with limited participation by their staff.

The critiques of the operations support center and the emergency operations facility were self critical and thorough. Each critique was led by the facility managers who did a good job soliciting comments, both positive and negative, from all exercise participants.

c. Conclusions

The licensee's post-exercise facility debriefs and the management critique were generally thorough, open, and self critical. However, in the control room simulator, the licensee did not discuss issues concerning normal conduct of operations or basic operator knowledge even though these areas could affect emergency response efforts.

**P8 Miscellaneous Emergency Preparedness Issues (92904)**

- P8.1 (Closed) Inspection Followup Item (50-445/9716-02; 50-446/9716-02): failure to provide sufficient radiation protection coverage for emergency response teams. During the biennial emergency preparedness exercise conducted in 1997, the inspectors observed that radiation protection coverage was not sufficient for those emergency repair damage control teams performing tasks outside the power block and was not in accordance with Procedure EPP-116, Revision 6, "Emergency Repair & Damage Control and Immediate Entries."

The licensee revised Procedure EPP-116 in October 1997 to clarify that it is a management expectation for emergency repair and damage control teams to include a radiation protection technician but that it is not required. Furthermore, during the 1999 biennial exercise, the inspectors observed that all emergency response damage control teams included a radiation protection technician.

## **V. Management Meetings**

### **X1 Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on July 23, 1999. The licensee acknowledged the facts presented. No proprietary information was identified.

The Federal Emergency Management Agency and the NRC scheduled a public meeting in Granbury, Texas, on July 23, 1999, to discuss the preliminary exercise results. Since there was no media or public attendance, the meeting was convened and immediately adjourned.

**ATTACHMENT**

SUPPLEMENTAL INFORMATION

**PARTIAL LIST OF PERSONS CONTACTED**

Licensee

D. Alps, Manager, Security  
J. Barker, Manager, Engineering Overview  
G. Bell, Nuclear Specialist, Emergency Preparedness  
R. Bird, Jr., Manager, Plant Support  
M. Blevins, Vice President, Nuclear Operations  
S. Bradley, Supervisor, Radiation Protection  
D. Buschbaum, Manager, Technical Compliance  
D. Davis, Manager, Nuclear Overview  
E. Dyas, Senior Nuclear Specialist, Emergency Preparedness  
J. Ellard, Senior Nuclear Specialist, Emergency Preparedness  
S. Ellis, Manager, Smart Team II  
R. Flores, Manager, System Engineering  
W. Guldmond, Manager, Shift Operations  
N. Hood, Manager, Emergency Preparedness  
B. Kidwell, Senior Nuclear Specialist, Emergency Preparedness  
M. Kilgore, Manager, Reactor Engineering  
K. Kross, Manager, Outage Control  
M. Lucas, Manager, Maintenance  
D. Moore, Manager, Operations  
B. Nix, Nuclear Specialist, Emergency Preparedness  
R. Smith, Manager, Smart Team I  
M. Sunseri, Manager, Nuclear Training  
C. L. Terry, Senior Vice President, Nuclear Generation  
C. Wilkerson, Senior Licensing Engineer, Regulatory Affairs

**LIST OF INSPECTION PROCEDURES USED**

IP 82301 Evaluation of Exercises at Power Reactors  
IP 82302 Review of Exercise Objectives and Scenarios for Power Reactors  
IP 92904 Followup - Plant Support

**ITEM CLOSED**

Closed

50-445;446/9716-02 IFI Exercise weakness - Failure to provide sufficient radiation protection coverage for emergency teams (Section P8.1)

LIST OF DOCUMENTS REVIEWED

Emergency Plan and Procedures

Comanche Peak Steam Electric Station Emergency Plan, Revision 27

Procedure EPP-112, Duties of Control Room Personnel During Emergencies, Revision 8

Procedure EPP-116, Emergency Repair & Damage Control and Immediate Entries, Revision 6

Procedure EPP-201, Assessment of Emergency Action Levels, Emergency Classification and Plan Activation, Revision 10

Procedure EPP-203, Notifications, Revision 13

Procedure EPP-204, Activation and Operation of the Technical Support Center (TSC), Revision 13

Procedure EPP-205, Activation and Operation of the Operations Support Center (OSC), Revision 11

Procedure EPP-206, Activation and Operation of the Emergency Operations Facility (EOF), Revision 13

Procedure EPP-304, Protective Action Recommendations, Revision 16

Other Documents

Procedure ABN-103, Excessive Reactor Coolant Leakage, Revision 7

Procedure EOP-0.0A, Reactor Trip or Safety Injection, Revision 7

Procedure EOP-1.0A, Loss of Reactor or Secondary Coolant, Revision 7

Procedure EOS-1.3A, Transfer to Cold Leg Recirculation, Revision 7

Procedure ODA-407, Guideline on Use of Procedures, Revision 8

Procedure TRA-105, Emergency Preparedness Training, Revision 16

1997 OSC Requalification Workbook

TU Electric Letter TXX-97185, C. L. Terry, to NRC, Subject: CPSES Response to Exercise Weakness, dated September 15, 1997

Training Attendance Forms; Course Number 65895, 6/14/99, EP Scenario 2; Course 65861, 6/22/99, EP Scenario 1.

1999 Graded Exercise, Comanche Peak Steam Electrical Station, Revision 2

TXU Electrical, Comanche Peak Steam Electrical Station, 1999 Graded Exercise, Data Book, Offsite Team Data, Chemistry Team Data

Control Room Simulator Exercise Finding Sheets, dated July 21, 1999

CPSES e-mail dated July 23, 1999, from James Jank to Steven Falley and Terry Marsh regarding simulator crew performance during emergency exercise

Comanche Peak Steam Electric Station Notification Message Forms dated July 21, 1999

Emergency Response Organization Drill/Exercise Evaluation Sheets